Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room		
Date	January 8, 2019	January 8, 2019	February 16, 2019
Temperature / Humidity	24 deg. C / 54 % RH	22 deg. C / 50 % RH	23 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Kazutaka Takeyama	Yosuke Ishikawa
Mode	Tx, IEEE802.11a, PN9, worst antenna port 0		

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor	Antenna Gain	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted Power Result		Limit	Margin	e.i.r.p. Result		Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5180	-2.25	3.89	10.21	1.72	2.95	-	17.350	13.57	22.75	23.97	10.40	16.52	44.87	29.97	13.45
5220	-2.20	3.90	10.21	1.72	2.95	-	17.347	13.63	23.07	23.97	10.34	16.58	45.50	29.97	13.39
5240	-2.09	3.90	10.21	1.72	2.95	-	17.347	13.74	23.66	23.97	10.23	16.69	46.67	29.97	13.28
5260	-2.14	3.91	10.21	1.72	2.95	20.945	17.366	13.70	23.44	23.97	10.27	16.65	46.24	29.97	13.32
5300	-2.09	3.92	10.21	1.72	2.95	20.907	17.360	13.76	23.77	23.97	10.21	16.71	46.88	29.97	13.26
5320	-1.99	3.92	10.21	1.72	2.95	20.931	17.365	13.86	24.32	23.97	10.11	16.81	47.97	29.97	13.16
5500	-2.07	3.97	10.22	1.72	2.95	20.917	17.356	13.84	24.21	23.97	10.13	16.79	47.75	29.97	13.18
5580	-2.54	3.98	10.22	1.72	2.95	20.933	17.356	13.38	21.78	23.97	10.59	16.33	42.95	29.97	13.64
5700	-2.18	3.99	10.23	1.72	2.95	20.911	17.356	13.76	23.77	23.97	10.21	16.71	46.88	29.97	13.26
5745	-3.30	4.00	10.23	1.72	2.95	-	17.311	12.65	18.41	30.00	17.35	15.60	36.31	36.00	20.40
5785	-3.13	4.00	10.24	1.72	2.95	-	17.312	12.83	19.19	30.00	17.17	15.78	37.84	36.00	20.22
5825	-3.38	4.01	10.24	1.72	2.95	-	17.339	12.59	18.16	30.00	17.41	15.54	35.81	36.00	20.46

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room		
Date	January 8, 2019	January 8, 2019	February 16, 2019
Temperature / Humidity	24 deg. C / 54 % RH	22 deg. C / 50 % RH	23 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Kazutaka Takeyama	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT20 (SISO), PN9, worst antenna port 0		

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor	Antenna Gain	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted Power Result		Limit	Margin	e.i.r.p. Result		Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5180	-2.54	3.89	10.21	1.81	2.95	-	18.351	13.37	21.73	23.97	10.60	16.32	42.85	29.97	13.65
5220	-2.41	3.90	10.21	1.81	2.95	-	18.372	13.51	22.44	23.97	10.46	16.46	44.26	29.97	13.51
5240	-2.33	3.90	10.21	1.81	2.95	-	18.388	13.59	22.86	23.97	10.38	16.54	45.08	29.97	13.43
5260	-2.19	3.91	10.21	1.81	2.95	21.289	18.388	13.74	23.66	23.97	10.23	16.69	46.67	29.97	13.28
5300	-2.21	3.92	10.21	1.81	2.95	21.332	18.238	13.73	23.60	23.97	10.24	16.68	46.56	29.97	13.29
5320	-2.05	3.92	10.21	1.81	2.95	21.284	18.380	13.89	24.49	23.97	10.08	16.84	48.31	29.97	13.13
5500	-2.34	3.97	10.22	1.81	2.95	21.489	18.348	13.66	23.23	23.97	10.31	16.61	45.81	29.97	13.36
5580	-2.54	3.98	10.22	1.81	2.95	21.137	18.408	13.47	22.23	23.97	10.50	16.42	43.85	29.97	13.55
5700	-2.41	3.99	10.23	1.81	2.95	21.247	18.330	13.62	23.01	23.97	10.35	16.57	45.39	29.97	13.40
5745	-3.08	4.00	10.23	1.81	2.95	-	18.322	12.96	19.77	30.00	17.04	15.91	38.99	36.00	20.09
5785	-3.16	4.00	10.24	1.81	2.95	-	18.315	12.89	19.45	30.00	17.11	15.84	38.37	36.00	20.16
5825	-3.29	4.01	10.24	1.81	2.95	-	18.331	12.77	18.92	30.00	17.23	15.72	37.33	36.00	20.28

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room		
Date	January 8, 2019	January 8, 2019	February 16, 2019
Temperature / Humidity	24 deg. C / 54 % RH	22 deg. C / 50 % RH	23 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Kazutaka Takeyama	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT20 (SISO), PN9, worst antenna port 0		

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor	Antenna Gain	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted Power Result		Limit	Margin	e.i.r.p. Result		Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5180	-1.69	3.89	10.21	1.01	2.95	-	18.257	13.42	21.98	23.97	10.55	16.37	43.35	29.97	13.60
5220	-1.38	3.90	10.21	1.01	2.95	-	18.298	13.74	23.66	23.97	10.23	16.69	46.67	29.97	13.28
5240	-1.52	3.90	10.21	1.01	2.95	-	18.341	13.60	22.91	23.97	10.37	16.55	45.19	29.97	13.42
5260	-1.41	3.91	10.21	1.01	2.95	21.240	18.299	13.72	23.55	23.97	10.25	16.67	46.45	29.97	13.30
5300	-1.30	3.92	10.21	1.01	2.95	21.171	18.332	13.84	24.21	23.97	10.13	16.79	47.75	29.97	13.18
5320	-0.96	3.92	10.21	1.01	2.95	21.003	18.268	14.18	26.18	23.97	9.79	17.13	51.64	29.97	12.84
5500	-1.55	3.97	10.22	1.01	2.95	20.997	18.341	13.65	23.17	23.97	10.32	16.60	45.71	29.97	13.37
5580	-1.77	3.98	10.22	1.01	2.95	20.905	18.329	13.44	22.08	23.97	10.53	16.39	43.55	29.97	13.58
5700	-1.73	3.99	10.23	1.01	2.95	21.069	18.310	13.50	22.39	23.97	10.47	16.45	44.16	29.97	13.52
5745	-2.41	4.00	10.23	1.01	2.95	-	18.302	12.83	19.19	30.00	17.17	15.78	37.84	36.00	20.22
5785	-2.47	4.00	10.24	1.01	2.95	-	18.319	12.78	18.97	30.00	17.22	15.73	37.41	36.00	20.27
5825	-2.49	4.01	10.24	1.01	2.95	-	18.235	12.77	18.92	30.00	17.23	15.72	37.33	36.00	20.28

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 10, 2019	January 16, 2019
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT20 (MIMO), PN9	

Antenna 0+1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted power Antenna 0 [mW]	Antenna 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	e.i.r.p. Antenna 0 [mW]	Antenna 1 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5180	-	18.382	10.16	11.27	21.43	13.31	23.97	10.66	20.04	17.82	37.86	15.78	29.97	14.19
5220	-	18.332	11.56	11.43	22.99	13.62	23.97	10.35	22.80	18.07	40.87	16.11	29.97	13.86
5240	-	18.336	10.54	10.79	21.33	13.29	23.97	10.68	20.79	17.06	37.85	15.78	29.97	14.19
5260	21.179	18.470	10.69	11.46	22.15	13.45	23.97	10.52	21.08	18.11	39.19	15.93	29.97	14.04
5300	21.381	18.362	10.96	11.27	22.24	13.47	23.97	10.50	21.62	17.82	39.45	15.96	29.97	14.01
5320	21.238	18.391	11.17	11.78	22.94	13.61	23.97	10.36	22.02	18.62	40.65	16.09	29.97	13.88
5500	21.289	18.278	10.91	12.42	23.33	13.68	23.97	10.29	21.52	19.63	41.16	16.14	29.97	13.83
5580	21.485	18.395	10.54	11.32	21.87	13.40	23.97	10.57	20.79	17.91	38.70	15.88	29.97	14.09
5700	21.527	18.282	10.96	10.72	21.68	13.36	23.97	10.61	21.62	16.94	38.57	15.86	29.97	14.11
5745	-	18.027	11.38	10.57	21.94	13.41	30.00	16.59	22.43	16.71	39.14	15.93	36.00	20.07
5785	-	18.028	11.38	11.27	22.65	13.55	30.00	16.45	22.43	17.82	40.26	16.05	36.00	19.95
5825	-	17.994	11.22	11.78	23.00	13.62	30.00	16.38	22.13	18.62	40.75	16.10	36.00	19.90

		Antenna 0						Antenna 1					
Tested Frequency [MHz]	Duty Factor [dB]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result Cond. Power [dBm]	Result e.i.r.p. [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result Cond. Power [dBm]	Result e.i.r.p. [dBm]
5180	2.76	-6.79	3.89	10.21	2.95	10.07	13.02	-6.34	3.89	10.21	1.99	10.52	12.51
5220	2.76	-6.24	3.90	10.21	2.95	10.63	13.58	-6.29	3.90	10.21	1.99	10.58	12.57
5240	2.76	-6.64	3.90	10.21	2.95	10.23	13.18	-6.54	3.90	10.21	1.99	10.33	12.32
5260	2.76	-6.59	3.91	10.21	2.95	10.29	13.24	-6.29	3.91	10.21	1.99	10.59	12.58
5300	2.76	-6.49	3.92	10.21	2.95	10.40	13.35	-6.37	3.92	10.21	1.99	10.52	12.51
5320	2.76	-6.41	3.92	10.21	2.95	10.48	13.43	-6.18	3.92	10.21	1.99	10.71	12.70
5500	2.76	-6.57	3.97	10.22	2.95	10.38	13.33	-6.01	3.97	10.22	1.99	10.94	12.93
5580	2.76	-6.73	3.98	10.22	2.95	10.23	13.18	-6.42	3.98	10.22	1.99	10.54	12.53
5700	2.76	-6.58	3.99	10.23	2.95	10.40	13.35	-6.68	3.99	10.23	1.99	10.30	12.29
5745	2.76	-6.43	4.00	10.23	2.95	10.56	13.51	-6.75	4.00	10.23	1.99	10.24	12.23
5785	2.76	-6.44	4.00	10.24	2.95	10.56	13.51	-6.48	4.00	10.24	1.99	10.52	12.51
5825	2.76	-6.51	4.01	10.24	2.95	10.50	13.45	-6.30	4.01	10.24	1.99	10.71	12.70

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 10, 2019	January 16, 2019
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT20 (MIMO), PN9	

Antenna 0+1

Applied limit: 15.407, mobile and portable client device

Tested Frequency	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted power						e.i.r.p.					
			Antenna			Result	Limit	Margin	Antenna			Result	Limit	Margin
			0	1	Sum				0	1	Sum			
[MHz]	[MHz]	[MHz]	[mW]	[mW]	[mW]	[dBm]	[dBm]	[dB]	[mW]	[mW]	[mW]	[dBm]	[dBm]	[dB]
5180	-	18.211	10.74	11.40	22.14	13.45	23.97	10.52	21.18	18.03	39.21	15.93	29.97	14.04
5220	-	18.269	11.04	11.48	22.52	13.53	23.97	10.44	21.77	18.16	39.93	16.01	29.97	13.96
5240	-	18.256	11.12	10.57	21.69	13.36	23.97	10.61	21.92	16.71	38.63	15.87	29.97	14.10
5260	21.487	18.304	10.84	11.61	22.45	13.51	23.97	10.46	21.37	18.37	39.74	15.99	29.97	13.98
5300	21.001	18.322	11.22	11.91	23.13	13.64	23.97	10.33	22.13	18.84	40.96	16.12	29.97	13.85
5320	21.053	18.276	11.30	11.97	23.27	13.67	23.97	10.30	22.28	18.92	41.20	16.15	29.97	13.82
5500	21.445	18.404	10.94	12.47	23.41	13.69	23.97	10.28	21.57	19.72	41.30	16.16	29.97	13.81
5580	21.240	18.353	10.21	10.94	21.15	13.25	23.97	10.72	20.13	17.30	37.43	15.73	29.97	14.24
5700	21.325	18.341	10.86	10.62	21.48	13.32	23.97	10.65	21.42	16.79	38.21	15.82	29.97	14.15
5745	-	18.012	11.59	10.47	22.06	13.44	30.00	16.56	22.85	16.56	39.41	15.96	36.00	20.04
5785	-	18.001	11.56	11.40	22.96	13.61	30.00	16.39	22.80	18.03	40.83	16.11	36.00	19.89
5825	-	18.016	11.07	12.02	23.09	13.63	30.00	16.37	21.82	19.01	40.83	16.11	36.00	19.89

		Antenna 0						**Antenna 1**					
Tested Frequency	Duty Factor	Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Result		Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Result	
						Cond. Power	e.i.r.p.					Cond. Power	e.i.r.p.
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[dBm]
5180	2.08	-5.87	3.89	10.21	2.95	10.31	13.26	-5.61	3.89	10.21	1.99	10.57	12.56
5220	2.08	-5.76	3.90	10.21	2.95	10.43	13.38	-5.59	3.90	10.21	1.99	10.60	12.59
5240	2.08	-5.73	3.90	10.21	2.95	10.46	13.41	-5.95	3.90	10.21	1.99	10.24	12.23
5260	2.08	-5.85	3.91	10.21	2.95	10.35	13.30	-5.55	3.91	10.21	1.99	10.65	12.64
5300	2.08	-5.71	3.92	10.21	2.95	10.50	13.45	-5.45	3.92	10.21	1.99	10.76	12.75
5320	2.08	-5.68	3.92	10.21	2.95	10.53	13.48	-5.43	3.92	10.21	1.99	10.78	12.77
5500	2.08	-5.88	3.97	10.22	2.95	10.39	13.34	-5.31	3.97	10.22	1.99	10.96	12.95
5580	2.08	-6.19	3.98	10.22	2.95	10.09	13.04	-5.89	3.98	10.22	1.99	10.39	12.38
5700	2.08	-5.94	3.99	10.23	2.95	10.36	13.31	-6.04	3.99	10.23	1.99	10.26	12.25
5745	2.08	-5.67	4.00	10.23	2.95	10.64	13.59	-6.11	4.00	10.23	1.99	10.20	12.19
5785	2.08	-5.69	4.00	10.24	2.95	10.63	13.58	-5.75	4.00	10.24	1.99	10.57	12.56
5825	2.08	-5.89	4.01	10.24	2.95	10.44	13.39	-5.53	4.01	10.24	1.99	10.80	12.79

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room			
Date	January 8, 2019	January 9, 2019	January 11, 2019	February 16, 2019
Temperature / Humidity	24 deg. C / 54 % RH	26 deg. C / 42 % RH	24 deg. C / 51 % RH	23 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT40 (SISO), PN9, worst antenna port 1 (5190 MHz), 0 (other channel frequency)			

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor	Antenna Gain	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted Power Result		Limit	Margin	e.i.r.p. Result		Limit	Margin
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5190	-7.00	3.89	10.21	2.63	1.99	-	36.572	9.73	9.40	23.97	14.24	11.72	14.87	29.97	18.25
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-2.59	3.90	10.21	1.76	2.95	-	36.784	13.28	21.28	23.97	10.69	16.23	41.98	29.97	13.74
5270	-2.68	3.91	10.21	1.76	2.95	39.851	36.728	13.20	20.89	23.97	10.77	16.15	41.21	29.97	13.82
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	-2.41	3.92	10.21	1.76	2.95	39.992	36.722	13.48	22.28	23.97	10.49	16.43	43.95	29.97	13.54
5510	-2.53	3.97	10.22	1.76	2.95	39.960	36.764	13.42	21.98	23.97	10.55	16.37	43.35	29.97	13.60
5550	-2.74	3.98	10.22	1.76	2.95	39.925	36.726	13.22	20.99	23.97	10.75	16.17	41.40	29.97	13.80
5670	-2.57	3.99	10.23	1.76	2.95	39.870	36.820	13.41	21.93	23.97	10.56	16.36	43.25	29.97	13.61
5755	-3.75	4.00	10.24	1.76	2.95	-	36.504	12.25	16.79	30.00	17.75	15.20	33.11	36.00	20.80
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-3.62	4.01	10.24	1.76	2.95	-	36.542	12.39	17.34	30.00	17.61	15.34	34.20	36.00	20.66

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room				
Date	January 8, 2019	January 9, 2019	January 11, 2019	February 16, 2019	March 11, 2019
Temperature / Humidity	24 deg. C / 54 % RH	26 deg. C / 42 % RH	24 deg. C / 51 % RH	23 deg. C / 44 % RH	22 deg. C / 55 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT40 (SISO), PN9, worst antenna port 1 (5190 MHz), 0 (other channel frequency)				

Applied limit: 15.407, mobile and portable client device

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Duty Factor	Antenna Gain	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted Power Result		Conducted Power Limit	Conducted Power Margin	e.i.r.p. Result		e.i.r.p. Limit	e.i.r.p. Margin
[MHz]	[dBm]	[dB]	[dB]	[dB]	[dBi]	[MHz]	[MHz]	[dBm]	[mW]	[dBm]	[dB]	[dBm]	[mW]	[dBm]	[dB]
5190	-6.56	3.89	10.21	2.15	1.99	-	36.683	9.69	9.31	23.97	14.28	11.68	14.72	29.97	18.29
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-2.43	3.90	10.21	1.39	2.95	-	36.603	13.07	20.28	23.97	10.90	16.02	39.99	29.97	13.95
5270	-2.36	3.91	10.21	1.39	2.95	39.602	36.708	13.15	20.65	23.97	10.82	16.10	40.74	29.97	13.87
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	-2.40	3.92	10.21	1.39	2.95	39.685	36.530	13.12	20.51	23.97	10.85	16.07	40.46	29.97	13.90
5510	-2.29	3.97	10.22	1.39	2.95	39.408	36.749	13.29	21.33	23.97	10.68	16.24	42.07	29.97	13.73
5550	-2.46	3.98	10.22	1.39	2.95	39.712	36.727	13.13	20.56	23.97	10.84	16.08	40.55	29.97	13.89
5670	-2.50	3.99	10.23	1.39	2.95	39.520	36.619	13.11	20.46	23.97	10.86	16.06	40.36	29.97	13.91
5755	-3.44	4.00	10.24	1.39	2.95	-	36.389	12.19	16.56	30.00	17.81	15.14	32.66	36.00	20.86
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-3.51	4.01	10.24	1.39	2.95	-	36.522	12.13	16.33	30.00	17.87	15.08	32.21	36.00	20.92

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room		
Date	January 9, 2019	January 16, 2019	March 14, 2019
Temperature / Humidity	26 deg. C / 42 % RH	23 deg. C / 52 % RH	25 deg. C / 45 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Kazutaka Takeyama
Mode	Tx, IEEE802.11n HT40 (MIMO), PN9		

Antenna 0+1

Applied limit: 15.407, mobile and portable client device

Tested Frequency	26 dB EBW (B for FCC)	99 % OBW (B for IC)	Conducted power Antenna 0	1	Sum	Result	Limit	Margin	e.i.r.p. Antenna 0	1	Sum	Result	Limit	Margin
[MHz]	[MHz]	[MHz]	[mW]	[mW]	[mW]	[dBm]	[dBm]	[dB]	[mW]	[mW]	[mW]	[dBm]	[dBm]	[dB]
5190	-	36.671	4.33	4.62	8.95	9.52	23.97	14.45	8.53	7.31	15.84	12.00	29.97	17.97
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-	36.517	10.19	10.74	20.93	13.21	23.97	10.76	20.09	16.98	37.07	15.69	29.97	14.28
5270	39.781	36.644	10.42	11.27	21.70	13.36	23.97	10.61	20.55	17.82	38.38	15.84	29.97	14.13
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	39.736	36.585	10.79	11.43	22.22	13.47	23.97	10.50	21.28	18.07	39.35	15.95	29.97	14.02
5510	39.524	36.767	10.52	12.79	23.31	13.68	23.97	10.29	20.74	20.23	40.97	16.13	29.97	13.84
5550	39.283	36.663	10.42	12.30	22.73	13.57	23.97	10.40	20.55	19.45	40.01	16.02	29.97	13.95
5670	39.807	36.742	10.33	10.99	21.32	13.29	23.97	10.68	20.37	17.38	37.74	15.77	29.97	14.20
5755	-	36.536	11.32	11.30	22.62	13.55	30.00	16.45	22.33	17.86	40.20	16.04	36.00	19.96
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-	36.565	11.30	11.17	22.47	13.52	30.00	16.48	22.28	17.66	39.94	16.01	36.00	19.99

		Antenna 0						Antenna 1					
Tested Frequency	Duty Factor	Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Result Cond. Power	Result e.i.r.p.	Power Meter Reading	Cable Loss	Atten. Loss	Antenna Gain	Result Cond. Power	Result e.i.r.p.
[MHz]	[dB]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	[dBi]	[dBm]	[dBm]
5190	3.59	-11.10	3.93	9.94	2.95	6.36	9.31	-10.81	3.93	9.94	1.99	6.65	8.64
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	2.51	-6.54	3.90	10.21	2.95	10.08	13.03	-6.31	3.90	10.21	1.99	10.31	12.30
5270	2.51	-6.45	3.91	10.21	2.95	10.18	13.13	-6.11	3.91	10.21	1.99	10.52	12.51
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	2.51	-6.31	3.92	10.21	2.95	10.33	13.28	-6.06	3.92	10.21	1.99	10.58	12.57
5510	2.51	-6.48	3.97	10.22	2.95	10.22	13.17	-5.63	3.97	10.22	1.99	11.07	13.06
5550	2.51	-6.53	3.98	10.22	2.95	10.18	13.13	-5.81	3.98	10.22	1.99	10.90	12.89
5670	2.51	-6.59	3.99	10.23	2.95	10.14	13.09	-6.32	3.99	10.23	1.99	10.41	12.40
5755	2.51	-6.20	4.00	10.23	2.95	10.54	13.49	-6.21	4.00	10.23	1.99	10.53	12.52
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	2.51	-6.23	4.01	10.24	2.95	10.53	13.48	-6.28	4.01	10.24	1.99	10.48	12.47

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

*In the measurement of 5190MHz, a EUT of serial number different from the worst rate check is used.

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room		
Date	January 9, 2019	January 16, 2019	March 14, 2019
Temperature / Humidity	26 deg. C / 42 % RH	23 deg. C / 52 % RH	25 deg. C / 45 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Kazutaka Takeyama
Mode	Tx, IEEE802.11ac VHT40 (MIMO), PN9		

Antenna 0+1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted power Antenna 0 [mW]	Antenna 1 [mW]	Antenna Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	e.i.r.p. Antenna 0 [mW]	Antenna 1 [mW]	Antenna Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5190	-	36.553	4.41	4.76	9.17	9.62	23.97	14.35	8.69	7.53	16.22	12.10	29.97	17.87
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-	36.550	10.09	13.40	23.49	13.71	23.97	10.26	19.90	21.18	41.09	16.14	29.97	13.83
5270	39.794	36.585	10.28	11.35	21.63	13.35	23.97	10.62	20.27	17.95	38.22	15.82	29.97	14.15
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	39.545	36.661	10.74	11.27	22.01	13.43	23.97	10.54	21.18	17.82	39.00	15.91	29.97	14.06
5510	39.650	36.637	10.52	12.79	23.31	13.68	23.97	10.29	20.74	20.23	40.97	16.13	29.97	13.84
5550	39.482	36.558	10.14	12.27	22.41	13.51	23.97	10.46	19.99	19.41	39.40	15.96	29.97	14.01
5670	39.637	36.536	10.52	10.99	21.51	13.33	23.97	10.64	20.74	17.38	38.12	15.81	29.97	14.16
5755	-	36.661	11.46	10.96	22.42	13.51	30.00	16.49	22.59	17.34	39.93	16.01	36.00	19.99
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-	36.601	10.96	11.38	22.34	13.49	30.00	16.51	21.62	17.99	39.61	15.98	36.00	20.02

		Antenna 0						Antenna 1					
Tested Frequency [MHz]	Duty Factor [dB]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result Cond. Power [dBm]	Result e.i.r.p. [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result Cond. Power [dBm]	Result e.i.r.p. [dBm]
5190	2.87	-10.30	3.93	9.94	2.95	6.44	9.39	-9.96	3.93	9.94	1.99	6.78	8.77
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	3.39	-7.46	3.90	10.21	2.95	10.04	12.99	-6.23	3.90	10.21	1.99	11.27	13.26
5270	3.39	-7.39	3.91	10.21	2.95	10.12	13.07	-6.96	3.91	10.21	1.99	10.55	12.54
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	3.39	-7.21	3.92	10.21	2.95	10.31	13.26	-7.00	3.92	10.21	1.99	10.52	12.51
5510	3.39	-7.36	3.97	10.22	2.95	10.22	13.17	-6.51	3.97	10.22	1.99	11.07	13.06
5550	3.39	-7.53	3.98	10.22	2.95	10.06	13.01	-6.70	3.98	10.22	1.99	10.89	12.88
5670	3.39	-7.39	3.99	10.23	2.95	10.22	13.17	-7.20	3.99	10.23	1.99	10.41	12.40
5755	3.39	-7.04	4.00	10.24	2.95	10.59	13.54	-7.23	4.00	10.24	1.99	10.40	12.39
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	3.39	-7.24	4.01	10.24	2.95	10.40	13.35	-7.08	4.01	10.24	1.99	10.56	12.55

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

*In the measurement of 5190MHz, a EUT of serial number different from the worst rate check is used.

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room			
Date	January 8, 2019	January 11, 2019	February 16, 2019	March 18, 2019
Temperature / Humidity	24 deg. C / 54 % RH	24 deg. C / 51 % RH	23 deg. C / 44 % RH	22 deg. C / 54 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa	Kenichi Adachi
Mode	Tx, IEEE802.11ac VHT80 (SISO), PN9, worst antenna port : 0 (5775 MHz), 1 (other channel frequency)			

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted Power Result [dBm]	Conducted Power Result [mW]	Conducted Power Limit [dBm]	Conducted Power Margin [dB]	e.i.r.p. Result [dBm]	e.i.r.p. Result [mW]	e.i.r.p. Limit [dBm]	e.i.r.p. Margin [dB]
5210	-8.67	3.94	9.94	3.33	1.99	-	76.076	8.54	7.14	23.97	15.43	10.53	11.30	29.97	19.44
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5290	-8.64	3.96	9.93	3.33	1.99	80.981	76.058	8.58	7.21	23.97	15.39	10.57	11.40	29.97	19.40
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5530	-6.45	3.97	10.22	3.33	1.99	81.227	76.052	11.07	12.79	23.97	12.90	13.06	20.23	29.97	16.91
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5775	-5.02	4.00	10.24	3.33	2.95	-	76.159	12.55	17.99	30.00	17.45	15.50	35.48	36.00	20.50
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

*In the measurement of 5210MHz, a EUT of serial number different from the worst rate check is used.

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room			
Date	January 9, 2019	January 16, 2019	February 16, 2019	March 18, 2019
Temperature / Humidity	26 deg. C / 42 % RH	23 deg. C / 52 % RH	23 deg. C / 44 % RH	22 deg. C / 54 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa	Kenichi Adachi
Mode	Tx, IEEE802.11ac VHT80 (MIMO), PN9			

Antenna 0+1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	26 dB EBW (B for FCC) [MHz]	99 % OBW (B for IC) [MHz]	Conducted power Antenna 1 [mW]	Antenna 2 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]	e.i.r.p. Antenna 1 [mW]	Antenna 2 [mW]	Sum [mW]	Result [dBm]	Limit [dBm]	Margin [dB]
5210	-	76.100	3.53	3.56	7.10	8.51	23.97	15.46	6.96	5.64	12.60	11.00	29.97	18.97
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5290	81.150	76.222	3.88	3.72	7.61	8.81	23.97	15.16	7.65	5.89	13.54	11.32	29.97	18.65
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5530	81.130	76.260	4.86	5.46	10.32	10.14	23.97	13.83	9.59	8.63	18.22	12.61	29.97	17.36
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
5775	-	76.210	10.33	11.59	21.92	13.41	30.00	16.59	20.37	18.32	38.69	15.88	36.00	20.12
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

		Antenna 0						Antenna 1					
Tested Frequency [MHz]	Duty Factor [dB]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result Cond. Power [dBm]	Result e.i.r.p. [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Antenna Gain [dBi]	Result Cond. Power [dBm]	Result e.i.r.p. [dBm]
5210	3.84	-12.46	3.89	10.21	2.95	5.48	8.43	-12.42	3.89	10.21	1.99	5.52	7.51
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5290	3.84	-12.08	3.92	10.21	2.95	5.89	8.84	-12.26	3.92	10.21	1.99	5.71	7.70
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5530	3.89	-11.21	3.97	10.22	2.95	6.87	9.82	-10.71	3.97	10.22	1.99	7.37	9.36
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5775	3.89	-7.99	4.00	10.24	2.95	10.14	13.09	-7.49	4.00	10.24	1.99	10.64	12.63
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:
Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor
e.i.r.p. Result = Conducted Power Result + Antenna Gain
Conducted Power Limit (5250 MHz-5350 MHz, 5470 MHz-5725 MHz) = 250 mW or (11 + 10logB) dBm, whichever is lower
Conducted Power Limit (5725 MHz-5850 MHz) = 1 W

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

*In the measurement of 5210MHz, a EUT of serial number different from the worst rate check is used.

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 8, 2019
Temperature / Humidity	24 deg. C / 54 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11a, PN9

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
6	5220.0	-1.16	3.90	10.21	0.28	13.23	2.95	16.18	
9	5220.0	-1.29	3.90	10.21	0.42	13.24	2.95	16.19	
12	5220.0	-1.42	3.90	10.21	0.54	13.23	2.95	16.18	
18	5220.0	-1.60	3.90	10.21	0.77	13.28	2.95	16.23	
24	5220.0	-1.69	3.90	10.21	1.00	13.42	2.95	16.37	
36	5220.0	-2.01	3.90	10.21	1.38	13.48	2.95	16.43	
48	5220.0	-2.20	3.90	10.21	1.72	**13.63**	2.95	**16.58**	*
54	5220.0	-2.55	3.90	10.21	1.84	13.40	2.95	16.35	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
6	5220.0	-1.50	3.90	10.21	0.28	12.89	1.99	14.88	
9	5220.0	-1.76	3.90	10.21	0.42	12.77	1.99	14.76	
12	5220.0	-1.84	3.90	10.21	0.54	12.81	1.99	14.80	
18	5220.0	-2.03	3.90	10.21	0.77	12.85	1.99	14.84	
24	5220.0	-2.02	3.90	10.21	1.00	13.09	1.99	15.08	
36	5220.0	-2.49	3.90	10.21	1.38	13.00	1.99	14.99	
48	5220.0	-2.82	3.90	10.21	1.72	13.01	1.99	15.00	
54	5220.0	-2.97	3.90	10.21	1.84	12.98	1.99	14.97	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 8, 2019
Temperature / Humidity	24 deg. C / 54 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT20 (SISO), PN9

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5220.0	-1.26	3.90	10.21	0.30	13.15	2.95	16.10	
1	5220.0	-1.29	3.90	10.21	0.57	13.39	2.95	16.34	
2	5220.0	-1.77	3.90	10.21	0.81	13.15	2.95	16.10	
3	5220.0	-1.64	3.90	10.21	1.01	13.48	2.95	16.43	
4	5220.0	-2.00	3.90	10.21	1.37	13.48	2.95	16.43	
5	5220.0	-2.33	3.90	10.21	1.70	13.48	2.95	16.43	
6	5220.0	-2.41	3.90	10.21	1.81	**13.51**	2.95	**16.46**	*
7	5220.0	-2.56	3.90	10.21	1.95	13.50	2.95	16.45	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5220.0	-1.50	3.90	10.21	0.30	12.91	1.99	14.90	
1	5220.0	-1.73	3.90	10.21	0.57	12.95	1.99	14.94	
2	5220.0	-2.17	3.90	10.21	0.81	12.75	1.99	14.74	
3	5220.0	-1.76	3.90	10.21	1.01	13.36	1.99	15.35	
4	5220.0	-2.12	3.90	10.21	1.37	13.36	1.99	15.35	
5	5220.0	-2.40	3.90	10.21	1.70	13.41	1.99	15.40	
6	5220.0	-2.54	3.90	10.21	1.81	13.38	1.99	15.37	
7	5220.0	-2.82	3.90	10.21	1.95	13.24	1.99	15.23	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 8, 2019
Temperature / Humidity	24 deg. C / 54 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT20 (SISO), PN9

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5220.0	-1.26	3.90	10.21	0.30	13.15	2.95	16.10	
1	5220.0	-1.23	3.90	10.21	0.57	13.45	2.95	16.40	
2	5220.0	-1.75	3.90	10.21	0.79	13.15	2.95	16.10	
3	5220.0	-1.38	3.90	10.21	1.01	**13.74**	2.95	**16.69**	*
4	5220.0	-1.93	3.90	10.21	1.35	13.53	2.95	16.48	
5	5220.0	-2.33	3.90	10.21	1.67	13.45	2.95	16.40	
6	5220.0	-2.33	3.90	10.21	1.80	13.58	2.95	16.53	
7	5220.0	-2.61	3.90	10.21	1.92	13.42	2.95	16.37	
8	5220.0	-3.20	3.90	10.21	2.11	13.02	2.95	15.97	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5220.0	-1.41	3.90	10.21	0.30	13.00	1.99	14.99	
1	5220.0	-1.78	3.90	10.21	0.57	12.90	1.99	14.89	
2	5220.0	-1.98	3.90	10.21	0.79	12.92	1.99	14.91	
3	5220.0	-1.76	3.90	10.21	1.01	13.36	1.99	15.35	
4	5220.0	-2.13	3.90	10.21	1.35	13.33	1.99	15.32	
5	5220.0	-2.71	3.90	10.21	1.67	13.07	1.99	15.06	
6	5220.0	-2.68	3.90	10.21	1.80	13.23	1.99	15.22	
7	5220.0	-2.86	3.90	10.21	1.92	13.17	1.99	15.16	
8	5220.0	-3.41	3.90	10.21	2.11	12.81	1.99	14.80	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place: Shonan EMC Lab. No.1 Measurement Room
Date: January 10, 2019
Temperature / Humidity: 23 deg. C / 51 % RH
Engineer: Yosuke Ishikawa
Mode: Tx, IEEE802.11n HT20 (MIMO), PN9

[Pre check]

Mode	Freq.	Cable Loss	Atten. Loss	Duty factor	Antenna 0				Antenna 1				Antenna 0 + 1		Remarks
					Reading	Result	Antenna Gain	Result (e.i.r.p.)	Reading	Result	Antenna Gain	Result (e.i.r.p.)	Total Result	Total Result (e.i.r.p.)	
(MCS)	[MHz]	[dB]	[dB]	[dB]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	
8	5220.0	3.90	10.21	0.57	-4.66	10.02	2.95	12.97	-4.37	10.31	1.99	12.30	13.18	15.66	
9	5220.0	3.90	10.21	1.01	-5.17	9.95	2.95	12.90	-4.82	10.30	1.99	12.29	13.14	15.62	
10	5220.0	3.90	10.21	1.36	-5.40	10.07	2.95	13.02	-5.19	10.28	1.99	12.27	13.19	15.67	
11	5220.0	3.90	10.21	1.68	-5.45	10.34	2.95	13.29	-5.27	10.52	1.99	12.51	13.44	15.93	
12	5220.0	3.90	10.21	2.11	-5.86	10.36	2.95	13.31	-5.70	10.52	1.99	12.51	13.45	15.94	
13	5220.0	3.90	10.21	2.48	-6.20	10.39	2.95	13.34	-6.06	10.53	1.99	12.52	13.47	15.96	
14	5220.0	3.90	10.21	2.60	-6.31	10.40	2.95	13.35	-6.22	10.49	1.99	12.48	13.46	15.95	
15	5220.0	3.90	10.21	2.76	-6.24	10.63	2.95	13.58	-6.29	10.58	1.99	12.57	**13.62**	**16.12**	*

*: Worst rate

Sample Calculation: Result = Duty factor + Reading
Result (e.i.r.p.) = Result + Antenna Gain
Total Result = 10 * log (10 ^ (Result (Antenna 0) / 10) + 10 ^ (Result (Antenna 1) / 10))

Test place: Shonan EMC Lab. No.1 Measurement Room
Date: January 10, 2019
Temperature / Humidity: 23 deg. C / 51 % RH
Engineer: Yosuke Ishikawa
Mode: Tx, IEEE802.11ac VHT20 (MIMO), PN9

[Pre check]

Mode	Freq.	Cable Loss	Atten. Loss	Duty factor	Antenna 0				Antenna 1				Antenna 0 + 1		Remarks
					Reading	Result	Antenna Gain	Result (e.i.r.p.)	Reading	Result	Antenna Gain	Result (e.i.r.p.)	Total Result	Total Result (e.i.r.p.)	
(MCS)	[MHz]	[dB]	[dB]	[dB]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	
0	5220.0	3.90	10.21	0.56	-4.61	10.06	2.95	13.01	-4.44	10.23	1.99	12.22	13.16	15.64	
1	5220.0	3.90	10.21	1.01	-5.10	10.02	2.95	12.97	-4.96	10.16	1.99	12.15	13.10	15.59	
2	5220.0	3.90	10.21	1.35	-5.43	10.03	2.95	12.98	-5.31	10.15	1.99	12.14	13.10	15.59	
3	5220.0	3.90	10.21	1.67	-5.46	10.32	2.95	13.27	-5.31	10.47	1.99	12.46	13.41	15.89	
4	5220.0	3.90	10.21	2.08	-5.76	10.43	2.95	13.38	-5.59	10.60	1.99	12.59	**13.53**	**16.01**	*
5	5220.0	3.90	10.21	2.43	-6.13	10.41	2.95	13.36	-6.03	10.51	1.99	12.50	13.47	15.96	
6	5220.0	3.90	10.21	2.56	-6.27	10.40	2.95	13.35	-6.17	10.50	1.99	12.49	13.46	15.95	
7	5220.0	3.90	10.21	2.66	-6.32	10.45	2.95	13.40	-6.23	10.54	1.99	12.53	13.51	16.00	
8	5220.0	3.90	10.21	2.92	-6.77	10.26	2.95	13.21	-6.48	10.55	1.99	12.54	13.42	15.90	

*: Worst rate

Sample Calculation: Result = Duty factor + Reading
Result (e.i.r.p.) = Result + Antenna Gain
Total Result = 10 * log (10 ^ (Result (Antenna 0) / 10) + 10 ^ (Result (Antenna 1) / 10))

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 8, 2019
Temperature / Humidity	24 deg. C / 54 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT40 (SISO), PN9, 5190 MHz

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5190.0	-5.31	3.89	10.21	0.59	9.38	2.95	12.33	
1	5190.0	-5.90	3.89	10.21	0.97	9.17	2.95	12.12	
2	5190.0	-6.37	3.89	10.21	1.46	9.19	2.95	12.14	
3	5190.0	-6.31	3.89	10.21	1.76	9.55	2.95	**12.50**	
4	5190.0	-7.00	3.89	10.21	2.19	9.29	2.95	12.24	
5	5190.0	-7.23	3.89	10.21	2.63	9.50	2.95	12.45	
6	5190.0	-7.53	3.89	10.21	2.71	9.28	2.95	12.23	
7	5190.0	-7.70	3.89	10.21	2.87	9.27	2.95	12.22	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5190.0	-5.13	3.89	10.21	0.59	9.56	1.99	11.55	
1	5190.0	-5.55	3.89	10.21	0.97	9.52	1.99	11.51	
2	5190.0	-5.96	3.89	10.21	1.46	9.60	1.99	11.59	
3	5190.0	-6.17	3.89	10.21	1.76	9.69	1.99	11.68	
4	5190.0	-6.59	3.89	10.21	2.19	9.70	1.99	11.69	
5	5190.0	-7.00	3.89	10.21	2.63	**9.73**	1.99	11.72	*
6	5190.0	-7.09	3.89	10.21	2.71	9.72	1.99	11.71	
7	5190.0	-7.30	3.89	10.21	2.87	9.67	1.99	11.66	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 9, 2019
Temperature / Humidity	26 deg. C / 42 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT40 (SISO), PN9, 5230 - 5795 MHz

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5230.0	-1.74	3.90	10.21	0.59	12.96	2.95	15.91	
1	5230.0	-2.19	3.90	10.21	0.97	12.89	2.95	15.84	
2	5230.0	-2.69	3.90	10.21	1.46	12.88	2.95	15.83	
3	5230.0	-2.59	3.90	10.21	1.76	**13.28**	2.95	**16.23**	*
4	5230.0	-3.12	3.90	10.21	2.19	13.18	2.95	16.13	
5	5230.0	-3.48	3.90	10.21	2.63	13.26	2.95	16.21	
6	5230.0	-3.60	3.90	10.21	2.71	13.22	2.95	16.17	
7	5230.0	-3.89	3.90	10.21	2.87	13.09	2.95	16.04	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5230.0	-2.12	3.90	10.21	0.59	12.58	1.99	14.57	
1	5230.0	-2.57	3.90	10.21	0.97	12.51	1.99	14.50	
2	5230.0	-2.90	3.90	10.21	1.46	12.67	1.99	14.66	
3	5230.0	-3.23	3.90	10.21	1.76	12.64	1.99	14.63	
4	5230.0	-3.73	3.90	10.21	2.19	12.57	1.99	14.56	
5	5230.0	-4.11	3.90	10.21	2.63	12.63	1.99	14.62	
6	5230.0	-4.15	3.90	10.21	2.71	12.67	1.99	14.66	
7	5230.0	-4.46	3.90	10.21	2.87	12.52	1.99	14.51	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 8, 2019
Temperature / Humidity	24 deg. C / 54 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT40 (SISO), PN9, 5190 MHz

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5190.0	-5.44	3.89	10.21	0.57	9.23	2.95	12.18	
1	5190.0	-5.75	3.89	10.21	1.04	9.39	2.95	12.34	
2	5190.0	-6.35	3.89	10.21	1.39	9.14	2.95	12.09	
3	5190.0	-6.31	3.89	10.21	1.67	9.46	2.95	12.41	
4	5190.0	-6.79	3.89	10.21	2.15	9.46	2.95	12.41	
5	5190.0	-7.20	3.89	10.21	2.53	9.43	2.95	12.38	
6	5190.0	-7.25	3.89	10.21	2.62	9.47	2.95	12.42	
7	5190.0	-7.41	3.89	10.21	2.80	9.49	2.95	12.44	
8	5190.0	-7.59	3.89	10.21	2.97	9.48	2.95	12.43	
9	5190.0	-7.73	3.89	10.21	3.15	9.52	2.95	**12.47**	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5190.0	-5.01	3.89	10.21	0.57	9.66	1.99	11.65	
1	5190.0	-5.61	3.89	10.21	1.04	9.53	1.99	11.52	
2	5190.0	-5.93	3.89	10.21	1.39	9.56	1.99	11.55	
3	5190.0	-6.15	3.89	10.21	1.67	9.62	1.99	11.61	
4	5190.0	-6.56	3.89	10.21	2.15	**9.69**	1.99	11.68	*
5	5190.0	-6.99	3.89	10.21	2.53	9.64	1.99	11.63	
6	5190.0	-7.11	3.89	10.21	2.62	9.61	1.99	11.60	
7	5190.0	-7.33	3.89	10.21	2.80	9.57	1.99	11.56	
8	5190.0	-7.43	3.89	10.21	2.97	9.64	1.99	11.63	
9	5190.0	-7.60	3.89	10.21	3.15	9.65	1.99	11.64	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 8, 2019
Temperature / Humidity	24 deg. C / 54 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT40 (SISO), PN9, 5230 - 5795 MHz

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5230.0	-1.64	3.90	10.21	0.57	13.04	2.95	15.99	
1	5230.0	-2.15	3.90	10.21	1.04	13.00	2.95	15.95	
2	5230.0	-2.43	3.90	10.21	1.39	**13.07**	2.95	**16.02**	*
3	5230.0	-2.74	3.90	10.21	1.67	13.04	2.95	15.99	
4	5230.0	-3.27	3.90	10.21	2.15	12.99	2.95	15.94	
5	5230.0	-3.60	3.90	10.21	2.53	13.04	2.95	15.99	
6	5230.0	-3.70	3.90	10.21	2.62	13.03	2.95	15.98	
7	5230.0	-3.86	3.90	10.21	2.80	13.05	2.95	16.00	
8	5230.0	-4.69	3.90	10.21	2.97	12.39	2.95	15.34	
9	5230.0	-4.63	3.90	10.21	3.15	12.63	2.95	15.58	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5230.0	-2.15	3.90	10.21	0.57	12.53	1.99	14.52	
1	5230.0	-2.70	3.90	10.21	1.04	12.45	1.99	14.44	
2	5230.0	-2.83	3.90	10.21	1.39	12.67	1.99	14.66	
3	5230.0	-3.30	3.90	10.21	1.67	12.48	1.99	14.47	
4	5230.0	-3.78	3.90	10.21	2.15	12.48	1.99	14.47	
5	5230.0	-4.14	3.90	10.21	2.53	12.50	1.99	14.49	
6	5230.0	-4.23	3.90	10.21	2.62	12.50	1.99	14.49	
7	5230.0	-4.39	3.90	10.21	2.80	12.52	1.99	14.51	
8	5230.0	-4.94	3.90	10.21	2.97	12.14	1.99	14.13	
9	5230.0	-4.91	3.90	10.21	3.15	12.35	1.99	14.34	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place: Shonan EMC Lab. No.1 Measurement Room
Date: January 9, 2019
Temperature / Humidity: 26 deg. C / 42 % RH
Engineer: Yosuke Ishikawa
Mode: Tx, IEEE802.11n HT40 (MIMO), PN9, 5190 MHz

[Pre check]

Mode	Freq.	Cable Loss	Atten. Loss	Duty factor	Antenna 0				Antenna 1				Antenna 0 + 1		Remarks
					Reading	Result	Antenna Gain	Result (e.i.r.p.)	Reading	Result	Antenna Gain	Result (e.i.r.p.)	Total Result	Total Result (e.i.r.p.)	
(MCS)	[MHz]	[dB]	[dB]	[dB]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	
8	5190.0	3.89	10.21	1.03	-9.16	5.97	2.95	8.92	-8.72	6.41	1.99	8.40	9.21	11.68	
9	5190.0	3.89	10.21	1.69	-9.87	5.92	2.95	8.87	-9.38	6.41	1.99	8.40	9.18	11.65	
10	5190.0	3.89	10.21	2.14	-10.49	5.75	2.95	8.70	-10.03	6.21	1.99	8.20	9.00	11.47	
11	5190.0	3.89	10.21	2.51	-10.61	6.00	2.95	8.95	-10.36	6.25	1.99	8.24	9.14	11.62	
12	5190.0	3.89	10.21	2.95	-11.03	6.02	2.95	8.97	-10.75	6.30	1.99	8.29	9.18	11.65	
13	5190.0	3.89	10.21	3.34	-11.47	5.97	2.95	8.92	-11.11	6.33	1.99	8.32	9.16	11.64	
14	5190.0	3.89	10.21	3.46	-11.50	6.06	2.95	9.01	-11.26	6.30	1.99	8.29	9.19	11.68	
15	5190.0	3.89	10.21	3.59	-11.60	6.09	2.95	9.04	-11.37	6.32	1.99	8.31	**9.22**	**11.70**	*

*: Worst rate

Sample Calculation: Result = Duty factor + Reading
Result (e.i.r.p.) = Result + Antenna Gain
Total Result = 10 * log (10 ^ (Result (Antenna 0) / 10) + 10 ^ (Result (Antenna 1) / 10))

Test place: Shonan EMC Lab. No.1 Measurement Room
Date: January 9, 2019
Temperature / Humidity: 26 deg. C / 42 % RH
Engineer: Yosuke Ishikawa
Mode: Tx, IEEE802.11n HT40 (MIMO), PN9, 5230 - 5795 MHz

[Pre check]

Mode	Freq.	Cable Loss	Atten. Loss	Duty factor	Antenna 0				Antenna 1				Antenna 0 + 1		Remarks
					Reading	Result	Antenna Gain	Result (e.i.r.p.)	Reading	Result	Antenna Gain	Result (e.i.r.p.)	Total Result	Total Result (e.i.r.p.)	
(MCS)	[MHz]	[dB]	[dB]	[dB]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	
8	5230.0	3.90	10.21	1.03	-5.13	10.01	2.95	12.96	-4.87	10.27	1.99	12.26	13.15	15.63	
9	5230.0	3.90	10.21	1.69	-5.85	9.95	2.95	12.90	-5.75	10.05	1.99	12.04	13.01	15.50	
10	5230.0	3.90	10.21	2.14	-6.28	9.97	2.95	12.92	-6.20	10.05	1.99	12.04	13.02	15.51	
11	5230.0	3.90	10.21	2.51	-6.54	10.08	2.95	13.03	-6.31	10.31	1.99	12.30	**13.21**	**15.69**	*
12	5230.0	3.90	10.21	2.95	-6.96	10.10	2.95	13.05	-6.84	10.22	1.99	12.21	13.17	15.66	
13	5230.0	3.90	10.21	3.34	-7.33	10.12	2.95	13.07	-7.28	10.17	1.99	12.16	13.16	15.65	
14	5230.0	3.90	10.21	3.46	-7.68	9.89	2.95	12.84	-7.24	10.33	1.99	12.32	13.13	15.60	
15	5230.0	3.90	10.21	3.59	-7.84	9.86	2.95	12.81	-7.32	10.38	1.99	12.37	13.14	15.61	

*: Worst rate

Sample Calculation: Result = Duty factor + Reading
Result (e.i.r.p.) = Result + Antenna Gain
Total Result = 10 * log (10 ^ (Result (Antenna 0) / 10) + 10 ^ (Result (Antenna 1) / 10))

Maximum Conducted Output Power

Test place: Shonan EMC Lab. No.1 Measurement Room
Date: January 9, 2019
Temperature / Humidity: 26 deg. C / 42 % RH
Engineer: Yosuke Ishikawa
Mode: Tx, IEEE802.11ac VHT40 (MIMO), PN9, 5190 MHz

[Pre check]

Mode	Freq.	Cable Loss	Atten. Loss	Duty factor	Antenna 0				Antenna 1				Antenna 0 + 1		Remarks
					Reading	Result	Antenna Gain	Result (e.i.r.p.)	Reading	Result	Antenna Gain	Result (e.i.r.p.)	Total Result	Total Result (e.i.r.p.)	
(MCS)	[MHz]	[dB]	[dB]	[dB]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	
0	5190.0	3.89	10.21	1.02	-9.14	5.98	2.95	8.93	-8.88	6.24	1.99	8.23	9.12	11.60	
1	5190.0	3.89	10.21	1.66	-9.85	5.91	2.95	8.86	-9.64	6.12	1.99	8.11	9.03	11.51	
2	5190.0	3.89	10.21	2.10	-10.28	5.92	2.95	8.87	-10.00	6.20	1.99	8.19	9.07	11.55	
3	5190.0	3.89	10.21	2.45	-10.45	6.10	2.95	9.05	-10.17	6.38	1.99	8.37	9.25	11.73	
4	5190.0	3.89	10.21	2.87	-10.92	6.05	2.95	9.00	-10.51	6.46	1.99	8.45	**9.27**	**11.74**	*
5	5190.0	3.89	10.21	3.24	-11.30	6.04	2.95	8.99	-10.99	6.35	1.99	8.34	9.21	11.69	
6	5190.0	3.89	10.21	3.39	-11.61	5.88	2.95	8.83	-11.07	6.42	1.99	8.41	9.17	11.63	
7	5190.0	3.89	10.21	3.46	-11.73	5.83	2.95	8.78	-11.14	6.42	1.99	8.41	9.14	11.61	
8	5190.0	3.89	10.21	3.58	-11.88	5.80	2.95	8.75	-11.25	6.43	1.99	8.42	9.14	11.60	
9	5190.0	3.89	10.21	3.74	-11.98	5.86	2.95	8.81	-11.42	6.42	1.99	8.41	9.16	11.63	

*: Worst rate

Sample Calculation: Result = Duty factor + Reading
Result (e.i.r.p.) = Result + Antenna Gain
Total Result = 10 * log (10 ^ (Result (Antenna 0) / 10) + 10 ^ (Result (Antenna 1) / 10))

Test place: Shonan EMC Lab. No.1 Measurement Room
Date: January 9, 2019
Temperature / Humidity: 26 deg. C / 42 % RH
Engineer: Yosuke Ishikawa
Mode: Tx, IEEE802.11ac VHT40 (MIMO), PN9, 5230 - 5795 MHz

[Pre check]

Mode	Freq.	Cable Loss	Atten. Loss	Duty factor	Antenna 0				Antenna 1				Antenna 0 + 1		Remarks
					Reading	Result	Antenna Gain	Result (e.i.r.p.)	Reading	Result	Antenna Gain	Result (e.i.r.p.)	Total Result	Total Result (e.i.r.p.)	
(MCS)	[MHz]	[dB]	[dB]	[dB]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	
0	5230.0	3.90	10.21	1.02	-5.15	9.98	2.95	12.93	-4.94	10.19	1.99	12.18	13.10	15.58	
1	5230.0	3.90	10.21	1.66	-5.88	9.89	2.95	12.84	-5.61	10.16	1.99	12.15	13.04	15.52	
2	5230.0	3.90	10.21	2.10	-6.27	9.94	2.95	12.89	-6.11	10.10	1.99	12.09	13.03	15.52	
3	5230.0	3.90	10.21	2.45	-6.47	10.09	2.95	13.04	-6.28	10.28	1.99	12.27	13.20	15.68	
4	5230.0	3.90	10.21	2.87	-6.88	10.10	2.95	13.05	-6.55	10.43	1.99	12.42	13.28	15.76	
5	5230.0	3.90	10.21	3.24	-7.31	10.04	2.95	12.99	-6.91	10.44	1.99	12.43	13.26	15.73	
6	5230.0	3.90	10.21	3.39	-7.46	10.04	2.95	12.99	-6.23	11.27	1.99	13.26	**13.71**	**16.14**	*
7	5230.0	3.90	10.21	3.46	-7.75	9.82	2.95	12.77	-7.20	10.37	1.99	12.36	13.11	15.58	
8	5230.0	3.90	10.21	3.58	-7.58	10.11	2.95	13.06	-7.36	10.33	1.99	12.32	13.23	15.72	
9	5230.0	3.90	10.21	3.74	-8.01	9.84	2.95	12.79	-7.44	10.41	1.99	12.40	13.14	15.61	

*: Worst rate

Sample Calculation: Result = Duty factor + Reading
Result (e.i.r.p.) = Result + Antenna Gain
Total Result = 10 * log (10 ^ (Result (Antenna 0) / 10) + 10 ^ (Result (Antenna 1) / 10))

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	January 8, 2019
Temperature / Humidity	24 deg. C / 54 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT80 (SISO), PN9, 5210 - 5290 MHz

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5210.0	-7.43	3.89	10.21	1.09	7.76	2.95	10.71	
1	5210.0	-8.15	3.89	10.21	1.76	7.71	2.95	10.66	
2	5210.0	-8.58	3.89	10.21	2.22	7.74	2.95	10.69	
3	5210.0	-8.68	3.89	10.21	2.55	7.97	2.95	10.92	
4	5210.0	-9.06	3.89	10.21	3.01	8.05	2.95	11.00	
5	5210.0	-9.33	3.89	10.21	3.33	8.10	2.95	**11.05**	
6	5210.0	-9.55	3.89	10.21	3.45	8.00	2.95	10.95	
7	5210.0	-9.60	3.89	10.21	3.55	8.05	2.95	11.00	
8	5210.0	-9.88	3.89	10.21	3.68	7.90	2.95	10.85	
9	5210.0	-9.97	3.89	10.21	3.82	7.95	2.95	10.90	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5210.0	-7.18	3.89	10.21	1.09	8.01	1.99	10.00	
1	5210.0	-7.90	3.89	10.21	1.76	7.96	1.99	9.95	
2	5210.0	-8.58	3.89	10.21	2.22	7.74	1.99	9.73	
3	5210.0	-8.51	3.89	10.21	2.55	8.14	1.99	10.13	
4	5210.0	-9.05	3.89	10.21	3.01	8.06	1.99	10.05	
5	5210.0	-9.18	3.89	10.21	3.33	**8.25**	1.99	10.24	*
6	5210.0	-9.31	3.89	10.21	3.45	8.24	1.99	10.23	
7	5210.0	-9.58	3.89	10.21	3.55	8.07	1.99	10.06	
8	5210.0	-9.61	3.89	10.21	3.68	8.17	1.99	10.16	
9	5210.0	-9.82	3.89	10.21	3.82	8.10	1.99	10.09	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	February 16, 2019
Temperature / Humidity	23 deg. C / 44 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT80 (SISO), PN9, 5530 MHz

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5530.0	-5.05	3.97	10.22	1.09	10.23	2.95	13.18	
1	5530.0	-5.78	3.97	10.22	1.76	10.17	2.95	13.12	
2	5530.0	-6.47	3.97	10.22	2.22	9.94	2.95	12.89	
3	5530.0	-6.44	3.97	10.22	2.55	10.30	2.95	13.25	
4	5530.0	-6.88	3.97	10.22	3.01	10.32	2.95	13.27	
5	5530.0	-7.18	3.97	10.22	3.33	10.34	2.95	**13.29**	
6	5530.0	-7.36	3.97	10.22	3.45	10.28	2.95	13.23	
7	5530.0	-7.44	3.97	10.22	3.55	10.30	2.95	13.25	
8	5530.0	-7.55	3.97	10.22	3.68	10.32	2.95	13.27	
9	5530.0	-7.71	3.97	10.22	3.82	10.30	2.95	13.25	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5530.0	-4.58	3.97	10.22	1.09	10.70	1.99	12.69	
1	5530.0	-5.41	3.97	10.22	1.76	10.54	1.99	12.53	
2	5530.0	-5.86	3.97	10.22	2.22	10.55	1.99	12.54	
3	5530.0	-5.75	3.97	10.22	2.55	10.99	1.99	12.98	
4	5530.0	-6.27	3.97	10.22	3.01	10.93	1.99	12.92	
5	5530.0	-6.45	3.97	10.22	3.33	**11.07**	1.99	13.06	*
6	5530.0	-6.65	3.97	10.22	3.45	10.99	1.99	12.98	
7	5530.0	-6.73	3.97	10.22	3.55	11.01	1.99	13.00	
8	5530.0	-6.90	3.97	10.22	3.68	10.97	1.99	12.96	
9	5530.0	-7.04	3.97	10.22	3.82	10.97	1.99	12.96	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	February 16, 2019
Temperature / Humidity	23 deg. C / 44 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT80 (SISO), PN9, 5775 MHz

[Pre check]

Antenna 0

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5775.0	-3.21	4.00	10.24	1.09	12.12	2.95	15.07	
1	5775.0	-3.93	4.00	10.24	1.76	12.07	2.95	15.02	
2	5775.0	-4.36	4.00	10.24	2.22	12.10	2.95	15.05	
3	5775.0	-4.34	4.00	10.24	2.55	12.45	2.95	15.40	
4	5775.0	-4.71	4.00	10.24	3.01	12.54	2.95	15.49	
5	5775.0	-5.02	4.00	10.24	3.33	**12.55**	2.95	**15.50**	*
6	5775.0	-5.18	4.00	10.24	3.45	12.51	2.95	15.46	
7	5775.0	-5.34	4.00	10.24	3.55	12.45	2.95	15.40	
8	5775.0	-7.25	4.00	10.24	3.68	10.67	2.95	13.62	
9	5775.0	-7.44	4.00	10.24	3.82	10.62	2.95	13.57	

Antenna 1

Data rate [Mbps]	Freq. [MHz]	P/M (AV) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Duty factor [dB]	Result [dBm]	Antenna Gain [dBi]	Result (e.i.r.p.) [dBm]	Remarks
0	5775.0	-3.54	4.00	10.24	1.09	11.79	1.99	13.78	
1	5775.0	-4.21	4.00	10.24	1.76	11.79	1.99	13.78	
2	5775.0	-4.63	4.00	10.24	2.22	11.83	1.99	13.82	
3	5775.0	-4.68	4.00	10.24	2.55	12.11	1.99	14.10	
4	5775.0	-5.11	4.00	10.24	3.01	12.14	1.99	14.13	
5	5775.0	-5.41	4.00	10.24	3.33	12.16	1.99	14.15	
6	5775.0	-5.54	4.00	10.24	3.45	12.15	1.99	14.14	
7	5775.0	-5.69	4.00	10.24	3.55	12.10	1.99	14.09	
8	5775.0	-7.62	4.00	10.24	3.68	10.30	1.99	12.29	
9	5775.0	-7.74	4.00	10.24	3.82	10.32	1.99	12.31	

*: Worst rate

Sample Calculation:

Conducted Power Result = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor

e.i.r.p. Result = Conducted Power Result + Antenna Gain

Maximum Conducted Output Power

Test place: Shonan EMC Lab. No.1 Measurement Room
Date: January 9, 2019
Temperature / Humidity: 26 deg. C / 42 % RH
Engineer: Yosuke Ishikawa
Mode: Tx, IEEE802.11ac VHT80 (MIMO), PN9, 5210 - 5290 MHz

[Pre check]

Mode	Freq.	Cable Loss	Atten. Loss	Duty factor	Antenna 0				Antenna 1				Antenna 0 + 1		Remarks
					Reading	Result	Antenna Gain	Result (e.i.r.p.)	Reading	Result	Antenna Gain	Result (e.i.r.p.)	Total Result	Total Result (e.i.r.p.)	
(MCS)	[MHz]	[dB]	[dB]	[dB]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	
0	5210.0	3.89	10.21	1.73	-11.19	4.64	2.95	7.59	-10.88	4.95	1.99	6.94	7.81	10.29	
1	5210.0	3.89	10.21	2.50	-12.04	4.56	2.95	7.51	-11.78	4.82	1.99	6.81	7.70	10.18	
2	5210.0	3.89	10.21	2.93	-12.50	4.53	2.95	7.48	-12.28	4.75	1.99	6.74	7.65	10.14	
3	5210.0	3.89	10.21	3.20	-12.44	4.86	2.95	7.81	-12.25	5.05	1.99	7.04	7.97	10.45	
4	5210.0	3.89	10.21	3.56	-12.94	4.72	2.95	7.67	-12.51	5.15	1.99	7.14	7.95	10.42	
5	5210.0	3.89	10.21	3.84	-13.10	4.84	2.95	7.79	-12.78	5.16	1.99	7.15	**8.01**	**10.49**	*
6	5210.0	3.89	10.21	3.89	-13.09	4.90	2.95	7.85	-12.93	5.06	1.99	7.05	7.99	10.48	
7	5210.0	3.89	10.21	4.00	-13.31	4.79	2.95	7.74	-12.94	5.16	1.99	7.15	7.99	10.46	
8	5210.0	3.89	10.21	4.00	-13.32	4.78	2.95	7.73	-12.98	5.12	1.99	7.11	7.97	10.44	
9	5210.0	3.89	10.21	4.22	-13.53	4.79	2.95	7.74	-13.47	4.85	1.99	6.84	7.83	10.32	

*: Worst rate

Sample Calculation: Result = Duty factor + Reading
Result (e.i.r.p.) = Result + Antenna Gain
Total Result = 10 * log (10 ^ (Result (Antenna 0) / 10) + 10 ^ (Result (Antenna 1) / 10))

Test place: Shonan EMC Lab. No.1 Measurement Room
Date: February 16, 2019
Temperature / Humidity: 23 deg. C / 52 % RH
Engineer: Yosuke Ishikawa
Mode: Tx, IEEE802.11ac VHT80 (MIMO), PN9, 5530 MHz / 5775 MHz

[Pre check]

Mode	Freq.	Cable Loss	Atten. Loss	Duty factor	Antenna 0				Antenna 1				Antenna 0 + 1		Remarks
					Reading	Result	Antenna Gain	Result (e.i.r.p.)	Reading	Result	Antenna Gain	Result (e.i.r.p.)	Total Result	Total Result (e.i.r.p.)	
(MCS)	[MHz]	[dB]	[dB]	[dB]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	[dBi]	[dBm]	[dBm]	[dBm]	
0	5530.0	3.97	10.22	1.73	-9.32	6.60	2.95	9.55	-8.73	7.19	1.99	9.18	9.92	12.38	
1	5530.0	3.97	10.22	2.50	-10.15	6.54	2.95	9.49	-9.57	7.12	1.99	9.11	9.85	12.31	
2	5530.0	3.97	10.22	2.93	-10.69	6.43	2.95	9.38	-9.97	7.15	1.99	9.14	9.81	12.27	
3	5530.0	3.97	10.22	3.20	-10.53	6.86	2.95	9.81	-10.06	7.33	1.99	9.32	10.11	12.58	
4	5530.0	3.97	10.22	3.56	-10.92	6.83	2.95	9.78	-10.40	7.35	1.99	9.34	10.11	12.58	
5	5530.0	3.97	10.22	3.84	-11.18	6.85	2.95	9.80	-10.66	7.37	1.99	9.36	10.13	12.60	
6	5530.0	3.97	10.22	3.89	-11.21	6.87	2.95	9.82	-10.71	7.37	1.99	9.36	**10.14**	**12.61**	*
7	5530.0	3.97	10.22	4.00	-11.35	6.84	2.95	9.79	-10.83	7.36	1.99	9.35	10.12	12.59	
8	5530.0	3.97	10.22	4.00	-11.38	6.81	2.95	9.76	-10.90	7.29	1.99	9.28	10.07	12.54	
9	5530.0	3.97	10.22	4.22	-11.56	6.85	2.95	9.80	-11.09	7.32	1.99	9.31	10.10	12.57	

*: Worst rate

Sample Calculation: Result = Duty factor + Reading
Result (e.i.r.p.) = Result + Antenna Gain
Total Result = 10 * log (10 ^ (Result (Antenna 0) / 10) + 10 ^ (Result (Antenna 1) / 10))

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 8, 2019	February 16, 2019
Temperature / Humidity	22 deg. C / 50 % RH	23 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Yosuke Ishikawa
Mode	Tx, IEEE802.11a, PN9, worst antenna port 0	

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Result (Timed average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
5180	-1.20	3.89	10.21	12.90	19.50	0.28	13.18	20.80
5220	-1.16	3.90	10.21	12.95	19.72	0.28	13.23	21.04
5240	-1.02	3.90	10.21	13.09	20.37	0.28	13.37	21.73
5260	-0.89	3.91	10.21	13.23	21.04	0.28	13.51	22.44
5300	-0.81	3.92	10.21	13.32	21.48	0.28	13.60	22.91
5320	-0.71	3.92	10.21	13.42	21.98	0.28	13.70	23.44
5500	-0.97	3.97	10.22	13.22	20.99	0.28	13.50	22.39
5580	-1.14	3.98	10.22	13.06	20.23	0.28	13.34	21.58
5700	-1.06	3.99	10.23	13.16	20.70	0.28	13.44	22.08
5745	-2.03	4.00	10.23	12.20	16.60	0.28	12.48	17.70
5785	-2.27	4.00	10.24	11.97	15.74	0.28	12.25	16.79
5825	-2.26	4.01	10.24	11.99	15.81	0.28	12.27	16.87

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Result (Burst power average) = Time average + Duty factor
*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 8, 2019	February 16, 2019
Temperature / Humidity	22 deg. C / 50 % RH	23 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT20 (SISO), PN9, worst antenna port 0	

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Result (Timed average)		Duty factor	Result (Burst power average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dB]	[dBm]	[mW]
5180	-1.21	3.89	10.21	12.89	19.45	0.30	13.19	20.84
5220	-1.26	3.90	10.21	12.85	19.28	0.30	13.15	20.65
5240	-1.24	3.90	10.21	12.87	19.36	0.30	13.17	20.75
5260	-0.81	3.91	10.21	13.31	21.43	0.30	13.61	22.96
5300	-0.76	3.92	10.21	13.37	21.73	0.30	13.67	23.28
5320	-0.66	3.92	10.21	13.47	22.23	0.30	13.77	23.82
5500	-1.24	3.97	10.22	12.95	19.72	0.30	13.25	21.13
5580	-1.42	3.98	10.22	12.78	18.97	0.30	13.08	20.32
5700	-1.33	3.99	10.23	12.89	19.45	0.30	13.19	20.84
5745	-2.08	4.00	10.23	12.15	16.41	0.30	12.45	17.58
5785	-2.19	4.00	10.24	12.05	16.03	0.30	12.35	17.18
5825	-2.20	4.01	10.24	12.05	16.03	0.30	12.35	17.18

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Result (Burst power average) = Time average + Duty factor
*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 8, 2019	February 16, 2019
Temperature / Humidity	22 deg. C / 50 % RH	23 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT20 (SISO), PN9, worst antenna port 0	

Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Result (Timed average)		Duty factor	Result (Burst power average)	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dB]	[dBm]	[mW]
5180	-1.22	3.89	10.21	12.88	19.41	0.30	13.18	20.80
5220	-1.26	3.90	10.21	12.85	19.28	0.30	13.15	20.65
5240	-1.23	3.90	10.21	12.88	19.41	0.30	13.18	20.80
5260	-1.08	3.91	10.21	13.04	20.14	0.30	13.34	21.58
5300	-0.71	3.92	10.21	13.42	21.98	0.30	13.72	23.55
5320	-0.63	3.92	10.21	13.50	22.39	0.30	13.80	23.99
5500	-1.17	3.97	10.22	13.02	20.04	0.30	13.32	21.48
5580	-1.41	3.98	10.22	12.79	19.01	0.30	13.09	20.37
5700	-1.29	3.99	10.23	12.93	19.63	0.30	13.23	21.04
5745	-2.04	4.00	10.23	12.19	16.56	0.30	12.49	17.74
5785	-2.31	4.00	10.24	11.93	15.60	0.30	12.23	16.71
5825	-2.22	4.01	10.24	12.03	15.96	0.30	12.33	17.10

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss
Result (Burst power average) = Time average + Duty factor
*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 10, 2019	January 16, 2019
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT20 (MIMO), PN9	

	Antenna 0				Antenna 1				Antenna 0+1			
Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Result (Timed average)	Power Meter Reading	Cable Loss	Atten. Loss	Result (Timed average)	Result (Timed average) Antenna 1	Antenna 2	Sum 1+2	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[mW]	[mW]	[dBm]
5180	-4.76	3.89	10.21	9.34	-3.94	3.89	10.21	10.16	8.59	10.38	18.97	12.78
5220	-4.72	3.90	10.21	9.39	-4.40	3.90	10.21	9.71	8.69	9.35	18.04	12.56
5240	-4.57	3.90	10.21	9.54	-4.62	3.90	10.21	9.49	8.99	8.89	17.89	12.53
5260	-4.70	3.91	10.21	9.42	-4.39	3.91	10.21	9.73	8.75	9.40	18.15	12.59
5300	-4.52	3.92	10.21	9.61	-4.30	3.92	10.21	9.83	9.14	9.62	18.76	12.73
5320	-4.40	3.92	10.21	9.73	-4.25	3.92	10.21	9.88	9.40	9.73	19.12	12.82
5500	-4.76	3.97	10.22	9.43	-4.21	3.97	10.22	9.98	8.77	9.95	18.72	12.72
5580	-4.90	3.98	10.22	9.30	-4.46	3.98	10.22	9.74	8.51	9.42	17.93	12.54
5700	-4.69	3.99	10.23	9.53	-4.71	3.99	10.23	9.51	8.97	8.93	17.91	12.53
5745	-4.54	4.00	10.23	9.69	-4.82	4.00	10.23	9.41	9.31	8.73	18.04	12.56
5785	-4.49	4.00	10.24	9.75	-4.63	4.00	10.24	9.61	9.44	9.14	18.58	12.69
5825	-4.50	4.01	10.24	9.75	-4.34	4.01	10.24	9.91	9.44	9.79	19.24	12.84

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	January 10, 2019	January 16, 2019
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 52 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT20 (MIMO), PN9	

	Antenna 0				Antenna 1				Antenna 0+1			
Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Result (Timed average) Antenna 1 [mW]	Antenna 2 [mW]	Sum 1+2 [mW]	Sum 1+2 [dBm]
5180	-4.73	3.89	10.21	9.37	-4.47	3.89	10.21	9.63	8.65	9.18	17.83	12.51
5220	-4.73	3.90	10.21	9.38	-4.36	3.90	10.21	9.75	8.67	9.44	18.11	12.58
5240	-4.62	3.90	10.21	9.49	-4.61	3.90	10.21	9.50	8.89	8.91	17.80	12.51
5260	-4.70	3.91	10.21	9.42	-4.30	3.91	10.21	9.82	8.75	9.59	18.34	12.63
5300	-4.56	3.92	10.21	9.57	-4.28	3.92	10.21	9.85	9.06	9.66	18.72	12.72
5320	-4.42	3.92	10.21	9.71	-4.31	3.92	10.21	9.82	9.35	9.59	18.95	12.78
5500	-4.82	3.97	10.22	9.37	-4.22	3.97	10.22	9.97	8.65	9.93	18.58	12.69
5580	-5.00	3.98	10.22	9.20	-4.50	3.98	10.22	9.70	8.32	9.33	17.65	12.47
5700	-4.71	3.99	10.23	9.51	-4.72	3.99	10.23	9.50	8.93	8.91	17.85	12.52
5745	-4.43	4.00	10.23	9.80	-4.81	4.00	10.23	9.42	9.55	8.75	18.30	12.62
5785	-4.59	4.00	10.24	9.65	-4.84	4.00	10.24	9.40	9.23	8.71	17.94	12.54
5825	-4.72	4.01	10.24	9.53	-4.43	4.01	10.24	9.82	8.97	9.59	18.57	12.69

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room			
Date	January 8, 2019	January 9, 2019	January 11, 2019	February 16, 2019
Temperature / Humidity	24 deg. C / 54 % RH	26 deg. C / 42 % RH	24 deg. C / 51 % RH	23 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT40 (SISO), PN9, worst antenna port 1 (5190 MHz), 0 (other channel frequency)			

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Result (Timed average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
5190	-5.30	3.89	10.21	8.80	7.59	0.59	9.39	8.69
-	-	-	-	-	-	-	-	-
5230	-1.91	3.90	10.21	12.20	16.60	0.59	12.79	19.01
5270	-1.67	3.91	10.21	12.45	17.58	0.59	13.04	20.14
-	-	-	-	-	-	-	-	-
5310	-1.43	3.92	10.21	12.70	18.62	0.59	13.29	21.33
5510	-1.60	3.97	10.22	12.59	18.16	0.59	13.18	20.80
5550	-1.89	3.98	10.22	12.31	17.02	0.59	12.90	19.50
5670	-1.70	3.99	10.23	12.52	17.86	0.59	13.11	20.46
5755	-2.60	4.00	10.24	11.64	14.59	0.59	12.23	16.71
-	-	-	-	-	-	-	-	-
5795	-2.81	4.01	10.24	11.44	13.93	0.59	12.03	15.96

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Los
Result (Burst power average) = Time average + Duty factor
*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room			
Date	January 8, 2019	February 11, 2019	February 16, 2019	March 11, 2019
Temperature / Humidity	24 deg. C / 54 % RH	24 deg. C / 51 % RH	23 deg. C / 44 % RH	22 deg. C / 55 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT40 (SISO), PN9, worst antenna port 1 (5190 MHz), 0 (other channel frequency)			

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Result (Timed average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
5190	-5.03	3.89	10.21	9.07	8.07	0.57	9.64	9.20
-	-	-	-	-	-	-	-	-
5230	-1.90	3.90	10.21	12.21	16.63	0.57	12.78	18.97
5270	-1.69	3.91	10.21	12.43	17.50	0.57	13.00	19.95
-	-	-	-	-	-	-	-	-
5310	-1.49	3.92	10.21	12.64	18.37	0.57	13.21	20.94
5510	-1.63	3.97	10.22	12.56	18.03	0.57	13.13	20.56
5550	-1.84	3.98	10.22	12.36	17.22	0.57	12.93	19.63
5670	-1.76	3.99	10.23	12.46	17.62	0.57	13.03	20.09
5755	-2.57	4.00	10.24	11.67	14.69	0.57	12.24	16.75
-	-	-	-	-	-	-	-	-
5795	-2.75	4.01	10.24	11.50	14.13	0.57	12.07	16.11

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Los
Result (Burst power average) = Time average + Duty factor
*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room		
Date	January 10, 2019	January 16, 2019	March 14, 2019
Temperature / Humidity	23 deg. C / 51 % RH	23 deg. C / 52 % RH	22 deg. C / 52 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Kazutaka Takeyama
Mode	Tx, IEEE802.11n HT40 (MIMO), PN9		

	Antenna 0				Antenna 1				Antenna 0+1			
Tested Frequency	Power Meter Reading	Cable Loss	Atten. Loss	Result (Timed average)	Power Meter Reading	Cable Loss	Atten. Loss	Result (Timed average)	Result (Timed average) Antenna 1	Antenna 2	Sum 1+2	
[MHz]	[dBm]	[dB]	[dB]	[dBm]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[mW]	[mW]	[dBm]
5190	-8.80	3.93	9.94	5.07	-8.34	3.93	9.94	5.53	3.21	3.57	6.79	8.32
-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-5.24	3.90	10.21	8.87	-4.99	3.90	10.21	9.12	7.71	8.17	15.87	12.01
5270	-5.12	3.91	10.21	9.00	-4.79	3.91	10.21	9.33	7.94	8.57	16.51	12.18
-	-	-	-	-	-	-	-	-	-	-	-	-
5310	-4.92	3.92	10.21	9.21	-4.85	3.92	10.21	9.28	8.34	8.47	16.81	12.26
5510	-5.14	3.97	10.22	9.05	-4.29	3.97	10.22	9.90	8.04	9.77	17.81	12.51
5550	-5.17	3.98	10.22	9.03	-4.53	3.98	10.22	9.67	8.00	9.27	17.27	12.37
5670	-5.19	3.99	10.23	9.03	-4.82	3.99	10.23	9.40	8.00	8.71	16.71	12.23
5755	-4.77	4.00	10.24	9.47	-4.95	4.00	10.24	9.29	8.85	8.49	17.34	12.39
-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-4.93	4.01	10.24	9.32	-4.81	4.01	10.24	9.44	8.55	8.79	17.34	12.39

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room		
Date	January 9, 2019	January 16, 2019	March 14, 2019
Temperature / Humidity	26 deg. C / 42 % RH	23 deg. C / 52 % RH	22 deg. C / 52 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Kazutaka Takeyama
Mode	Tx, IEEE802.11ac VHT40 (MIMO), PN9		

	Antenna 0				Antenna 1				Antenna 0+1			
Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Result (Timed average) Antenna 1 [mW]	Antenna 2 [mW]	Sum 1+2 [mW]	[dBm]
5190	-8.73	3.93	9.94	5.14	-8.32	3.93	9.94	5.55	3.27	3.59	6.86	8.36
-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-5.18	3.90	10.21	8.93	-4.91	3.90	10.21	9.20	7.82	8.32	16.13	12.08
5270	-5.04	3.91	10.21	9.08	-4.78	3.91	10.21	9.34	8.09	8.59	16.68	12.22
-	-	-	-	-				-	-	-	-	-
5310	-4.91	3.92	10.21	9.22	-4.85	3.92	10.21	9.28	8.36	8.47	16.83	12.26
5510	-5.01	3.97	10.22	9.18	-4.30	3.97	10.22	9.89	8.28	9.75	18.03	12.56
5550	-5.32	3.98	10.22	8.88	-4.52	3.98	10.22	9.68	7.73	9.29	17.02	12.31
5670	-5.13	3.99	10.23	9.09	-5.04	3.99	10.23	9.18	8.11	8.28	16.39	12.15
5755	-4.81	4.00	10.24	9.43	-4.90	4.00	10.24	9.34	8.77	8.59	17.36	12.40
-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-4.89	4.01	10.24	9.36	-4.71	4.01	10.24	9.54	8.63	8.99	17.62	12.46

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room			
Date	January 8, 2019	January 11, 2019	February 16, 2019	March 18, 2019
Temperature / Humidity	24 deg. C / 54 % RH	24 deg. C / 51 % RH	23 deg. C / 44 % RH	22 deg. C / 54 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa	Kenichi Adachi
Mode	Tx, IEEE802.11ac VHT80 (SISO), PN9, worst antenna port 1 (5210 MHz - 5530 MHz), 0 (5775 MHz)			

Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Result (Timed average) [mW]	Duty factor [dB]	Result (Burst power average) [dBm]	Result (Burst power average) [mW]
5210	-6.78	3.94	9.94	7.10	5.13	1.09	8.19	6.59
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
5290	-6.66	3.96	9.93	7.23	5.28	1.09	8.32	6.79
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
5530	-4.70	3.97	10.22	9.49	8.89	1.09	10.58	11.43
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
5775	-3.14	4.00	10.24	11.10	12.88	1.09	12.19	16.56
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Los
Result (Burst power average) = Time average + Duty factor
*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Average Output Power
(Reference data)

Test place	Shonan EMC Lab. No.1 Measurement Room			
Date	January 9, 2019	January 16, 2019	February 16, 2019	March 18, 2019
Temperature / Humidity	26 deg. C / 42 % RH	23 deg. C / 52 % RH	23 deg. C / 44 % RH	23 deg. C / 54 % RH
Engineer	Yosuke Ishikawa	Yosuke Ishikawa	Yosuke Ishikawa	Kenichi Adachi
Mode	Tx, IEEE802.11ac VHT80 (MIMO), PN9			

	Antenna 0				Antenna 1				Antenna 0+1			
Tested Frequency [MHz]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Power Meter Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	Result (Timed average) [dBm]	Result (Timed average) Antenna 1 [mW]	Antenna 2 [mW]	Sum 1+2 [mW]	Sum 1+2 [dBm]
5210	-10.75	3.89	10.21	3.35	-10.52	3.89	10.21	3.58	2.16	2.28	4.44	6.48
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5290	-10.70	3.92	10.21	3.43	-10.59	3.92	10.21	3.54	2.20	2.26	4.46	6.50
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5530	-9.17	3.97	10.22	5.02	-8.68	3.97	10.22	5.51	3.18	3.56	6.73	8.28
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5775	-5.77	4.00	10.24	8.47	-5.69	4.00	10.24	8.55	7.03	7.16	14.19	11.52
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:
Result (Timed average) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss

*The equipment and cables were not used for factor 0 dB of the data sheets.

The average output power was measured with the lowest order modulation and lowest data rate configuration in each IEEE 802.11 mode based on KDB 248227 D01.

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

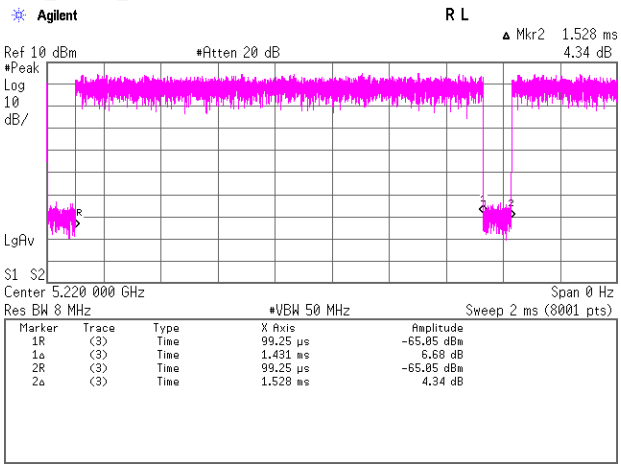
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11a, antenna port 0, (Tx 5220 MHz)

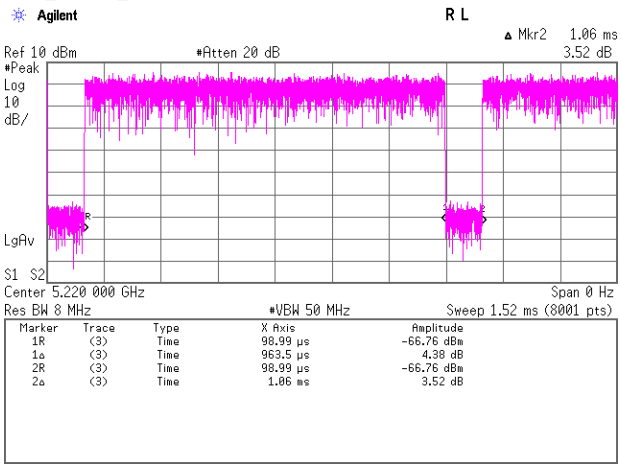
6 Mbps

duty factor [dB] = 10 x log (1.528[ms] / 1.431[ms]) = 0.28 [dB]



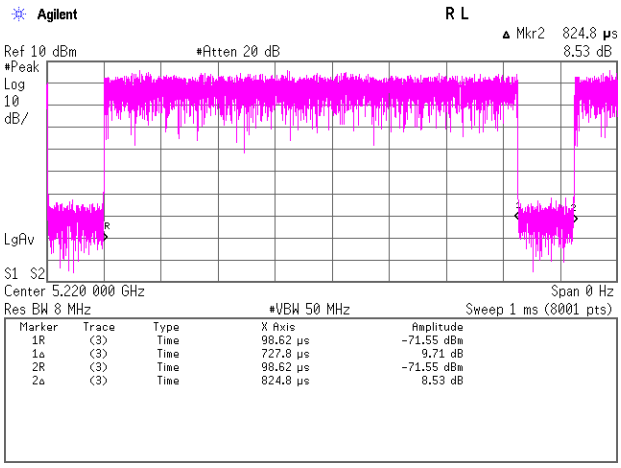
9 Mbps

duty factor [dB] = 10 x log (1.06[ms] / 0.964[ms]) = 0.42 [dB]



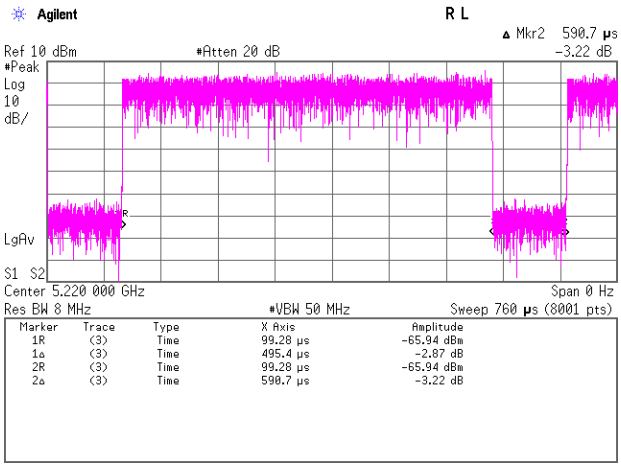
12 Mbps

duty factor [dB] = 10 x log (0.825[ms] / 0.728[ms]) = 0.54 [dB]



18 Mbps

duty factor [dB] = 10 x log (0.591[ms] / 0.495[ms]) = 0.77 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

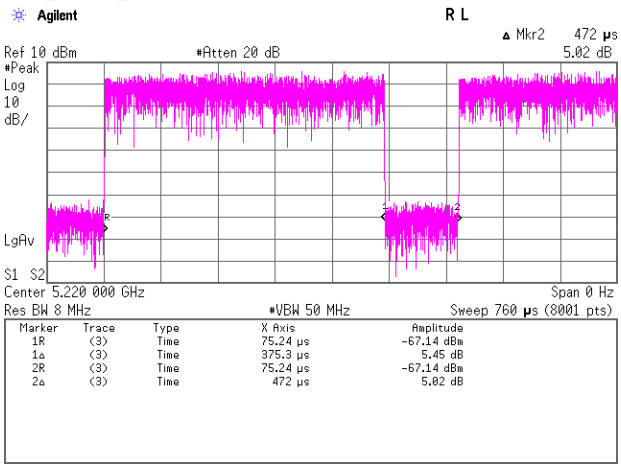
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11a, antenna port 0, (Tx 5220 MHz)

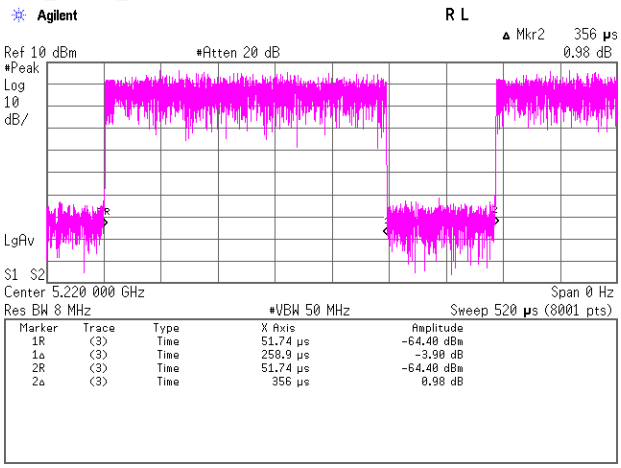
24 Mbps

duty factor [dB] = 10 x log (0.472[ms] / 0.375[ms]) = 1.00 [dB]



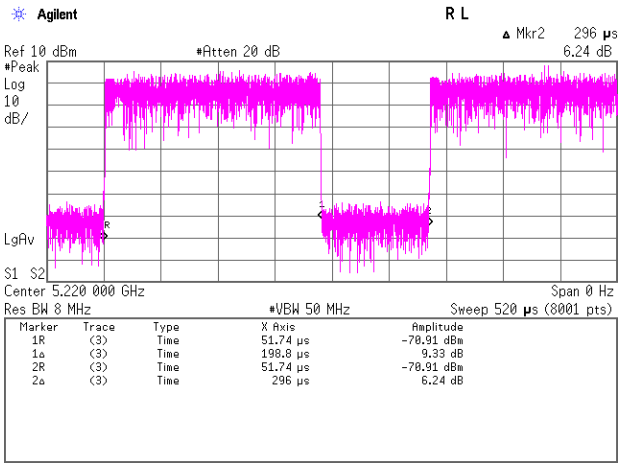
36 Mbps

duty factor [dB] = 10 x log (0.356[ms] / 0.259[ms]) = 1.38 [dB]



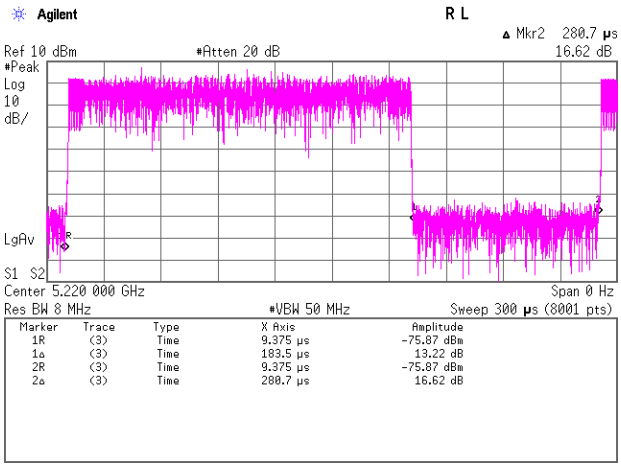
48 Mbps

duty factor [dB] = 10 x log (0.296[ms] / 0.199[ms]) = 1.72 [dB]



54 Mbps

duty factor [dB] = 10 x log (0.281[ms] / 0.184[ms]) = 1.84 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

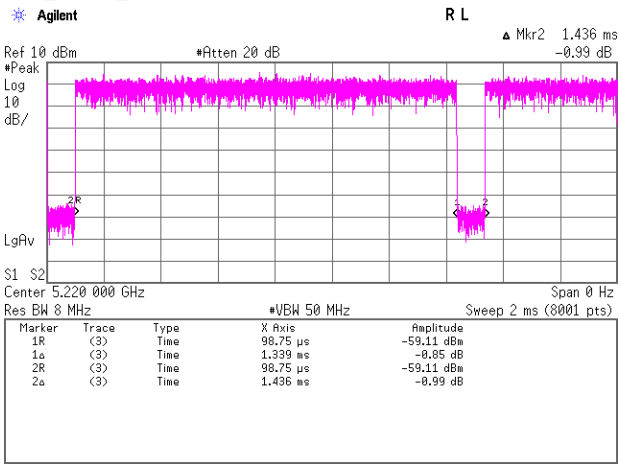
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n HT20 (SISO), antenna port 0, (Tx 5220 MHz)

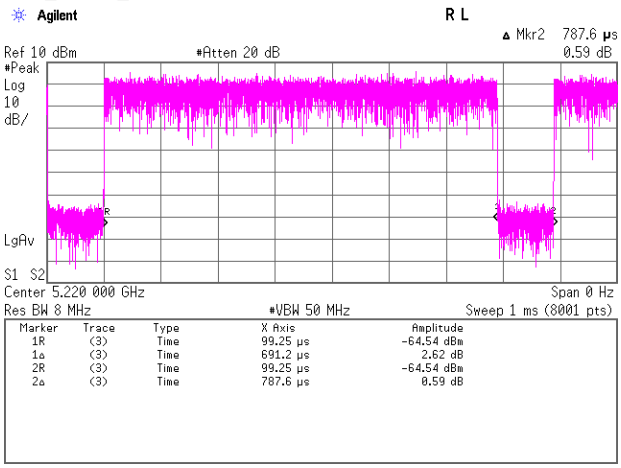
MCS 0

duty factor [dB] = 10 x log (1.436[ms] / 1.339[ms]) = 0.30 [dB]



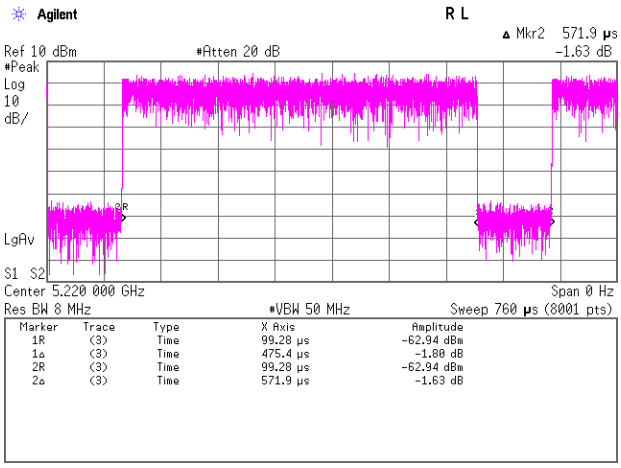
MCS 1

duty factor [dB] = 10 x log (0.788[ms] / 0.691[ms]) = 0.57 [dB]



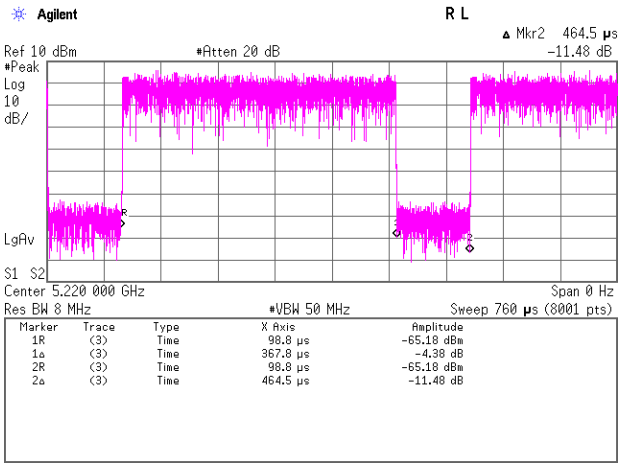
MCS 2

duty factor [dB] = 10 x log (0.572[ms] / 0.475[ms]) = 0.81 [dB]



MCS 3

duty factor [dB] = 10 x log (0.465[ms] / 0.368[ms]) = 1.01 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

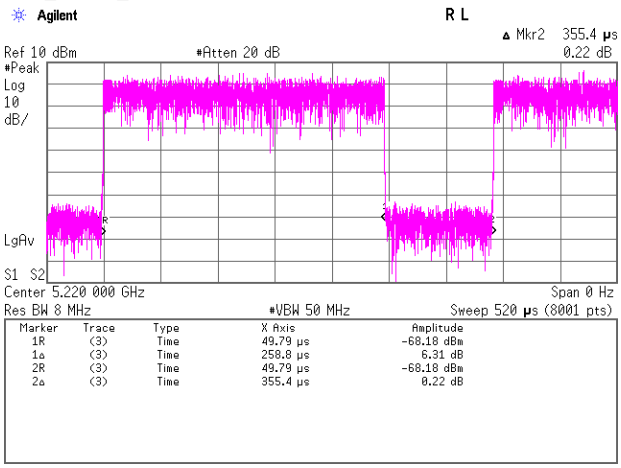
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n HT20 (SISO), antenna port 0, (Tx 5220 MHz)

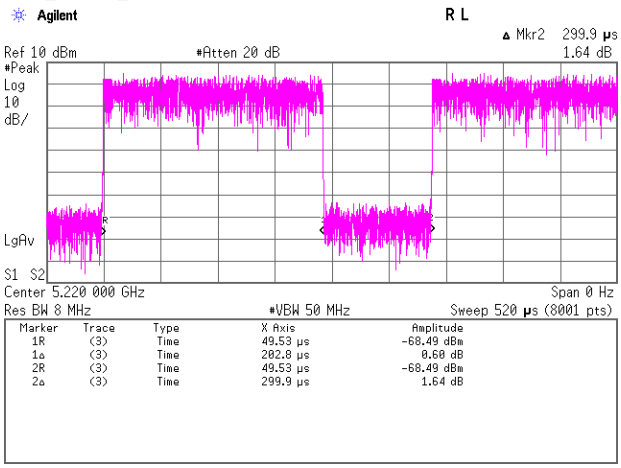
MCS 4

duty factor [dB] = 10 x log (0.355[ms] / 0.259[ms]) = 1.37 [dB]



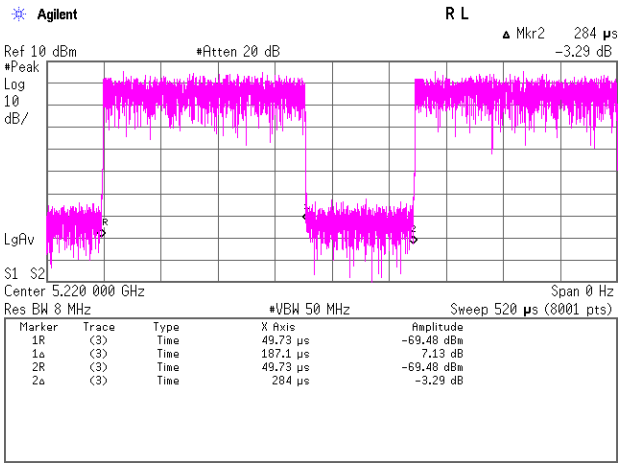
MCS 5

duty factor [dB] = 10 x log (0.3[ms] / 0.203[ms]) = 1.70 [dB]



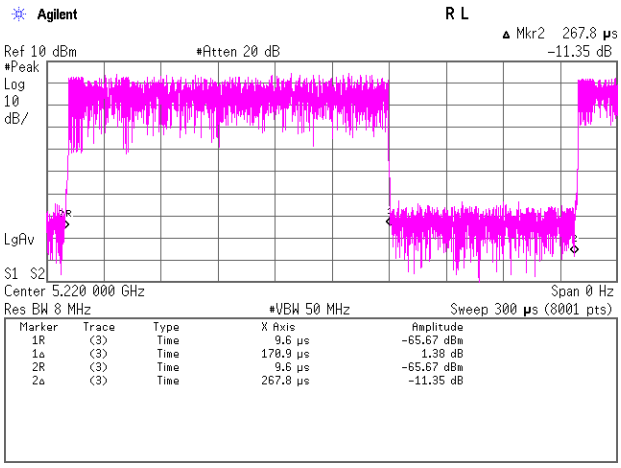
MCS 6

duty factor [dB] = 10 x log (0.284[ms] / 0.187[ms]) = 1.81 [dB]



MCS 7

duty factor [dB] = 10 x log (0.268[ms] / 0.171[ms]) = 1.95 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

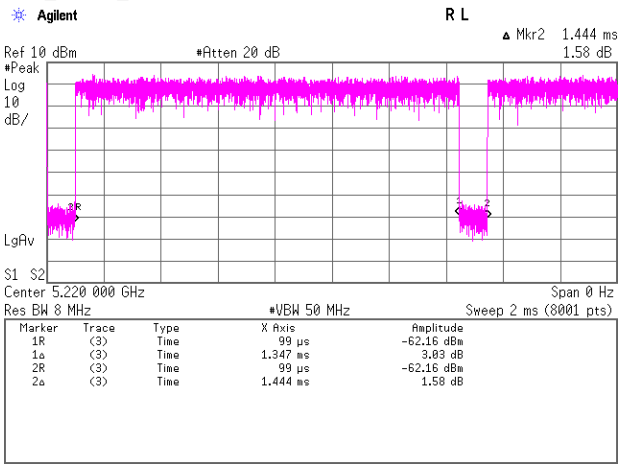
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT20 (SISO), antenna port 0, (Tx 5220 MHz)

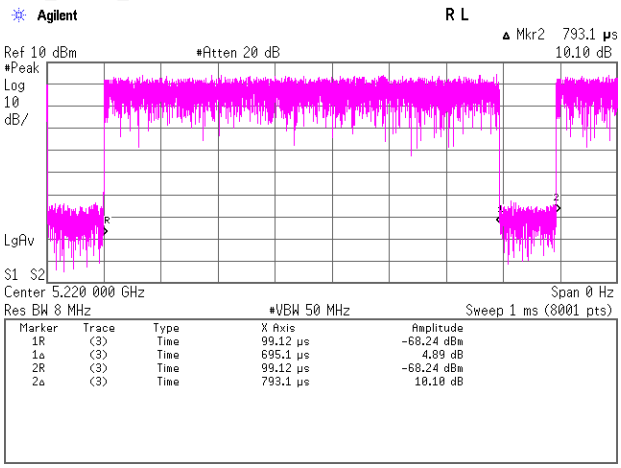
MCS 0

duty factor [dB] = 10 x log (1.444[ms] / 1.347[ms]) = 0.30 [dB]



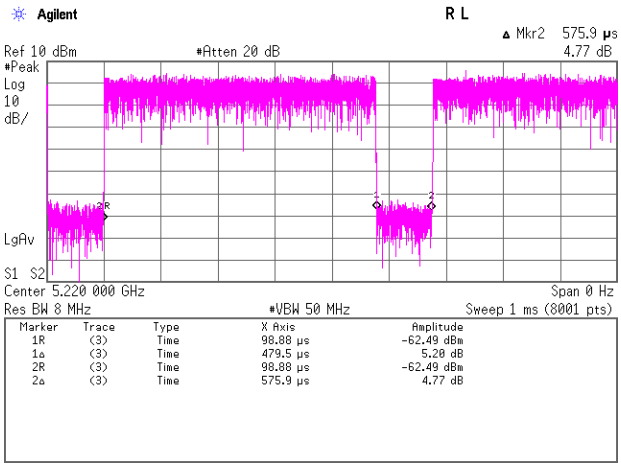
MCS 1

duty factor [dB] = 10 x log (0.793[ms] / 0.695[ms]) = 0.57 [dB]



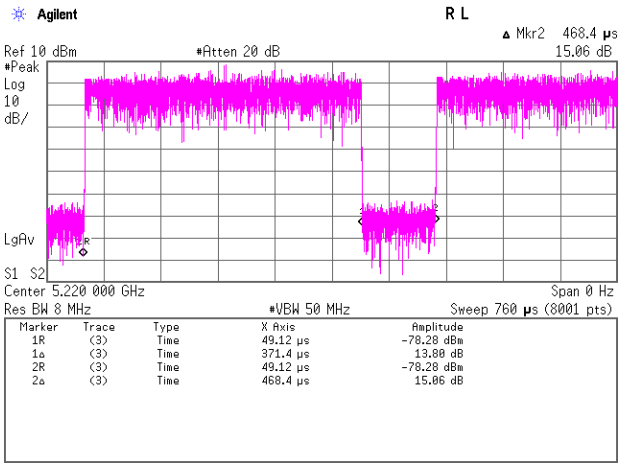
MCS 2

duty factor [dB] = 10 x log (0.576[ms] / 0.48[ms]) = 0.79 [dB]



MCS 3

duty factor [dB] = 10 x log (0.468[ms] / 0.371[ms]) = 1.01 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

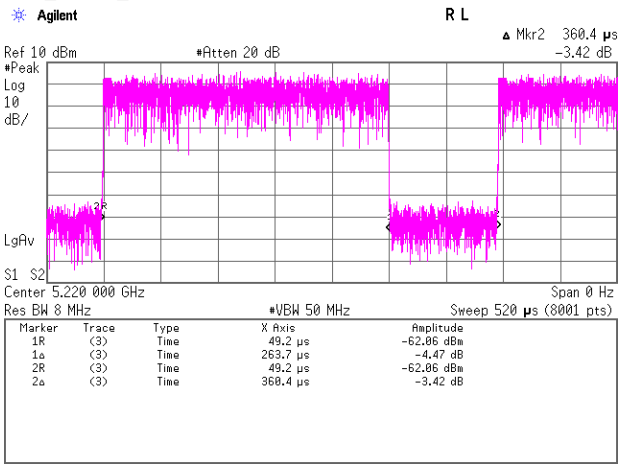
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT20 (SISO), antenna port 0, (Tx 5220 MHz)

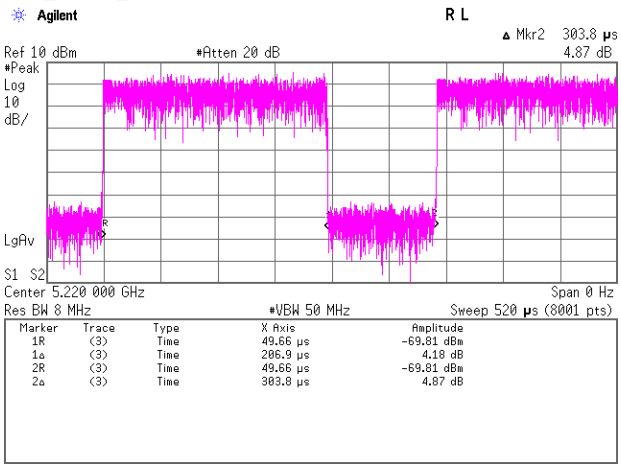
MCS 4

duty factor [dB] = 10 x log (0.36[ms] / 0.264[ms]) = 1.35 [dB]



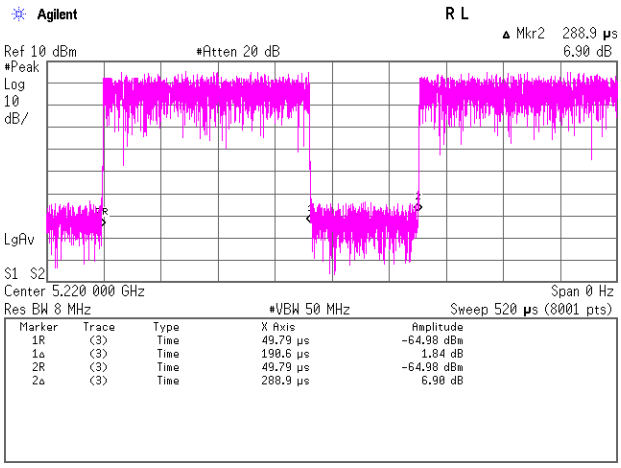
MCS 5

duty factor [dB] = 10 x log (0.304[ms] / 0.207[ms]) = 1.67 [dB]



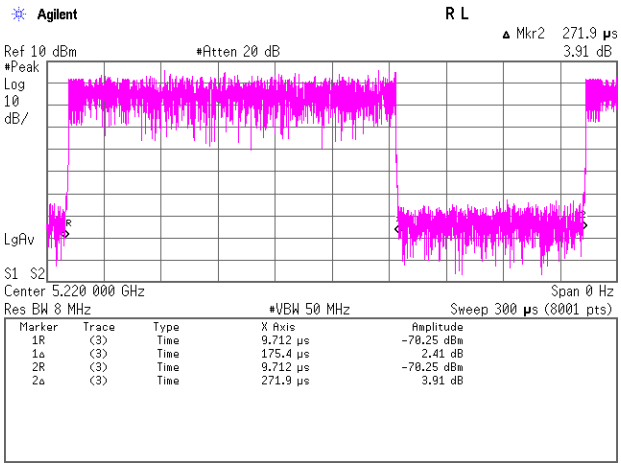
MCS 6

duty factor [dB] = 10 x log (0.289[ms] / 0.191[ms]) = 1.80 [dB]



MCS 7

duty factor [dB] = 10 x log (0.272[ms] / 0.175[ms]) = 1.92 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

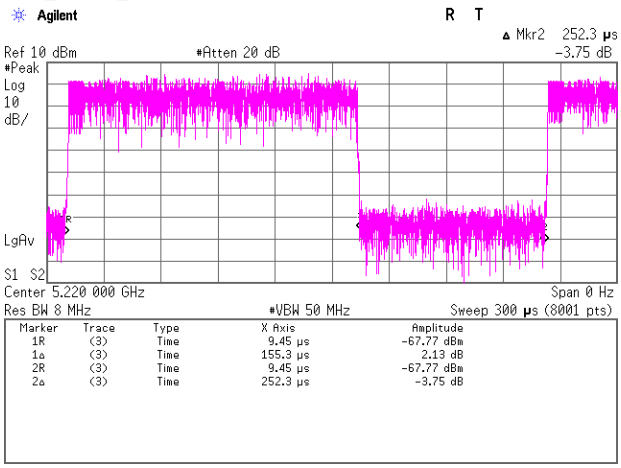
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT20 (SISO), antenna port 0, (Tx 5220 MHz)

MCS 8

duty factor [dB] = 10 x log (0.252[ms] / 0.155[ms]) = 2.11 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 10, 2019	
Temperature / Humidity	23 deg.C , 51 %RH	
Engineer	Yosuke Ishikawa	

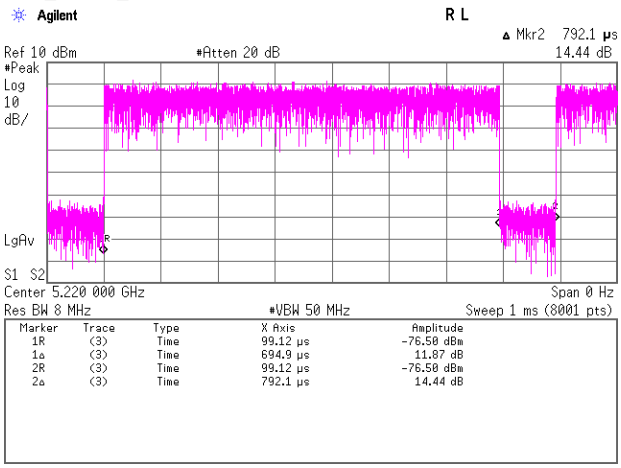
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n HT20 (MIMO), (5220 MHz)

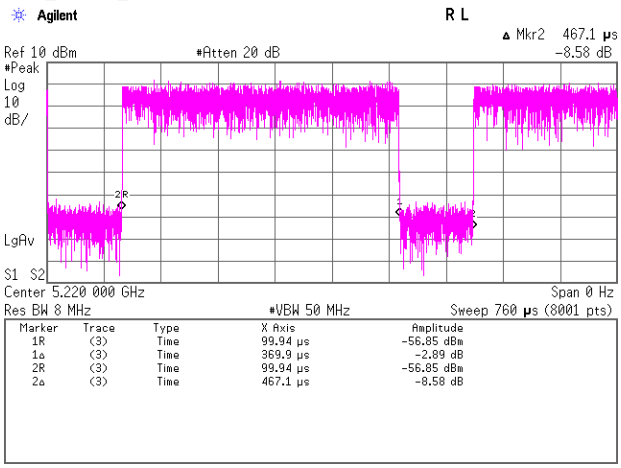
MCS 8

duty factor [dB] = 10 x log (0.792[ms] / 0.695[ms]) = 0.57 [dB]



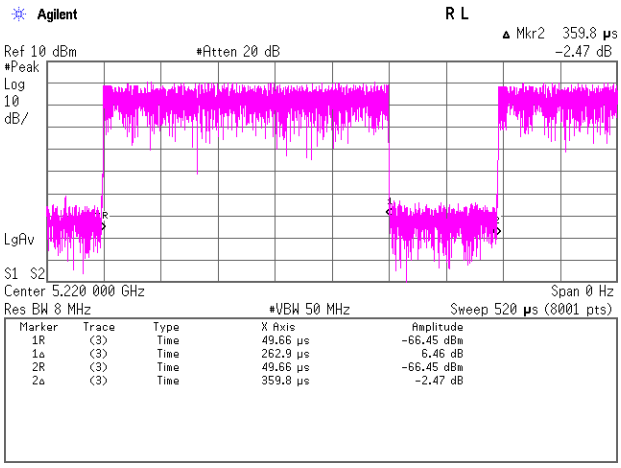
MCS 9

duty factor [dB] = 10 x log (0.467[ms] / 0.37[ms]) = 1.01 [dB]



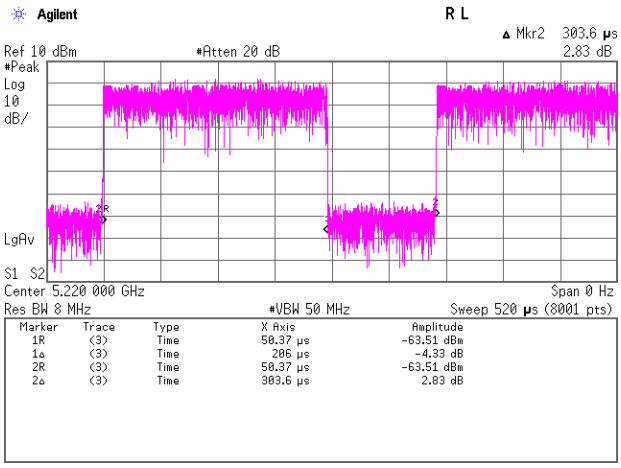
MCS 10

duty factor [dB] = 10 x log (0.36[ms] / 0.263[ms]) = 1.36 [dB]



MCS 11

duty factor [dB] = 10 x log (0.304[ms] / 0.206[ms]) = 1.68 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 10, 2019	
Temperature / Humidity	23 deg.C , 51 %RH	
Engineer	Yosuke Ishikawa	

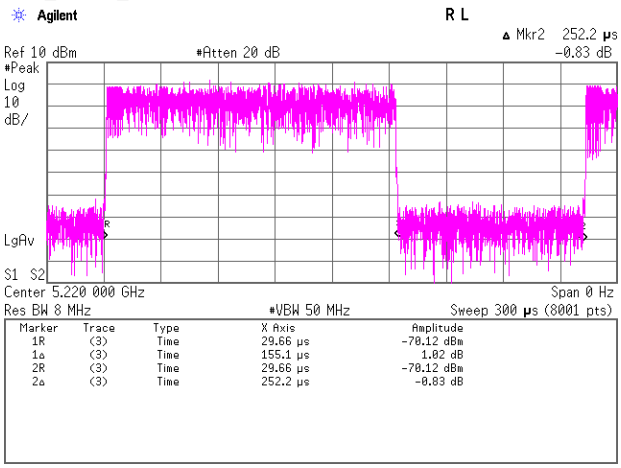
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n HT20 (MIMO), (5220 MHz)

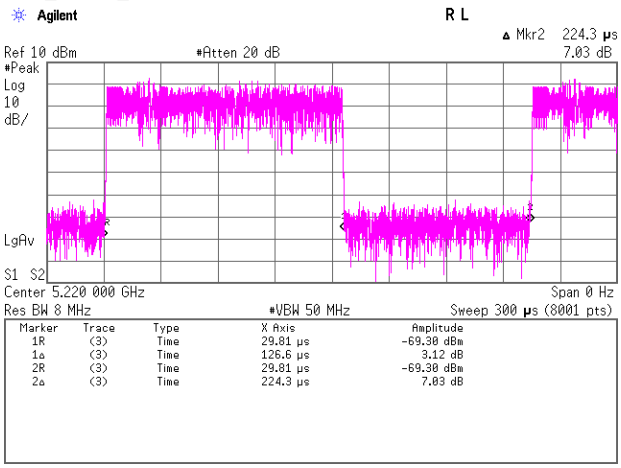
MCS 12

duty factor [dB] = 10 x log (0.252[ms] / 0.155[ms]) = 2.11 [dB]



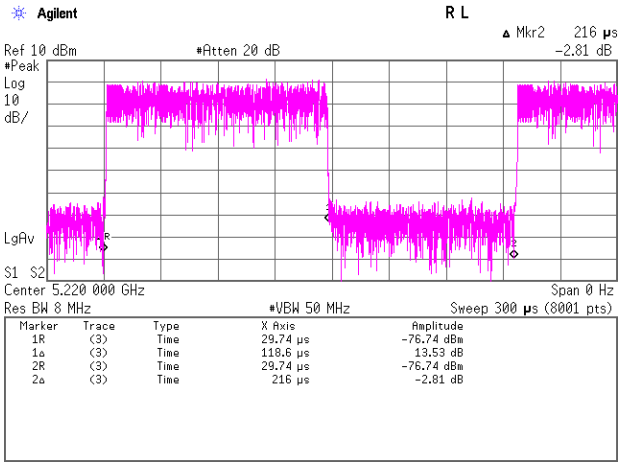
MCS 13

duty factor [dB] = 10 x log (0.224[ms] / 0.127[ms]) = 2.48 [dB]



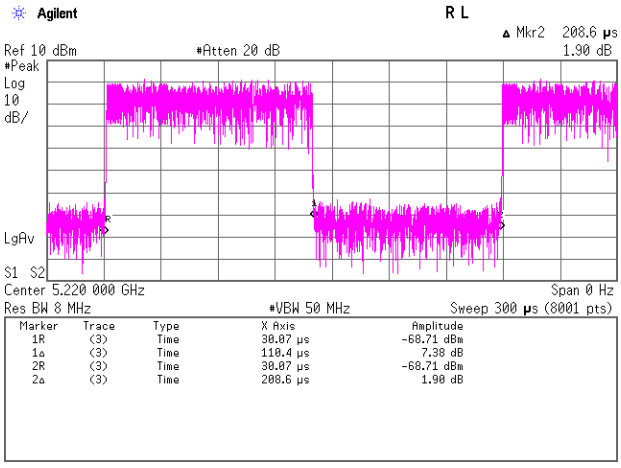
MCS 14

duty factor [dB] = 10 x log (0.216[ms] / 0.119[ms]) = 2.6 [dB]



MCS 15

duty factor [dB] = 10 x log (0.209[ms] / 0.11[ms]) = 2.76 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 10, 2019	
Temperature / Humidity	23 deg.C , 51 %RH	
Engineer	Yosuke Ishikawa	

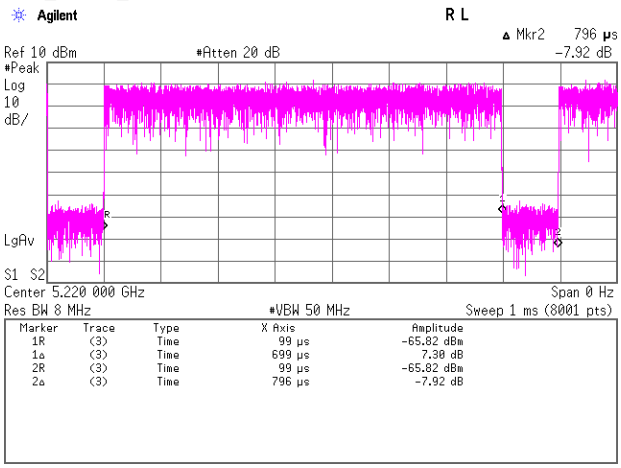
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT20 (MIMO), (5220 MHz)

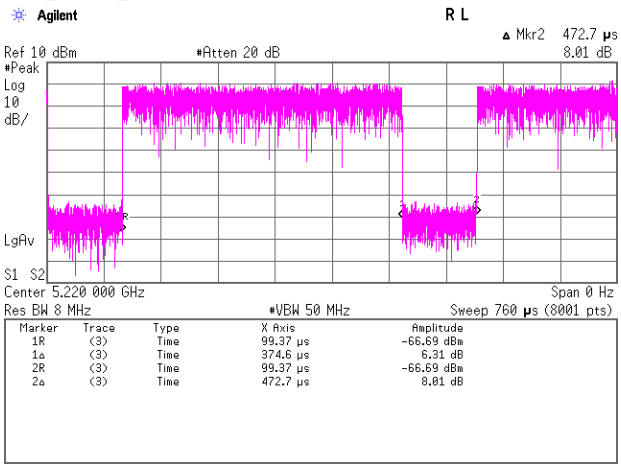
MCS 0

duty factor [dB] = 10 x log (0.796[ms] / 0.699[ms]) = 0.56 [dB]



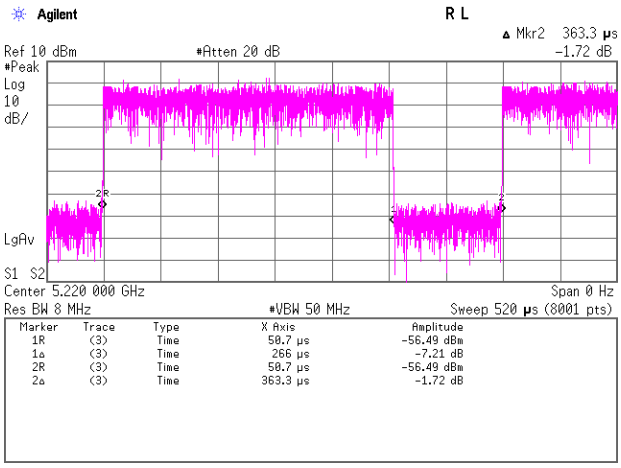
MCS 1

duty factor [dB] = 10 x log (0.473[ms] / 0.375[ms]) = 1.01 [dB]



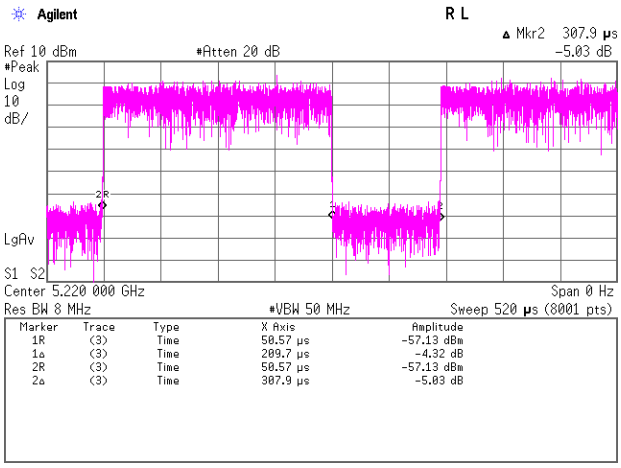
MCS 2

duty factor [dB] = 10 x log (0.363[ms] / 0.266[ms]) = 1.35 [dB]



MCS 3

duty factor [dB] = 10 x log (0.308[ms] / 0.21[ms]) = 1.67 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 10, 2019	
Temperature / Humidity	23 deg.C , 51 %RH	
Engineer	Yosuke Ishikawa	

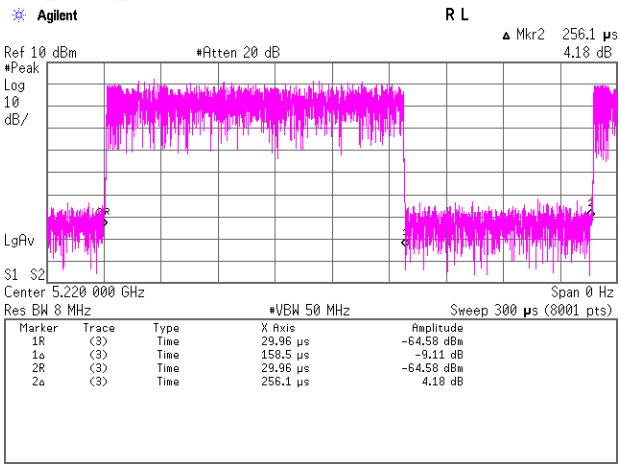
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT20 (MIMO), (5220 MHz)

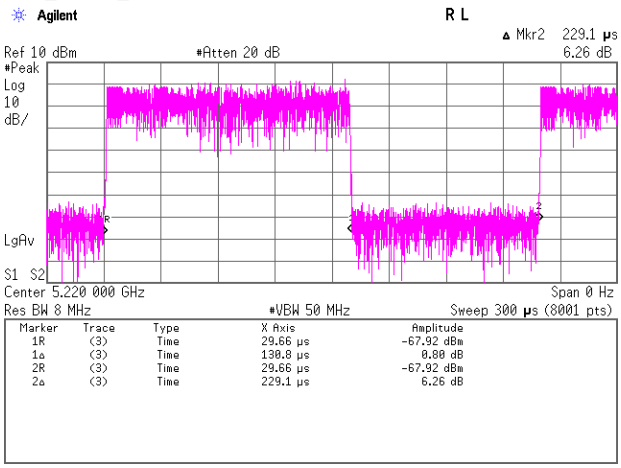
MCS 4

duty factor [dB] = 10 x log (0.256[ms] / 0.159[ms]) = 2.08 [dB]



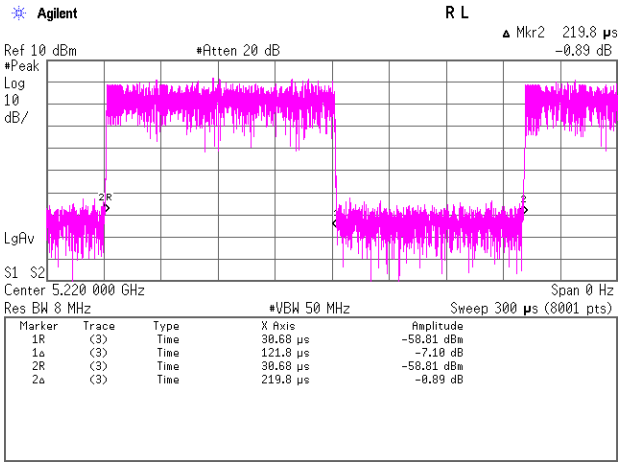
MCS 5

duty factor [dB] = 10 x log (0.229[ms] / 0.131[ms]) = 2.43 [dB]



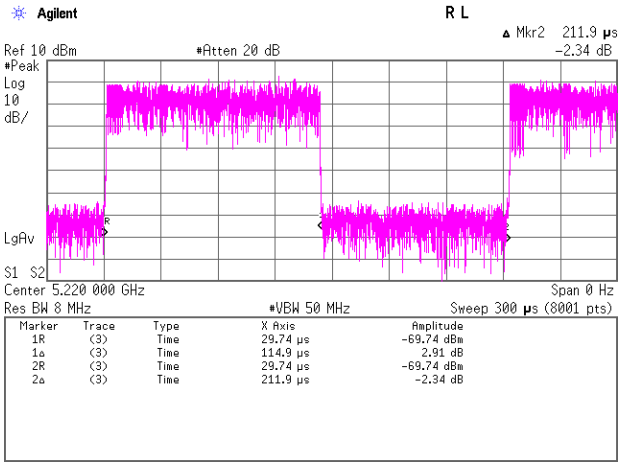
MCS 6

duty factor [dB] = 10 x log (0.22[ms] / 0.122[ms]) = 2.56 [dB]



MCS 7

duty factor [dB] = 10 x log (0.212[ms] / 0.115[ms]) = 2.66 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 10, 2019	
Temperature / Humidity	23 deg.C , 51 %RH	
Engineer	Yosuke Ishikawa	

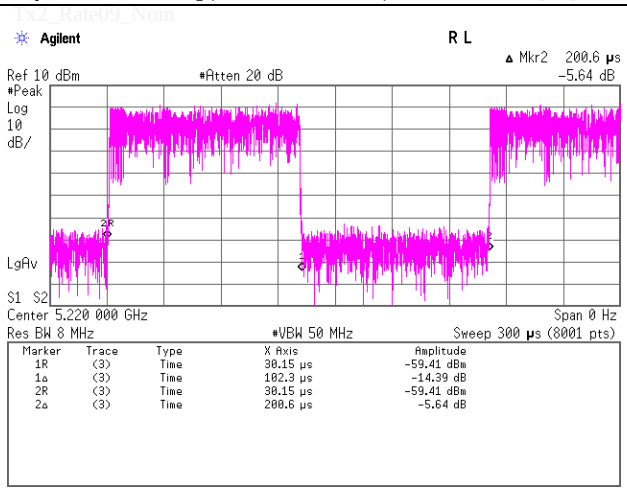
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT20 (MIMO), (5220 MHz)

MCS 8

duty factor [dB] = 10 x log (0.201[ms] / 0.102[ms]) = 2.92 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 24 %RH	
Engineer	Yosuke Ishikawa	

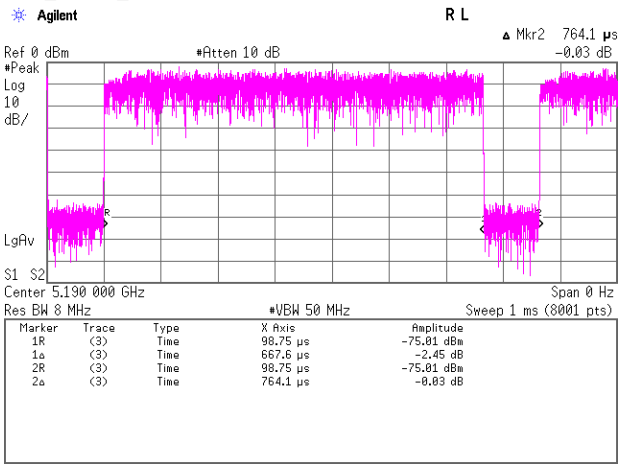
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n HT40 (SISO), antenna port 0, (Tx 5190 MHz)

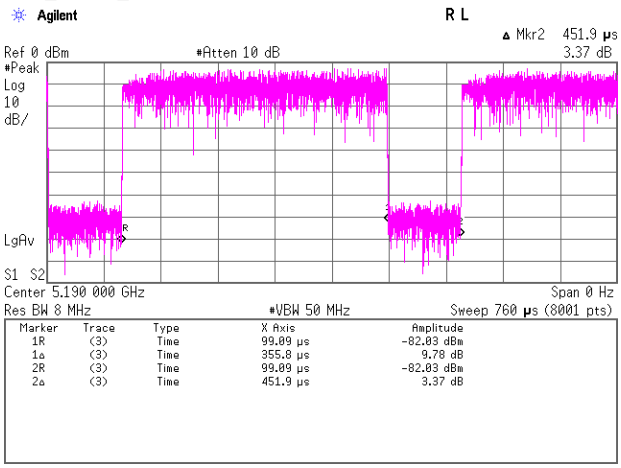
MCS 0

duty factor [dB] = 10 x log (0.764[ms] / 0.668[ms]) = 0.59 [dB]



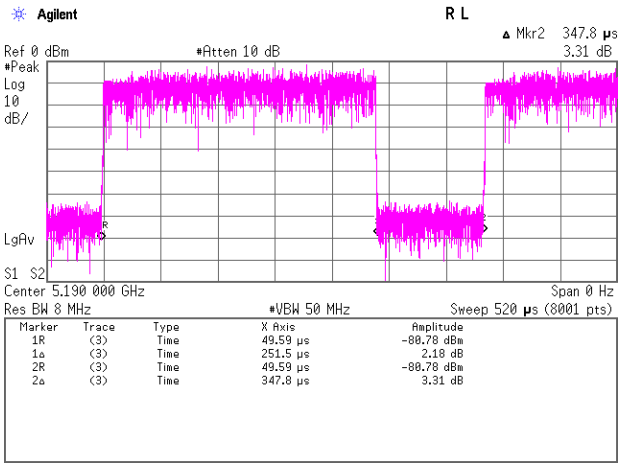
MCS 1

duty factor [dB] = 10 x log (0.452[ms] / 0.356[ms]) = 0.97 [dB]



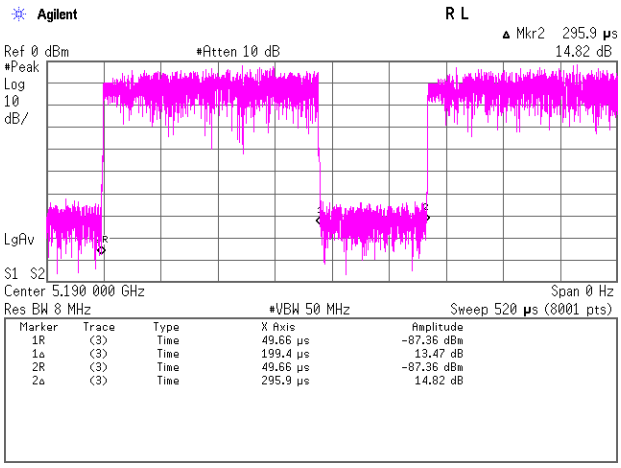
MCS 2

duty factor [dB] = 10 x log (0.348[ms] / 0.252[ms]) = 1.46 [dB]



MCS 3

duty factor [dB] = 10 x log (0.296[ms] / 0.199[ms]) = 1.76 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 24 %RH	
Engineer	Yosuke Ishikawa	

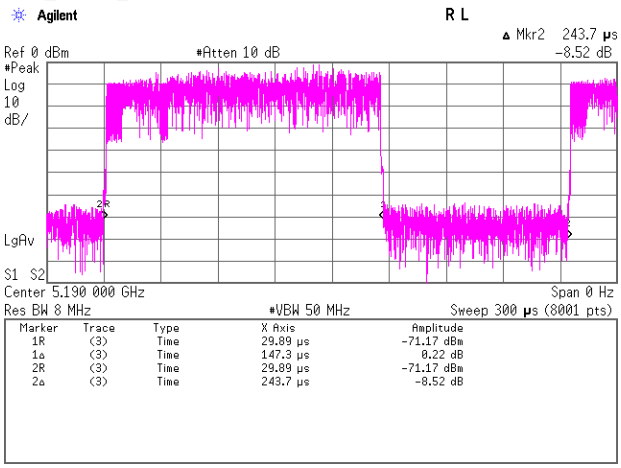
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11n HT40 (SISO), antenna port 0, (Tx 5190 MHz)

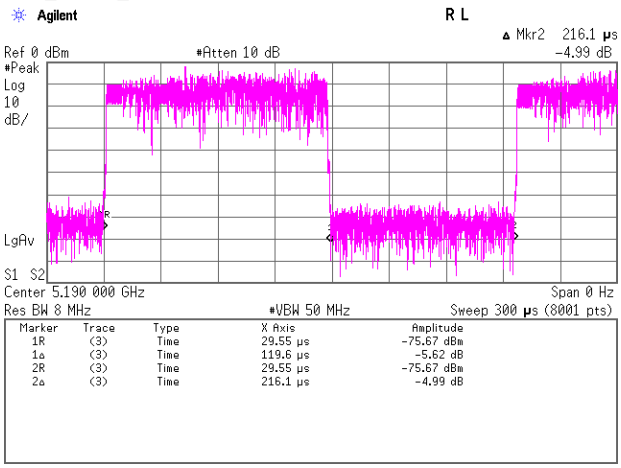
MCS 4

duty factor [dB] = 10 x log (0.244[ms] / 0.147[ms]) = 2.19 [dB]



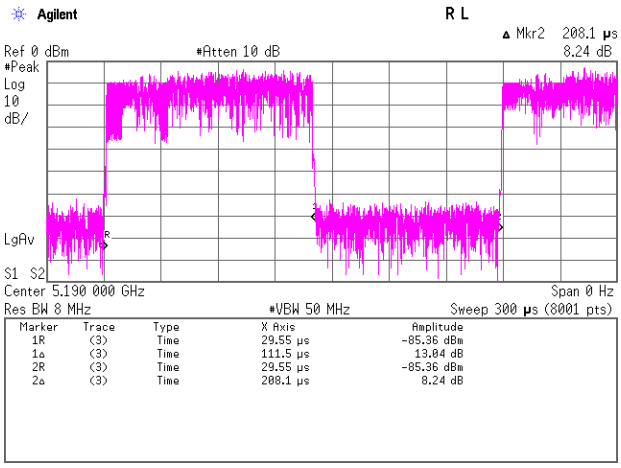
MCS 5

duty factor [dB] = 10 x log (0.216[ms] / 0.12[ms]) = 2.63 [dB]



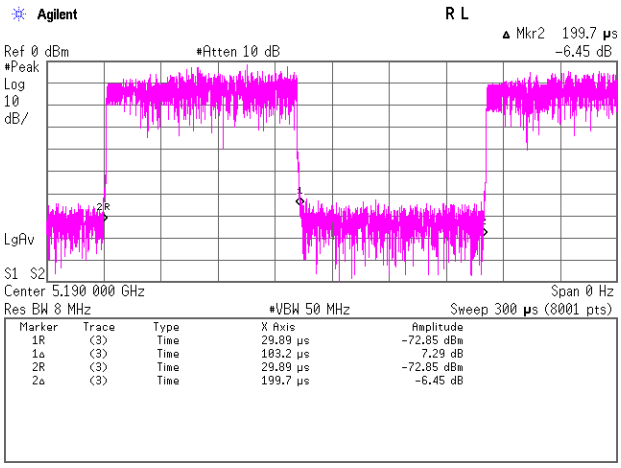
MCS 6

duty factor [dB] = 10 x log (0.208[ms] / 0.112[ms]) = 2.71 [dB]



MCS 7

duty factor [dB] = 10 x log (0.2[ms] / 0.103[ms]) = 2.87 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

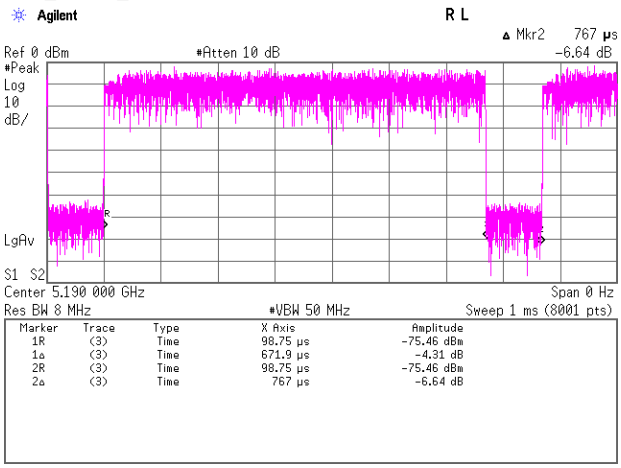
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT40 (SISO), antenna port 0, (Tx 5190 MHz)

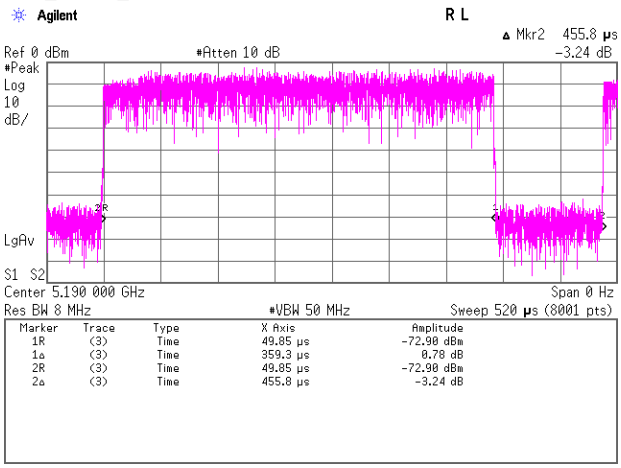
MCS 0

duty factor [dB] = 10 x log (0.767[ms] / 0.672[ms]) = 0.57 [dB]



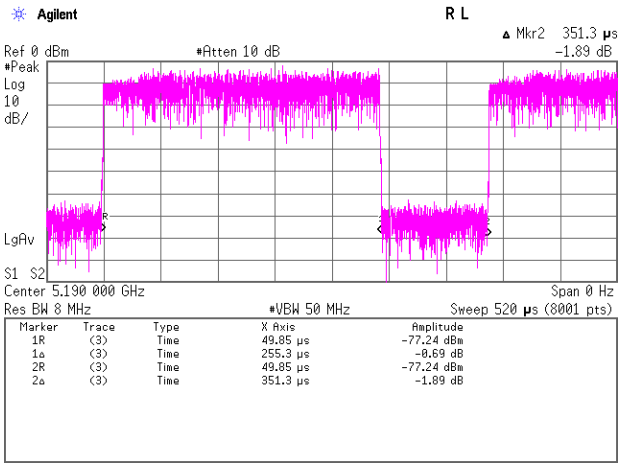
MCS 1

duty factor [dB] = 10 x log (0.456[ms] / 0.359[ms]) = 1.04 [dB]



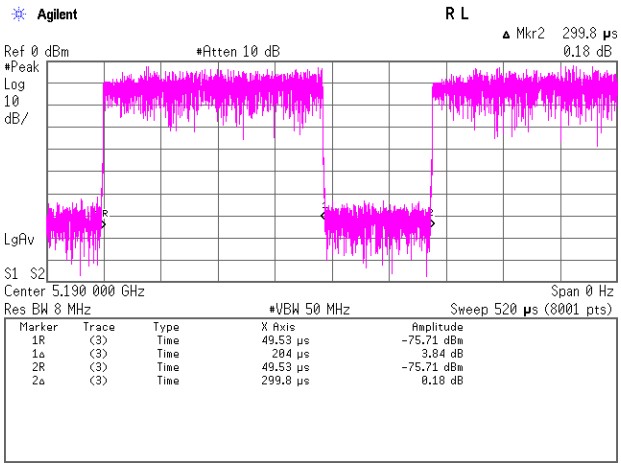
MCS 2

duty factor [dB] = 10 x log (0.351[ms] / 0.255[ms]) = 1.39 [dB]



MCS 3

duty factor [dB] = 10 x log (0.3[ms] / 0.204[ms]) = 1.67 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

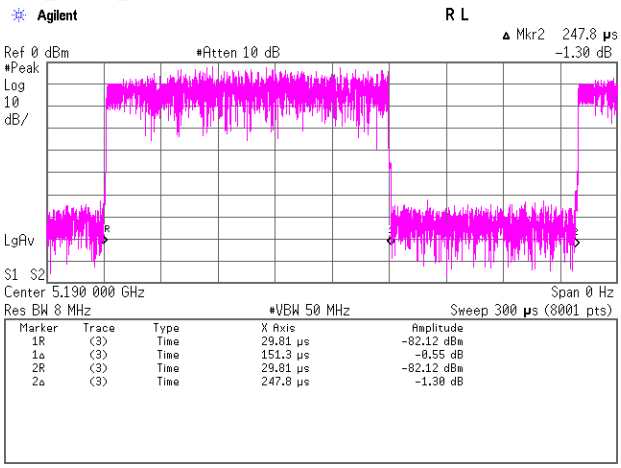
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT40 (SISO), antenna port 0, (Tx 5190 MHz)

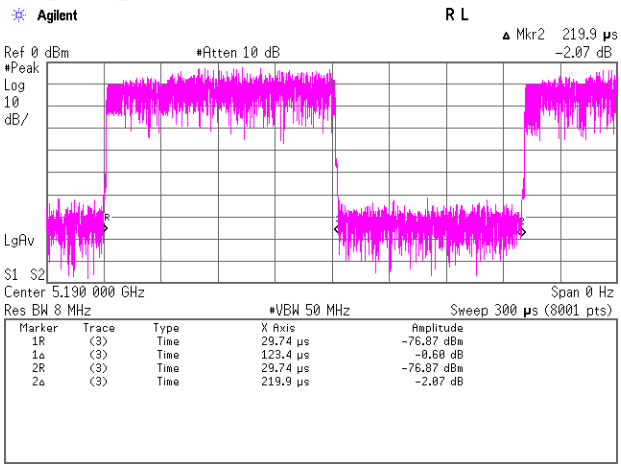
MCS 4

duty factor [dB] = 10 x log (0.248[ms] / 0.151[ms]) = 2.15 [dB]



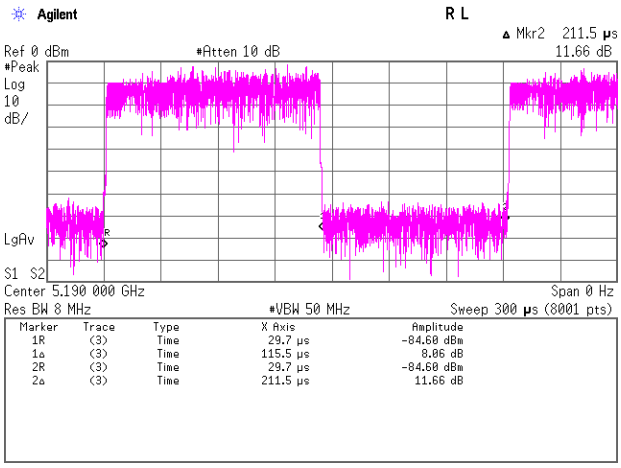
MCS 5

duty factor [dB] = 10 x log (0.22[ms] / 0.123[ms]) = 2.53 [dB]



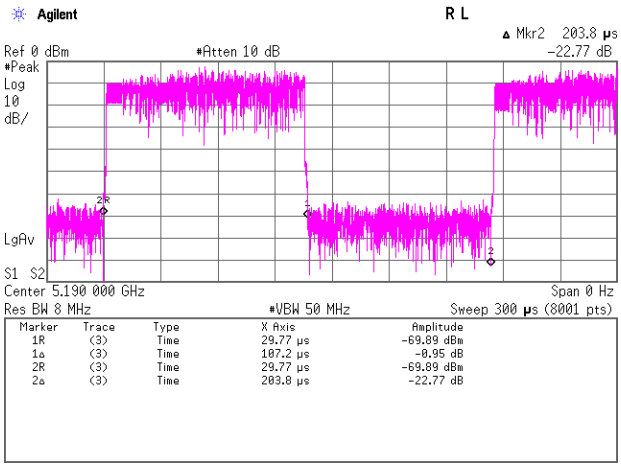
MCS 6

duty factor [dB] = 10 x log (0.212[ms] / 0.116[ms]) = 2.62 [dB]



MCS 7

duty factor [dB] = 10 x log (0.204[ms] / 0.107[ms]) = 2.80 [dB]



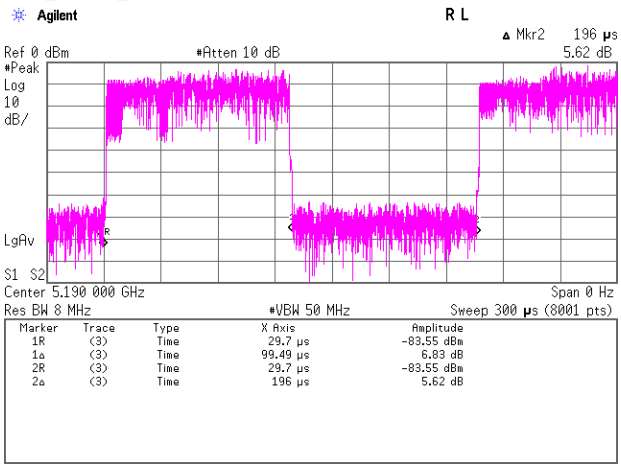
Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

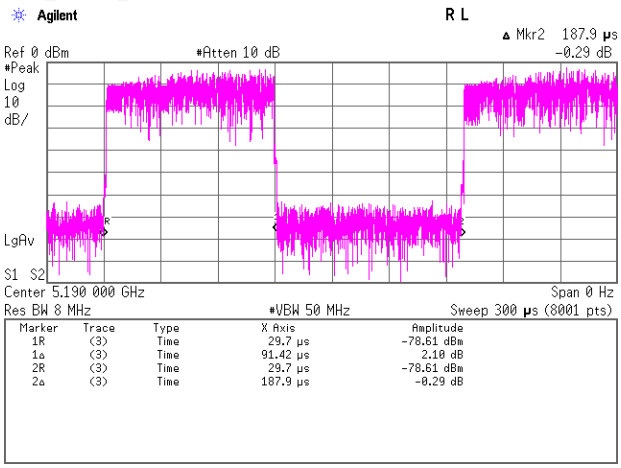
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT40 (SISO), antenna port 0, (Tx 5190 MHz)

MCS 8	MCS 9
duty factor [dB] = 10 x log (0.196[ms] / 0.099[ms]) = 2.97 [dB]	duty factor [dB] = 10 x log (0.188[ms] / 0.091[ms]) = 3.15 [dB]





Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

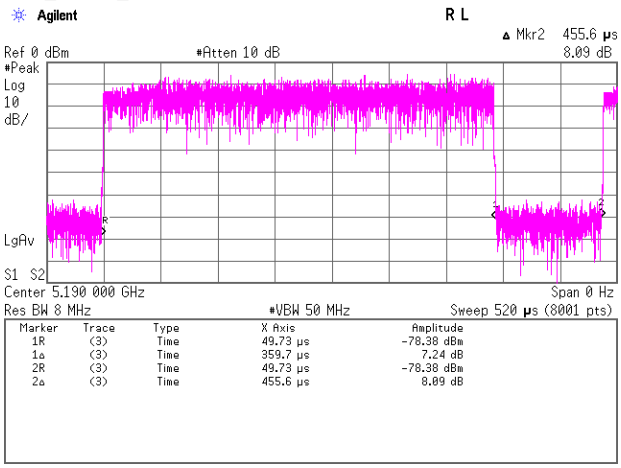
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE 802.11n HT40 (MIMO), (5190 MHz)

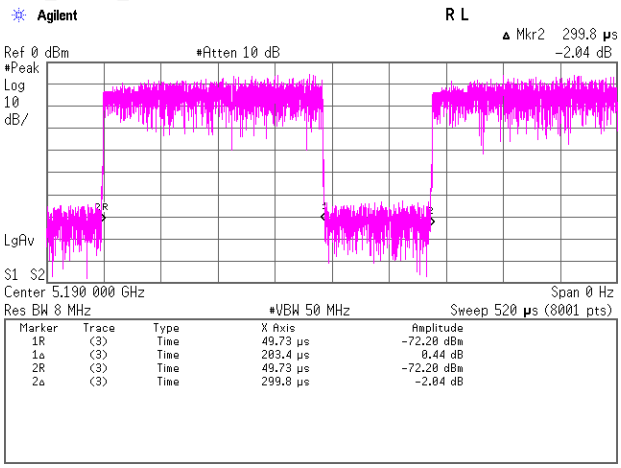
MCS 8

duty factor [dB] = 10 x log (0.456[ms] / 0.36[ms]) = 1.03 [dB]



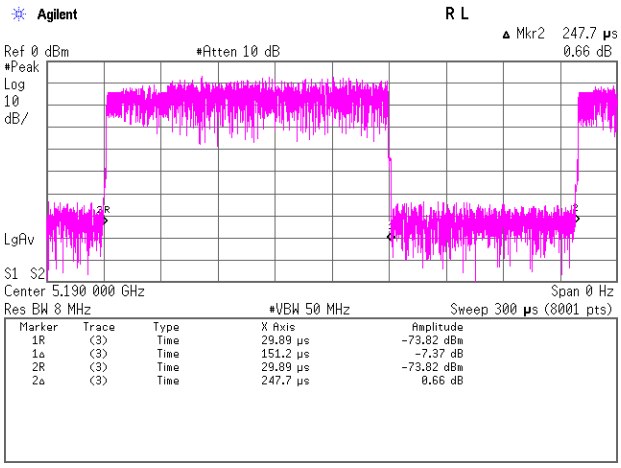
MCS 9

duty factor [dB] = 10 x log (0.3[ms] / 0.203[ms]) = 1.69 [dB]



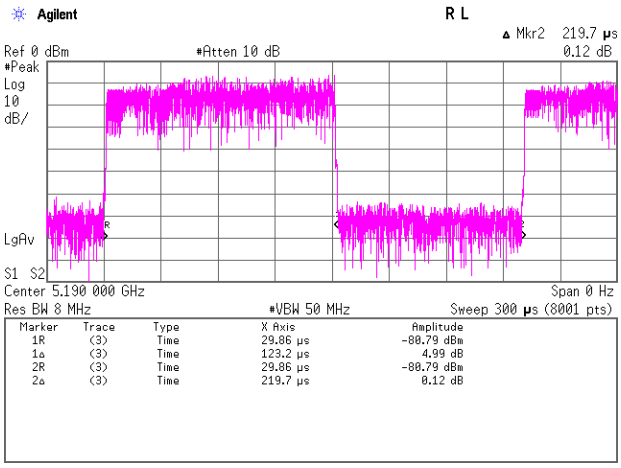
MCS 10

duty factor [dB] = 10 x log (0.248[ms] / 0.151[ms]) = 2.14 [dB]



MCS 11

duty factor [dB] = 10 x log (0.22[ms] / 0.123[ms]) = 2.51 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

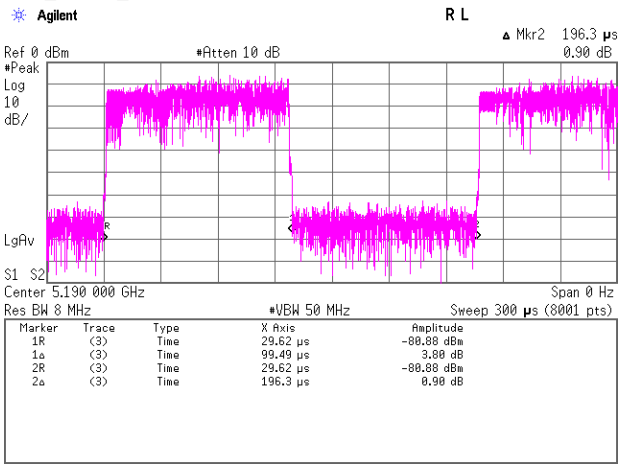
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE 802.11n HT40 (MIMO), (5190 MHz)

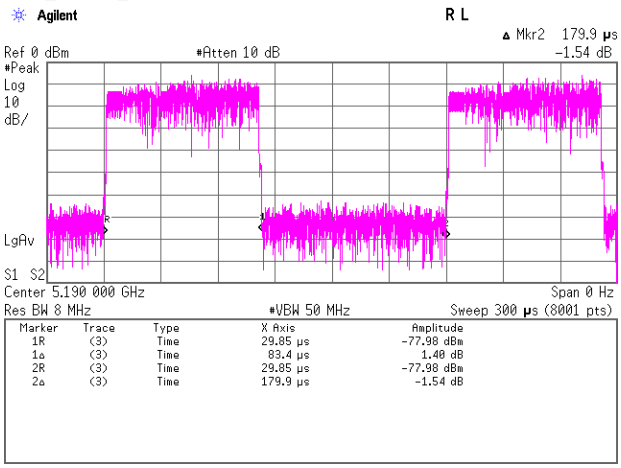
MCS 12

duty factor [dB] = 10 x log (0.196[ms] / 0.099[ms]) = 2.95 [dB]



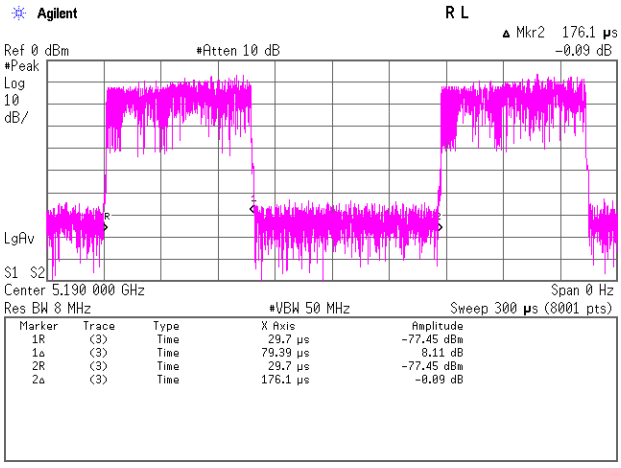
MCS 13

duty factor [dB] = 10 x log (0.18[ms] / 0.083[ms]) = 3.34 [dB]



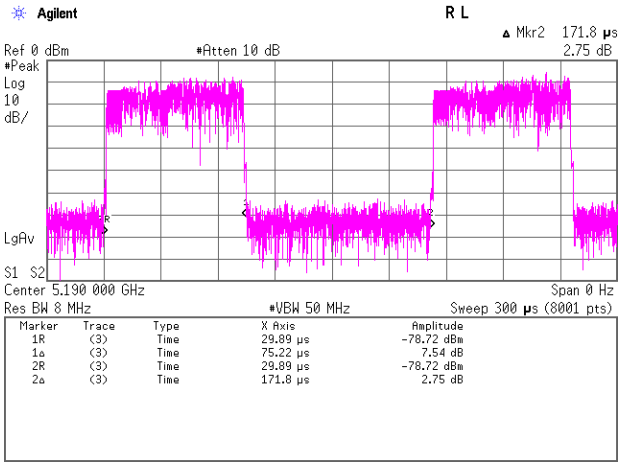
MCS 14

duty factor [dB] = 10 x log (0.176[ms] / 0.079[ms]) = 3.46 [dB]



MCS 15

duty factor [dB] = 10 x log (0.172[ms] / 0.075[ms]) = 3.59 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

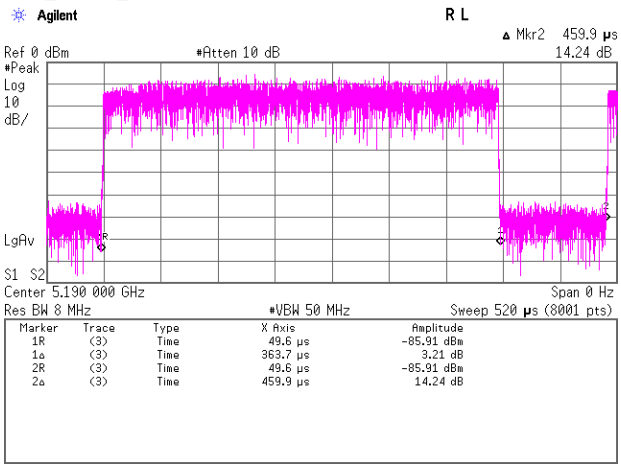
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE 802.11ac VHT40 (MIMO), (5190 MHz)

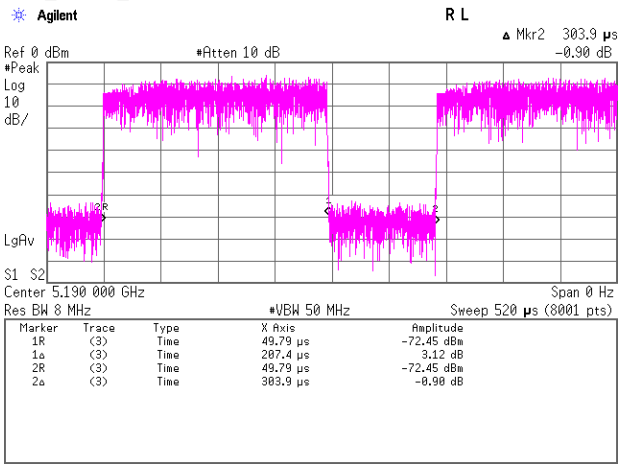
MCS 0

duty factor [dB] = 10 x log (0.46[ms] / 0.364[ms]) = 1.02 [dB]



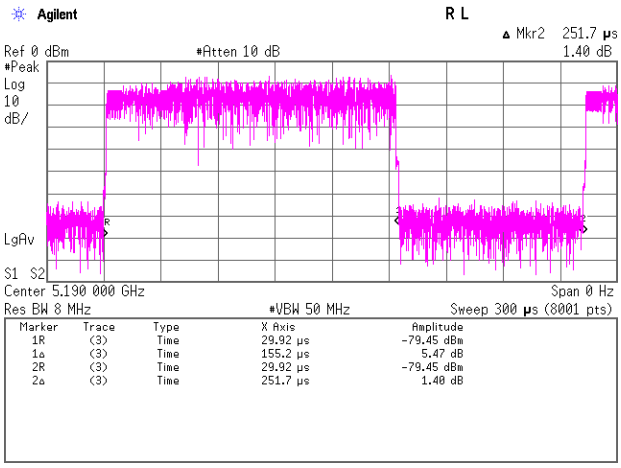
MCS 1

duty factor [dB] = 10 x log (0.304[ms] / 0.207[ms]) = 1.66 [dB]



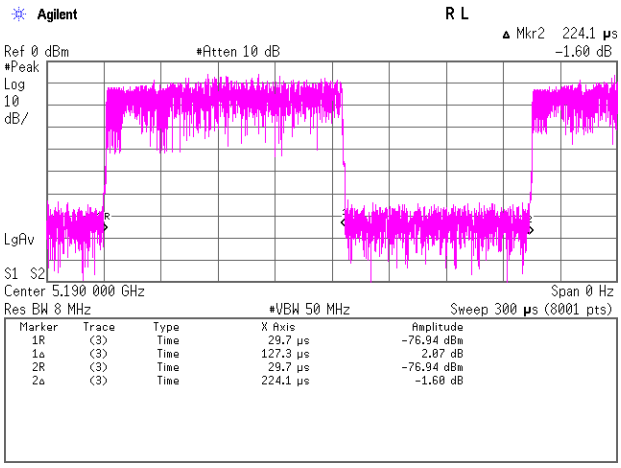
MCS 2

duty factor [dB] = 10 x log (0.252[ms] / 0.155[ms]) = 2.1 [dB]



MCS 3

duty factor [dB] = 10 x log (0.224[ms] / 0.127[ms]) = 2.45 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

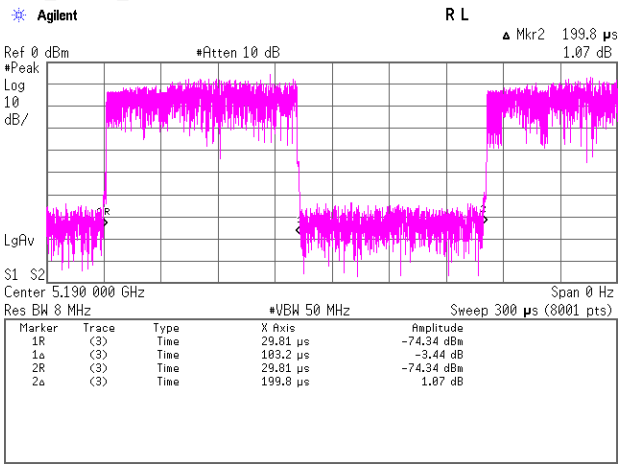
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE 802.11ac VHT40 (MIMO), (5190 MHz)

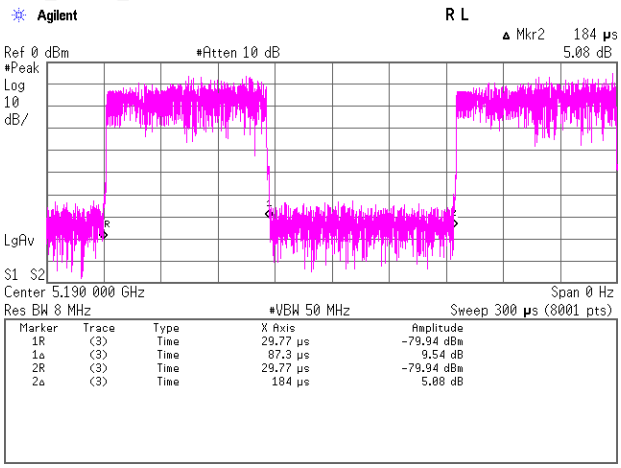
MCS 4

duty factor [dB] = 10 x log (0.2[ms] / 0.103[ms]) = 2.87 [dB]



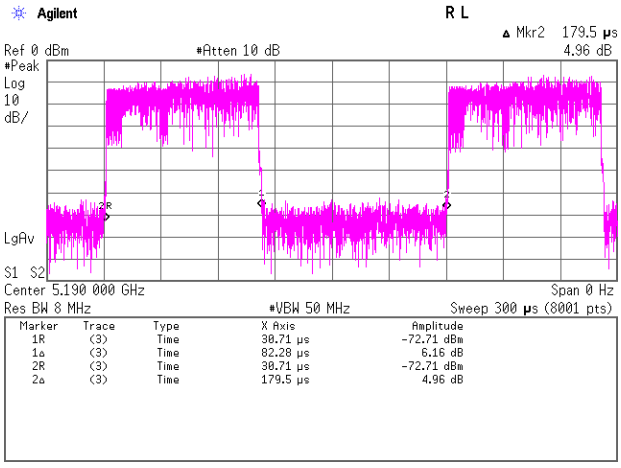
MCS 5

duty factor [dB] = 10 x log (0.184[ms] / 0.087[ms]) = 3.24 [dB]



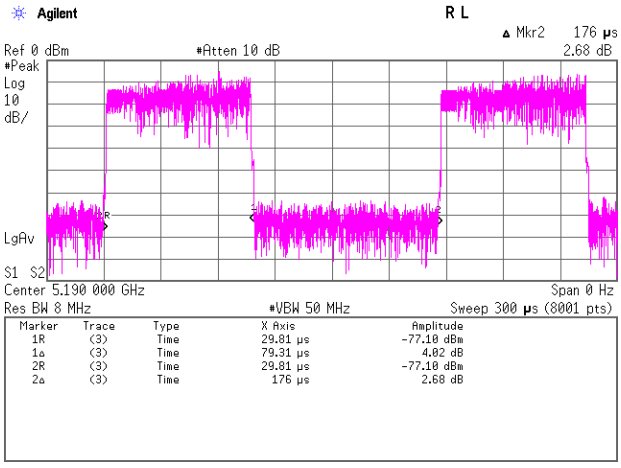
MCS 6

duty factor [dB] = 10 x log (0.18[ms] / 0.082[ms]) = 3.39 [dB]



MCS 7

duty factor [dB] = 10 x log (0.176[ms] / 0.079[ms]) = 3.46 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

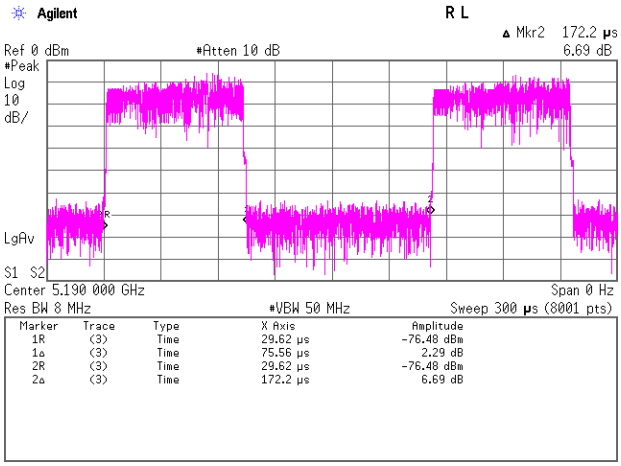
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

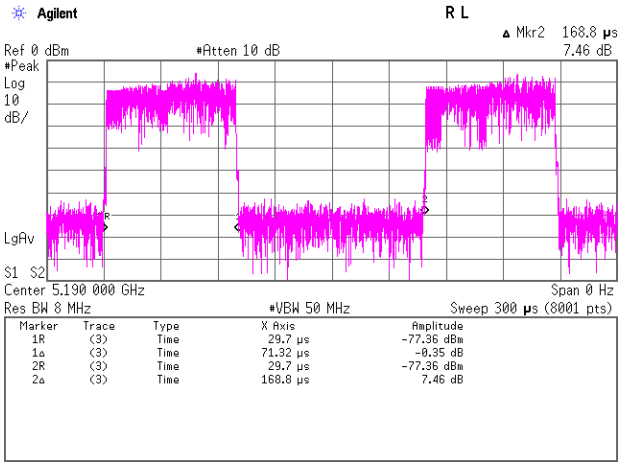
Tx, IEEE 802.11ac VHT40 (MIMO), (5190 MHz)

MCS 8	MCS 9
duty factor [dB] = 10 x log (0.172[ms] / 0.076[ms]) = 3.58 [dB]	duty factor [dB] = 10 x log (0.169[ms] / 0.071[ms]) = 3.74 [dB]

Tx2_Rate09_Nom



Tx2_Rate10_Nom



Tx2_Rate11_Nom

Tx2_Rate12_Nom

Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C ,54 %RH	
Engineer	Yosuke Ishikawa	

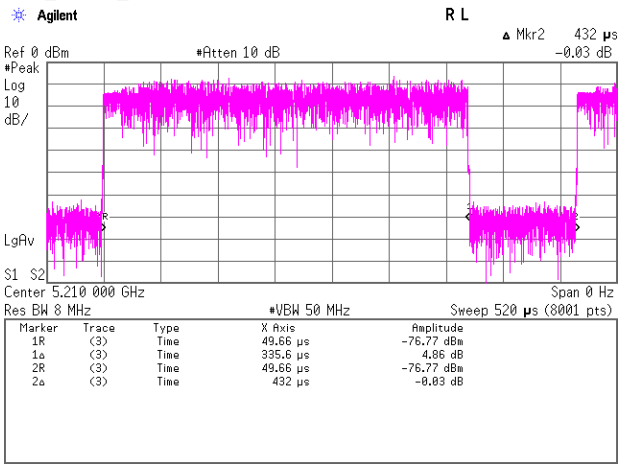
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT80 (SISO), antenna port 0, (Tx 5210 MHz)

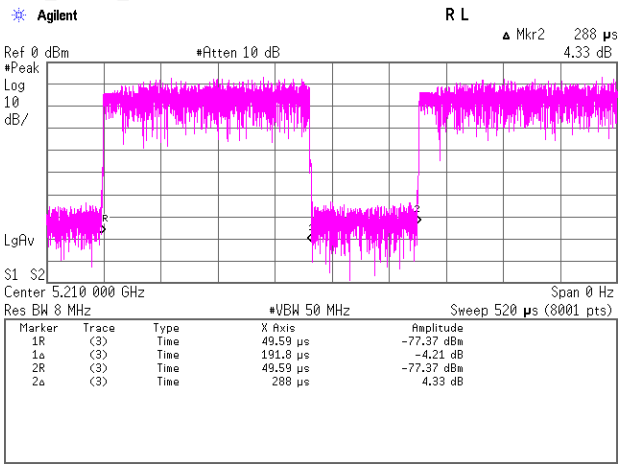
MCS 0

duty factor [dB] = 10 x log (0.432[ms] / 0.336[ms]) = 1.09 [dB]



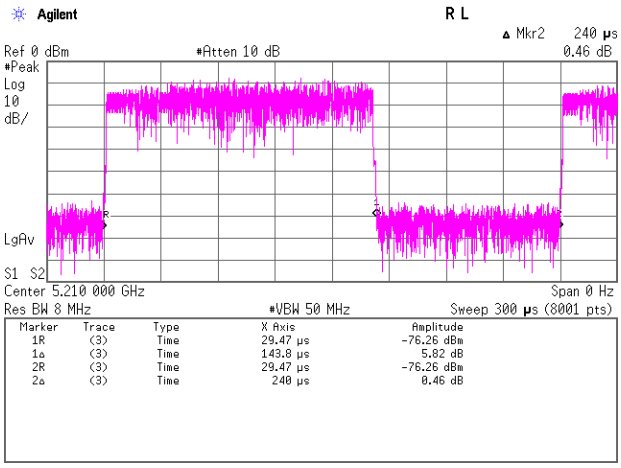
MCS 1

duty factor [dB] = 10 x log (0.288[ms] / 0.192[ms]) = 1.76 [dB]



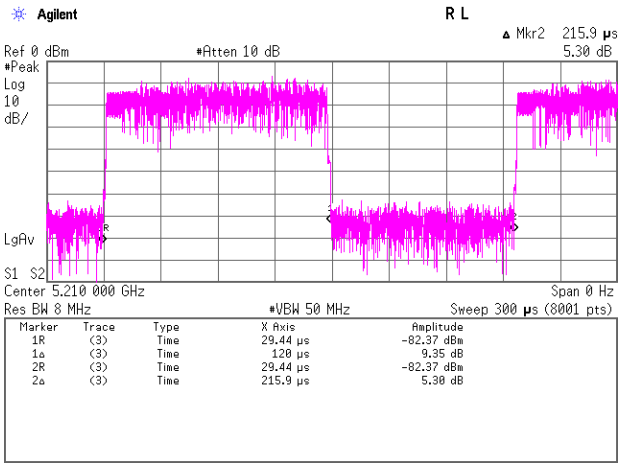
MCS 2

duty factor [dB] = 10 x log (0.24[ms] / 0.144[ms]) = 2.22 [dB]



MCS 3

duty factor [dB] = 10 x log (0.216[ms] / 0.12[ms]) = 2.55 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C ,54 %RH	
Engineer	Yosuke Ishikawa	

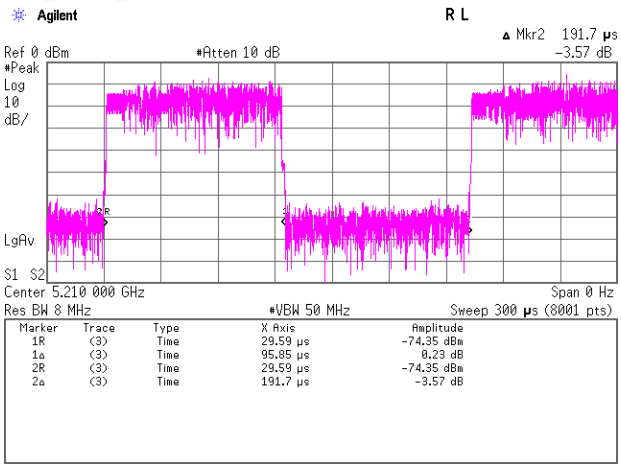
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT80 (SISO), antenna port 0, (Tx 5210 MHz)

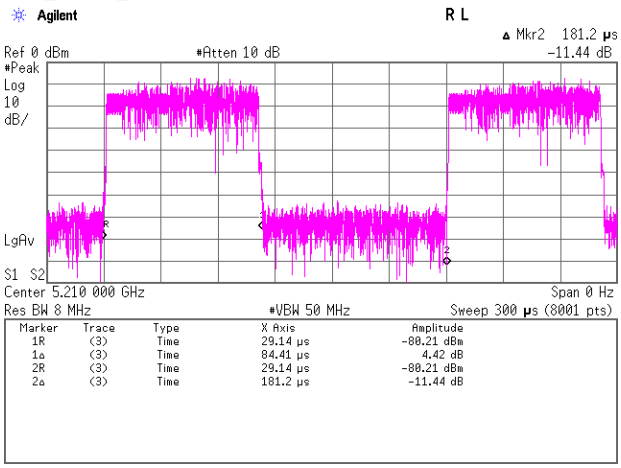
MCS 4

duty factor [dB] = 10 x log (0.192[ms] / 0.096[ms]) = 3.01 [dB]



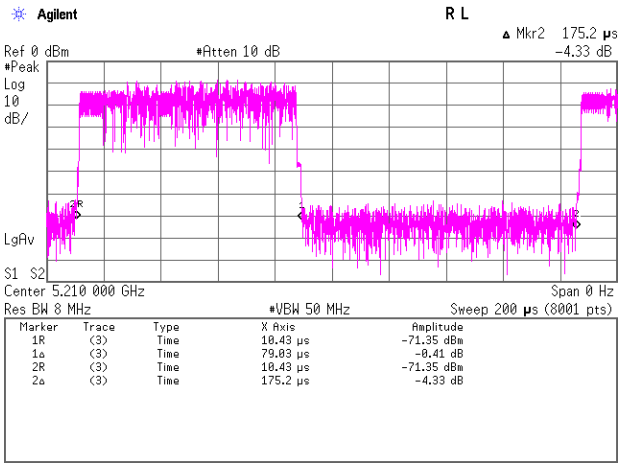
MCS 5

duty factor [dB] = 10 x log (0.181[ms] / 0.084[ms]) = 3.33 [dB]



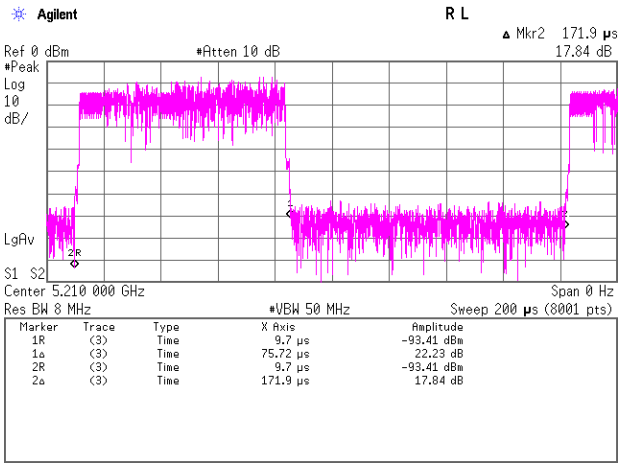
MCS 6

duty factor [dB] = 10 x log (0.175[ms] / 0.079[ms]) = 3.45 [dB]



MCS 7

duty factor [dB] = 10 x log (0.172[ms] / 0.076[ms]) = 3.55 [dB]



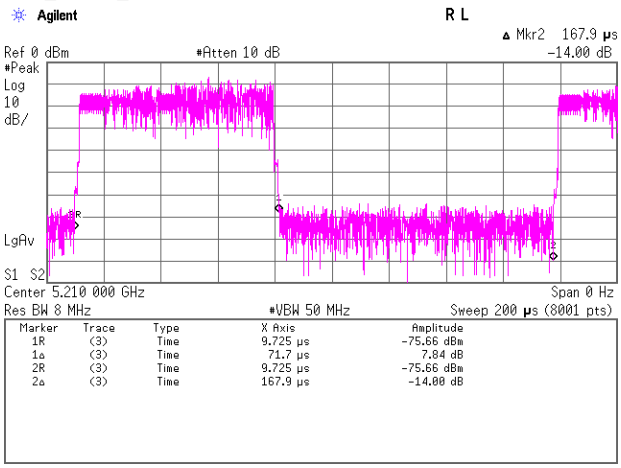
Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C ,54 %RH	
Engineer	Yosuke Ishikawa	

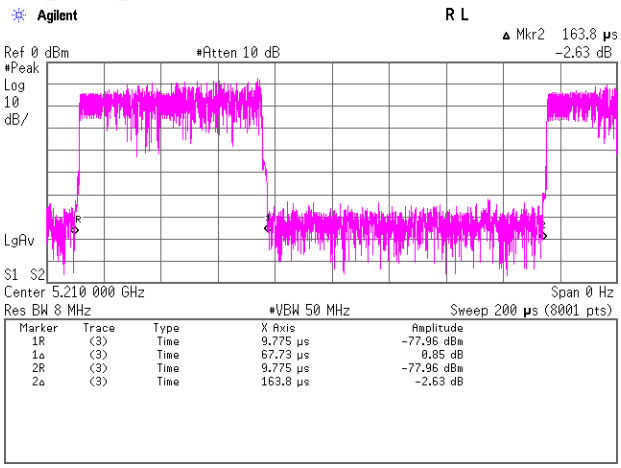
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE802.11ac VHT80 (SISO), antenna port 0, (Tx 5210 MHz)

MCS 8	MCS 9
duty factor [dB] = 10 x log (0.168[ms] / 0.072[ms]) = 3.68 [dB]	duty factor [dB] = 10 x log (0.164[ms] / 0.068[ms]) = 3.82 [dB]





Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

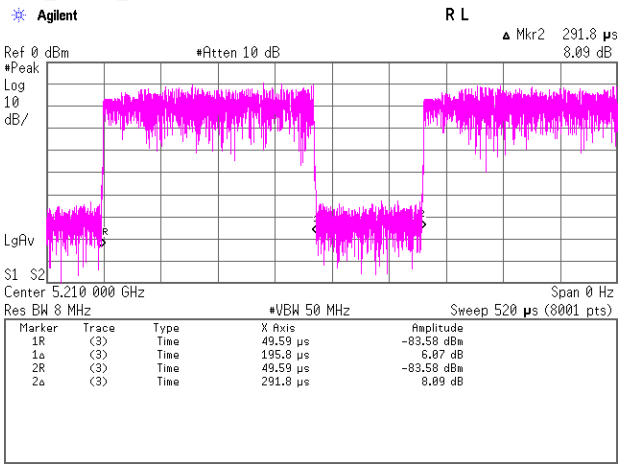
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE 802.11ac VHT80 (MIMO), (5210 MHz)

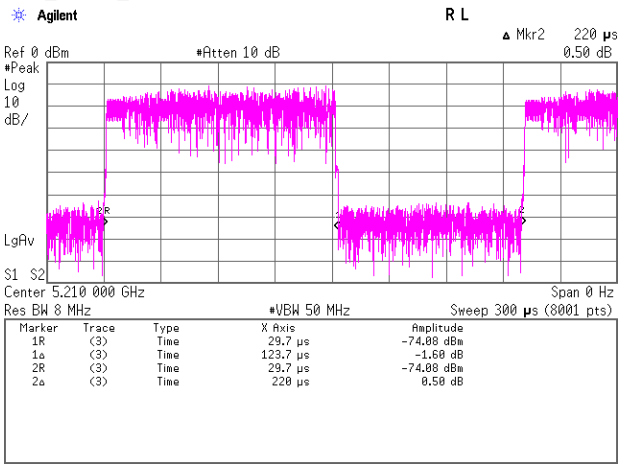
MCS 0

duty factor [dB] = 10 x log (0.292[ms] / 0.196[ms]) = 1.73 [dB]



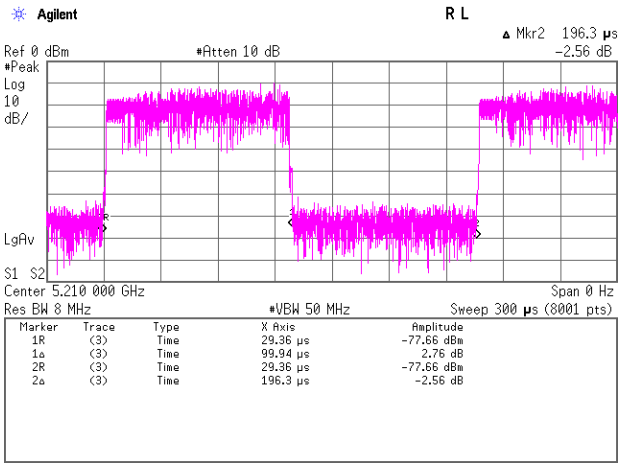
MCS 1

duty factor [dB] = 10 x log (0.22[ms] / 0.124[ms]) = 2.5 [dB]



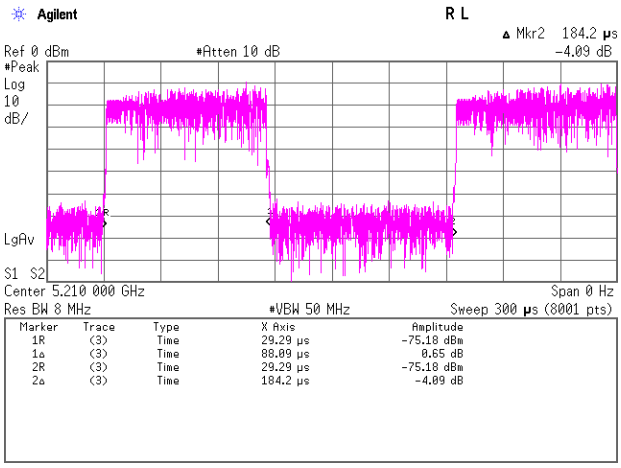
MCS 2

duty factor [dB] = 10 x log (0.196[ms] / 0.1[ms]) = 2.93 [dB]



MCS 3

duty factor [dB] = 10 x log (0.184[ms] / 0.088[ms]) = 3.2 [dB]



Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

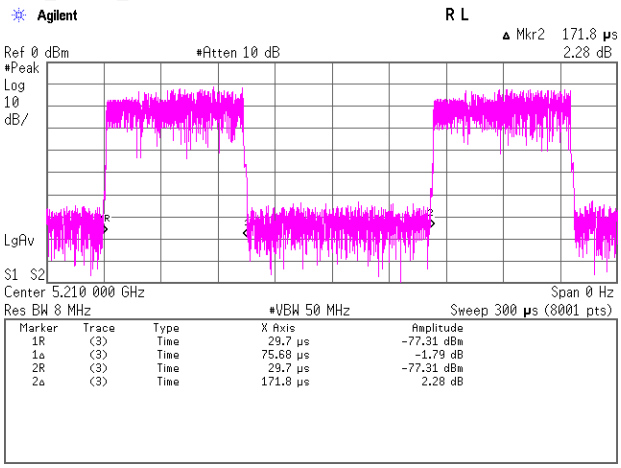
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE 802.11ac VHT80 (MIMO), (5210 MHz)

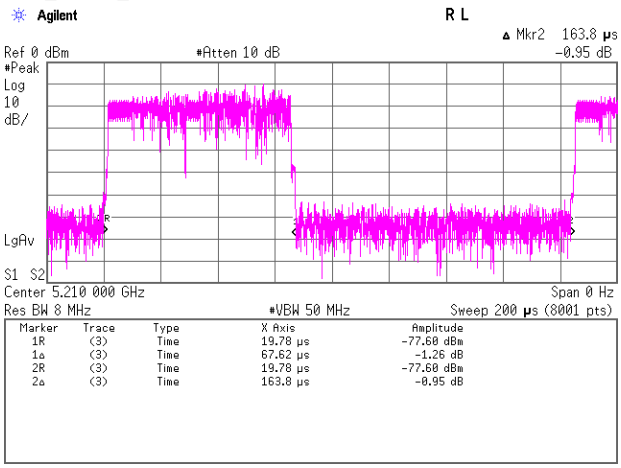
MCS 4

duty factor [dB] = 10 x log (0.172[ms] / 0.076[ms]) = 3.56 [dB]



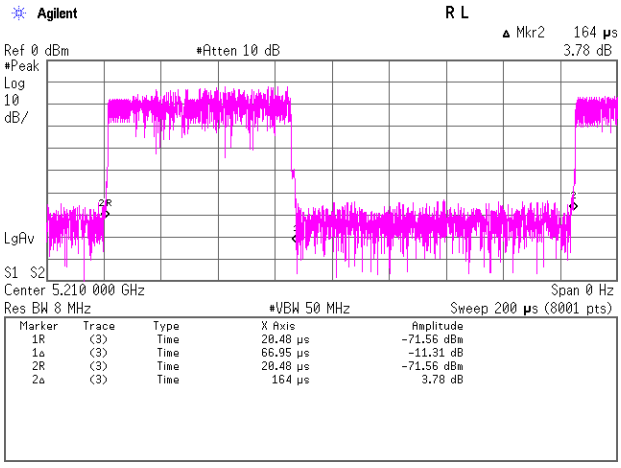
MCS 5

duty factor [dB] = 10 x log (0.164[ms] / 0.068[ms]) = 3.84 [dB]



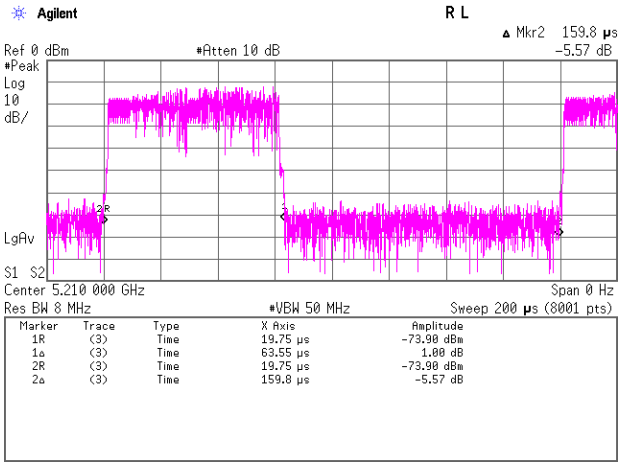
MCS 6

duty factor [dB] = 10 x log (0.164[ms] / 0.067[ms]) = 3.89 [dB]



MCS 7

duty factor [dB] = 10 x log (0.16[ms] / 0.064[ms]) = 4 [dB]



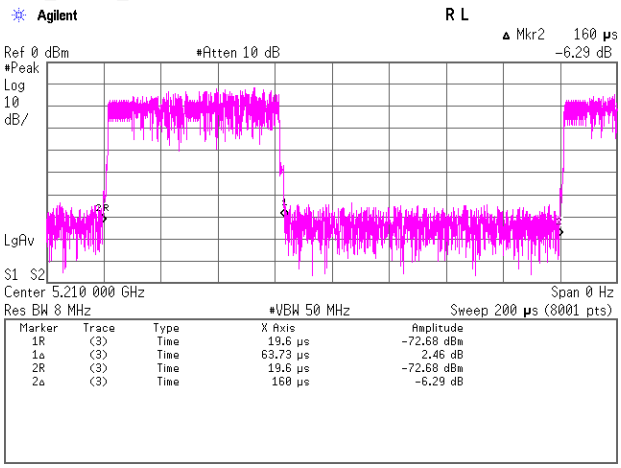
Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

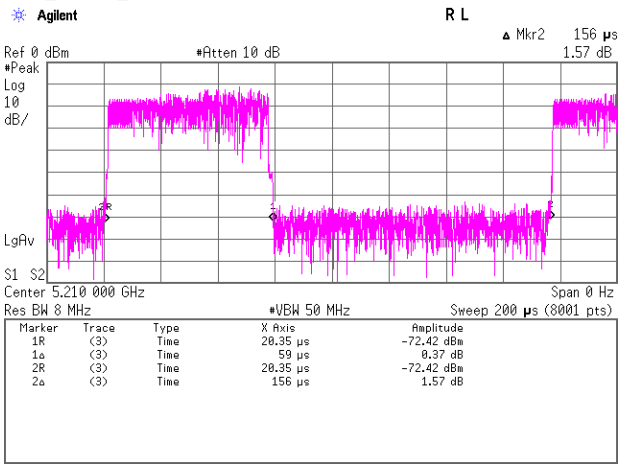
Maximum Conducted Output Power (Conducted)

(Reference) (duty chart)

Tx, IEEE 802.11ac VHT80 (MIMO), (5210 MHz)

MCS 8	MCS 9
duty factor [dB] = 10 x log (0.16[ms] / 0.064[ms]) = 4 [dB]	duty factor [dB] = 10 x log (0.156[ms] / 0.059[ms]) = 4.22 [dB]



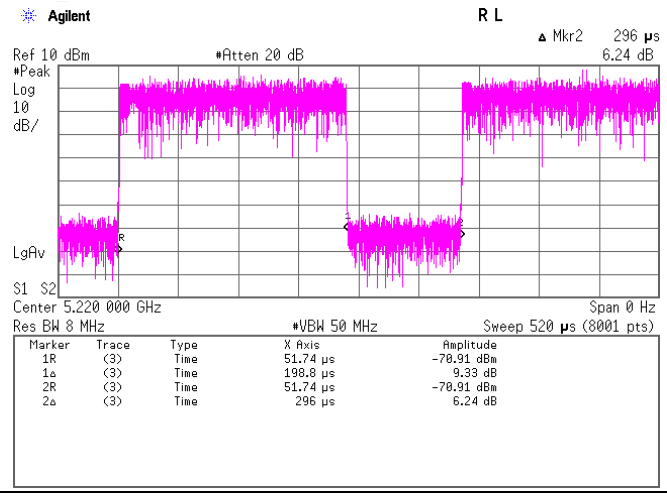


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11a, PN9, worst antenna port 0, worst data mode 48 Mbps

VBW: 1 / (On time) = 5030.18 Hz < 5100 Hz
On time =0.1988 ms

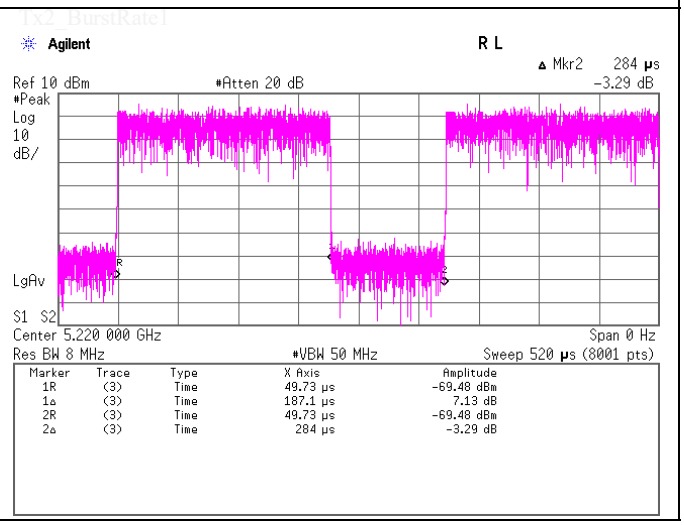


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11n HT20 (SISO), PN9, worst antenna port 0, worst data mode 6 (MCS)

VBW: 1 / (On time) = 5344.74 Hz < 5100 Hz
On time =0.1871 ms

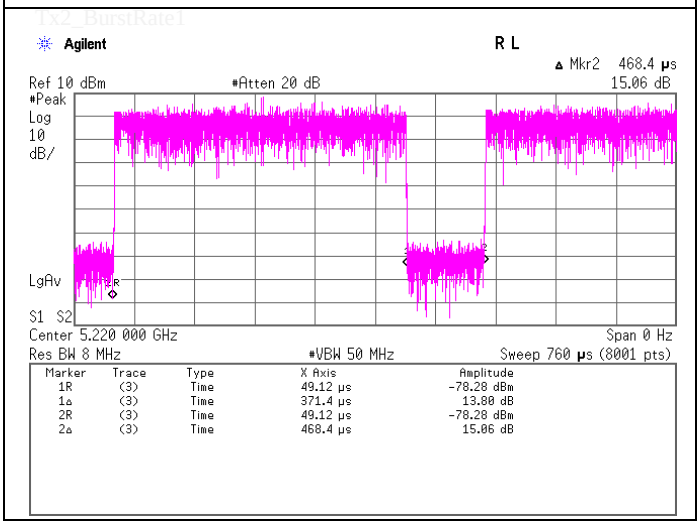


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11ac VHT20 (SISO), PN9, worst antenna port 0, worst data mode 3 (MCS)

VBW: 1 / (On time) = 2692.51 Hz < 2700 Hz
On time =0.3714 ms

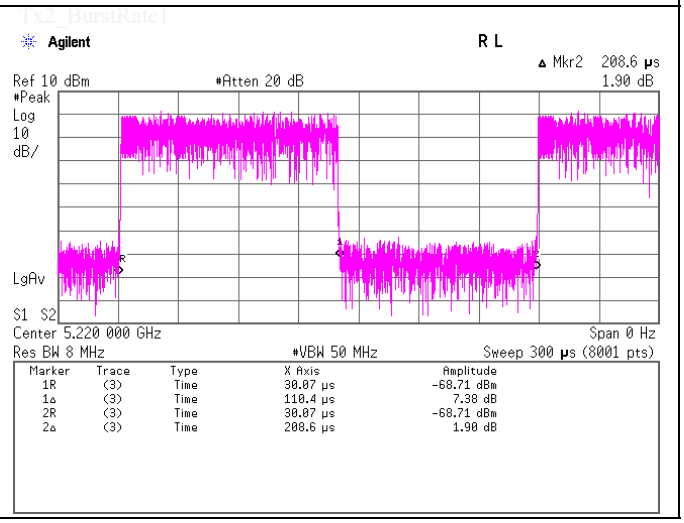


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 10, 2019	
Temperature / Humidity	23 deg.C , 51 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11n HT20 (MIMO), PN9, worst data mode 15 (MCS)

VBW: 1 / (On time) = 9057.97 Hz < 10000 Hz
On time = 0.1104 ms

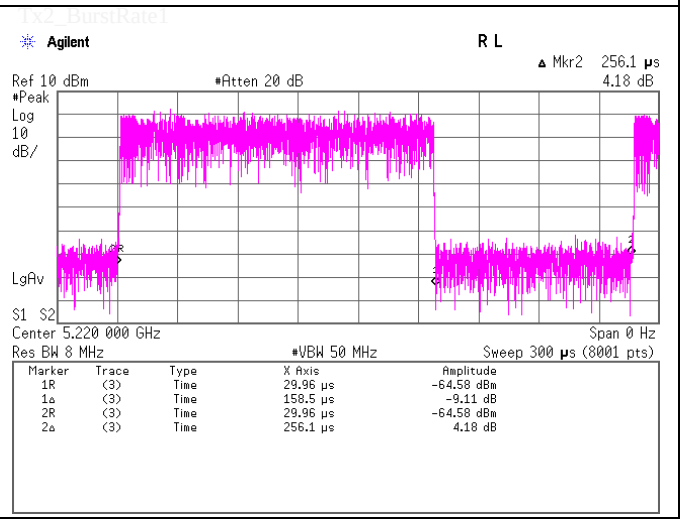


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 10, 2019	
Temperature / Humidity	23 deg.C , 51 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11ac VHT20 (MIMO), PN9, worst data mode 4 (MCS)

VBW: 1 / （On time) = 6309.15 Hz < 6800 Hz
On time = 0.1585 ms

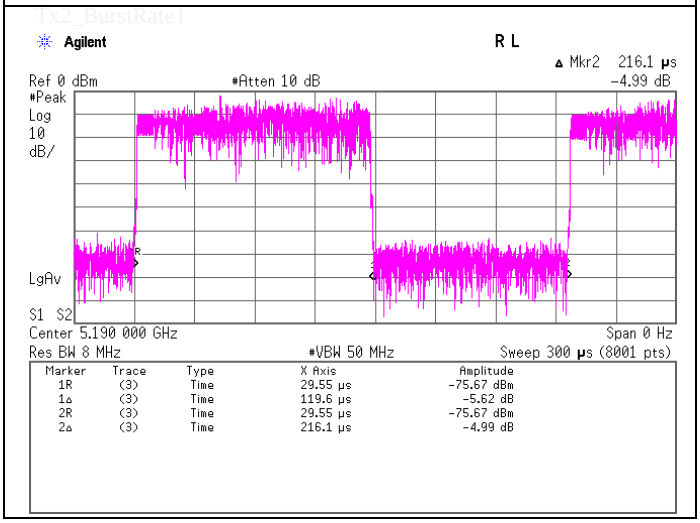


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 24 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11n HT40 (SISO), PN9, worst antenna port 1, worst data mode 5 (MCS)

VBW: 1 / (On time) = 8361.2 Hz < 9100 Hz
On time =0.1196 ms

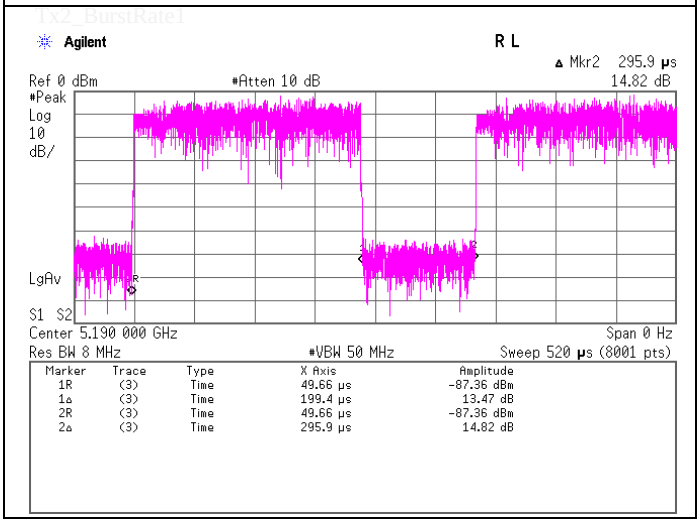


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11n HT40 (SISO), PN9, worst antenna port 0, worst data mode 3 (MCS)

VBW: 1 / (On time) = 5015.05 Hz < 5100 Hz
On time =0.1994 ms

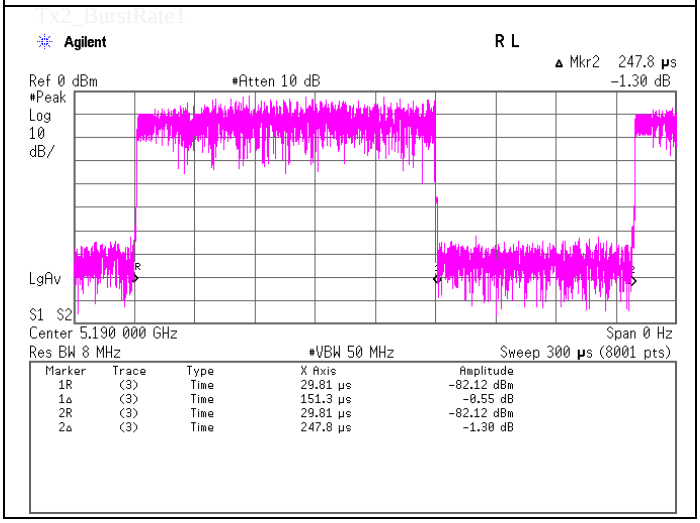


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11ac VHT40 (SISO), PN9, worst antenna port 1, worst data mode 4(MCS)

VBW: 1 / (On time) = 6609.39 Hz < 6800 Hz
On time = 0.1513 ms

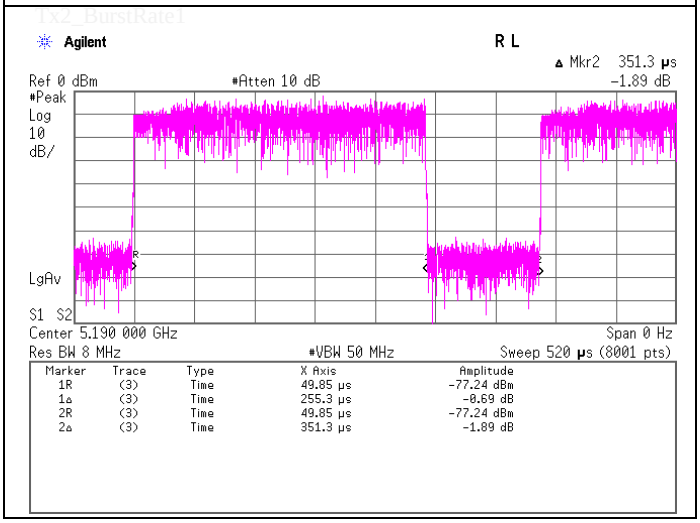


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C , 54 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11ac VHT40 (SISO), PN9, worst antenna port 0, worst data mode 2(MCS)

VBW: 1 / (On time) = 3916.96 Hz < 4300 Hz
On time =0.2553 ms

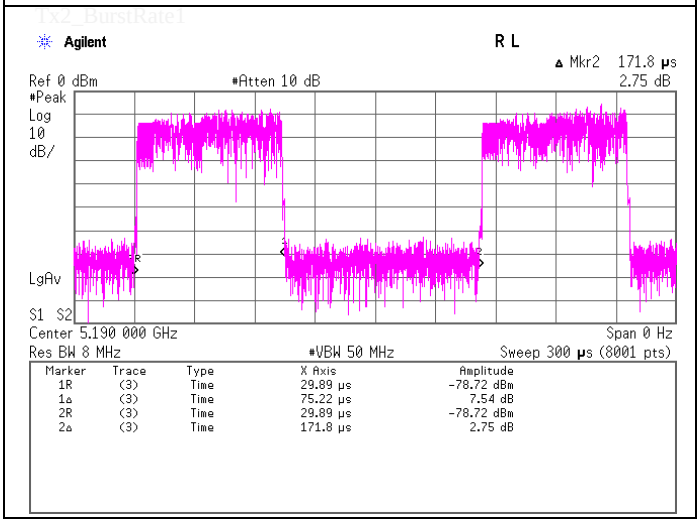


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE 802.11n HT40 (MIMO), PN9, worst data mode 15 (MCS)

VBW: 1 / (On time) = 13294.34 Hz < 15000 Hz
On time = 0.07522 ms

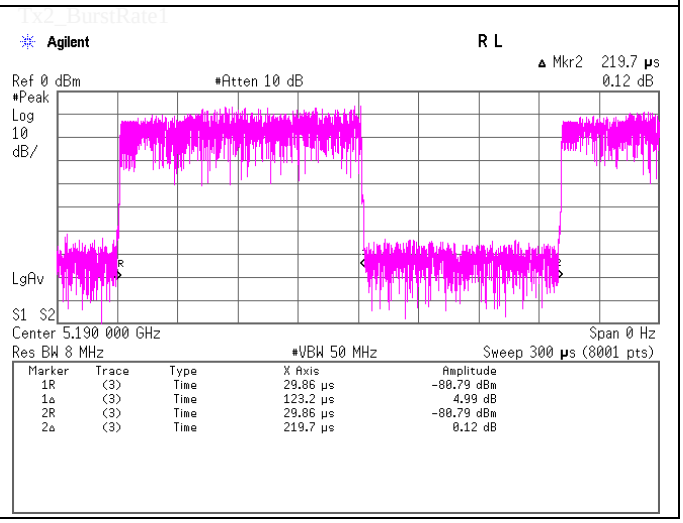


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE 802.11n HT40 (MIMO), PN9, worst data mode 11 (MCS)

VBW: 1 / (On time) = 8116.88 Hz < 9100 Hz
On time = 0.1232 ms

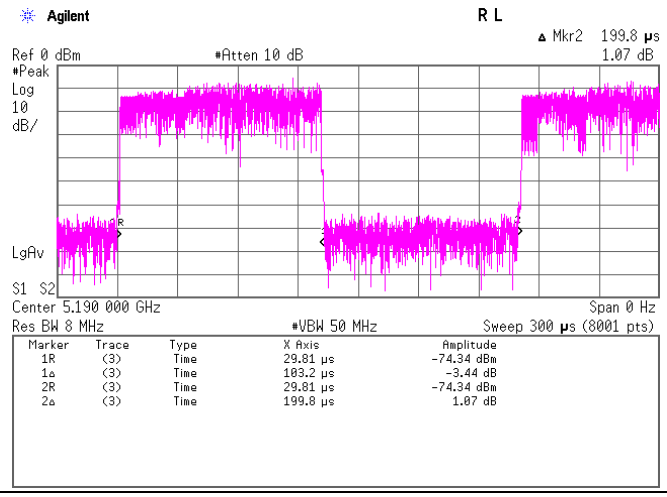


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE 802.11ac VHT40 (MIMO), PN9, worst data mode 4 (MCS)

VBW: 1 / （On time) = 9689.92 Hz < 10000 Hz
On time = 0.1032 ms

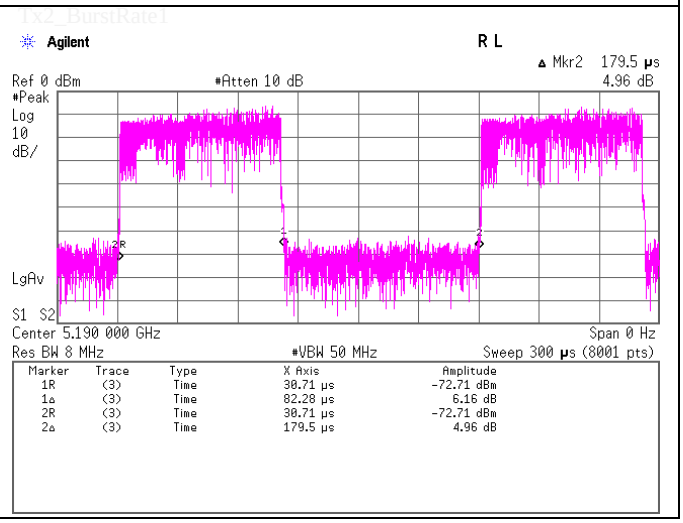


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE 802.11ac VHT40 (MIMO), PN9, worst data mode 6 (MCS)

VBW: 1 / (On time) = 12153.62 Hz < 13000 Hz
On time = 0.08228 ms

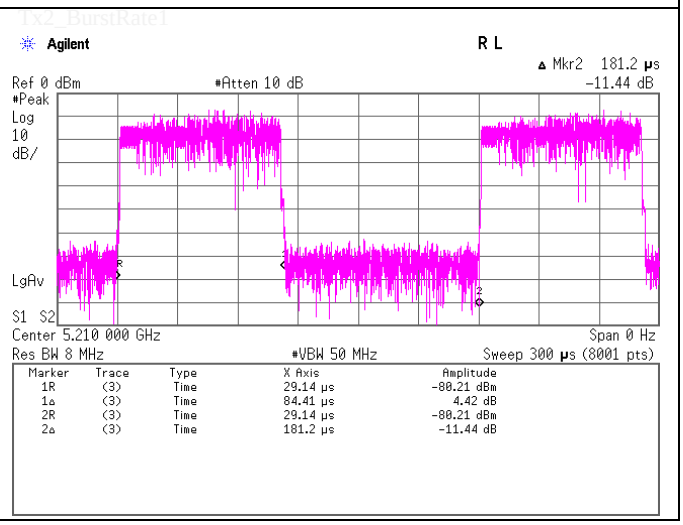


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 8, 2019	
Temperature / Humidity	24 deg.C ,54 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE802.11ac VHT80 (SISO), PN9, worst antenna port 0, worst data mode 5 (MCS)

VBW: 1 / (On time) = 11846.94 Hz < 12000 Hz
On time =0.08441 ms

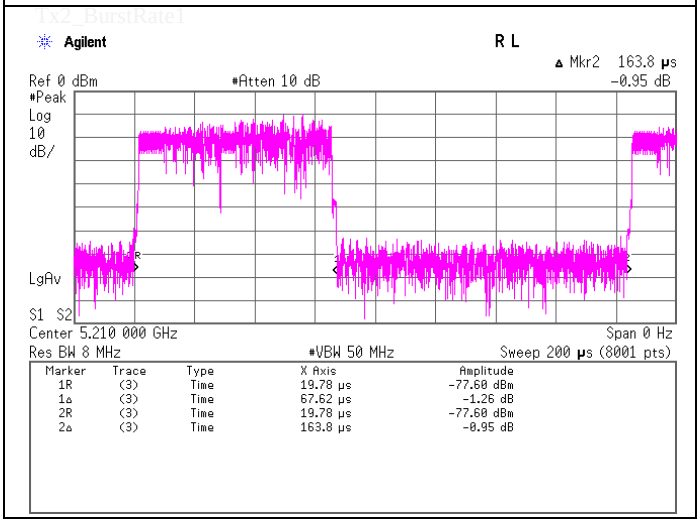


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	January 9, 2019	
Temperature / Humidity	26 deg.C , 42 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE 802.11ac VHT80 (MIMO), PN9, worst data mode 5 (MCS)

VBW: 1 / (On time) = 14788.52 Hz < 15000 Hz
On time = 0.06762 ms

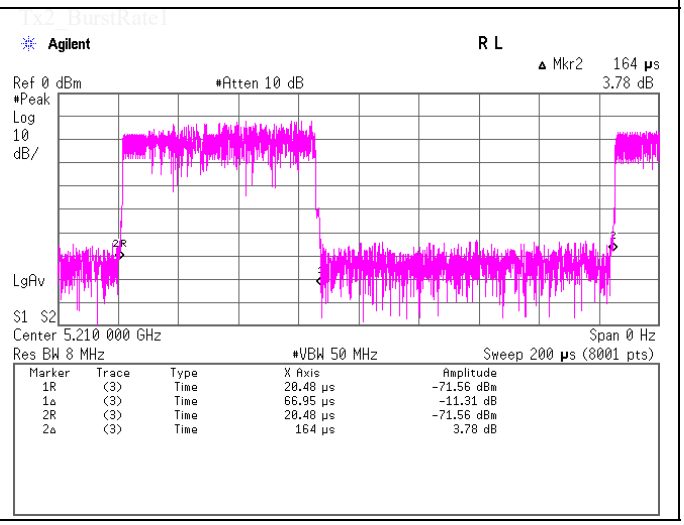


Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	February 16, 2019	
Temperature / Humidity	23 deg.C , 44 %RH	
Engineer	Yosuke Ishikawa	

VBW (Average) Calculation & Duty chart

Tx, IEEE 802.11ac VHT80 (MIMO), PN9, worst data mode 6 (MCS)

VBW: 1 / (On time) = 14936.52 Hz < 15000 Hz
On time = 0.06695 ms



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	March 13, 2019
Temperature / Humidity	24 deg. C / 57 % RH
Engineer	Kenichi Adachi
Mode	Tx, IEEE802.11a

Antenna 0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5180	-12.81	3.89	10.21	1.72	2.95	0.00	3.01	11.00	7.99	5.96	17.00	11.04
5220	-12.52	3.90	10.21	1.72	2.95	0.00	3.31	11.00	7.69	6.26	17.00	10.74
5240	-12.46	3.90	10.21	1.72	2.95	0.00	3.37	11.00	7.63	6.32	17.00	10.69
5260	-12.51	3.91	10.21	1.72	2.95	0.00	3.33	11.00	7.67	6.28	17.00	10.72
5300	-12.16	3.92	10.21	1.72	2.95	0.00	3.69	11.00	7.31	6.64	17.00	10.36
5320	-12.38	3.92	10.21	1.72	2.95	0.00	3.47	11.00	7.53	6.42	17.00	10.58
5500	-12.50	3.97	10.22	1.72	2.95	0.00	3.41	11.00	7.59	6.36	17.00	10.64
5580	-12.75	3.98	10.22	1.72	2.95	0.00	3.17	11.00	7.83	6.12	17.00	10.88
5700	-12.79	3.99	10.23	1.72	2.95	0.00	3.15	11.00	7.85	6.10	17.00	10.90
5745	-21.11	4.00	10.23	1.72	2.95	6.99	1.83	30.00	28.17	4.78	36.00	31.22
5785	-21.83	4.00	10.24	1.72	2.95	6.99	1.12	30.00	28.88	4.07	36.00	31.93
5825	-21.64	4.01	10.24	1.72	2.95	6.99	1.32	30.00	28.68	4.27	36.00	31.73

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

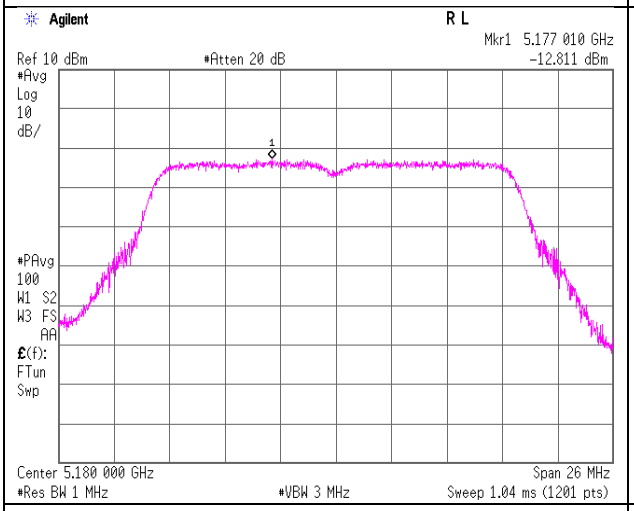
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

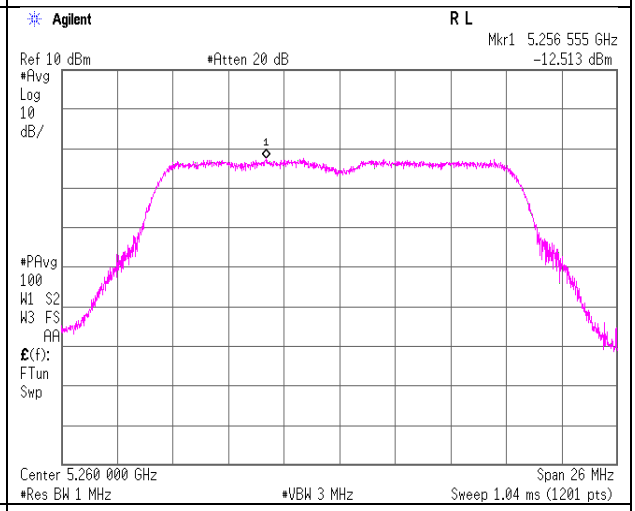
Maximum Power Spectral Density

Tx, IEEE802.11a, Antenna 0 (Worst)

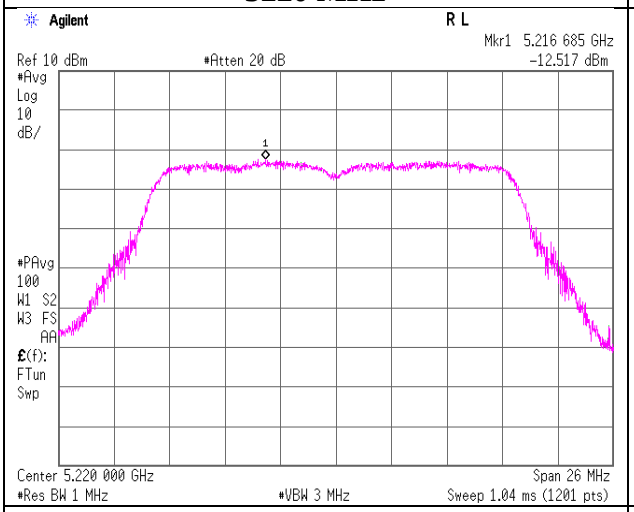
5180 MHz



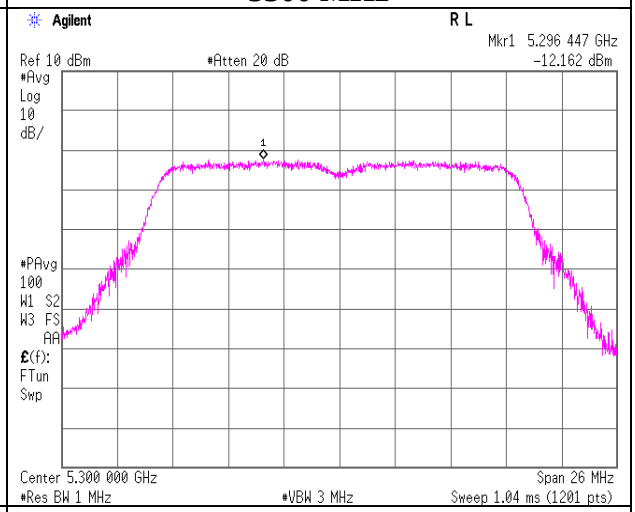
5260 MHz



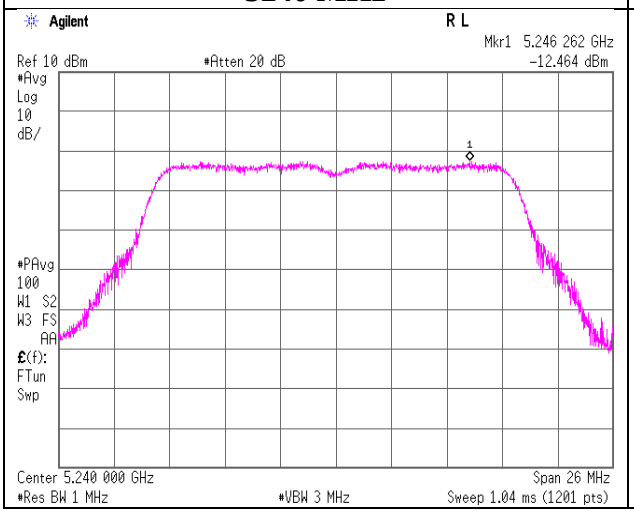
5220 MHz



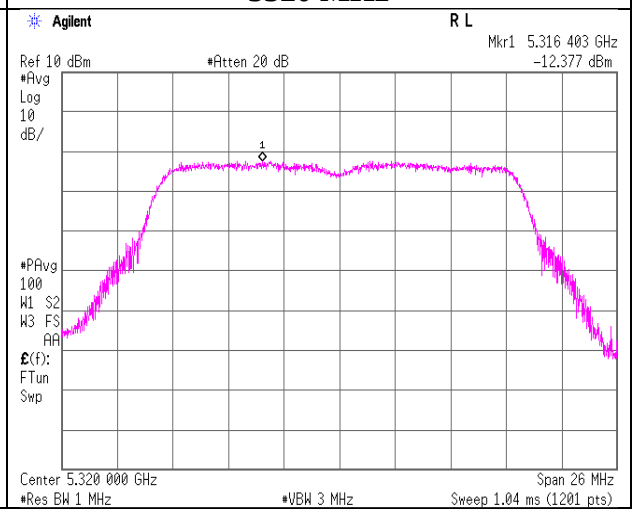
5300 MHz



5240 MHz



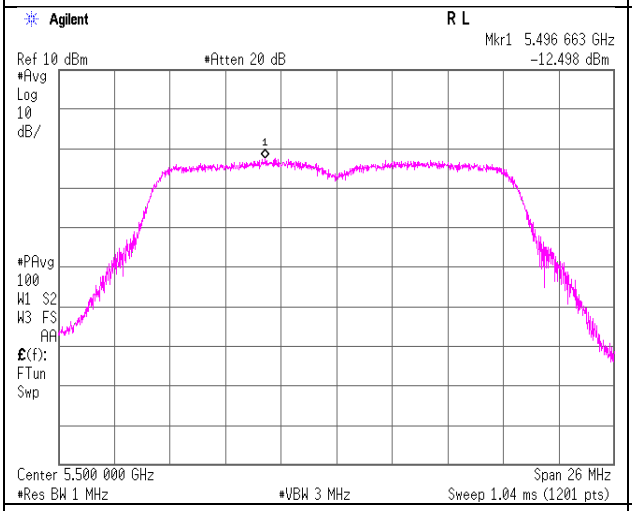
5320 MHz



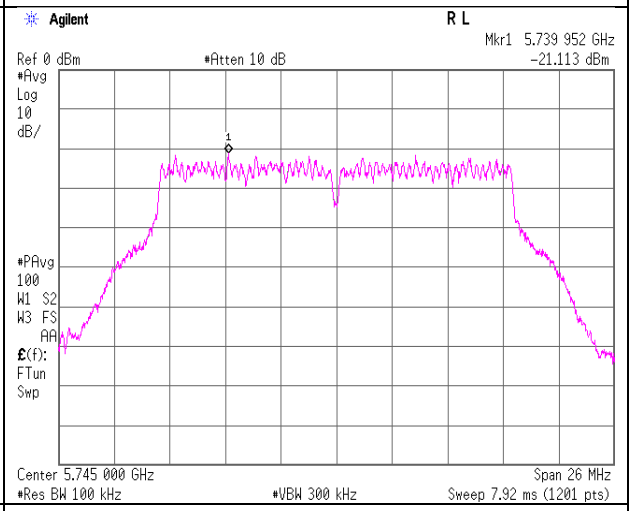
Maximum Power Spectral Density

Tx, IEEE802.11a, Antenna 0 (Worst)

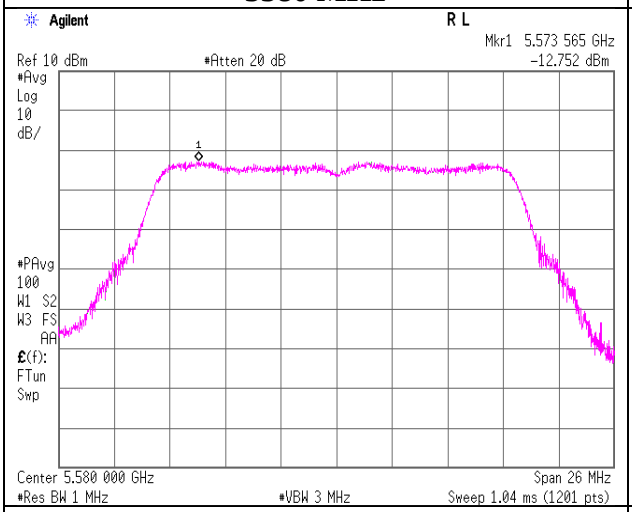
5500 MHz



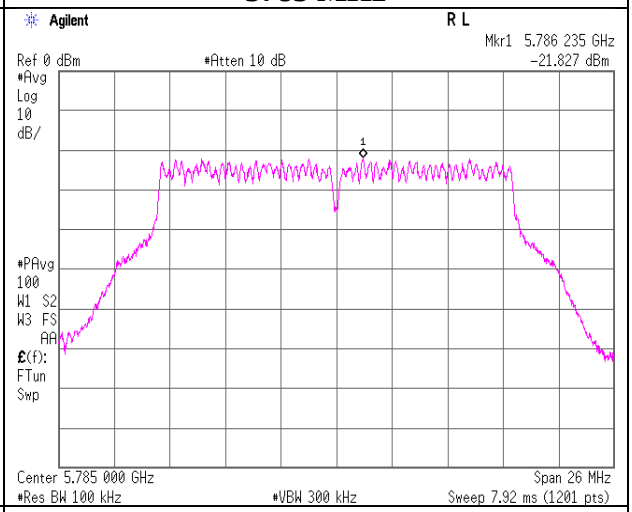
5745 MHz



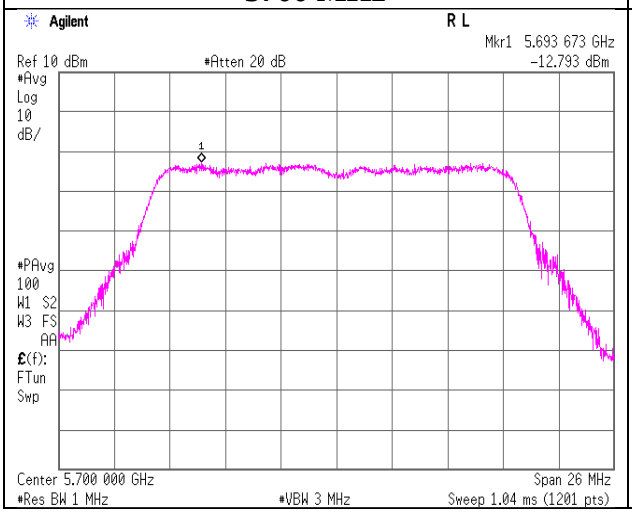
5580 MHz



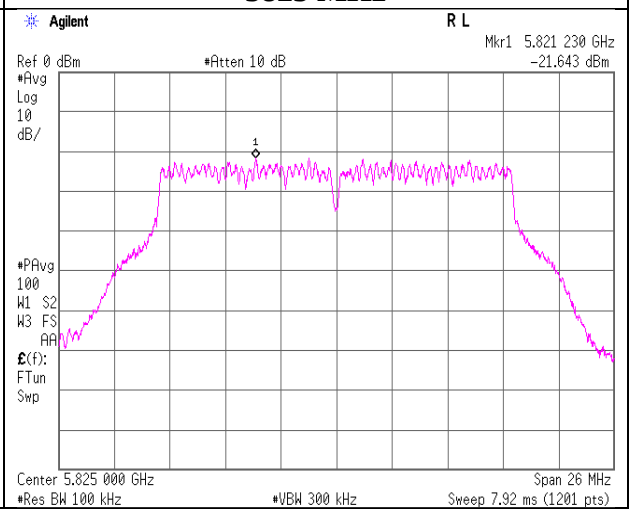
5785 MHz



5700 MHz



5825 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	March 13, 2019
Temperature / Humidity	24 deg. C / 57 % RH
Engineer	Kenichi Adachi
Mode	Tx, IEEE802.11n HT20 (SISO)

Antenna 0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5180	-12.55	3.89	10.21	1.81	2.95	0.00	3.36	11.00	7.64	6.31	17.00	10.69
5220	-12.91	3.90	10.21	1.81	2.95	0.00	3.01	11.00	7.99	5.96	17.00	11.04
5240	-12.88	3.90	10.21	1.81	2.95	0.00	3.04	11.00	7.96	5.99	17.00	11.01
5260	-11.83	3.91	10.21	1.81	2.95	0.00	4.10	11.00	6.90	7.05	17.00	9.95
5300	-12.57	3.92	10.21	1.81	2.95	0.00	3.37	11.00	7.63	6.32	17.00	10.68
5320	-12.60	3.92	10.21	1.81	2.95	0.00	3.34	11.00	7.66	6.29	17.00	10.71
5500	-13.32	3.97	10.22	1.81	2.95	0.00	2.68	11.00	8.32	5.63	17.00	11.38
5580	-13.53	3.98	10.22	1.81	2.95	0.00	2.48	11.00	8.52	5.43	17.00	11.57
5700	-13.25	3.99	10.23	1.81	2.95	0.00	2.78	11.00	8.22	5.73	17.00	11.27
5745	-21.56	4.00	10.23	1.81	2.95	6.99	1.47	30.00	28.53	4.42	36.00	31.58
5785	-21.18	4.00	10.24	1.81	2.95	6.99	1.86	30.00	28.14	4.80	36.00	31.20
5825	-21.72	4.01	10.24	1.81	2.95	6.99	1.33	30.00	28.67	4.28	36.00	31.72

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

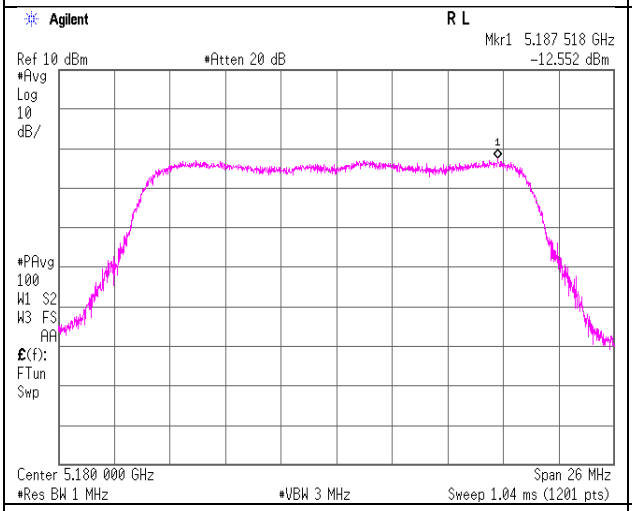
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

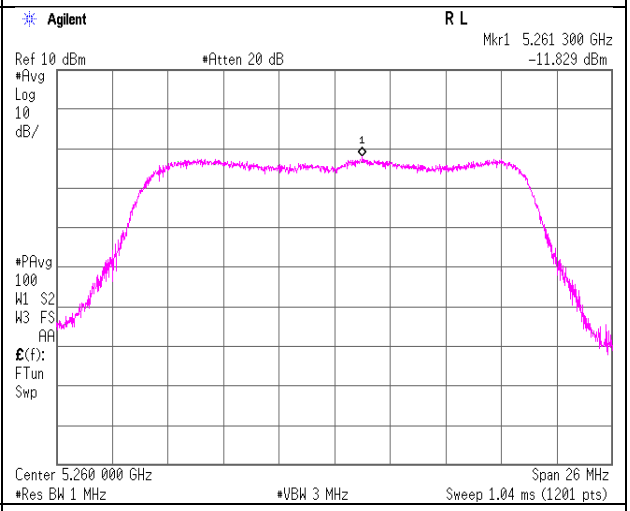
Maximum Power Spectral Density

Tx, IEEE802.11n HT20 (SISO), Antenna 0 (Worst)

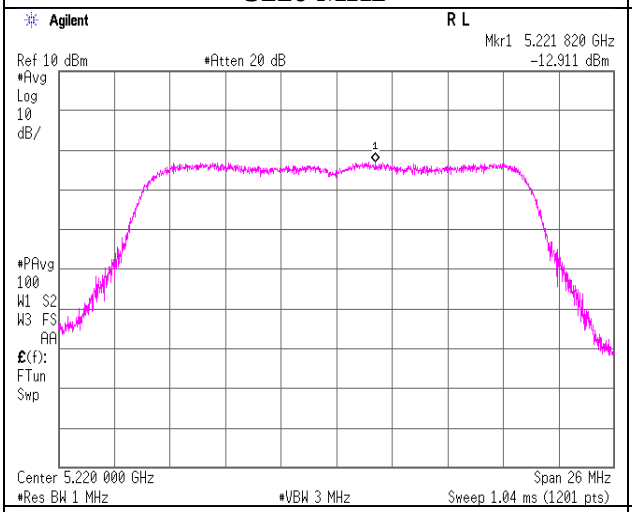
5180 MHz



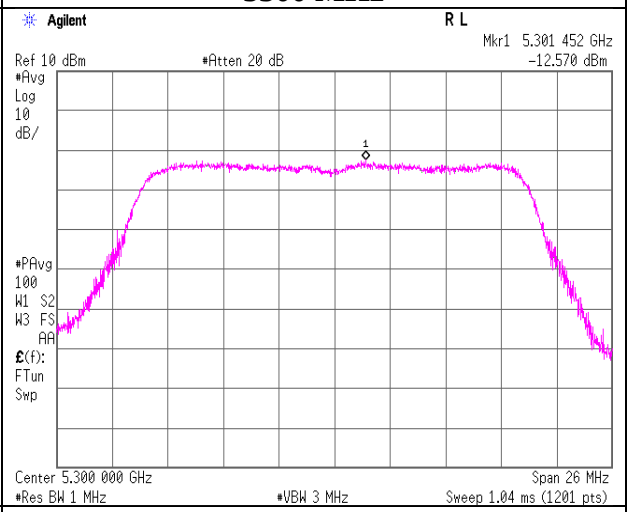
5260 MHz



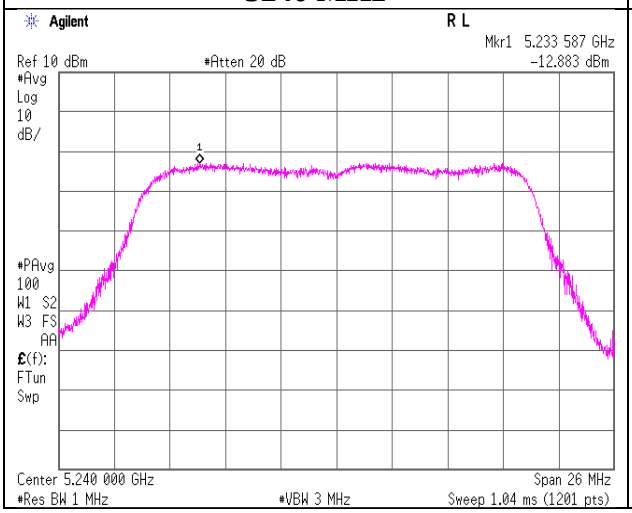
5220 MHz



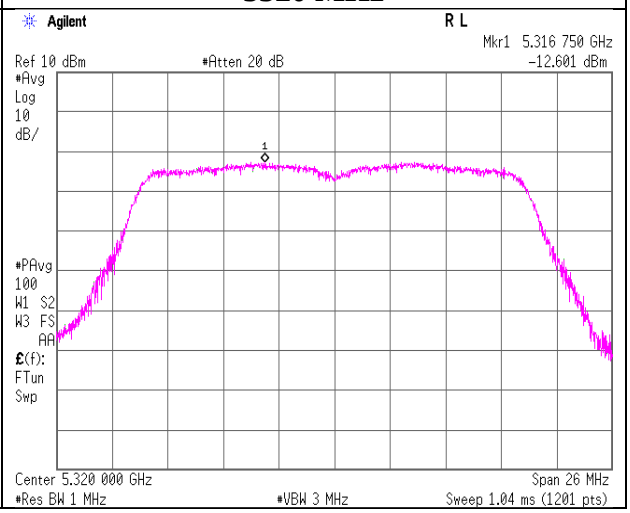
5300 MHz



5240 MHz



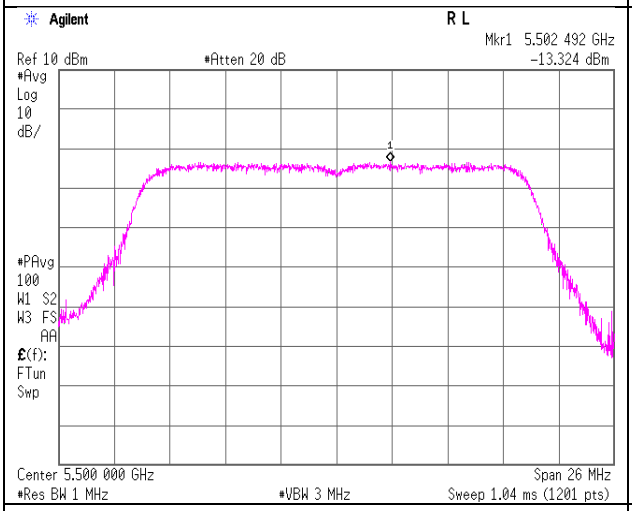
5320 MHz



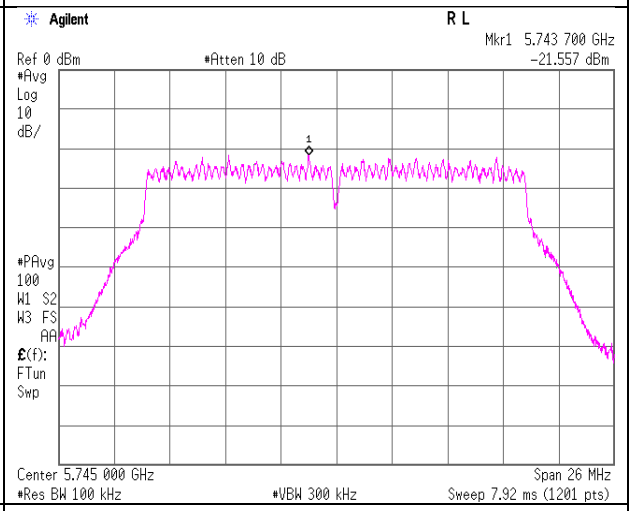
Maximum Power Spectral Density

Tx, IEEE802.11n HT20 (SISO), Antenna 0 (Worst)

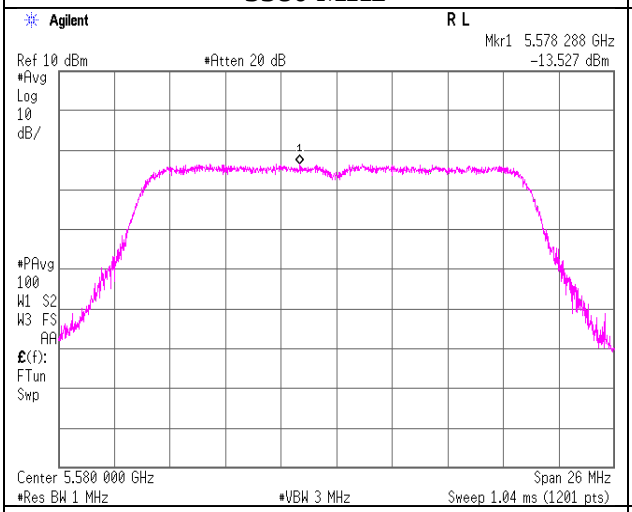
5500 MHz



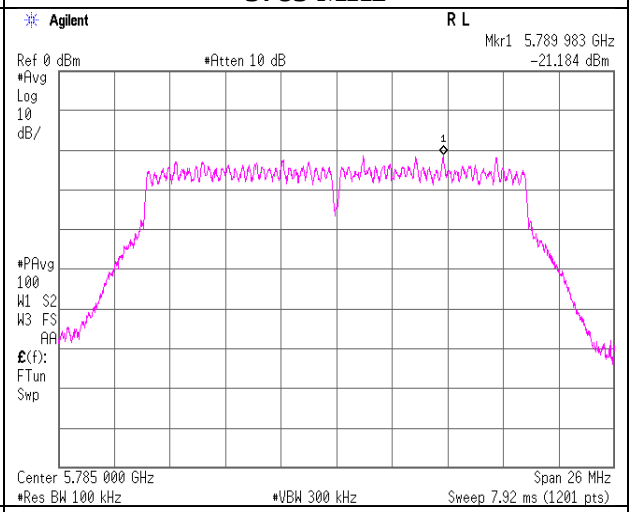
5745 MHz



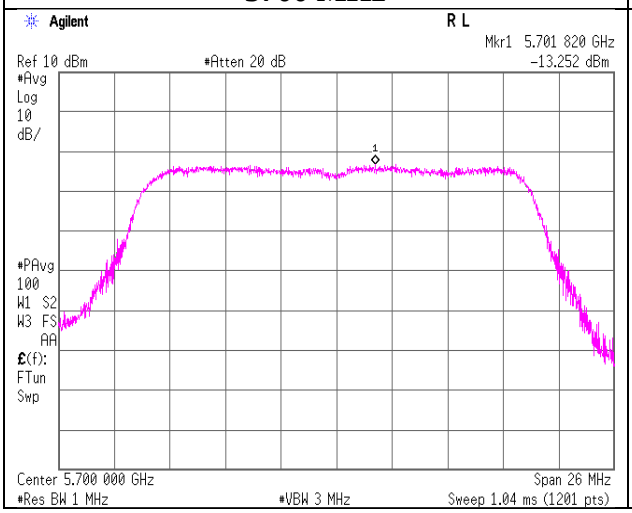
5580 MHz



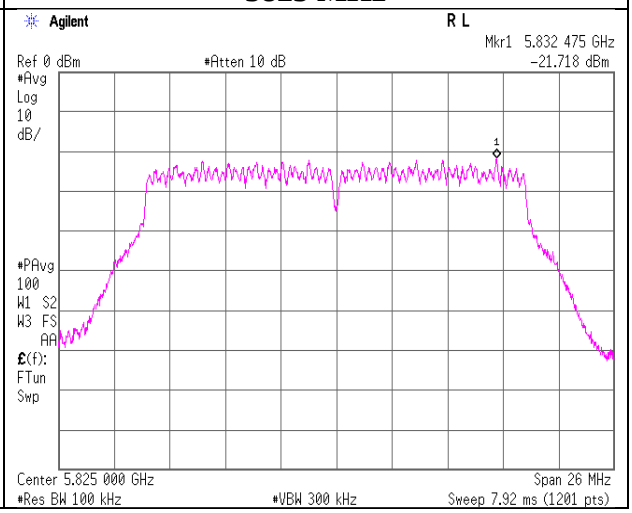
5785 MHz



5700 MHz



5825 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	March 15, 2019
Temperature / Humidity	24 deg. C / 35 % RH
Engineer	Makoto Hosaka
Mode	Tx, IEEE802.11ac VHT20 (SISO)

Antenna 0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5180	-12.42	3.89	10.21	1.01	2.95	0.00	2.69	11.00	8.31	5.64	17.00	11.36
5220	-12.62	3.90	10.21	1.01	2.95	0.00	2.50	11.00	8.50	5.45	17.00	11.55
5240	-12.52	3.90	10.21	1.01	2.95	0.00	2.60	11.00	8.40	5.55	17.00	11.45
5260	-12.28	3.91	10.21	1.01	2.95	0.00	2.86	11.00	8.15	5.80	17.00	11.20
5300	-11.56	3.92	10.21	1.01	2.95	0.00	3.58	11.00	7.42	6.53	17.00	10.47
5320	-12.05	3.92	10.21	1.01	2.95	0.00	3.09	11.00	7.91	6.04	17.00	10.96
5500	-12.78	3.97	10.22	1.01	2.95	0.00	2.42	11.00	8.58	5.37	17.00	11.63
5580	-12.63	3.98	10.22	1.01	2.95	0.00	2.58	11.00	8.42	5.53	17.00	11.47
5700	-12.34	3.99	10.23	1.01	2.95	0.00	2.90	11.00	8.11	5.84	17.00	11.16
5745	-21.28	4.00	10.23	1.01	2.95	6.99	0.95	30.00	29.05	3.90	36.00	32.10
5785	-20.77	4.00	10.24	1.01	2.95	6.99	1.47	30.00	28.53	4.42	36.00	31.58
5825	-21.19	4.01	10.24	1.01	2.95	6.99	1.06	30.00	28.94	4.01	36.00	31.99

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

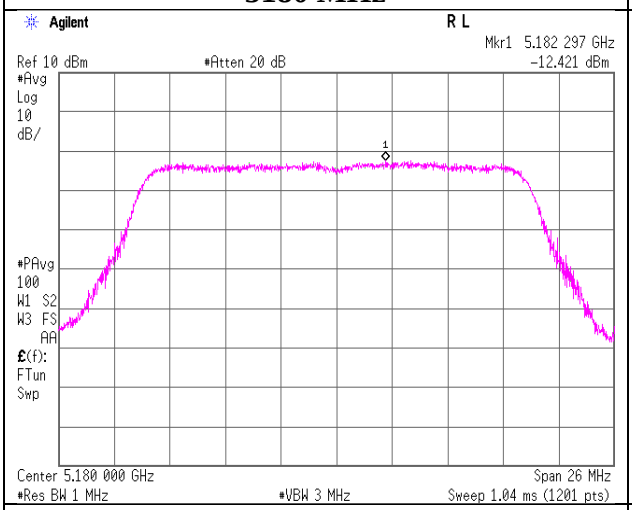
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

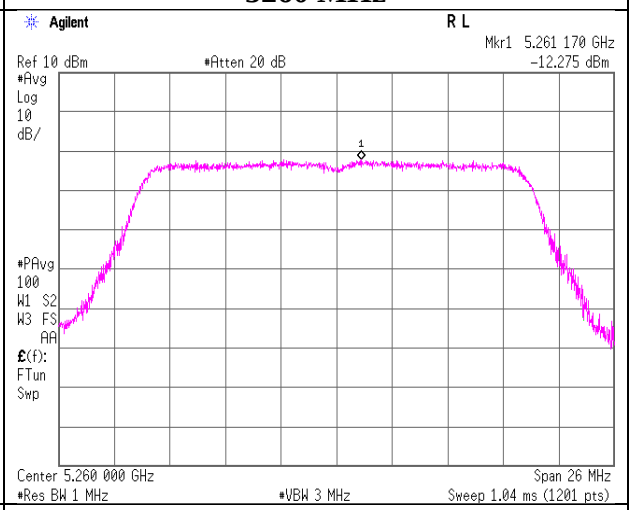
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT20 (SISO), Antenna 0 (Worst)

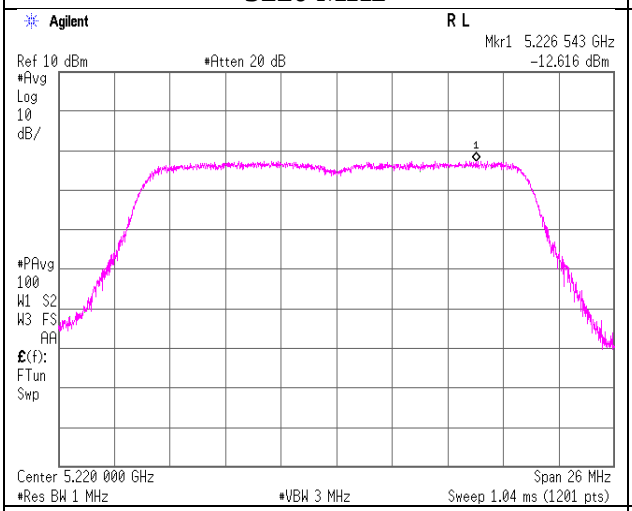
5180 MHz



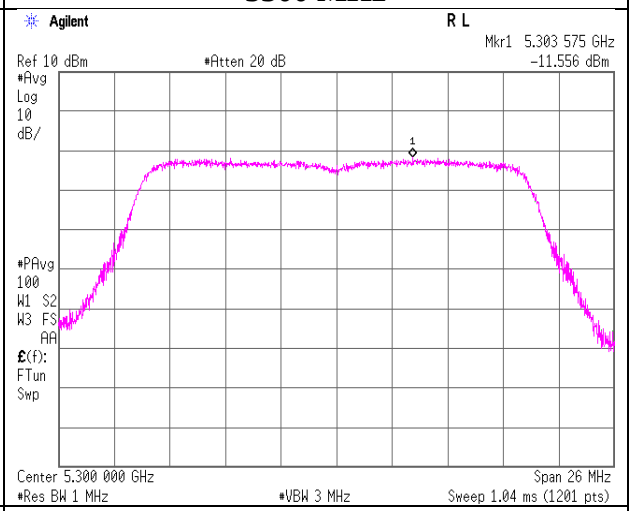
5260 MHz



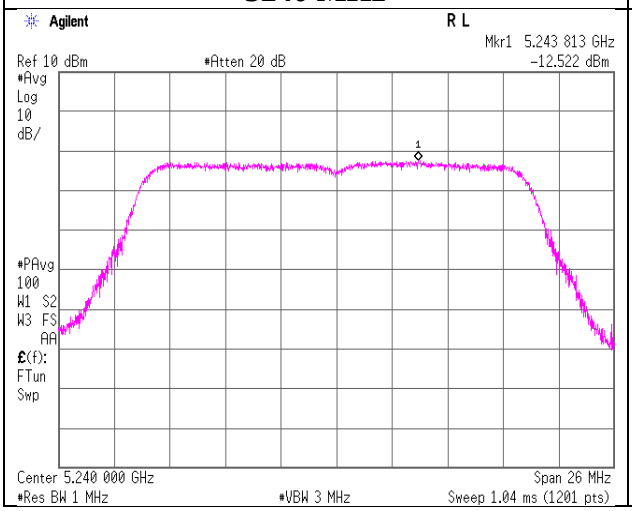
5220 MHz



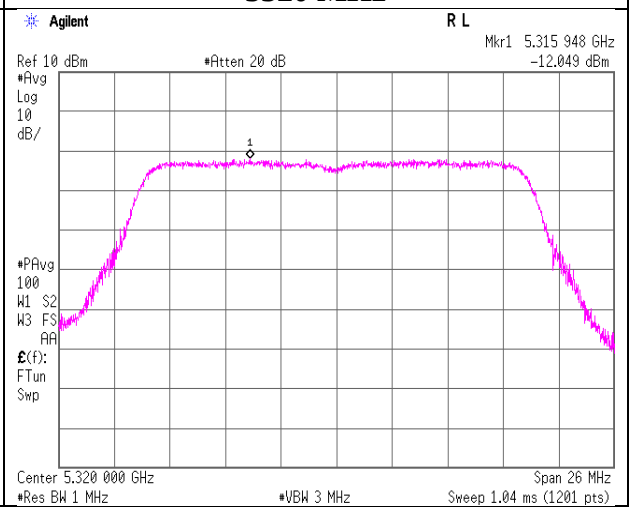
5300 MHz



5240 MHz



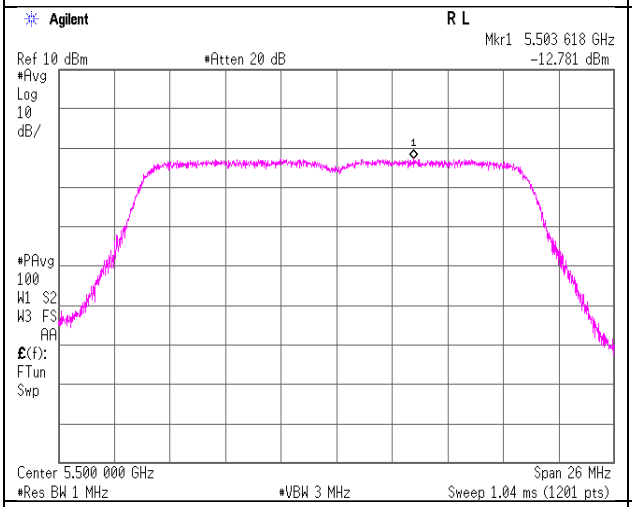
5320 MHz



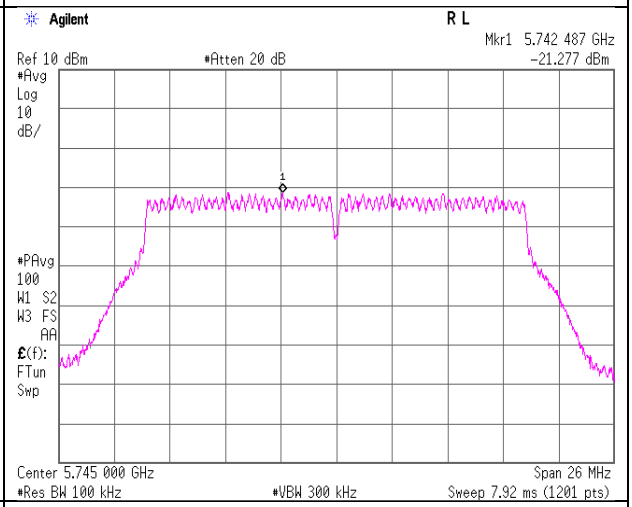
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT20 (SISO), Antenna 0 (Worst)

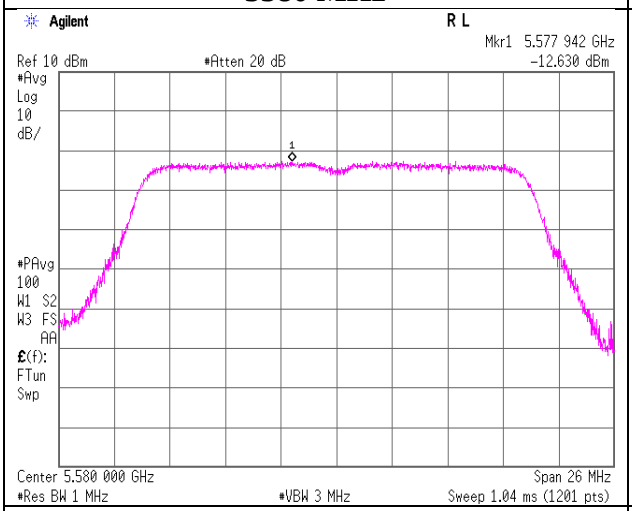
5500 MHz



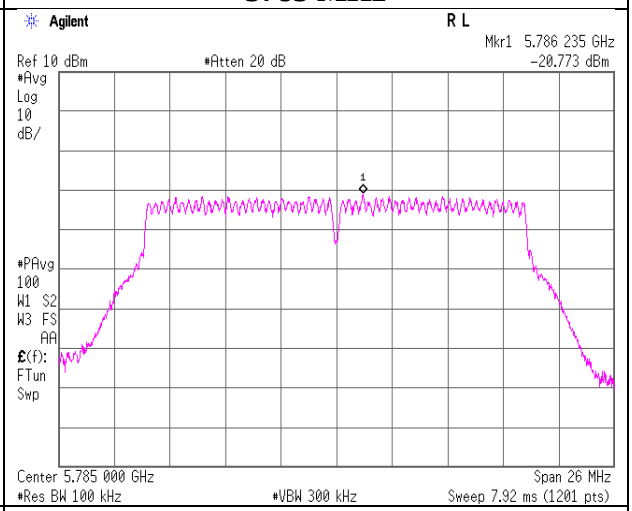
5745 MHz



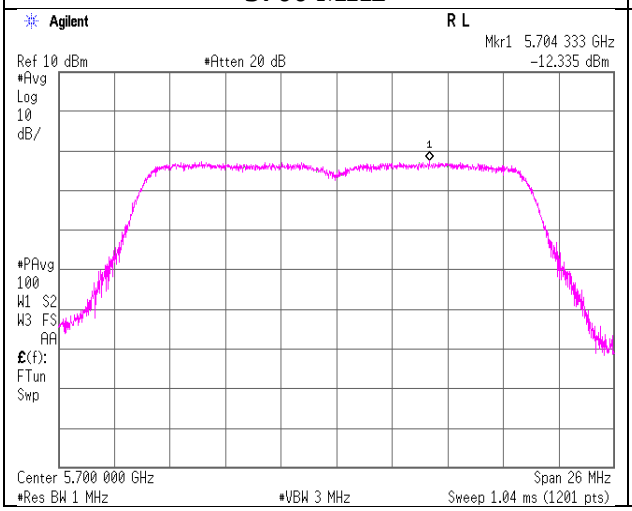
5580 MHz



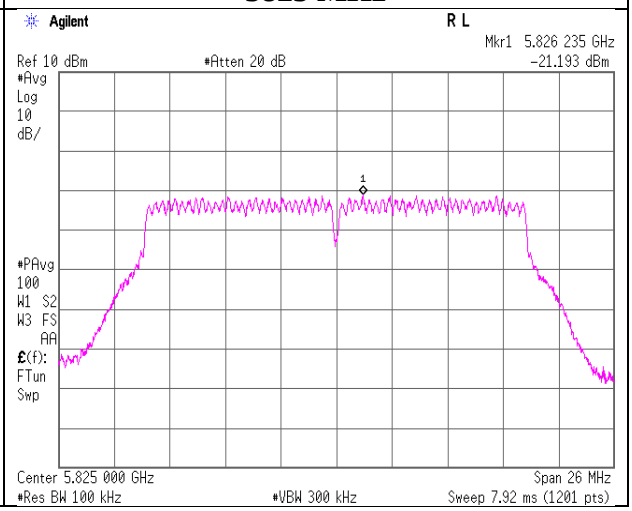
5785 MHz



5700 MHz



5825 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	March 19, 2019
Temperature / Humidity	21 deg. C / 41 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT20 (MIMO)

Antenna 0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5180	-17.07	3.89	10.21	2.76	2.95	0.00	3.01	2.80	11.00	8.20	5.75	17.00	11.25
5220	-16.97	3.90	10.21	2.76	2.95	0.00	3.01	2.91	11.00	8.09	5.86	17.00	11.14
5240	-17.03	3.90	10.21	2.76	2.95	0.00	3.01	2.85	11.00	8.15	5.80	17.00	11.20
5260	-17.28	3.91	10.21	2.76	2.95	0.00	3.01	2.62	11.00	8.39	5.56	17.00	11.44
5300	-16.64	3.92	10.21	2.76	2.95	0.00	3.01	3.26	11.00	7.74	6.21	17.00	10.79
5320	-16.75	3.92	10.21	2.76	2.95	0.00	3.01	3.15	11.00	7.85	6.10	17.00	10.90
5500	-17.42	3.97	10.22	2.76	2.95	0.00	3.01	2.54	11.00	8.46	5.49	17.00	11.51
5580	-17.25	3.98	10.22	2.76	2.95	0.00	3.01	2.72	11.00	8.28	5.67	17.00	11.33
5700	-17.09	3.99	10.23	2.76	2.95	0.00	3.01	2.90	11.00	8.10	5.85	17.00	11.15
5745	-24.22	4.00	10.23	2.76	2.95	6.99	3.01	2.77	30.00	27.23	5.72	36.00	30.28
5785	-23.99	4.00	10.24	2.76	2.95	6.99	3.01	3.01	30.00	26.99	5.96	36.00	30.04
5825	-23.56	4.01	10.24	2.76	2.95	6.99	3.01	3.45	30.00	26.55	6.40	36.00	29.60

Antenna 1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5180	-16.27	3.89	10.21	2.76	1.99	0.00	3.01	3.60	11.00	7.40	5.60	17.00	11.40
5220	-16.78	3.90	10.21	2.76	1.99	0.00	3.01	3.10	11.00	7.90	5.09	17.00	11.91
5240	-17.05	3.90	10.21	2.76	1.99	0.00	3.01	2.83	11.00	8.17	4.82	17.00	12.18
5260	-16.25	3.91	10.21	2.76	1.99	0.00	3.01	3.64	11.00	7.36	5.63	17.00	11.37
5300	-16.38	3.92	10.21	2.76	1.99	0.00	3.01	3.52	11.00	7.48	5.51	17.00	11.49
5320	-16.60	3.92	10.21	2.76	1.99	0.00	3.01	3.30	11.00	7.70	5.30	17.00	11.70
5500	-16.46	3.97	10.22	2.76	1.99	0.00	3.01	3.50	11.00	7.50	5.49	17.00	11.51
5580	-17.58	3.98	10.22	2.76	1.99	0.00	3.01	2.39	11.00	8.61	4.39	17.00	12.61
5700	-16.77	3.99	10.23	2.76	1.99	0.00	3.01	3.22	11.00	7.78	5.22	17.00	11.79
5745	-23.80	4.00	10.23	2.76	1.99	6.99	3.01	3.19	30.00	26.81	5.18	36.00	30.82
5785	-23.82	4.00	10.24	2.76	1.99	6.99	3.01	3.18	30.00	26.82	5.17	36.00	30.83
5825	-23.17	4.01	10.24	2.76	1.99	6.99	3.01	3.84	30.00	26.16	5.84	36.00	30.16

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor+10log (Nant)

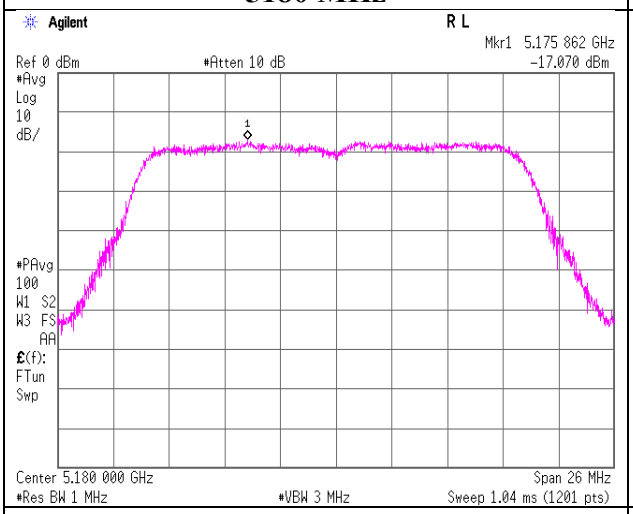
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements E) 2) c) of
"Guidance for Summing Emission Measurements from Multiple Outputs of a Transmitter of from Multiple Transmitters (KDB662911 D01)"
Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

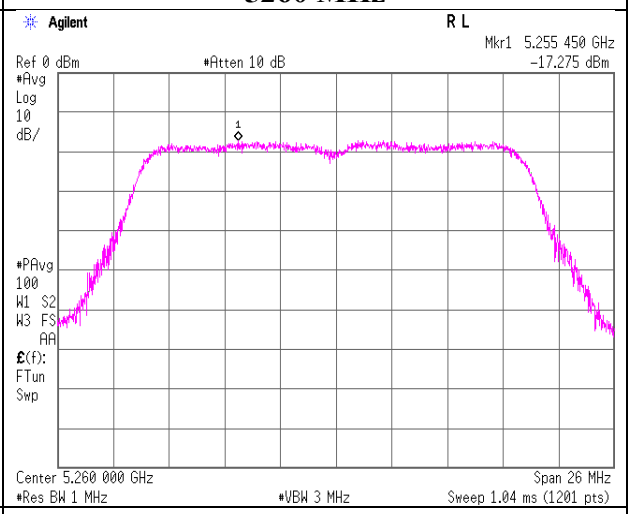
Maximum Power Spectral Density

Tx, IEEE802.11n HT20 (MIMO), Antenna 0

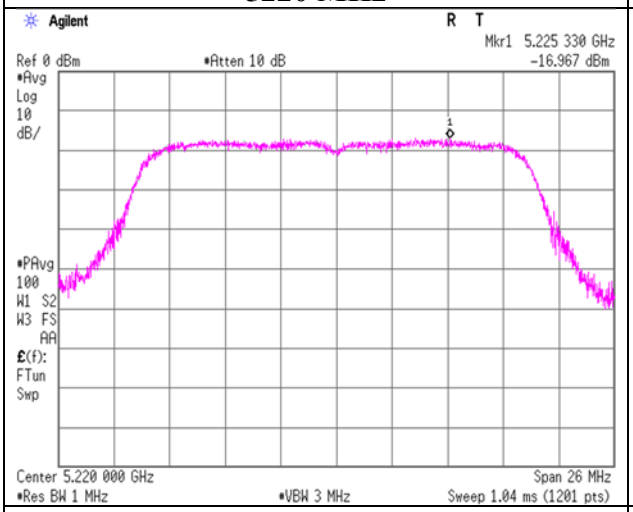
5180 MHz



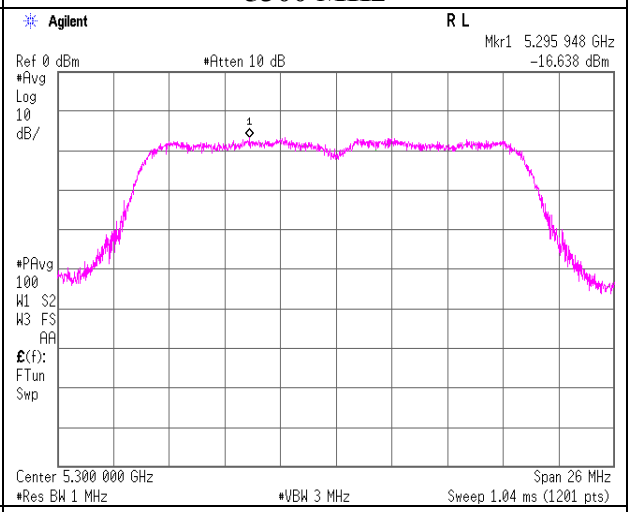
5260 MHz



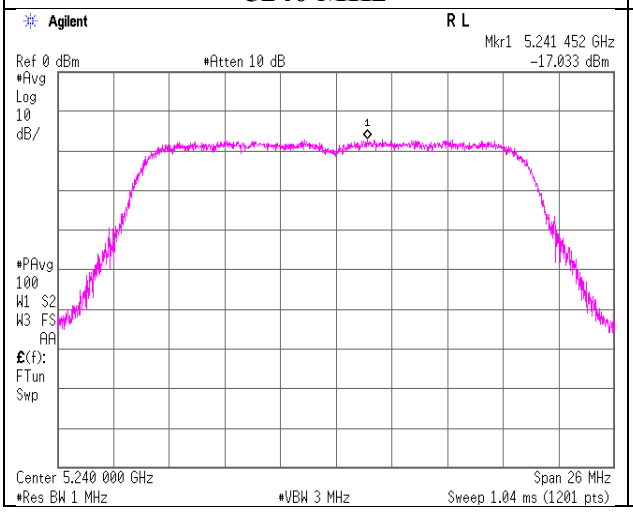
5220 MHz



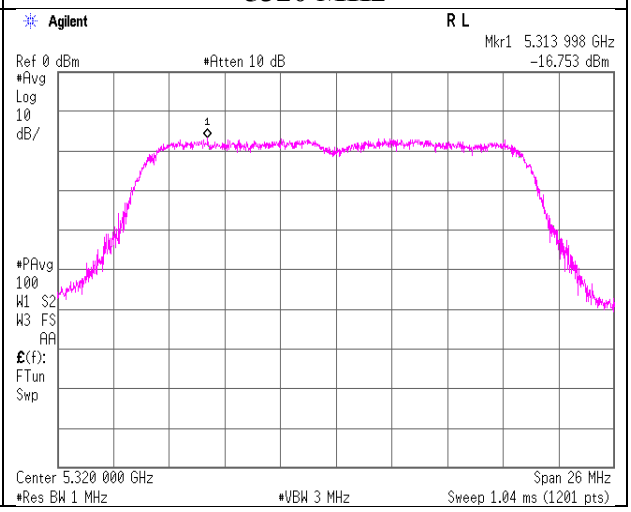
5300 MHz



5240 MHz



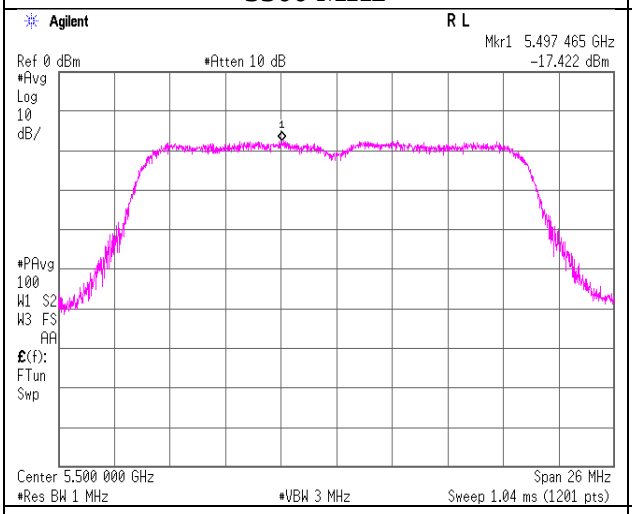
5320 MHz



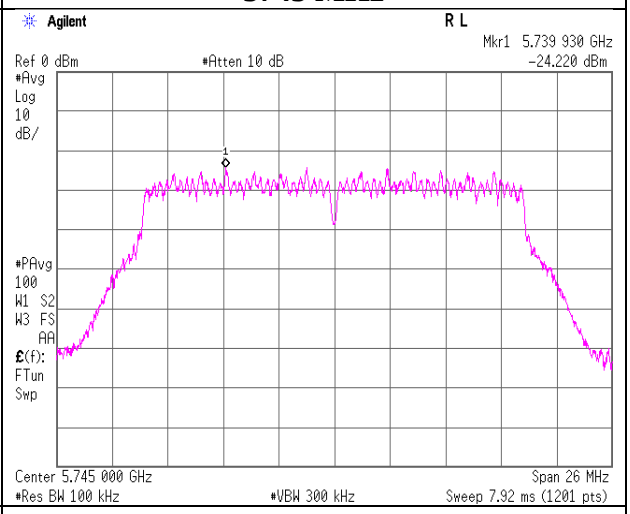
Maximum Power Spectral Density

Tx, IEEE802.11n HT20 (MIMO), Antenna 0

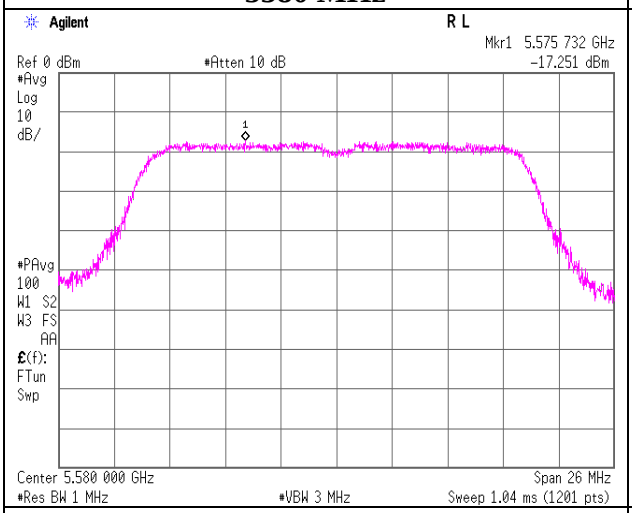
5500 MHz



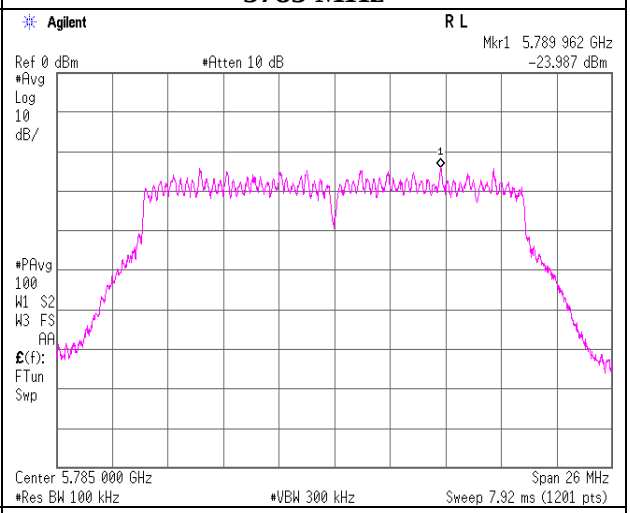
5745 MHz



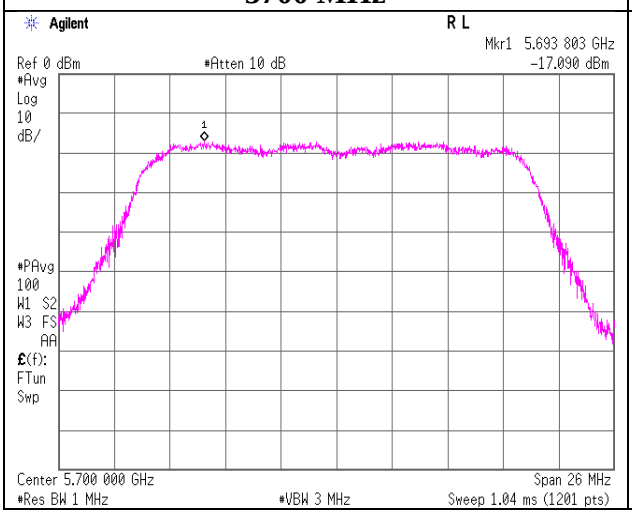
5580 MHz



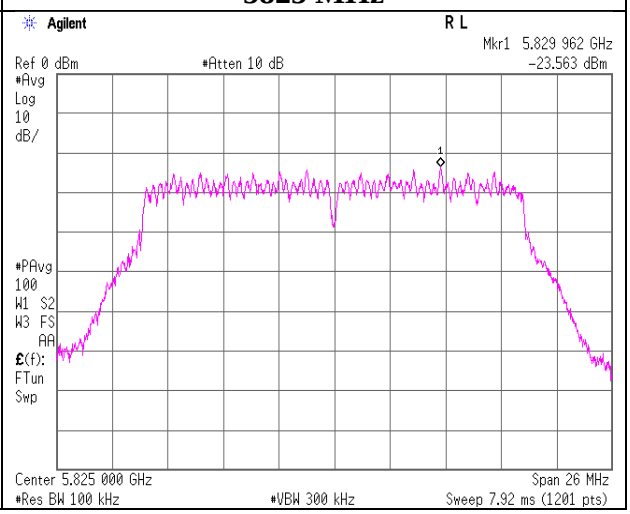
5785 MHz



5700 MHz



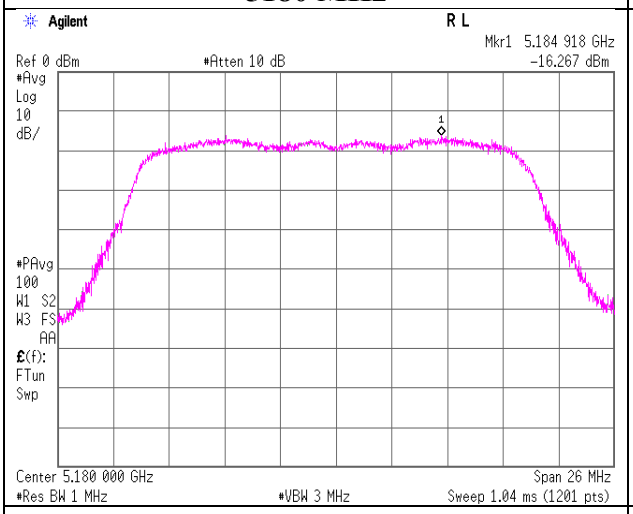
5825 MHz



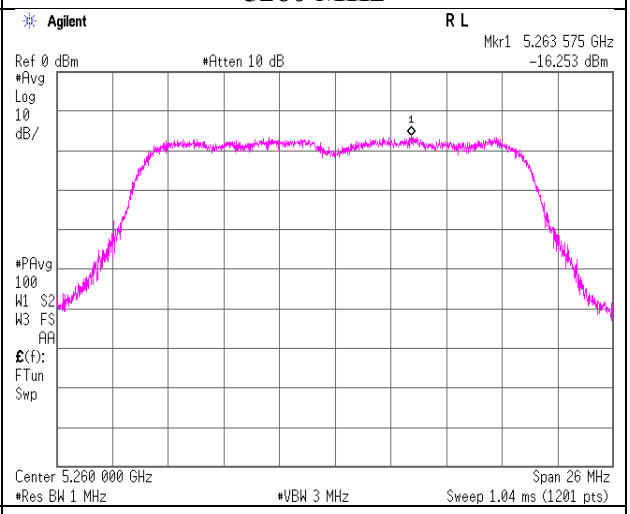
Maximum Power Spectral Density

Tx, IEEE802.11n HT20 (MIMO), Antenna 1

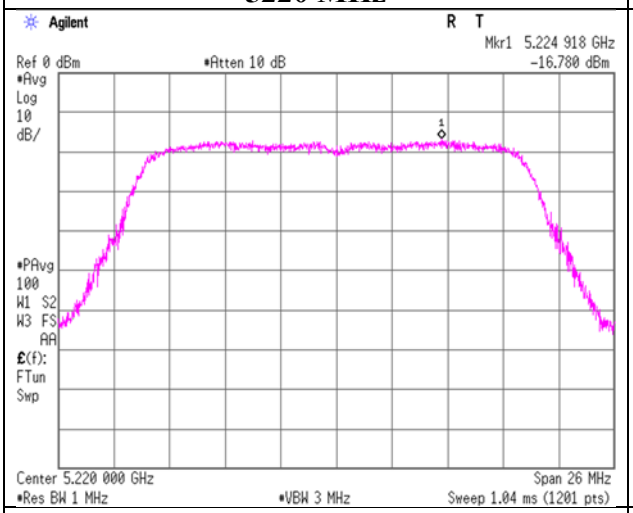
5180 MHz



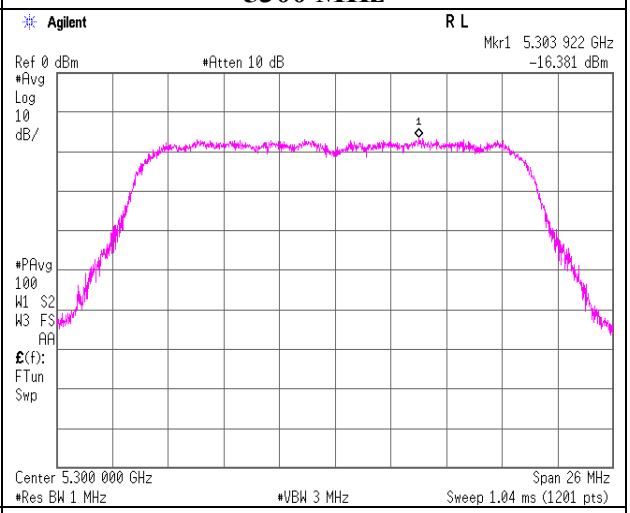
5260 MHz



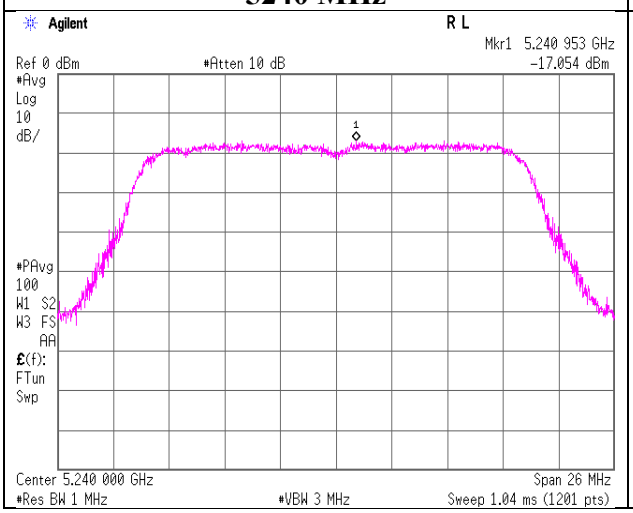
5220 MHz



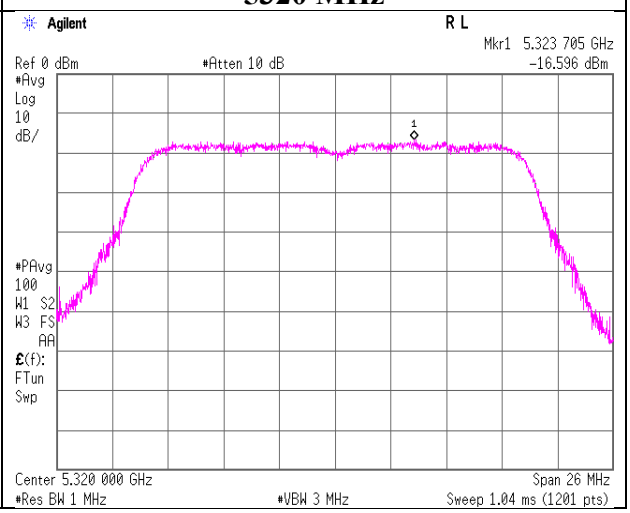
5300 MHz



5240 MHz



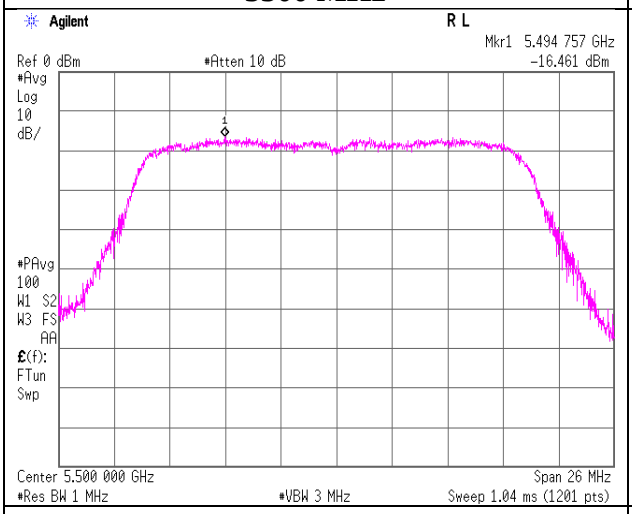
5320 MHz



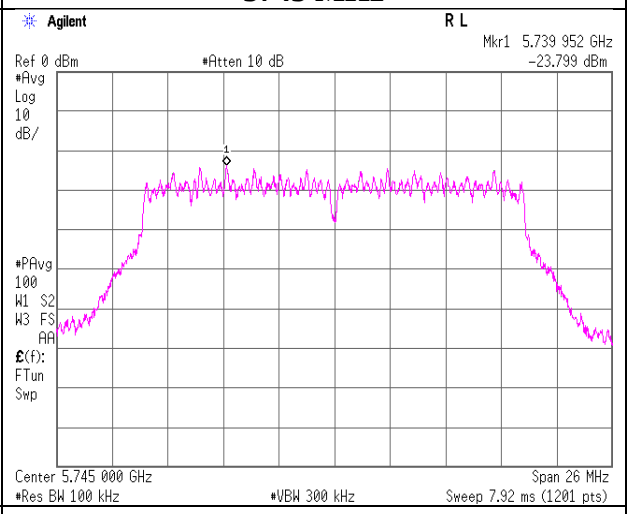
Maximum Power Spectral Density

Tx, IEEE802.11n HT20 (MIMO), Antenna 1

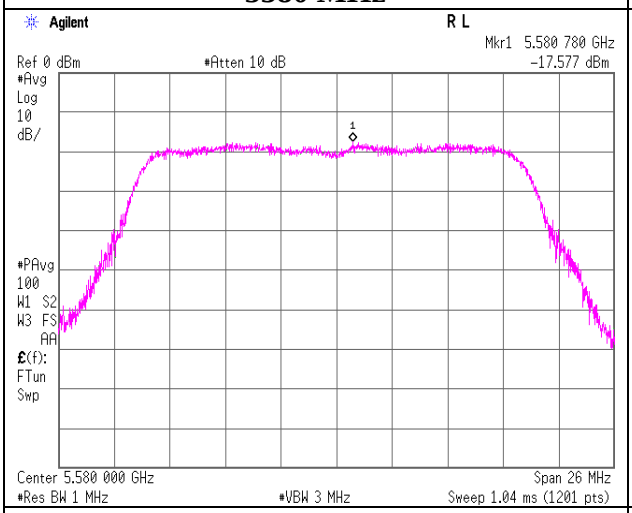
5500 MHz



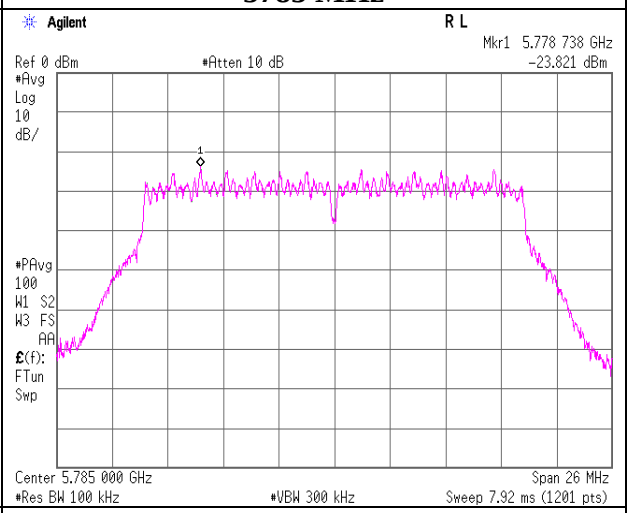
5745 MHz



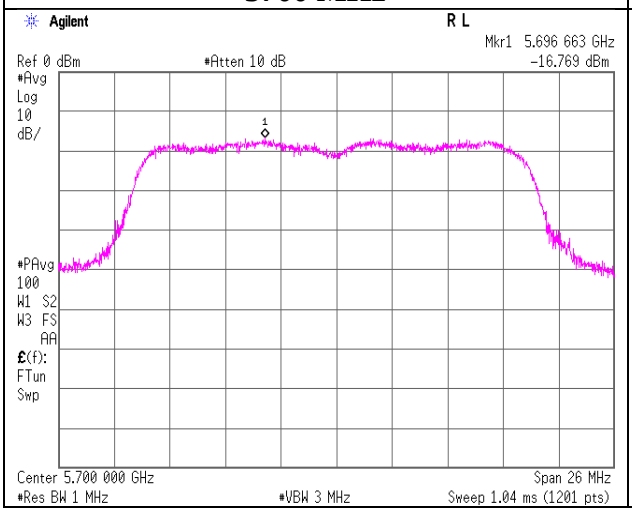
5580 MHz



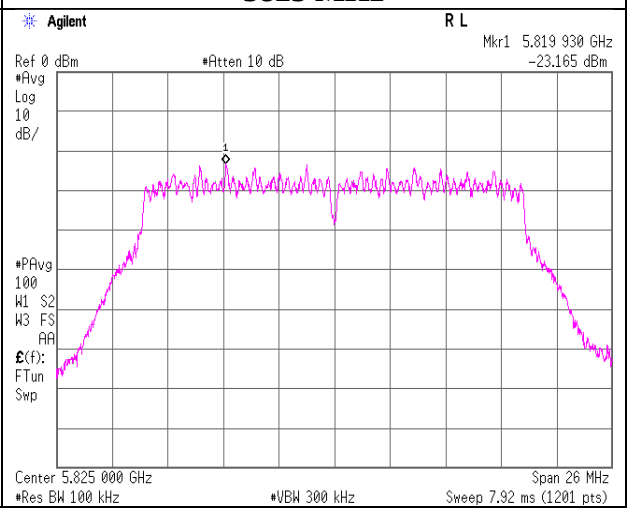
5785 MHz



5700 MHz



5825 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	March 19, 2019
Temperature / Humidity	21 deg. C / 41 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT20 (MIMO)

Antenna 0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5180	-16.38	3.89	10.21	2.08	2.95	0.00	3.01	2.81	11.00	8.19	5.76	17.00	11.24
5220	-16.07	3.90	10.21	2.08	2.95	0.00	3.01	3.13	11.00	7.87	6.08	17.00	10.92
5240	-16.50	3.90	10.21	2.08	2.95	0.00	3.01	2.70	11.00	8.30	5.65	17.00	11.35
5260	-16.29	3.91	10.21	2.08	2.95	0.00	3.01	2.92	11.00	8.08	5.87	17.00	11.13
5300	-16.19	3.92	10.21	2.08	2.95	0.00	3.01	3.03	11.00	7.97	5.98	17.00	11.02
5320	-15.86	3.92	10.21	2.08	2.95	0.00	3.01	3.36	11.00	7.64	6.31	17.00	10.69
5500	-16.66	3.97	10.22	2.08	2.95	0.00	3.01	2.63	11.00	8.38	5.57	17.00	11.43
5580	-16.53	3.98	10.22	2.08	2.95	0.00	3.01	2.76	11.00	8.24	5.71	17.00	11.29
5700	-16.41	3.99	10.23	2.08	2.95	0.00	3.01	2.90	11.00	8.10	5.85	17.00	11.15
5745	-24.38	4.00	10.23	2.08	2.95	6.99	3.01	1.93	30.00	28.07	4.88	36.00	31.12
5785	-24.47	4.00	10.24	2.08	2.95	6.99	3.01	1.85	30.00	28.15	4.80	36.00	31.20
5825	-23.94	4.01	10.24	2.08	2.95	6.99	3.01	2.39	30.00	27.61	5.34	36.00	30.66

Antenna 1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5180	-16.32	3.89	10.21	2.08	1.99	0.00	3.01	2.87	11.00	8.13	4.87	17.00	12.14
5220	-15.98	3.90	10.21	2.08	1.99	0.00	3.01	3.22	11.00	7.78	5.21	17.00	11.79
5240	-16.19	3.90	10.21	2.08	1.99	0.00	3.01	3.01	11.00	7.99	5.00	17.00	12.00
5260	-15.62	3.91	10.21	2.08	1.99	0.00	3.01	3.59	11.00	7.41	5.58	17.00	11.42
5300	-16.20	3.92	10.21	2.08	1.99	0.00	3.01	3.02	11.00	7.98	5.01	17.00	11.99
5320	-16.07	3.92	10.21	2.08	1.99	0.00	3.01	3.15	11.00	7.85	5.15	17.00	11.86
5500	-16.12	3.97	10.22	2.08	1.99	0.00	3.01	3.16	11.00	7.84	5.15	17.00	11.85
5580	-16.22	3.98	10.22	2.08	1.99	0.00	3.01	3.07	11.00	7.93	5.06	17.00	11.94
5700	-16.30	3.99	10.23	2.08	1.99	0.00	3.01	3.01	11.00	7.99	5.00	17.00	12.00
5745	-23.87	4.00	10.23	2.08	1.99	6.99	3.01	2.44	30.00	27.56	4.43	36.00	31.57
5785	-23.66	4.00	10.24	2.08	1.99	6.99	3.01	2.66	30.00	27.34	4.66	36.00	31.34
5825	-23.58	4.01	10.24	2.08	1.99	6.99	3.01	2.75	30.00	27.25	4.74	36.00	31.26

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor+10log (Nant)

PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

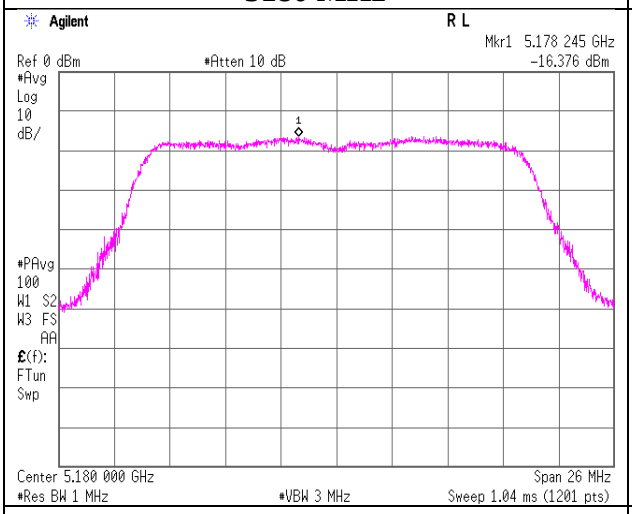
*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements E) 2) c) of "Guidance for Summing Emission Measurements from Multiple Outputs of a Transmitter of from Multiple Transmitters (KDB662911 D01)"

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

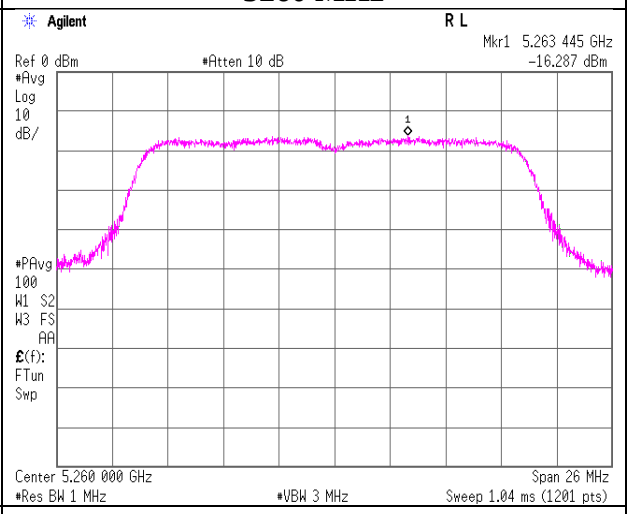
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT20 (MIMO), Antenna 0

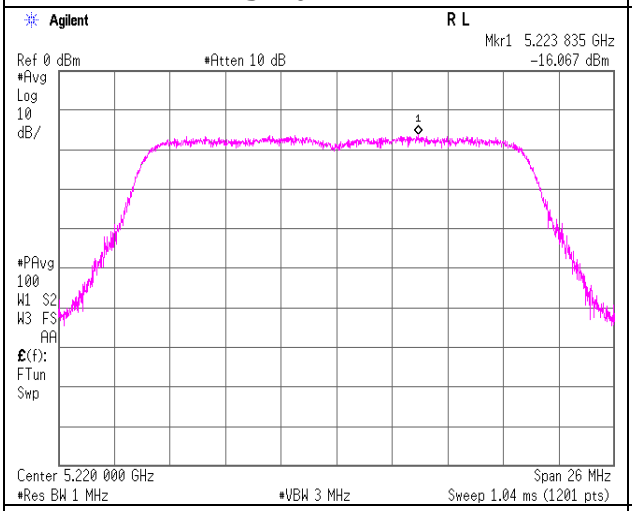
5180 MHz



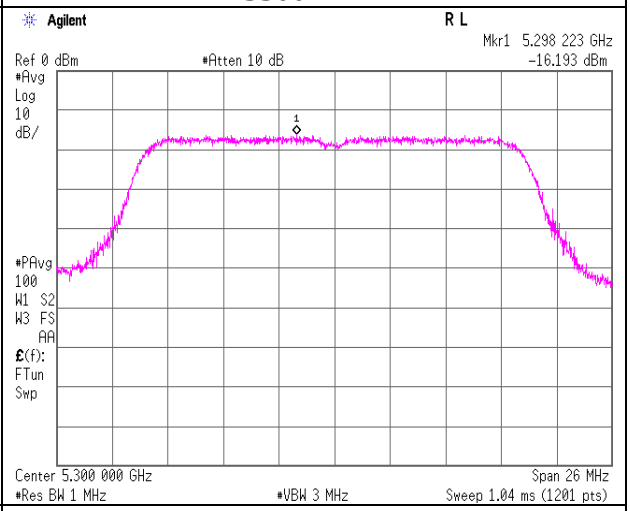
5260 MHz



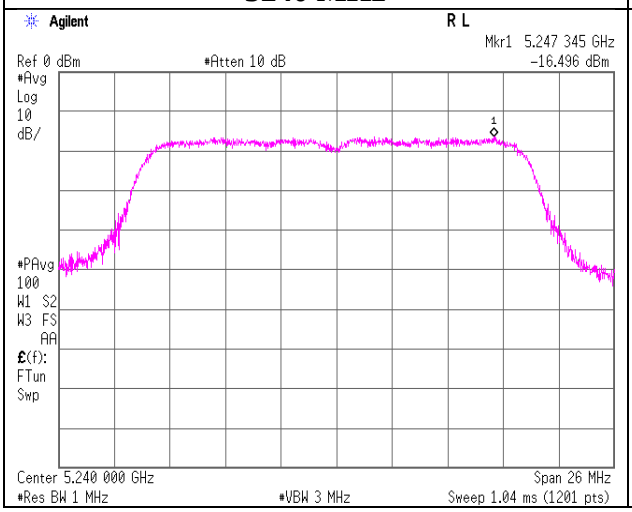
5220 MHz



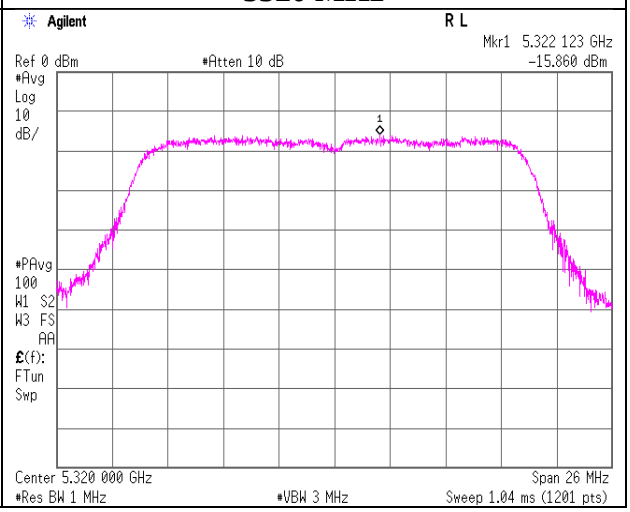
5300 MHz



5240 MHz



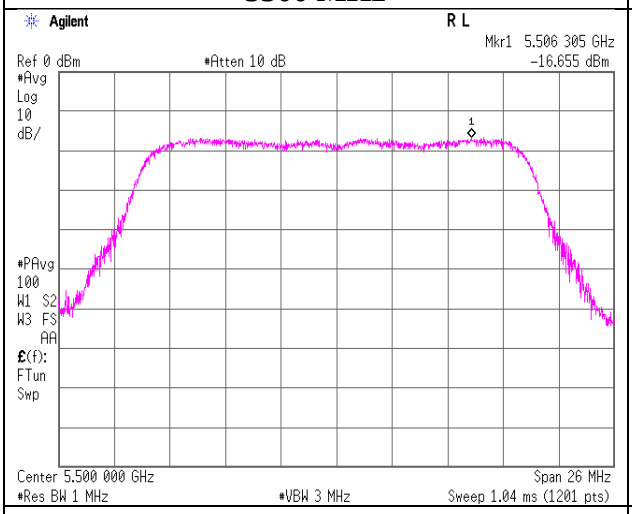
5320 MHz



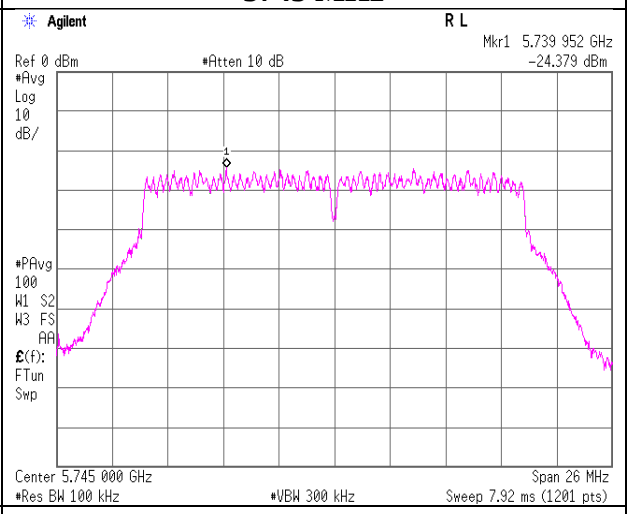
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT20 (MIMO), Antenna 0

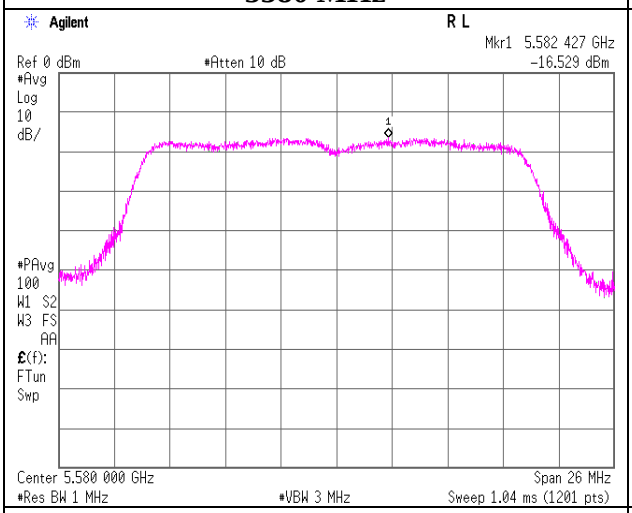
5500 MHz



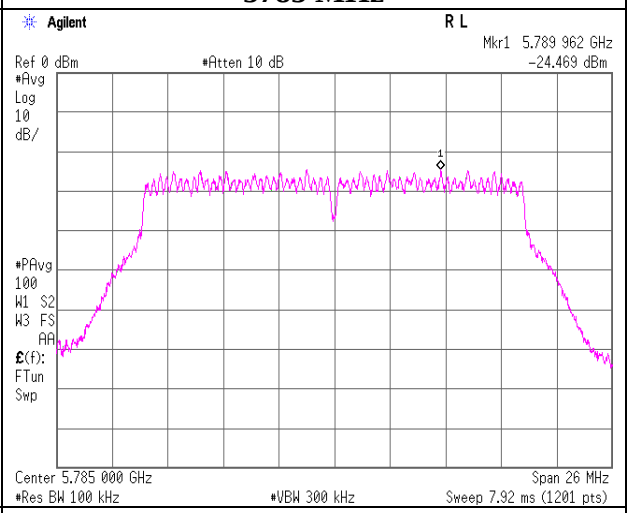
5745 MHz



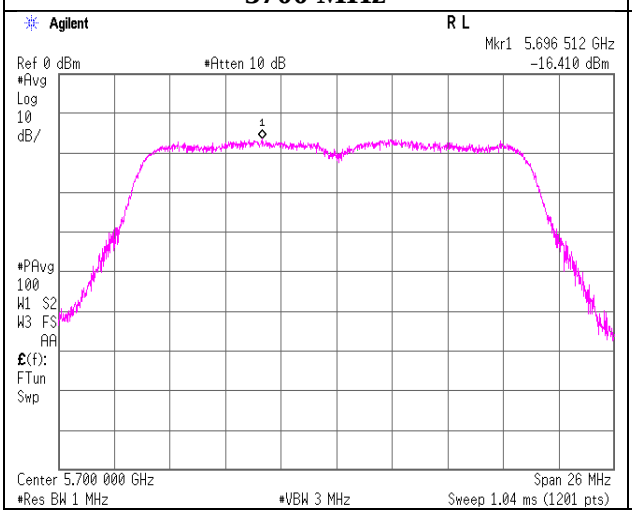
5580 MHz



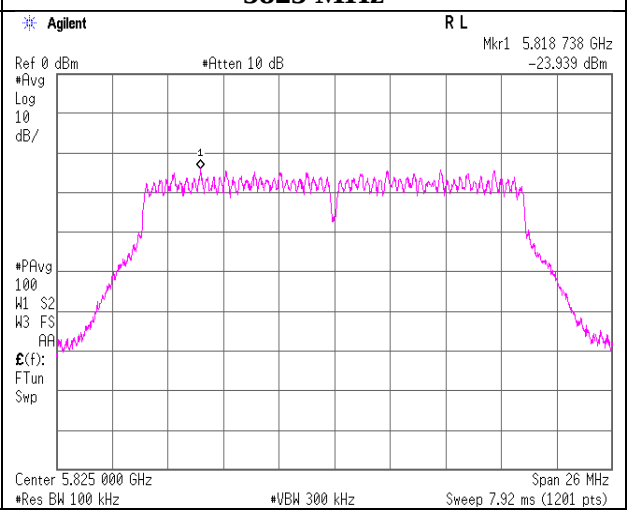
5785 MHz



5700 MHz



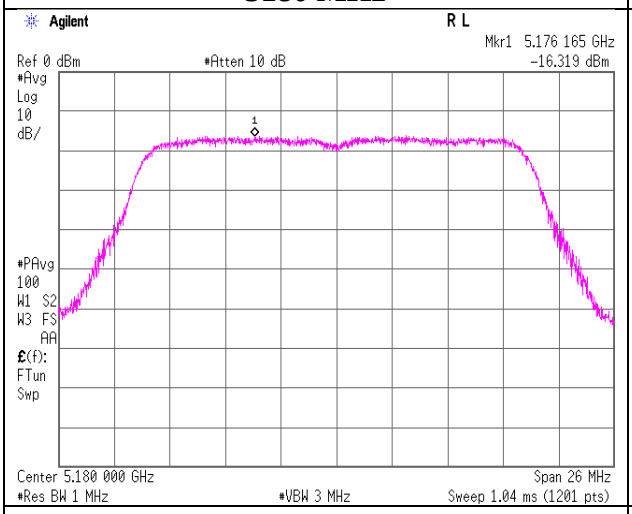
5825 MHz



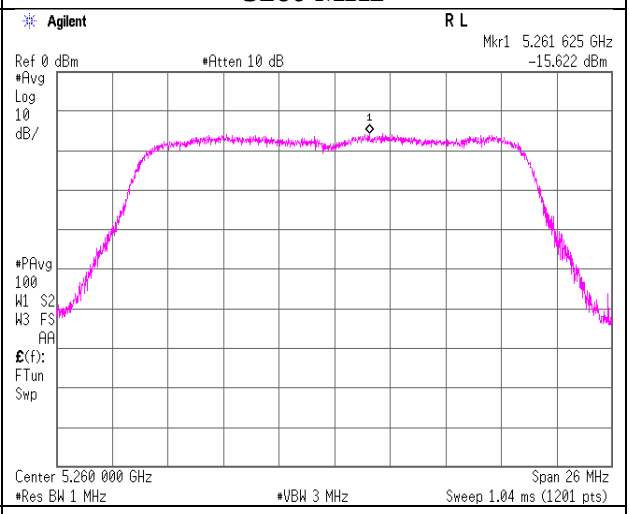
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT20 (MIMO), Antenna 1

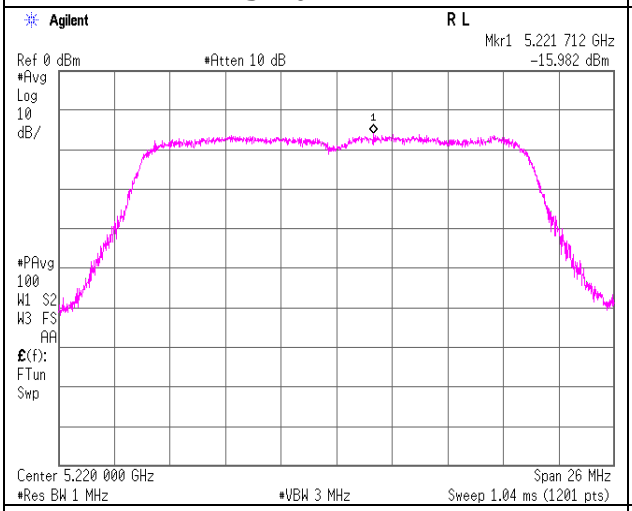
5180 MHz



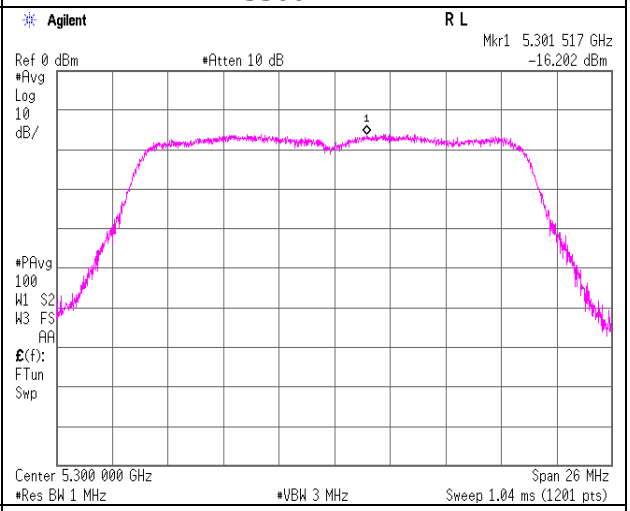
5260 MHz



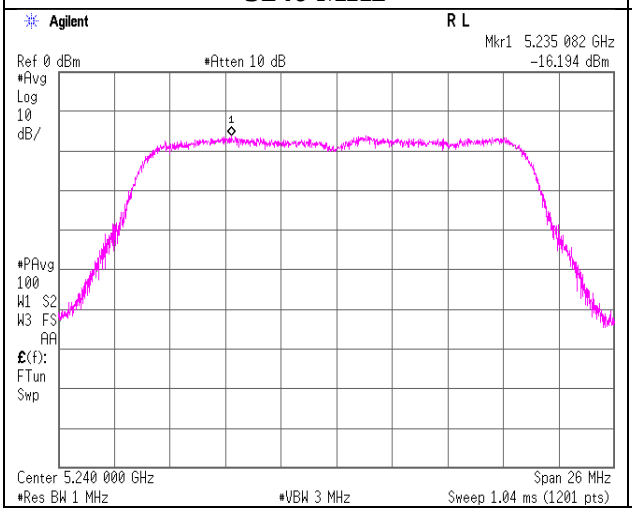
5220 MHz



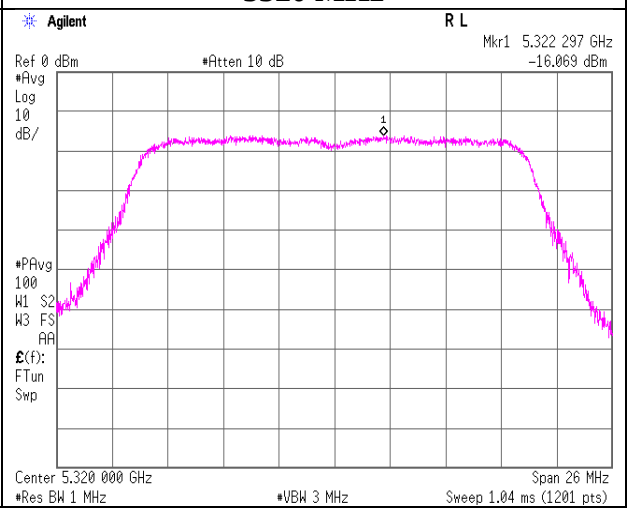
5300 MHz



5240 MHz



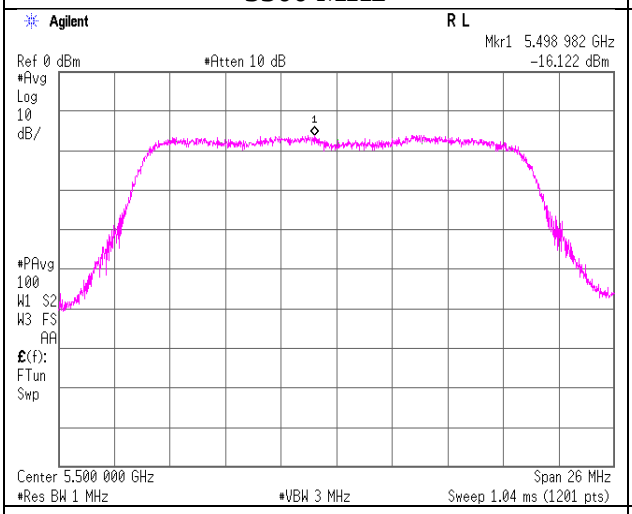
5320 MHz



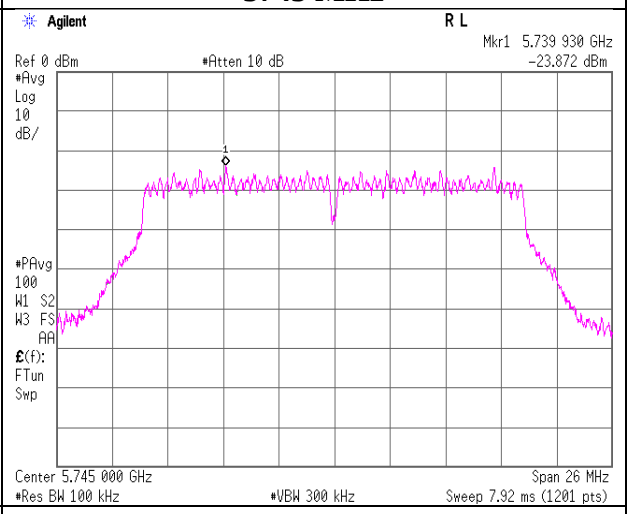
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT20 (MIMO), Antenna 1

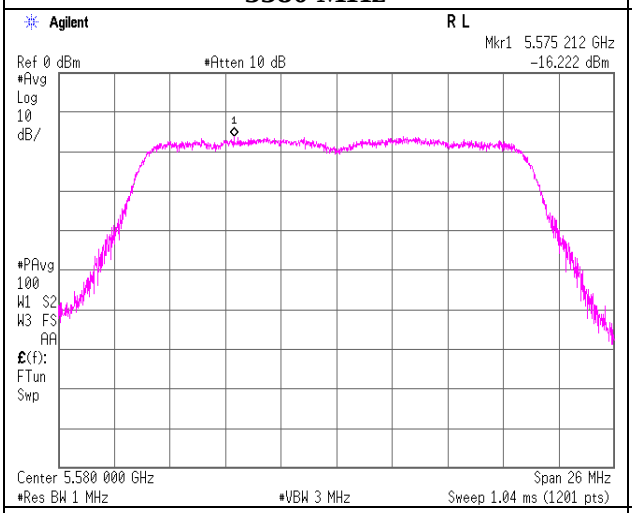
5500 MHz



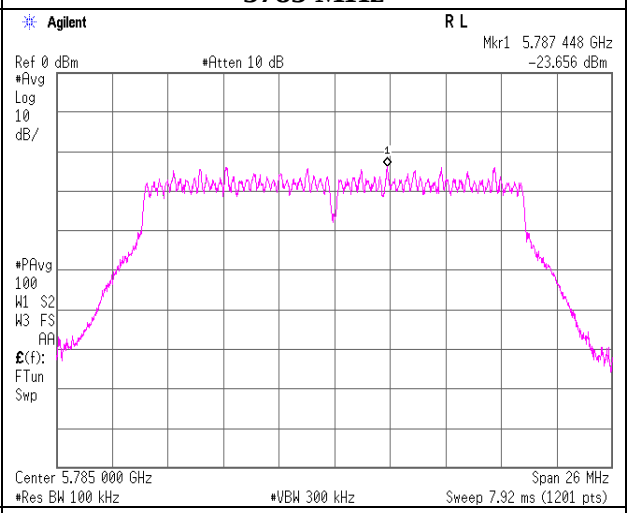
5745 MHz



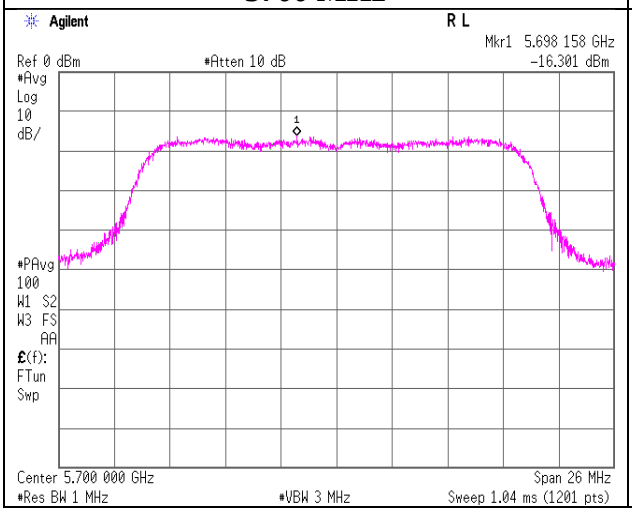
5580 MHz



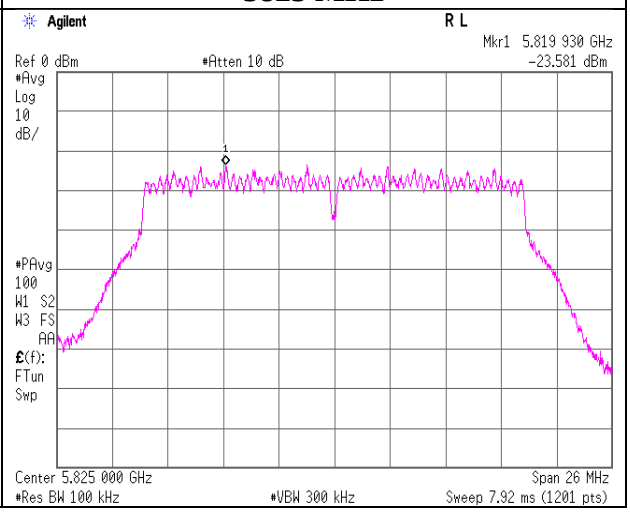
5785 MHz



5700 MHz



5825 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	March 18, 2019	March 19, 2019
Temperature / Humidity	22 deg. C / 54 % RH	21 deg. C / 41 % RH
Engineer	Kenichi Adachi	Yosuke Ishikawa
Mode	Tx, IEEE802.11n HT40 (SISO), PN9, worst antenna port 1(5190 MHz), 0 (other channel frequency)	

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5190	-19.22	3.89	10.21	2.63	1.99	0.00	-2.49	11.00	13.49	-0.49	17.00	17.49
-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-16.49	3.90	10.21	1.76	2.95	0.00	-0.62	11.00	11.62	2.33	17.00	14.67
5270	-16.35	3.91	10.21	1.76	2.95	0.00	-0.46	11.00	11.47	2.48	17.00	14.52
-	-	-	-	-	-	-	-	-	-	-	-	-
5310	-16.12	3.92	10.21	1.76	2.95	0.00	-0.23	11.00	11.23	2.72	17.00	14.29
5510	-16.31	3.97	10.22	1.76	2.95	0.00	-0.36	11.00	11.36	2.59	17.00	14.41
5550	-16.11	3.98	10.22	1.76	2.95	0.00	-0.15	11.00	11.15	2.80	17.00	14.20
5670	-16.18	3.99	10.23	1.76	2.95	0.00	-0.20	11.00	11.20	2.75	17.00	14.25
5755	-25.73	4.00	10.23	1.76	2.95	6.99	-2.75	30.00	32.75	0.20	36.00	35.80
-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-26.03	4.01	10.24	1.76	2.95	6.99	-3.03	30.00	33.03	-0.08	36.00	36.08

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

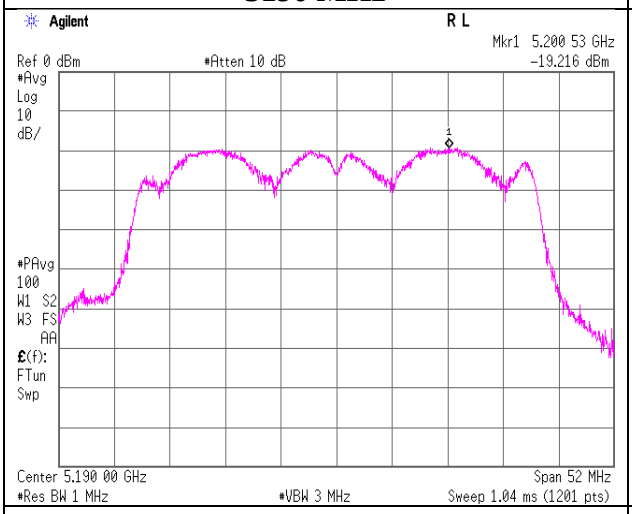
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

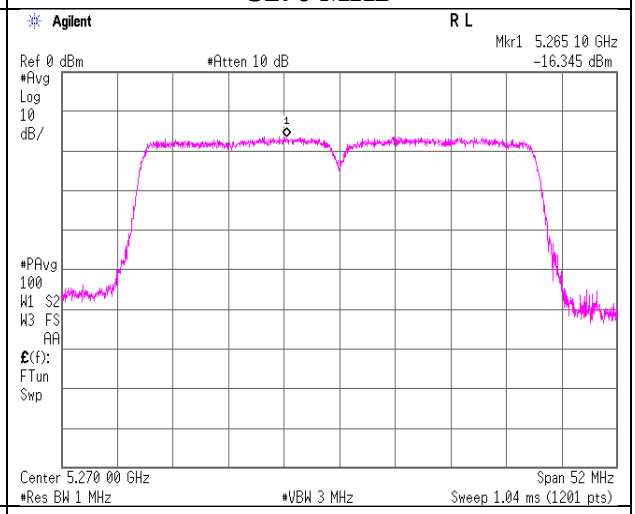
Maximum Power Spectral Density

Tx, IEEE802.11n HT40 (SISO), Antenna 1 (5190 MHz), 0 (other channel frequency)

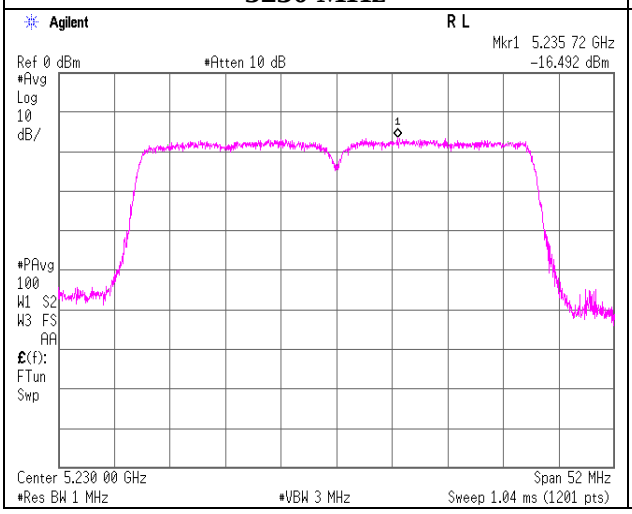
5190 MHz



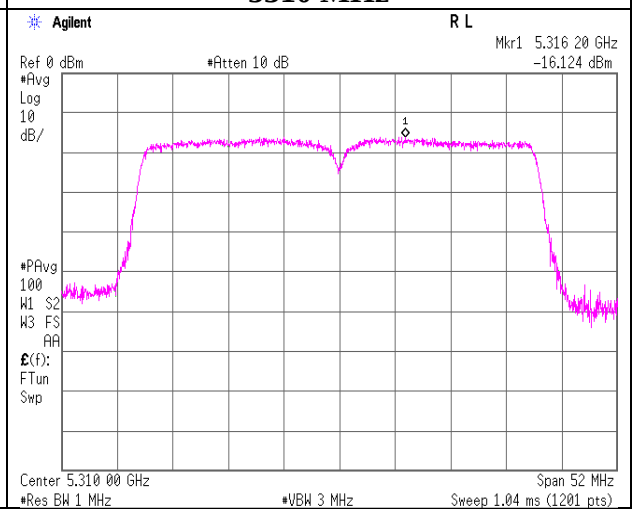
5270 MHz



5230 MHz



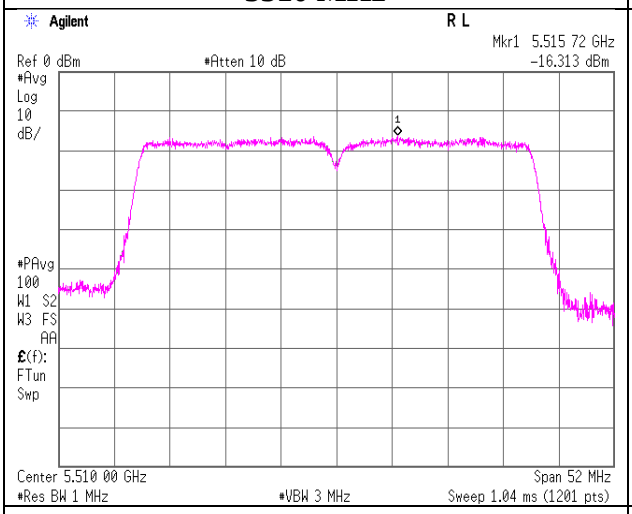
5310 MHz



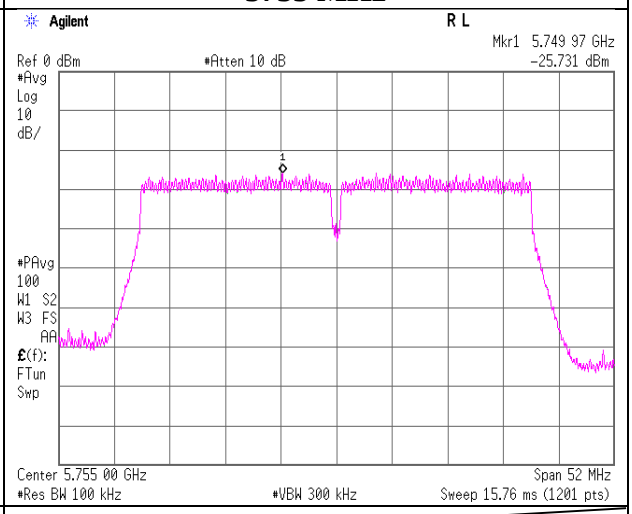
Maximum Power Spectral Density

Tx, IEEE802.11n HT40 (SISO), Antenna 0 (Worst)

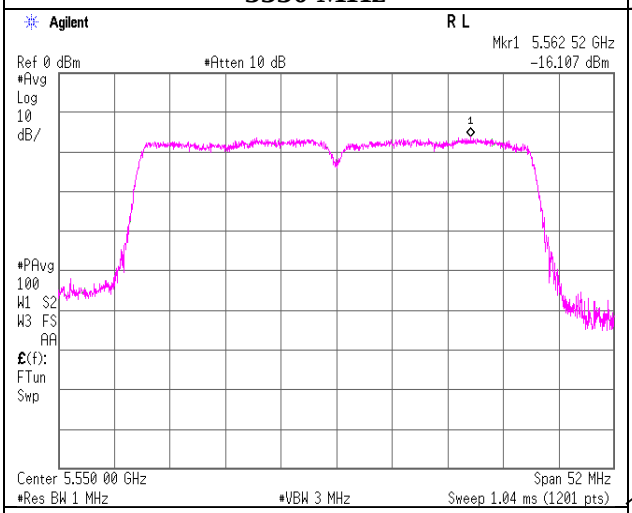
5510 MHz



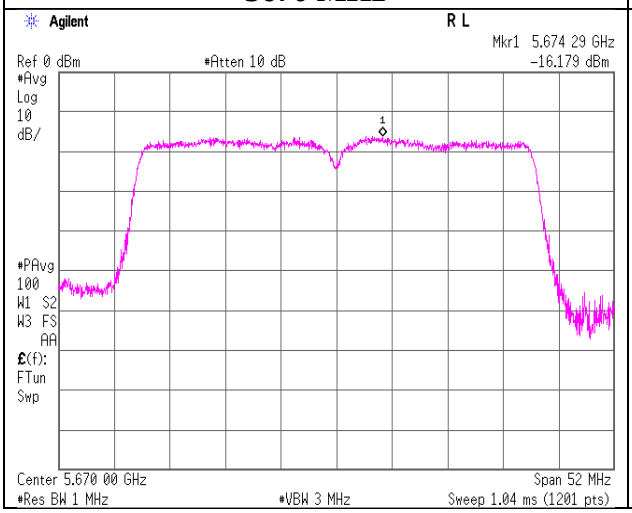
5755 MHz



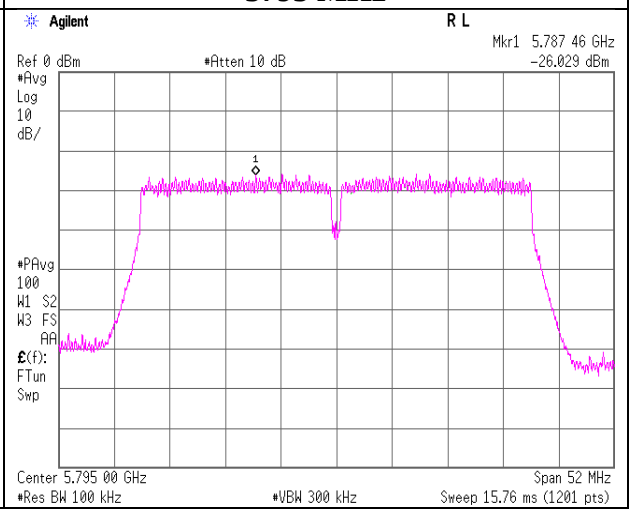
5550 MHz



5670 MHz



5795 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	March 19, 2019
Temperature / Humidity	21 deg. C / 41 % RH
Engineer	Yosuke Ishikawa
Mode	Tx, IEEE802.11ac VHT40 (SISO), PN9, worst antenna port 1(5190 MHz), 0 (other channel frequency)

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5190	-20.47	3.89	10.21	2.15	1.99	0.00	-4.22	11.00	15.22	-2.23	17.00	19.23
-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-16.40	3.90	10.21	1.39	2.95	0.00	-0.90	11.00	11.90	2.05	17.00	14.95
5270	-16.33	3.91	10.21	1.39	2.95	0.00	-0.82	11.00	11.82	2.13	17.00	14.87
-	-	-	-	-	-	-	-	-	-	-	-	-
5310	-16.24	3.92	10.21	1.39	2.95	0.00	-0.72	11.00	11.72	2.23	17.00	14.77
5510	-16.05	3.97	10.22	1.39	2.95	0.00	-0.47	11.00	11.47	2.48	17.00	14.52
5550	-16.23	3.98	10.22	1.39	2.95	0.00	-0.64	11.00	11.64	2.31	17.00	14.69
5670	-16.66	3.99	10.23	1.39	2.95	0.00	-1.05	11.00	12.05	1.90	17.00	15.11
5755	-25.04	4.00	10.23	1.39	2.95	6.99	-2.43	30.00	32.43	0.52	36.00	35.48
-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-25.99	4.01	10.24	1.39	2.95	6.99	-3.36	30.00	33.36	-0.41	36.00	36.41

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

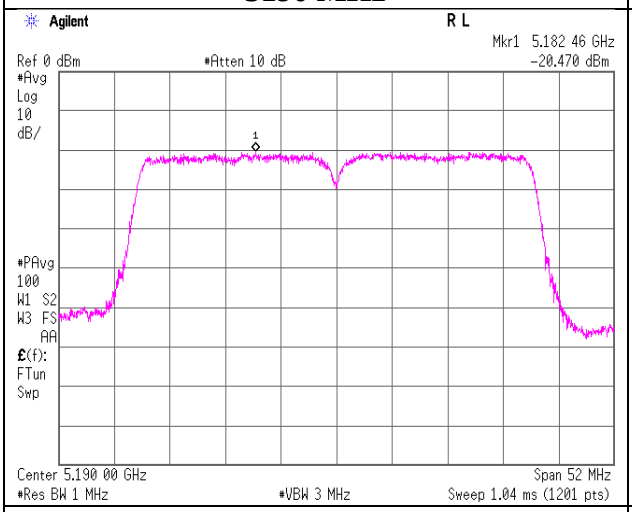
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

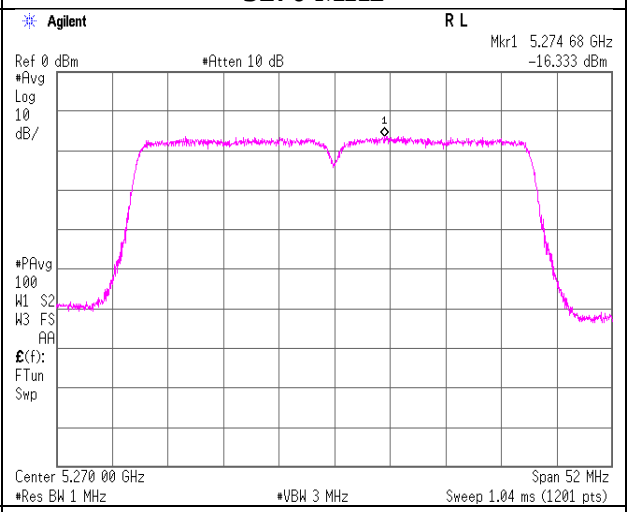
Maximum Power Spectral Density

Tx, IEEE802.11n HT40 (SISO), Antenna 1(5190 MHz), 0 (other channel frequency)

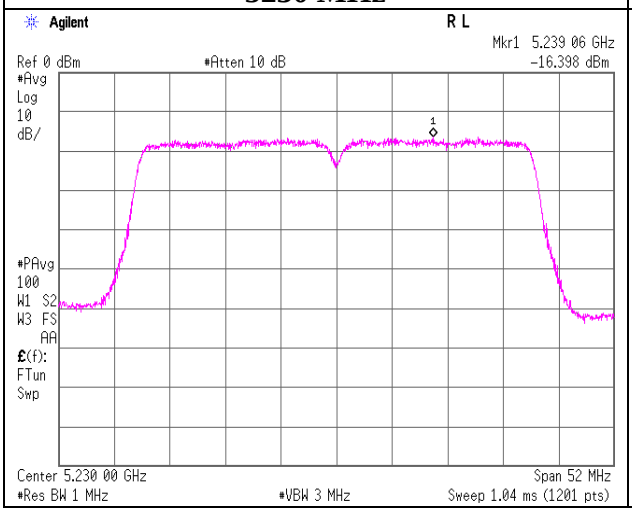
5190 MHz



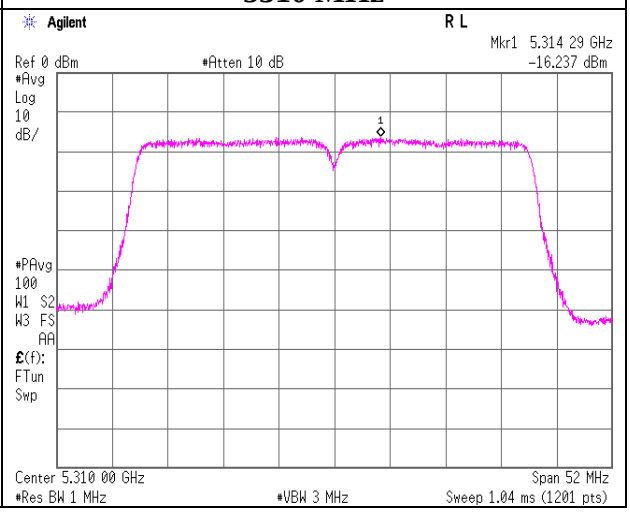
5270 MHz



5230 MHz



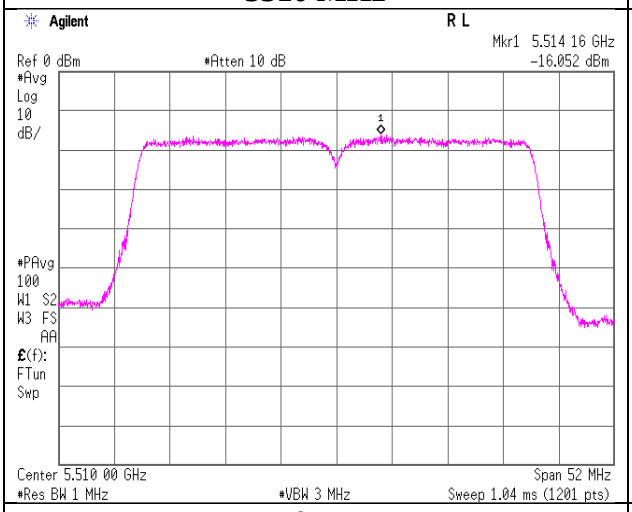
5310 MHz



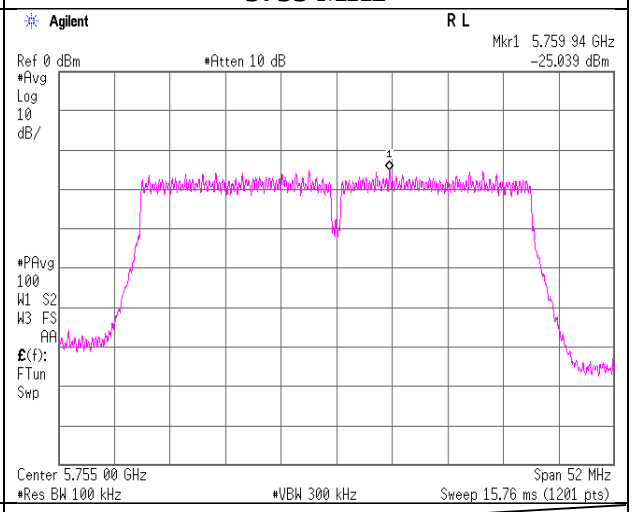
Maximum Power Spectral Density

Tx, IEEE802.11n HT40 (SISO), Antenna 0 (Worst)

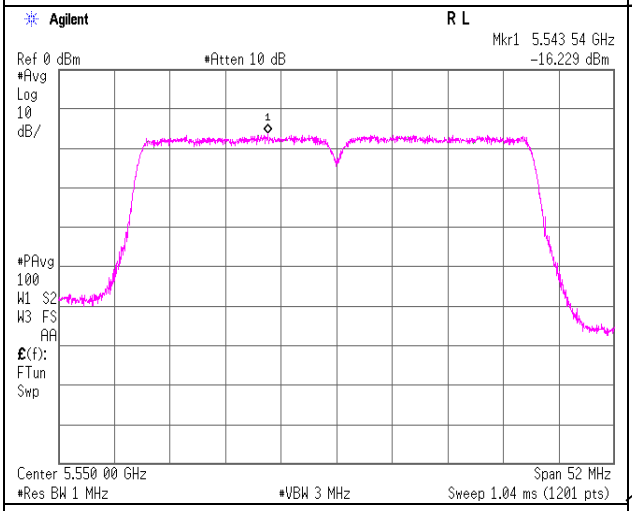
5510 MHz



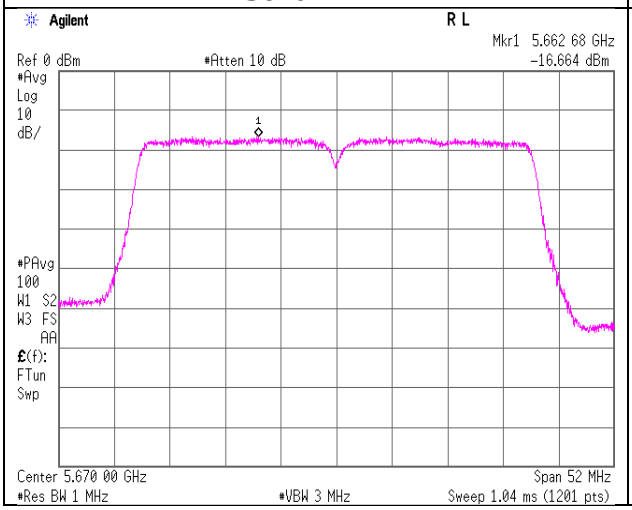
5755 MHz



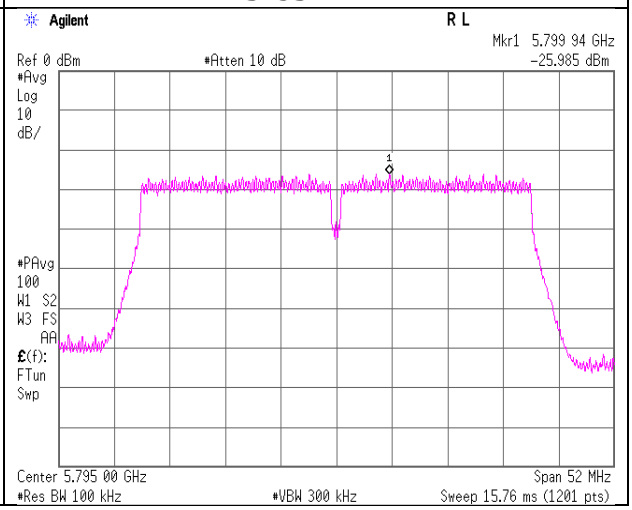
5550 MHz



5670 MHz



5795 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	March 25, 2019
Temperature / Humidity	20 deg. C / 59 % RH
Engineer	Kenichi Adachi
Mode	Tx, IEEE802.11n HT40 (MIMO)

Antenna 0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5190	-24.96	3.89	10.21	3.59	2.95	0.00	3.01	-4.26	11.00	15.26	-1.31	17.00	18.31
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-19.76	3.90	10.21	2.51	2.95	0.00	3.01	-0.13	11.00	11.13	2.82	17.00	14.18
5270	-20.17	3.91	10.21	2.51	2.95	0.00	3.01	-0.53	11.00	11.53	2.42	17.00	14.58
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	-19.60	3.92	10.21	2.51	2.95	0.00	3.01	0.05	11.00	10.95	3.00	17.00	14.00
5510	-19.97	3.97	10.22	2.51	2.95	0.00	3.01	-0.26	11.00	11.26	2.69	17.00	14.31
5550	-20.23	3.98	10.22	2.51	2.95	0.00	3.01	-0.51	11.00	11.51	2.44	17.00	14.56
5670	-20.28	3.99	10.23	2.51	2.95	0.00	3.01	-0.54	11.00	11.54	2.41	17.00	14.59
5755	-26.16	4.00	10.24	2.51	2.95	6.99	3.01	0.59	30.00	29.41	3.54	36.00	32.46
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-27.17	4.01	10.24	2.51	2.95	6.99	3.01	-0.41	30.00	30.41	2.54	36.00	33.46

Antenna 1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5190	-24.66	3.89	10.21	3.59	1.99	0.00	3.01	-3.96	11.00	14.96	-1.97	17.00	18.97
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-19.56	3.90	10.21	2.51	1.99	0.00	3.01	0.07	11.00	10.93	2.07	17.00	14.93
5270	-19.78	3.91	10.21	2.51	1.99	0.00	3.01	-0.14	11.00	11.14	1.86	17.00	15.14
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	-19.17	3.92	10.21	2.51	1.99	0.00	3.01	0.48	11.00	10.52	2.47	17.00	14.53
5510	-19.09	3.97	10.22	2.51	1.99	0.00	3.01	0.62	11.00	10.38	2.61	17.00	14.39
5550	-18.74	3.98	10.22	2.51	1.99	0.00	3.01	0.98	11.00	10.02	2.97	17.00	14.03
5670	-20.03	3.99	10.23	2.51	1.99	0.00	3.01	-0.28	11.00	11.29	1.71	17.00	15.29
5755	-27.00	4.00	10.24	2.51	1.99	6.99	3.01	-0.25	30.00	30.25	1.74	36.00	34.26
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-26.83	4.01	10.24	2.51	1.99	6.99	3.01	-0.07	30.00	30.07	1.93	36.00	34.07

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor+10log (Nant)

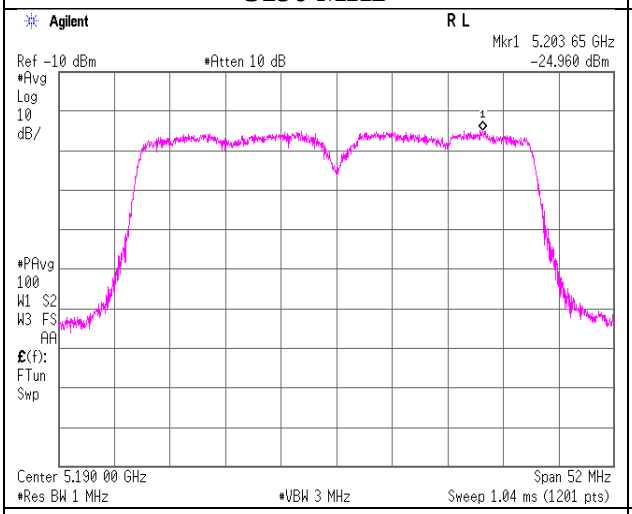
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements E) 2) c) of
"Guidance for Summing Emission Measurements from Multiple Outputs of a Transmitter of from Multiple Transmitters (KDB662911 D01)"
Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

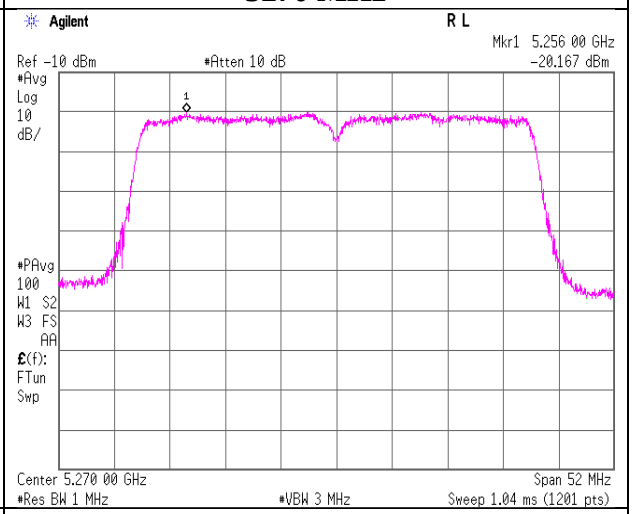
Maximum Power Spectral Density

Tx, IEEE802.11n HT40 (MIMO), Antenna 0

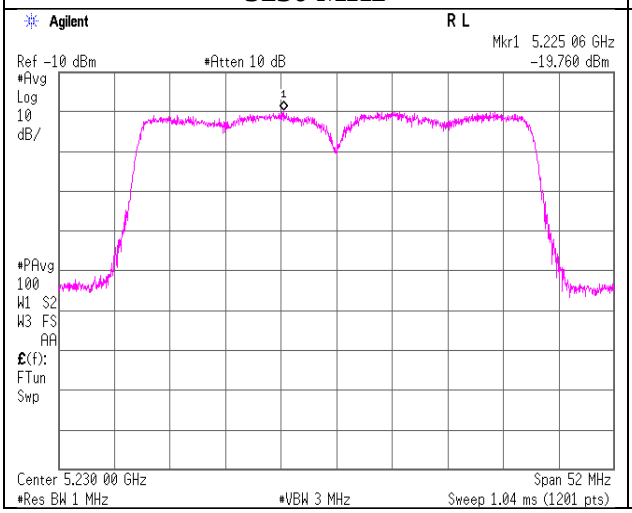
5190 MHz



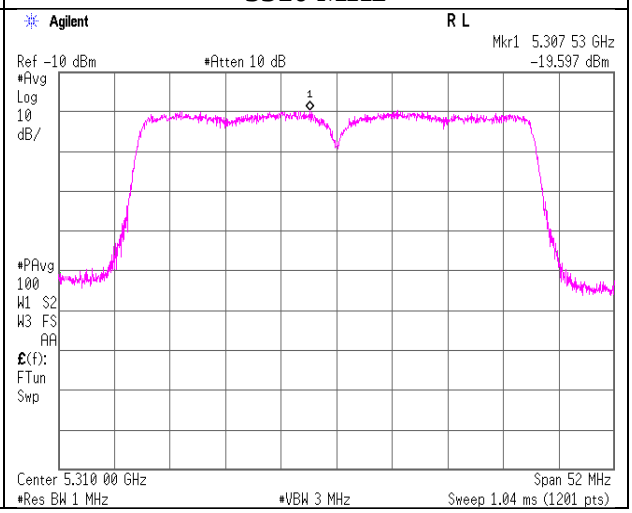
5270 MHz



5230 MHz



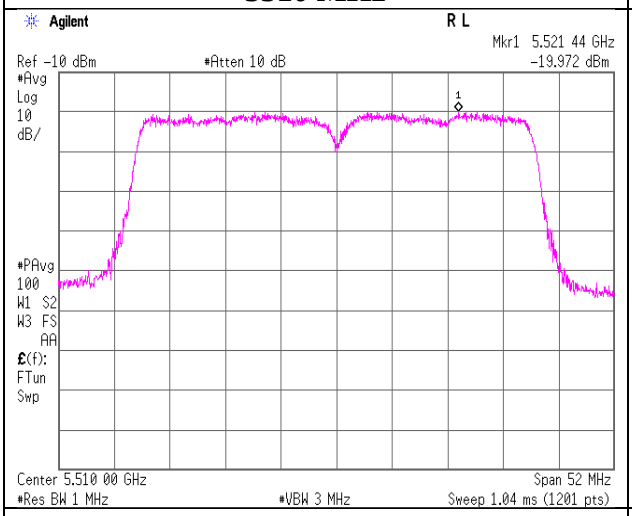
5310 MHz



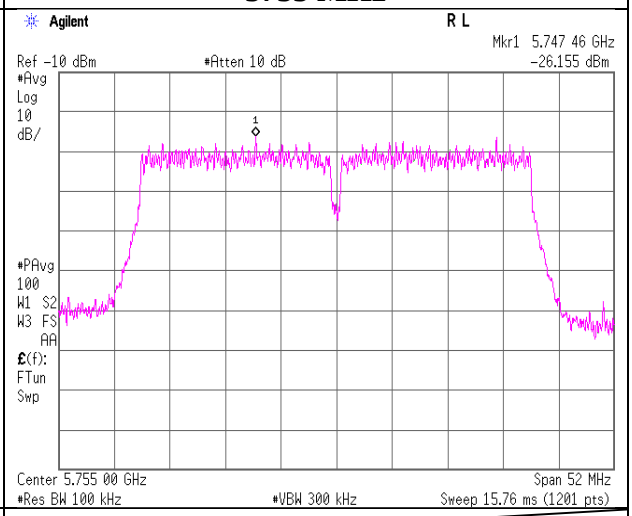
Maximum Power Spectral Density

Tx, IEEE802.11n HT40 (MIMO), Antenna 0

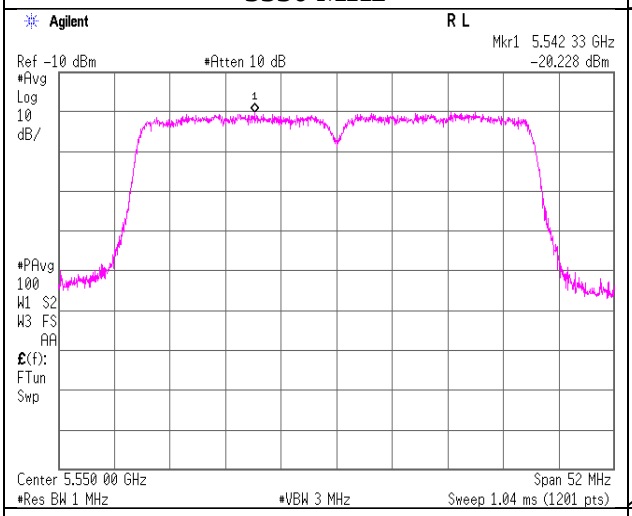
5510 MHz



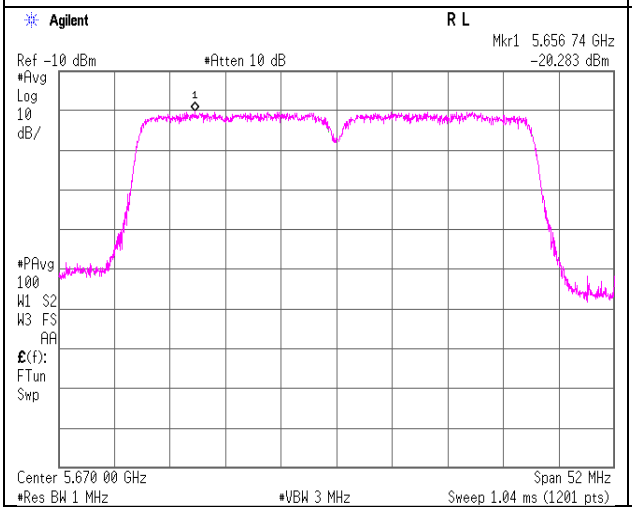
5755 MHz



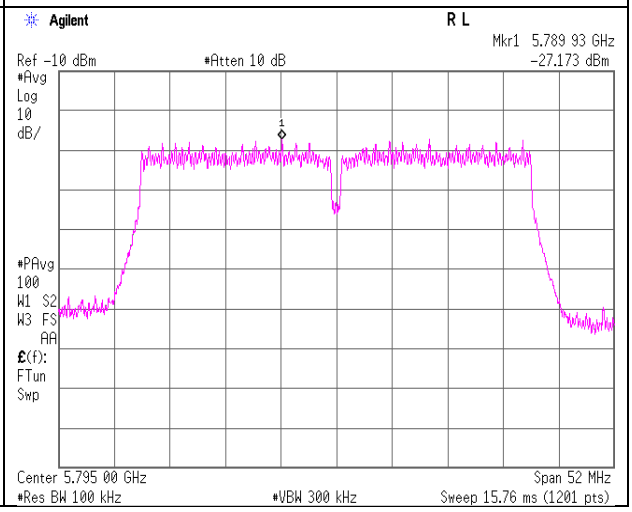
5550 MHz



5670 MHz



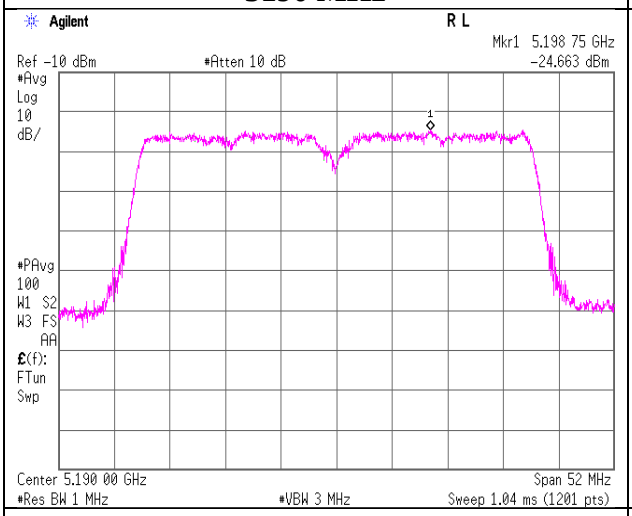
5795 MHz



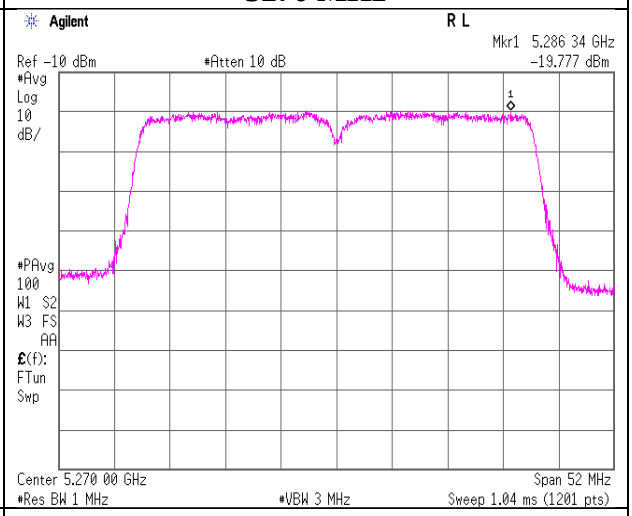
Maximum Power Spectral Density

Tx, IEEE802.11n HT40 (MIMO), Antenna 1

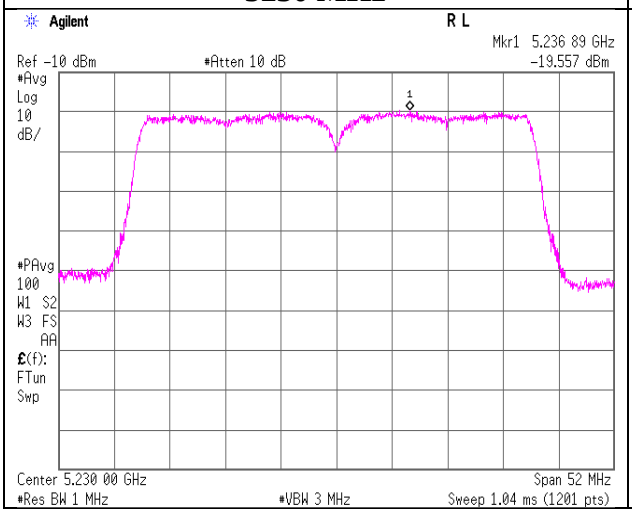
5190 MHz



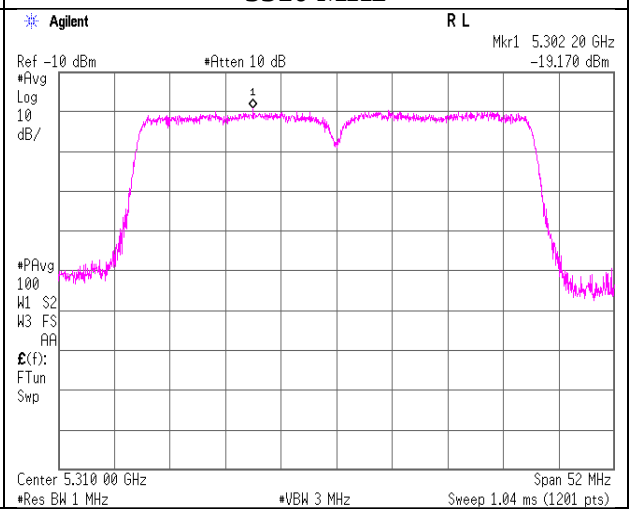
5270 MHz



5230 MHz



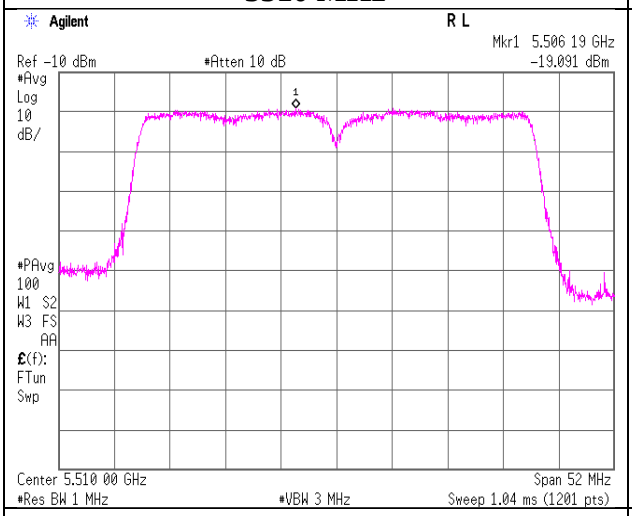
5310 MHz



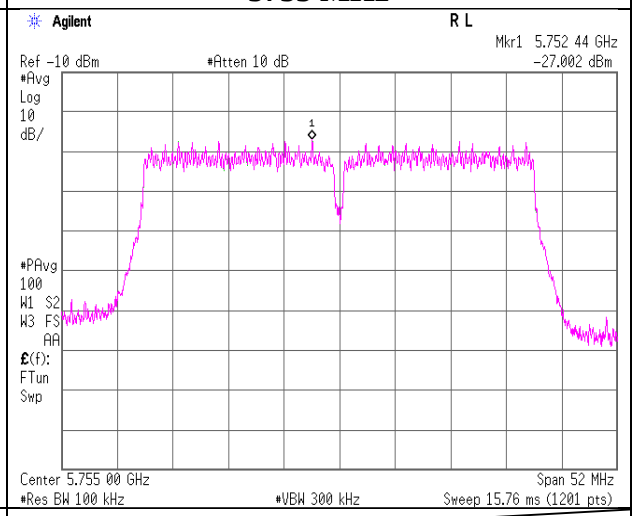
Maximum Power Spectral Density

Tx, IEEE802.11n HT40 (MIMO), Antenna 1

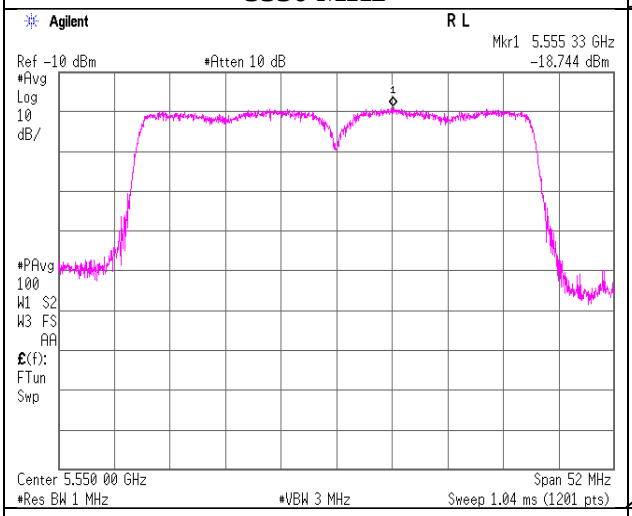
5510 MHz



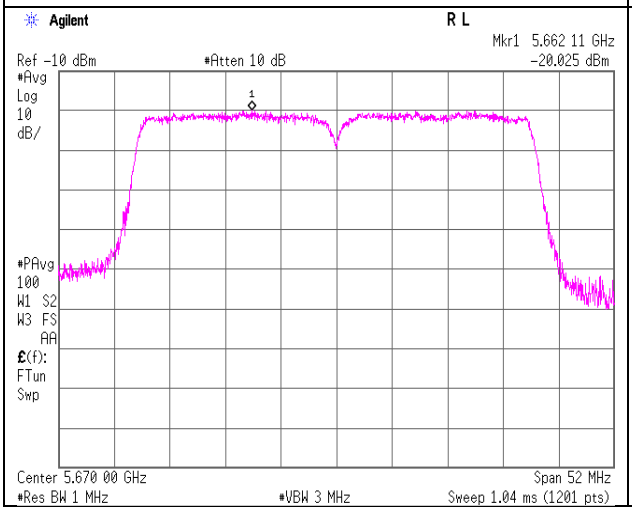
5755 MHz



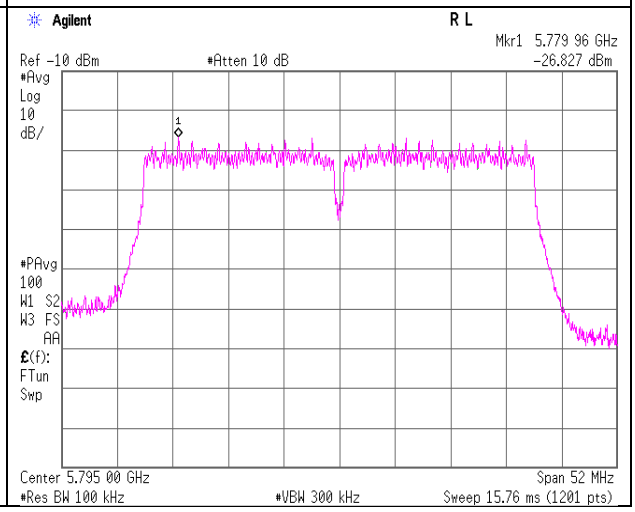
5550 MHz



5670 MHz



5795 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room	
Date	March 25, 2019	March 26, 2019
Temperature / Humidity	20 deg. C / 59 % RH	21 deg. C / 51 % RH
Engineer	Kenichi Adachi	Kenichi Adachi
Mode	Tx, IEEE802.11ac VHT40 (MIMO)	

Antenna 0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5190	-23.85	3.89	10.21	2.87	2.95	0.00	3.01	-3.87	11.00	14.87	-0.92	17.00	17.92
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-20.04	3.90	10.21	3.39	2.95	0.00	3.01	0.47	11.00	10.53	3.42	17.00	13.58
5270	-20.84	3.91	10.21	3.39	2.95	0.00	3.01	-0.32	11.00	11.32	2.63	17.00	14.37
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	-20.73	3.92	10.21	3.39	2.95	0.00	3.01	-0.20	11.00	11.20	2.75	17.00	14.25
5510	-20.50	3.97	10.22	3.39	2.95	0.00	3.01	0.09	11.00	10.91	3.04	17.00	13.97
5550	-20.69	3.98	10.22	3.39	2.95	0.00	3.01	-0.09	11.00	11.09	2.86	17.00	14.14
5670	-21.09	3.99	10.23	3.39	2.95	0.00	3.01	-0.47	11.00	11.47	2.48	17.00	14.52
5755	-27.68	4.00	10.24	3.39	2.95	6.99	3.01	-0.05	30.00	30.05	2.90	36.00	33.10
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-27.34	4.01	10.24	3.39	2.95	6.99	3.01	0.30	30.00	29.70	3.25	36.00	32.75

Antenna 1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5190	-23.98	3.89	10.21	2.87	1.99	0.00	3.01	-4.00	11.00	15.00	-2.00	17.00	19.00
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5230	-20.36	3.90	10.21	3.39	1.99	0.00	3.01	0.15	11.00	10.85	2.15	17.00	14.85
5270	-19.96	3.91	10.21	3.39	1.99	0.00	3.01	0.57	11.00	10.44	2.56	17.00	14.44
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5310	-19.84	3.92	10.21	3.39	1.99	0.00	3.01	0.69	11.00	10.31	2.68	17.00	14.32
5510	-19.77	3.97	10.22	3.39	1.99	0.00	3.01	0.82	11.00	10.18	2.81	17.00	14.19
5550	-19.70	3.98	10.22	3.39	1.99	0.00	3.01	0.90	11.00	10.10	2.90	17.00	14.10
5670	-19.44	3.99	10.23	3.39	1.99	0.00	3.01	1.18	11.00	9.82	3.18	17.00	13.83
5755	-27.34	4.00	10.24	3.39	1.99	6.99	3.01	0.29	30.00	29.71	2.29	36.00	33.71
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5795	-26.25	4.01	10.24	3.39	1.99	6.99	3.01	1.39	30.00	28.61	3.39	36.00	32.61

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor+10log (Nant)

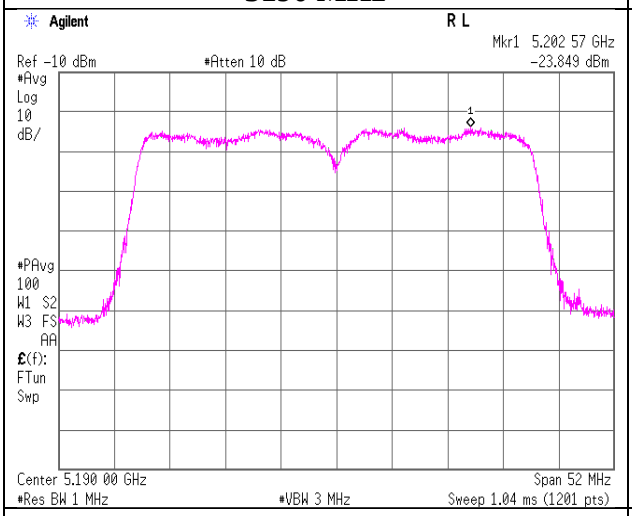
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements E) 2) c) of
"Guidance for Summing Emission Measurements from Multiple Outputs of a Transmitter of from Multiple Transmitters (KDB662911 D01)"
Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

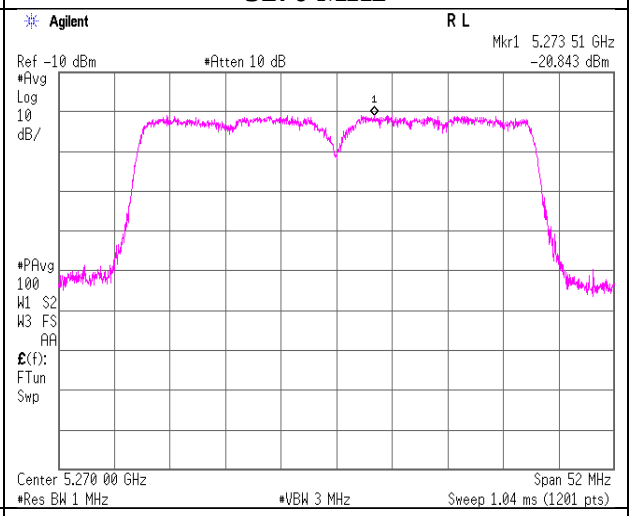
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT40 (MIMO), Antenna 0

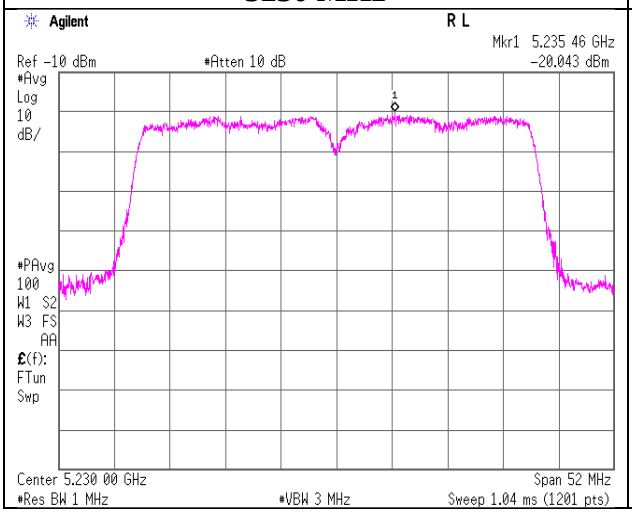
5190 MHz



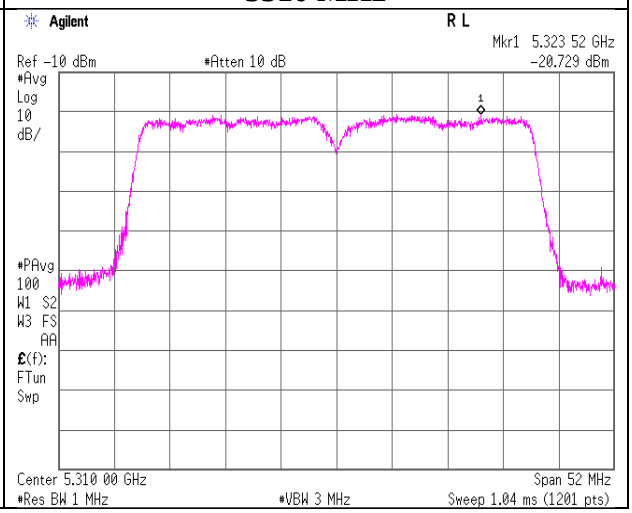
5270 MHz



5230 MHz



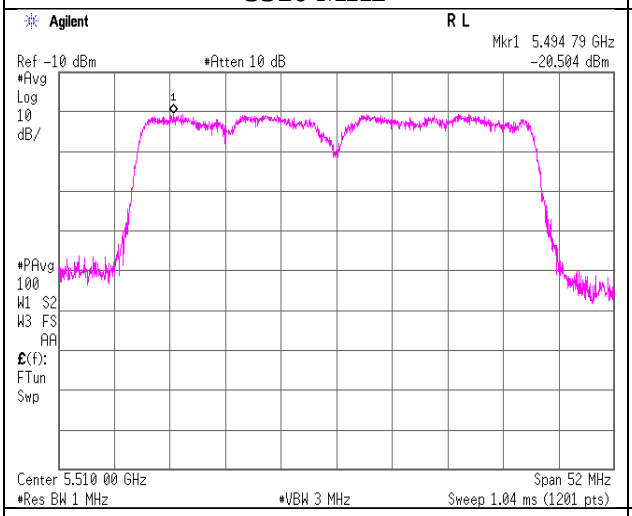
5310 MHz



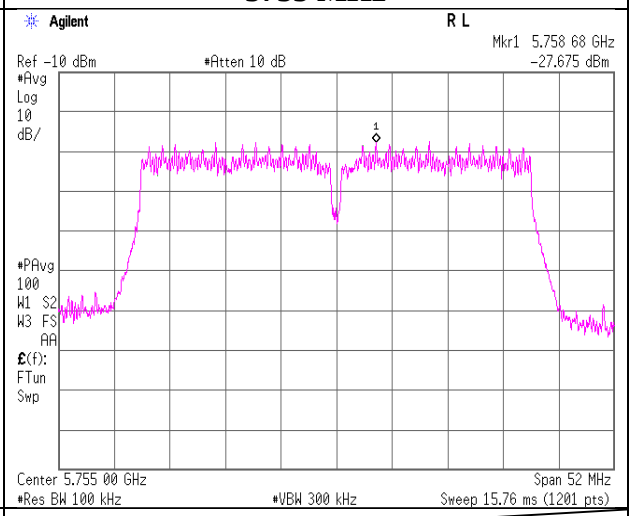
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT40 (MIMO), Antenna 0

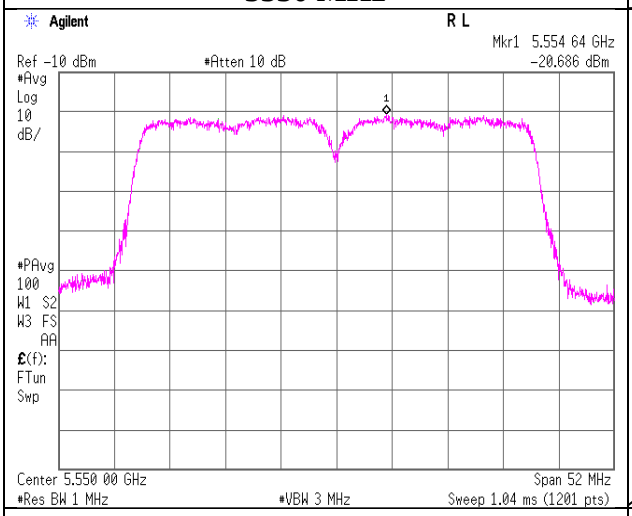
5510 MHz



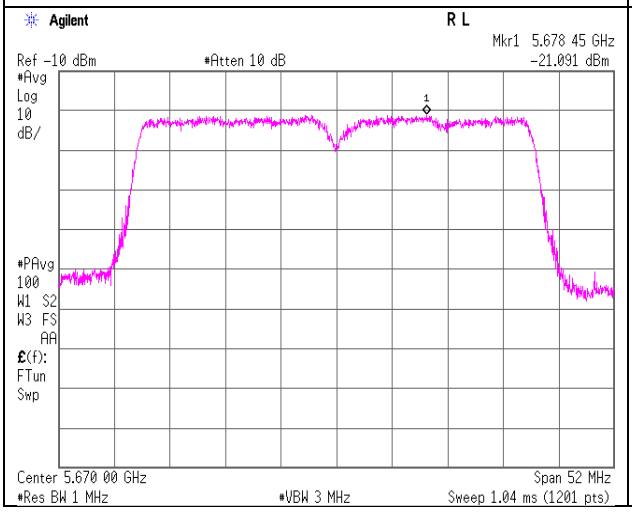
5755 MHz



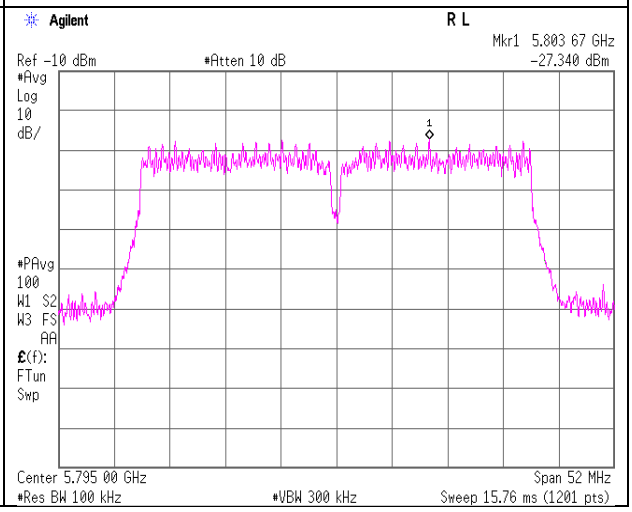
5550 MHz



5670 MHz



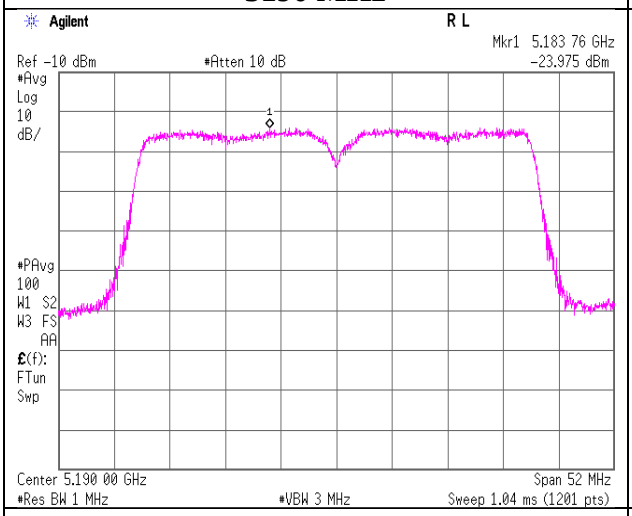
5795 MHz



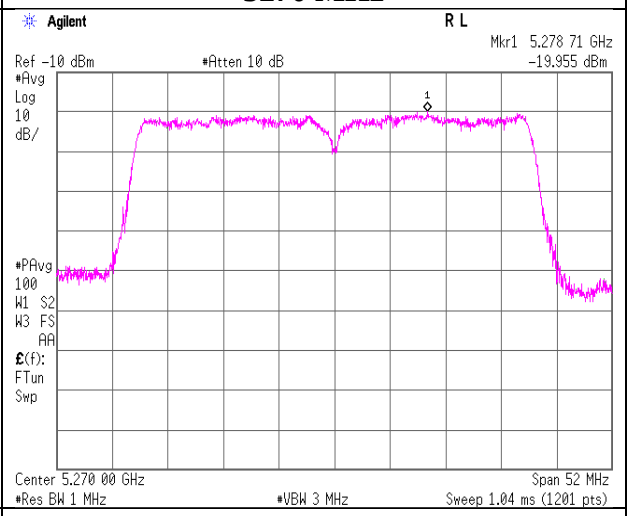
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT40 (MIMO), Antenna 1

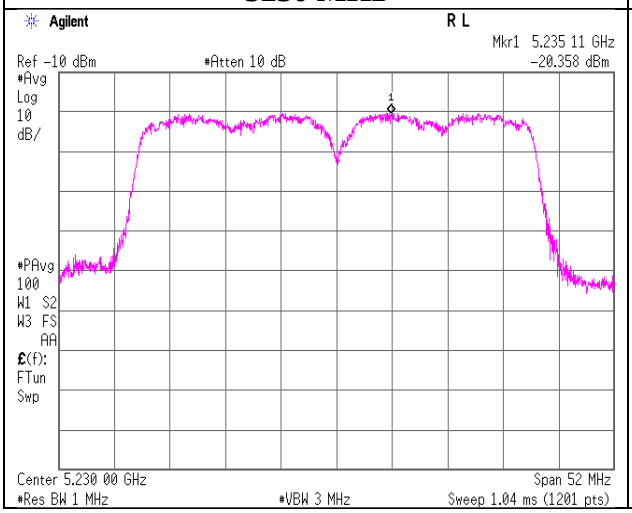
5190 MHz



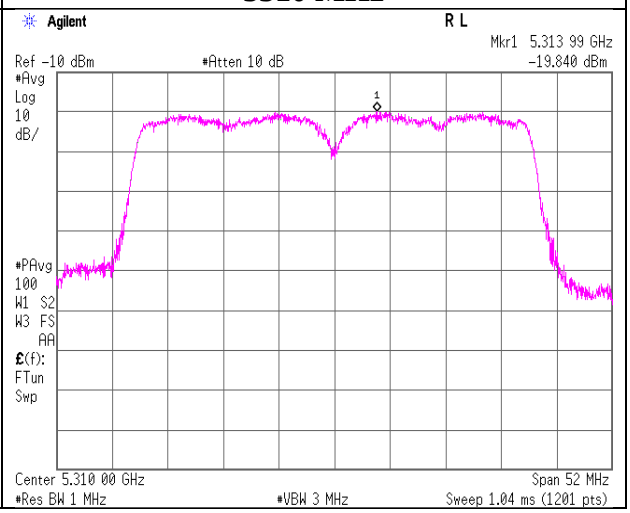
5270 MHz



5230 MHz



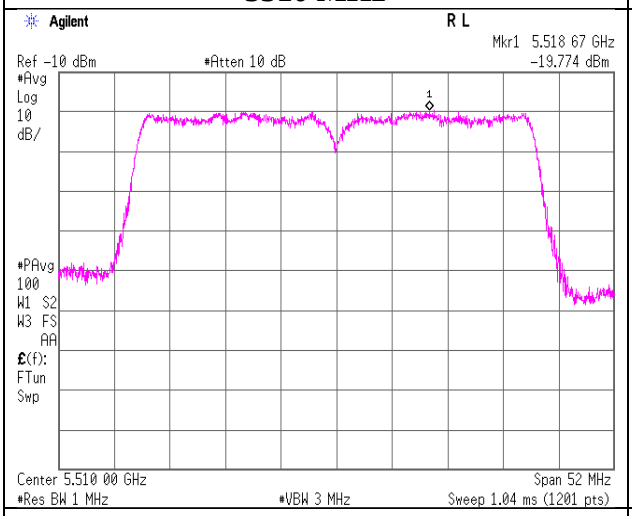
5310 MHz



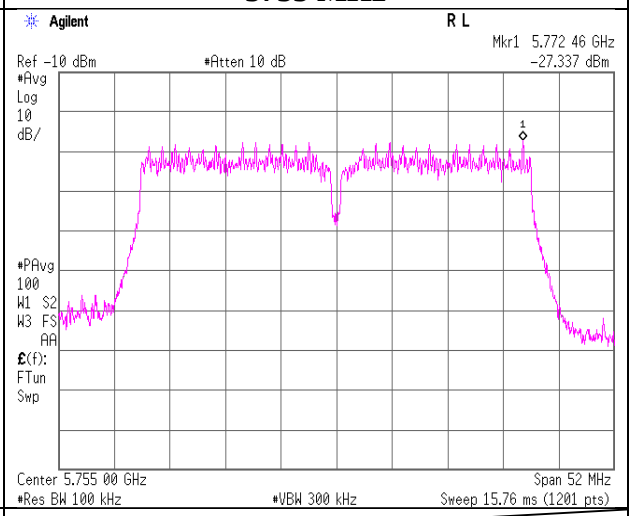
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT40 (MIMO), Antenna 1

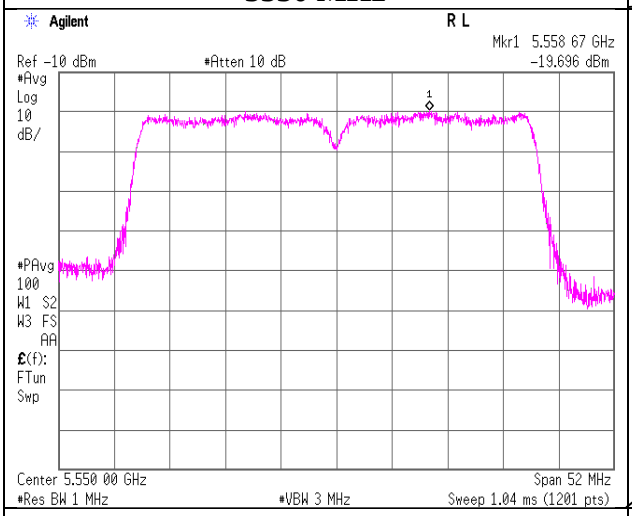
5510 MHz



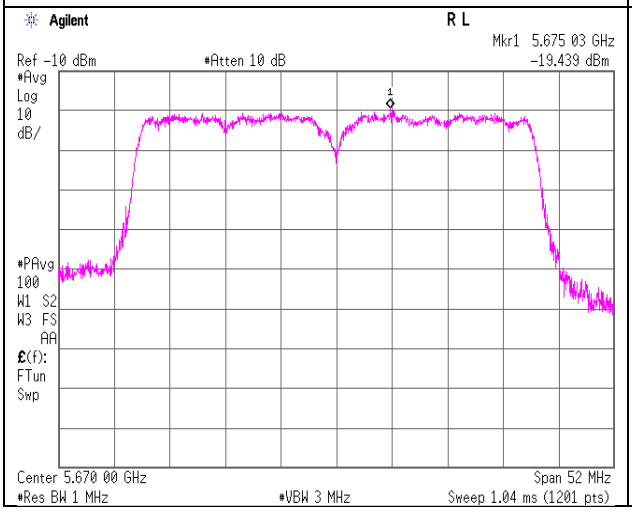
5755 MHz



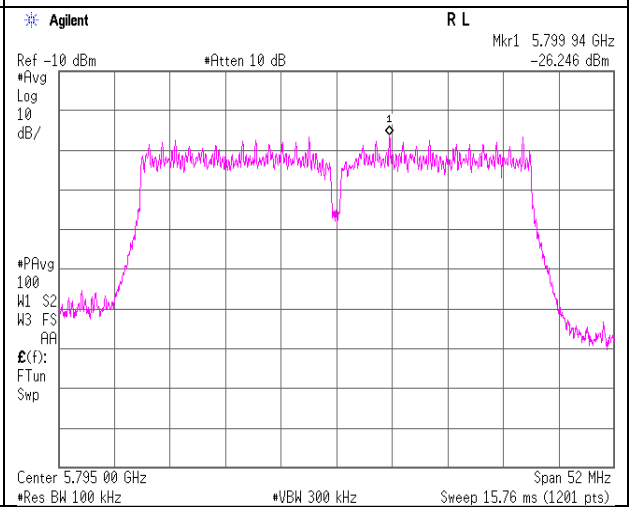
5550 MHz



5670 MHz



5795 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	March 22, 2019
Temperature / Humidity	24 deg. C / 47 % RH
Engineer	Kenichi Adachi
Mode	Tx, IEEE802.11ac VHT80 (SISO), PN9, worst antenna port 1 (below 5530 MHz), 0 (5775 MHz)

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5210	-25.94	3.89	10.21	3.33	1.99	0.00	-8.51	11.00	19.51	-6.52	17.00	23.52
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5290	-25.30	3.92	10.21	3.33	1.99	0.00	-7.84	11.00	18.84	-5.85	17.00	22.85
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5530	-22.82	3.97	10.22	3.33	1.99	0.00	-5.30	11.00	16.30	-3.31	17.00	20.31
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-
5775	-28.92	4.00	10.24	3.33	2.95	6.99	-4.36	30.00	34.36	-1.41	36.00	37.41
-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor

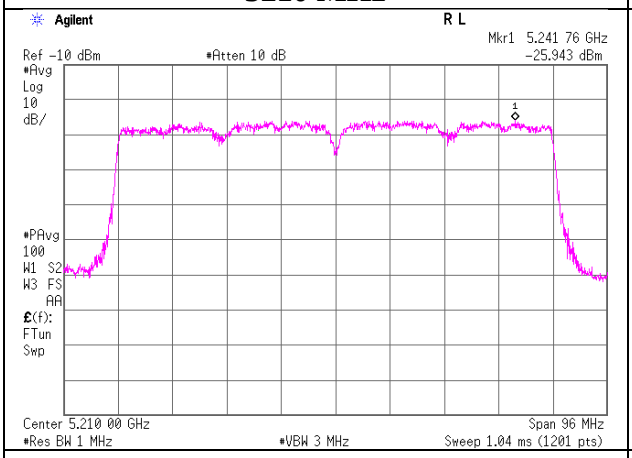
PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

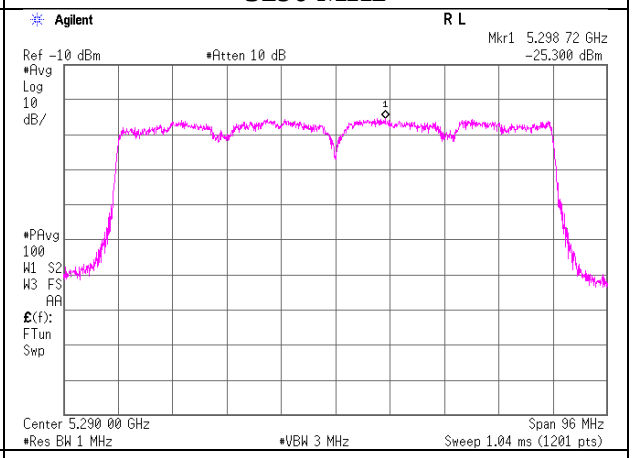
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT80 (SISO), Antenna 1 (below 5530 MHz), 0 (5775 MHz)

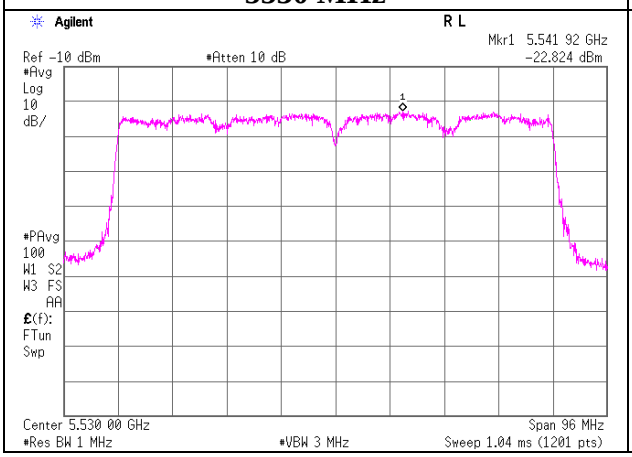
5210 MHz



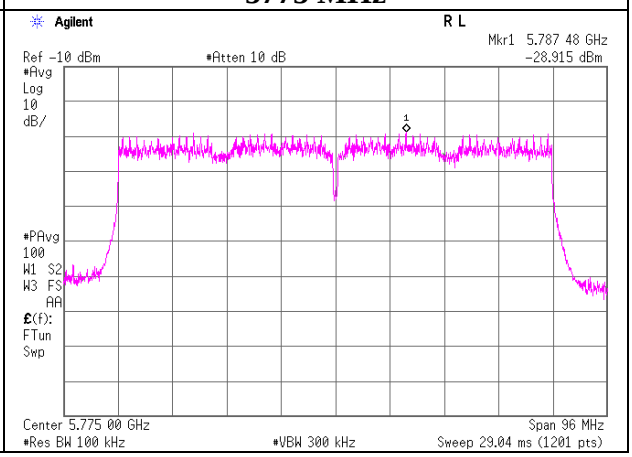
5290 MHz



5530 MHz



5775 MHz



Maximum Power Spectral Density

Test place	Shonan EMC Lab. No.1 Measurement Room
Date	March 26, 2019
Temperature / Humidity	21 deg. C / 51 % RH
Engineer	Kenichi Adachi
Mode	Tx, IEEE802.11ac VHT80 (MIMO), PN9

Antenna 0

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5210	-28.58	3.89	10.21	3.84	2.95	0.00	3.01	-7.63	11.00	18.63	-4.68	17.00	21.68
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5290	-28.86	3.92	10.21	3.84	2.95	0.00	3.01	-7.88	11.00	18.88	-4.93	17.00	21.93
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5530	-26.69	3.97	10.22	3.89	2.95	0.00	3.01	-5.60	11.00	16.60	-2.65	17.00	19.65
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5775	-30.66	4.00	10.24	3.89	2.95	6.99	3.01	-2.53	30.00	32.53	0.42	36.00	35.58
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

Antenna 1

Applied limit: 15.407, mobile and portable client device

Tested Frequency [MHz]	PSD Reading [dBm /MHz]	Cable Loss [dB]	Atten. Loss [dB]	Duty Factor [dB]	Antenna Gain [dBi]	RBW Correction Factor [dB]	10log (NANT)* [dB]	PSD (Conducted) Result [dBm /MHz]	PSD (Conducted) Limit [dBm /MHz]	PSD (Conducted) Margin [dB]	PSD (e.i.r.p.) Result [dBm /MHz]	PSD (e.i.r.p.) Limit [dBm /MHz]	PSD (e.i.r.p.) Margin [dB]
5210	-28.79	3.89	10.21	3.84	1.99	0.00	3.01	-7.84	11.00	18.84	-5.85	17.00	22.85
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5290	-27.71	3.92	10.21	3.84	1.99	0.00	3.01	-6.73	11.00	17.73	-4.74	17.00	21.74
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5530	-26.62	3.97	10.22	3.89	1.99	0.00	3.01	-5.53	11.00	16.53	-3.53	17.00	20.53
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-
5775	-29.24	4.00	10.24	3.89	1.99	6.99	3.01	-1.11	30.00	31.11	0.88	36.00	35.12
-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Calculation:

PSD: Power Spectral Density

The PSD within 5725 MHz to 5825 MHz are based on any 500 kHz band.

RBW Correction Factor = 10 * log (Specified bandwidth / Measured bandwidth)

PSD Result (Conducted) = Reading + Cable Loss (including the cable(s) customer supplied) + Atten. Loss + Duty Factor + RBW Correction Factor+10log (Nant)

PSD Result (e.i.r.p.) = Conducted PSD Result + Antenna Gain

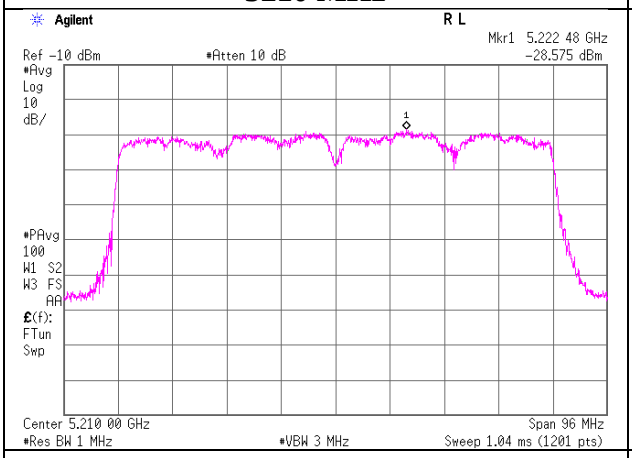
*) This test was measured based on Method In-Band Power Spectral Density (PSD) Measurements E) 2) c) of "Guidance for Summing Emission Measurements from Multiple Outputs of a Transmitter of from Multiple Transmitters (KDB662911 D01)"

Although the EUT operates on Master mode, more stringent limit for Client device was applied. (W52 for FCC)

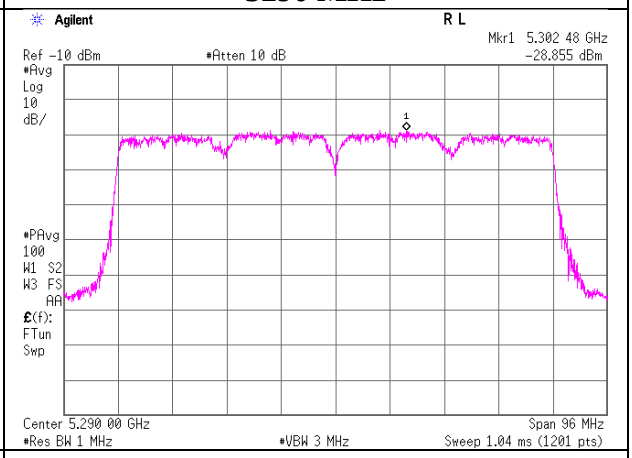
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT80 (MIMO), Antenna 0

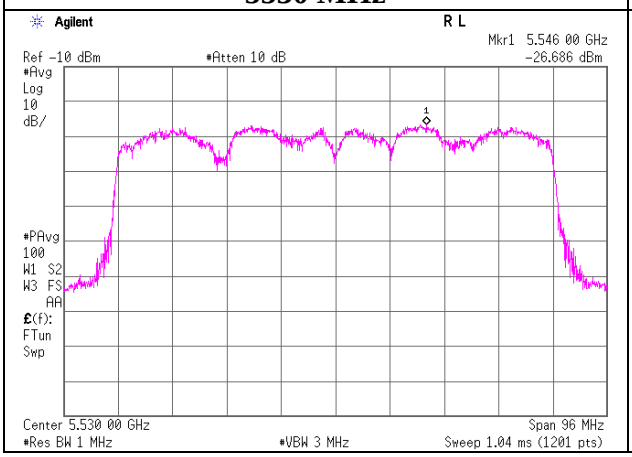
5210 MHz



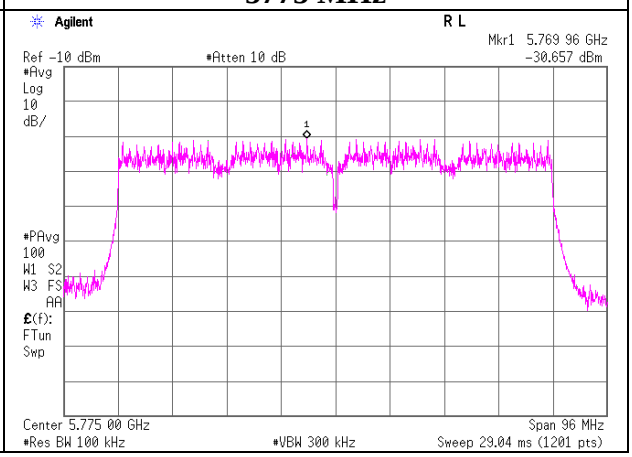
5290 MHz



5530 MHz



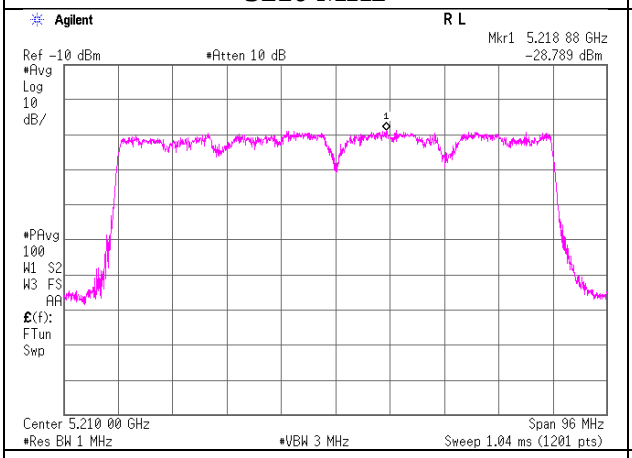
5775 MHz



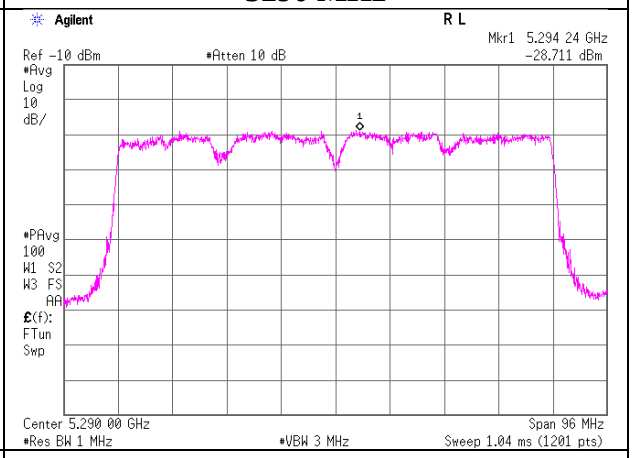
Maximum Power Spectral Density

Tx, IEEE802.11ac VHT80 (MIMO), Antenna 1

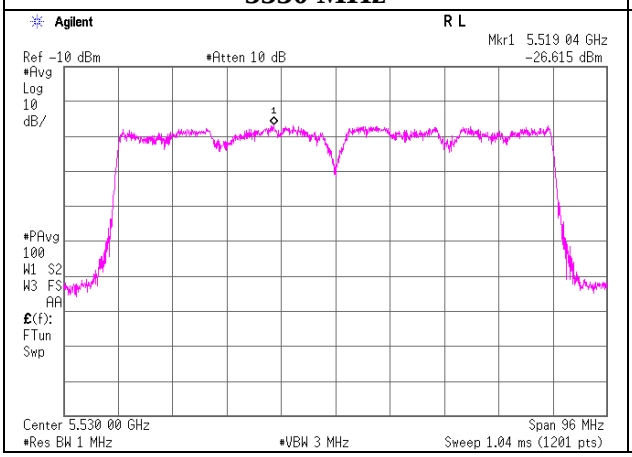
5210 MHz



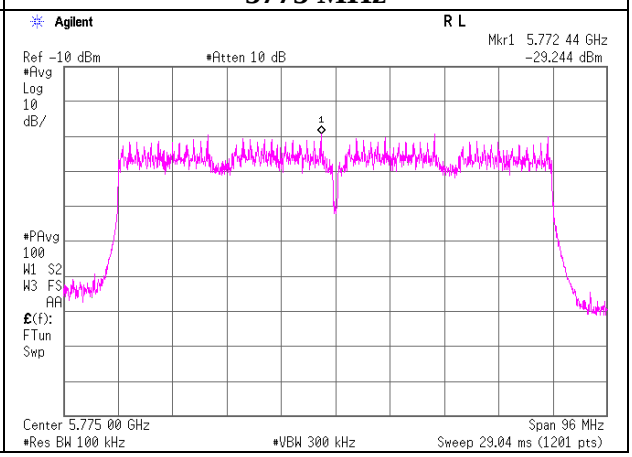
5290 MHz



5530 MHz



5775 MHz



Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 9, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5180 MHz				
	Tx, IEEE802.11ac VHT20 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	52.60	32.18	16.22	39.58	2.26	63.68	73.90	10.2	338	330	
Hori.	15540.000	PK	46.80	38.62	13.21	38.78	-9.54	50.31	73.90	23.5	146	59	
Hori.	5150.000	AV	36.80	32.18	16.22	39.58	2.26	47.88	53.90	**6.0**	338	330	VBW:2.7 kHz
Hori.	15540.000	AV	36.11	38.62	13.21	38.78	-9.54	39.62	53.90	14.2	146	59	VBW:2.7 kHz
Vert.	5150.000	PK	50.50	32.18	16.22	39.58	2.26	61.58	73.90	12.3	100	281	
Vert.	15540.000	PK	47.06	38.62	13.21	38.78	-9.54	50.57	73.90	23.3	143	299	
Vert.	5150.000	AV	36.70	32.18	16.22	39.58	2.26	47.78	53.90	6.1	100	281	VBW:2.7 kHz
Vert.	15540.000	AV	36.50	38.62	13.21	38.78	-9.54	40.01	53.90	13.8	143	299	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10360.000	PK	44.80	39.48	10.40	39.62	2.26	57.32	-37.90	-27.00	10.9	100	0	
Vert.	10360.000	PK	45.00	39.48	10.40	39.62	2.26	57.52	-37.70	-27.00	**10.7**	100	0	

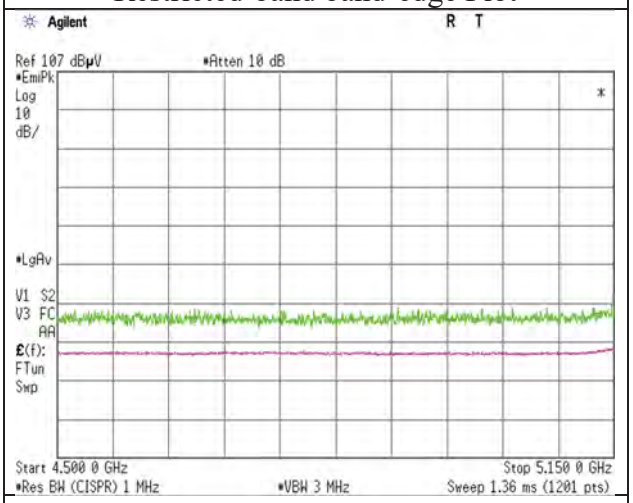
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 9, 2019
Temperature / Humidity	20 deg.C / 25 %RH
Engineer	Kazutaka Takeyama (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,5180 MHz

Horizontal

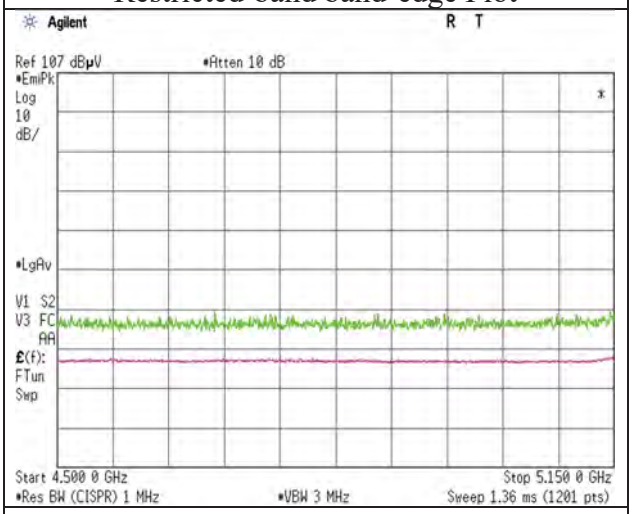
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 10, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5240 MHz				
	Tx, IEEE802.11ac VHT20 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15720.000	PK	46.60	38.32	13.10	39.17	-9.54	49.31	73.90	24.5	150	0	
Hori.	15720.000	AV	35.72	38.32	13.10	39.17	-9.54	38.43	53.90	**15.4**	150	0	VBW:2.7 kHz
Vert.	15720.000	PK	46.29	38.32	13.10	39.17	-9.54	49.00	73.90	24.9	150	0	
Vert.	15720.000	AV	35.64	38.32	13.10	39.17	-9.54	38.35	53.90	15.5	150	0	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10480.000	PK	44.50	39.71	10.52	39.75	2.26	57.24	-37.98	-27.00	10.9	100	0	
Vert.	10480.000	PK	44.60	39.71	10.52	39.75	2.26	57.34	-37.88	-27.00	**10.8**	100	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Emission

Report No.	12656071S					
Test place	Shonan EMC Lab.					
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3	No.3
Date	January 26, 2019	January 10, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	22 deg. C / 31 % RH	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kenichi Adachi	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(30 MHz - 1000 MHz)	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5320 MHz					
	Tx, IEEE802.11ac VHT20 (SISO)					

(below 1GHz and above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	36.692	QP	34.98	16.12	6.58	32.20	0.00	25.48	40.00	14.5	400	53	
Hori.	92.712	QP	43.33	8.79	7.50	32.16	0.00	27.46	43.50	16.0	274	214	
Hori.	155.955	QP	28.45	14.84	7.85	32.11	0.00	19.03	43.50	24.4	196	259	
Hori.	250.011	QP	54.23	11.81	8.38	32.01	0.00	42.41	46.00	**3.5**	121	172	
Hori.	430.074	QP	43.48	16.33	9.37	31.97	0.00	37.21	46.00	8.7	100	39	
Hori.	651.255	QP	31.74	19.33	10.20	31.98	0.00	29.29	46.00	16.7	181	51	
Hori.	959.994	QP	33.72	22.22	11.27	30.57	0.00	36.64	46.00	9.3	100	208	
Hori.	5350.000	PK	51.60	31.73	16.28	39.68	2.26	62.19	73.90	11.7	115	26	
Hori.	10640.000	PK	44.60	39.52	10.51	39.69	2.26	57.20	73.90	16.7	100	0	
Hori.	15960.000	PK	45.37	37.78	12.96	39.68	-9.54	46.89	73.90	27.0	150	0	
Hori.	5350.000	AV	36.20	31.73	16.28	39.68	2.26	46.79	53.90	7.1	115	26	VBW:2.7 kHz
Hori.	10640.000	AV	35.30	39.52	10.51	39.69	2.26	47.90	53.90	6.0	100	0	VBW:2.7 kHz
Hori.	15960.000	AV	35.42	37.78	12.96	39.68	-9.54	36.94	53.90	16.9	150	0	VBW:2.7 kHz
Vert.	38.255	QP	38.76	15.51	6.61	32.20	0.00	28.68	40.00	11.3	100	145	
Vert.	94.611	QP	41.11	9.16	7.47	32.16	0.00	25.58	43.50	17.9	100	105	
Vert.	158.713	QP	35.42	15.07	7.86	32.11	0.00	26.24	43.50	17.2	100	314	
Vert.	250.011	QP	41.69	11.81	8.38	32.01	0.00	29.87	46.00	16.1	100	8	
Vert.	430.074	QP	39.21	16.33	9.37	31.97	0.00	32.94	46.00	13.0	159	11	
Vert.	651.255	QP	35.97	19.33	10.20	31.98	0.00	33.52	46.00	12.4	100	238	
Vert.	5350.000	PK	50.00	31.73	16.28	39.68	2.26	60.59	73.90	13.3	100	255	
Vert.	10640.000	PK	45.00	39.52	10.51	39.69	2.26	57.60	73.90	16.3	100	0	
Vert.	15960.000	PK	45.60	37.78	12.96	39.68	-9.54	47.12	73.90	26.7	150	0	
Vert.	5350.000	AV	35.40	31.73	16.28	39.68	2.26	45.99	53.90	7.9	100	255	VBW:2.7 kHz
Vert.	10640.000	AV	35.50	39.52	10.51	39.69	2.26	48.10	53.90	5.8	100	0	VBW:2.7 kHz
Vert.	15960.000	AV	35.46	37.78	12.96	39.68	-9.54	36.98	53.90	16.9	150	0	VBW:2.7 kHz

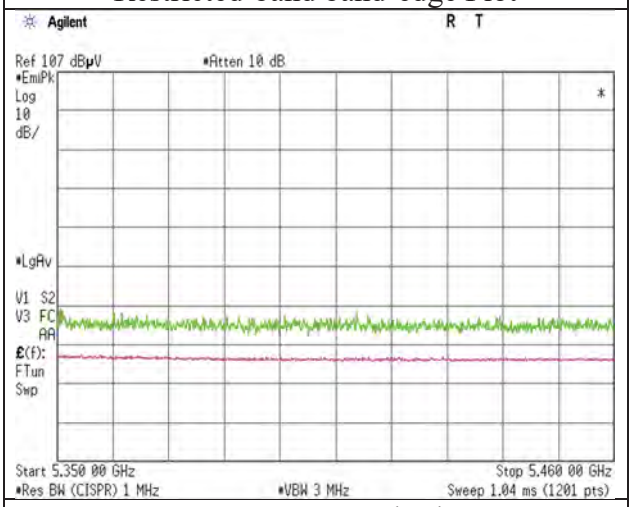
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 10, 2019
Temperature / Humidity	20 deg.C / 25 %RH
Engineer	Kazutaka Takeyama (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,5320 MHz

Horizontal

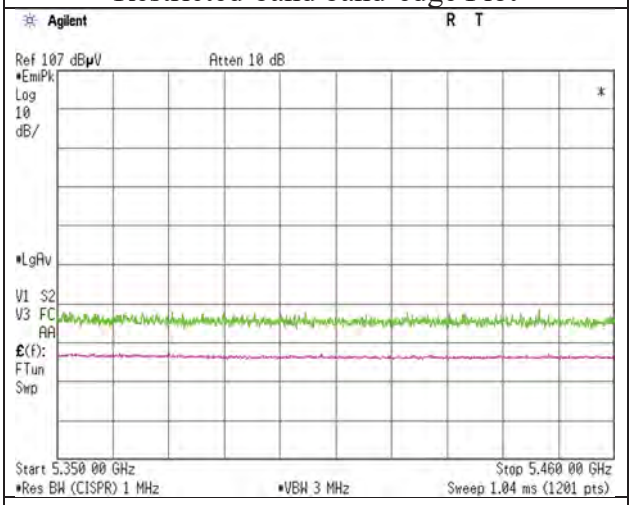
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 12, 2019
Temperature / Humidity 23 deg. C / 29 % RH
Engineer Makoto Hosaka
(1 GHz - 6.4 GHz)
Mode Tx, 5180 MHz
Tx, IEEE802.11n HT20 (MIMO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	42.52	32.18	17.09	34.00	2.26	60.05	73.90	13.8	190	295	
Hori.	5150.000	AV	32.61	32.18	17.09	34.00	2.26	50.14	53.90	3.7	190	295	VBW:9.1 kHz
Vert.	5150.000	PK	42.56	32.18	17.09	34.00	2.26	60.09	73.90	13.8	169	221	
Vert.	5150.000	AV	32.94	32.18	17.09	34.00	2.26	50.47	53.90	**3.4**	169	221	VBW:9.1 kHz

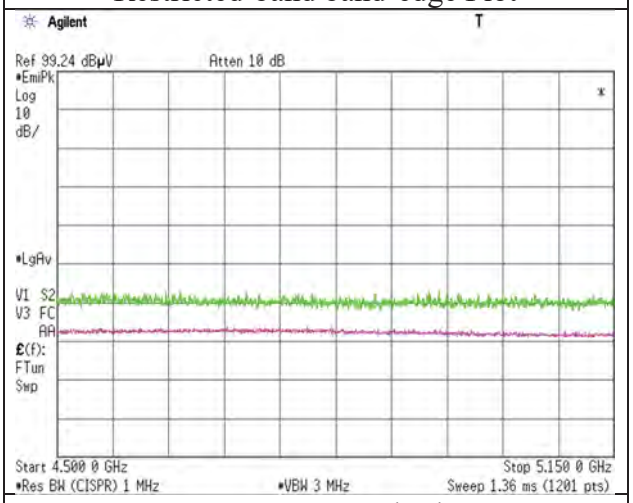
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 12, 2019
Temperature / Humidity	23 deg.C / 39 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT20 (MIMO) ,5180 MHz

Horizontal

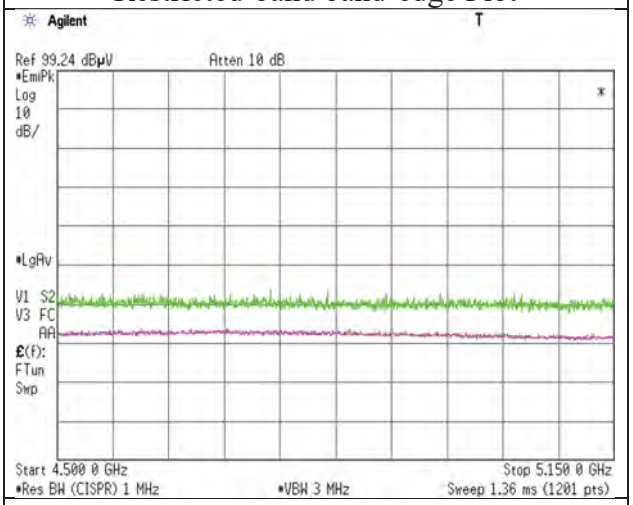
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 12, 2019
Temperature / Humidity 23 deg. C / 29 % RH
Engineer Makoto Hosaka
(1 GHz - 6.4 GHz)
Mode Tx, 5320 MHz
Tx, IEEE802.11n HT20 (MIMO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	45.05	31.73	17.20	33.96	2.26	62.28	73.90	11.6	257	242	
Hori.	5350.000	AV	32.59	31.73	17.20	33.96	2.26	49.82	53.90	**4.0**	257	242	VBW:9.1 kHz
Vert.	5350.000	PK	42.08	31.73	17.20	33.96	2.26	59.31	73.90	14.5	179	104	
Vert.	5350.000	AV	32.51	31.73	17.20	33.96	2.26	49.74	53.90	4.1	179	104	VBW:9.1 kHz

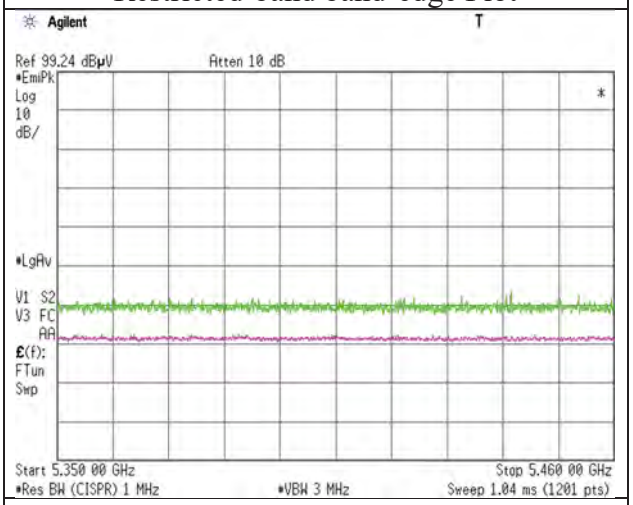
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 12, 2019
Temperature / Humidity	23 deg.C / 39 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT20 (MIMO) ,5320 MHz

Horizontal

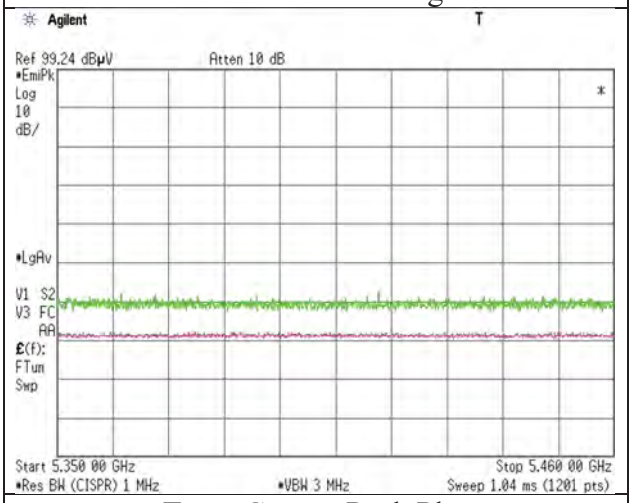
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.

Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 9, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5190 MHz				
	Tx, IEEE802.11n HT40 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	51.10	32.18	16.22	39.58	2.24	62.16	73.90	11.7	376	335	
Hori.	15570.000	PK	47.46	38.54	13.19	38.84	-9.54	50.81	73.90	23.0	150	0	
Hori.	5150.000	AV	40.60	32.18	16.22	39.58	2.24	51.66	53.90	**2.2**	376	335	VBW:5.1 kHz
Hori.	15570.000	AV	36.67	38.54	13.19	38.84	-9.54	40.02	53.90	13.8	150	0	VBW:5.1 kHz
Vert.	5150.000	PK	50.60	32.18	16.22	39.58	2.24	61.66	73.90	12.2	100	72	
Vert.	15570.000	PK	46.17	38.54	13.19	38.84	-9.54	49.52	73.90	24.3	150	0	
Vert.	5150.000	AV	39.60	32.18	16.22	39.58	2.24	50.66	53.90	3.2	100	72	VBW:5.1 kHz
Vert.	15570.000	AV	36.55	38.54	13.19	38.84	-9.54	39.90	53.90	14.0	150	0	VBW:5.1 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10380.000	PK	45.40	39.54	10.43	39.64	2.26	57.99	-37.23	-27.00	**10.2**	100	0	
Vert.	10380.000	PK	45.30	39.54	10.43	39.64	2.26	57.89	-37.33	-27.00	10.3	100	0	

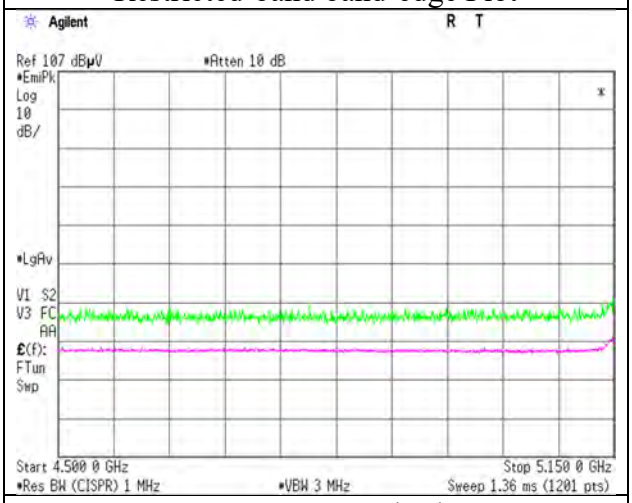
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 9, 2019
Temperature / Humidity	20 deg.C / 25 %RH
Engineer	Kazutaka Takeyama (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) ,5190 MHz

Horizontal

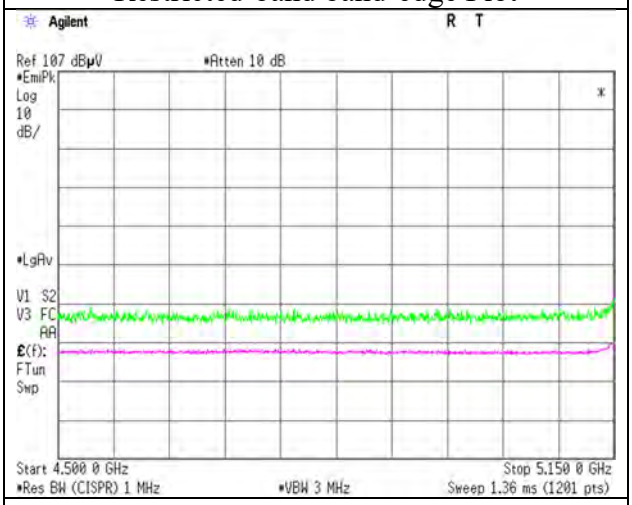
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 11, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5230 MHz				
	Tx, IEEE802.11n HT40 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	15690.000	PK	45.96	38.39	13.12	39.10	-9.54	48.83	73.90	25.0	150	0	
Hori.	15690.000	AV	36.69	38.39	13.12	39.10	-9.54	39.56	53.90	14.3	150	0	VBW:5.1 kHz
Vert.	15690.000	PK	45.83	38.39	13.12	39.10	-9.54	48.70	73.90	25.2	150	0	
Vert.	15690.000	AV	37.24	38.39	13.12	39.10	-9.54	40.11	53.90	**13.7**	150	0	VBW:5.1 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10460.000	PK	44.90	39.74	10.49	39.73	2.26	57.66	-37.56	-27.00	**10.5**	100	0	
Vert.	10460.000	PK	44.90	39.74	10.49	39.73	2.26	57.66	-37.56	-27.00	**10.5**	100	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 11, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5310 MHz				
	Tx, IEEE802.11n HT40 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	46.40	31.73	17.20	33.96	2.26	63.63	73.90	10.2	356	33	
Hori.	10620.000	PK	44.30	39.57	10.53	39.70	2.26	56.96	73.90	16.9	100	0	
Hori.	15930.000	PK	45.57	37.78	12.98	39.62	-9.54	47.17	73.90	26.7	150	0	
Hori.	5350.000	AV	33.70	31.73	17.20	33.96	2.26	50.93	53.90	**2.9**	356	33	VBW:5.1 kHz
Hori.	10620.000	AV	35.40	39.57	10.53	39.70	2.26	48.06	53.90	5.8	100	0	VBW:5.1 kHz
Hori.	15930.000	AV	36.04	37.78	12.98	39.62	-9.54	37.64	53.90	16.2	150	0	VBW:5.1 kHz
Vert.	5350.000	PK	46.20	31.73	17.20	33.96	2.26	63.43	73.90	10.4	100	277	
Vert.	10620.000	PK	43.90	39.57	10.53	39.70	2.26	56.56	73.90	17.3	100	0	
Vert.	15930.000	PK	45.72	37.78	12.98	39.62	-9.54	47.32	73.90	26.5	150	0	
Vert.	5350.000	AV	32.90	31.73	17.20	33.96	2.26	50.13	53.90	3.7	100	277	VBW:5.1 kHz
Vert.	10620.000	AV	35.20	39.57	10.53	39.70	2.26	47.86	53.90	6.0	100	0	VBW:5.1 kHz
Vert.	15930.000	AV	36.08	37.78	12.98	39.62	-9.54	37.68	53.90	16.2	150	0	VBW:5.1 kHz

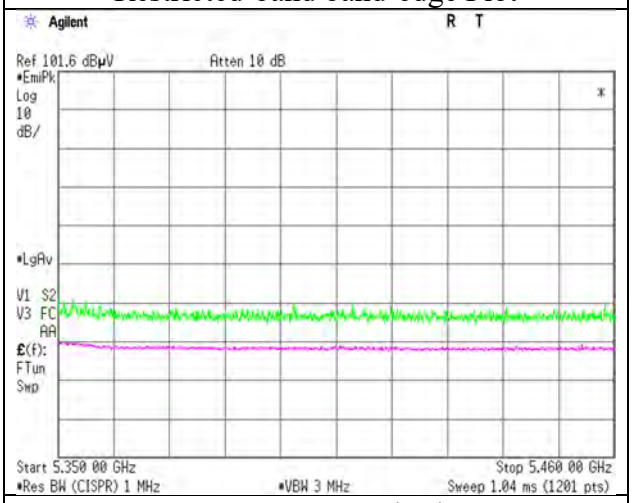
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 11, 2019
Temperature / Humidity	20 deg.C / 25 %RH
Engineer	Kazutaka Takeyama (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) ,5310 MHz

Horizontal

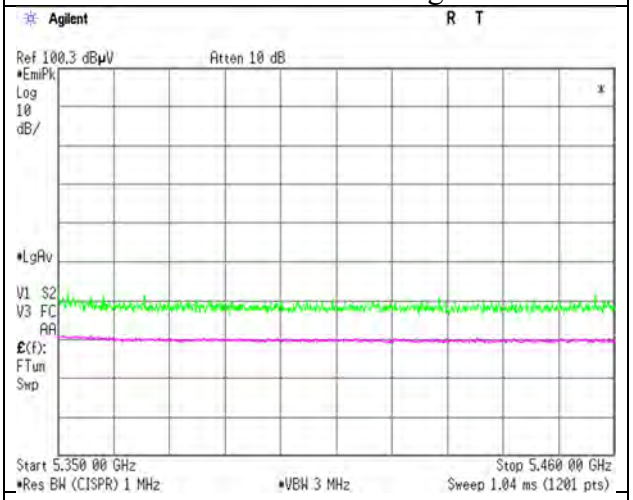
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 13, 2019
Temperature / Humidity 22 deg. C / 39 % RH
Engineer Yosuke Ishikawa
(1 GHz - 6.4 GHz)
Mode Tx, 5190 MHz
Tx, IEEE802.11ac VHT40 (MIMO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	41.35	32.18	17.09	34.00	2.26	58.88	73.90	15.0	291	301	
Hori.	5150.000	AV	32.65	32.18	17.09	34.00	2.26	50.18	53.90	3.7	291	301	VBW:10 kHz
Vert.	5150.000	PK	42.27	32.18	17.09	34.00	2.26	59.80	73.90	14.1	342	278	
Vert.	5150.000	AV	32.86	32.18	17.09	34.00	2.26	50.39	53.90	**3.5**	342	278	VBW:10 kHz

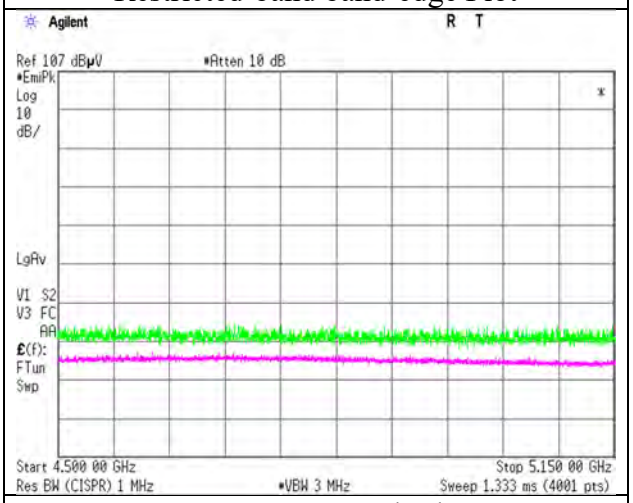
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 13, 2019
Temperature / Humidity	22 deg.C / 39 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT40 (MIMO) ,5190 MHz

Horizontal

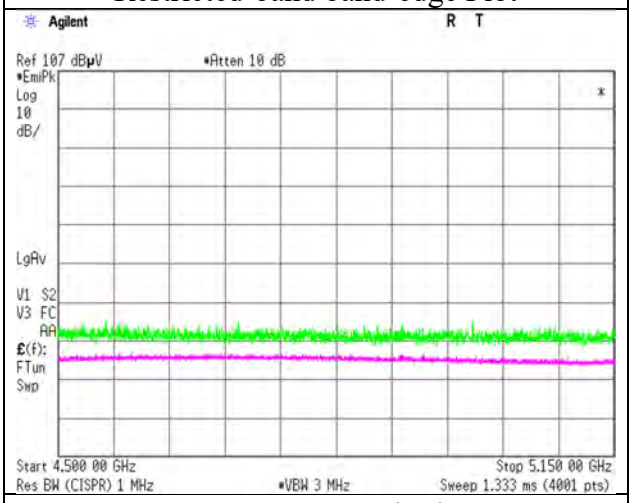
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 13, 2019
Temperature / Humidity 22 deg. C / 39 % RH
Engineer Yosuke Ishikawa
(1 GHz - 6.4 GHz)
Mode Tx, 5310 MHz
Tx, IEEE802.11ac VHT40 (MIMO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	41.79	31.73	17.20	33.96	2.26	59.02	73.90	14.8	172	132	
Hori.	5350.000	AV	33.46	31.73	17.20	33.96	2.26	50.69	53.90	**3.2**	172	132	VBW:13 kHz
Vert.	5350.000	PK	42.05	31.73	17.20	33.96	2.26	59.28	73.90	14.6	100	88	
Vert.	5350.000	AV	32.74	31.73	17.20	33.96	2.26	49.97	53.90	3.9	100	88	VBW:13 kHz

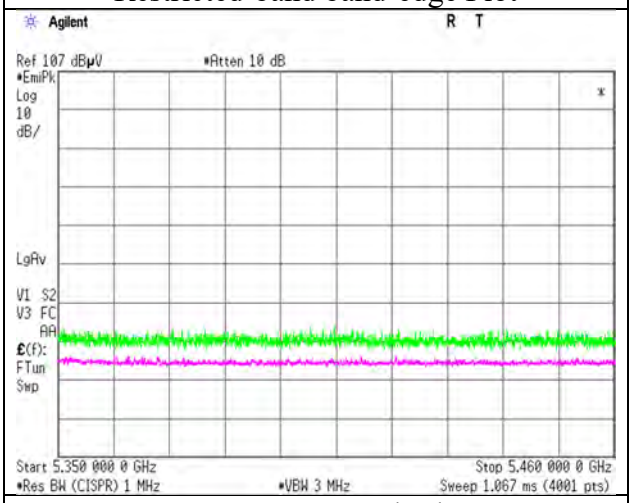
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 13, 2019
Temperature / Humidity	22 deg.C / 39 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT40 (MIMO) ,5310 MHz

Horizontal

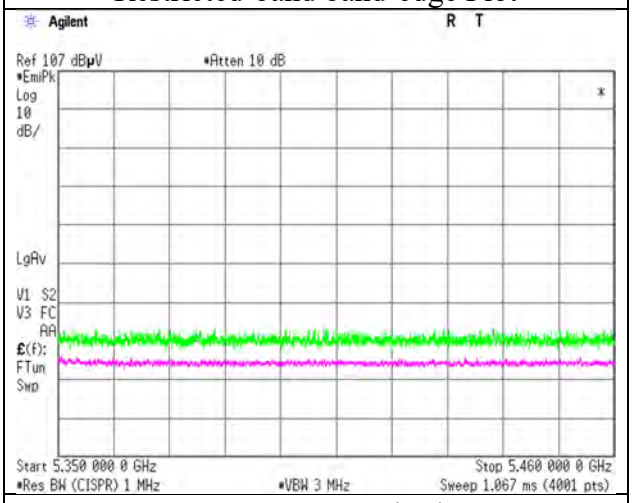
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 6, 2019
Temperature / Humidity 22 deg. C / 56 % RH
Engineer Makoto Hosaka
(1 GHz - 40 GHz)
Mode Tx, 5210 MHz
Tx, IEEE802.11ac VHT80 (SISO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	52.54	32.18	16.32	43.04	2.26	60.26	73.90	13.6	100	31	
Hori.	15630.000	PK	46.52	38.45	11.69	40.69	-9.54	46.43	73.90	27.4	150	0	
Hori.	5150.000	AV	43.03	32.18	16.32	43.04	2.26	50.75	53.90	3.1	100	31	VBW:12 kHz
Hori.	15630.000	AV	38.02	38.45	11.69	40.69	-9.54	37.93	53.90	15.9	150	0	VBW:12 kHz
Vert.	5150.000	PK	51.69	32.18	16.32	43.04	2.26	59.41	73.90	14.4	383	6	
Vert.	15630.000	PK	47.40	38.45	11.69	40.69	-9.54	47.31	73.90	26.5	150	0	
Vert.	5150.000	AV	43.18	32.18	16.32	43.04	2.26	50.90	53.90	**3.0**	383	6	VBW:12 kHz
Vert.	15630.000	AV	37.91	38.45	11.69	40.69	-9.54	37.82	53.90	16.0	150	0	VBW:12 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10420.000	PK	49.05	39.66	9.12	42.68	2.26	57.41	-37.81	-27.00	10.8	150	0	
Vert.	10420.000	PK	48.82	39.66	9.12	42.68	2.26	57.18	-38.04	-27.00	11.0	150	0	

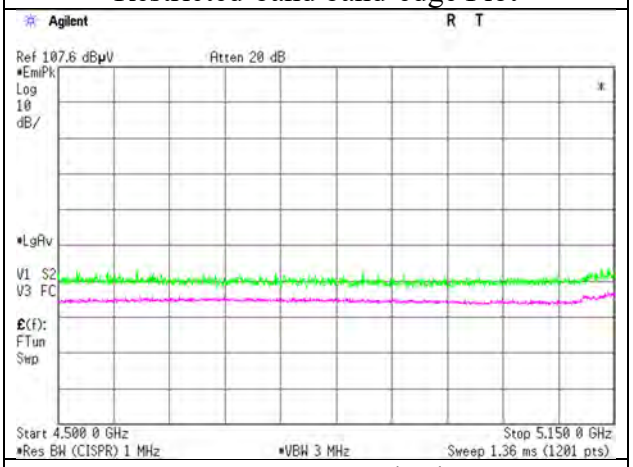
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 6, 2019
Temperature / Humidity	22 deg.C / 56 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (SISO) ,5210 MHz

Horizontal

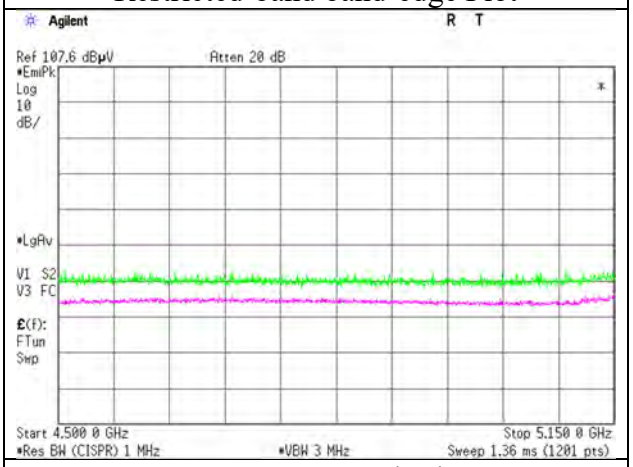
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 6, 2019
Temperature / Humidity 22 deg. C / 56 % RH
Engineer Makoto Hosaka
(1 GHz - 40 GHz)
Mode Tx, 5290 MHz
Tx, IEEE802.11ac VHT80 (SISO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	52.26	31.73	16.40	43.21	2.26	59.44	73.90	14.4	105	344	
Hori.	15870.000	PK	47.73	37.85	11.70	40.44	-9.54	47.30	73.90	26.6	150	0	
Hori.	5350.000	AV	41.43	31.73	16.40	43.21	2.26	48.61	53.90	**5.2**	105	344	VBW:12 kHz
Hori.	15870.000	AV	38.32	37.85	11.70	40.44	-9.54	37.89	53.90	16.0	150	0	VBW:12 kHz
Vert.	5350.000	PK	50.55	31.73	16.40	43.21	2.26	57.73	73.90	16.1	310	8	
Vert.	15870.000	PK	47.80	37.85	11.70	40.44	-9.54	47.37	73.90	26.5	150	0	
Vert.	5350.000	AV	41.10	31.73	16.40	43.21	2.26	48.28	53.90	5.6	310	8	VBW:12 kHz
Vert.	15870.000	AV	38.17	37.85	11.70	40.44	-9.54	37.74	53.90	16.1	150	0	VBW:12 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	10580.000	PK	47.89	39.62	9.17	42.67	2.26	56.27	-38.95	-27.00	**11.9**	150	0	
Vert.	10580.000	PK	47.85	39.62	9.17	42.67	2.26	56.23	-38.99	-27.00	**11.9**	150	0	

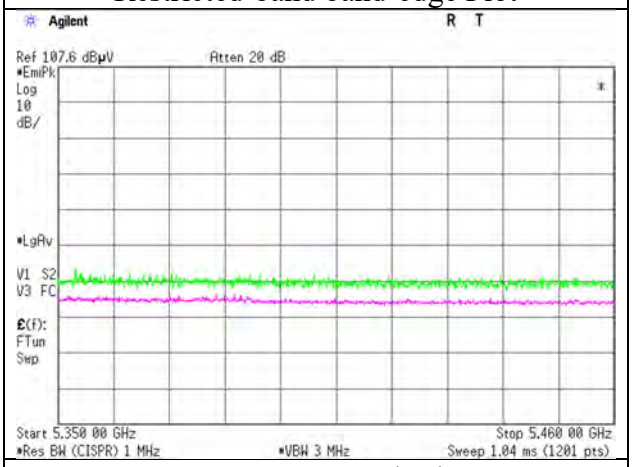
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 6, 2019
Temperature / Humidity	22 deg.C / 56 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (SISO) ,5290 MHz

Horizontal

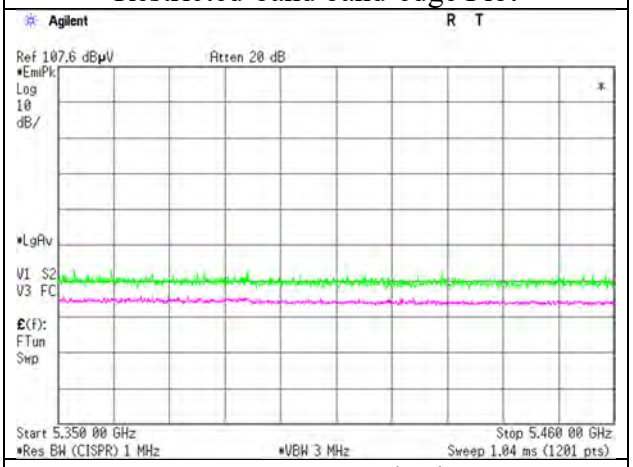
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 6, 2019
Temperature / Humidity 22 deg. C / 56 % RH
Engineer Makoto Hosaka
(1 GHz - 6.4 GHz)
Mode Tx, 5210 MHz
Tx, IEEE802.11ac VHT80 (MIMO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5150.000	PK	48.70	31.73	16.40	43.21	2.26	55.88	73.90	18.0	177	130	
Hori.	5150.000	AV	40.67	31.73	16.40	43.21	2.26	47.85	53.90	**6.0**	177	130	VBW:15 kHz
Vert.	5150.000	PK	49.53	31.73	16.40	43.21	2.26	56.71	73.90	17.1	168	217	
Vert.	5150.000	AV	40.42	31.73	16.40	43.21	2.26	47.60	53.90	6.3	168	217	VBW:15 kHz

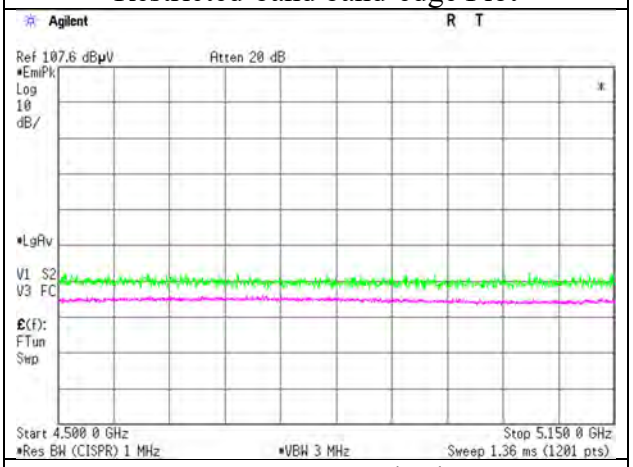
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 6, 2019
Temperature / Humidity	22 deg.C / 56 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (MIMO) ,5210 MHz

Horizontal

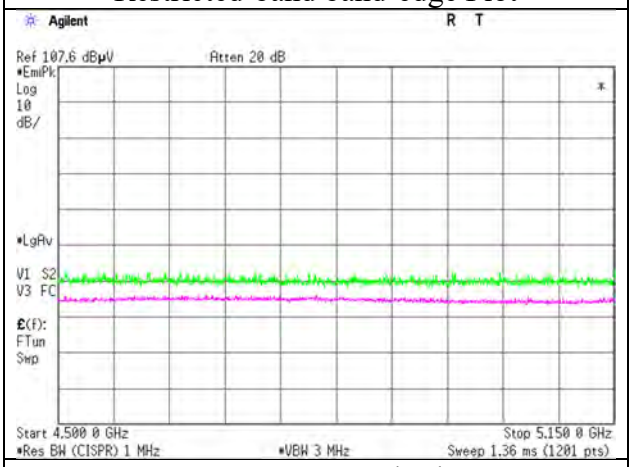
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date April 6, 2019
Temperature / Humidity 22 deg. C / 56 % RH
Engineer Makoto Hosaka
(1 GHz - 6.4 GHz)
Mode Tx, 5290 MHz
Tx, IEEE802.11ac VHT80 (MIMO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5350.000	PK	41.13	31.73	17.20	33.96	2.26	58.36	73.90	15.5	145	136	
Hori.	5350.000	AV	32.75	31.73	17.20	33.96	2.26	49.98	53.90	3.9	145	136	VBW:15 kHz
Vert.	5350.000	PK	41.47	31.73	17.20	33.96	2.26	58.70	73.90	15.2	100	85	
Vert.	5350.000	AV	32.83	31.73	17.20	33.96	2.26	50.06	53.90	**3.8**	100	85	VBW:15 kHz

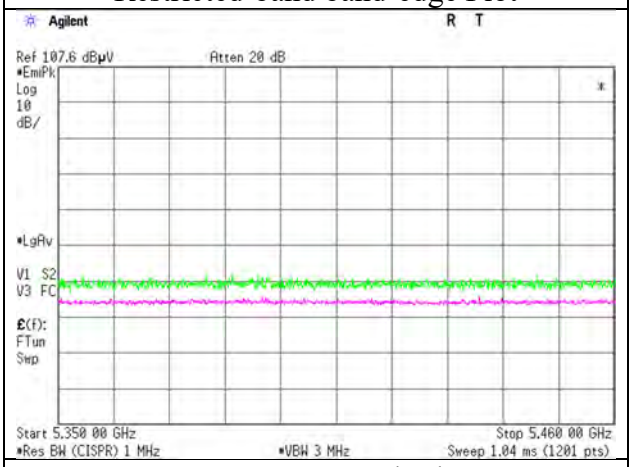
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	April 6, 2019
Temperature / Humidity	22 deg.C / 56 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (MIMO) ,5290 MHz

Horizontal

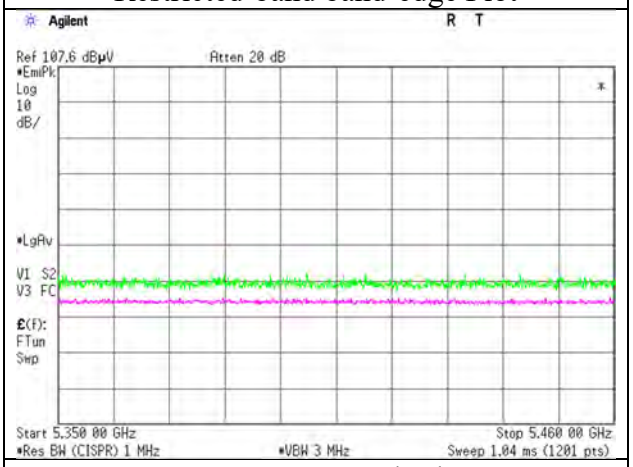
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 10, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5500 MHz				
	Tx, IEEE802.11ac VHT20 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	48.30	32.08	16.30	39.73	2.26	59.21	73.90	14.7	353	329	
Hori.	11000.000	PK	45.80	39.94	10.49	39.49	2.26	59.00	73.90	14.9	100	0	
Hori.	5460.000	AV	35.60	32.08	16.30	39.73	2.26	46.51	53.90	7.4	353	329	VBW:2.7 kHz
Hori.	11000.000	AV	35.90	39.94	10.49	39.49	2.26	49.10	53.90	**4.8**	100	0	VBW:2.7 kHz
Vert.	5460.000	PK	45.70	32.08	16.30	39.73	2.26	56.61	73.90	17.3	100	277	
Vert.	11000.000	PK	45.70	39.94	10.49	39.49	2.26	58.90	73.90	15.0	100	0	
Vert.	5460.000	AV	35.10	32.08	16.30	39.73	2.26	46.01	53.90	7.9	100	277	VBW:2.7 kHz
Vert.	11000.000	AV	35.70	39.94	10.49	39.49	2.26	48.90	53.90	5.0	100	0	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	52.20	32.06	16.31	39.74	2.26	63.09	-32.13	-27.00	**5.1**	353	329	
Hori.	16500.000	PK	45.00	38.67	13.19	39.82	-9.54	47.50	-47.72	-27.00	20.7	150	0	
Vert.	5470.000	PK	50.20	32.06	16.31	39.74	2.26	61.09	-34.13	-27.00	7.1	100	277	
Vert.	16500.000	PK	45.40	38.67	13.19	39.82	-9.54	47.90	-47.32	-27.00	20.3	150	0	

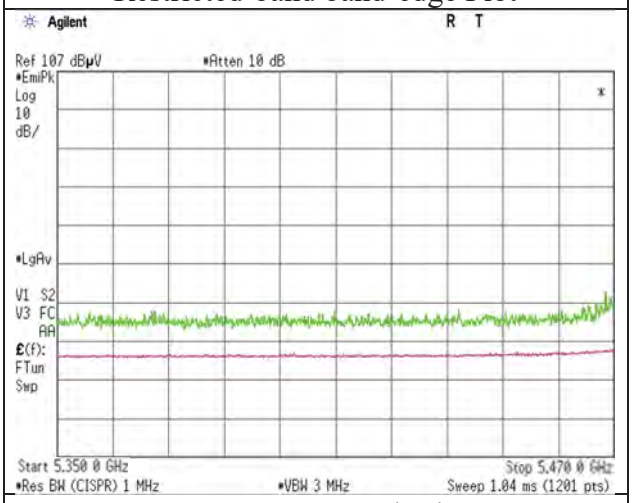
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 10, 2019
Temperature / Humidity	20 deg.C / 25 %RH
Engineer	Kazutaka Takeyama (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,5500 MHz

Horizontal

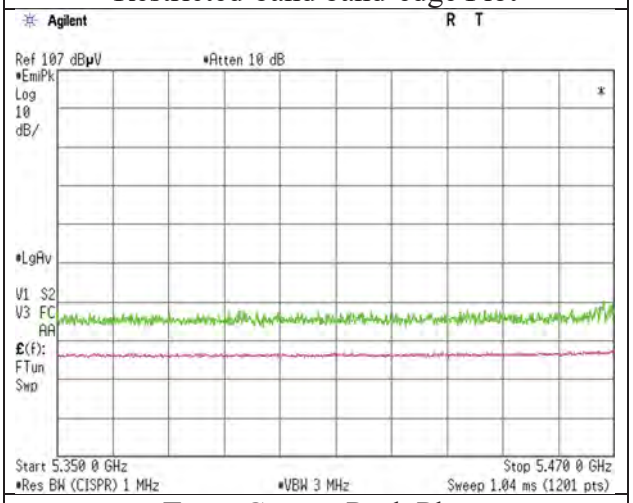
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 10, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5580 MHz				
	Tx, IEEE802.11ac VHT20 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11160.000	PK	44.70	39.57	10.79	39.42	2.26	57.90	73.90	16.0	100	0	
Hori.	11160.000	AV	35.10	39.57	10.79	39.42	2.26	48.30	53.90	5.6	100	0	VBW:2.7 kHz
Vert.	11160.000	PK	45.10	39.57	10.79	39.42	2.26	58.30	73.90	15.6	100	0	
Vert.	11160.000	AV	35.20	39.57	10.79	39.42	2.26	48.40	53.90	**5.5**	100	0	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	16740.000	PK	45.41	39.30	13.34	39.49	-9.54	49.02	-46.20	-27.00	19.2	150	0	
Vert.	16740.000	PK	45.92	39.30	13.34	39.49	-9.54	49.53	-45.69	-27.00	**18.6**	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 10, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5700 MHz				
	Tx, IEEE802.11ac VHT20 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11400.000	PK	44.40	39.78	11.25	39.31	2.26	58.38	73.90	15.5	100	0	
Hori.	11400.000	AV	35.00	39.78	11.25	39.31	2.26	48.98	53.90	**4.9**	100	0	VBW:2.7 kHz
Vert.	11400.000	PK	44.30	39.78	11.25	39.31	2.26	58.28	73.90	15.6	100	0	
Vert.	11400.000	AV	35.00	39.78	11.25	39.31	2.26	48.98	53.90	**4.9**	100	0	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	51.80	32.35	16.38	39.88	2.26	62.91	-32.31	-27.00	**5.3**	367	329	
Hori.	17100.000	PK	45.97	39.83	13.50	38.93	-9.54	50.83	-44.39	-27.00	17.3	150	0	
Vert.	5725.000	PK	51.00	32.35	16.38	39.88	2.26	62.11	-33.11	-27.00	6.1	100	268	
Vert.	17100.000	PK	45.03	39.83	13.50	38.93	-9.54	49.89	-45.33	-27.00	18.3	150	0	

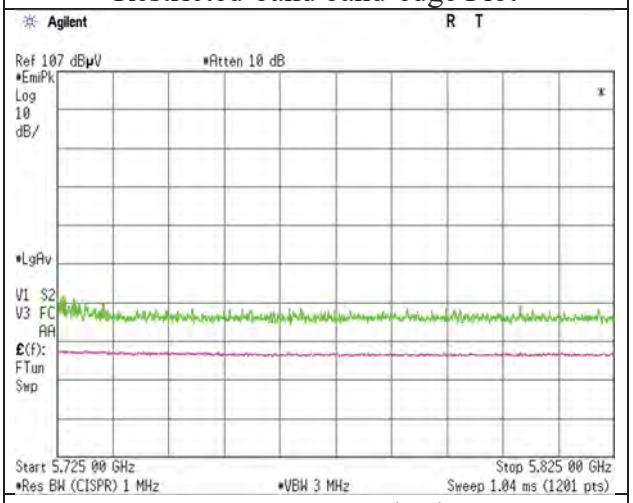
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 10, 2019
Temperature / Humidity	20 deg.C / 25 %RH
Engineer	Kazutaka Takeyama (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,5700 MHz

Horizontal

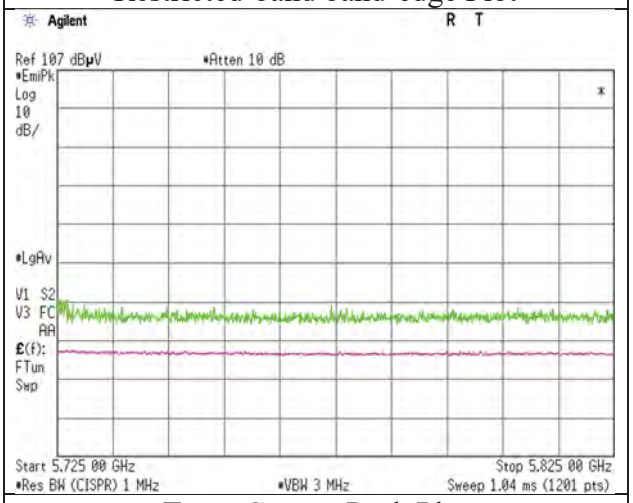
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 12, 2019
Temperature / Humidity 23 deg. C / 29 % RH
Engineer Makoto Hosaka
(1 GHz - 6.4 GHz)
Mode Tx, 5500 MHz
Tx, IEEE802.11n HT20 (MIMO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	42.19	32.08	17.27	33.95	2.26	59.85	73.90	14.0	232	136	
Hori.	5460.000	AV	32.72	32.08	17.27	33.95	2.26	50.38	53.90	**3.5**	232	136	VBW:9.1 kHz
Vert.	5460.000	PK	41.95	32.08	17.27	33.95	2.26	59.61	73.90	14.2	147	27	
Vert.	5460.000	AV	32.33	32.08	17.27	33.95	2.26	49.99	53.90	3.9	147	27	VBW:9.1 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	42.70	32.06	17.28	33.94	2.26	60.36	-34.86	-27.00	**7.8**	232	136	
Vert.	5470.000	PK	42.21	32.06	17.28	33.94	2.26	59.87	-35.35	-27.00	8.3	147	27	

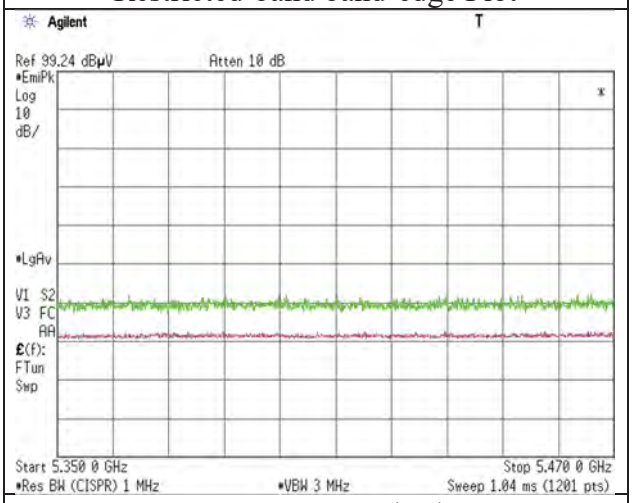
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 12, 2019
Temperature / Humidity	23 deg.C / 39 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT20 (MIMO) ,5500 MHz

Horizontal

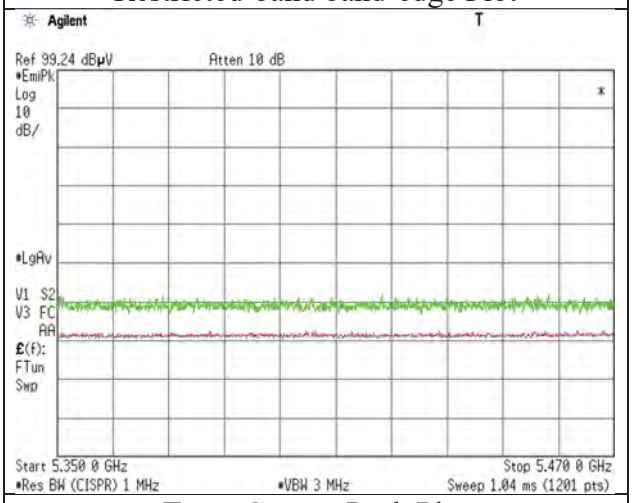
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 12, 2019
Temperature / Humidity 23 deg. C / 29 % RH
Engineer Makoto Hosaka
(1 GHz - 6.4 GHz)
Mode Tx, 5700 MHz
Tx, IEEE802.11n HT20 (MIMO)

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	45.12	32.35	17.31	33.94	2.26	63.10	-32.12	-27.00	**5.1**	285	246	
Vert.	5725.000	PK	42.66	32.35	17.31	33.94	2.26	60.64	-34.58	-27.00	7.5	152	24	

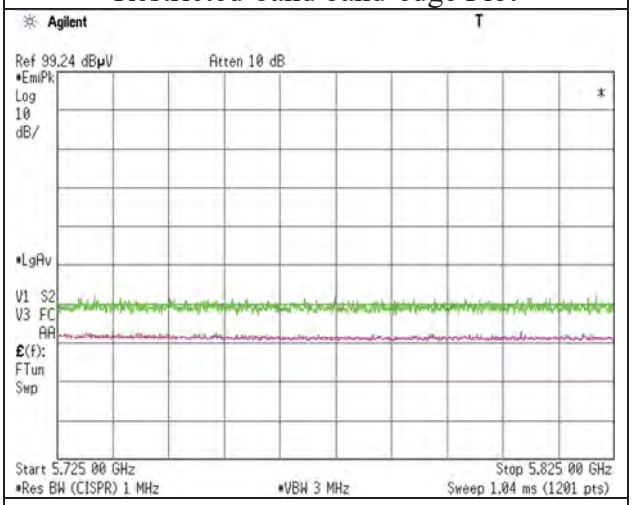
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 12, 2019
Temperature / Humidity	23 deg.C / 39 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT20 (MIMO) ,5700 MHz

Horizontal

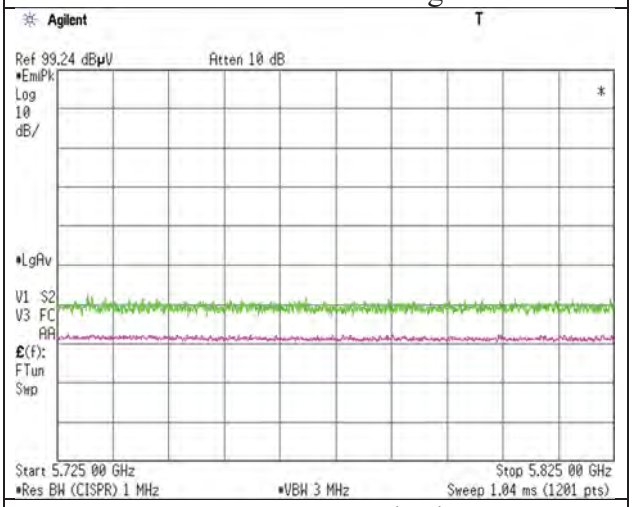
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 11, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5510 MHz				
	Tx, IEEE802.11n HT40 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	44.30	32.08	17.27	33.95	2.26	61.96	73.90	11.9	100	332	
Hori.	11020.000	PK	45.60	39.96	10.52	39.48	2.26	58.86	73.90	15.0	100	0	
Hori.	5460.000	AV	32.90	32.08	17.27	33.95	2.26	50.56	53.90	**3.3**	100	332	VBW:5.1 kHz
Hori.	11020.000	AV	35.20	39.96	10.52	39.48	2.26	48.46	53.90	5.4	100	0	VBW:5.1 kHz
Vert.	5460.000	PK	42.50	32.08	17.27	33.95	2.26	60.16	73.90	13.7	100	275	
Vert.	11020.000	PK	44.40	39.96	10.52	39.48	2.26	57.66	73.90	16.2	100	0	
Vert.	5460.000	AV	32.20	32.08	17.27	33.95	2.26	49.86	53.90	4.0	100	275	VBW:5.1 kHz
Vert.	11020.000	AV	34.50	39.96	10.52	39.48	2.26	47.76	53.90	6.1	100	0	VBW:5.1 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	48.50	32.06	17.28	33.94	2.26	66.16	-29.06	-27.00	**2.0**	100	332	
Hori.	16530.000	PK	45.99	38.60	13.21	39.78	-9.54	48.48	-46.74	-27.00	19.7	150	0	
Vert.	5470.000	PK	46.90	32.06	17.28	33.94	2.26	64.56	-30.66	-27.00	3.6	100	275	
Vert.	16530.000	PK	44.97	38.60	13.21	39.78	-9.54	47.46	-47.76	-27.00	20.7	150	0	

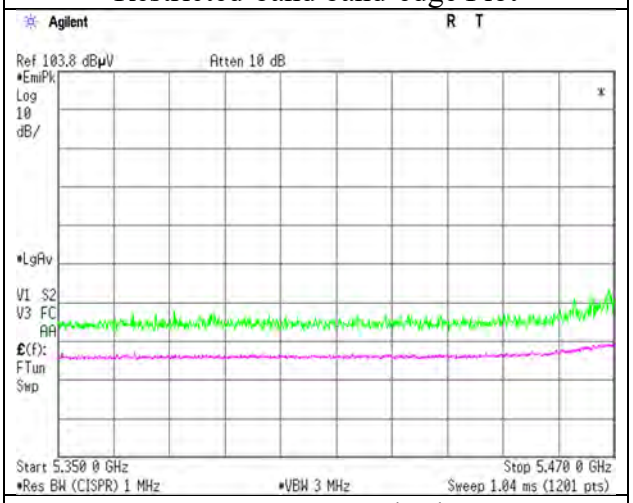
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 11, 2019
Temperature / Humidity	20 deg.C / 25 %RH
Engineer	Kazutaka Takeyama (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) ,5510 MHz

Horizontal

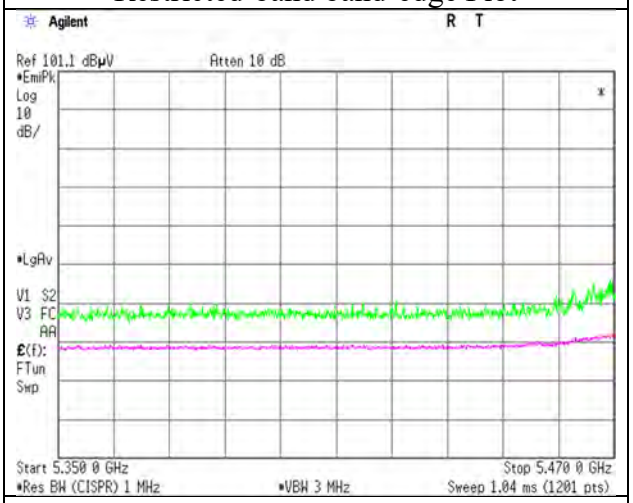
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 11, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5550 MHz				
	Tx, IEEE802.11n HT40 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11100.000	PK	44.60	39.79	10.68	39.45	2.26	57.88	73.90	16.0	100	0	
Hori.	11100.000	AV	35.20	39.79	10.68	39.45	2.26	48.48	53.90	5.4	100	0	VBW:5.1 kHz
Vert.	11100.000	PK	45.20	39.79	10.68	39.45	2.26	58.48	73.90	15.4	100	0	
Vert.	11100.000	AV	35.50	39.79	10.68	39.45	2.26	48.78	53.90	**5.1**	100	0	VBW:5.1 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	16650.000	PK	46.33	38.57	13.29	39.61	-9.54	49.04	-46.18	-27.00	**19.1**	150	0	
Vert.	16650.000	PK	45.27	38.57	13.29	39.61	-9.54	47.98	-47.24	-27.00	20.2	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 11, 2019	January 19, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	20 deg. C / 25 % RH	20 deg. C / 40 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Kazutaka Takeyama	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5670 MHz				
	Tx, IEEE802.11n HT40 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11340.000	PK	44.50	39.56	11.14	39.34	2.26	58.12	73.90	15.7	100	0	
Hori.	11340.000	AV	35.30	39.56	11.14	39.34	2.26	48.92	53.90	**4.9**	100	0	VBW:5.1 kHz
Vert.	11340.000	PK	44.40	39.56	11.14	39.34	2.26	58.02	73.90	15.8	100	0	
Vert.	11340.000	AV	35.10	39.56	11.14	39.34	2.26	48.72	53.90	5.1	100	0	VBW:5.1 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	42.40	32.35	17.31	33.94	2.26	60.38	-34.84	-27.00	7.8	100	338	
Hori.	17010.000	PK	45.57	39.55	13.50	39.11	-9.54	49.97	-45.25	-27.00	18.2	150	0	
Vert.	5725.000	PK	42.50	32.35	17.31	33.94	2.26	60.48	-34.74	-27.00	**7.7**	100	265	
Vert.	17010.000	PK	44.82	39.55	13.50	39.11	-9.54	49.22	-46.00	-27.00	19.0	150	0	

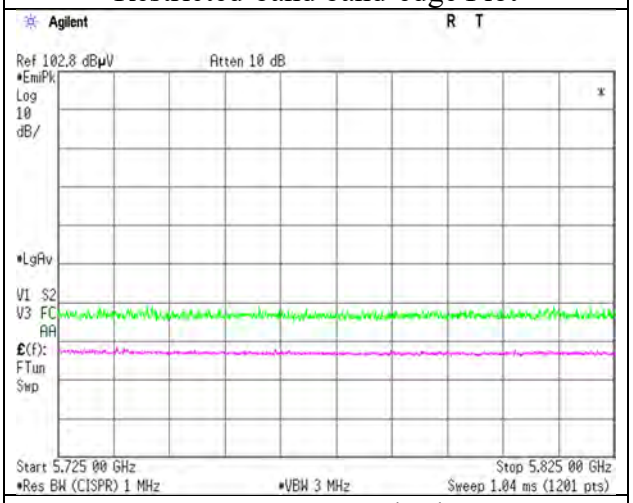
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 11, 2019
Temperature / Humidity	20 deg.C / 25 %RH
Engineer	Kazutaka Takeyama (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) ,5670 MHz

Horizontal

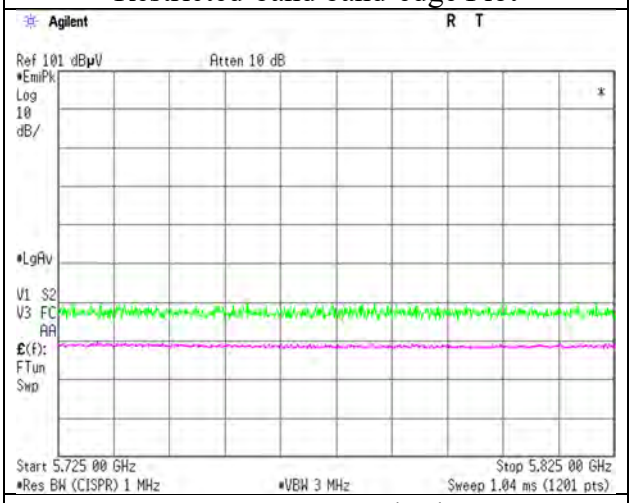
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 13, 2019
Temperature / Humidity 22 deg. C / 39 % RH
Engineer Yosuke Ishikawa
(1 GHz - 6.4 GHz)
Mode Tx, 5510 MHz
Tx, IEEE802.11ac VHT40 (MIMO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	42.14	32.08	17.27	33.95	2.26	59.80	73.90	14.1	143	140	
Hori.	5460.000	AV	33.38	32.08	17.27	33.95	2.26	51.04	53.90	**2.8**	143	140	VBW:13 kHz
Vert.	5460.000	PK	42.33	32.08	17.27	33.95	2.26	59.99	73.90	13.9	100	94	
Vert.	5460.000	AV	33.03	32.08	17.27	33.95	2.26	50.69	53.90	3.2	100	94	VBW:13 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	44.69	32.06	17.28	33.94	2.26	62.35	-32.87	-27.00	**5.8**	143	140	
Vert.	5470.000	PK	43.67	32.06	17.28	33.94	2.26	61.33	-33.89	-27.00	6.8	100	94	

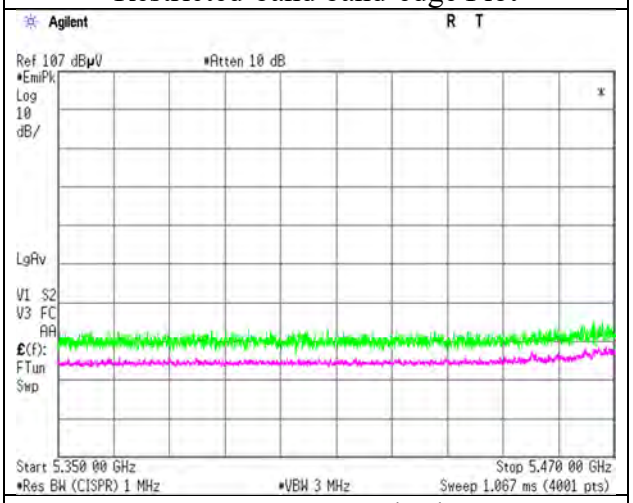
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 13, 2019
Temperature / Humidity	22 deg.C / 39 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT40 (MIMO) ,5510 MHz

Horizontal

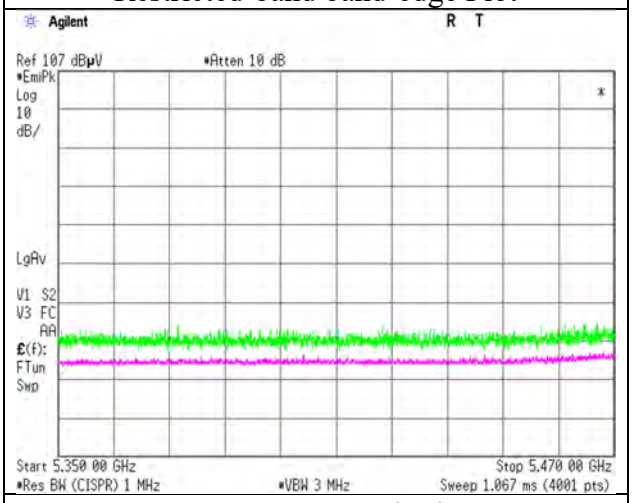
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 13, 2019
Temperature / Humidity 22 deg. C / 39 % RH
Engineer Yosuke Ishikawa
(1 GHz - 6.4 GHz)
Mode Tx, 5670 MHz
Tx, IEEE802.11ac VHT40 (MIMO)

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5725.000	PK	41.91	32.35	17.31	33.94	2.26	59.89	-35.33	-27.00	8.3	171	141	
Vert.	5725.000	PK	42.03	32.35	17.31	33.94	2.26	60.01	-35.21	-27.00	**8.2**	100	94	

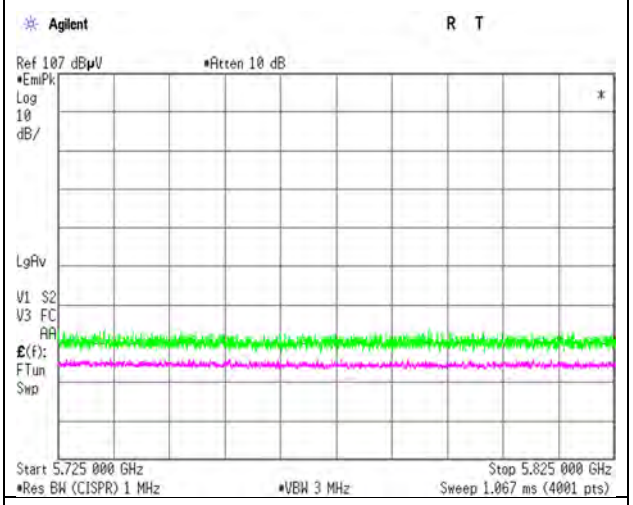
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 13, 2019
Temperature / Humidity	22 deg.C / 39 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT40 (MIMO) ,5670 MHz

Horizontal

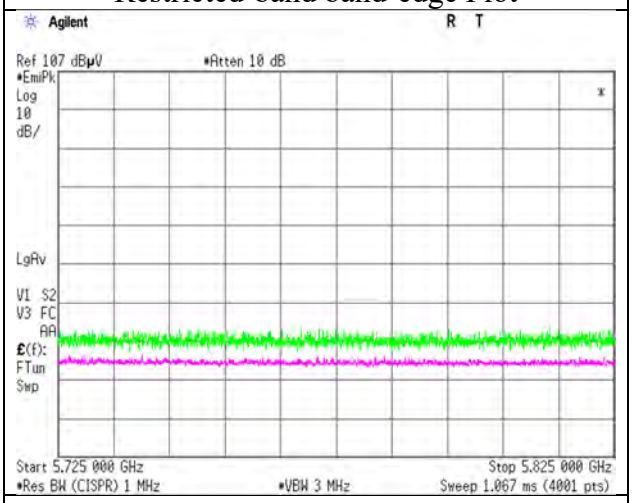
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.3	No.3	No.3	No.3
Date	January 25, 2019	January 25, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	21 deg. C / 30 % RH	21 deg. C / 30 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5530 MHz				
	Tx, IEEE802.11ac VHT80 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	42.75	32.08	17.27	33.95	2.26	60.41	73.90	13.4	133	336	
Hori.	11060.000	PK	45.07	39.94	10.60	39.46	2.26	58.41	73.90	15.4	150	0	
Hori.	5460.000	AV	33.67	32.08	17.27	33.95	2.26	51.33	53.90	**2.5**	133	336	VBW:12 kHz
Hori.	11060.000	AV	35.92	39.94	10.60	39.46	2.26	49.26	53.90	4.6	150	0	VBW:12 kHz
Vert.	5460.000	PK	43.62	32.08	17.27	33.95	2.26	61.28	73.90	12.6	341	22	
Vert.	11060.000	PK	44.99	39.94	10.60	39.46	2.26	58.33	73.90	15.5	150	0	
Vert.	5460.000	AV	33.27	32.08	17.27	33.95	2.26	50.93	53.90	2.9	341	22	VBW:12 kHz
Vert.	11060.000	AV	35.95	39.94	10.60	39.46	2.26	49.29	53.90	4.6	150	0	VBW:12 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	42.37	32.06	17.28	33.94	2.26	60.03	-35.19	-27.00	**8.1**	133	336	
Hori.	5725.000	PK	41.93	32.35	17.31	33.94	2.26	59.91	-35.31	-27.00	8.3	133	336	
Hori.	16590.000	PK	46.01	38.55	13.24	39.70	-9.54	48.56	-46.66	-27.00	19.6	150	0	
Vert.	5470.000	PK	42.18	32.06	17.28	33.94	2.26	59.84	-35.38	-27.00	8.3	341	22	
Vert.	5725.000	PK	42.07	32.35	17.31	33.94	2.26	60.05	-35.17	-27.00	**8.1**	341	22	
Vert.	16590.000	PK	45.63	38.55	13.24	39.70	-9.54	48.18	-47.04	-27.00	20.0	150	0	

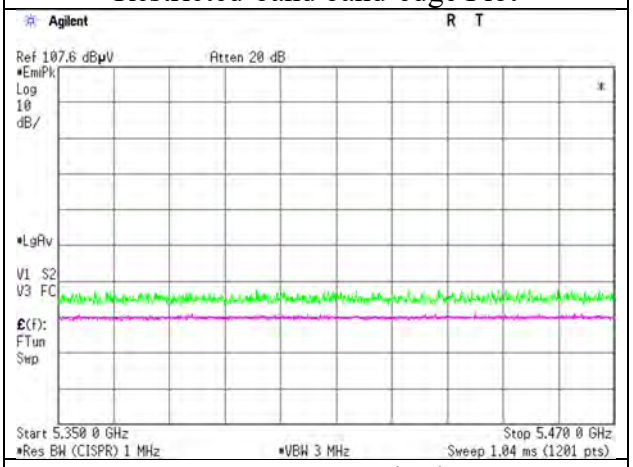
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 25, 2019
Temperature / Humidity	21 deg.C / 30 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (SISO) ,5530 MHz

Horizontal

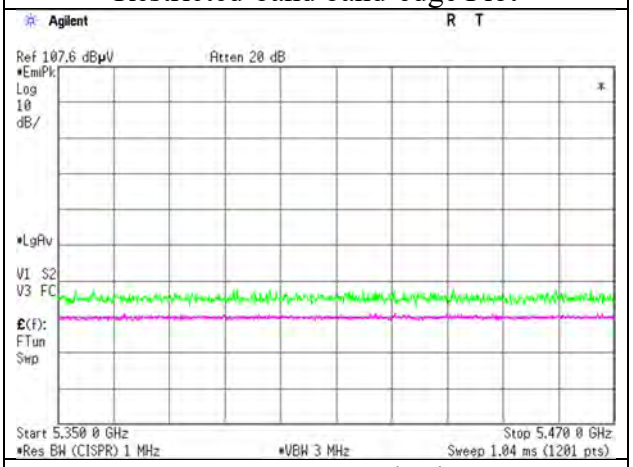
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 25, 2019
Temperature / Humidity 21 deg. C / 30 % RH
Engineer Makoto Hosaka
(1 GHz - 6.4 GHz)
Mode Tx, 5530 MHz
Tx, IEEE802.11ac VHT80 (MIMO)

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5460.000	PK	42.69	32.08	17.27	33.95	2.26	60.35	73.90	13.5	236	240	
Hori.	5460.000	AV	34.06	32.08	17.27	33.95	2.26	51.72	53.90	**2.1**	236	240	VBW:15 kHz
Vert.	5460.000	PK	41.82	32.08	17.27	33.95	2.26	59.48	73.90	14.4	145	104	
Vert.	5460.000	AV	33.48	32.08	17.27	33.95	2.26	51.14	53.90	2.7	145	104	VBW:15 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5470.000	PK	42.81	32.06	17.28	33.94	2.26	60.47	-34.75	-27.00	**7.7**	236	240	
Hori.	5725.000	PK	41.85	32.35	17.31	33.94	2.26	59.83	-35.39	-27.00	8.3	236	240	
Vert.	5470.000	PK	42.25	32.06	17.28	33.94	2.26	59.91	-35.31	-27.00	8.3	145	104	
Vert.	5725.000	PK	41.95	32.35	17.31	33.94	2.26	59.93	-35.29	-27.00	8.2	145	104	

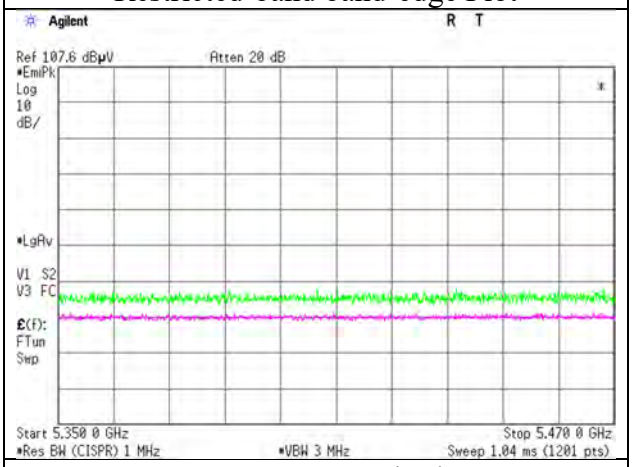
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 25, 2019
Temperature / Humidity	21 deg.C / 30 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (MIMO) ,5530 MHz

Horizontal

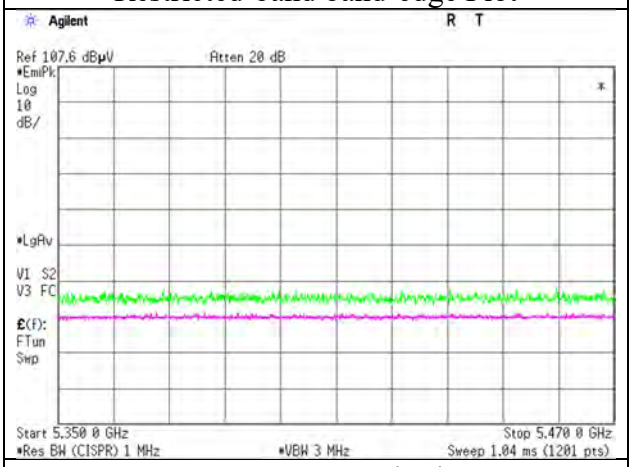
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.3	No.3
Date	February 20, 2019	February 24, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	26 deg.C / 35 %RH	22 deg. C / 33 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5745 MHz				
	Tx, IEEE802.11ac VHT20 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11490.000	PK	45.05	40.01	9.64	39.27	2.26	57.69	73.90	16.2	150	0	
Hori.	11490.000	AV	35.18	40.01	9.64	39.27	2.26	47.82	53.90	**6.0**	150	0	VBW:2.7 kHz
Vert.	11490.000	PK	44.94	40.01	9.64	39.27	2.26	57.58	73.90	16.3	150	0	
Vert.	11490.000	AV	35.23	40.01	9.64	39.27	2.26	47.87	53.90	**6.0**	150	0	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	47.95	32.18	17.41	43.33	2.26	56.47	-38.75	-27.00	**11.7**	297	332	
Hori.	5700.000	PK	48.47	32.23	17.45	43.33	2.26	57.08	-38.14	10.00	48.1	297	332	
Hori.	5720.000	PK	54.80	32.33	17.46	43.33	2.26	63.52	-31.70	15.60	47.3	297	332	
Hori.	5725.000	PK	57.33	32.35	17.46	43.33	2.26	66.07	-29.15	27.00	56.1	297	332	
Hori.	17235.000	PK	46.08	39.91	13.52	38.66	-9.54	51.31	-43.91	-27.00	16.9	138	189	
Vert.	5650.000	PK	47.68	32.18	17.41	43.33	2.26	56.20	-39.02	-27.00	12.0	352	264	
Vert.	5700.000	PK	48.50	32.23	17.45	43.33	2.26	57.11	-38.11	10.00	48.1	352	264	
Vert.	5720.000	PK	52.15	32.33	17.46	43.33	2.26	60.87	-34.35	15.60	49.9	352	264	
Vert.	5725.000	PK	56.95	32.35	17.46	43.33	2.26	65.69	-29.53	27.00	56.5	352	264	
Vert.	17235.000	PK	45.67	39.91	13.52	38.66	-9.54	50.90	-44.32	-27.00	17.3	150	0	

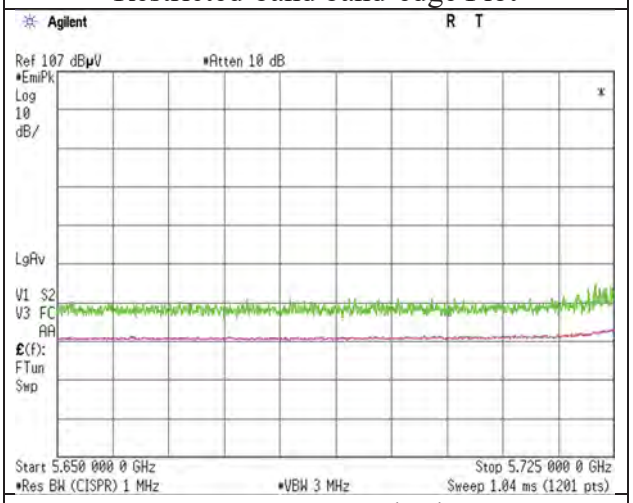
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2019
Temperature / Humidity	26 deg.C / 35 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,5745 MHz

Horizontal

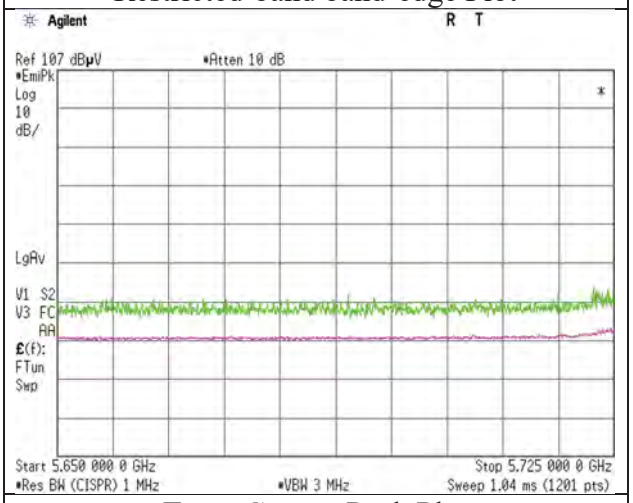
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.3	No.3
Date	February 20, 2019	February 24, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	26 deg.C / 35 %RH	22 deg. C / 33 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5785 MHz				
	Tx, IEEE802.11ac VHT20 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11570.000	PK	44.62	39.98	9.67	39.21	2.26	57.32	73.90	16.5	150	0	
Hori.	11570.000	AV	34.52	39.98	9.67	39.21	2.26	47.22	53.90	**6.6**	150	0	VBW:2.7 kHz
Vert.	11570.000	PK	44.41	39.98	9.67	39.21	2.26	57.11	73.90	16.7	150	0	
Vert.	11570.000	AV	34.37	39.98	9.67	39.21	2.26	47.07	53.90	6.8	150	0	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	17355.000	PK	46.60	40.56	13.54	38.42	-9.54	52.74	-42.48	-27.00	**15.4**	155	189	
Vert.	17355.000	PK	45.39	40.56	13.54	38.42	-9.54	51.53	-43.69	-27.00	16.6	150	0	

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.3	No.3
Date	February 20, 2019	February 24, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	26 deg.C / 35 %RH	22 deg. C / 33 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5825 MHz				
	Tx, IEEE802.11ac VHT20 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11650.000	PK	44.03	39.69	9.67	39.14	2.26	56.51	73.90	17.3	150	0	
Hori.	11650.000	AV	33.52	39.69	9.67	39.14	2.26	46.00	53.90	**7.9**	150	0	VBW:2.7 kHz
Vert.	11650.000	PK	43.75	39.69	9.67	39.14	2.26	56.23	73.90	17.6	150	0	
Vert.	11650.000	AV	33.35	39.69	9.67	39.14	2.26	45.83	53.90	8.0	150	0	VBW:2.7 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	48.45	32.65	17.54	43.34	2.26	57.56	-37.66	27.00	64.6	106	258	
Hori.	5855.000	PK	48.27	32.66	17.54	43.34	2.26	57.39	-37.83	15.60	53.4	106	258	
Hori.	5875.000	PK	47.96	32.72	17.55	43.34	2.26	57.15	-38.07	10.00	48.0	106	258	
Hori.	5925.000	PK	47.95	32.80	17.58	43.34	2.26	57.25	-37.97	-27.00	**10.9**	106	258	
Hori.	17475.000	PK	45.49	41.59	13.55	38.18	-9.54	52.91	-42.31	-27.00	15.3	155	183	
Vert.	5850.000	PK	48.86	32.65	17.54	43.34	2.26	57.97	-37.25	27.00	64.2	361	315	
Vert.	5855.000	PK	48.34	32.66	17.54	43.34	2.26	57.46	-37.76	15.60	53.3	361	315	
Vert.	5875.000	PK	48.11	32.72	17.55	43.34	2.26	57.30	-37.92	10.00	47.9	361	315	
Vert.	5925.000	PK	47.78	32.80	17.58	43.34	2.26	57.08	-38.14	-27.00	11.1	361	315	
Vert.	17475.000	PK	43.89	41.59	13.55	38.18	-9.54	51.31	-43.91	-27.00	16.9	150	0	

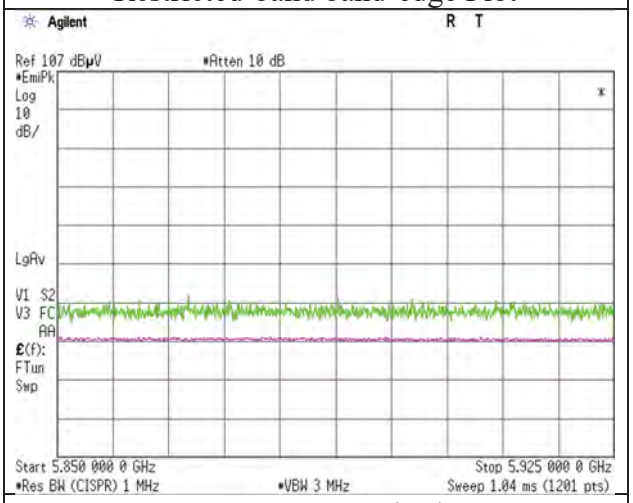
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2019
Temperature / Humidity	26 deg.C / 35 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT20 (SISO) ,5825 MHz

Horizontal

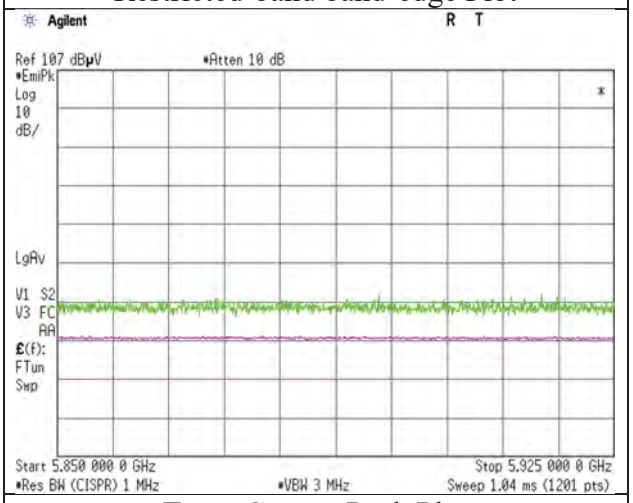
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 12, 2019
Temperature / Humidity 23 deg. C / 29 % RH
Engineer Makoto Hosaka
(1 GHz - 6.4 GHz)
Mode Tx, 5745 MHz
Tx, IEEE802.11n HT20 (MIMO)

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	41.81	32.18	17.31	33.94	2.26	59.62	-35.60	-27.00	8.6	274	294	
Hori.	5700.000	PK	42.79	32.23	17.31	33.94	2.26	60.65	-34.57	10.00	44.5	274	294	
Hori.	5720.000	PK	46.10	32.33	17.31	33.94	2.26	64.06	-31.16	15.60	46.7	274	294	
Hori.	5725.000	PK	50.10	32.35	17.31	33.94	2.26	68.08	-27.14	27.00	54.1	274	294	
Vert.	5650.000	PK	42.21	32.18	17.31	33.94	2.26	60.02	-35.20	-27.00	**8.2**	176	25	
Vert.	5700.000	PK	42.24	32.23	17.31	33.94	2.26	60.10	-35.12	10.00	45.1	176	25	
Vert.	5720.000	PK	44.50	32.33	17.31	33.94	2.26	62.46	-32.76	15.60	48.3	176	25	
Vert.	5725.000	PK	49.04	32.35	17.31	33.94	2.26	67.02	-28.20	27.00	55.2	176	25	

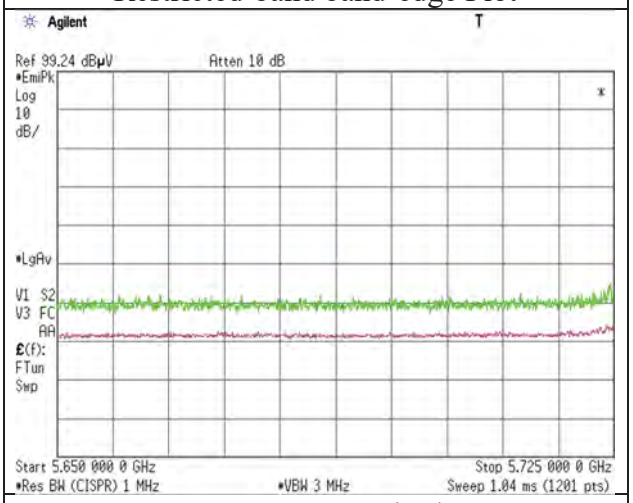
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 12, 2019
Temperature / Humidity	23 deg.C / 39 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT20 (MIMO) ,5745 MHz

Horizontal

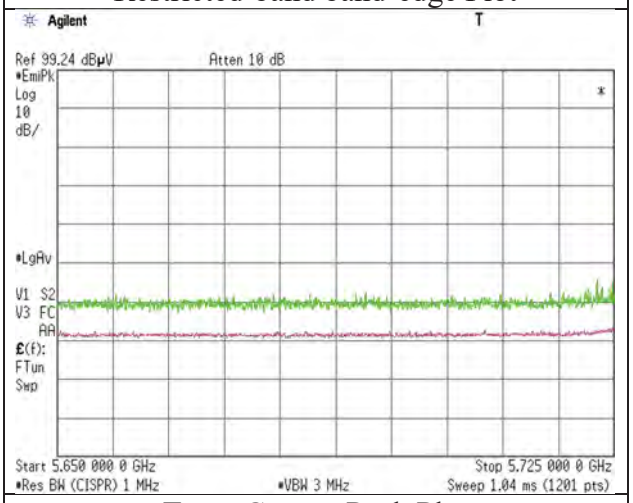
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 12, 2019
Temperature / Humidity 23 deg. C / 29 % RH
Engineer Makoto Hosaka
(1 GHz - 6.4 GHz)
Mode Tx, 5825 MHz
Tx, IEEE802.11n HT20 (MIMO)

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	43.07	32.65	17.32	33.93	2.26	61.37	-33.85	27.00	60.8	283	295	
Hori.	5855.000	PK	42.57	32.66	17.33	33.93	2.26	60.89	-34.33	15.60	49.9	283	295	
Hori.	5875.000	PK	42.20	32.72	17.33	33.93	2.26	60.58	-34.64	10.00	44.6	283	295	
Hori.	5925.000	PK	41.83	32.80	17.34	33.93	2.26	60.30	-34.92	-27.00	7.9	283	295	
Vert.	5850.000	PK	43.45	32.65	17.32	33.93	2.26	61.75	-33.47	27.00	60.4	111	32	
Vert.	5855.000	PK	41.62	32.66	17.33	33.93	2.26	59.94	-35.28	15.60	50.8	111	32	
Vert.	5875.000	PK	41.29	32.72	17.33	33.93	2.26	59.67	-35.55	10.00	45.5	111	32	
Vert.	5925.000	PK	42.48	32.80	17.34	33.93	2.26	60.95	-34.27	-27.00	**7.2**	111	32	

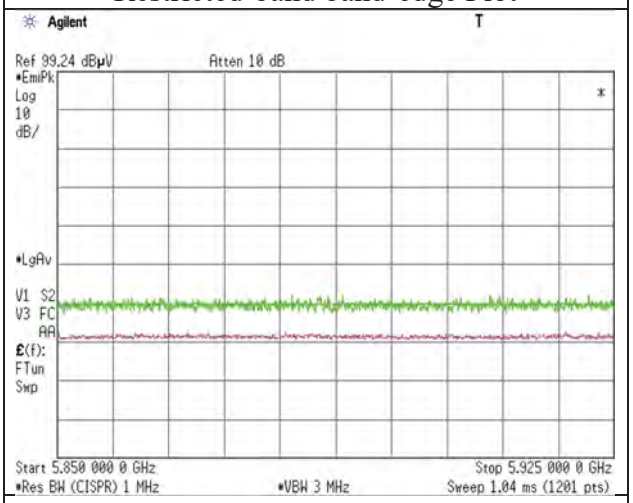
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG（({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 12, 2019
Temperature / Humidity	23 deg.C / 39 %RH
Engineer	Makoto Hosaka (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT20 (MIMO) ,5825 MHz

Horizontal

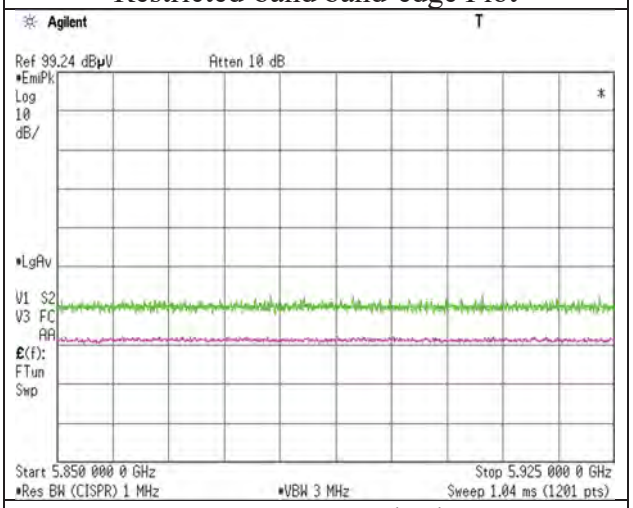
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.3	No.3
Date	February 20, 2019	February 24, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	26 deg.C / 35 %RH	22 deg. C / 33 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5755 MHz				
	Tx, IEEE802.11n HT40 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11510.000	PK	44.53	40.01	9.65	39.26	2.26	57.19	73.90	16.7	150	0	
Hori.	11510.000	AV	35.62	40.01	9.65	39.26	2.26	48.28	53.90	5.6	150	0	VBW:5.1 kHz
Vert.	11510.000	PK	44.13	40.01	9.65	39.26	2.26	56.79	73.90	17.1	150	0	
Vert.	11510.000	AV	35.85	40.01	9.65	39.26	2.26	48.51	53.90	**5.3**	150	0	VBW:5.1 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	47.32	32.18	17.41	43.33	2.26	55.84	-39.38	-27.00	12.3	100	325	
Hori.	5700.000	PK	48.10	32.23	17.45	43.33	2.26	56.71	-38.51	10.00	48.5	100	325	
Hori.	5717.625	PK	54.75	32.31	17.46	43.33	2.26	63.45	-31.77	14.94	46.7	100	325	
Hori.	5720.000	PK	53.88	32.33	17.46	43.33	2.26	62.60	-32.62	15.60	48.2	100	325	
Hori.	5725.000	PK	54.83	32.35	17.46	43.33	2.26	63.57	-31.65	27.00	58.6	100	325	
Hori.	17265.000	PK	45.41	39.98	13.54	38.60	-9.54	50.79	-44.43	-27.00	17.4	150	0	
Vert.	5650.000	PK	48.52	32.18	17.41	43.33	2.26	57.04	-38.18	-27.00	**11.1**	352	302	
Vert.	5700.000	PK	48.38	32.23	17.45	43.33	2.26	56.99	-38.23	10.00	48.2	352	302	
Vert.	5717.630	PK	53.91	32.31	17.46	43.33	2.26	62.61	-32.61	14.94	47.5	352	302	
Vert.	5720.000	PK	54.32	32.33	17.46	43.33	2.26	63.04	-32.18	15.60	47.7	352	302	
Vert.	5725.000	PK	56.08	32.35	17.46	43.33	2.26	64.82	-30.40	27.00	57.4	352	302	
Vert.	17265.000	PK	44.87	39.98	13.54	38.60	-9.54	50.25	-44.97	-27.00	17.9	150	0	

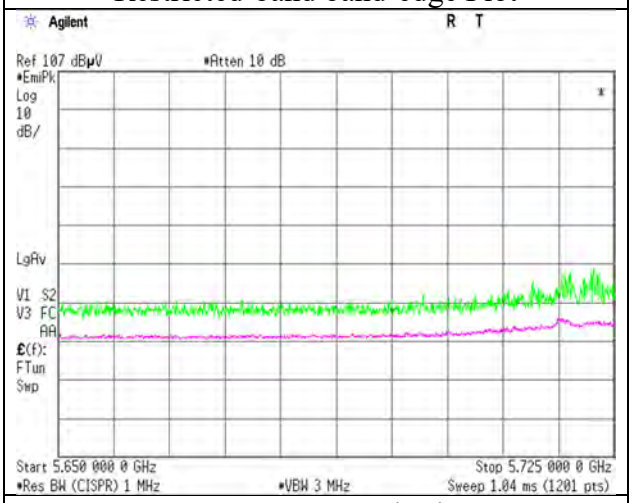
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2019
Temperature / Humidity	26 deg.C / 35 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) ,5755 MHz

Horizontal

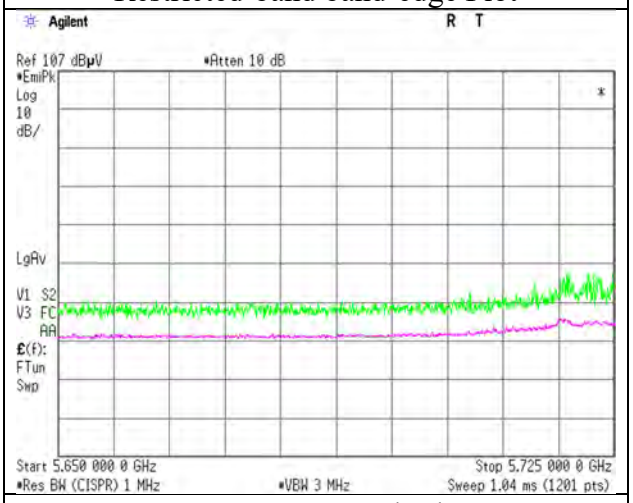
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.3	No.3
Date	February 20, 2019	February 24, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	26 deg.C / 35 %RH	22 deg. C / 33 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5795 MHz				
	Tx, IEEE802.11n HT40 (SISO)				

(above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11590.000	PK	44.65	39.93	9.66	39.19	2.26	57.31	73.90	16.5	150	0	
Hori.	11590.000	AV	35.07	39.93	9.66	39.19	2.26	47.73	53.90	**6.1**	150	0	VBW:5.1 kHz
Vert.	11590.000	PK	44.72	39.93	9.66	39.19	2.26	57.38	73.90	16.5	150	0	
Vert.	11590.000	AV	34.84	39.93	9.66	39.19	2.26	47.50	53.90	6.4	150	0	VBW:5.1 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	48.33	32.65	17.54	43.34	2.26	57.44	-37.78	27.00	64.7	100	258	
Hori.	5855.000	PK	48.62	32.66	17.54	43.34	2.26	57.74	-37.48	15.60	53.0	100	258	
Hori.	5875.000	PK	48.76	32.72	17.55	43.34	2.26	57.95	-37.27	10.00	47.2	100	258	
Hori.	5925.000	PK	48.20	32.80	17.58	43.34	2.26	57.50	-37.72	-27.00	10.7	100	258	
Hori.	17385.000	PK	44.59	40.84	13.55	38.36	-9.54	51.08	-44.14	-27.00	17.1	150	0	
Vert.	5850.000	PK	48.65	32.65	17.54	43.34	2.26	57.76	-37.46	27.00	64.4	346	286	
Vert.	5855.000	PK	48.25	32.66	17.54	43.34	2.26	57.37	-37.85	15.60	53.4	346	286	
Vert.	5875.000	PK	48.21	32.72	17.55	43.34	2.26	57.40	-37.82	10.00	47.8	346	286	
Vert.	5925.000	PK	48.45	32.80	17.58	43.34	2.26	57.75	-37.47	-27.00	**10.4**	346	286	
Vert.	17385.000	PK	45.44	40.84	13.55	38.36	-9.54	51.93	-43.29	-27.00	16.2	150	0	

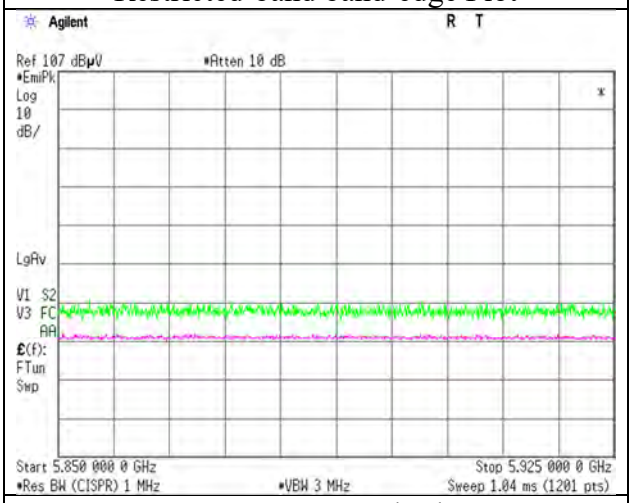
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2019
Temperature / Humidity	26 deg.C / 35 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, IEEE802.11n HT40 (SISO) ,5795 MHz

Horizontal

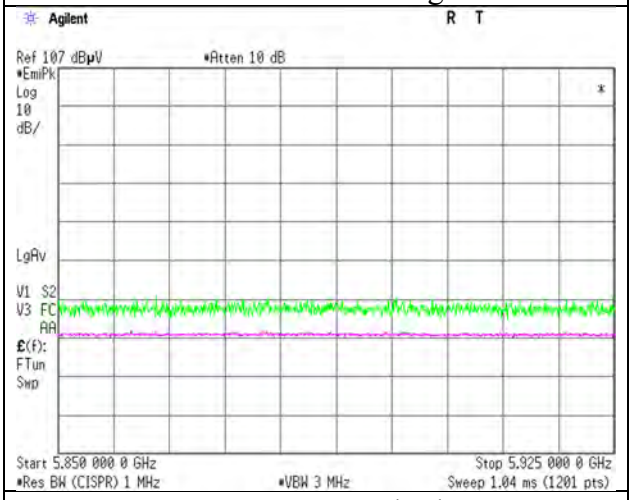
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 13, 2019
Temperature / Humidity 22 deg. C / 39 % RH
Engineer Yosuke Ishikawa
(1 GHz - 6.4 GHz)
Mode Tx, 5755 MHz
Tx, IEEE802.11ac VHT40 (MIMO)

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	42.28	32.18	17.31	33.94	2.26	60.09	-35.13	-27.00	**8.1**	160	149	
Hori.	5700.000	PK	42.63	32.23	17.31	33.94	2.26	60.49	-34.73	10.00	44.7	160	149	
Hori.	5717.200	PK	46.46	32.31	17.31	33.94	2.26	64.40	-30.82	14.81	45.6	160	149	
Hori.	5720.000	PK	47.37	32.33	17.31	33.94	2.26	65.33	-29.89	15.60	45.4	160	149	
Hori.	5722.271	PK	48.67	32.34	17.31	33.94	2.26	66.64	-28.58	20.77	49.3	160	149	
Hori.	5725.000	PK	46.79	32.35	17.31	33.94	2.26	64.77	-30.45	27.00	57.4	160	149	
Vert.	5650.000	PK	41.95	32.18	17.31	33.94	2.26	59.76	-35.46	-27.00	8.4	100	95	
Vert.	5700.000	PK	41.85	32.23	17.31	33.94	2.26	59.71	-35.51	10.00	45.5	100	95	
Vert.	5717.363	PK	47.77	32.31	17.31	33.94	2.26	65.71	-29.51	14.86	44.3	100	95	
Vert.	5720.000	PK	48.02	32.33	17.31	33.94	2.26	65.98	-29.24	15.60	44.8	100	95	
Vert.	5722.463	PK	47.73	32.34	17.31	33.94	2.26	65.70	-29.52	21.21	50.7	100	95	
Vert.	5725.000	PK	46.34	32.35	17.31	33.94	2.26	64.32	-30.90	27.00	57.9	100	95	

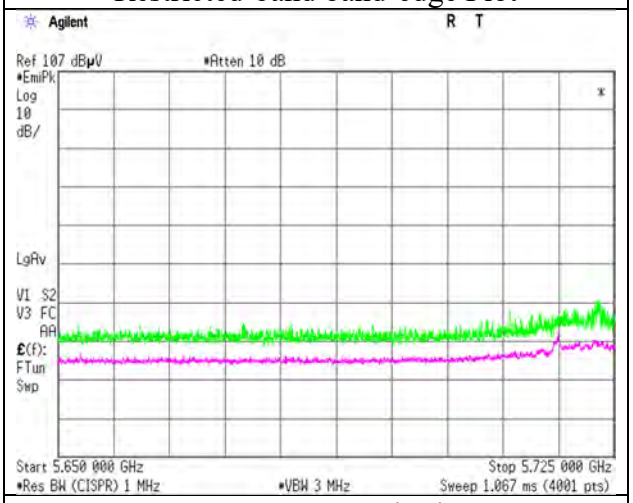
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 13, 2019
Temperature / Humidity	22 deg.C / 39 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT40 (MIMO) ,5755 MHz

Horizontal

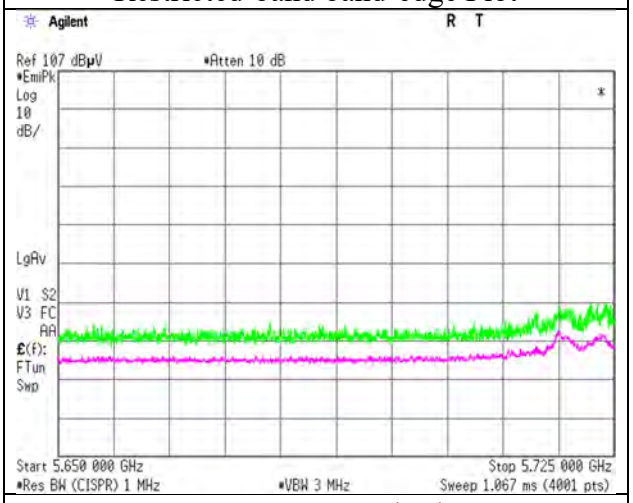
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 13, 2019
Temperature / Humidity 22 deg. C / 39 % RH
Engineer Yosuke Ishikawa
(1 GHz - 6.4 GHz)
Mode Tx, 5795 MHz
Tx, IEEE802.11ac VHT40 (MIMO)

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5850.000	PK	41.58	32.65	17.32	33.93	2.26	59.88	-35.34	27.00	62.3	100	178	
Hori.	5855.000	PK	40.68	32.66	17.33	33.93	2.26	59.00	-36.22	15.60	51.8	100	178	
Hori.	5875.000	PK	40.94	32.72	17.33	33.93	2.26	59.32	-35.90	10.00	45.9	100	178	
Hori.	5925.000	PK	41.16	32.80	17.34	33.93	2.26	59.63	-35.59	-27.00	8.5	100	178	
Vert.	5850.000	PK	41.39	32.65	17.32	33.93	2.26	59.69	-35.53	27.00	62.5	100	96	
Vert.	5855.000	PK	41.75	32.66	17.33	33.93	2.26	60.07	-35.15	15.60	50.7	100	96	
Vert.	5875.000	PK	41.91	32.72	17.33	33.93	2.26	60.29	-34.93	10.00	44.9	100	96	
Vert.	5925.000	PK	41.74	32.80	17.34	33.93	2.26	60.21	-35.01	-27.00	**8.0**	100	96	

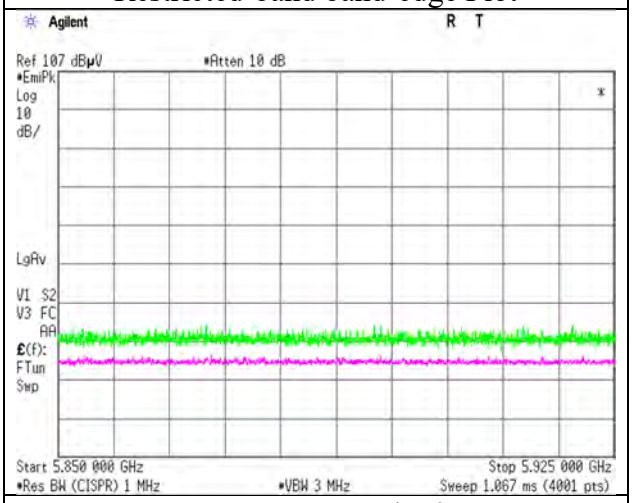
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG （({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 13, 2019
Temperature / Humidity	22 deg.C / 39 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT40 (MIMO) ,5795 MHz

Horizontal

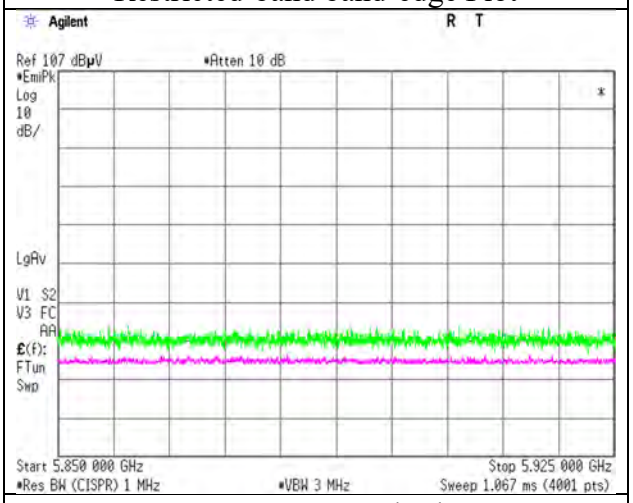
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No.	12656071S				
Test place	Shonan EMC Lab.				
Semi Anechoic Chamber	No.3	No.1	No.3	No.3	No.3
Date	February 20, 2019	February 24, 2019	January 25, 2019	January 17, 2019	January 18, 2019
Temperature / Humidity	26 deg.C / 35 %RH	22 deg. C / 33 % RH	21 deg. C / 30 % RH	21 deg. C / 35 % RH	22 deg. C / 44 % RH
Engineer	Yosuke Ishikawa	Kazutaka Takeyama	Makoto Hosaka	Makoto Hosaka	Kazutaka Takeyama
	(1 GHz - 6.4 GHz)	(6.4 GHz - 13 GHz)	(13 GHz - 18 GHz)	(18 GHz - 26.5 GHz)	(26.5 GHz - 40 GHz)
Mode	Tx, 5775 MHz				
	Tx, IEEE802.11ac VHT80 (SISO)				

(below 1GHz and above 1GHz Inside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	11550.000	PK	44.50	40.03	9.65	39.23	2.26	57.21	73.90	16.6	150	0	
Hori.	11550.000	AV	36.26	40.03	9.65	39.23	2.26	48.97	53.90	**4.9**	150	0	VBW:12 kHz
Vert.	11550.000	PK	44.36	40.03	9.65	39.23	2.26	57.07	73.90	16.8	150	0	
Vert.	11550.000	AV	36.03	40.03	9.65	39.23	2.26	48.74	53.90	5.1	150	0	VBW:12 kHz

Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance fa
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20d
*The 4th harmonic was not seen so the result was its base noise leve
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	48.39	32.18	17.41	43.33	2.26	56.91	-38.31	-27.00	11.3	169	253	
Hori.	5700.000	PK	50.85	32.23	17.45	43.33	2.26	59.46	-35.76	10.00	45.7	169	253	
Hori.	5720.000	PK	51.73	32.33	17.46	43.33	2.26	60.45	-34.77	15.60	50.3	169	253	
Hori.	5725.000	PK	51.28	32.35	17.46	43.33	2.26	60.02	-35.20	27.00	62.2	169	253	
Hori.	5850.000	PK	48.46	32.65	17.54	43.34	2.26	57.57	-37.65	27.00	64.6	169	253	
Hori.	5855.000	PK	48.47	32.66	17.54	43.34	2.26	57.59	-37.63	15.60	53.2	169	253	
Hori.	5875.000	PK	48.54	32.72	17.55	43.34	2.26	57.73	-37.49	10.00	47.4	169	253	
Hori.	5925.000	PK	48.30	32.80	17.58	43.34	2.26	57.60	-37.62	-27.00	10.6	169	253	
Vert.	5650.000	PK	49.62	32.18	17.41	43.33	2.26	58.14	-37.08	-27.00	**10.0**	330	267	
Vert.	5700.000	PK	50.54	32.23	17.45	43.33	2.26	59.15	-36.07	10.00	46.0	330	267	
Vert.	5720.000	PK	52.71	32.33	17.46	43.33	2.26	61.43	-33.79	15.60	49.3	330	267	
Vert.	5725.000	PK	51.39	32.35	17.46	43.33	2.26	60.13	-35.09	27.00	62.0	330	267	
Vert.	5850.000	PK	48.99	32.65	17.54	43.34	2.26	58.10	-37.12	27.00	64.1	330	267	
Vert.	5855.000	PK	48.20	32.66	17.54	43.34	2.26	57.32	-37.90	15.60	53.5	330	267	
Vert.	5875.000	PK	48.90	32.72	17.55	43.34	2.26	58.09	-37.13	10.00	47.1	330	267	
Vert.	5925.000	PK	48.63	32.80	17.58	43.34	2.26	57.93	-37.29	-27.00	10.2	330	267	

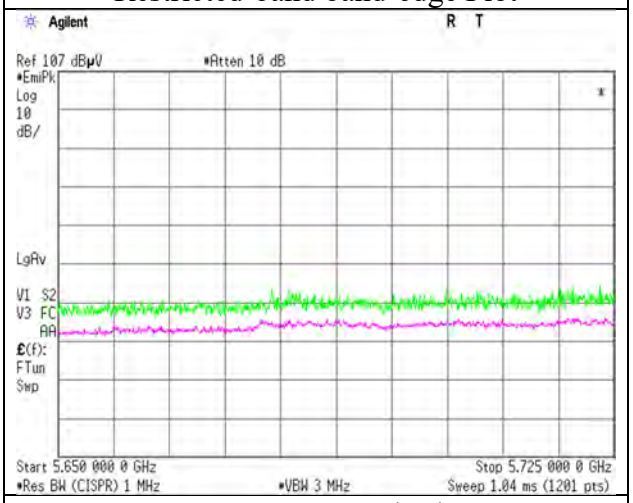
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG（{ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2019
Temperature / Humidity	26 deg.C / 35 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (SISO) ,5775 MHz

Horizontal

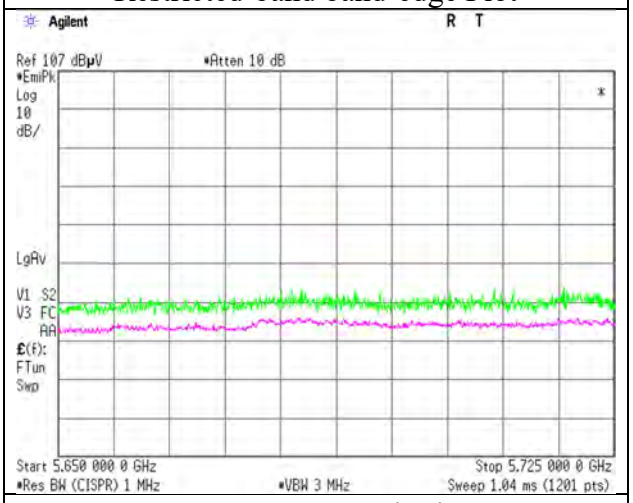
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

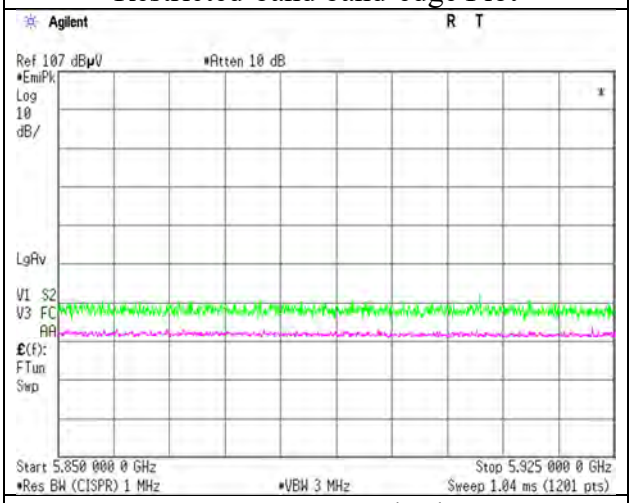
* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2019
Temperature / Humidity	26 deg.C / 35 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (SISO) ,5775 MHz

Horizontal

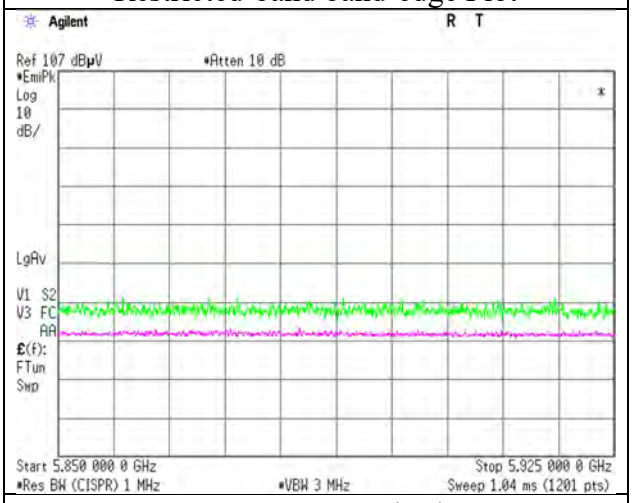
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Emission

Report No. 12656071S
Test place Shonan EMC Lab.
Semi Anechoic Chamber No.3
Date January 13, 2019
Temperature / Humidity 22 deg. C / 39 % RH
Engineer Yosuke Ishikawa
(1 GHz - 6.4 GHz)
Mode Tx, 5775 MHz
Tx, IEEE802.11ac VHT80 (MIMO)

(Calculation) (above 1GHz Outside of the restricted band)

(* PK: Peak, AV: Average, QP: Quasi-Peak)

Polarity	Frequency [MHz]	Detector	Reading [dBuV]	Ant.Fac. [dB/m]	Loss [dB]	Gain [dB]	Distance Factor [dB]	Result [dBuV/m]	Result (EIRP [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [deg.]	Remark
Hori.	5650.000	PK	41.96	32.18	17.31	33.94	2.26	59.77	-35.45	-27.00	8.4	146	147	
Hori.	5679.613	PK	43.76	32.21	17.31	33.94	2.26	61.60	-33.62	-5.09	28.5	146	147	
Hori.	5700.000	PK	43.37	32.23	17.31	33.94	2.26	61.23	-33.99	10.00	43.9	146	147	
Hori.	5720.000	PK	44.13	32.33	17.31	33.94	2.26	62.09	-33.13	15.60	48.7	146	147	
Hori.	5725.000	PK	33.69	32.35	17.31	33.94	2.26	51.67	-43.55	27.00	70.5	146	147	
Hori.	5850.000	PK	41.57	32.65	17.32	33.93	2.26	59.87	-35.35	27.00	62.3	146	147	
Hori.	5855.000	PK	41.27	32.66	17.33	33.93	2.26	59.59	-35.63	15.60	51.2	146	147	
Hori.	5875.000	PK	42.35	32.72	17.33	33.93	2.26	60.73	-34.49	10.00	44.4	146	147	
Hori.	5925.000	PK	42.15	32.80	17.34	33.93	2.26	60.62	-34.60	-27.00	**7.6**	146	147	
Vert.	5650.000	PK	41.68	32.18	17.31	33.94	2.26	59.49	-35.73	-27.00	8.7	100	97	
Vert.	5687.500	PK	44.65	32.22	17.31	33.94	2.26	62.50	-32.72	0.75	33.4	100	97	
Vert.	5700.000	PK	43.81	32.23	17.31	33.94	2.26	61.67	-33.55	10.00	43.5	100	97	
Vert.	5718.735	PK	44.94	32.32	17.31	33.94	2.26	62.89	-32.33	15.25	47.5	100	97	
Vert.	5720.000	PK	44.58	32.33	17.31	33.94	2.26	62.54	-32.68	15.60	48.2	100	97	
Vert.	5723.723	PK	44.43	32.34	17.31	33.94	2.26	62.40	-32.82	24.09	56.9	100	97	
Vert.	5725.000	PK	43.74	32.35	17.31	33.94	2.26	61.72	-33.50	27.00	60.5	100	97	
Vert.	5850.000	PK	41.37	32.65	17.32	33.93	2.26	59.67	-35.55	27.00	62.5	100	97	
Vert.	5855.000	PK	41.47	32.66	17.33	33.93	2.26	59.79	-35.43	15.60	51.0	100	97	
Vert.	5875.000	PK	41.17	32.72	17.33	33.93	2.26	59.55	-35.67	10.00	45.6	100	97	
Vert.	5925.000	PK	41.36	32.80	17.34	33.93	2.26	59.83	-35.39	-27.00	8.3	100	97	

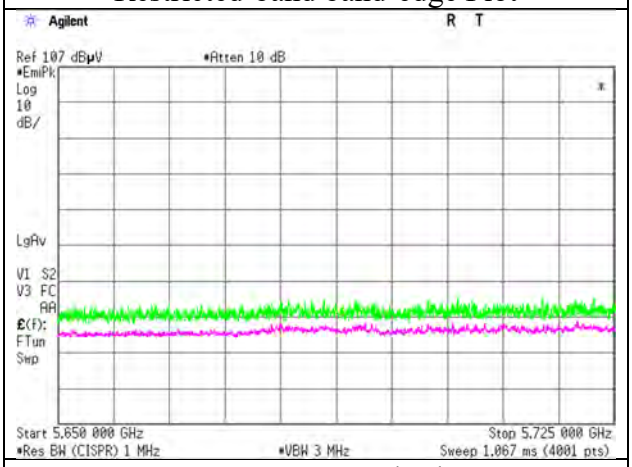
Result [dBuV/m] = Reading + Ant.Fac. + Loss (Cable+(Attenuator or Filter)(below 18 GHz)) - Gain(Amprifier) + Distance factor
Result(EIRP[dBm])=10*LOG（({ (10 ^ (Electric Field Strength [dBuV/m] / 20) * 10 ^ (-6) * Distance:3[m])) ^ 2 } / 30) *10^3)
*Other frequency noises omitted in this report were not seen or have enough margin (more than 20dB).
*The 4th harmonic was not seen so the result was its base noise level.
Distance factor : 1 GHz - 13 GHz : 20log (3.89 m / 3.0 m) = 2.26 dB
13 GHz - 40 GHz : 20log (1.0 m / 3.0 m) = -9.54 dB

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	February 20, 2019
Temperature / Humidity	26 deg.C / 35 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (MIMO) ,5775 MHz

Horizontal

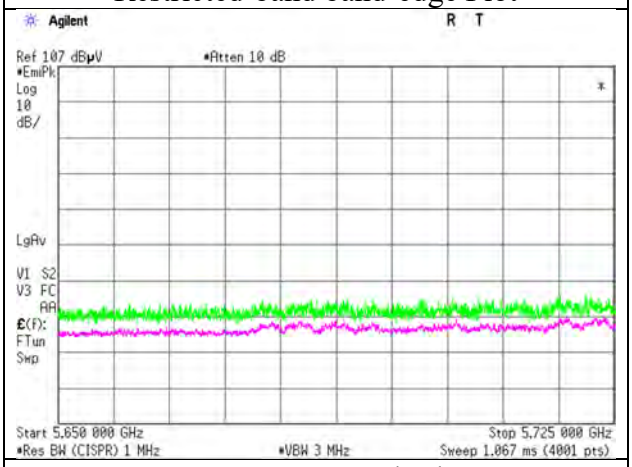
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

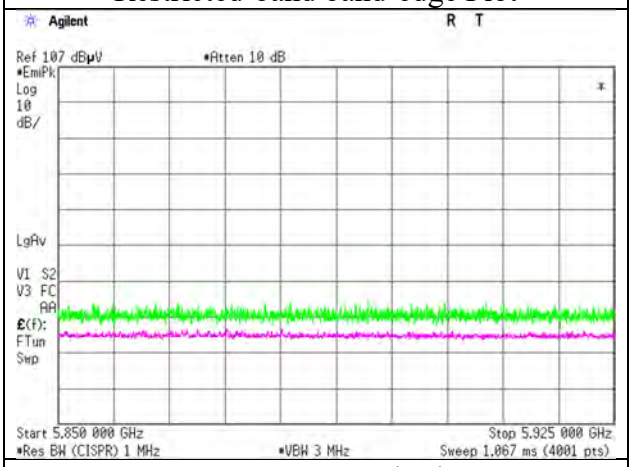
* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

Radiated Spurious Emission
(Reference Plot for band-edge)

Test place	Shonan EMC Lab.
Semi Anechoic Chamber	No.3
Date	January 13, 2019
Temperature / Humidity	22 deg.C / 39 %RH
Engineer	Yosuke Ishikawa (1 GHz – 6.4 GHz)
Mode	Tx, OFDM VHT80 (MIMO) ,5775 MHz

Horizontal

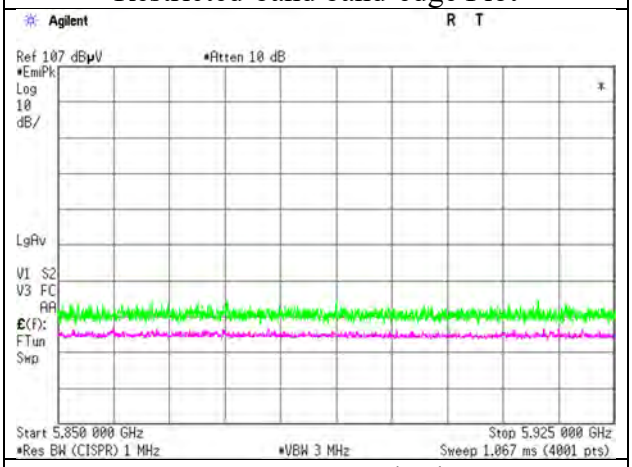
Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

Vertical

Restricted-band band-edge Plot



Trace Green : Peak Plot
Trace Purple : Average Plot

* The measurement was conducted for a sufficiently long enough time to detect any possible spurious emissions.
Final result of restricted band edge was shown in tabular data.

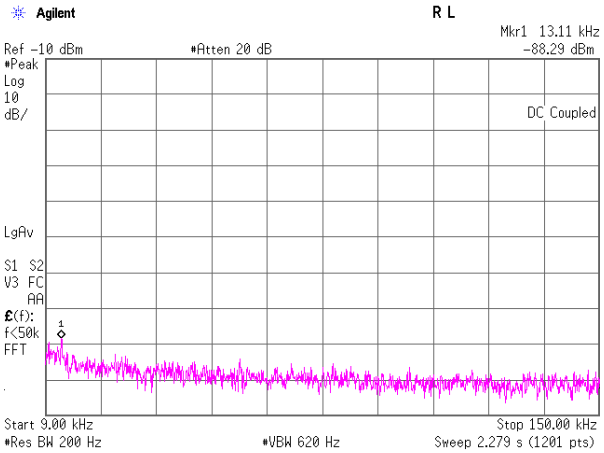
Test place	UL Japan, Inc. Shonan EMC Lab.	No.1 Measurement Room
Date	March 15, 2019	
Temperature / Humidity	24 deg.C , 35 %RH	
Engineer	Makoto Hosaka	

Spurious emission (Conducted)

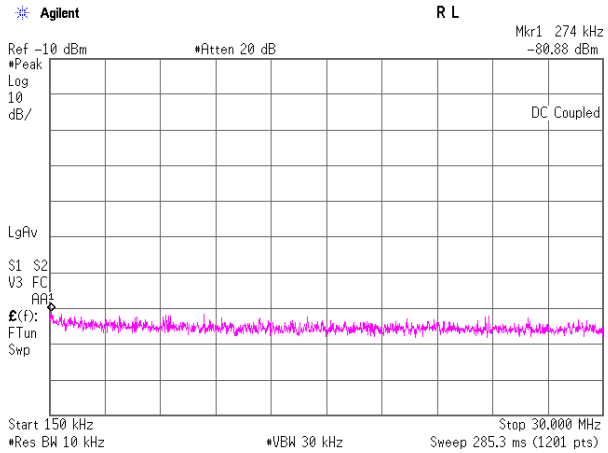
Tx, IEEE802.11ac VHT20 (SISO), PN9, worst antenna port 0, worst data mode 3 (MCS)

Tx, 5320 MHz (below 30 MHz)

9 kHz - 150 kHz



150 kHz - 30 MHz



FREQ [kHz]	Reading [dBm]	Cable Loss [dB]	Anttenuator Loss [dB]	Antenna Gain	N (Number of output)	EIRP [dBm]	Distance [m]	Ground bounce [dB]	E (field Strength) [dBuV/m]	Limit [dBuV/m]	Margin [dB]
13.110	-88.29	2.01	10.11	2.95	2	-70.21	300.00	6.00	-8.95	45.25	54.20
274.000	-80.88	2.02	10.11	2.95	2	-62.79	30.00	6.00	18.47	38.85	20.38

E [dBuV/m] = EIRP [dBm] - 20 x log (Distance [m]) + Ground bounce [dB] + 104.8 [dBuV/m]
EIRP [dBm] = Reading [dBm] + Cable Loss [dB] + Attenuator Loss [dB] + Antenna Gain [dBi] + 10 x log (N)
N: Number of output port

EMI test equipment

Local ID	Test Name	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Due Date	Calibration Interval (Month)
SAT10-15	AT	160493	Attenuator	Weinschel Corp.	54A-10	83406	2018/12/6	2019/12/30	12
SCC-G13	AT	145166	Coaxial Cable	Suhner	SUCOFLEX 102	31599/2	2018/12/25	2019/12/31	12
SOS-13	AT	146321	Humidity Indicator	CUSTOM	CTH-202	Q.C.17	2018/12/5	2019/12/31	12
SPM-07	AT	146247	Power Meter	AGILENT	8990B	MY5100272	2018/7/13	2019/7/31	12
SPSS-04	AT	146310	Power sensor	AGILENT	N1923A	MY5326009	2018/7/13	2019/7/31	12
STM-G7	AT	171614	Terminator	WEINSCHEL	M1459A	88995	2018/7/10	2019/7/31	12
SSA-03	AT	145801	Spectrum Analyzer	AGILENT	E4448A	MY48250152	2018/8/30	2019/8/31	12
SCC-C9/C10/SRSE-03	CE	145036	Coaxial Cable&RF Selector	Suhner/Suhner/TOYO	RG223U/141PE/NS4906	-/0901-271(RF Selector)	2019/4/19	2020/4/30	12
SOS-06	CE	146294	Humidity Indicator	A&D	AD-5681	4062118	2018/12/5	2019/12/31	12
SLS-05	CE (AE)	145542	LISN	Rohde & Schwarz	ENV216	100516	2019/2/19	2020/2/29	12
STM-08	CE (AE)	146190	Terminator	TME	CT-01 BP	-	2018/12/25	2019/12/31	12
SAT3-13	CE (EUT)	150923	Attenuator	JFW	50HF-003N		2019/1/25	2020/1/31	12
SLS-02	CE (EUT)	145539	LISN	Rohde & Schwarz	ENV216	100512	2019/2/20	2020/2/29	12
KJM-09	RE	145929	Measure	KOMELON	KMC-36	-	-	-	-
KSA-08	RE	145089	Spectrum Analyzer	AGILENT	E4446A	MY46180525	2018/10/7	2019/10/31	12
SAEC-01(SVSWR)	RE	145561	Semi-Anechoic Chamber	TDK	SAEC-01(SVSWR)	1	2018/7/19	2019/7/31	12
SAEC-03(NSA)	RE	145565	Semi-Anechoic Chamber	TDK	SAEC-03(NSA)	3	2019/4/8	2020/4/30	12
SAEC-03(SVSWR)	RE	145566	Semi-Anechoic Chamber	TDK	SAEC-03(SVSWR)	3	2018/7/17	2019/7/31	12
SAF-03	RE	145126	Pre Amplifier	SONOMA	310N	290213	2019/2/5	2020/2/29	12
SAF-04	RE	145127	Pre Amplifier	Toyo Corporation	TPA0118-36	2072554	2018/6/26	2019/6/30	12
SAF-06	RE	145005	Pre Amplifier	Toyo Corporation	TPA0118-36	1440491	2019/2/8	2020/2/29	12
SAF-08	RE	145007	Pre Amplifier	Toyo Corporation	HAP18-26W	19	2019/3/5	2020/3/31	12
SAF-10	RE	145129	Pre Amplifier	Toyo Corporation	HAP26-40W	10	2019/3/22	2020/3/31	12
SAJ-02	RE	146104	Antenna Tilt Jig	Intelligent System Engineering Co., Ltd	Antenna Tilt Jig	T-S002	-	-	-
SAJ-03	RE	146105	Antenna Tilt Jig	Intelligent System Engineering Co., Ltd	Antenna Tilt Jig	T-S003	-	-	-
SAT10-05	RE	145136	Attenuator(above1 GHz)	AGILENT	8493C-010	74864	2018/11/25	2019/11/30	12
SAT10-06	RE	145137	Attenuator	AGILENT	8493C-010	74865	2018/11/25	2019/11/30	12
SAT6-13	RE	167094	Attenuator	JFW	50HF-006N		2019/2/5	2020/2/29	12

EMI test equipment

Local ID	Test Name	LIMS ID	Description	Manufacturer	Model	Serial	Last Calibration Date	Calibration Due Date	Calibration Interval (Month)
SBA-03	RE	145023	Biconical Antenna	Schwarzbeck	BBA9106	91032666	2018/6/17	2019/6/30	12
SCC-C1/C2/C3/C4/C5/C10/SRSE-03	RE	145171	Coaxial Cable&RF Selector	Fujikura/Fujikura/Suhner/Suhner/Suhner/Suhner/TOYO	8D2W/12DSFA/141PE/141PE/141PE/141P	-/0901-271(RF Selector)	2019/4/19	2020/4/30	12
SCC-G05	RE	145039	Coaxial Cable	Junkosha	J12J102207-00	APR-30-15-037	2019/1/25	2020/1/31	12
SCC-G15	RE	145176	Coaxial Cable	Suhner	SUCOFLEX 102	32703/2	2019/3/27	2020/3/31	12
SCC-G22	RE	145180	Coaxial Cable	Suhner	SUCOFLEX 104	296199/4	2018/5/11	2019/5/31	12
SCC-G33	RE	145184	Coaxial Cable	Junkosha	MWX241-01000KMSKMS	-	2018/4/20	2019/4/30	12
SCC-G40	RE	166491	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S005	2019/1/25	2020/1/31	12
SCC-G41	RE	151617	Coaxial Cable	Junkosha	MWX221-01000NFSNMS/B	1612S006	2019/1/25	2020/1/31	12
SCC-G43	RE	156380	Coaxial Cable	HUBER+SUNER	SUCOFLEX_104_E	SN MY 13406/4E	2018/7/10	2019/7/31	12
SCC-G44	RE	168300	Coaxial Cable	HUBER+SUNER	SUCOFLEX 104	800070/4A	2019/3/26	2020/3/31	12
SCC-G45	RE	168301	Coaxial Cable	HUBER+SUNER	SUCOFLEX 102 E	800137/2EA	2019/3/26	2020/3/31	12
SFL-03	RE	145377	Highpass Filter	MICRO-TRONICS	HPM50112	28	2018/11/16	2019/11/30	12
SHA-01	RE	145383	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-725	2018/7/23	2019/7/31	12
SHA-03	RE	145501	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-739	2018/7/23	2019/7/31	12
SHA-04	RE	145512	Horn Antenna	ETS LINDGREN	Sep-60	LM3640	2018/7/23	2019/7/31	12
SHA-06	RE	145514	Horn Antenna	ETS LINDGREN	Oct-60	LM3459	2018/7/23	2019/7/31	12
SLA-07	RE	145529	Logperiodic Antenna	Schwarzbeck	VUSLP9111B	196	2018/6/17	2019/6/30	12
SOS-01	RE	146316	Humidity Indicator	A&D	AD-5681	4062555	2018/10/25	2019/10/31	12
SOS-05	RE	146293	Humidity Indicator	A&D	AD-5681	4062518	2018/10/25	2019/10/31	12
SRENT-20	RE	176115	Pre Amplifier	Agielnt	8449B	3008A02595	2018/12/18	2019/12/31	12
SSA-02	RE	145800	Spectrum Analyzer	AGILENT	E4448A	MY48250106	2018/3/5	2019/3/31 *1)	12
STS-01	RE	145792	Digital Hitester	HIOKI	3805-50	80997812	2018/10/16	2019/10/31	12
STR-08	RE, CE	150463	Test Receiver	Rohde & Schwarz	ESW44	101581	2018/11/28	2019/11/30	12
COTS-SEMI-5	RE,CE	170932	EMI Software	TSJ	TEPTO-DV3(RE,CE,ME,PE)	-	-	-	-
KJM-02	RE,CE	146432	Measure	TAJIMA	GL19-55	-	-	-	-
STS-03	RE,CE	146210	Digital Hitester	HIOKI	3805-50	80997823	2018/10/16	2019/10/31	12

*1) This test equipment was used for the tests before the expiration date of the calibration.

The expiration date of the calibration is the end of the expired month.
As for some calibrations performed after the tested dates , those test equipment have been controlled by means of an unbroken chains of calibrations .

All equipment is calibrated with valid calibrations . Each measurement data is traceable to the national or international standards Test Item:

CE: Conducted emission,
RE: Radiated emission,
AT: Antenna terminal conducted test