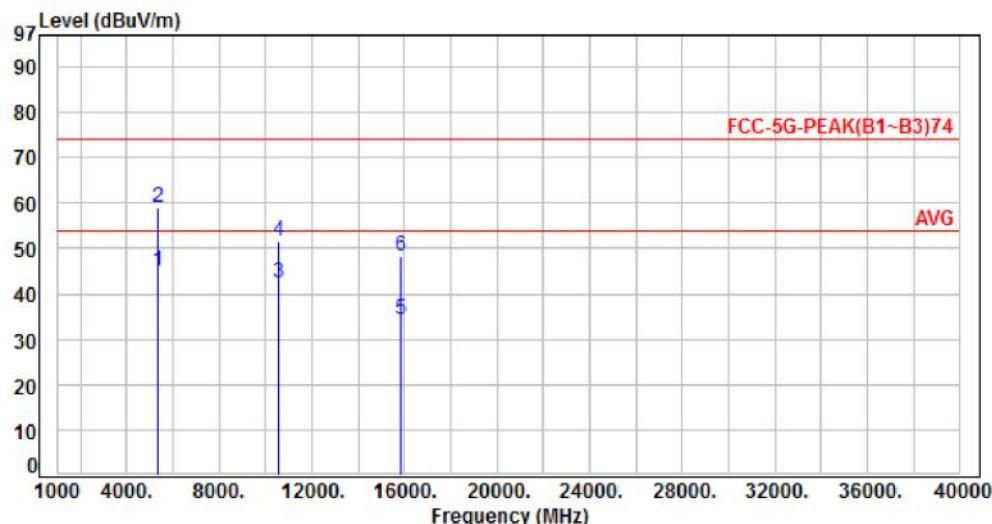




Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 5, CH54	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5350.00	-6.06	51.18	45.12	54.00	-8.88	Average	114	173	P
2	5350.00	-6.06	65.13	59.07	74.00	-14.93	Peak	114	273	P
3	10540.00	0.79	41.50	42.29	54.00	-11.71	Average	139	81	P
4	10540.00	0.79	51.03	51.82	74.00	-22.18	Peak	139	81	P
5	15810.00	5.38	28.76	34.14	54.00	-19.86	Average	117	251	P
6	15810.00	5.38	42.81	48.19	74.00	-25.81	Peak	117	251	P

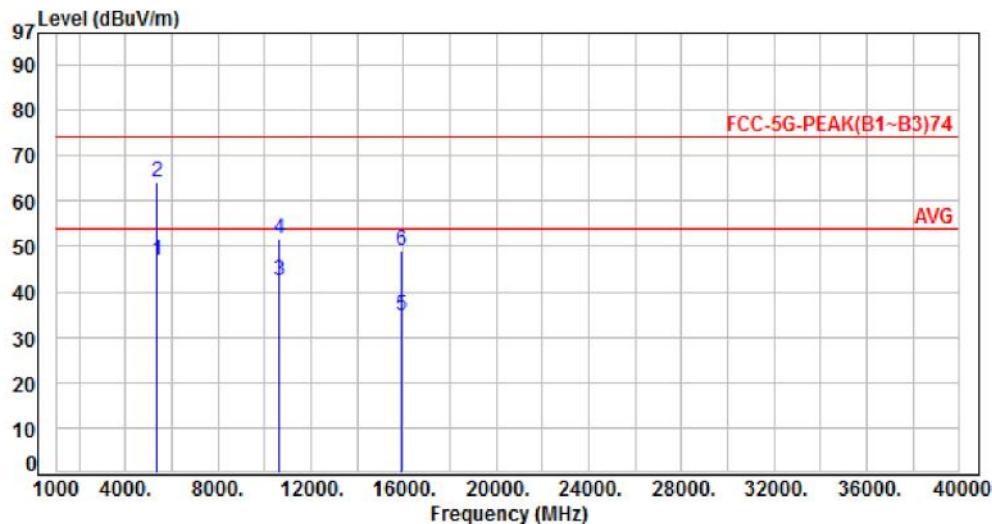
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 5, CH62	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5350.00	-6.06	52.84	46.78	54.00	-7.22	Average	112	193	P
2	5350.00	-6.06	70.11	64.05	74.00	-9.95	Peak	112	193	P
3	10620.00	0.90	41.35	42.25	54.00	-11.75	Average	138	299	P
4	10620.00	0.90	50.56	51.46	74.00	-22.54	Peak	138	299	P
5	15930.00	5.37	29.48	34.85	54.00	-19.15	Average	122	198	P
6	15930.00	5.37	43.84	49.21	74.00	-24.79	Peak	122	198	P

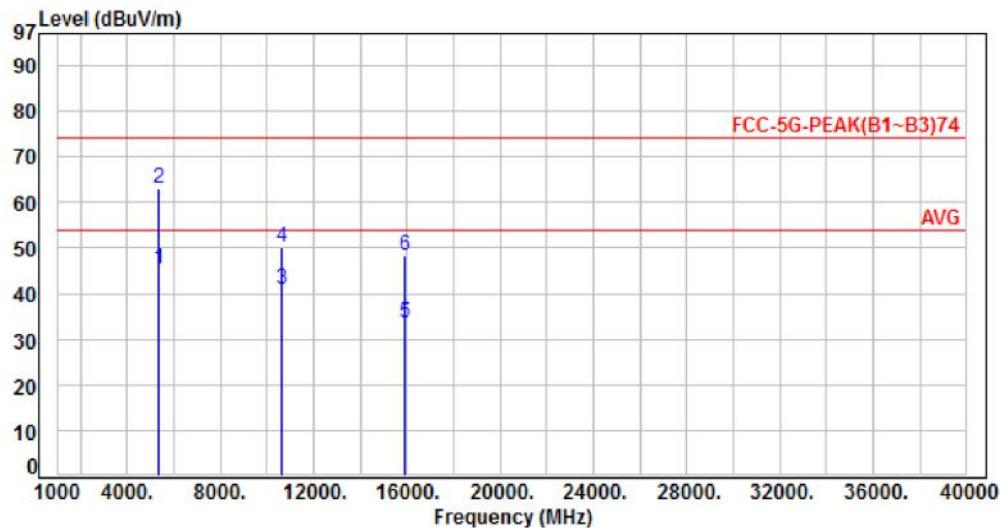
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, CH62	Temperature	: 24°C
Test Date	: Feb. 16, 2017	Humidity	: 63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F	P/F
1	5350.00	-6.06	51.49	45.43	54.00	-8.57	Average	135	241	P
2	5350.00	-6.06	69.00	62.94	74.00	-11.06	Peak	135	251	P
3	10620.00	0.90	40.15	41.05	54.00	-12.95	Average	119	310	P
4	10620.00	0.90	49.38	50.28	74.00	-23.72	Peak	119	310	P
5	15930.00	5.37	28.24	33.61	54.00	-20.39	Average	132	109	P
6	15930.00	5.37	42.97	48.34	74.00	-25.66	Peak	132	109	P

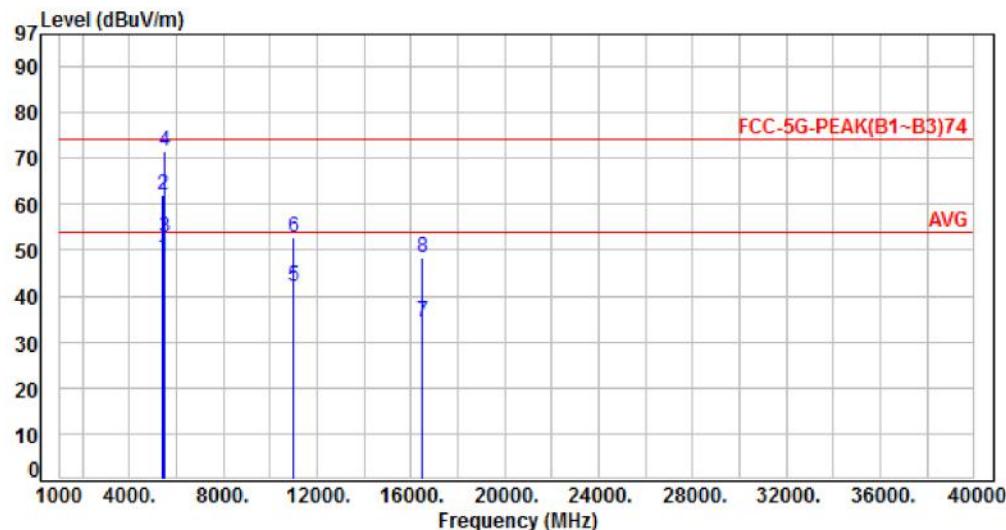
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 5, CH102	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5460.00	-5.80	53.98	48.18	54.00	-5.82	Average	126	182	P
2	5460.00	-5.80	67.69	61.89	74.00	-12.11	Peak	126	182	P
3	5470.00	-5.78	58.59	52.81	54.00	-1.19	Average	126	182	P
4	5470.00	-5.78	77.34	71.56	74.00	-2.44	Peak	126	182	P
5	11000.00	1.41	40.77	42.18	54.00	-11.82	Average	262	284	P
6	11000.00	1.41	51.15	52.56	74.00	-21.44	Peak	262	284	P
7	16500.00	6.62	27.66	34.28	54.00	-19.72	Average	163	211	P
8	16500.00	6.62	41.72	48.34	74.00	-25.66	Peak	163	211	P

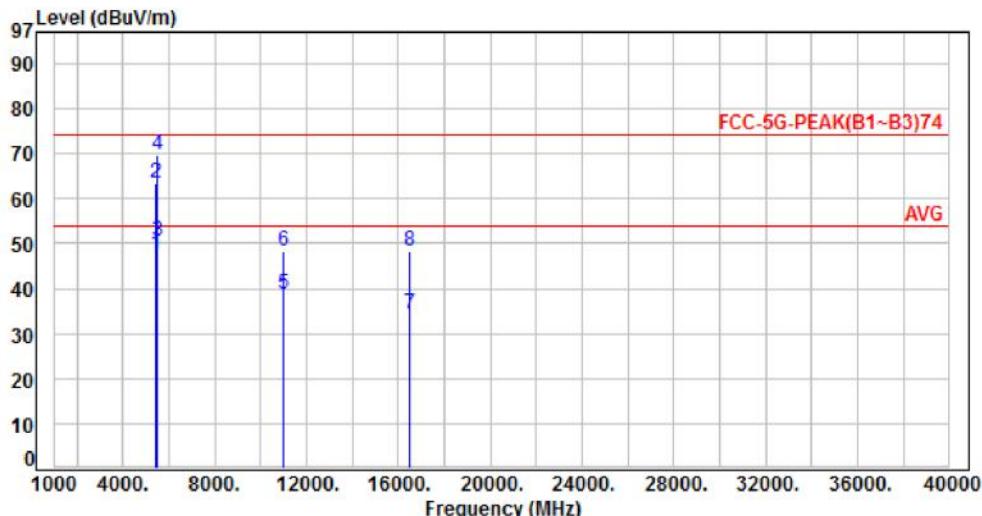
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 5, CH102	Temperature	: 24°C
Test Date	: Feb. 16, 2017	Humidity	: 63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F (deg)
1	5460.00	-5.80	53.36	47.56	54.00	-6.44	Average	100	155 P
2	5460.00	-5.80	69.14	63.34	74.00	-10.66	Peak	100	155 P
3	5470.00	-5.78	56.33	50.55	54.00	-3.45	Average	100	155 P
4	5470.00	-5.78	75.44	69.66	74.00	-4.34	Peak	100	155 P
5	11000.00	1.41	37.35	38.76	54.00	-15.24	Average	100	153 P
6	11000.00	1.41	47.03	48.44	74.00	-25.56	Peak	100	153 P
7	16500.00	6.62	27.51	34.13	54.00	-19.87	Average	100	178 P
8	16500.00	6.62	41.62	48.24	74.00	-25.76	Peak	100	178 P

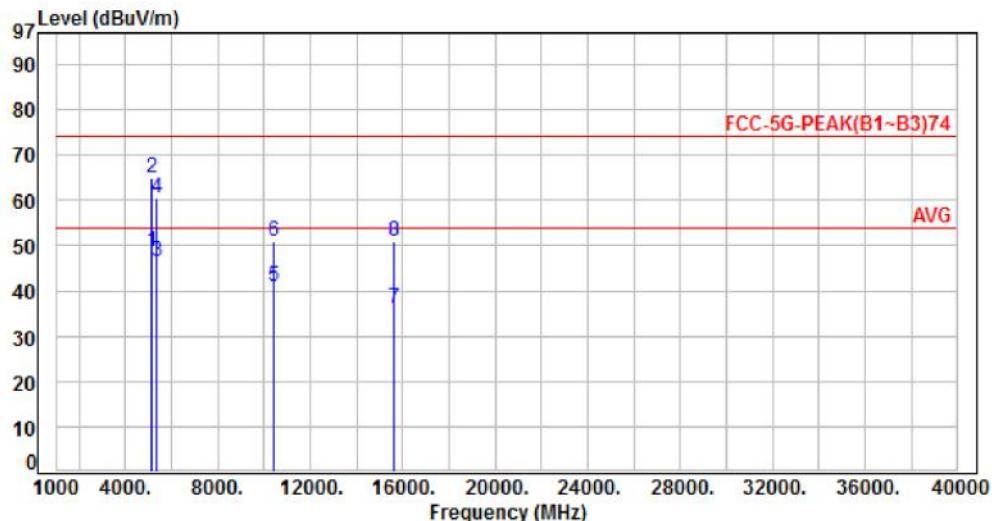
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 6, CH42	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-6.54	55.32	48.78	54.00	-5.22	Average	109	190	P
2	5150.00	-6.54	71.31	64.77	74.00	-9.23	Peak	142	190	P
3	5350.00	-6.06	52.66	46.60	54.00	-7.40	Average	142	190	P
4	5350.00	-6.06	66.51	60.45	74.00	-13.55	Peak	142	190	P
5	10420.00	0.69	40.13	40.82	54.00	-13.18	Average	198	245	P
6	10420.00	0.69	50.06	50.75	74.00	-23.25	Peak	193	245	P
7	15630.00	5.37	30.79	36.16	54.00	-17.84	Average	188	273	P
8	15630.00	5.37	45.47	50.84	74.00	-23.16	Peak	188	273	P

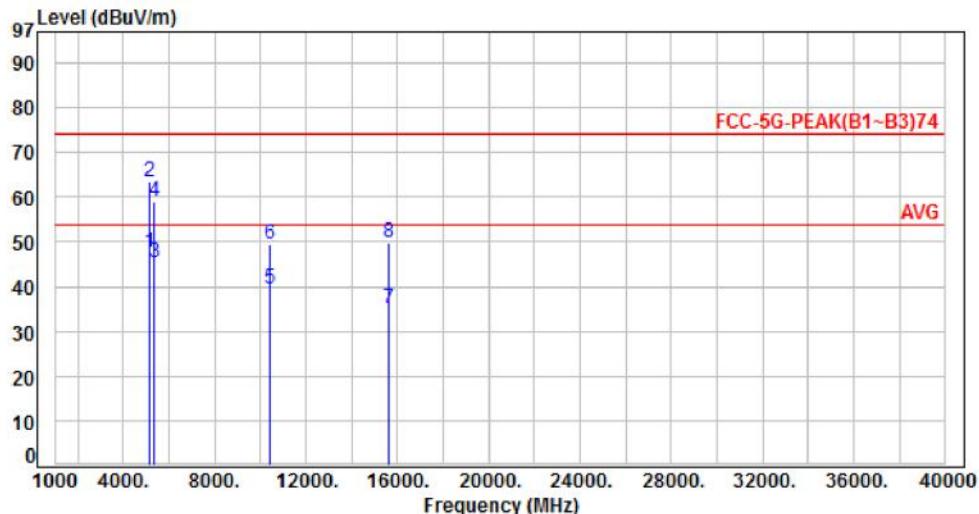
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 6, CH42	Temperature	: 24°C
Test Date	: Feb. 16, 2017	Humidity	: 63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5150.00	-6.54	54.07	47.53	54.00	-6.47	Average	117	223	P
2	5150.00	-6.54	70.09	63.55	74.00	-10.45	Peak	117	223	P
3	5350.00	-6.06	51.34	45.28	54.00	-8.72	Average	117	223	P
4	5350.00	-6.06	65.18	59.12	74.00	-14.88	Peak	117	223	P
5	10420.00	0.69	38.92	39.61	54.00	-14.39	Average	162	255	P
6	10420.00	0.69	48.74	49.43	74.00	-24.57	Peak	162	255	P
7	15630.00	5.37	29.73	35.10	54.00	-18.90	Average	142	88	P
8	15630.00	5.37	44.24	49.61	74.00	-24.39	Peak	142	88	P

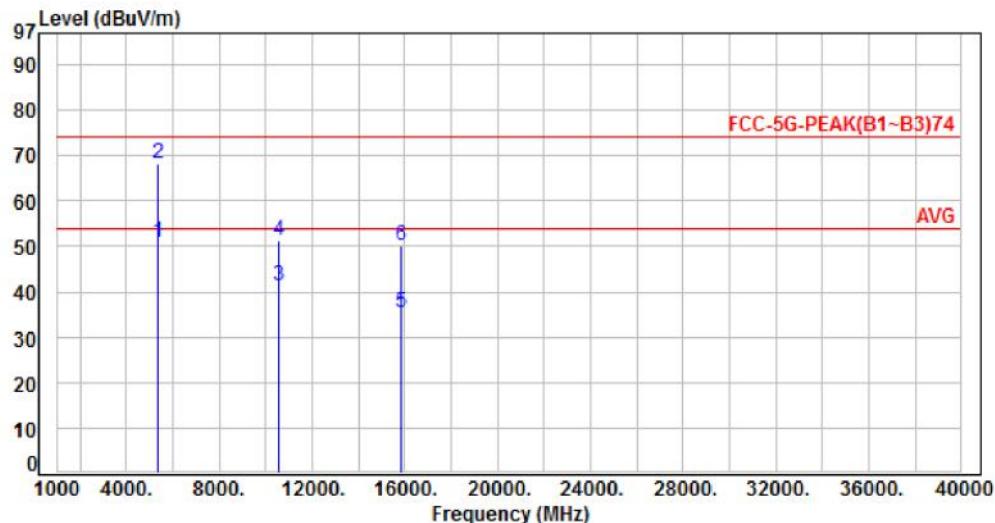
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 6, CH58	Temperature	: 24°C
Test Date	: Feb. 16, 2017	Humidity	: 63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5350.00	-6.06	56.79	50.73	54.00	-3.27	Average	249	188	P
2	5350.00	-6.06	74.32	68.26	74.00	-5.74	Peak	249	188	P
3	10580.00	0.85	40.61	41.46	54.00	-12.54	Average	212	248	P
4	10580.00	0.85	50.43	51.28	74.00	-22.72	Peak	212	248	P
5	15870.00	5.37	29.96	35.33	54.00	-18.67	Average	192	275	P
6	15870.00	5.37	44.71	50.08	74.00	-23.92	Peak	192	275	P

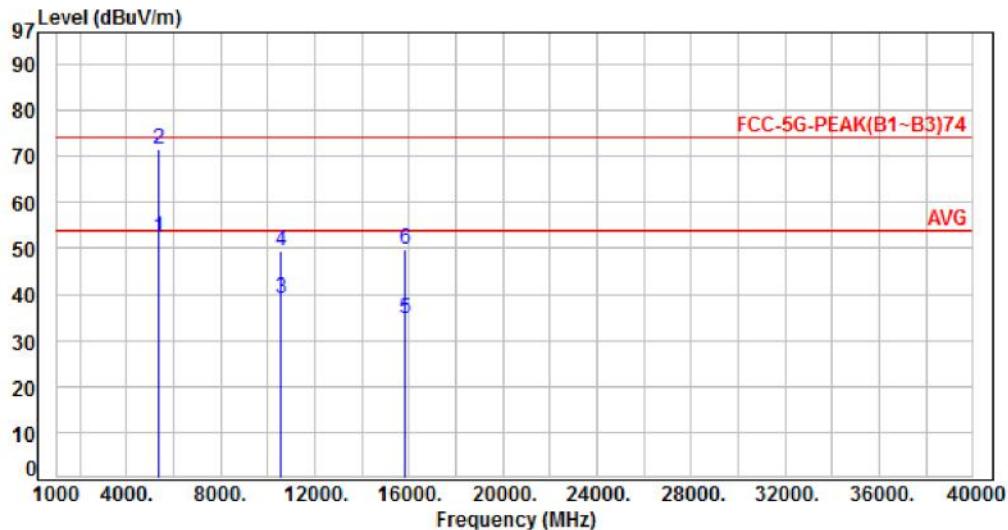
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 6, CH58	Temperature	: 24°C
Test Date	: Feb. 16, 2017	Humidity	: 63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F (deg)
1	5350.00	-6.06	58.29	52.23	54.00	-1.77	Average	128	154 P
2	5350.00	-6.06	77.46	71.40	74.00	-2.60	Peak	128	154 P
3	10580.00	0.85	38.19	39.04	54.00	-14.96	Average	100	193 P
4	10580.00	0.85	48.66	49.51	74.00	-24.49	Peak	100	193 P
5	15870.00	5.37	29.44	34.81	54.00	-19.19	Average	137	192 P
6	15870.00	5.37	44.36	49.73	74.00	-24.27	Peak	137	192 P

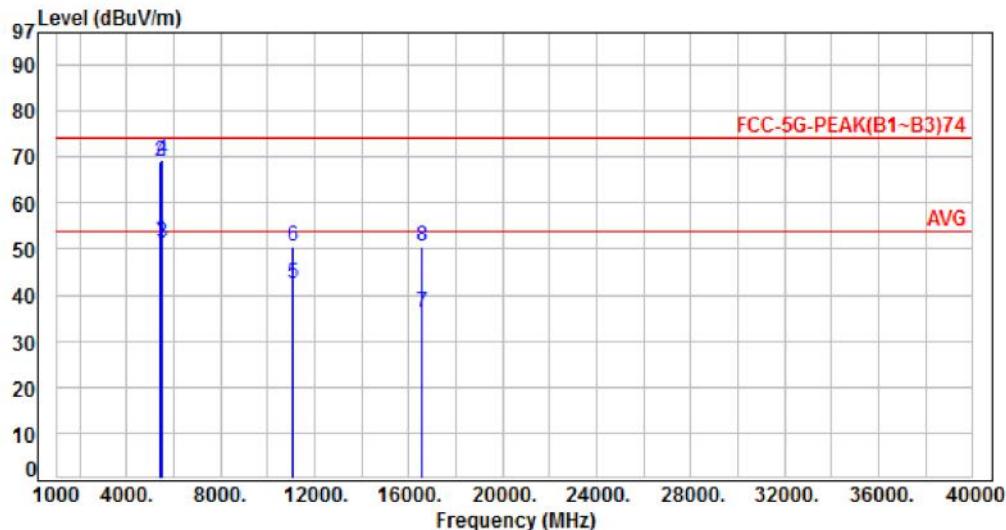
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 6, CH106	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5460.00	-5.80	57.91	52.11	54.00	-1.89	Average	258	184	P
2	5460.00	-5.80	74.65	68.85	74.00	-5.15	Peak	258	184	P
3	5470.00	-5.78	56.88	51.10	54.00	-2.90	Average	258	184	P
4	5470.00	-5.78	74.99	69.21	74.00	-4.79	Peak	258	184	P
5	11060.00	1.48	40.90	42.38	54.00	-11.62	Average	100	284	P
6	11060.00	1.48	49.20	50.68	74.00	-23.32	Peak	100	284	P
7	16590.00	7.13	28.98	36.11	54.00	-17.89	Average	162	293	P
8	16590.00	7.13	43.42	50.55	74.00	-23.45	Peak	162	293	P

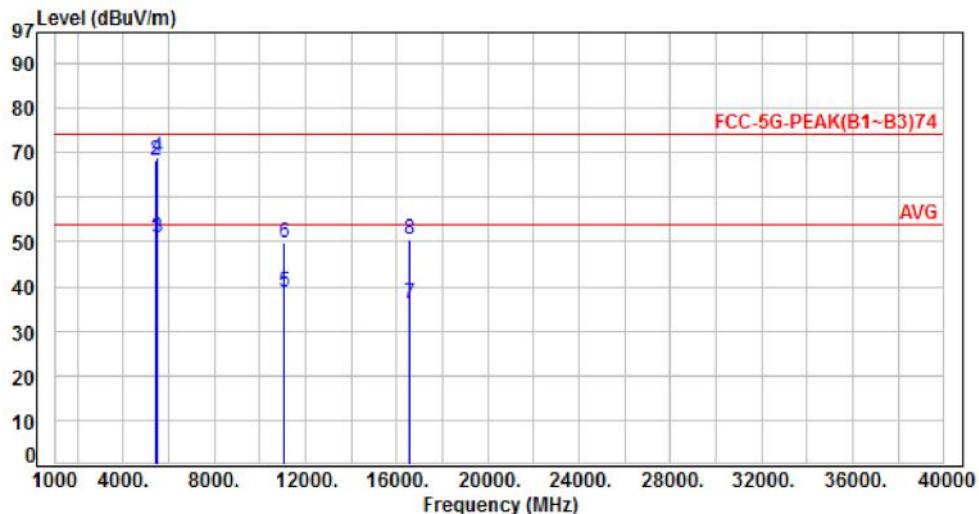
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 6, CH106	Temperature	:	24°C
Test Date	:	Feb. 16, 2017	Humidity	:	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5460.00	-5.80	56.59	50.79	54.00	-3.21	Average	100	156	P
2	5460.00	-5.80	74.01	68.21	74.00	-5.79	Peak	100	156	P
3	5470.00	-5.78	56.55	50.77	54.00	-3.23	Average	100	156	P
4	5470.00	-5.78	74.91	69.13	74.00	-4.87	Peak	100	156	P
5	11060.00	1.48	37.41	38.89	54.00	-15.11	Average	100	224	P
6	11060.00	1.48	48.14	49.62	74.00	-24.38	Peak	100	224	P
7	16590.00	7.13	28.91	36.04	54.00	-17.96	Average	102	214	P
8	16590.00	7.13	43.56	50.69	74.00	-23.31	Peak	102	214	P

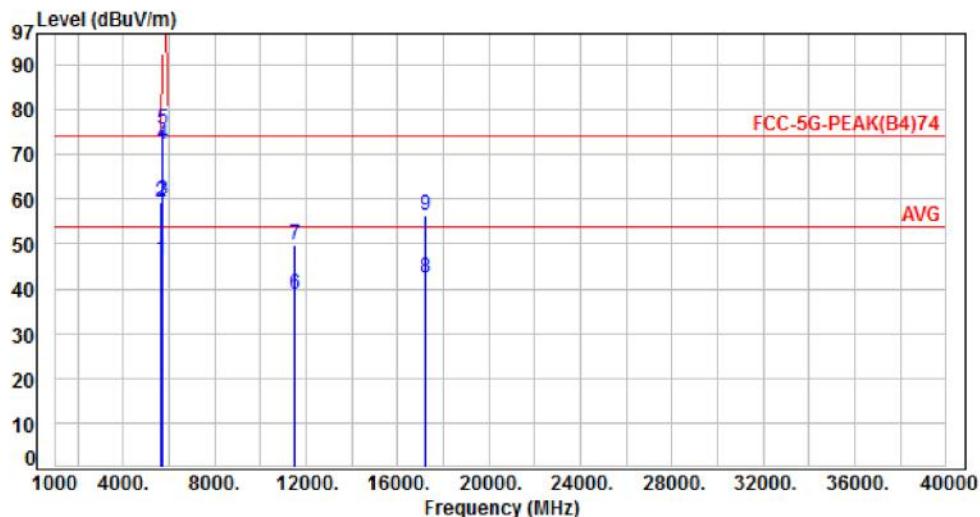
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 1, CH149	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F (deg)
1	5650.00	-5.77	52.38	46.61	54.00	-7.39	Average	119	185 P
2	5650.00	-5.77	65.17	59.40	74.00	-14.60	Peak	119	185 P
3	5700.00	-5.79	65.38	59.59	105.20	-45.61	Peak	119	185 P
4	5720.00	-5.80	78.19	72.39	110.80	-38.41	Peak	119	185 P
5	5725.00	-5.80	81.27	75.47	122.20	-46.73	Peak	119	185 P
6	11490.00	2.06	36.83	38.89	54.00	-15.11	Average	100	293 P
7	11490.00	2.06	47.82	49.88	74.00	-24.12	Peak	100	293 P
8	17235.00	10.97	31.54	42.51	54.00	-11.49	Average	100	132 P
9	17235.00	10.97	45.44	56.41	74.00	-17.59	Peak	100	132 P

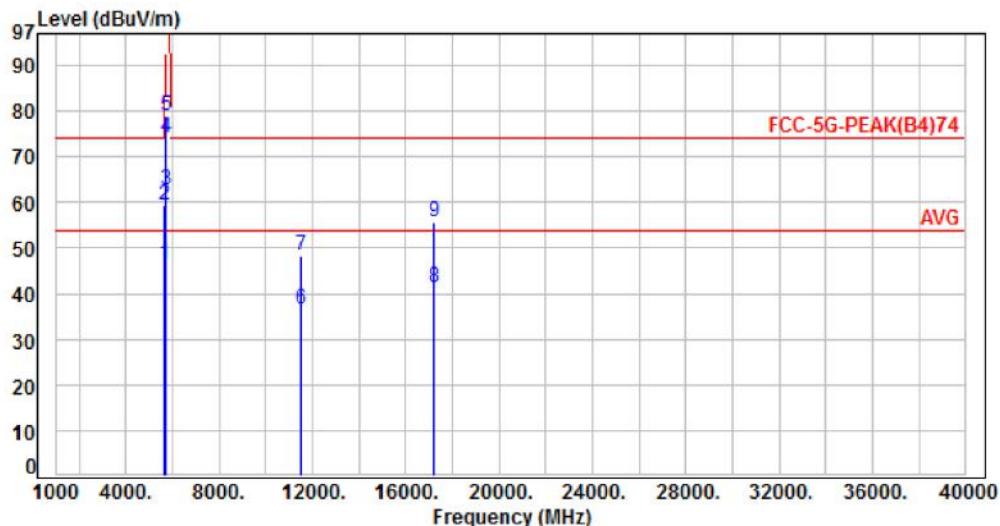
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: Mode 1, CH149	Temperature	: 24°C
Test Date	: Feb. 16, 2017	Humidity	: 63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F (deg)
1	5650.00	-5.77	52.25	46.48	54.00	-7.52	Average	100	243 P
2	5650.00	-5.77	65.10	59.33	74.00	-14.67	Peak	100	243 P
3	5700.00	-5.79	68.40	62.61	105.20	-42.59	Peak	100	243 P
4	5720.00	-5.80	80.12	74.32	110.80	-36.48	Peak	100	243 P
5	5725.00	-5.80	84.64	78.84	122.20	-43.36	Peak	100	243 P
6	11490.00	2.06	34.29	36.35	54.00	-17.65	Average	117	57 P
7	11490.00	2.06	46.31	48.37	74.00	-25.63	Peak	117	57 P
8	17235.00	10.97	30.25	41.22	54.00	-12.78	Average	180	193 P
9	17235.00	10.97	44.62	55.59	74.00	-18.41	Peak	180	193 P

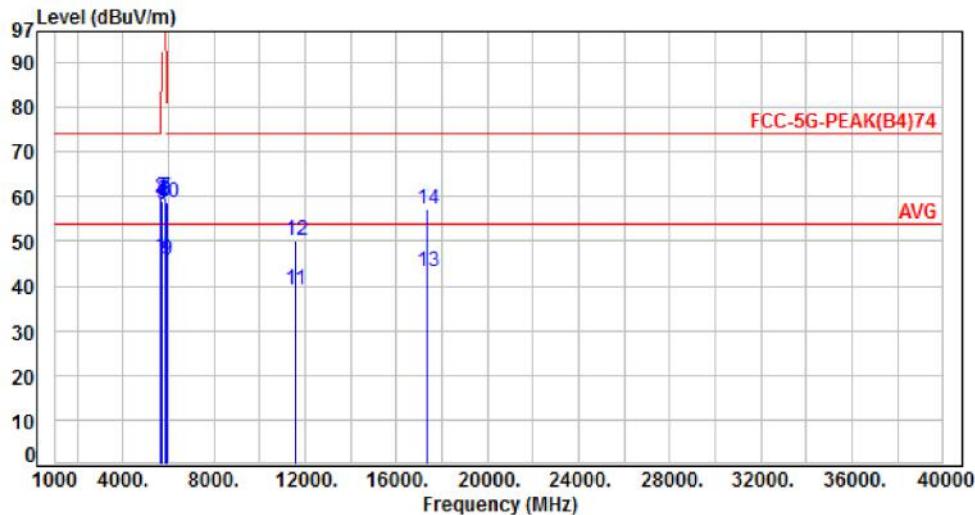
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 1, CH157	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.77	52.22	46.45	54.00	-7.55	Average	126	197	P
2	5650.00	-5.77	65.48	59.71	74.00	-14.29	Peak	126	197	P
3	5700.00	-5.79	64.73	58.94	105.20	-46.26	Peak	126	197	P
4	5720.00	-5.80	64.57	58.77	110.80	-52.03	Peak	126	197	P
5	5725.00	-5.80	64.06	58.26	122.20	-63.94	Peak	126	197	P
6	5850.00	-5.84	64.78	58.94	122.20	-63.26	Peak	126	197	P
7	5855.00	-5.84	65.43	59.59	110.80	-51.21	Peak	126	197	P
8	5875.00	-5.85	64.91	59.06	105.20	-46.14	Peak	126	197	P
9	5925.00	-5.87	51.75	45.88	54.00	-8.12	Average	126	197	P
10	5925.00	-5.87	64.58	58.71	74.00	-15.29	Peak	126	197	P
11	11570.00	2.09	37.02	39.11	54.00	-14.89	Average	146	288	P
12	11570.00	2.09	48.13	50.22	74.00	-23.78	Peak	146	288	P
13	17355.00	11.72	31.61	43.33	54.00	-10.67	Average	100	151	P
14	17355.00	11.72	45.56	57.28	74.00	-16.72	Peak	100	151	P

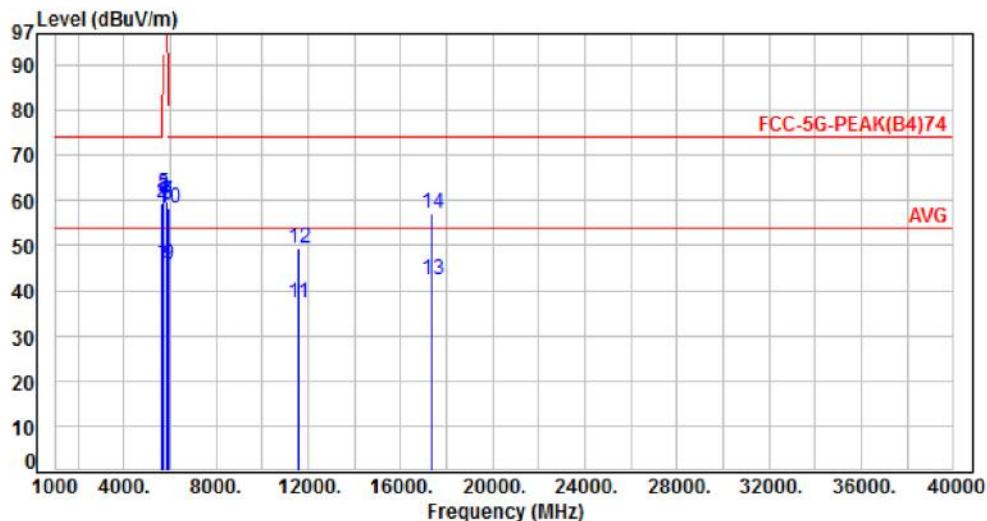
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 1, CH157	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.77	51.98	46.21	54.00	-7.79	Average	144	301	P
2	5650.00	-5.77	65.11	59.34	74.00	-14.66	Peak	144	301	P
3	5700.00	-5.79	66.93	61.14	105.20	-44.06	Peak	144	301	P
4	5720.00	-5.80	66.03	60.23	110.80	-50.57	Peak	144	301	P
5	5725.00	-5.80	67.23	61.43	122.20	-60.77	Peak	144	301	P
6	5850.00	-5.84	64.78	58.94	122.20	-63.26	Peak	126	197	P
7	5855.00	-5.84	65.43	59.59	110.80	-51.21	Peak	126	197	P
8	5875.00	-5.85	64.91	59.06	105.20	-46.14	Peak	126	197	P
9	5925.00	-5.87	51.75	45.88	54.00	-8.12	Average	126	197	P
10	5925.00	-5.87	64.26	58.39	74.00	-15.61	Peak	144	301	P
11	11570.00	2.09	35.22	37.31	54.00	-16.69	Average	122	250	P
12	11570.00	2.09	47.43	49.52	74.00	-24.48	Peak	122	250	P
13	17355.00	11.72	30.80	42.52	54.00	-11.48	Average	128	181	P
14	17355.00	11.72	45.56	57.28	74.00	-16.72	Peak	128	181	P

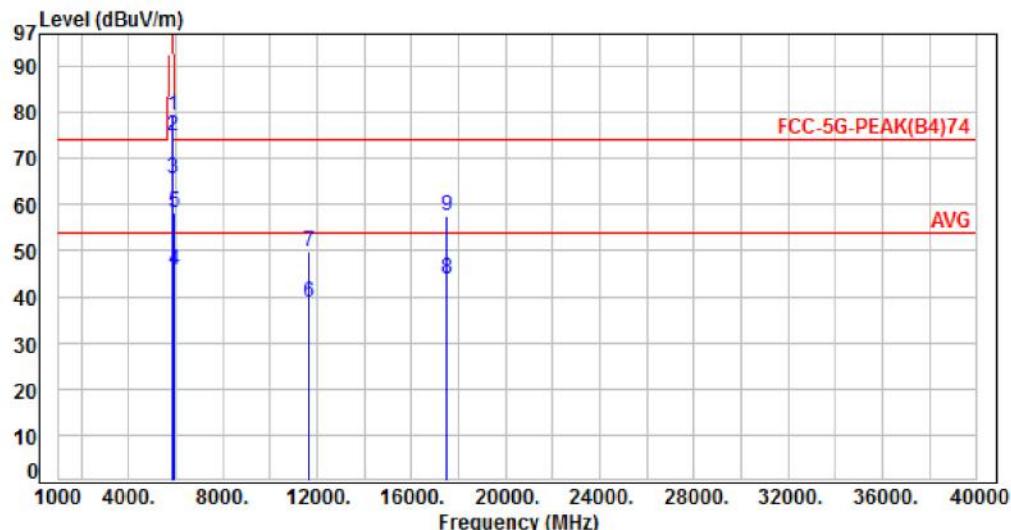
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: Mode 1, CH165	Temperature	: 24°C
Test Date	: Feb. 16, 2017	Humidity	: 63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-5.84	85.31	79.47	122.20	-42.73	Peak	162	213	P
2	5855.00	-5.84	80.67	74.83	110.80	-35.97	Peak	162	213	P
3	5875.00	-5.85	71.54	65.69	105.20	-39.51	Peak	162	213	P
4	5925.00	-5.87	51.57	45.70	54.00	-8.30	Average	162	213	P
5	5925.00	-5.87	64.16	58.29	74.00	-15.71	Peak	162	213	P
6	11650.00	2.12	36.62	38.74	54.00	-15.26	Average	173	248	P
7	11650.00	2.12	47.53	49.65	74.00	-24.35	Peak	173	248	P
8	17475.00	12.46	31.31	43.77	54.00	-10.23	Average	149	126	P
9	17475.00	12.46	45.13	57.59	74.00	-16.41	Peak	149	126	P

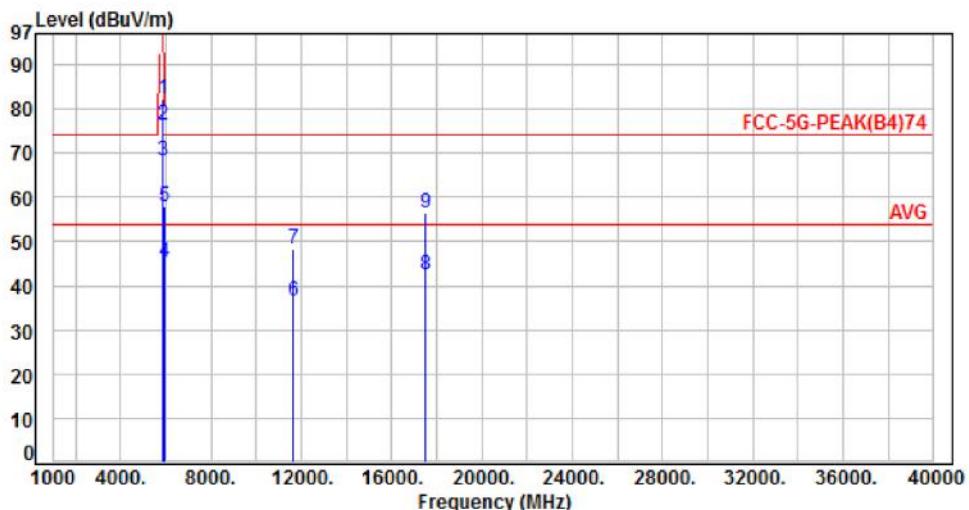
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 1, CH165	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-5.84	88.06	82.22	122.20	-39.98	Peak	151	277	P
2	5855.00	-5.84	82.36	76.52	110.80	-34.28	Peak	151	277	P
3	5875.00	-5.85	74.14	68.29	105.20	-36.91	Peak	151	277	P
4	5925.00	-5.87	51.13	45.26	54.00	-8.74	Average	151	277	P
5	5925.00	-5.87	63.63	57.76	74.00	-16.24	Peak	151	277	P
6	11650.00	2.12	34.30	36.42	54.00	-17.58	Average	132	101	P
7	11650.00	2.12	46.03	48.15	74.00	-25.85	Peak	132	101	P
8	17475.00	12.46	29.96	42.42	54.00	-11.58	Average	147	281	P
9	17475.00	12.46	43.93	56.39	74.00	-17.61	Peak	147	281	P

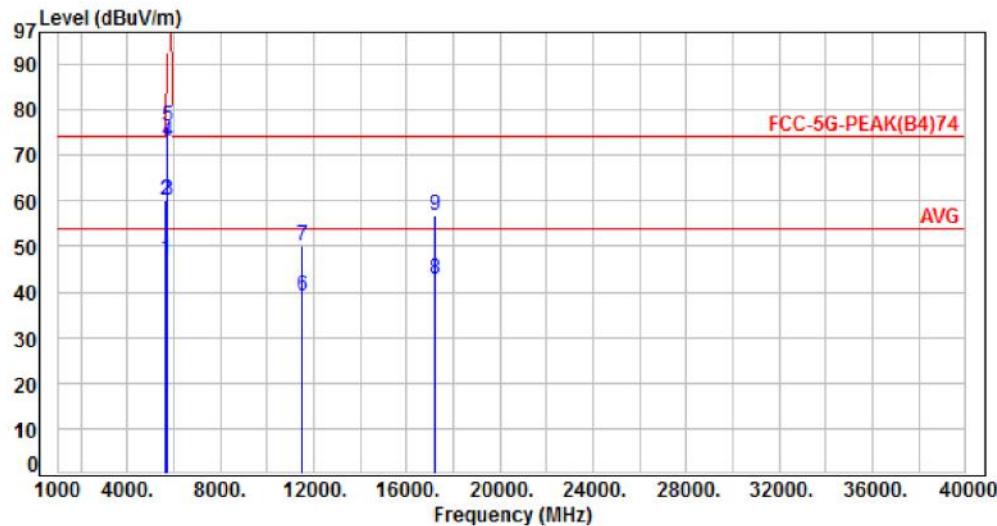
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 4, CH149	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.77	53.12	47.35	54.00	-6.65	Average	127	188	P
2	5650.00	-5.77	65.87	60.10	74.00	-13.90	Peak	127	188	P
3	5700.00	-5.79	65.92	60.13	105.20	-45.07	Peak	127	188	P
4	5720.00	-5.80	78.65	72.85	110.80	-37.95	Peak	127	188	P
5	5725.00	-5.80	82.03	76.23	122.20	-45.97	Peak	127	188	P
6	11490.00	2.06	36.92	38.98	54.00	-15.02	Average	103	289	P
7	11490.00	2.06	47.97	50.03	74.00	-23.97	Peak	103	289	P
8	17235.00	10.97	31.83	42.80	54.00	-11.20	Average	100	128	P
9	17235.00	10.97	45.79	56.76	74.00	-17.24	Peak	100	128	P

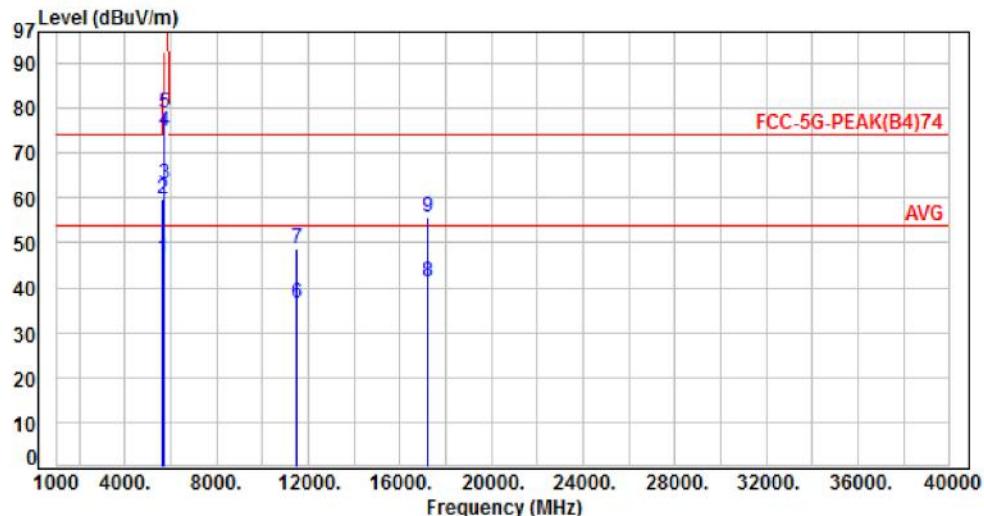
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 4, CH149	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.77	52.41	46.64	54.00	-7.36	Average	100	229	P
2	5650.00	-5.77	65.34	59.57	74.00	-14.43	Peak	100	229	P
3	5700.00	-5.79	68.79	63.00	105.20	-42.20	Peak	100	229	P
4	5720.00	-5.80	80.63	74.83	110.80	-35.97	Peak	100	229	P
5	5725.00	-5.80	84.85	79.05	122.20	-43.15	Peak	100	229	P
6	11490.00	2.06	34.59	36.65	54.00	-17.35	Average	132	68	P
7	11490.00	2.06	46.53	48.59	74.00	-25.41	Peak	132	68	P
8	17235.00	10.97	30.44	41.41	54.00	-12.59	Average	176	202	P
9	17235.00	10.97	44.81	55.78	74.00	-18.22	Peak	176	202	P

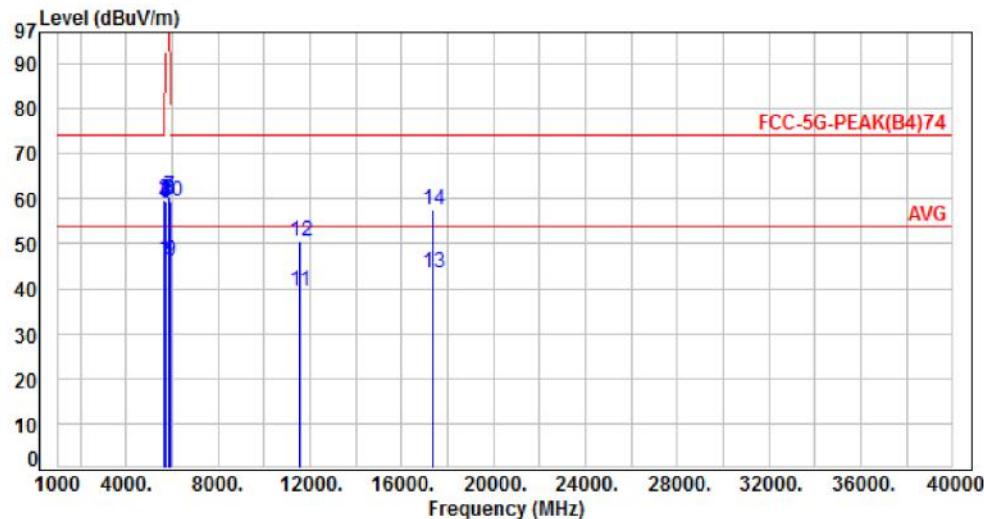
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 4, CH157	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%

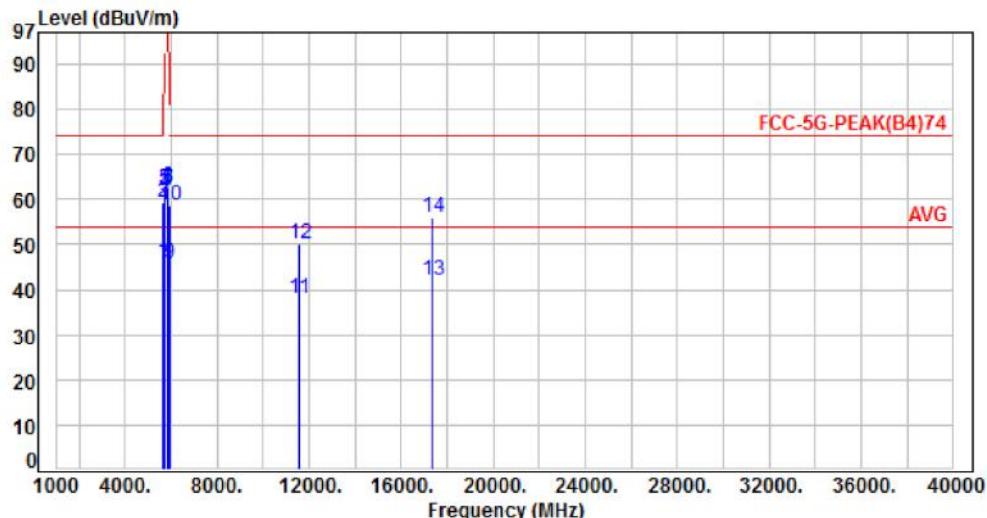


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F (deg)
1	5650.00	-5.77	52.37	46.60	54.00	-7.40	Average	138	217 P
2	5650.00	-5.77	65.66	59.89	74.00	-14.11	Peak	138	217 P
3	5700.00	-5.79	65.18	59.39	105.20	-45.81	Peak	138	217 P
4	5720.00	-5.80	65.14	59.34	110.80	-51.46	Peak	138	217 P
5	5725.00	-5.80	64.88	59.08	122.20	-63.12	Peak	138	217 P
6	5850.00	-5.84	65.41	59.57	122.20	-62.63	Peak	138	217 P
7	5855.00	-5.84	66.17	60.33	118.80	-50.47	Peak	138	217 P
8	5875.00	-5.85	65.78	59.93	105.20	-45.27	Peak	138	217 P
9	5925.00	-5.87	51.86	45.99	54.00	-8.01	Average	138	217 P
10	5925.00	-5.87	65.12	59.25	74.00	-14.75	Peak	138	217 P
11	11570.00	2.09	37.23	39.32	54.00	-14.68	Average	151	274 P
12	11570.00	2.09	48.35	50.44	74.00	-23.56	Peak	151	274 P
13	17355.00	11.72	31.87	43.59	54.00	-10.41	Average	102	136 P
14	17355.00	11.72	45.70	57.42	74.00	-16.58	Peak	102	136 P

Note: Level=Reading+Factor  
Margin=Level-Limit  
Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 4, CH157	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F (deg)
1	5650.00	-5.77	51.88	46.11	54.00	-7.89	Average	153	255 P
2	5650.00	-5.77	65.20	59.43	74.00	-14.57	Peak	153	255 P
3	5700.00	-5.79	68.22	62.43	105.20	-42.77	Peak	153	255 P
4	5720.00	-5.80	67.19	61.39	110.80	-49.41	Peak	153	255 P
5	5725.00	-5.80	68.23	62.43	122.20	-59.77	Peak	153	255 P
6	5850.00	-5.84	68.29	62.45	122.20	-59.75	Peak	153	255 P
7	5855.00	-5.84	67.87	62.03	110.80	-48.77	Peak	153	255 P
8	5875.00	-5.85	68.62	62.77	105.20	-42.43	Peak	153	255 P
9	5925.00	-5.87	51.49	45.62	54.00	-8.38	Average	153	255 P
10	5925.00	-5.87	64.69	58.82	74.00	-15.18	Peak	153	255 P
11	11570.00	2.09	35.94	38.03	54.00	-15.97	Average	122	94 P
12	11570.00	2.09	47.95	50.04	74.00	-23.96	Peak	122	94 P
13	17355.00	11.72	30.44	42.16	54.00	-11.84	Average	142	229 P
14	17355.00	11.72	44.40	56.12	74.00	-17.88	Peak	142	299 P

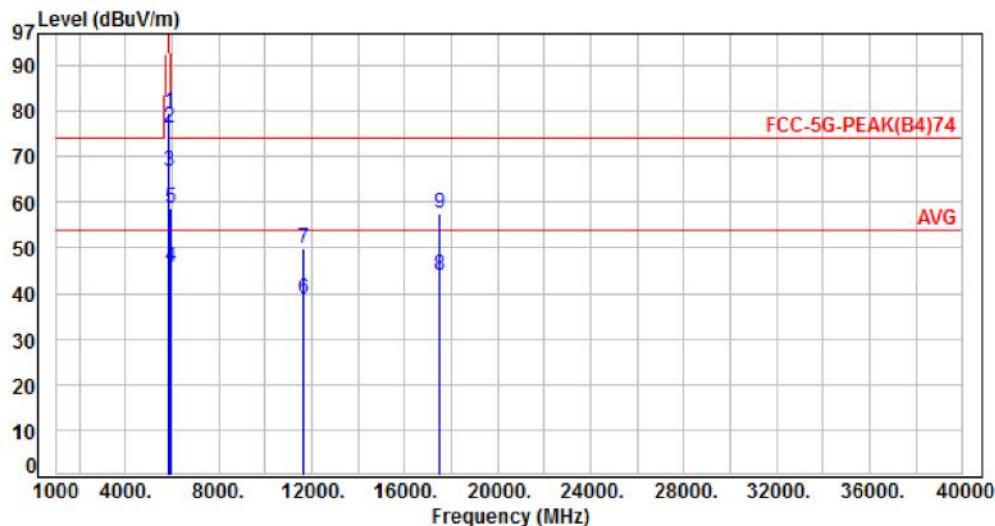
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 4, CH165	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-5.84	85.67	79.83	122.20	-42.37	Peak	165	224	P
2	5855.00	-5.84	82.13	76.29	110.80	-34.51	Peak	165	224	P
3	5875.00	-5.85	72.67	66.82	105.20	-38.38	Peak	165	224	P
4	5925.00	-5.87	51.61	45.74	54.00	-8.26	Average	165	224	P
5	5925.00	-5.87	64.35	58.48	74.00	-15.52	Peak	165	224	P
6	11650.00	2.12	36.47	38.59	54.00	-15.41	Average	189	222	P
7	11650.00	2.12	47.68	49.80	74.00	-24.20	Peak	189	222	P
8	17475.00	12.46	31.40	43.86	54.00	-10.14	Average	157	133	P
9	17475.00	12.46	45.25	57.71	74.00	-16.29	Peak	157	133	P

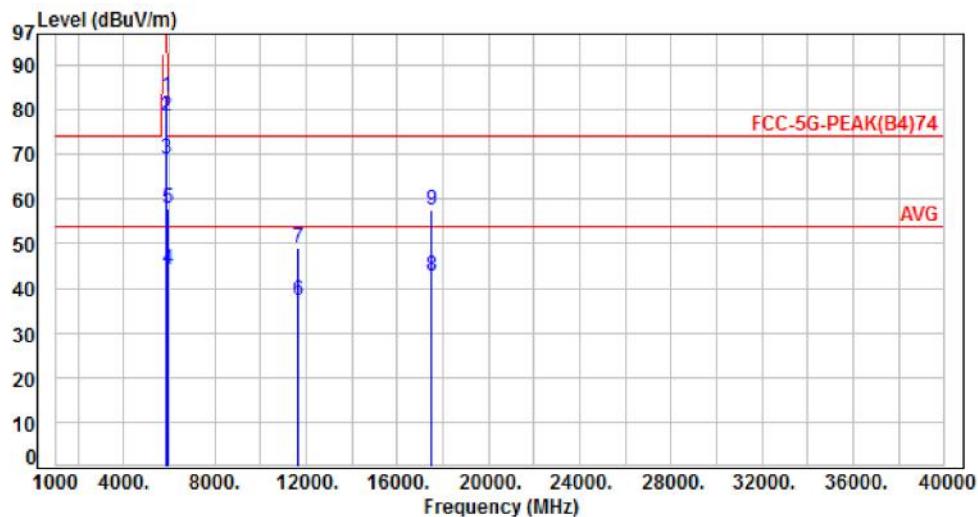
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 4, CH165	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-5.84	88.78	82.94	122.20	-39.26	Peak	143	290	P
2	5855.00	-5.84	84.51	78.67	110.80	-32.13	Peak	143	290	P
3	5875.00	-5.85	74.97	69.12	105.20	-36.08	Peak	143	290	P
4	5925.00	-5.87	50.29	44.42	54.00	-9.58	Average	143	290	P
5	5925.00	-5.87	63.75	57.88	74.00	-16.12	Peak	143	290	P
6	11650.00	2.12	35.07	37.19	54.00	-16.81	Average	144	120	P
7	11650.00	2.12	46.82	48.94	74.00	-25.06	Peak	144	120	P
8	17475.00	12.46	30.24	42.70	54.00	-11.30	Average	117	177	P
9	17475.00	12.46	45.25	57.71	74.00	-16.29	Peak	117	177	P

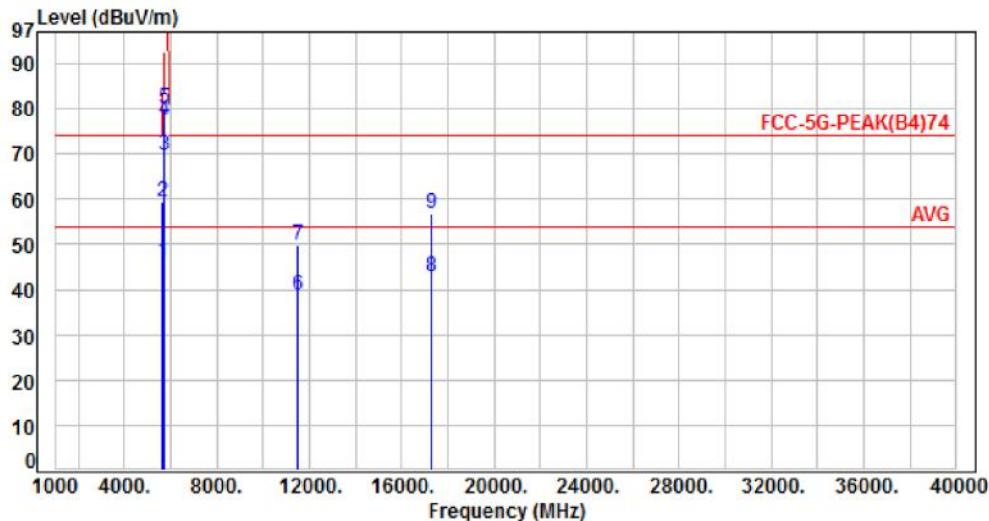
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 5, CH151	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F (deg)
1	5650.00	-5.77	51.80	46.03	54.00	-7.97	Average	149	247 P
2	5650.00	-5.77	65.08	59.31	74.00	-14.69	Peak	149	247 P
3	5700.00	-5.79	75.65	69.86	105.20	-35.34	Peak	149	247 P
4	5720.00	-5.80	83.08	77.28	110.80	-33.52	Peak	149	247 P
5	5725.00	-5.80	85.74	79.94	122.20	-42.26	Peak	149	247 P
6	11510.00	2.07	36.71	38.78	54.00	-15.22	Average	100	271 P
7	11510.00	2.07	47.62	49.69	74.00	-24.31	Peak	100	271 P
8	17265.00	11.16	31.52	42.68	54.00	-11.32	Average	110	137 P
9	17265.00	11.16	45.48	56.64	74.00	-17.36	Peak	110	137 P

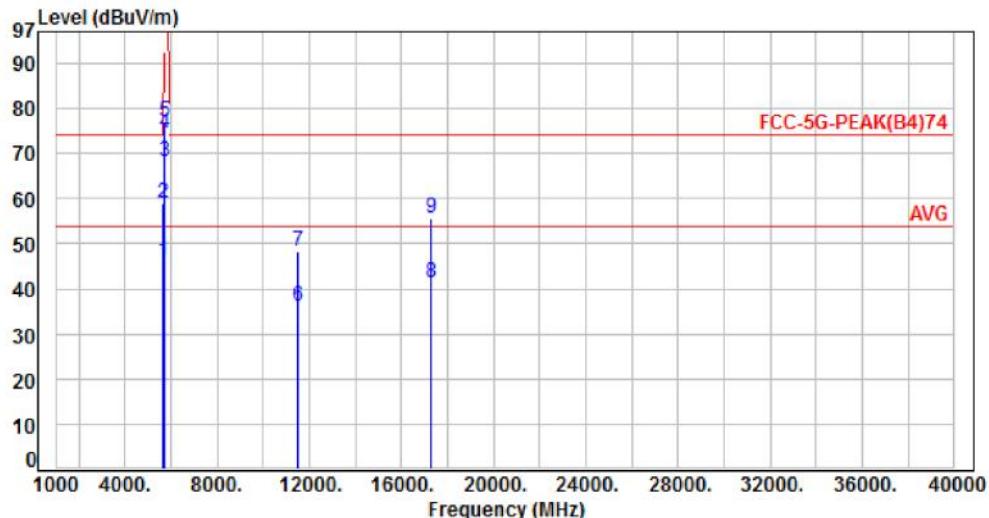
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 5, CH151	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.77	51.81	46.04	54.00	-7.96	Average	240	173	P
2	5650.00	-5.77	64.93	59.16	74.00	-14.84	Peak	240	173	P
3	5700.00	-5.79	73.89	68.10	105.20	-37.10	Peak	240	173	P
4	5720.00	-5.80	80.44	74.64	110.80	-36.16	Peak	240	173	P
5	5725.00	-5.80	82.93	77.13	122.20	-45.07	Peak	240	173	P
6	11510.00	2.07	34.23	36.30	54.00	-17.70	Average	149	83	P
7	11510.00	2.07	46.12	48.19	74.00	-25.81	Peak	149	83	P
8	17265.00	11.16	30.18	41.34	54.00	-12.66	Average	185	221	P
9	17265.00	11.16	44.52	55.68	74.00	-18.32	Peak	185	221	P

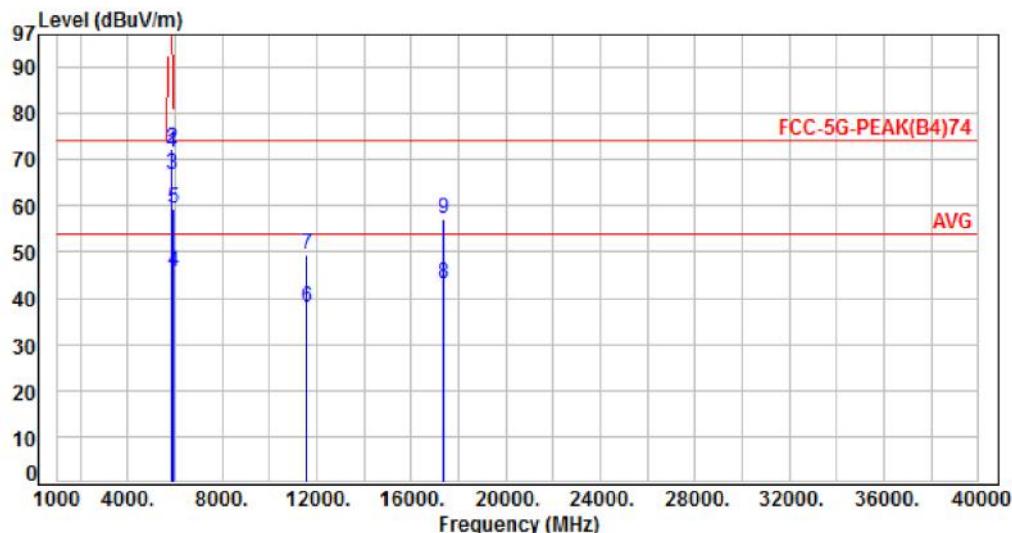
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 5, CH159	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5850.00	-5.84	77.55	71.71	122.20	-50.49	Peak	162	251	P
2	5855.00	-5.84	78.10	72.26	110.80	-38.54	Peak	162	251	P
3	5875.00	-5.85	72.75	66.90	105.20	-38.30	Peak	162	251	P
4	5925.00	-5.87	51.49	45.62	54.00	-8.38	Average	162	251	P
5	5925.00	-5.87	65.23	59.36	74.00	-14.64	Peak	162	251	P
6	11590.00	2.10	35.96	38.06	54.00	-15.94	Average	116	243	P
7	11590.00	2.10	47.19	49.29	74.00	-24.71	Peak	116	243	P
8	17385.00	11.89	31.25	43.14	54.00	-10.86	Average	121	152	P
9	17385.00	11.89	45.14	57.03	74.00	-16.97	Peak	121	152	P

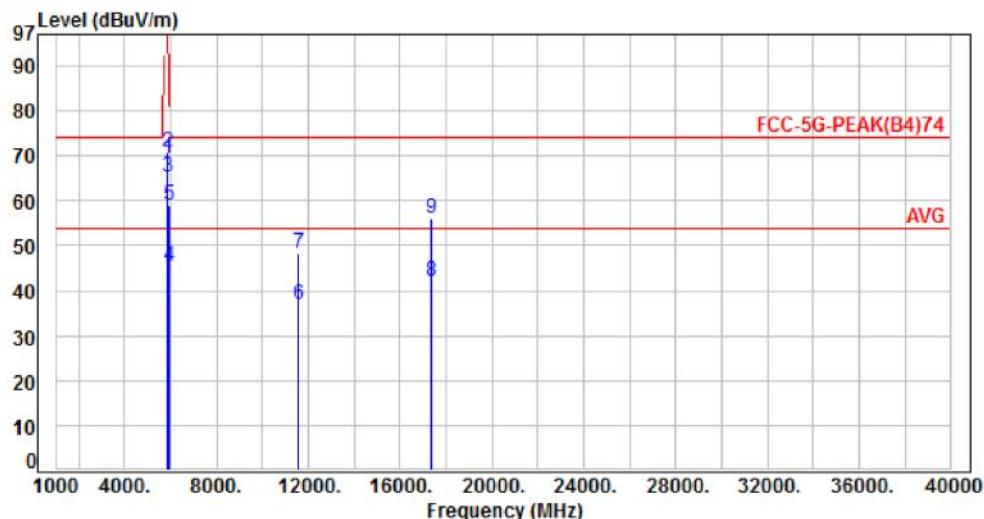
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 5, CH159	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F (deg)
1	5850.00	-5.84	75.31	69.47	122.20	-52.73	Peak	155	280 P
2	5855.00	-5.84	76.54	70.70	110.80	-40.10	Peak	155	280 P
3	5875.00	-5.85	71.14	65.29	105.20	-39.91	Peak	155	280 P
4	5925.00	-5.87	51.20	45.33	54.00	-8.67	Average	155	280 P
5	5925.00	-5.87	64.82	58.95	74.00	-15.05	Peak	155	280 P
6	11590.00	2.10	34.73	36.83	54.00	-17.17	Average	133	170 P
7	11590.00	2.10	46.09	48.19	74.00	-25.81	Peak	133	170 P
8	17385.00	11.89	30.15	42.04	54.00	-11.96	Average	147	256 P
9	17385.00	11.89	44.23	56.12	74.00	-17.88	Peak	147	256 P

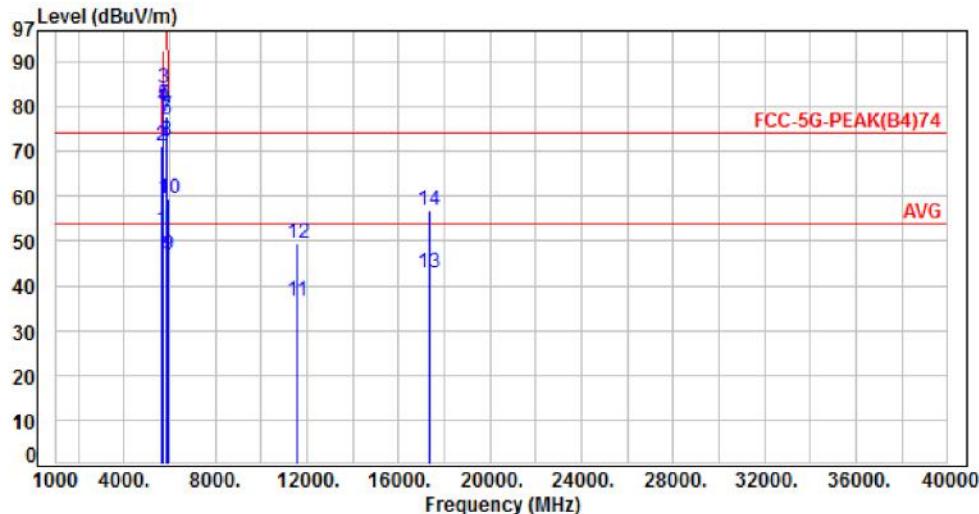
Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	Mode 6, CH155	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%

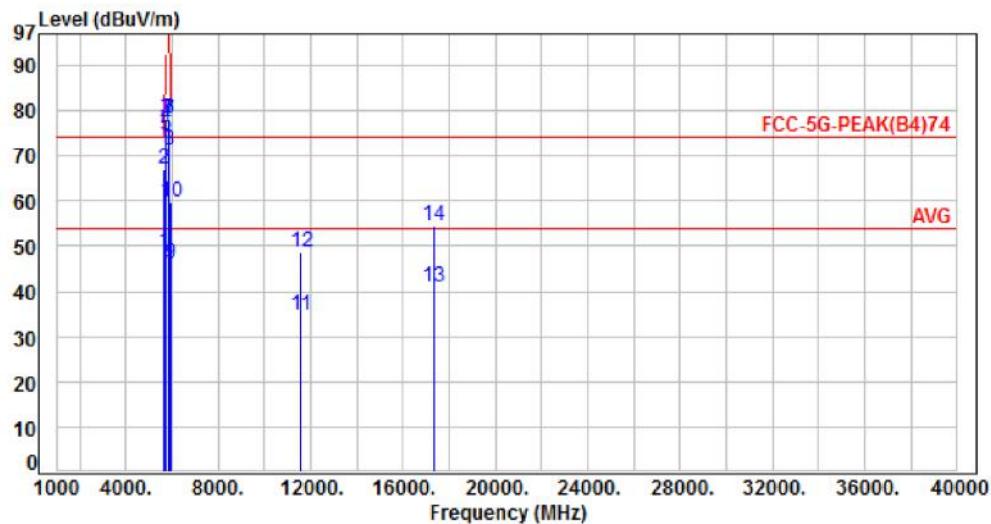


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth P/F (deg)
1	5650.00	-5.77	58.10	52.33	54.00	-1.67	Average	104	186 P
2	5650.00	-5.77	76.92	71.15	74.00	-2.85	Peak	104	186 P
3	5700.00	-5.79	89.81	84.02	105.20	-21.18	Peak	104	186 P
4	5720.00	-5.80	85.92	80.12	110.80	-30.68	Peak	104	186 P
5	5725.00	-5.80	86.11	80.31	122.20	-41.89	Peak	104	186 P
6	5850.00	-5.84	82.82	76.98	122.20	-45.22	Peak	104	186 P
7	5855.00	-5.84	83.73	77.89	110.80	-32.91	Peak	104	186 P
8	5875.00	-5.85	78.19	72.34	105.20	-32.86	Peak	104	186 P
9	5925.00	-5.87	52.65	46.78	54.00	-7.22	Average	104	186 P
10	5925.00	-5.87	65.16	59.29	74.00	-14.71	Peak	104	186 P
11	11550.00	2.09	34.34	36.43	54.00	-17.57	Average	106	217 P
12	11550.00	2.09	47.39	49.48	74.00	-24.52	Peak	106	217 P
13	17325.00	11.53	31.27	42.80	54.00	-11.20	Average	129	157 P
14	17325.00	11.53	45.31	56.84	74.00	-17.16	Peak	129	157 P

Note: Level=Reading+Factor  
Margin=Level-Limit  
Factor=Antenna Factor + cable loss - Amplifier Factor



Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	Mode 6, CH155	Temperature :	24°C
Test Date :	Feb. 16, 2017	Humidity :	63%



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	5650.00	-5.77	54.39	48.62	54.00	-5.38	Average	141	225	P
2	5650.00	-5.77	72.91	67.14	74.00	-6.86	Peak	141	225	P
3	5700.00	-5.79	84.01	78.22	105.20	-26.98	Peak	141	225	P
4	5720.00	-5.80	82.42	76.62	110.80	-34.18	Peak	141	225	P
5	5725.00	-5.80	80.15	74.35	122.20	-47.85	Peak	141	225	P
6	5850.00	-5.84	84.17	78.33	122.20	-43.87	Peak	141	225	P
7	5855.00	-5.84	83.81	77.97	110.80	-32.83	Peak	141	225	P
8	5875.00	-5.85	77.02	71.17	105.20	-34.03	Peak	141	225	P
9	5925.00	-5.87	52.14	46.27	54.00	-7.73	Average	141	225	P
10	5925.00	-5.87	65.57	59.70	74.00	-14.30	Peak	141	225	P
11	11550.00	2.09	32.46	34.55	54.00	-19.45	Average	100	161	P
12	11550.00	2.09	46.72	48.81	74.00	-25.19	Peak	100	161	P
13	17325.00	11.53	29.54	41.07	54.00	-12.93	Average	100	143	P
14	17325.00	11.53	42.96	54.49	74.00	-19.51	Peak	100	143	P

Note: Level=Reading+Factor

Margin=Level-Limit

Factor=Antenna Factor + cable loss - Amplifier Factor



## 6.7. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.150
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

\*\*: Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz



## 7. On Time, Duty Cycle and Measurement methods

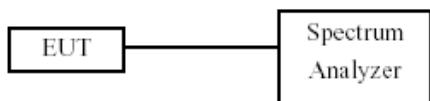
### 7.1. Test Limit

None; for reporting purposes only.

### 7.2. Test Procedure

KDB 789033 Zero-Span Spectrum Analyzer Method.

### 7.3. Test Setup Layout



### 7.4. Test Result and Data

Temperature: 21°C

Humidity: 58%

Test Date: Mar. 02, 2017

Modulation Type	On Time (msec)	Period Time (msec)	Duty Cycle (%)	1/T Minimum VBW(Hz)	Duty Cycle correction Factor (dB)
802.11a	100.00	100.00	100.00%	10.00	0.00
802.11n HT20	100.00	100.00	100.00%	10.00	0.00
802.11n HT40	100.00	100.00	100.00%	10.00	0.00
802.11ac VHT20	100.00	100.00	100.00%	10.00	0.00
802.11ac VHT40	100.00	100.00	100.00%	10.00	0.00
802.11ac VHT80	100.00	100.00	100.00%	10.00	0.00

### 7.5. Measurement Methods

26 dB and 6dB Emission BW	KDB 789033 D02 v01, Section C
99% Occupied BW	KDB 789033 D02 v01, Section D
Conducted Output Power	KDB 789033 D02 v01, Section E.2.d and E.3.b (Method PM-G)
Power Spectral Density	KDB 789033 D02 v01, Section F
Unwanted emissions in restricted bands	KDB 789033 D02 v01, Sections G and H
Unwanted emissions in non-restricted bands	KDB 789033 D02 v01, Sections G and H



## 8. 6dB Bandwidth

### 8.1. Test Limit

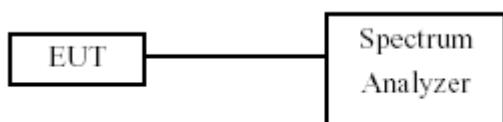
FCC §15.407

The minimum 6 dB bandwidth shall be at least 500 kHz.

### 8.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW set to 100KHz, the VBW  $\geq 3 \times$  RBW, peak detector and max hold.

### 8.3. Test Setup Layout



### 8.4. Test Result and Data

Temperature: 21°C

Humidity: 58%

Test Date: Mar. 02, 2017

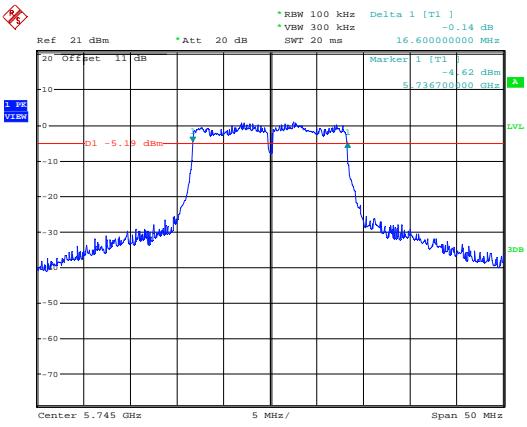
#### In the 5.8G Band

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Minimum Limit (MHz)
			ANT A	ANT B	
802.11a	149	5745	16.60	16.60	0.50
	157	5785	16.60	16.60	0.50
	165	5825	16.60	16.60	0.50
802.11ac VHT20	149	5745	17.80	17.80	0.50
	157	5785	17.80	17.80	0.50
	165	5825	17.80	17.80	0.50
802.11ac VHT40	155	5755	36.80	36.40	0.50
	159	5795	36.80	36.40	0.50
802.11ac VHT80	155	5775	76.80	76.80	0.50

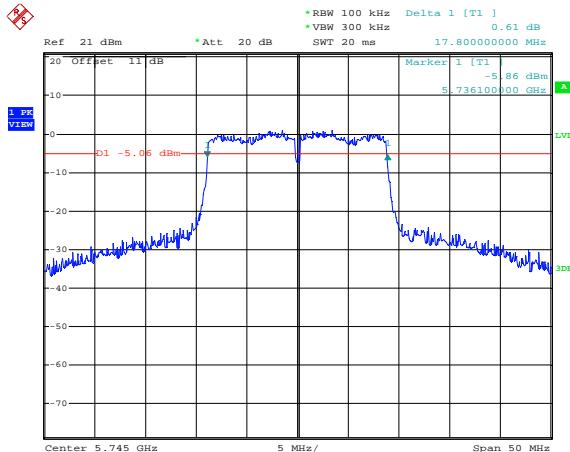


## Antenna A

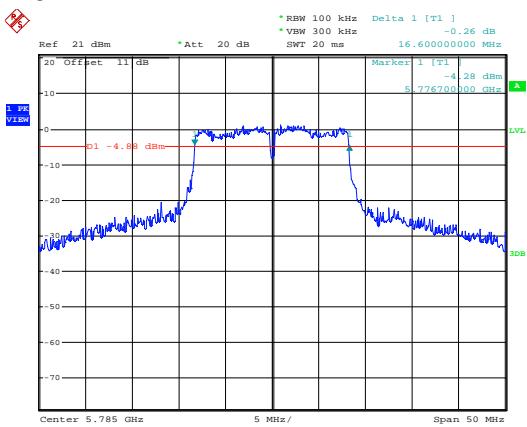
Modulation Standard: 802.11a (6Mbps)  
CH149



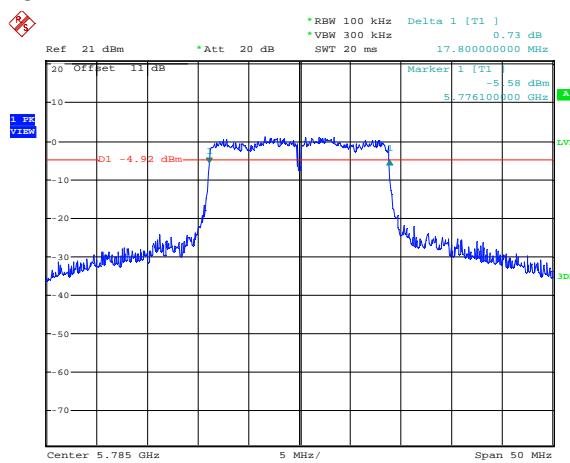
Modulation Standard: 802.11ac, VHT20 (6.5Mbps)  
CH149



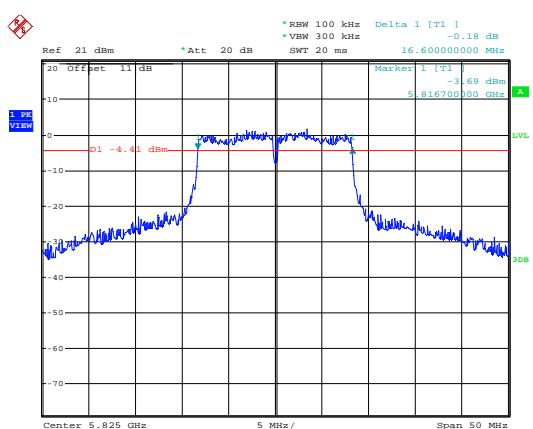
## CH157



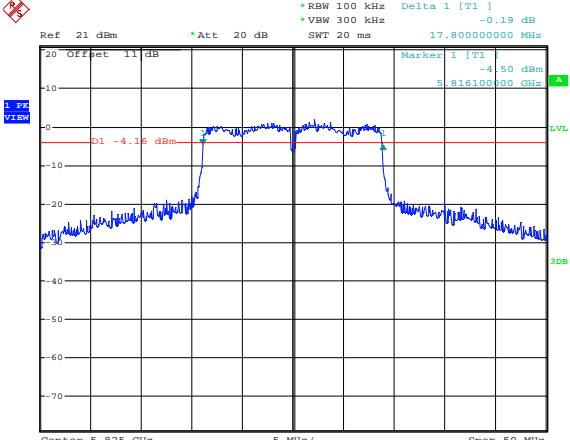
## CH157



## CH165



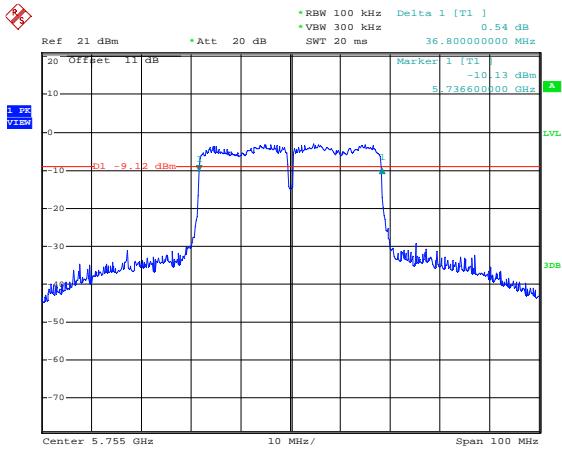
## CH165



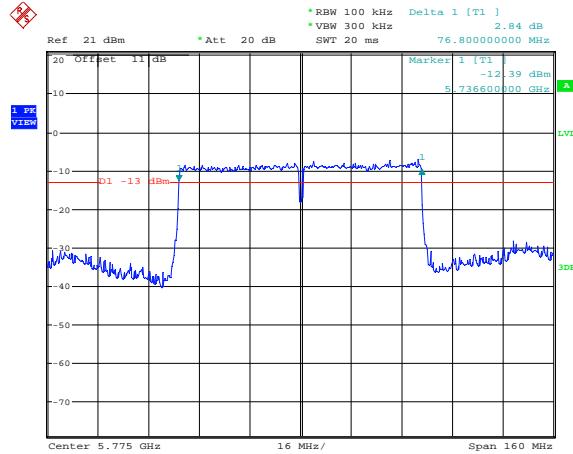


## Antenna A

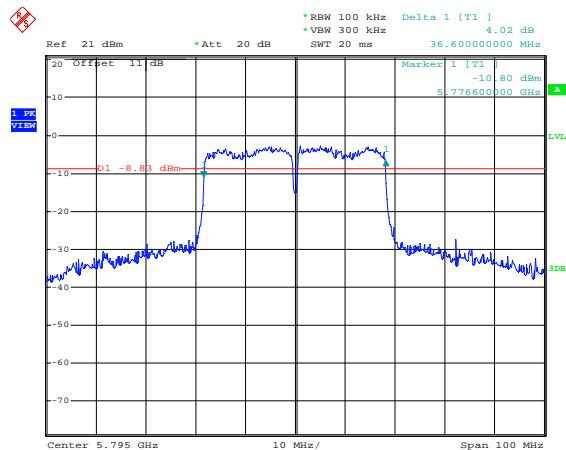
Modulation Standard: 802.11ac, VHT40 (13.5Mbps)  
CH151



Modulation Standard: 802.11ac, VHT80 (29.3Mbps)  
CH155



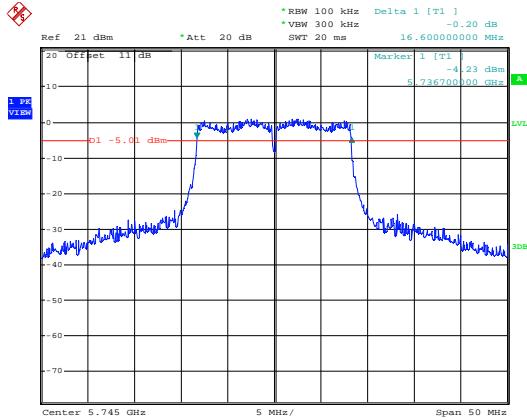
## CH159



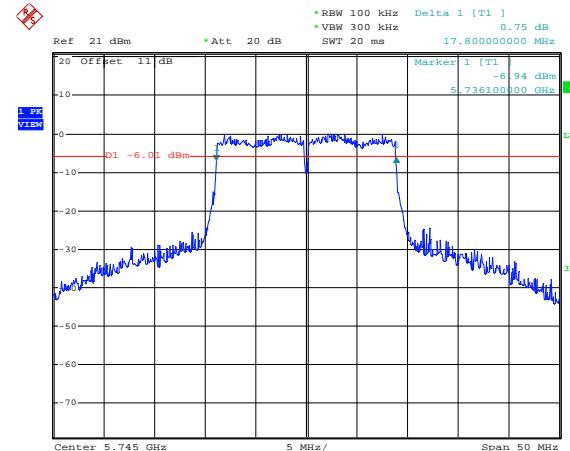


## Antenna B

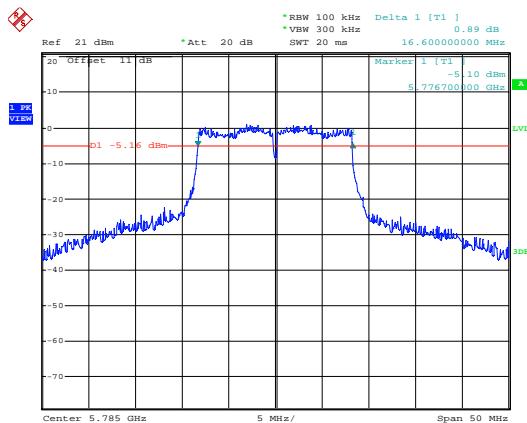
Modulation Standard: 802.11a (6Mbps)  
CH149



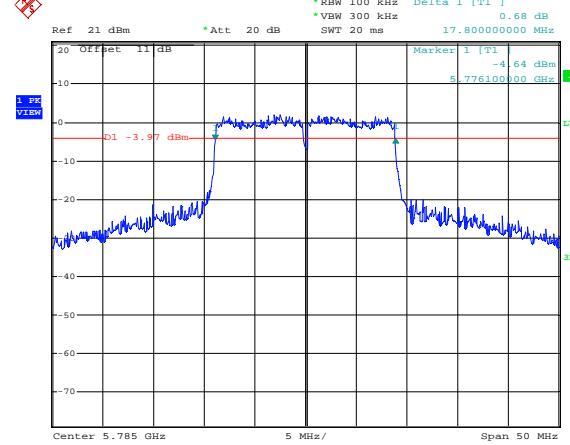
Modulation Standard: 802.11ac, VHT20 (6.5Mbps)  
CH149



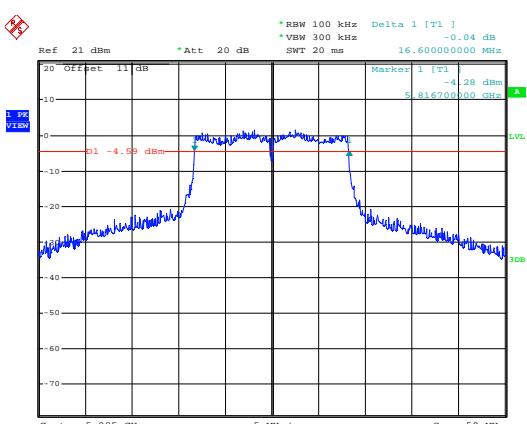
## CH157



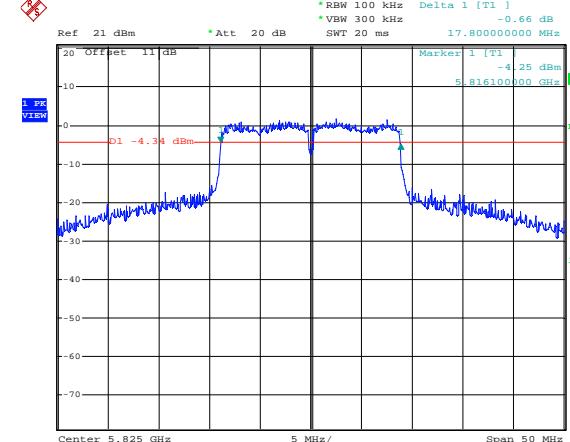
## CH157



## CH165



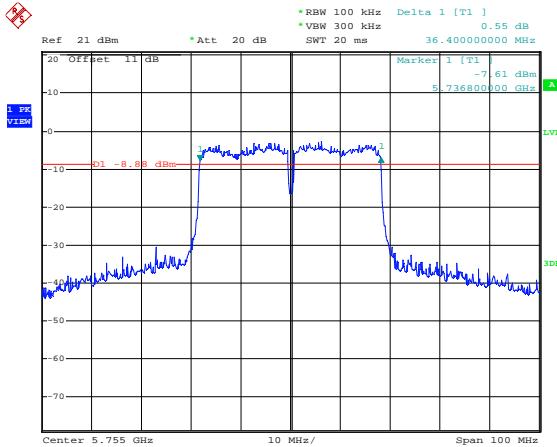
## CH165



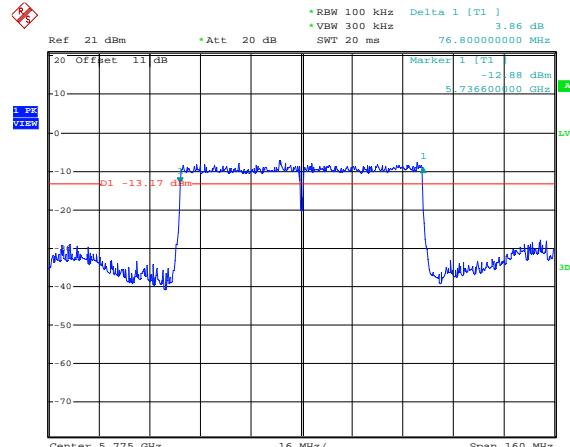


## Antenna B

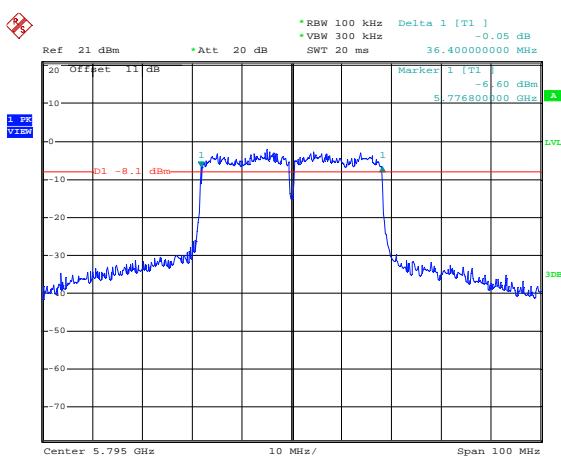
Modulation Standard: 802.11ac, VHT40 (13.5Mbps)  
CH151



Modulation Standard: 802.11ac, VHT80 (29.3Mbps)  
CH155



## CH159





## 9. 26dB Bandwidth

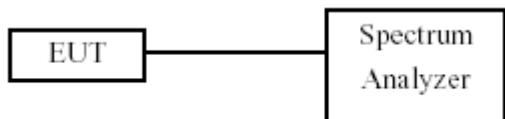
### 9.1. Test Limit

None; for reporting purposes only.

### 9.2. Test Procedure

Reference to 789033 D02 General UNII Test Procedures New Rules v01: The transmitter output is connected to a spectrum analyzer with the RBW = approximately 1% of the emission bandwidth, the VBW  $\geq 3 \times$  RBW, peak detector and max hold.

### 9.3. Test Setup Layout





## 9.4. Test Result and Data

Temperature: 21°C

Humidity: 58%

Test Date: Mar. 02, 2017

### In the 5.2G Band

Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
			ANT A	ANT B
802.11a	36	5180	20.30	20.10
	44	5220	20.20	19.90
	48	5240	20.20	20.10
802.11ac VHT20	36	5180	20.50	20.30
	44	5220	21.20	20.40
	48	5240	20.90	20.40
802.11ac VHT40	38	5190	42.00	41.40
	46	5230	42.00	41.80
802.11ac VHT80	42	5210	82.56	82.24

### In the 5.3G Band

Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
			ANT A	ANT B
802.11a	52	5260	20.60	20.00
	60	5300	22.00	35.20
	64	5320	35.10	20.00
802.11ac VHT20	52	5260	22.50	32.00
	60	5300	31.50	20.70
	64	5320	20.60	34.70
802.11ac VHT40	54	5270	46.60	56.80
	62	5310	59.60	41.60
802.11ac VHT80	58	5290	82.24	81.92

### In the 5.5G Band

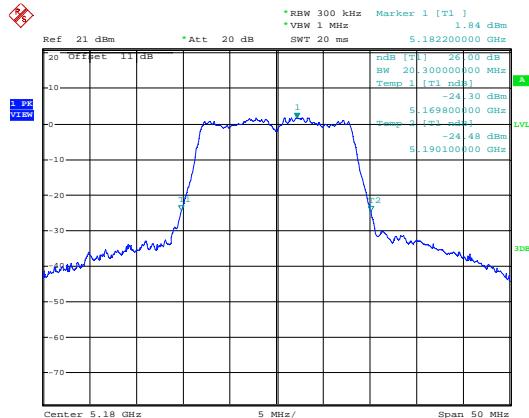
Modulation Type	Channel	Frequency (MHz)	26dB Bandwidth (MHz)	
			ANT A	ANT B
802.11a	100	5500	20.60	20.50
	116	5580	25.60	20.70
	140	5700	20.60	20.00
802.11ac VHT20	100	5500	21.70	20.30
	116	5580	25.20	21.60
	140	5700	20.50	20.40
802.11ac VHT40	102	5510	42.20	41.80
	110	5550	47.00	41.60
	134	5670	42.00	41.60
802.11ac VHT80	106	5530	82.24	81.92



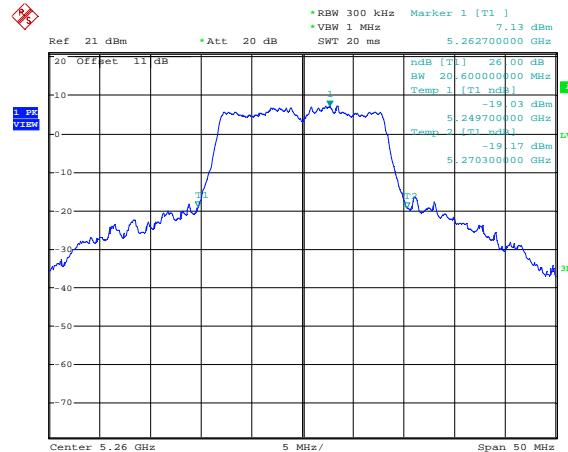
## Antenna A

Modulation Standard: 802.11a (6Mbps)

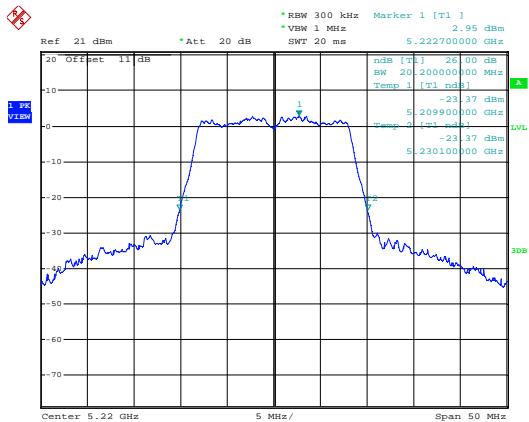
CH36



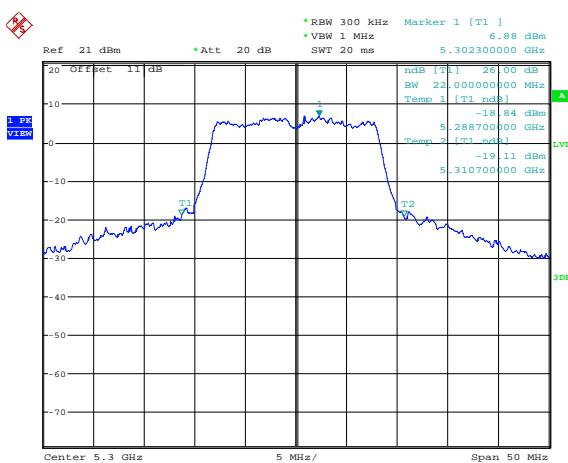
CH52



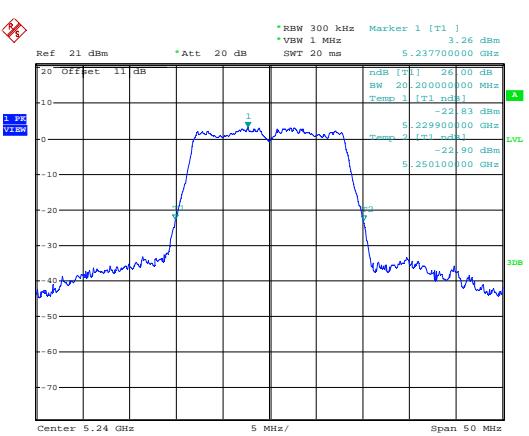
CH44



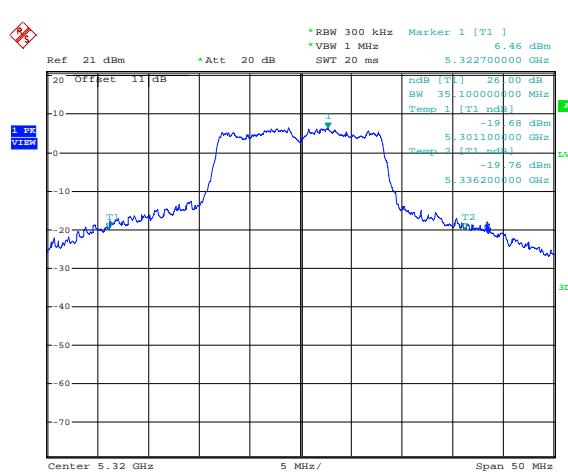
CH60



CH48



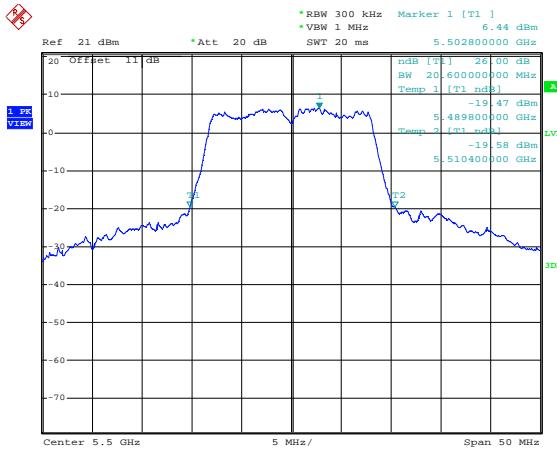
CH64



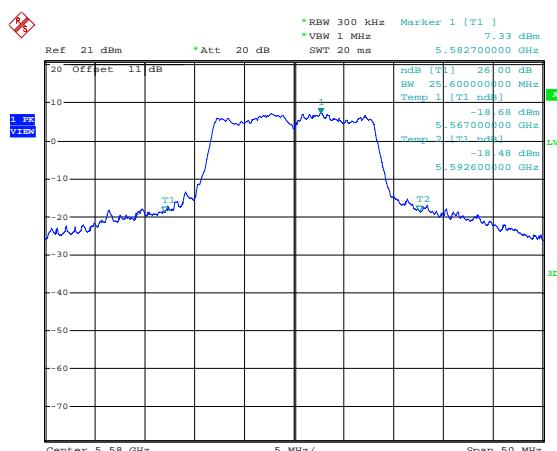


## Antenna A

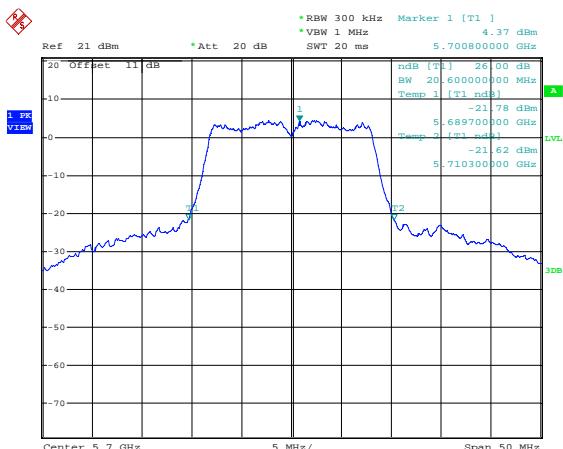
Modulation Standard: 802.11a (6Mbps)  
CH100



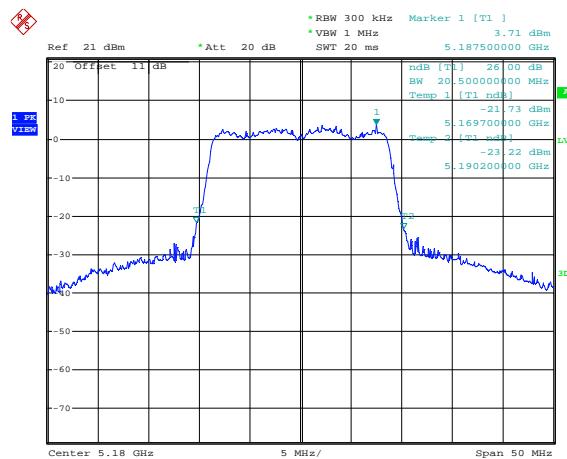
## CH116



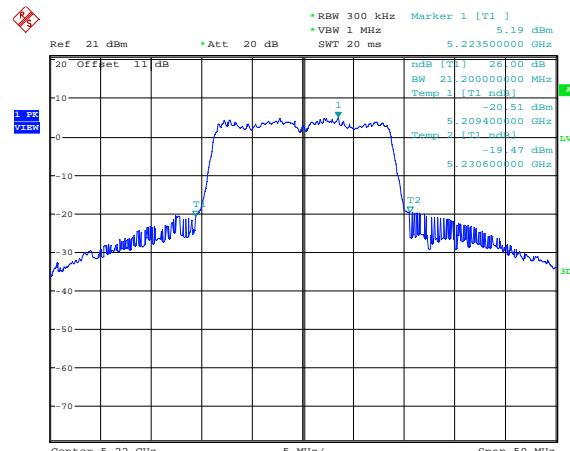
## CH140



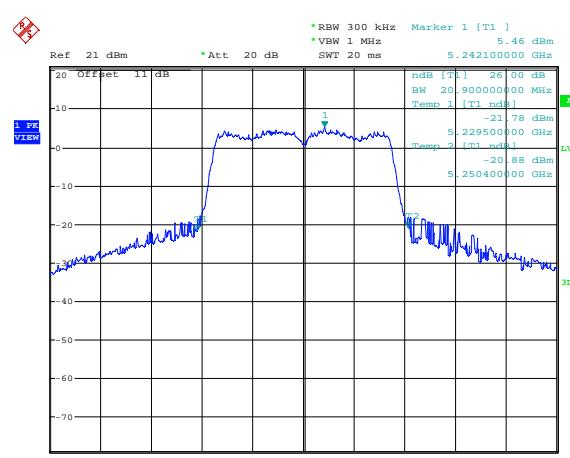
Modulation Standard: 802.11ac VHT20 (6.5Mbps)  
CH36



## CH44



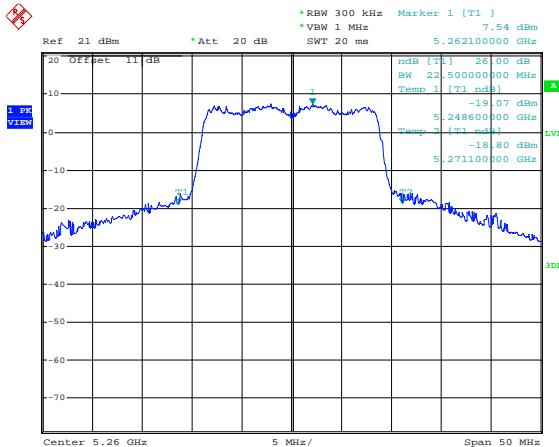
## CH48



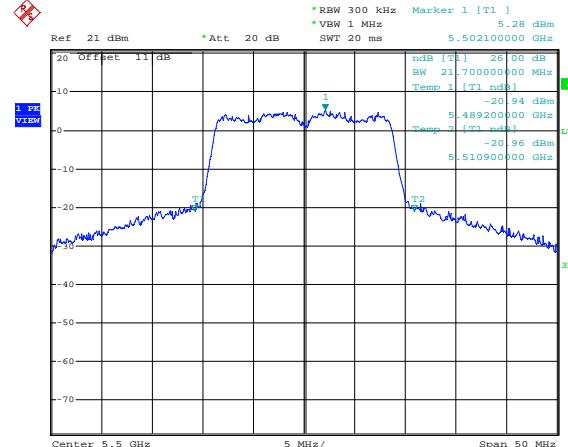


## Antenna A

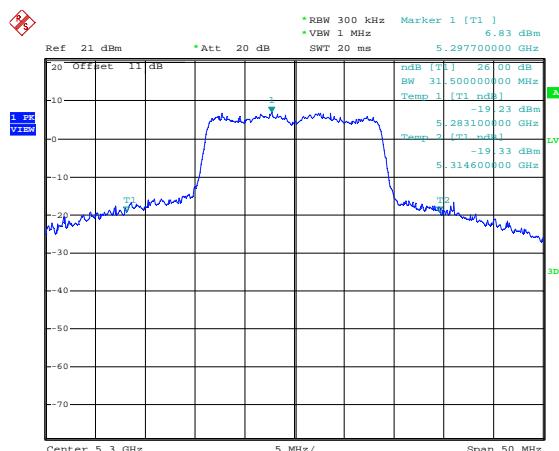
Modulation Standard: 802.11ac VHT20 (6.5Mbps)  
CH52



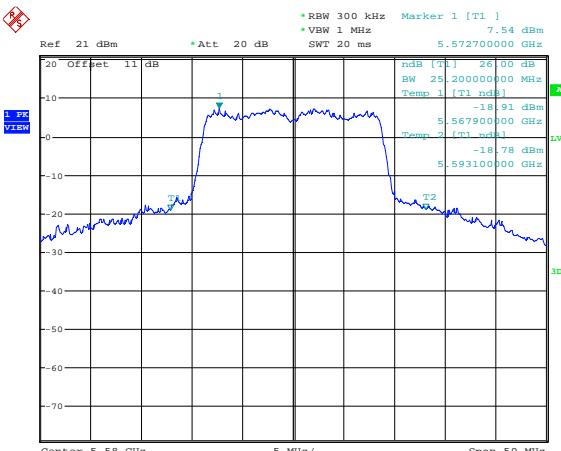
## CH100



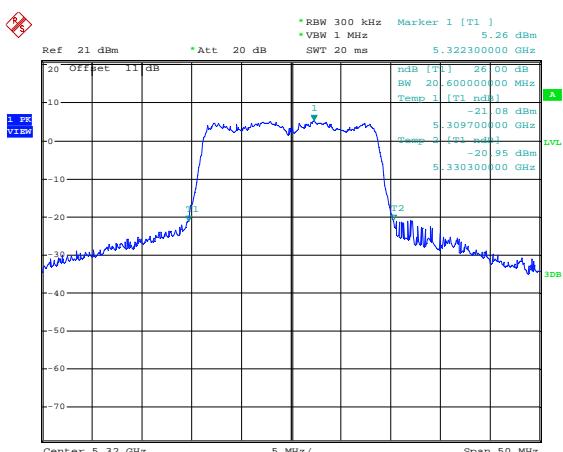
## CH60



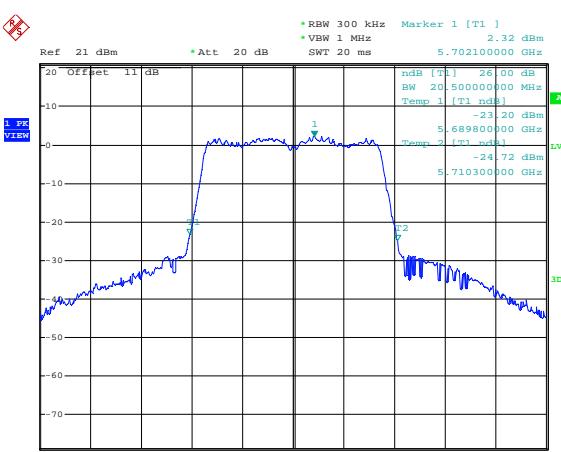
## CH116



## CH64



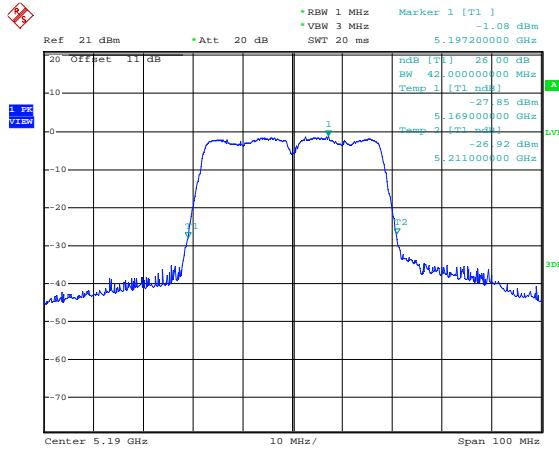
## CH140



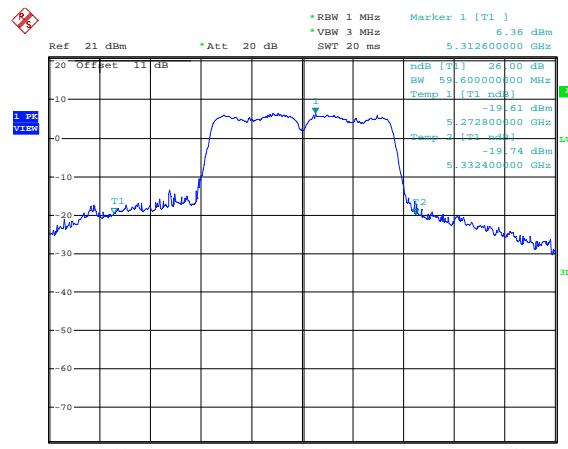


## Antenna A

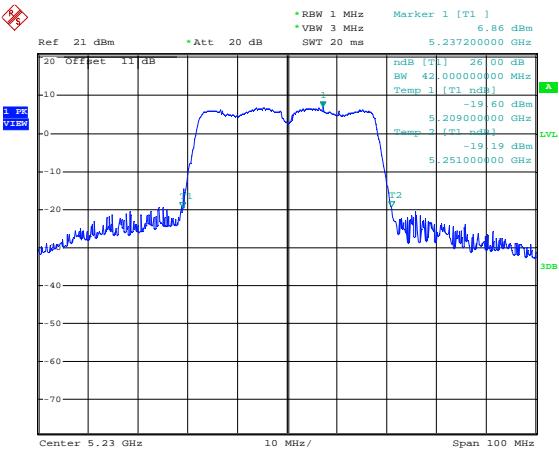
Modulation Standard: 802.11ac VHT40 (13.5Mbps)  
CH38



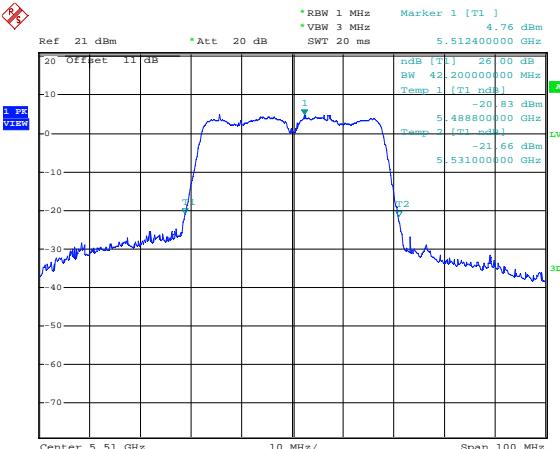
## CH62



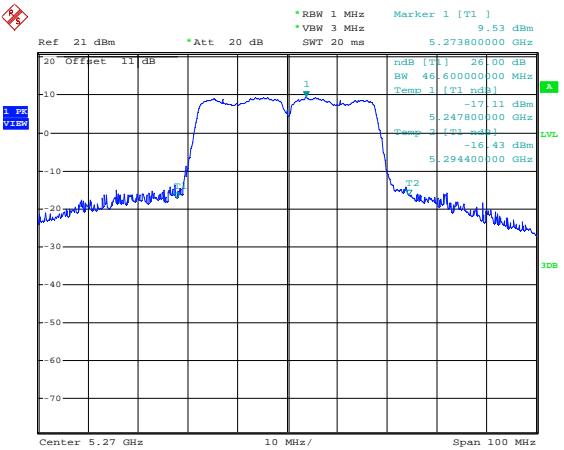
## CH46



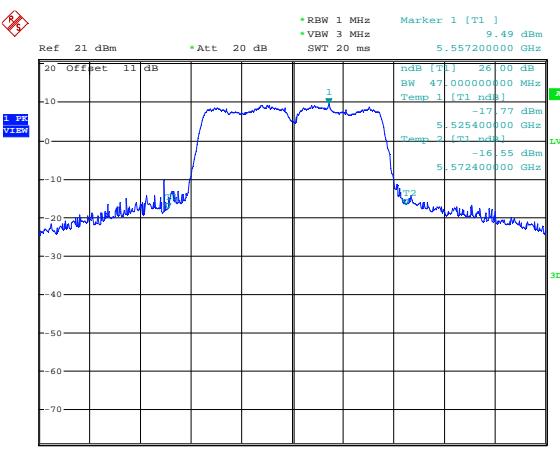
## CH102



## CH54



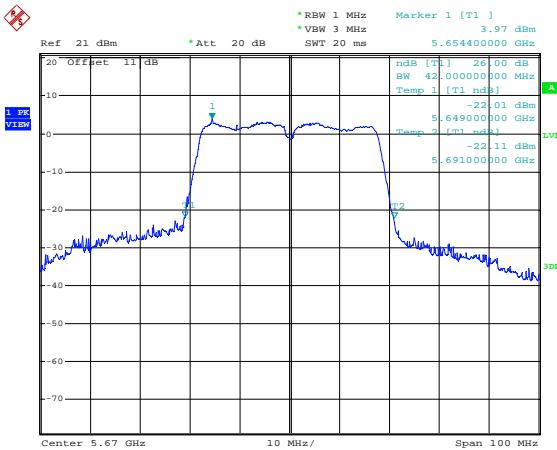
## CH110



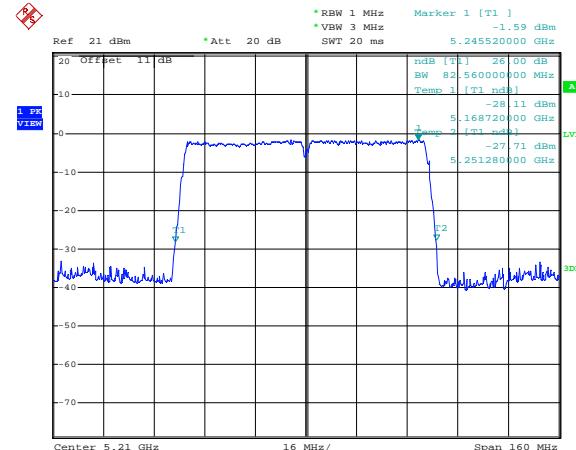


## Antenna A

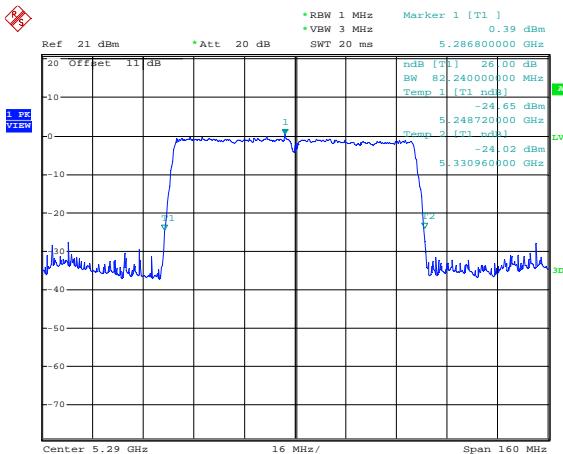
Modulation Standard: 802.11ac VHT40 (13.5Mbps)  
CH134



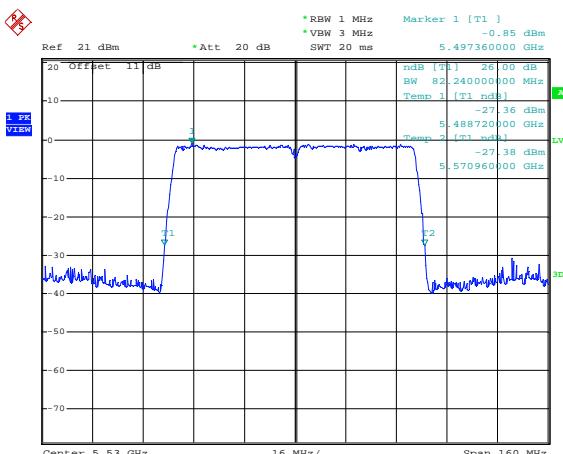
Modulation Standard: 802.11ac VHT80 (29.3Mbps)  
CH42



## CH58



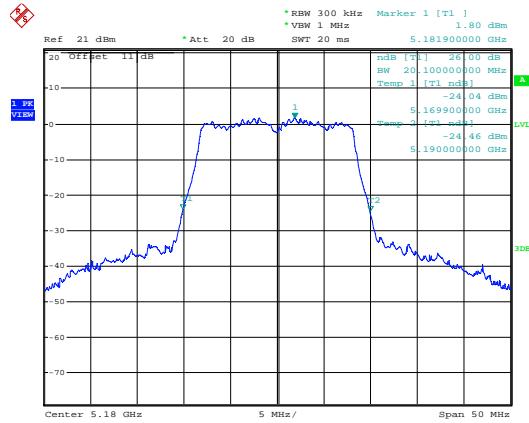
## CH106



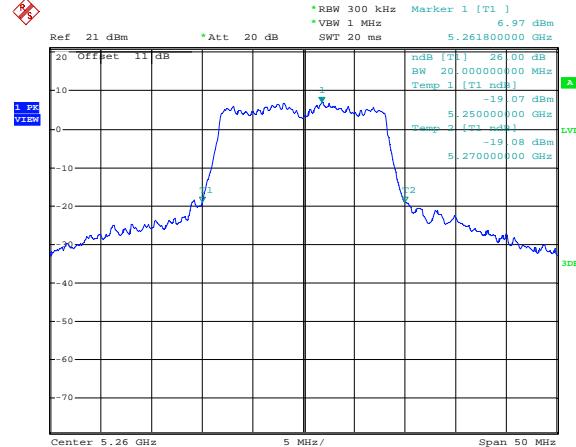


## Antenna B

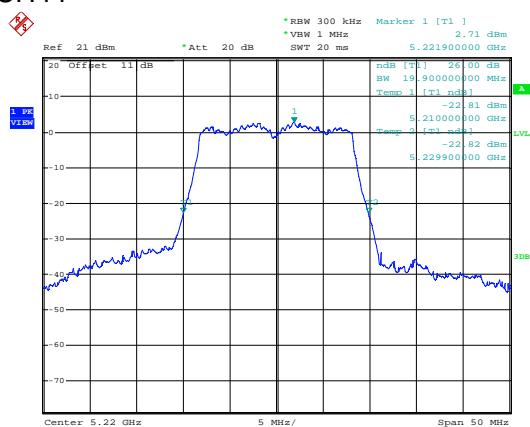
Modulation Standard: 802.11a (6Mbps)  
CH36



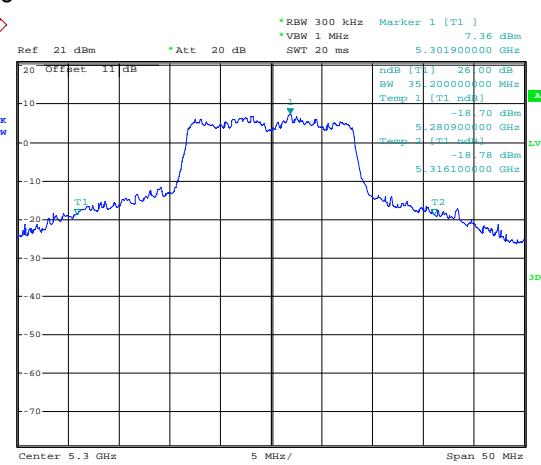
CH52



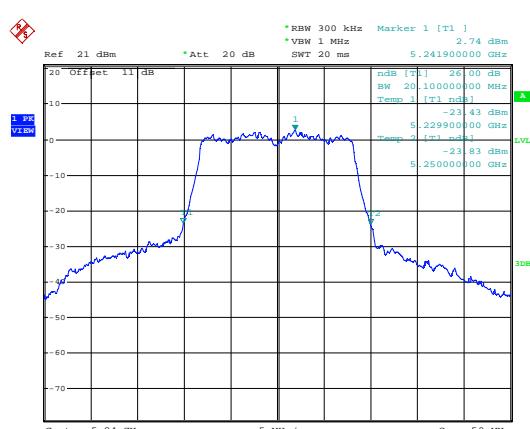
CH44



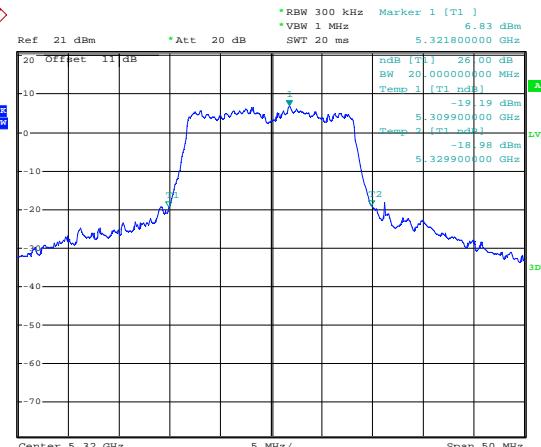
CH60



CH48



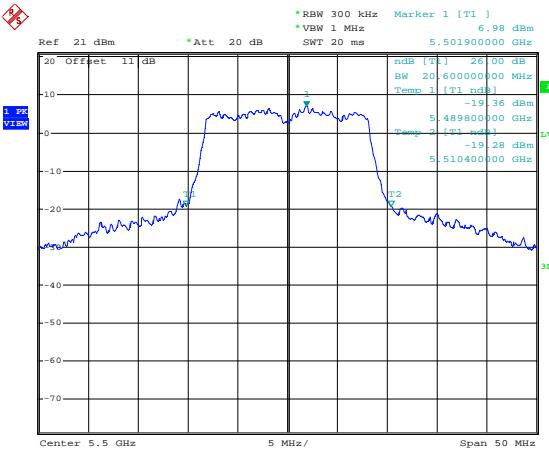
CH64



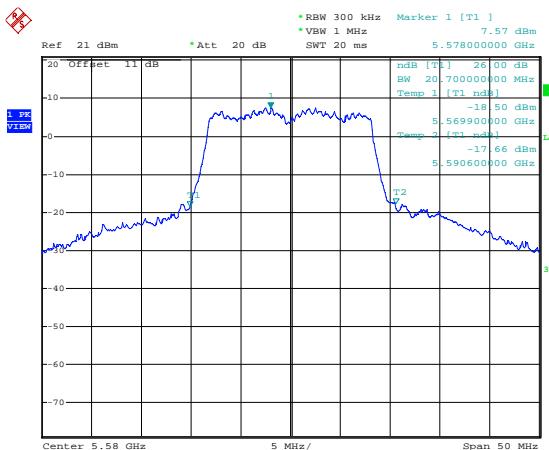


## Antenna B

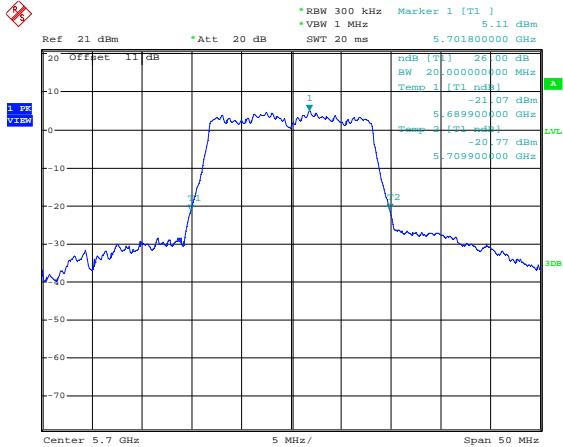
Modulation Standard: 802.11a (6Mbps)  
CH100



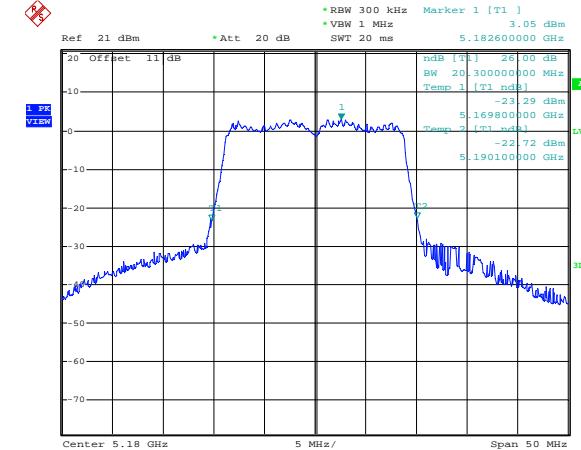
## CH116



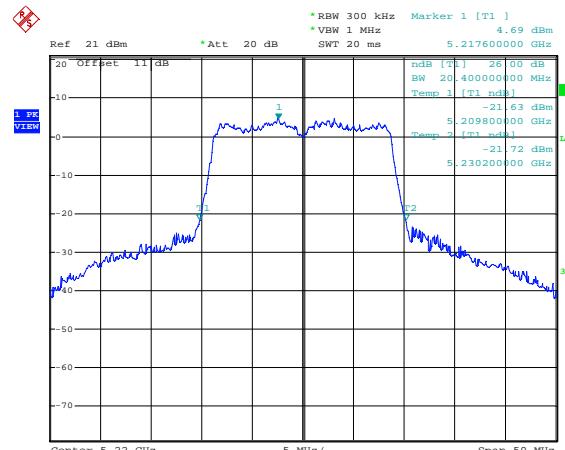
## CH140



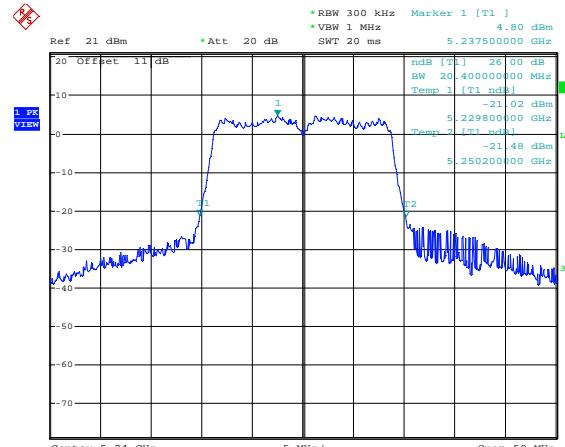
Modulation Standard: 802.11ac VHT20 (6.5Mbps)  
CH36



## CH44



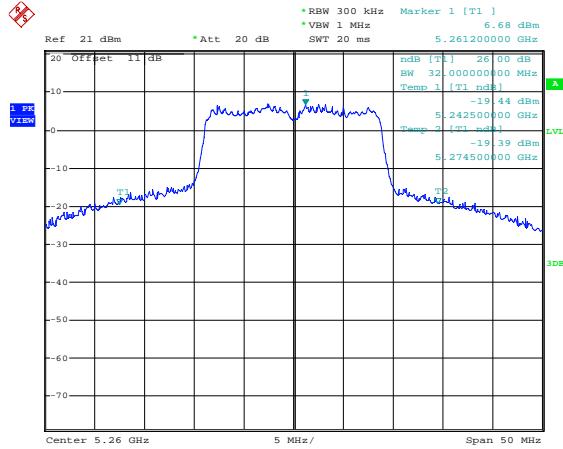
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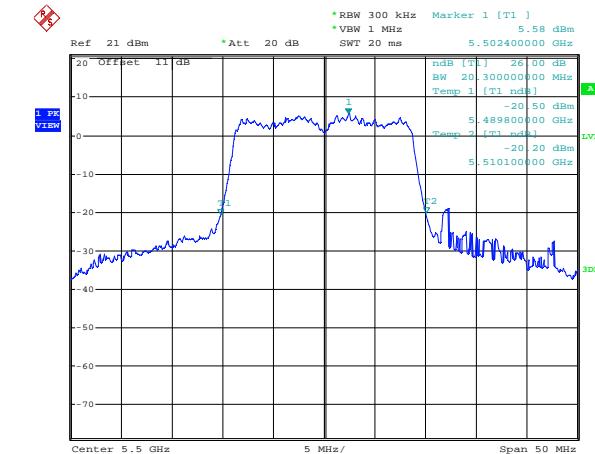


## Antenna B

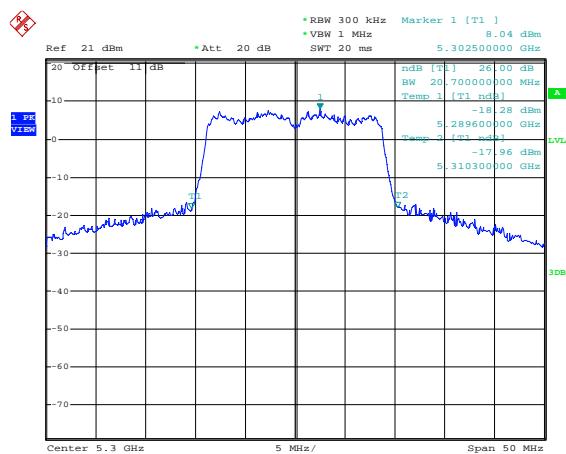
Modulation Standard: 802.11ac VHT20 (6.5Mbps)  
CH52



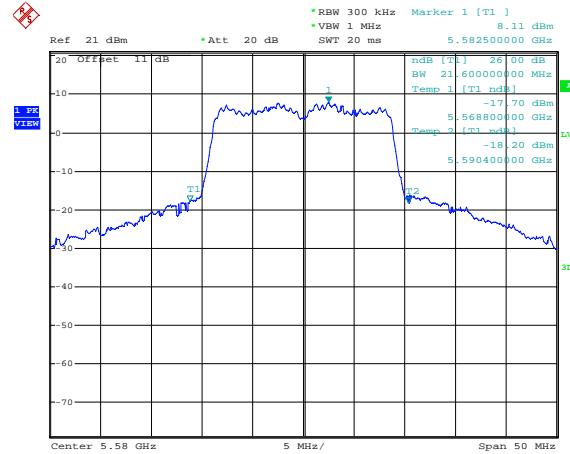
## CH100



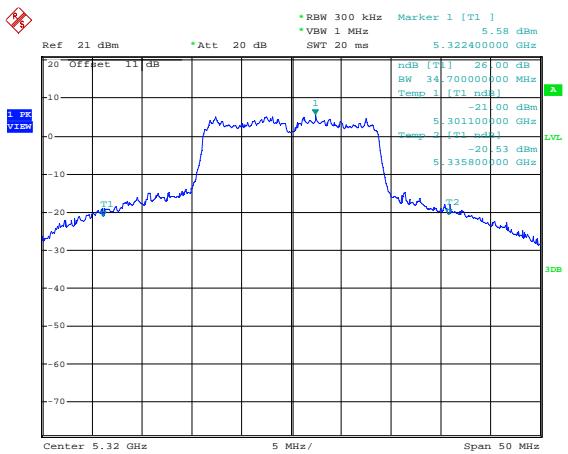
## CH60



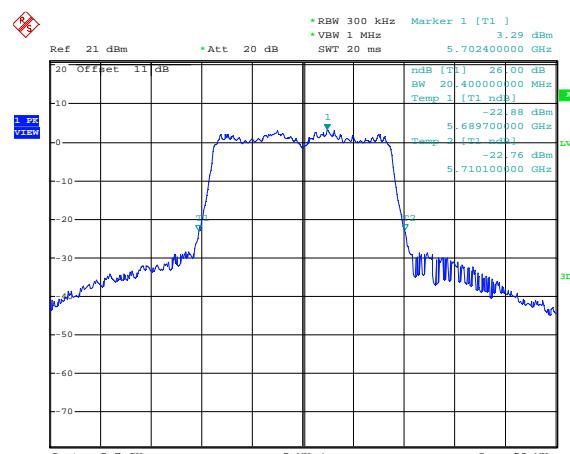
## CH116



## CH64



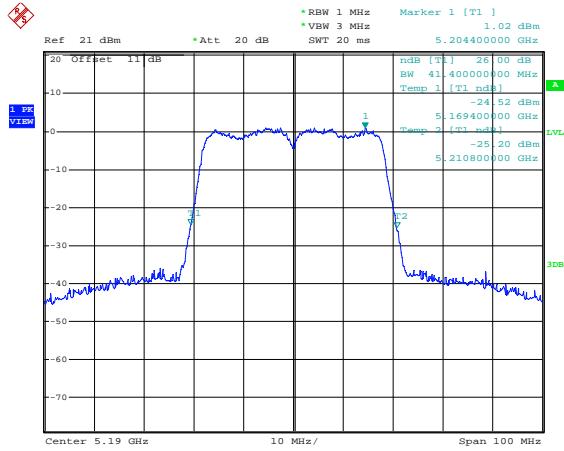
## CH140



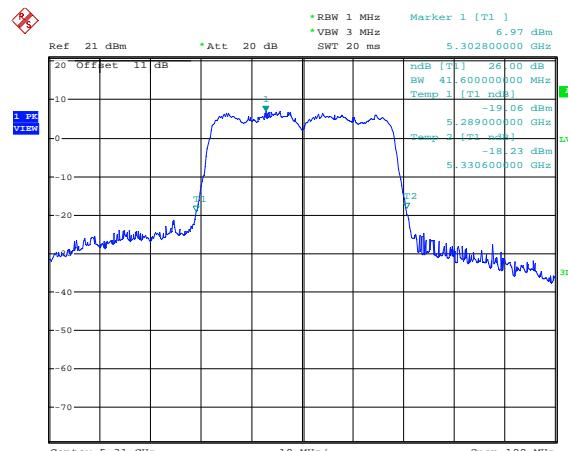


## Antenna B

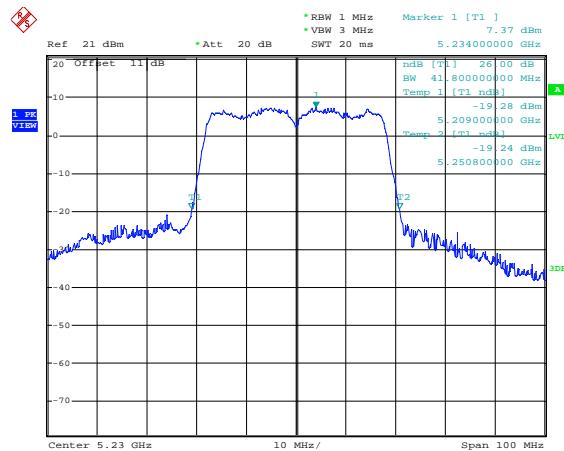
Modulation Standard: 802.11ac VHT40 (13.5Mbps)  
CH38



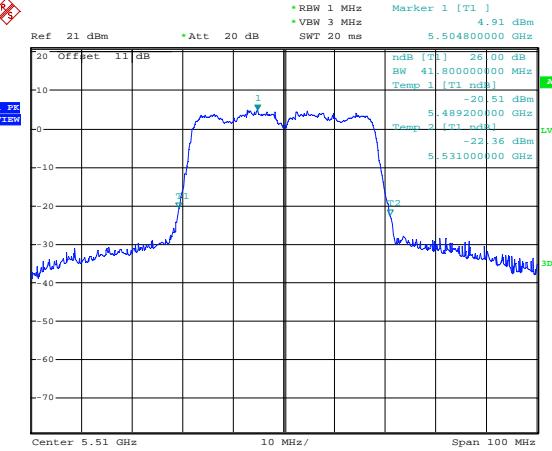
## CH62



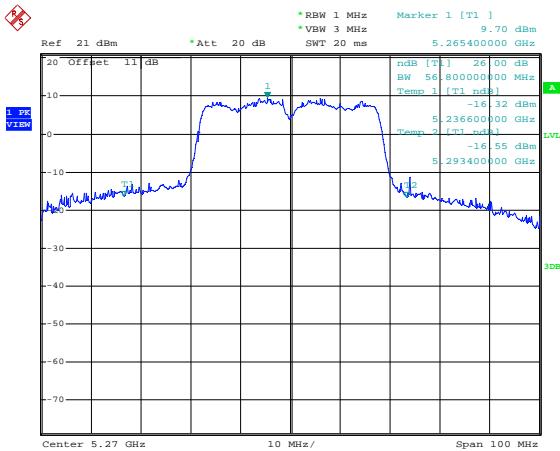
## CH46



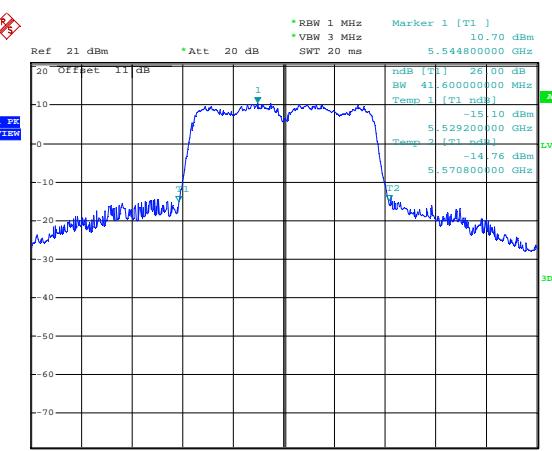
## CH102



## CH54



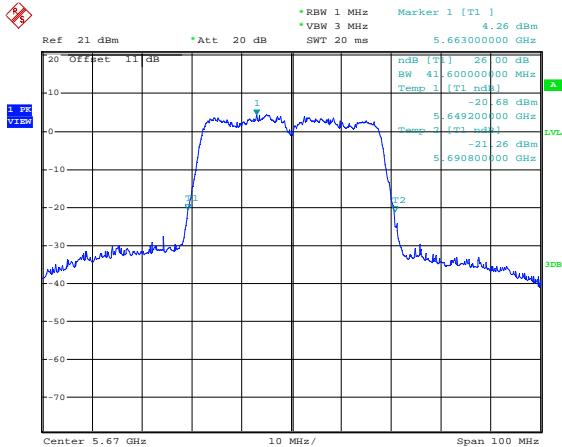
## CH110



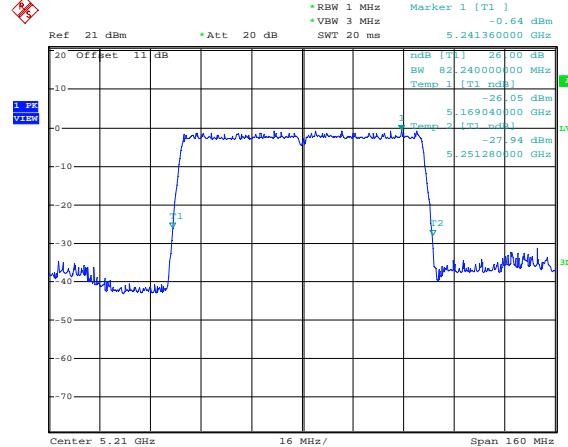


## Antenna B

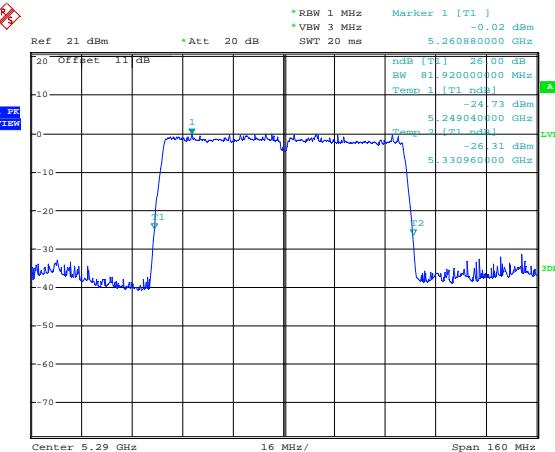
Modulation Standard: 802.11ac VHT40 (13.5Mbps)  
CH134



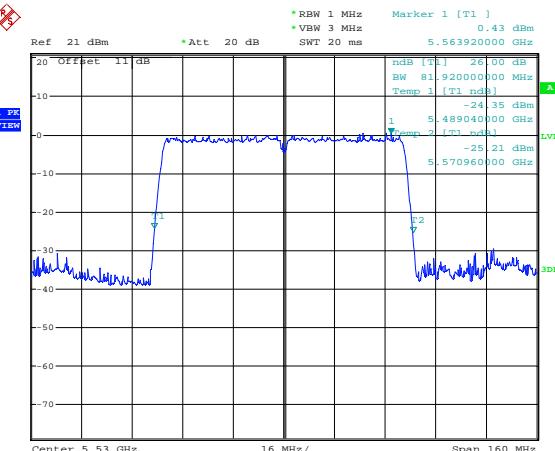
Modulation Standard: 802.11ac VHT80 (29.3Mbps)  
CH42



## CH58



## CH106





## 10. Average Power

### 10.1. Test Limit

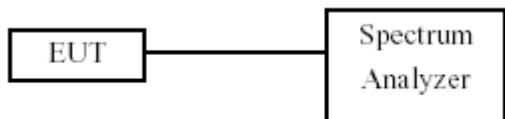
None; for reporting purposes only.

### 10.2. Test Procedure

The transmitter output is connected to a power meter.

The cable assembly insertion loss of 11 dB (including 10 dB pad and 1 dB cable) was entered as an offset in the power meter to allow for direct reading of power.

### 10.3. Test Setup Layout





## 10.4. Test Result and Data

Temperature: 21°C

Humidity: 58%

Test Date: Mar. 02, 2017

### In the 5.2G Band

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
			ANT A	ANT B	A+B	A+B	
802.11a	36	5180	11.7	11.14	14.44	27.79	24.00
	44	5220	12.4	11.13	14.82	30.35	24.00
	48	5240	12.06	11.02	14.58	28.72	24.00
802.11an HT20	36	5180	12.73	11.68	15.25	33.47	24.00
	44	5220	14.02	13.01	16.55	45.23	24.00
	48	5240	13.88	12.97	16.46	44.25	24.00
802.11an HT40	38	5190	7.19	6.92	10.07	10.16	24.00
	46	5230	12.2	12.31	15.27	33.62	24.00
802.11ac VHT20	36	5180	12.75	11.79	15.31	33.94	24.00
	44	5220	14.13	13.1	16.66	46.30	24.00
	48	5240	13.95	13	16.51	44.78	24.00
802.11ac VHT40	38	5190	7.24	6.95	10.11	10.25	24.00
	46	5230	13.23	12.35	15.82	38.22	24.00
802.11ac VHT80	42	5210	8.31	8.27	11.30	13.49	24.00

### In the 5.3G Band

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
			ANT A	ANT B	A+B	A+B	
802.11a	52	5260	15.85	14.93	18.42	69.58	24.00
	60	5300	15.62	14.82	18.25	66.81	24.00
	64	5320	15.2	14.65	17.94	62.29	24.00
802.11an HT20	52	5260	15.9	14.89	18.43	69.74	24.00
	60	5300	15.58	15.11	18.36	68.57	24.00
	64	5320	13.74	14.66	17.23	52.90	24.00
802.11an HT40	54	5270	15.28	14.18	17.78	59.91	24.00
	62	5310	12.13	11.53	14.85	30.55	24.00
802.11ac VHT20	52	5260	15.93	15.02	18.51	70.94	24.00
	60	5300	15.72	15.27	18.51	70.98	24.00
	64	5320	13.98	14.7	17.37	54.52	24.00
802.11ac VHT40	54	5270	15.33	14.3	17.86	61.03	24.00
	62	5310	12.5	11.79	15.17	32.88	24.00
802.11ac VHT80	58	5290	9.11	8.43	11.79	15.11	24.00



Temperature: 21°C

Humidity: 58%

Test Date: Mar. 02, 2017

**In the 5.5G Band**

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
			ANT A	ANT B	A+B	A+B	
802.11a	100	5500	14.45	13.99	17.24	52.92	24.00
	116	5580	15.44	15.04	18.25	66.91	24.00
	132	5660	15.17	15.07	18.13	65.02	24.00
	140	5700	13.79	13.5	16.66	46.32	24.00
802.11an HT20	100	5500	12.86	12.48	15.68	37.02	24.00
	116	5580	15.66	15.02	18.36	68.58	24.00
	140	5700	11.38	11.53	14.47	27.96	24.00
802.11an HT40	102	5510	9.65	9.32	12.50	17.78	24.00
	110	5550	14.36	14.23	17.31	53.77	24.00
	134	5670	10.27	9.55	12.94	19.66	24.00
802.11ac VHT20	100	5500	12.92	12.57	15.76	37.66	24.00
	116	5580	15.6	15.1	18.37	68.67	24.00
	140	5700	11.66	11.64	14.66	29.24	24.00
802.11ac VHT40	102	5510	9.87	9.46	12.68	18.54	24.00
	110	5550	14.45	14.52	17.50	56.18	24.00
	134	5670	10.31	9.72	13.04	20.12	24.00
802.11ac VHT80	106	5530	8.75	8.11	11.45	13.97	24.00

**In the 5.8G Band**

Modulation Type	Channel	Frequency (MHz)	Avg Power Output (dBm)		Total Power (dBm)	Total Power (mW)	Power Limit (dBm)
			ANT A	ANT B	A+B	A+B	
802.11a	149	5745	15.5	14.84	18.19	65.96	30.00
	157	5785	15.76	15.3	18.55	71.55	30.00
	165	5825	15.53	15.39	18.47	70.32	30.00
802.11an HT20	149	5745	15.67	15.34	18.52	71.10	30.00
	157	5785	15.38	15.07	18.24	66.65	30.00
	165	5825	15.47	15.22	18.36	68.50	30.00
802.11an HT40	151	5755	15.02	14.29	17.68	58.62	30.00
	159	5795	15.09	14.78	17.95	62.35	30.00
802.11ac VHT20	149	5745	15.8	15.37	18.60	72.45	30.00
	157	5785	15.9	15.28	18.61	72.63	30.00
	165	5825	15.8	15.54	18.68	73.83	30.00
802.11ac VHT40	151	5755	15.16	14.53	17.87	61.19	30.00
	159	5795	15.33	14.9	18.13	65.02	30.00
802.11ac VHT80	155	5775	13.75	12.98	16.39	43.57	30.00



## 11. Output Power and PPSD

### 11.1. Test Limit

#### Output Power:

Frequency Band	Limit
<input checked="" type="checkbox"/> 5.15~5.25GHz	
<b>Operating Mode</b>	
<input type="checkbox"/> Outdoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. The maximum e.i.r.p. at any elevation angle above 30degrees as measured from the horizon must not exceed 125 mW (21 dBm).
<input type="checkbox"/> Indoor access point	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
<input type="checkbox"/> Fixed point-to-point access points	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi.
<input checked="" type="checkbox"/> client devices	The maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24dBm) provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.



Frequency Band	Limit
<input checked="" type="checkbox"/> 5.25-5.35 GHz	The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW (24dBm) or 11 dBm $10 \log B$ , where B is the 26 dB emission bandwidth in megahertz. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
<input checked="" type="checkbox"/> 5.470-5.725 GHz	
<input checked="" type="checkbox"/> 5.725~5.85 GHz	The maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm). If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power.

**PSD:**

Frequency Band	Limit
<input checked="" type="checkbox"/> 5.15~5.25GHz	
<input type="checkbox"/> Operating Mode	
<input type="checkbox"/> Outdoor access point	17 dBm/MHz
<input type="checkbox"/> Indoor access point	17 dBm/MHz
<input type="checkbox"/> Fixed point-to-point access points	17 dBm/MHz
<input checked="" type="checkbox"/> Client devices	11 dBm/MHz
<input checked="" type="checkbox"/> 5.725~5.85 GHz	11 dBm/MHz
<input checked="" type="checkbox"/> 5.470-5.725 GHz	11 dBm/MHz
<input checked="" type="checkbox"/> 5.725~5.85 GHz	30 dBm/500kHz



## 11.2. Test Procedure

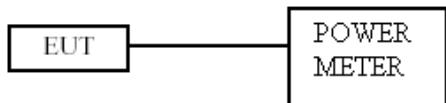
As an alternative to FCC KDB-789033, the EUT maximum conducted output power was measured with an average power meter employing a video bandwidth greater than 6dB BW of the emission under test. Maximum conducted output power was read directly from the meter across all data rates, and across three channels within each sub-band. Special care was used to make sure that the EUT was transmitting in continuous mode. This method exceeds the limitations of FCC KDB-789033, and provides more accurate measurements.

802.11an (BW  $\leq$  40MHz) Maximum conducted output power using KDB 789033 section E)3)b)  
Method PM-G (Measurement using a gated RF average power meter)

Note: the power meter have a video bandwidth that is greater than or equal to the measurement bandwidth, (Anritsu/ MA2411B video bandwidth: 65MHz)

802.11ac (BW=80MHz) Maximum conducted output power using KDB 789033 section E)2)b)  
Method SA-1 (trace averaging with the EUT transmitting at full power throughout each sweep).  
When transmitted signals consist of two or more non-contiguous spectrum segments (e.g., 80+80 MHz mode) or when a single spectrum segment of a transmission crosses the boundary between two adjacent U-NII bands, KDB 644545 D01 section F) procedure is used for measurements.

## 11.3. Test Setup Layout





## 11.4. Test Result and Data

Temperature: 21°C

Humidity: 58%

Test Date: Mar. 02, 2017

### In the 5.2G Band

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
			ANT A	ANT B				
802.11a	36	5180	-2.56	-2.97	0.25	0.00	0.25	11.00
	44	5220	-1.32	-2.38	1.19	0.00	1.19	11.00
	48	5240	-1.19	-2.46	1.23	0.00	1.23	11.00
802.11ac VHT20	36	5180	-2.18	-3.04	0.42	0.00	0.42	11.00
	44	5220	-0.68	-1.47	1.95	0.00	1.95	11.00
	48	5240	-0.57	-1.82	1.86	0.00	1.86	11.00
802.11ac VHT40	38	5190	-10.21	-10.83	-7.50	0.00	-7.50	11.00
	46	5230	-4.18	-4.97	-1.55	0.00	-1.55	11.00
802.11ac VHT80	42	5210	-13.33	-13.22	-10.26	0.00	-10.26	11.00

### In the 5.3G Band

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
			ANT A	ANT B				
802.11a	52	5260	2.35	1.53	4.97	0.00	4.97	11.00
	60	5300	1.82	1.50	4.67	0.00	4.67	11.00
	64	5320	2.02	0.96	4.53	0.00	4.53	11.00
802.11ac VHT20	52	5260	1.74	1.04	4.41	0.00	4.41	11.00
	60	5300	1.40	0.88	4.16	0.00	4.16	11.00
	64	5320	-1.68	-0.90	1.74	0.00	1.74	11.00
802.11ac VHT40	54	5270	-2.23	-2.78	0.51	0.00	0.51	11.00
	62	5310	-4.93	-5.24	-2.07	0.00	-2.07	11.00
802.11ac VHT80	58	5290	-11.59	-12.40	-8.97	0.00	-8.97	11.00



Temperature: 21°C

Humidity: 58%

Test Date: Mar. 02, 2017

**In the 5.5G Band**

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
			ANT A	ANT B				
802.11a	100	5500	1.34	1.19	4.28	0.00	4.28	11.00
	116	5580	2.25	1.79	5.04	0.00	5.04	11.00
	140	5700	-0.87	-1.01	2.07	0.00	2.07	11.00
802.11ac VHT20	100	5500	-0.65	-0.98	2.20	0.00	2.20	11.00
	116	5580	1.73	1.62	4.69	0.00	4.69	11.00
	140	5700	-2.81	-3.01	0.10	0.00	0.10	11.00
802.11ac VHT40	102	5510	-6.75	-7.18	-3.95	0.00	-3.95	11.00
	118	5550	-1.59	-2.45	1.01	0.00	1.01	11.00
	134	5670	-7.85	-7.74	-4.78	0.00	-4.78	11.00
802.11ac VHT80	106	5530	-12.27	-12.48	-9.36	0.00	-9.36	11.00

**In the 5.8G Band**

Modulation Type	CH	Freq. (MHz)	Meas PPSD (dBm/MHz)		Sum chain (dBm)	Duty Cycle CF(dB)	10log (500KHz/RBW) CF (dB)	Total Corr'd PPSD (dBm/MHz)	PPSD Limit (dBm/MHz)
			ANT A	ANT B					
802.11a	149	5745	1.41	0.72	4.09	0.00	-3.01	1.08	30.00
	157	5785	1.57	1.43	4.51	0.00	-3.01	1.50	30.00
	165	5825	1.80	1.77	4.80	0.00	-3.01	1.79	30.00
802.11ac VHT20	149	5745	1.40	0.99	4.21	0.00	-3.01	1.20	30.00
	157	5785	1.96	1.56	4.77	0.00	-3.01	1.76	30.00
	165	5825	1.40	1.66	4.54	0.00	-3.01	1.53	30.00
802.11ac VHT40	155	5755	-2.30	-3.49	0.16	0.00	-3.01	-2.85	30.00
	159	5795	-2.49	-2.49	0.52	0.00	-3.01	-2.49	30.00
802.11ac VHT80	155	5775	-7.18	-7.77	-4.45	0.00	-3.01	-7.46	30.00

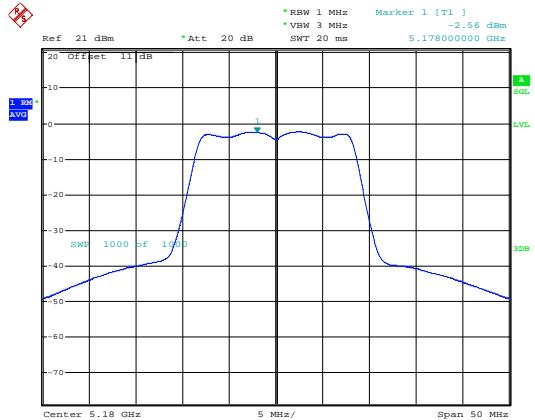


5.2G Band, 5.3G Band, 5.5G Band

Antenna A

Modulation Standard: 802.11a (6Mbps)

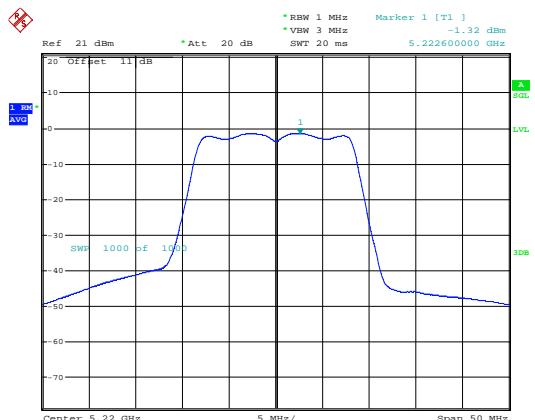
CH36



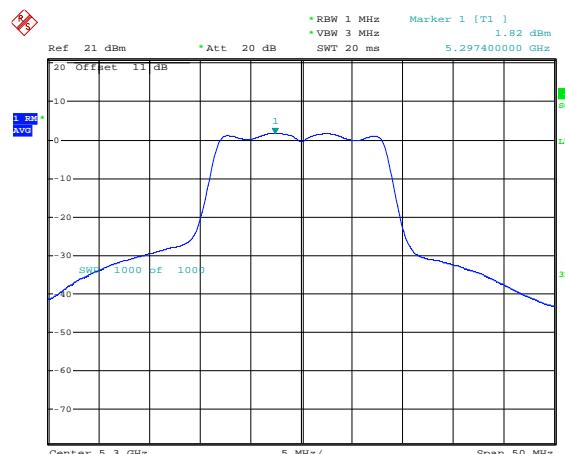
CH52



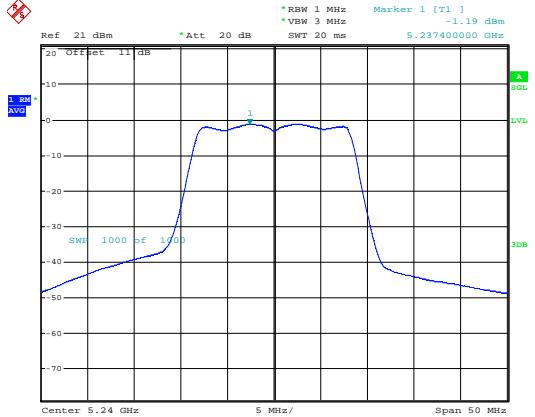
CH44



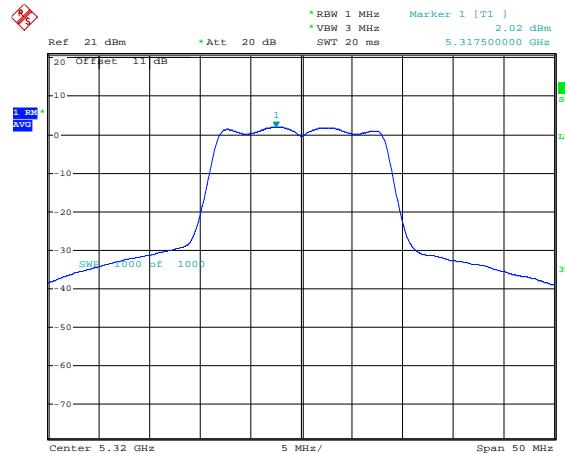
CH60



CH48



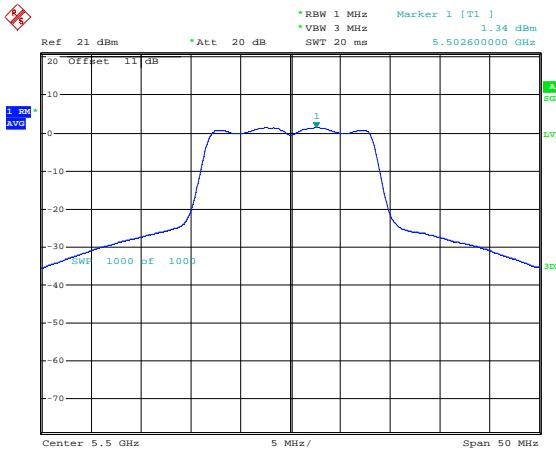
CH64





## Antenna A

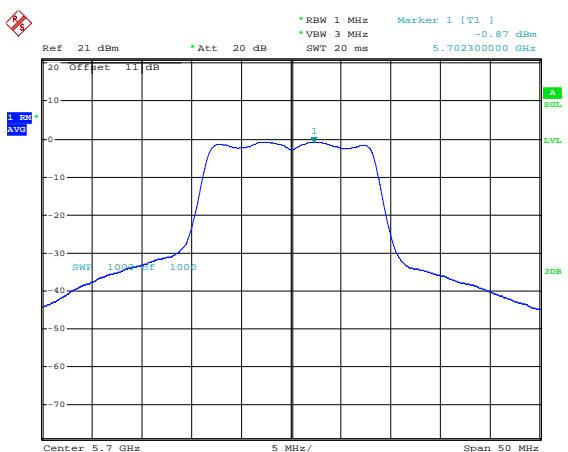
Modulation Standard: 802.11a (6Mbps)  
CH100



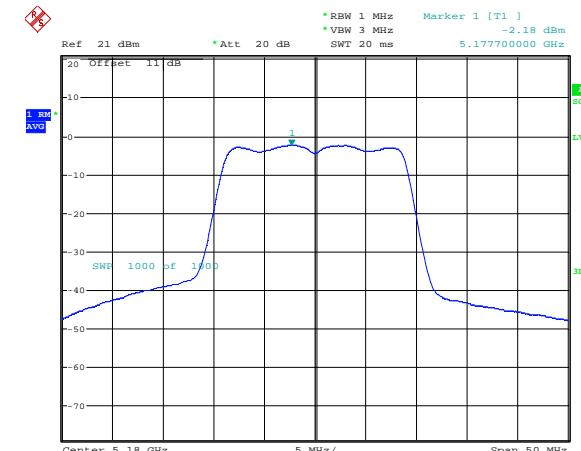
## CH116



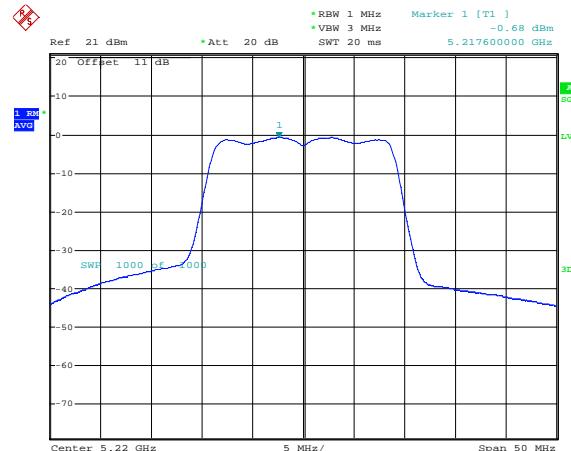
## CH140



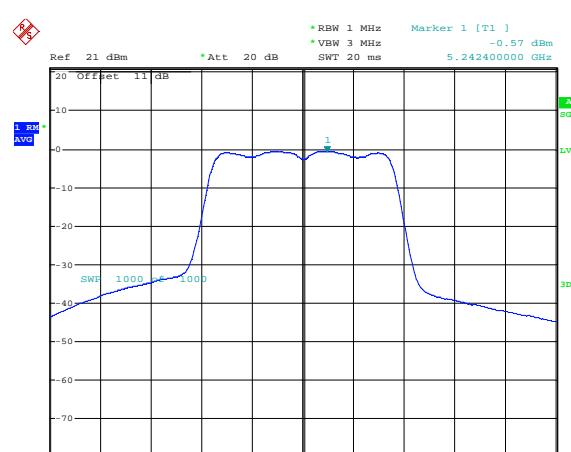
Modulation Standard: 802.11ac VHT20 (6.5Mbps)  
CH36



## CH44



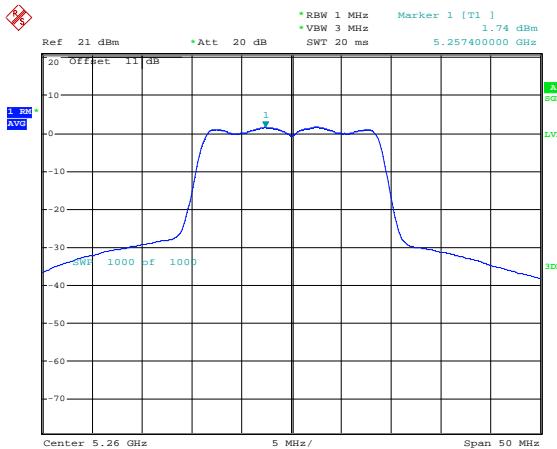
## CH48



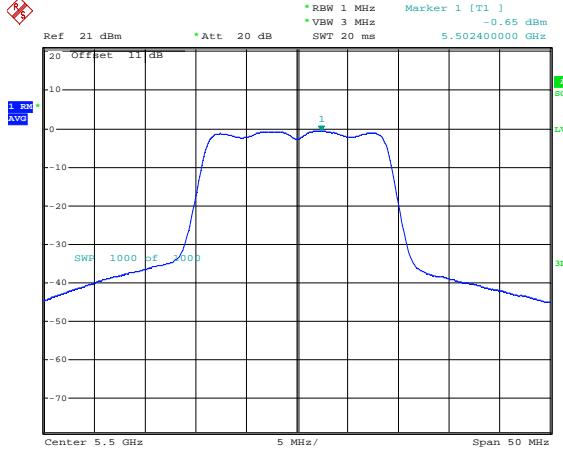


## Antenna A

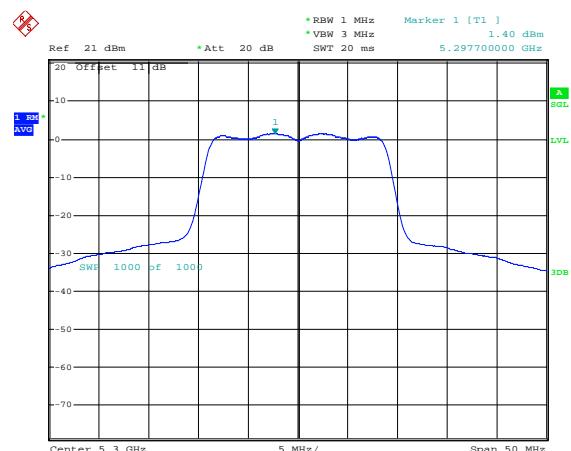
Modulation Standard: 802.11ac VHT20 (6.5Mbps)  
CH52



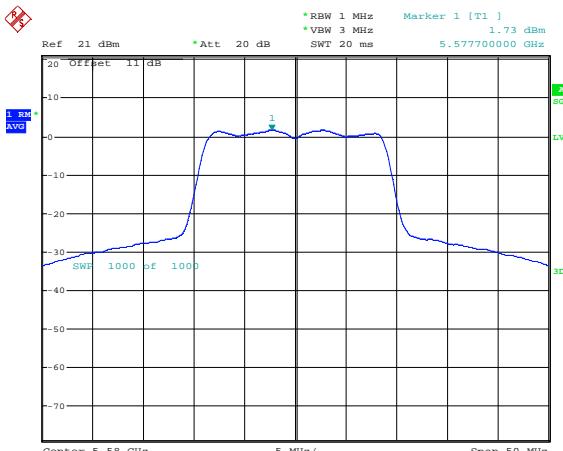
## CH100



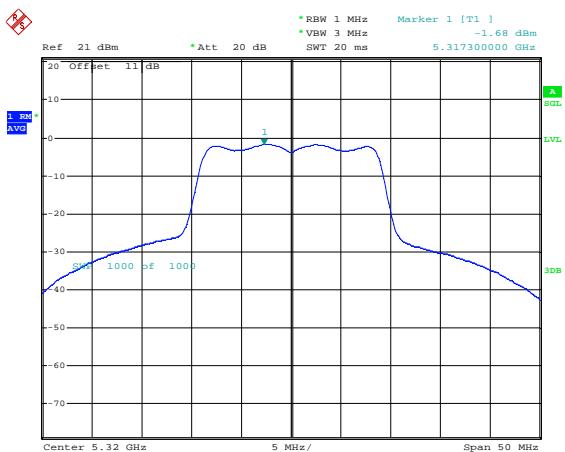
## CH60



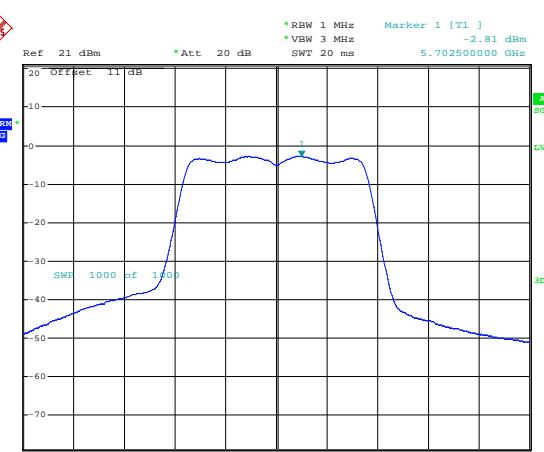
## CH116



## CH64



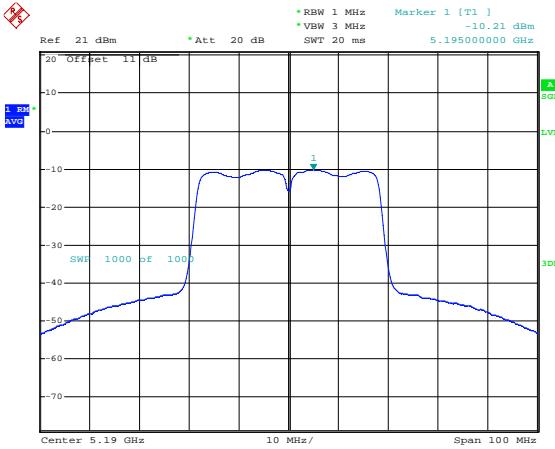
## CH140



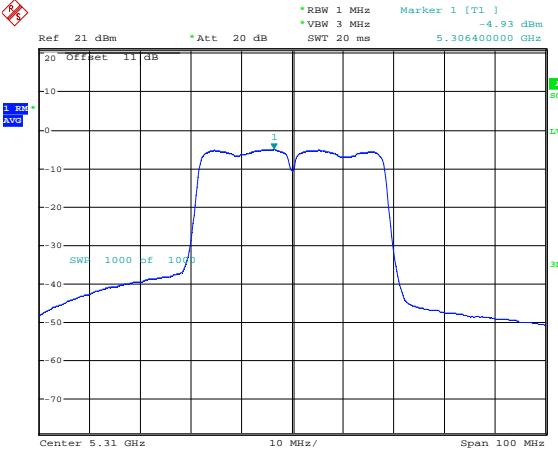


## Antenna A

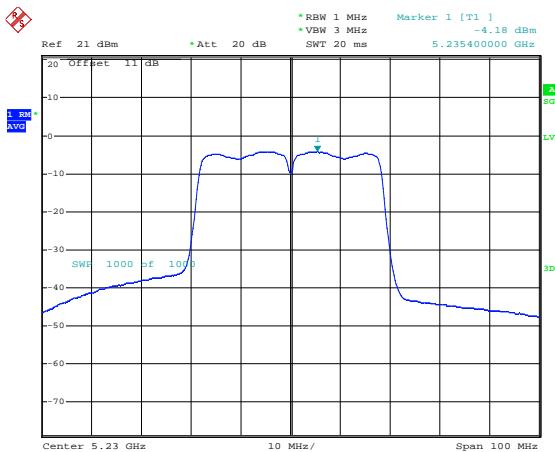
Modulation Standard: 802.11ac VHT40 (13.5Mbps)  
CH38



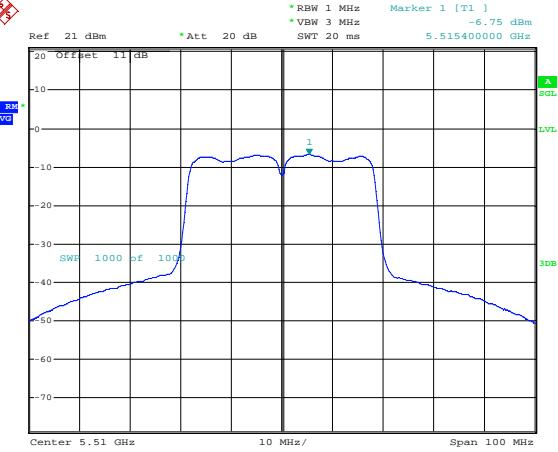
## CH62



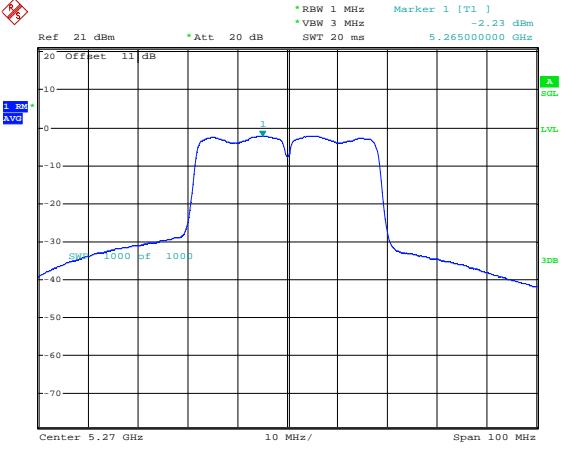
## CH46



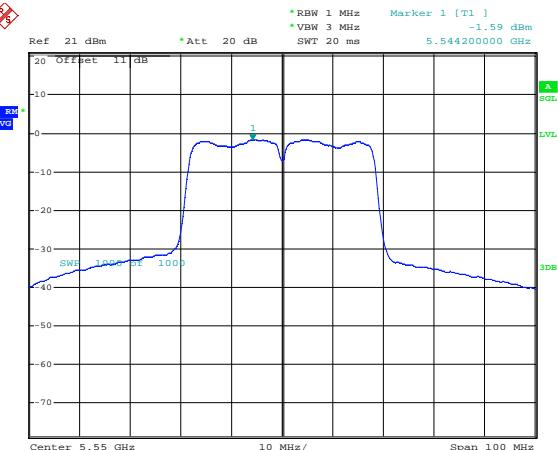
## CH102



## CH54



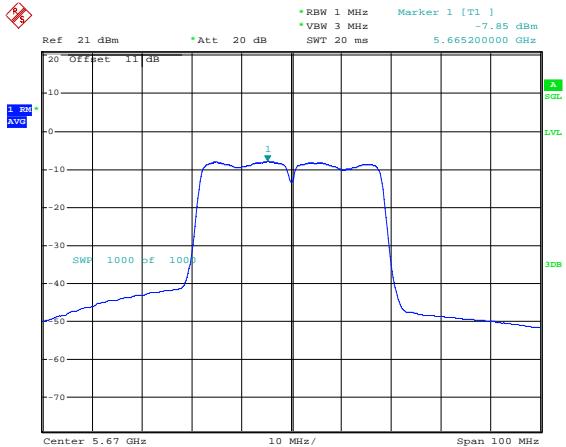
## CH110



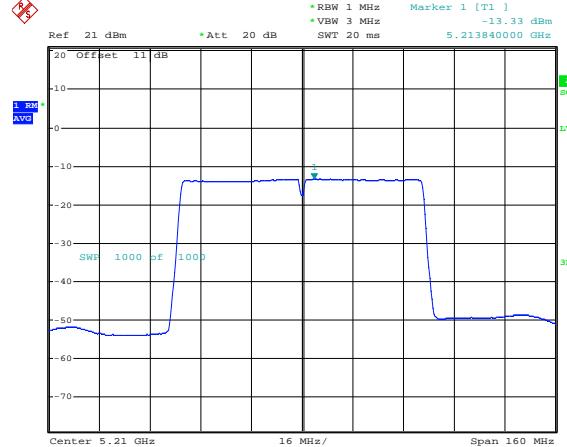


## Antenna A

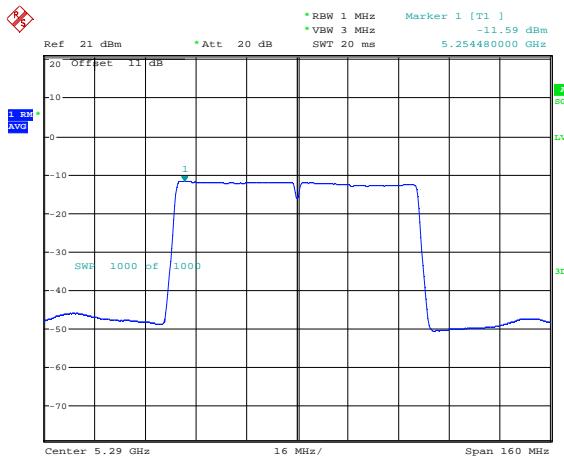
Modulation Standard: 802.11ac VHT40 (13.5Mbps)  
CH134



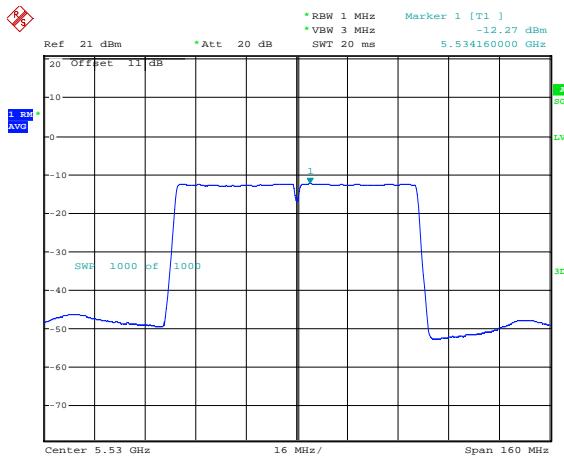
Modulation Standard: 802.11ac VHT80 (29.3Mbps)  
CH42



## CH58



## CH106

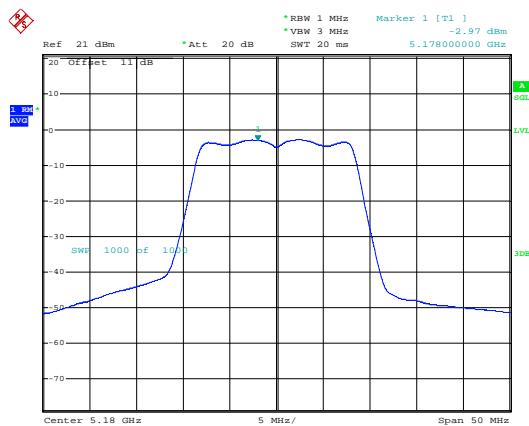




## Antenna B

Modulation Standard: 802.11a (6Mbps)

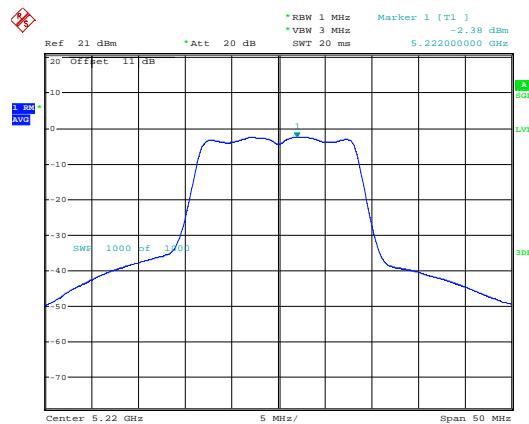
CH36



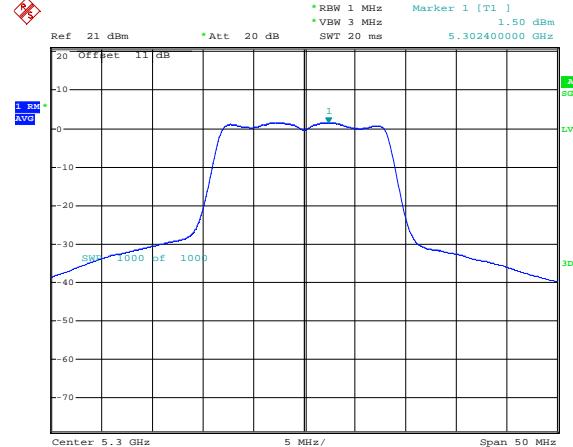
CH52



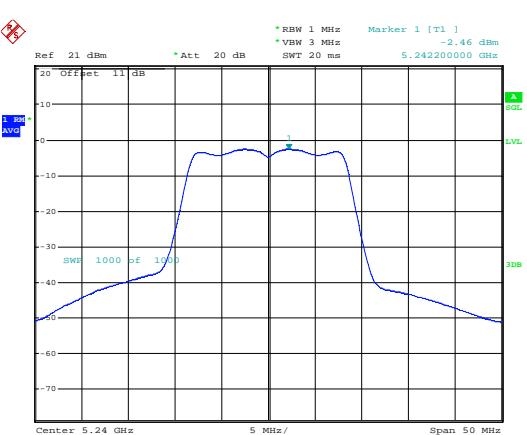
CH44



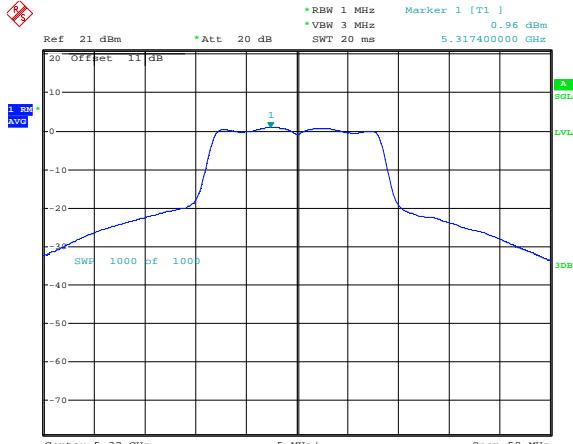
CH60



CH48



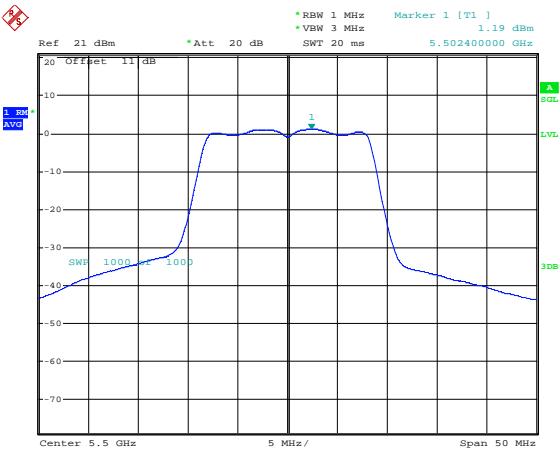
CH64



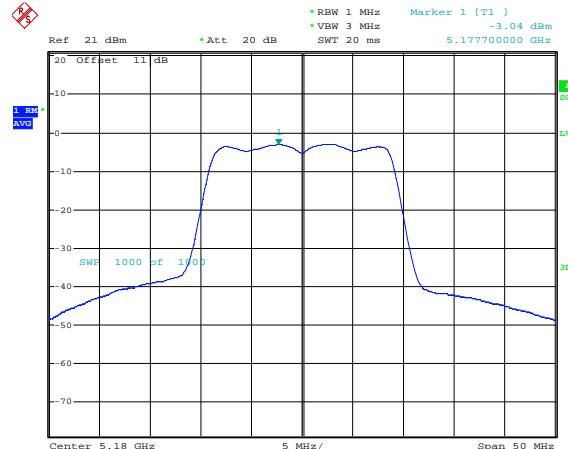


## Antenna B

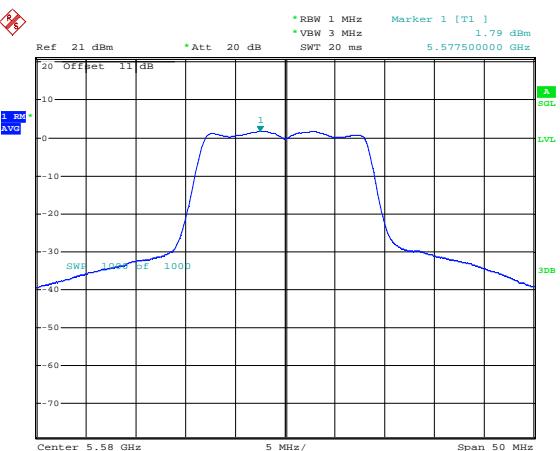
Modulation Standard: 802.11a (6Mbps)  
CH100



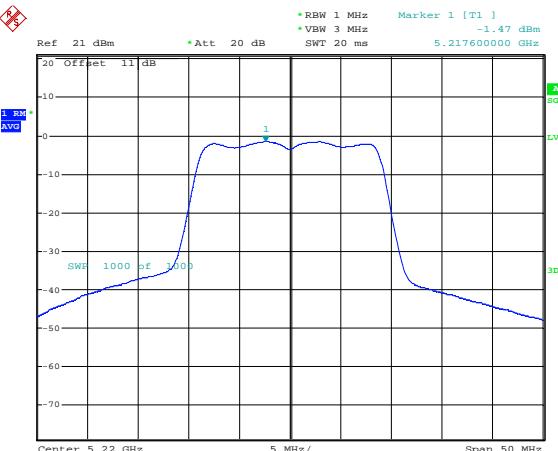
Modulation Standard: 802.11ac VHT20 (6.5Mbps)  
CH36



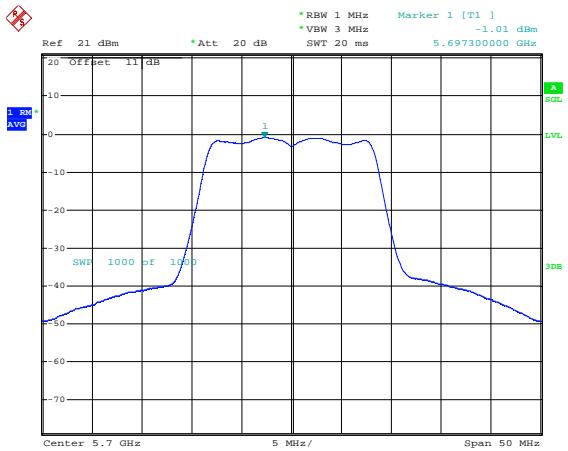
## CH116



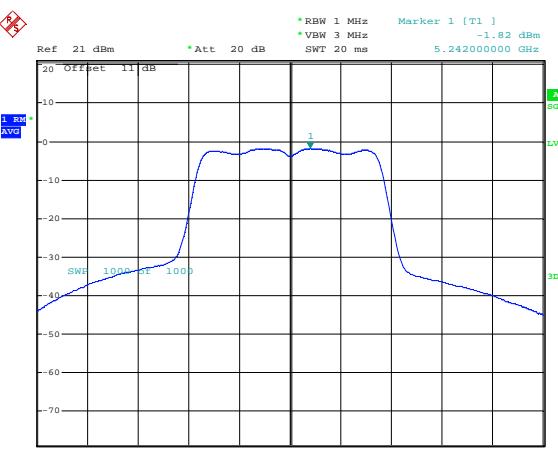
## CH44



## CH140



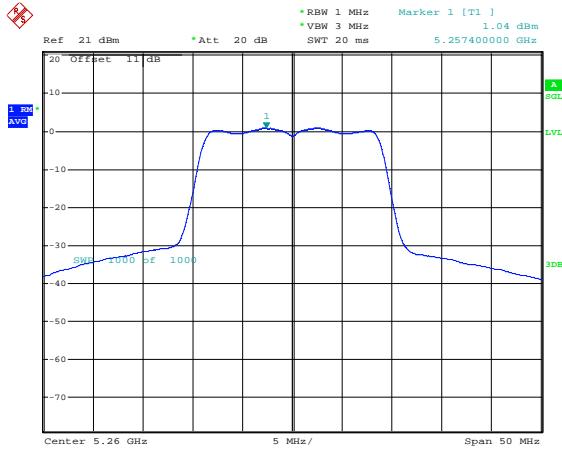
## CH48



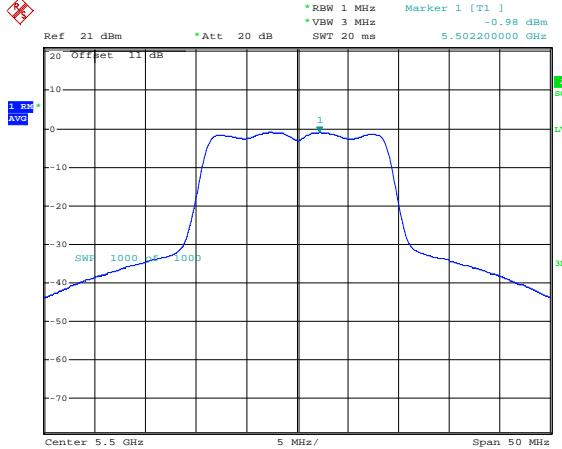


## Antenna B

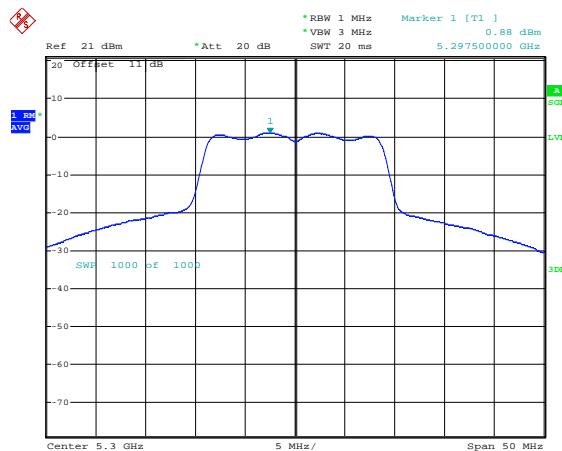
Modulation Standard: 802.11ac VHT20 (6.5Mbps)  
CH52



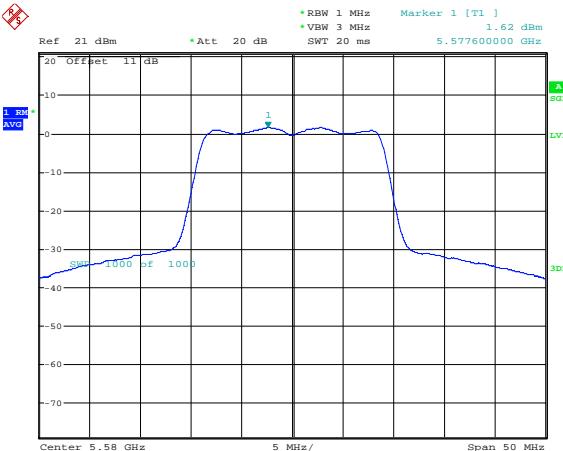
## CH100



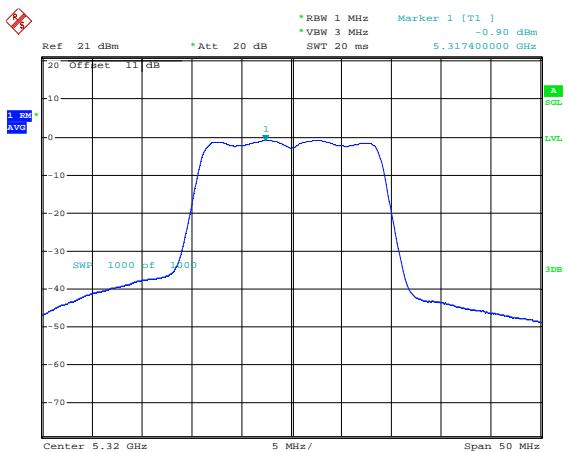
## CH60



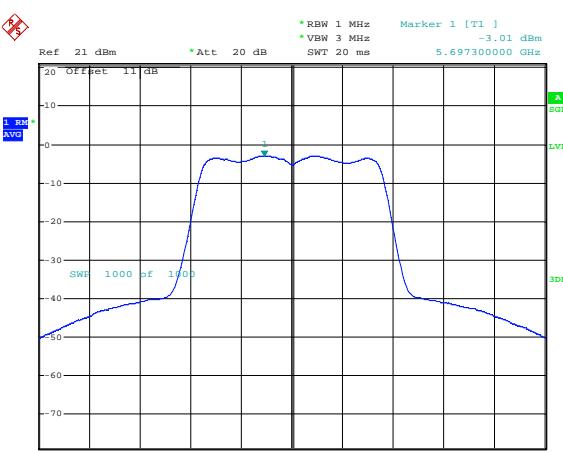
## CH116



## CH64



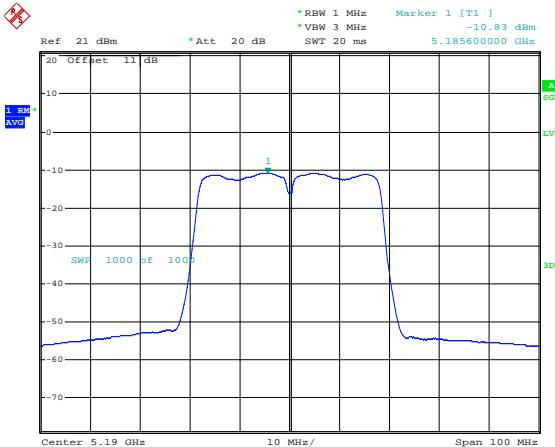
## CH140



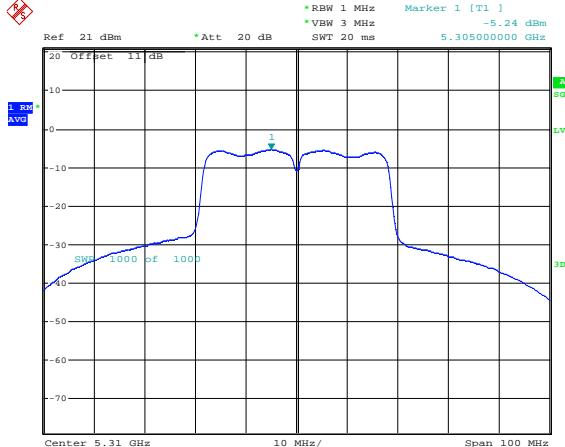


## Antenna B

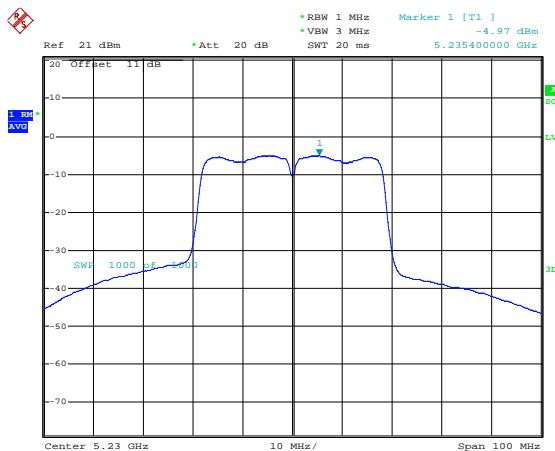
Modulation Standard: 802.11ac VHT40 (13.5Mbps)  
CH38



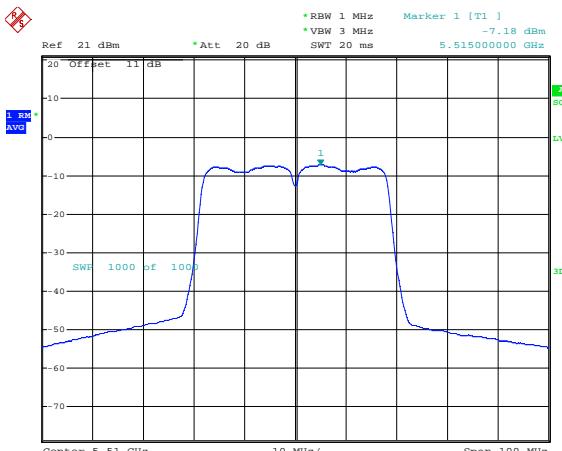
## CH62



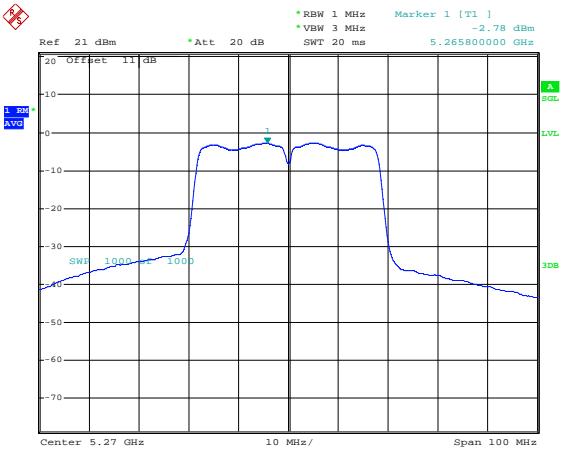
## CH46



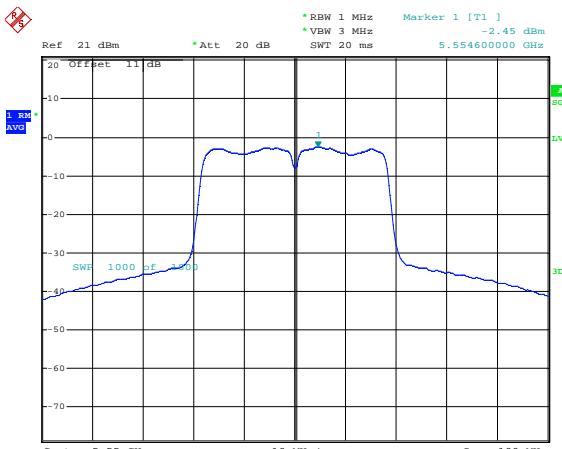
## CH102



## CH54



## CH110



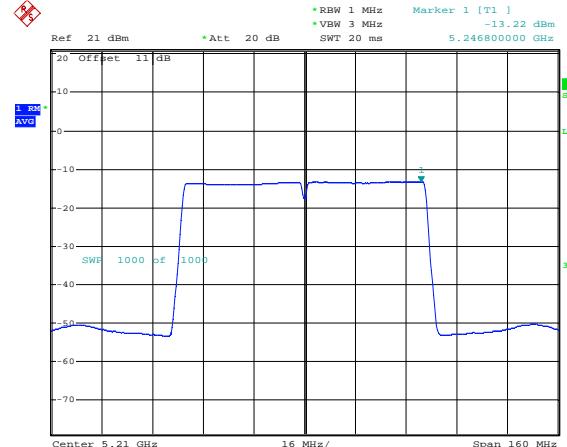


## Antenna B

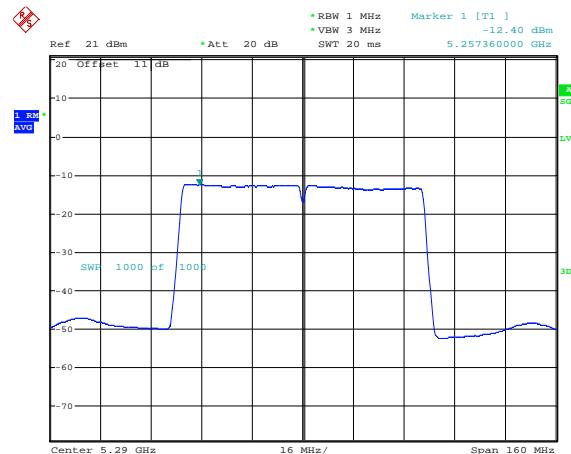
Modulation Standard: 802.11ac VHT40 (13.5Mbps)  
CH134



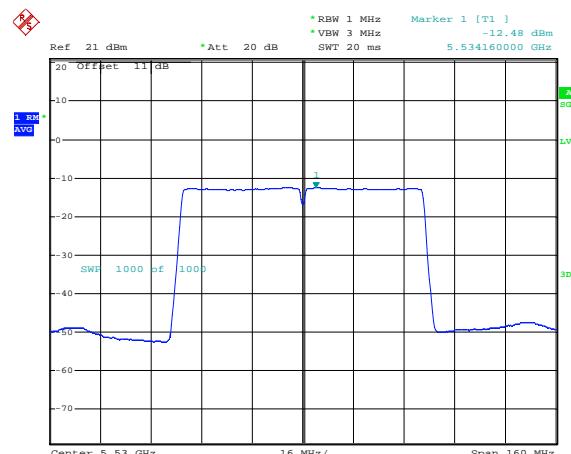
Modulation Standard: 802.11ac VHT80 (29.3Mbps)  
CH42



## CH58



## CH106

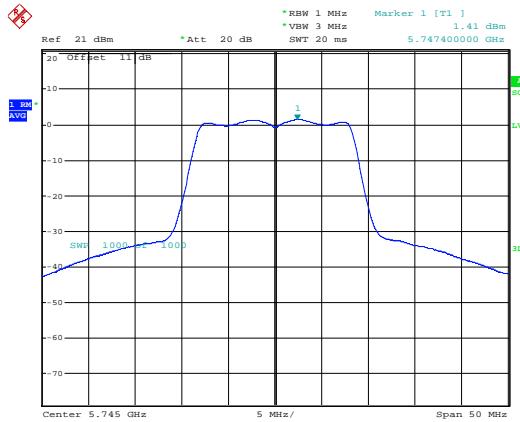




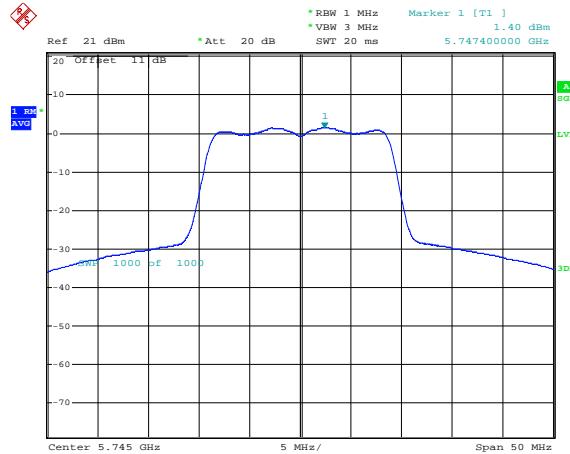
## 5.8G Band

## Antenna A

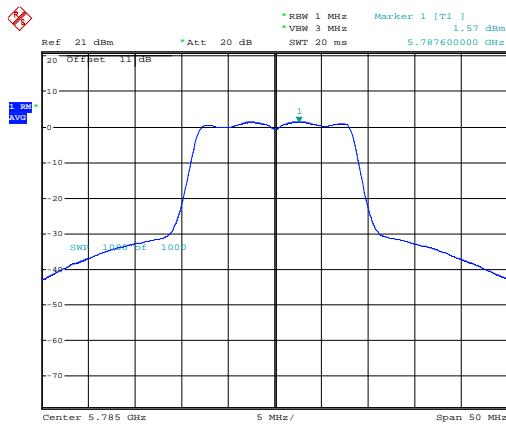
Modulation Standard: 802.11a (6Mbps)  
CH149



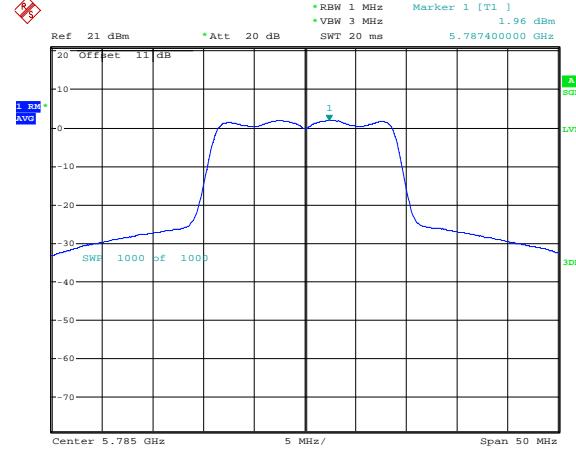
Modulation Standard: 802.11ac, VHT20 (6.5Mbps)  
CH149



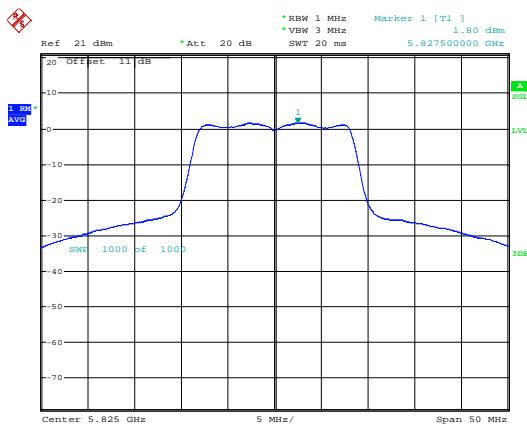
## CH157



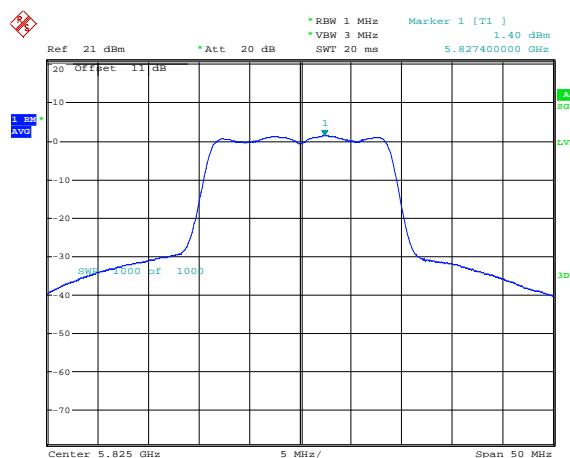
## CH157



## CH165



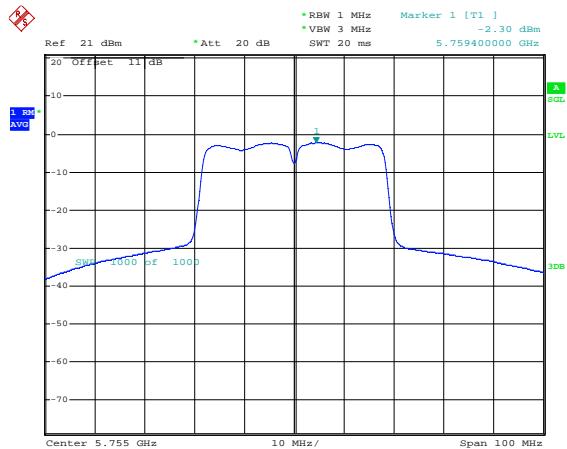
## CH165



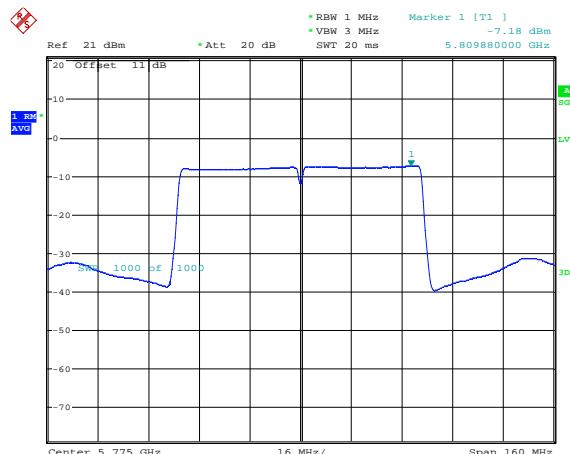


## Antenna A

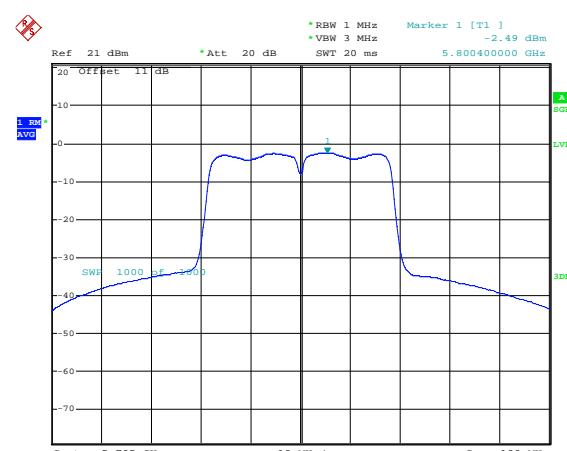
Modulation Standard: 802.11ac, VHT40 (13.5Mbps)  
CH151



Modulation Standard: 802.11ac, VHT80 (29.3Mbps)  
CH155



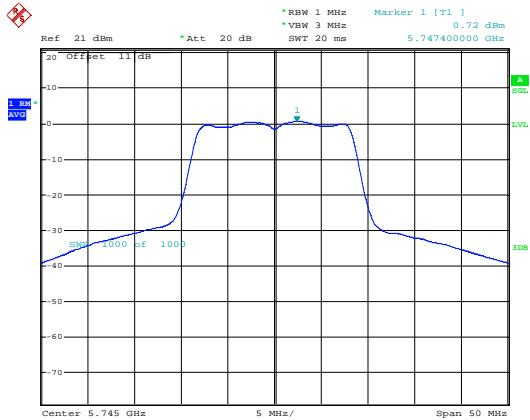
## CH159



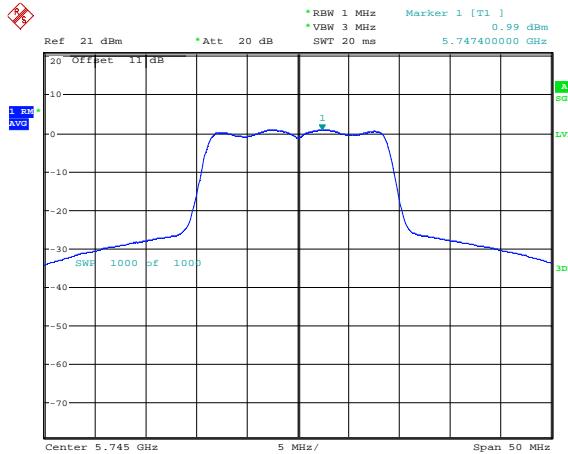


## Antenna B

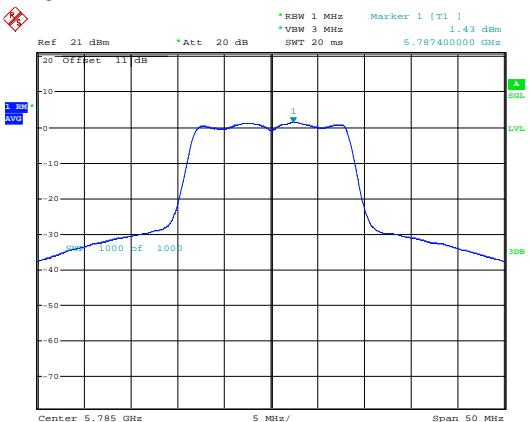
Modulation Standard: 802.11a (6Mbps)  
CH149



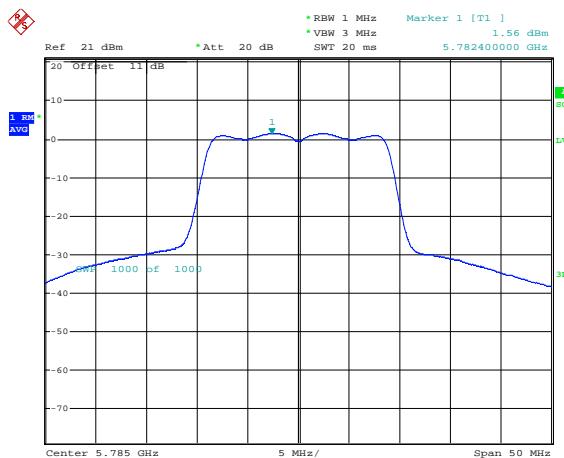
Modulation Standard: 802.11ac, VHT20 (6.5Mbps)  
CH149



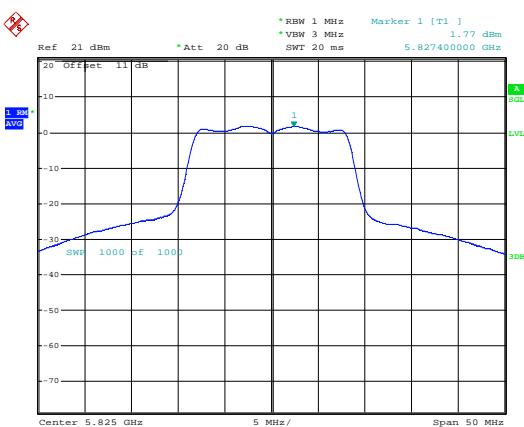
## CH157



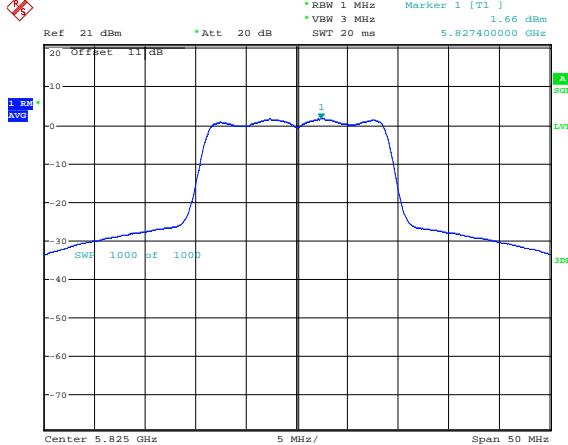
## CH157



## CH165



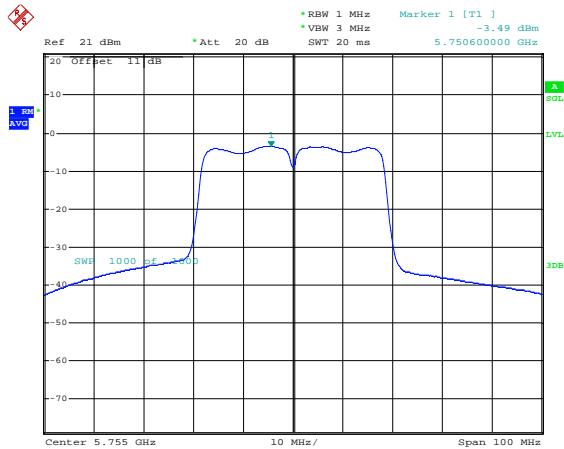
## CH165



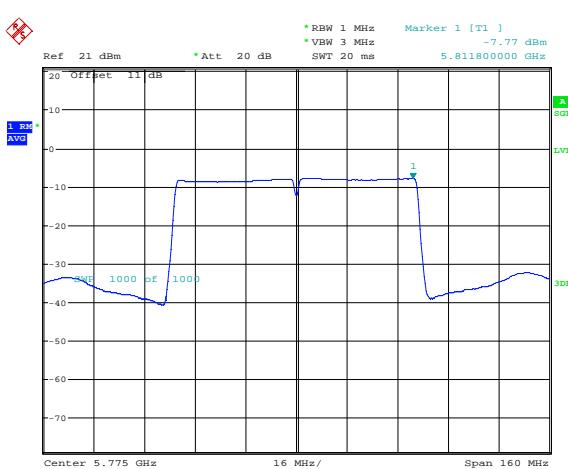


## Antenna B

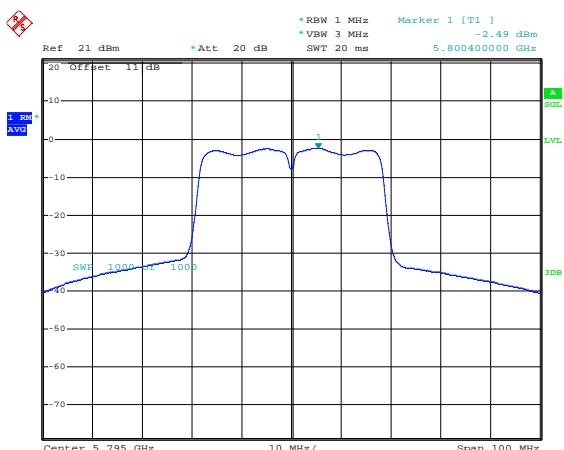
Modulation Standard: 802.11ac, VHT40 (13.5Mbps)  
CH151



Modulation Standard: 802.11ac, VHT80 (29.3Mbps)  
CH155



## CH159



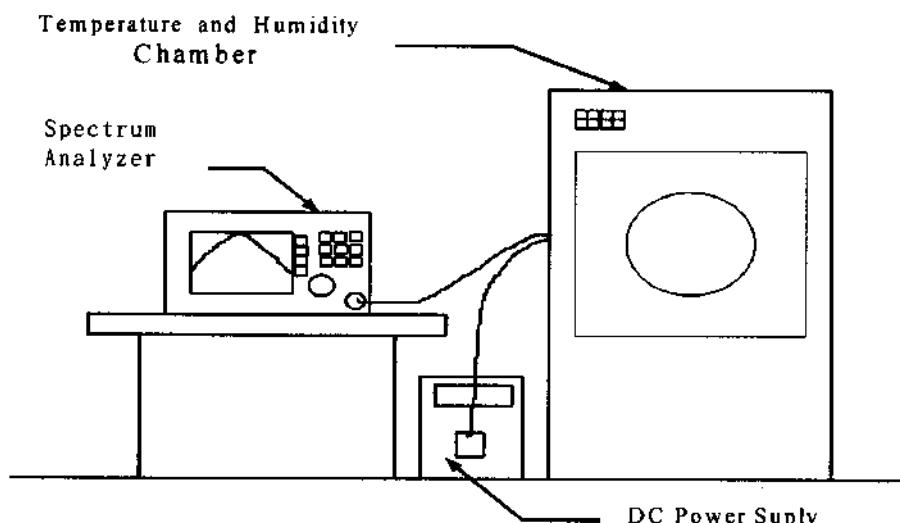


## 12. Frequency Stability

### 12.1. Test Procedure

1. The EUT was placed inside the Temperature and Humidity chamber.
2. The transmitter output was connected to spectrum analyzer.
3. Turn the EUT on and couple its output to a spectrum analyzer.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT on and measure the operating frequency after 2, 5, and 10 minutes.
6. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
7. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes. The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

### 12.2. Test Setup Layout





### 12.3. Test Result and Data

Temperature: 21°C

Humidity: 58%

Test Date: Mar. 02, 2017

Operating frequency: 5670 MHz							
Temp	Power supply	2 minute		5 minute		10 minute	
(°C)	(V)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	102	5669.8871	-0.001991	5669.3741	-0.011039	5669.6913	-0.054444
	120	5669.9777	-0.000393	5669.7265	-0.004824	5669.8401	-0.028208
	138	5669.3571	-0.011338	5669.9482	-0.000913	5669.6115	-0.068511
40	102	5669.0002	-0.017634	5669.4904	-0.008988	5669.5618	-0.077289
	120	5669.3403	-0.011636	5669.4600	-0.009524	5669.4334	-0.099931
	138	5669.4672	-0.009396	5669.4495	-0.009708	5669.2515	-0.132010
30	102	5669.8652	-0.002378	5669.0905	-0.016041	5669.4638	-0.094570
	120	5669.5727	-0.007537	5669.4604	-0.009517	5669.4990	-0.088365
	138	5669.9729	-0.000479	5669.3320	-0.011781	5669.8614	-0.024446
20	102	5669.0222	-0.017246	5669.9587	-0.000728	5669.6462	-0.062397
	120	5669.5908	-0.007216	5669.4407	-0.009864	5669.0621	-0.165414
	138	5669.9456	-0.000959	5669.1018	-0.015841	5669.9491	-0.008979
10	102	5669.7436	-0.004522	5669.9617	-0.000675	5669.6779	-0.056810
	120	5669.1214	-0.015496	5669.4907	-0.008983	5669.6110	-0.068615
	138	5669.5257	-0.008365	5669.2602	-0.013047	5669.5905	-0.072215
0	102	5669.9460	-0.000952	5669.6854	-0.005549	5669.8267	-0.030567
	120	5669.1840	-0.014392	5669.8477	-0.002686	5669.8940	-0.018696
	138	5669.2221	-0.013719	5669.6629	-0.005945	5669.1527	-0.149428
-10	102	5669.3149	-0.012084	5669.8504	-0.002638	5669.6312	-0.065039
	120	5669.8769	-0.002170	5669.3676	-0.011153	5669.9409	-0.010416
	138	5669.9971	-0.000051	5669.9882	-0.000209	5669.2513	-0.132044
-20	102	5669.8291	-0.003015	5669.6071	-0.006930	5669.9878	-0.002144
	120	5669.1517	-0.014962	5669.8746	-0.002212	5669.6301	-0.065231
	138	5669.3504	-0.011457	5669.1692	-0.014652	5669.9000	-0.017638
-30	102	5669.2402	-0.013400	5669.4313	-0.010029	5669.0948	-0.159652
	120	5669.5299	-0.008291	5669.4851	-0.009080	5669.0144	-0.173828
	138	5669.6282	-0.006558	5669.9861	-0.000245	5669.1742	-0.145650

Limit:

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



## 13. Automatically Discontinue Transmission

### 13.1. Limit of Automatically Discontinue Transmission

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

### 13.2. Test Result of Automatically Discontinue Transmission

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.



## 14. Dynamic Frequency Selection

### 14.1. List of Measurement and Examinations

#### EUT Applicability of DFS requirements and Frequency Range

Operation Mode		Operating Frequency Range	
		5250-5350MHz	5470-5725MHz (5600MHz-5650MHz will be disable)
Master	--	--	--
Client without radar detection	√	√	√
Client with radar detection	--	--	--

#### DEVICES WITH RADAR DETECTION

MAXIMUM TRANSMIT POWER	VALUE (SEE Note 1 and 2)
≥ 200 milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm

Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.  
Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.  
Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911

**Table1: Applicability of DFS requirements prior to use of a channel**

REQUIREMENT RADAR	OPERATIONAL MODE		
	MASTER	CLIENT WITHOUT RADAR DETECTION	CLIENT WITH RADAR DETECTION
Non-Occupancy Period	V	V <sub>Note</sub>	V
DFS Detection Threshold	V	Not required	V
Channel Availability Check Time	V	Not required	Not required
U-NII Detection Bandwidth	V	Not required	V

Note: Regarding KDB 905462 D03 Client Without DFS New Rules section (b)(5/6),  
If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear. An analyzer plot that contains a single 30-minute sweep on the original channel.

**Table2: Applicability of DFS requirements during normal operation**

REQUIREMENT RADAR	OPERATIONAL MODE		
	MASTER	CLIENT WITHOUT RADAR DETECTION	CLIENT WITH RADAR DETECTION
DFS Detection Threshold	V	Not required	V
Channel Closing Transmission Time	V	V	V
Channel Move Time	V	V	V
U-NII Detection Bandwidth	V	Not required	V
Additional requirements for devices with multiple bandwidth modes	Master or Client with radar detection	Client without radar detection	
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required	
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link	
All other	Any single BW mode	Not required	
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.			



## 14.2. Test Setup

### Setup for Master with injection at the Master

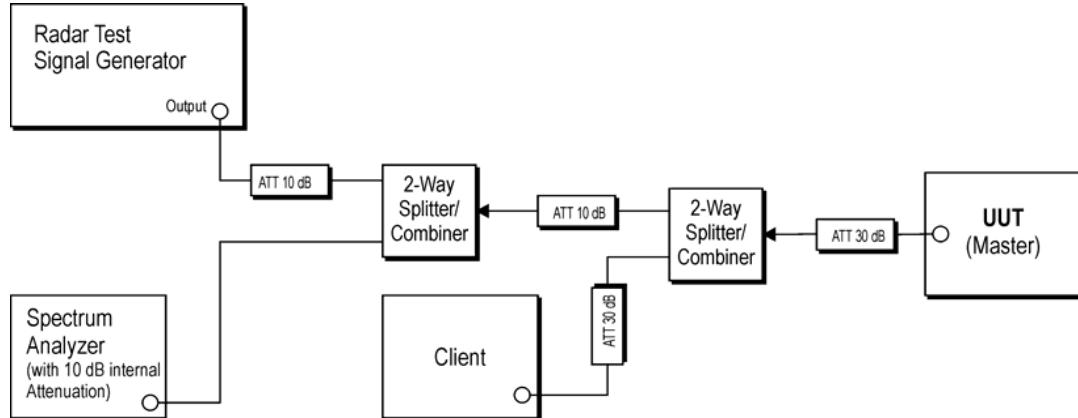


Figure 1: Example Conducted Setup where UUT is a Master and Radar Test Waveforms are injected into the Master

### Setup for Client with injection at the Master

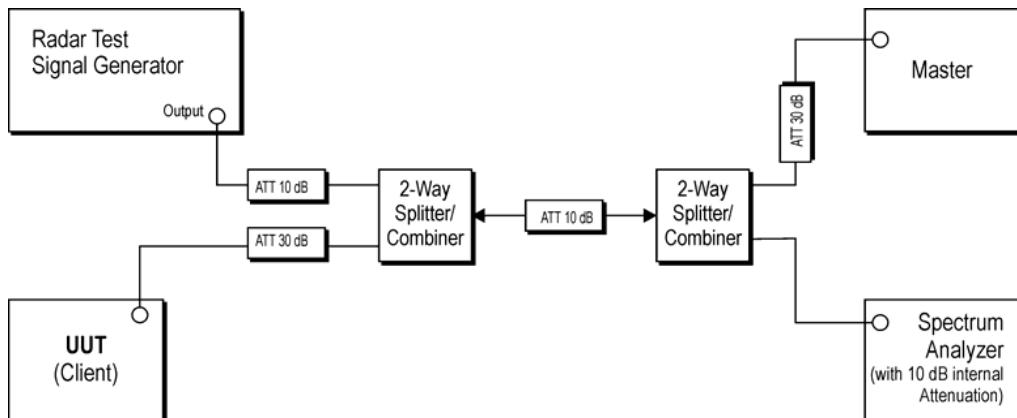


Figure 2: Example Conducted Setup where UUT is a Client and Radar Test Waveforms are injected into the Master

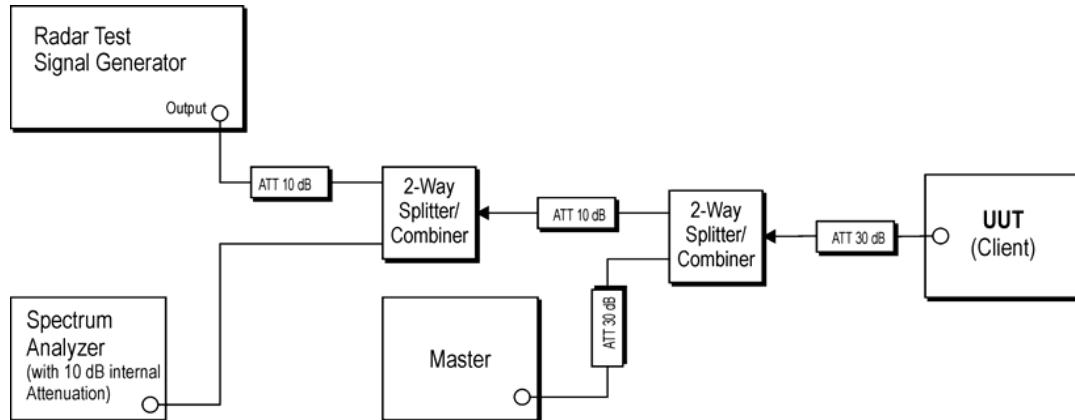
**Setup for Client with injection at the Client**

Figure 3: Example Conducted Setup where UUT is a Client and Radar Test Waveforms are injected into the Client



### 14.3. Non-Occupancy Period

The Channel Shutdown is defined as the process initiated by the RLAN device immediately after a radar signal has been detected on an Operating Channel.

The master device shall instruct all associated slave devices to stop transmitting on this channel, which they shall do within the Channel Move Time.

Slave devices with a Radar Interference Detection function, shall stop their own transmissions within the Channel Move Time.

The aggregate duration of all transmissions of the RLAN device on this channel during the Channel Move Time shall be limited to the Channel Closing Transmission Time. The aggregate duration of all transmissions shall not include quiet periods in between transmissions.

#### 14.3.1. Test Limit

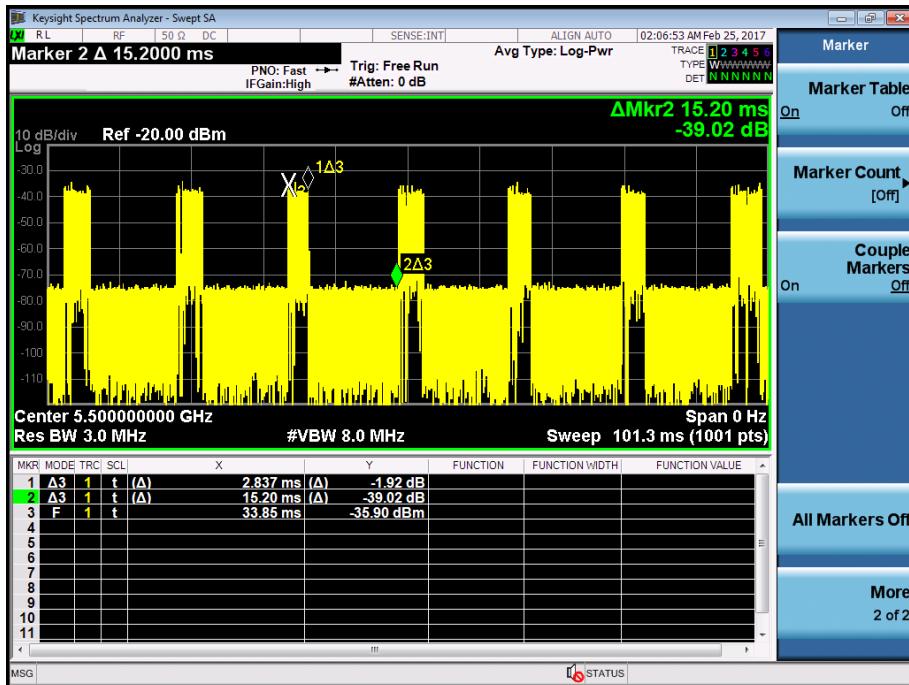
Radar Test Signal	Master (min)	Client (min)
0	> 30	> 30

#### 14.3.2. Channel Loading

Timing plots are required with calculations demonstrating a minimum channel loading of approximately 17% or greater. For example, channel loading can be estimated by setting the spectrum analyzer for zero span and approximate the Time On/ (Time On + Off Time). This can be done with any appropriate channel BW and modulation type

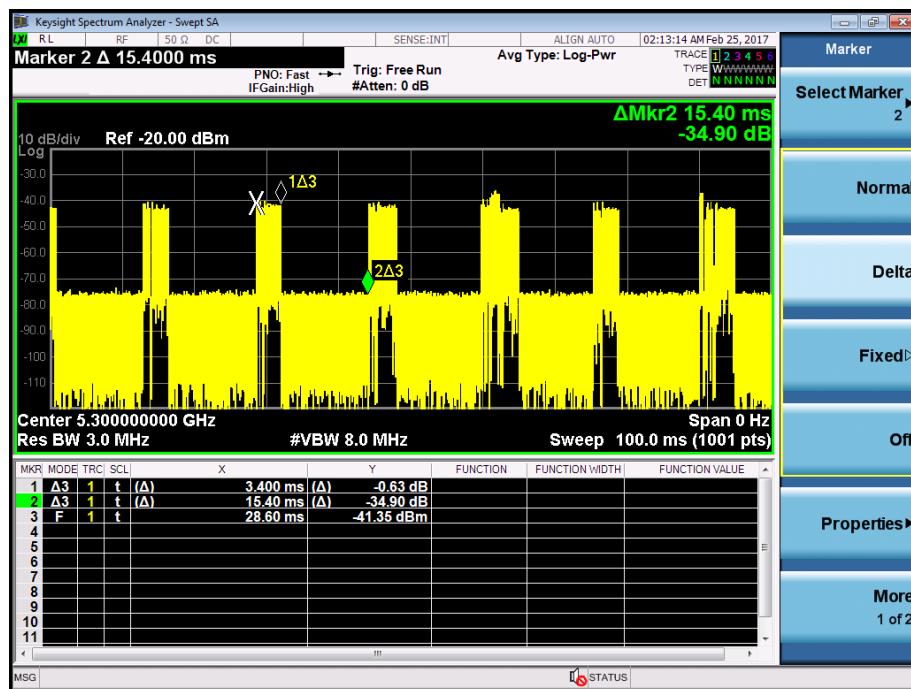
Modulation Standard: 802.11ac VHT20

Time On/ (Time On + Off Time) = 2.837ms/15.2ms=18.66%

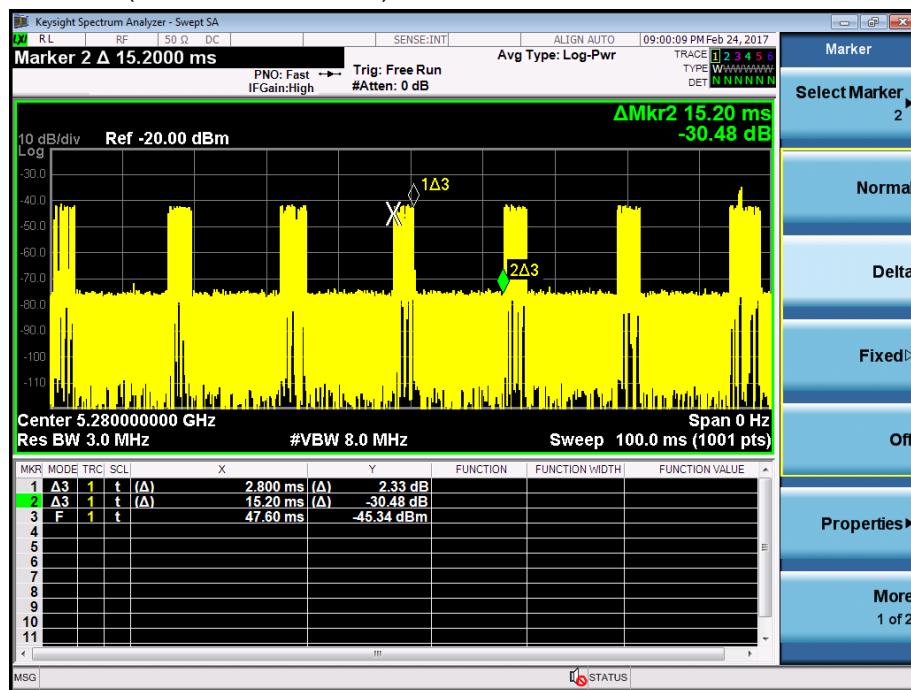




Modulation Standard: 802.11ac VHT40  
Time On/ (Time On + Off Time) = 3.4ms/15.4ms=22.07%



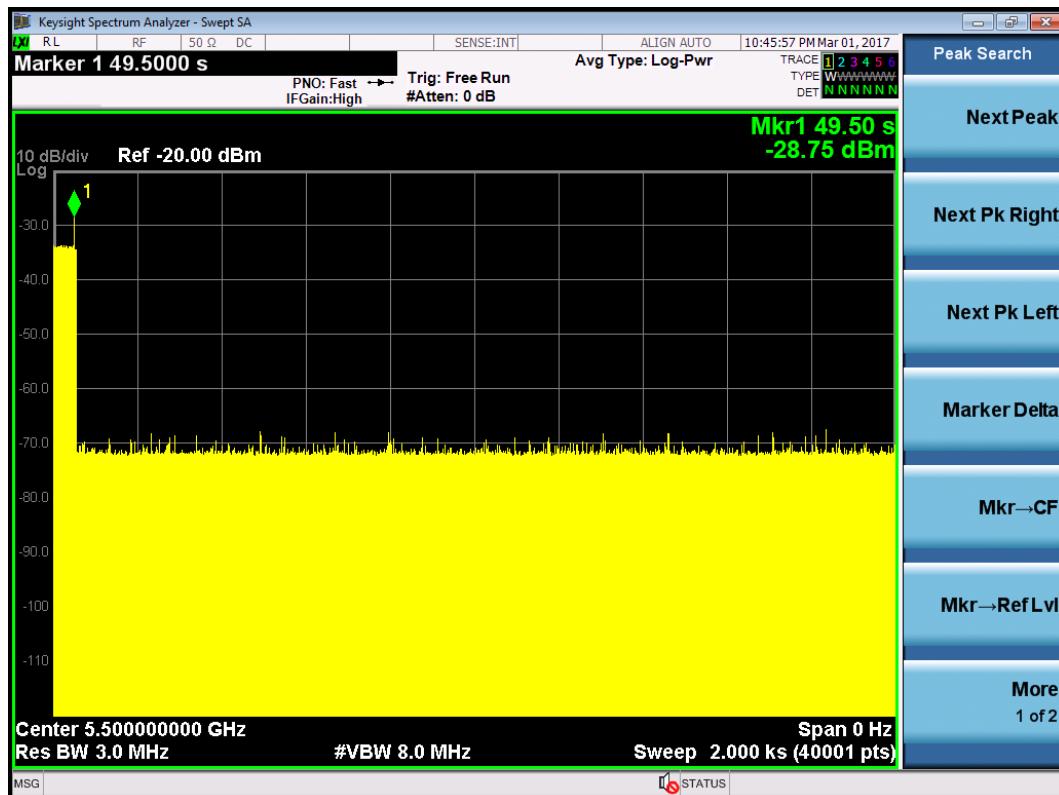
Modulation Standard: 802.11ac VHT80  
Time On/ (Time On + Off Time) = 2.8ms/15.2ms=18.42%



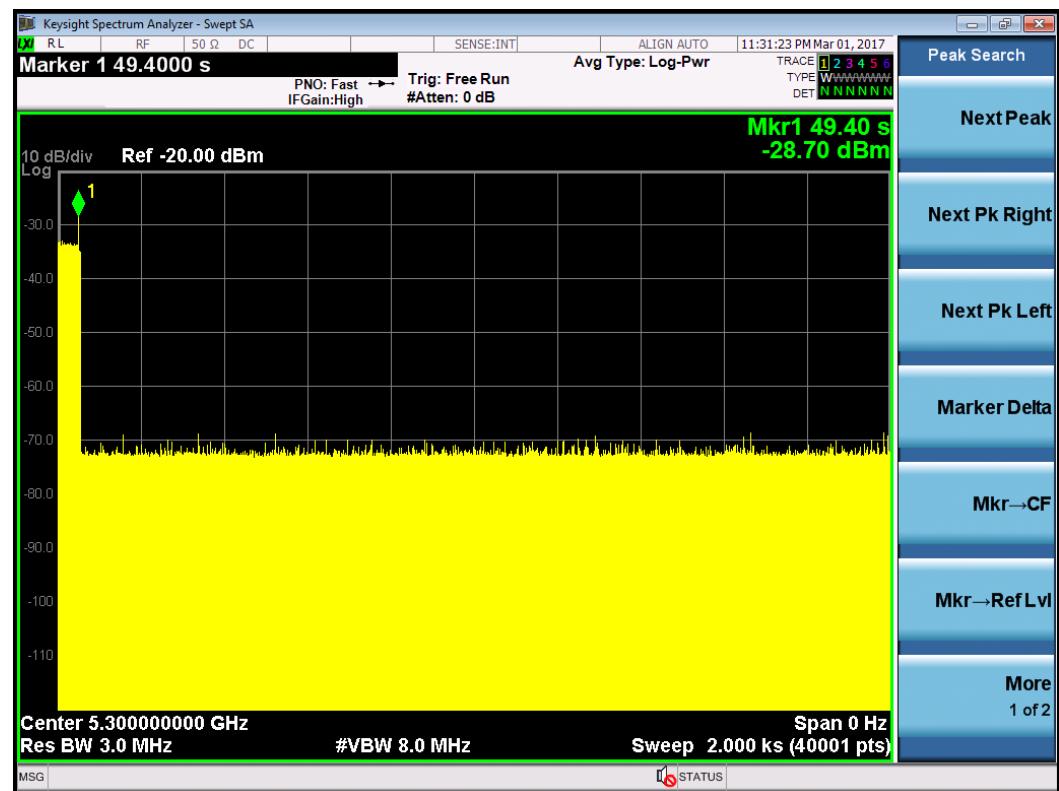


### 14.3.3. Test Result of Non-Occupancy Period

Modulation Standard: 802.11ac VHT20

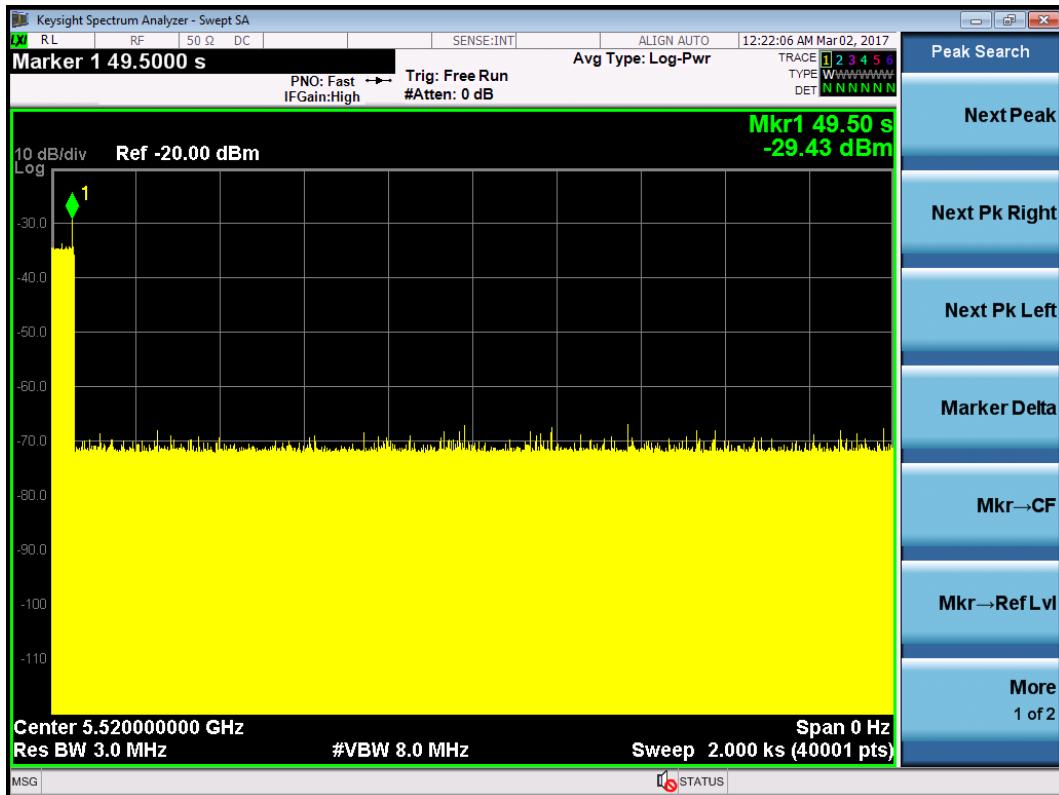


Modulation Standard: 802.11ac VHT40





Modulation Standard: 802.11ac VHT80





## 14.4. DFS Detection Threshold

DFS Detection Threshold is the level used by the DFS mechanism to detect radar interference.

### 14.4.1. Test Limit

Limits Clause 4.7.2.1.2

DFS Detection Thresholds for Master Devices and Client Devices with Radar Detection

MAXIMUM TRANSMIT POWER	VALUE (SEE Note 1 and 2)
$\geq 200$ milliwatt	-64 dBm
EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz	-62 dBm
EIRP < 200 milliwatt that do not meet the power spectral density requirement	-64 dBm

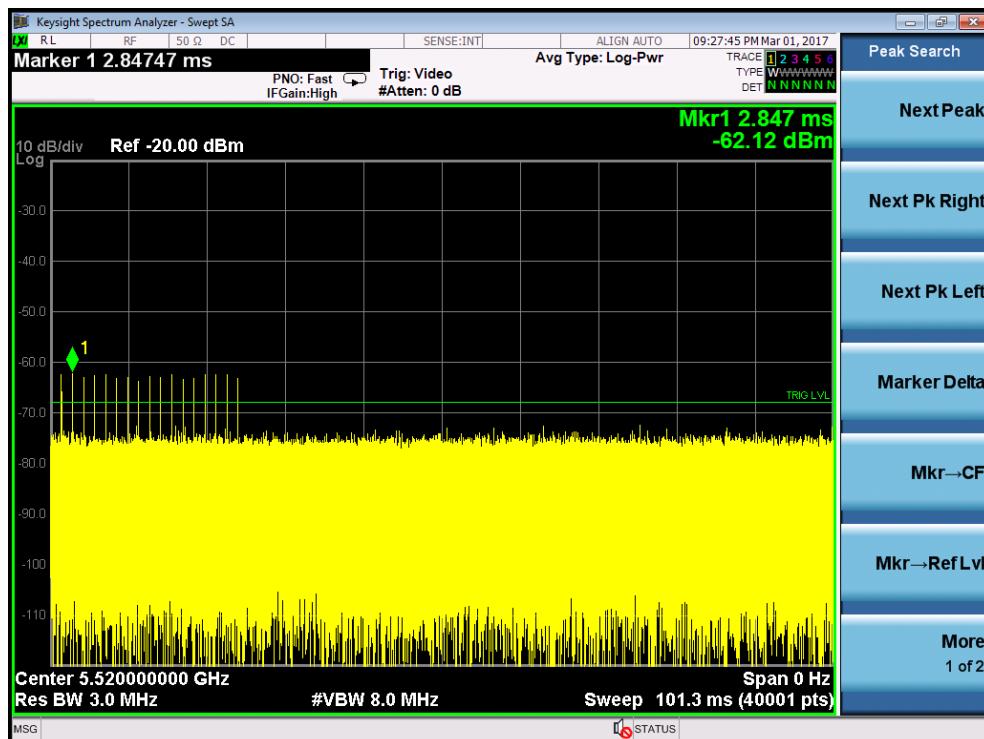
Note 1: This is the level at the input of the receiver assuming a 0 dBi receive antenna.

Note 2: Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response.

Note3: EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911

### 14.4.2. Test Result of DFS Detection Threshold

EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz, Radar 0 VALUE -62dBm





## 14.5. Channel Availability Check

The Channel Availability Check is defined as the mechanism by which an RLAN device checks a channel for the presence of radar signals.

There shall be no transmissions by the device within the channel being checked during this process. If no radars have been detected, the channel becomes an Available Channel valid for a period of time.

The RLAN shall only start transmissions on Available Channels.

At power-up, the RLAN is assumed to have no Available Channels.

### 14.5.1. Test Limit

Limits Clause 4.7.2.1.2

Table D.2: DFS requirement values

Parameter	Value
Channel Availability Check	> 60s

### 14.5.2. Test Result of Channel Availability Check

Not required



## 14.6.U-NII Detection Bandwidth

### 14.6.1. Test Limit

Limits Clause 4.7.2.1.2 Table D.2: DFS requirement values

Parameter	Value
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission

Note : During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

### 14.6.2. Test Result of U-NII Detection Bandwidth

Not required



## 14.7.Uniform Spreading

The UUT will select channel by random mode and remember this channel when detect radar signal, so that will select unused channel by random mode.

### 14.7.1. Test Result of Uniform Spreading

Not required



## 14.8.In-Service Monitoring

The In-Service Monitoring is defined as the process by which an RLAN monitors the Operating Channel for the presence of radar signals.

### 14.8.1. Test Limit

Parameter	Value
Channel Move Time	< 10 s (See Note 1)
Channel Closing Transmission Time	< 200 ms+ an aggregate of 60 milliseconds over remaining 10 second period. (See Notes 1 and Notes 2.)
Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst. Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.	

#### Limits Clause 4.7.2.2.2

The In-Service Monitoring shall be used to continuously monitor an Operating Channel.

The In-Service-Monitoring shall start immediately after the RLAN has started transmissions on an Operating Channel.

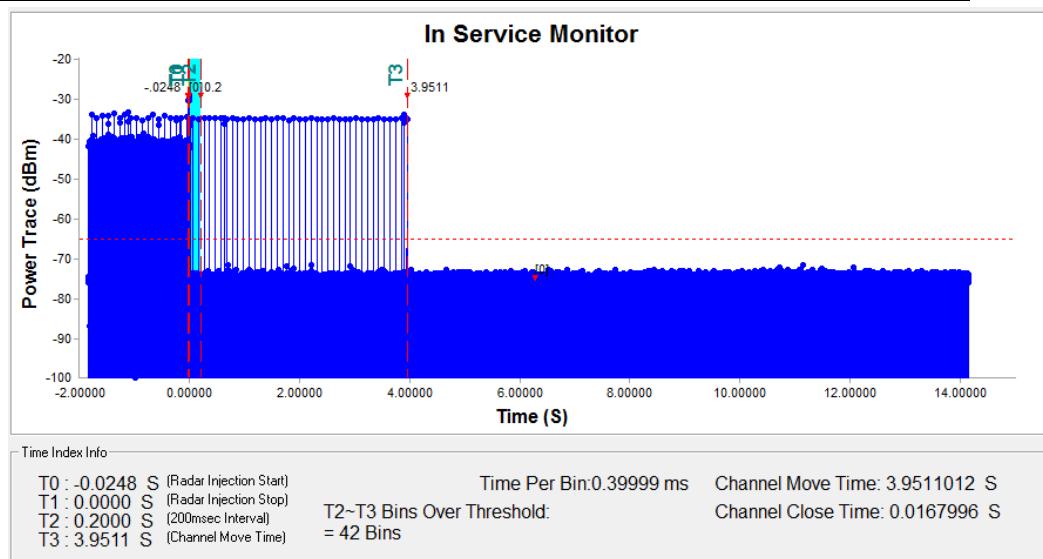


#### 14.8.2. Test Result of In-Service Monitoring

**Bandwidth 80MHz**

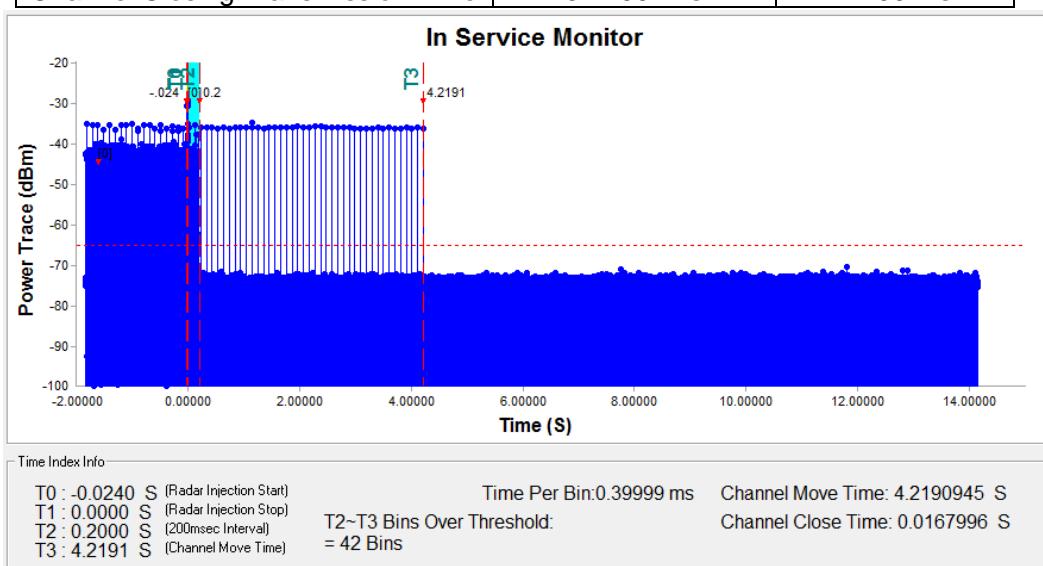
**Channel 58**

	Value	Limit
Channel Move Time	3.9815005s	<10 s
Channel Closing Transmission Time	16.996ms	< 200 ms



**Channel 106**

	Value	Limit
Channel Move Time	4.1758956	<10 s
Channel Closing Transmission Time	32.7992ms	< 200 ms



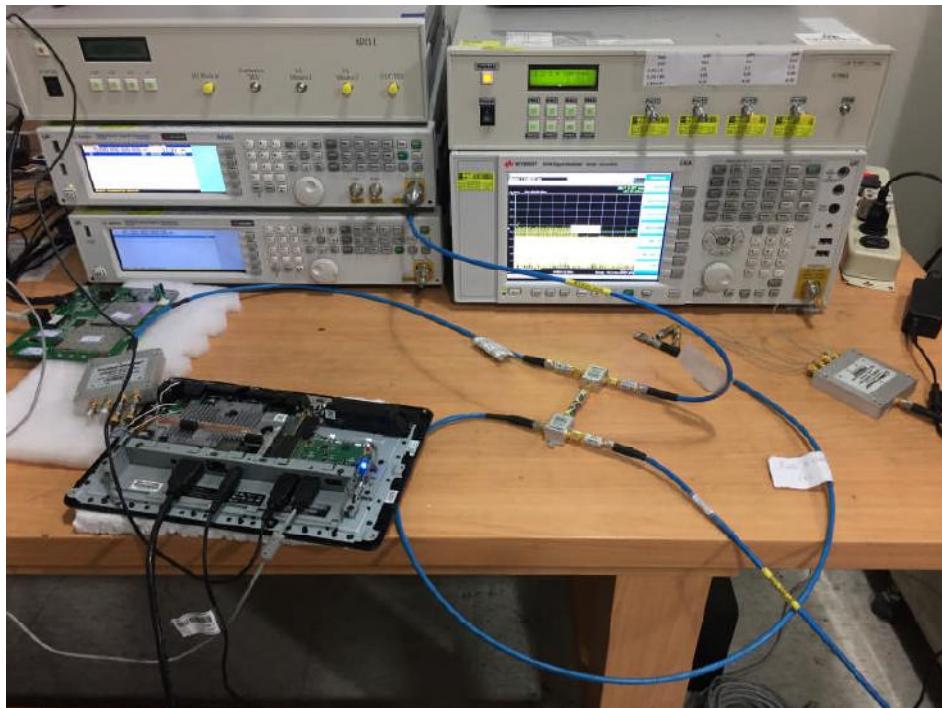


#### 14.9. Statistical Performance Check

Not required

#### 14.10. EUT Setup Photos

Radar Calibration Setup Photo



Test Setup Photo

