



7. Test of Conducted Spurious Emission

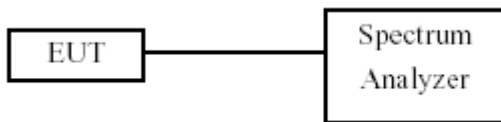
7.1 Test Limit

Below -20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

7.2 Test Procedure

- a. The transmitter output was connected to the spectrum analyzer via a low lose cable.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
- c. Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20dB relative to the maximum measured in-band peak PSD level.
- d. The band edges was measured and recorded.

7.3 Test Setup Layout



7.4 Test Result and Data

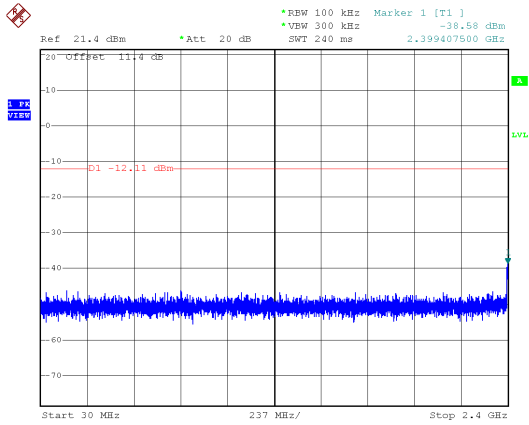
Test Result	: PASS	Temperature	: 24°C
Test Date	: Jul. 24, 2017	Humidity	: 66%

Note: Test plots refers to the following pages.

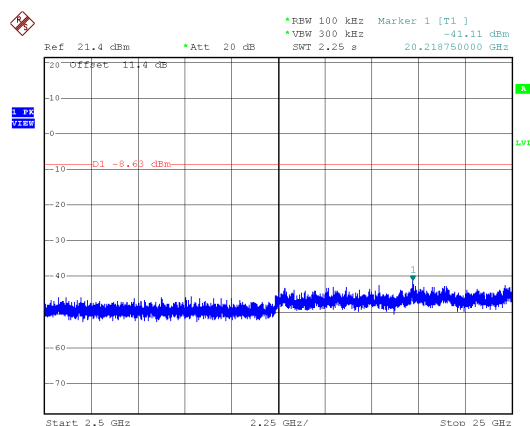
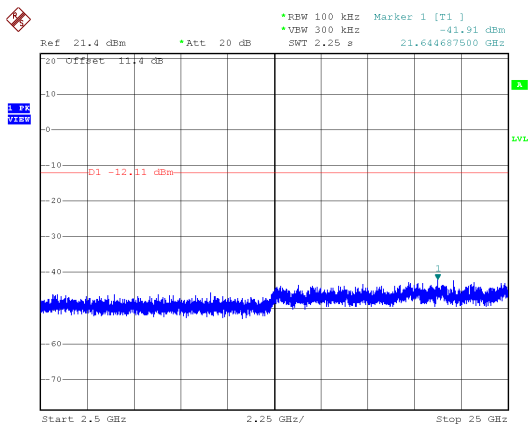
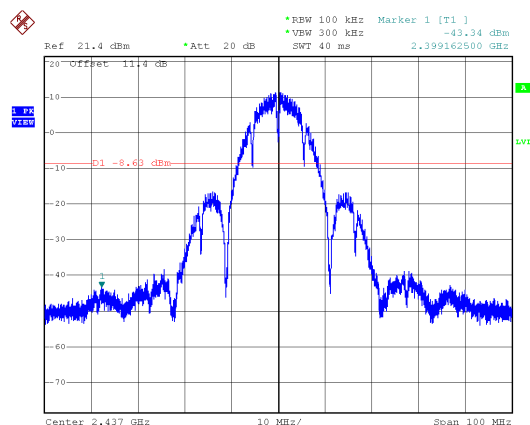
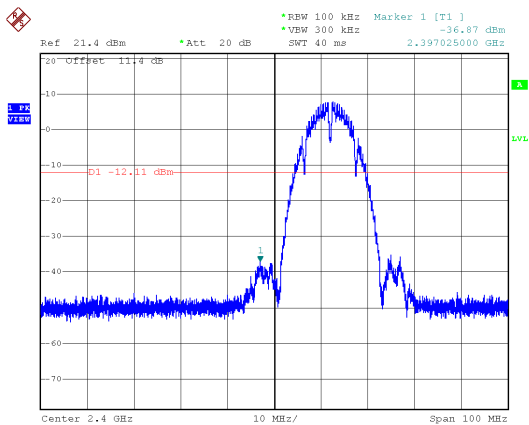
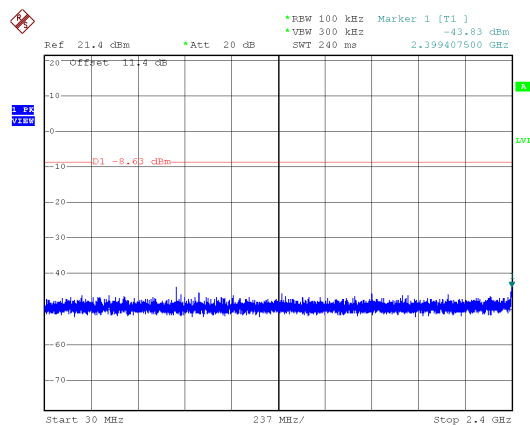


ANT 0

Modulation Type: 802.11b, CH 01



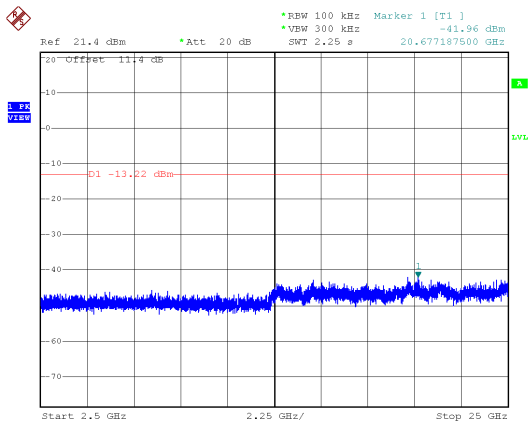
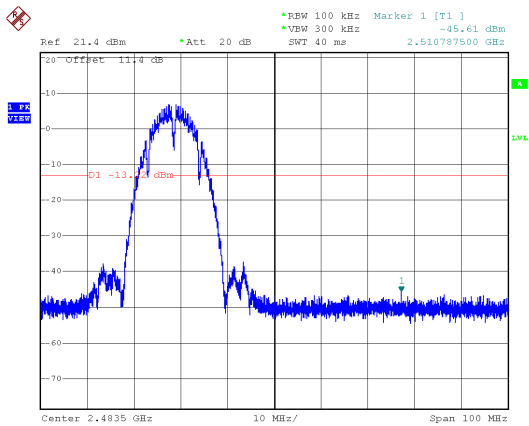
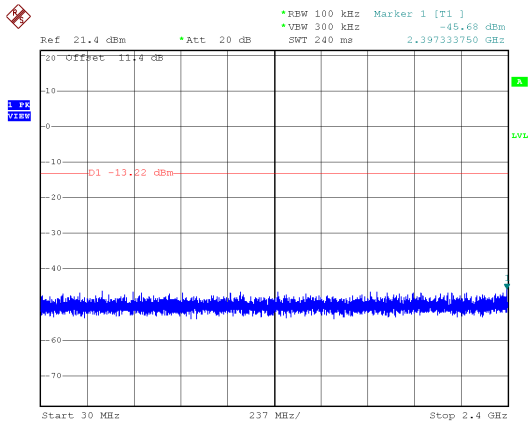
Modulation Type: 802.11b, CH 06





ANT 0

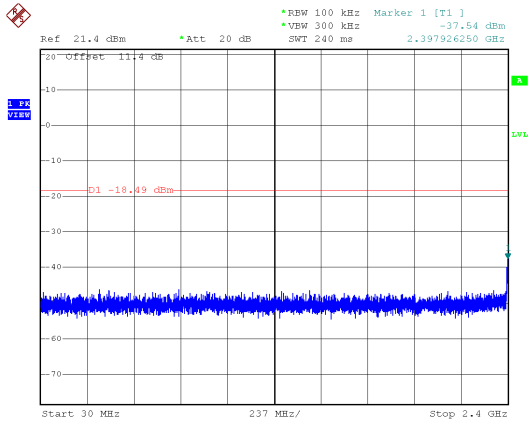
Modulation Type: 802.11b, CH 11



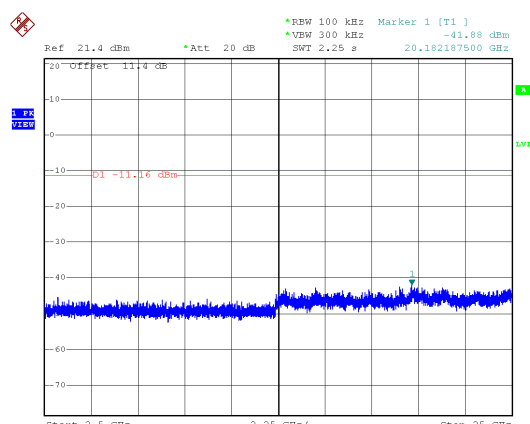
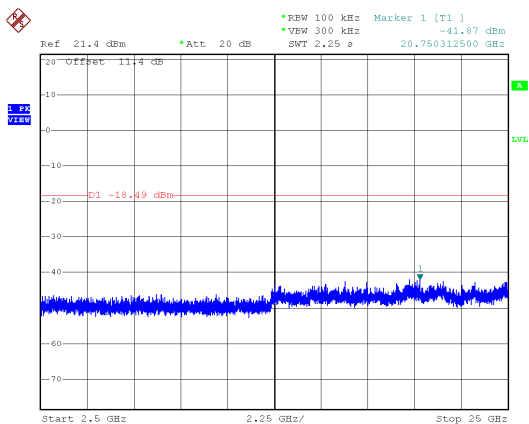
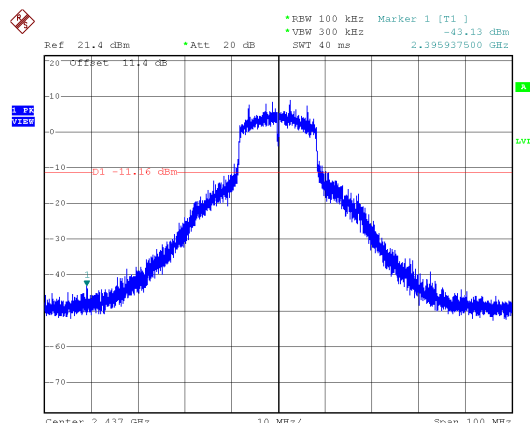
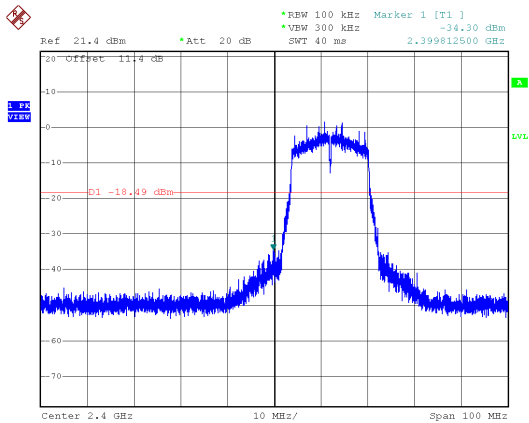
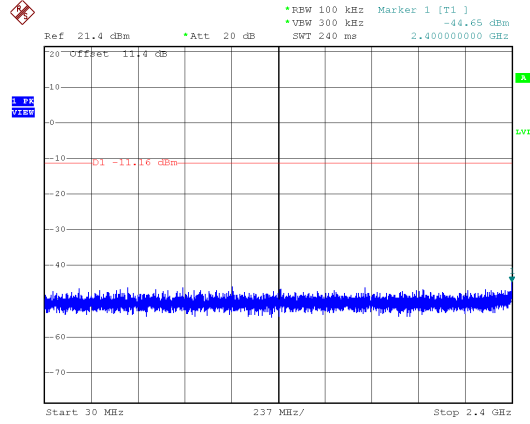


ANT 0

Modulation Type: 802.11g, CH 01



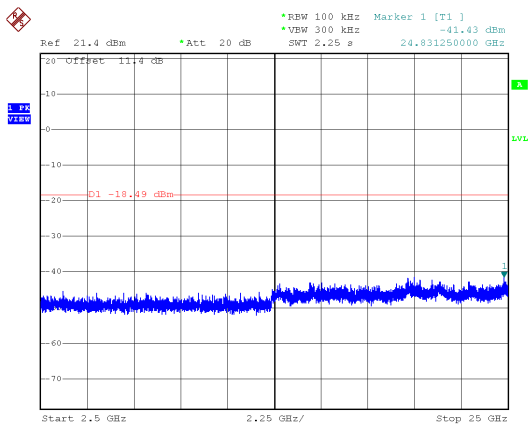
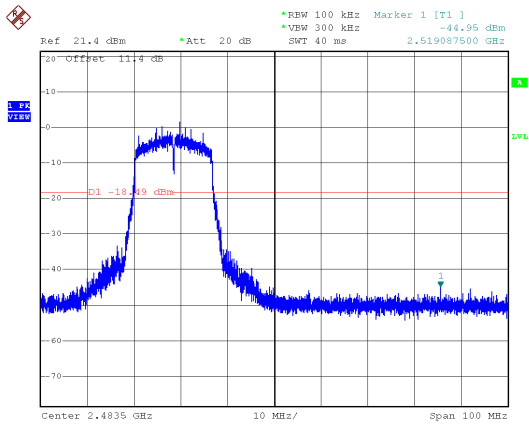
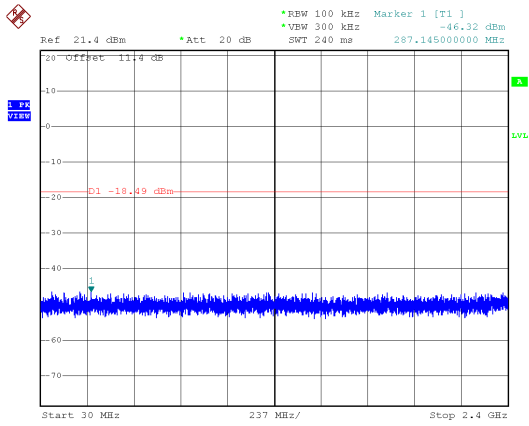
Modulation Type: 802.11g, CH 06





ANT 0

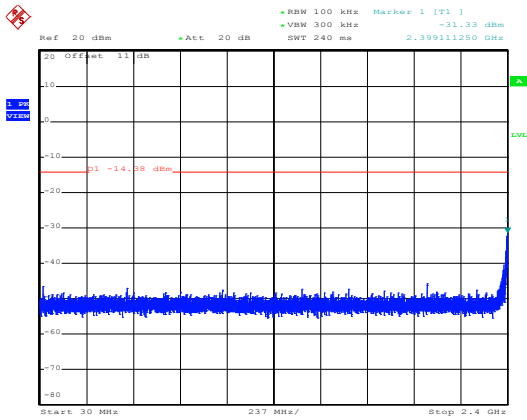
Modulation Type: 802.11g, CH 11



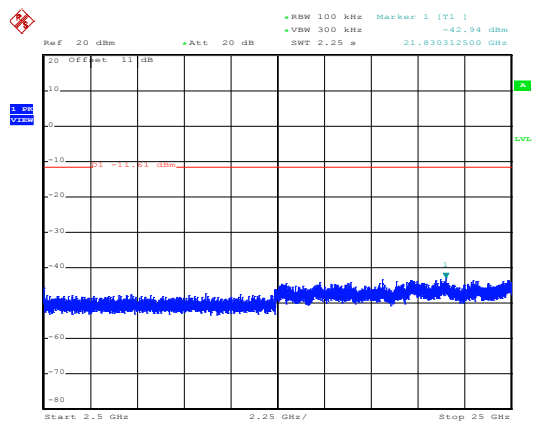
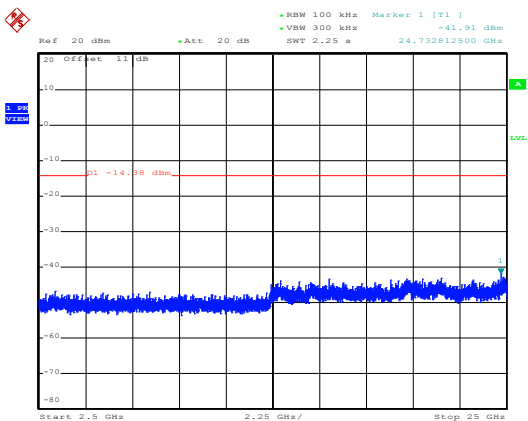
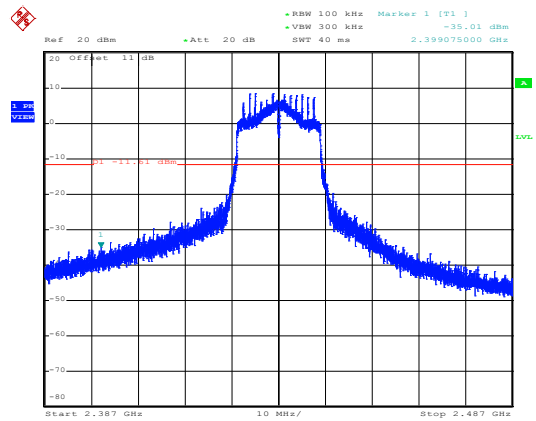
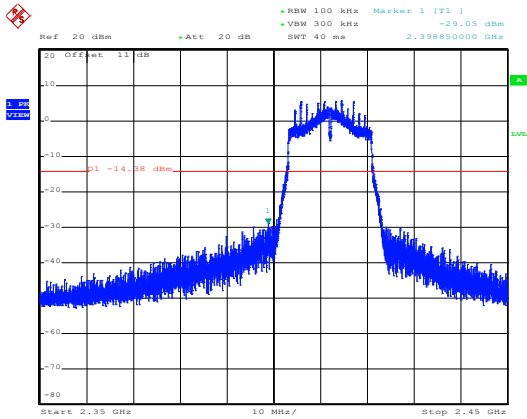
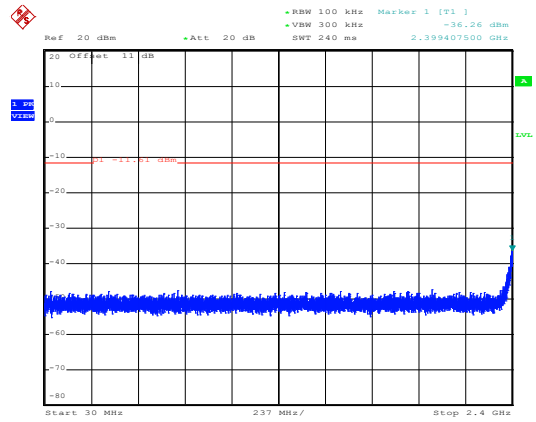


ANT 0

Modulation Type: 802.11ac VHT20, CH01



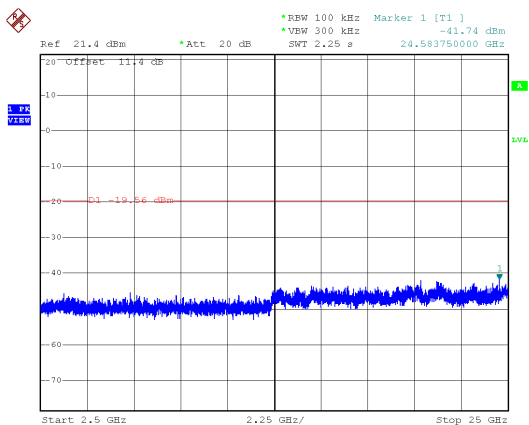
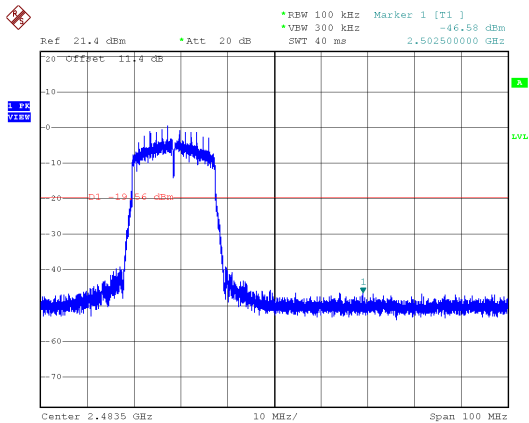
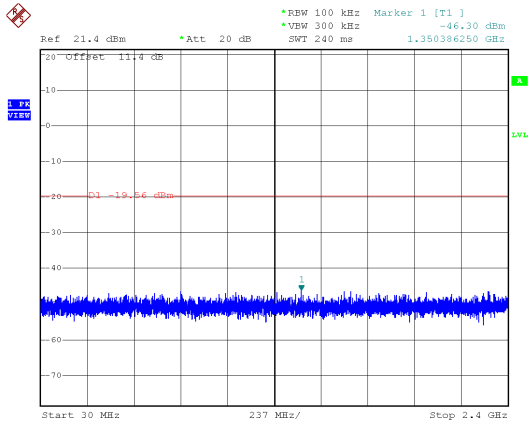
Modulation Type: 802.11ac VHT20, CH06





ANT 0

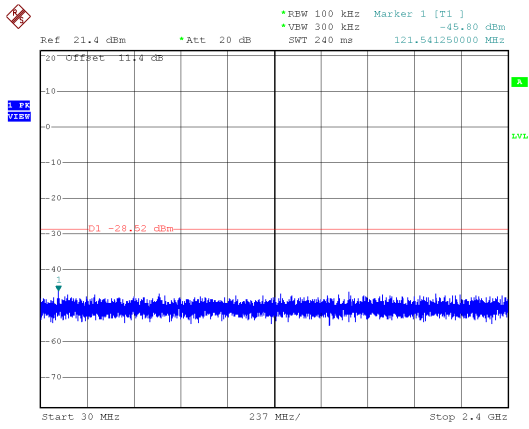
Modulation Type: 802.11ac VHT20, CH11



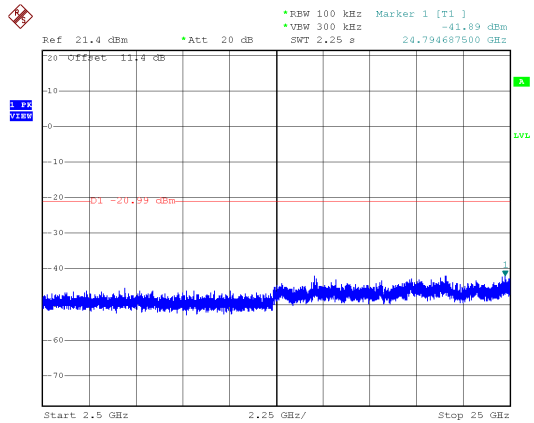
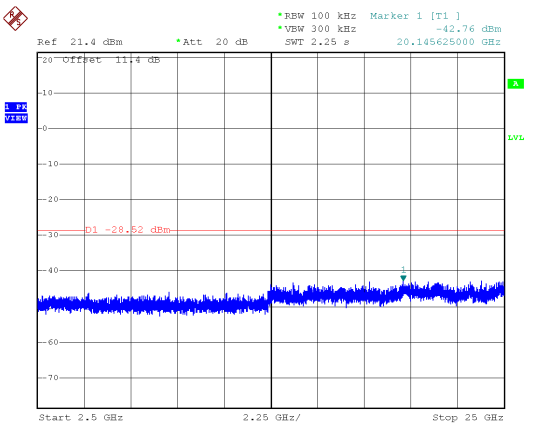
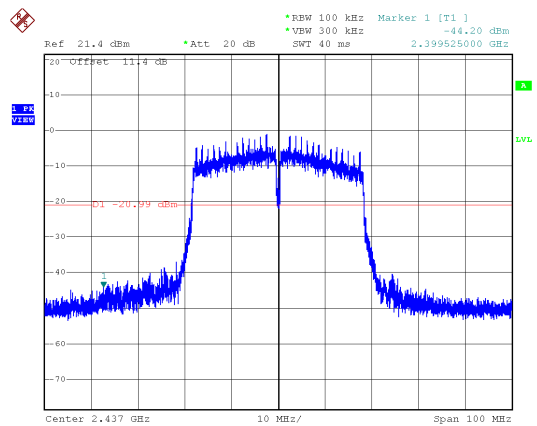
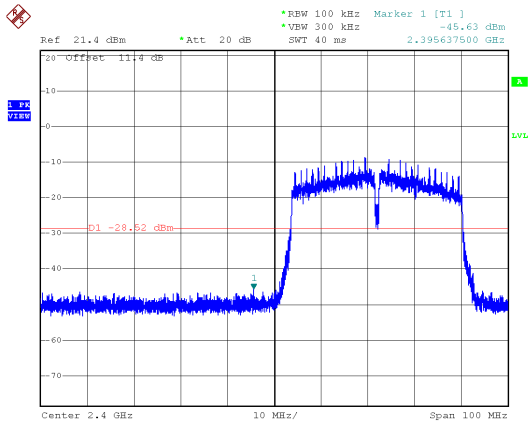
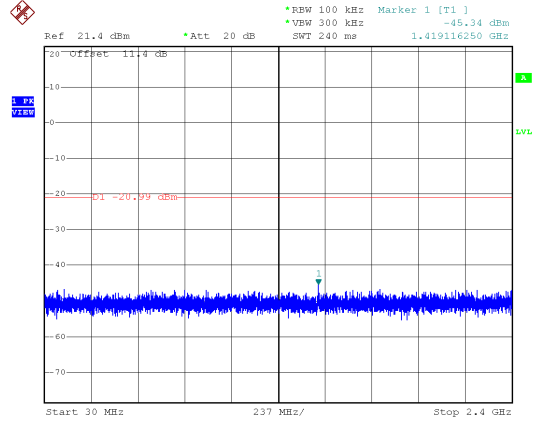


ANT 0

Modulation Type: 802.11ac VHT40, CH03



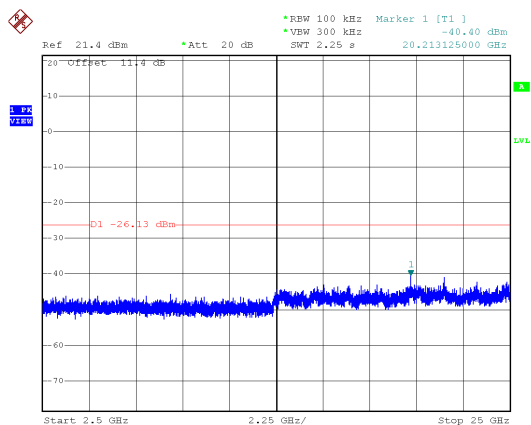
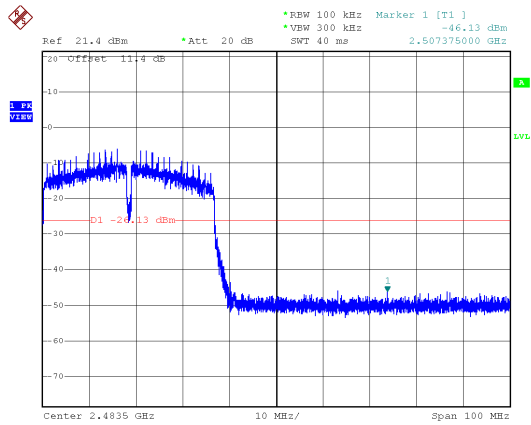
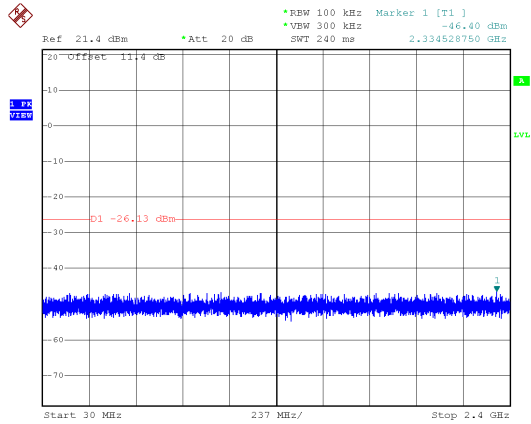
Modulation Type: 802.11ac VHT40, CH06





ANT 0

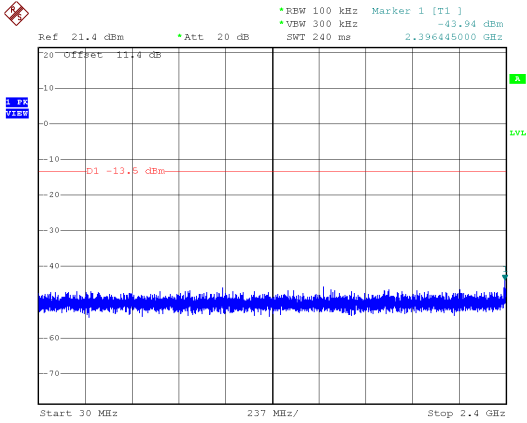
Modulation Type: 802.11ac VHT40, CH09



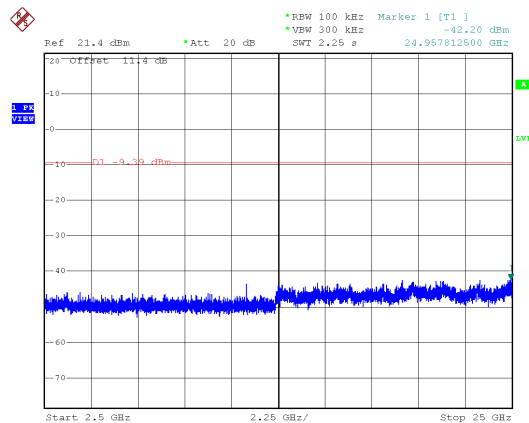
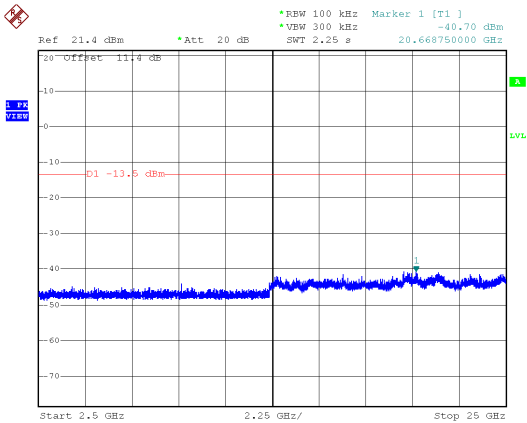
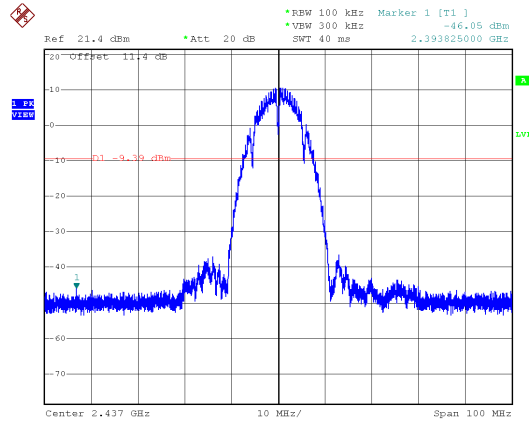
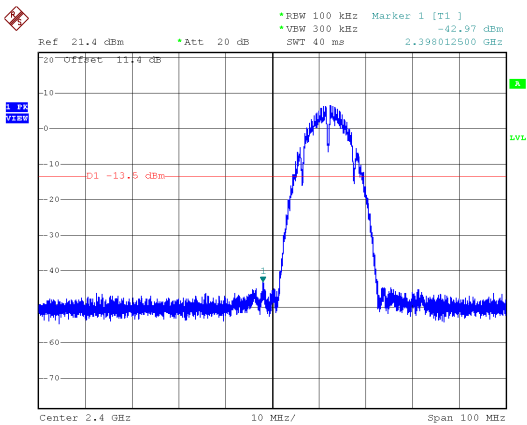
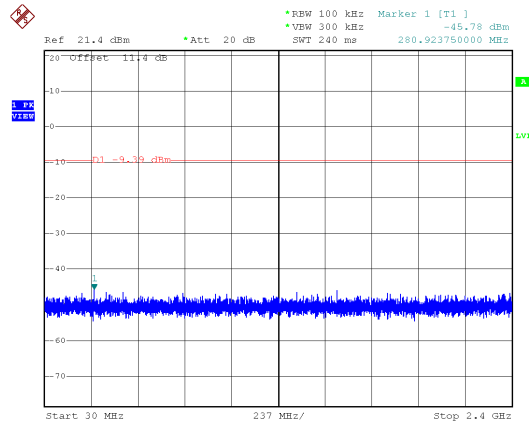


ANT 1

Modulation Type: 802.11b, CH 01



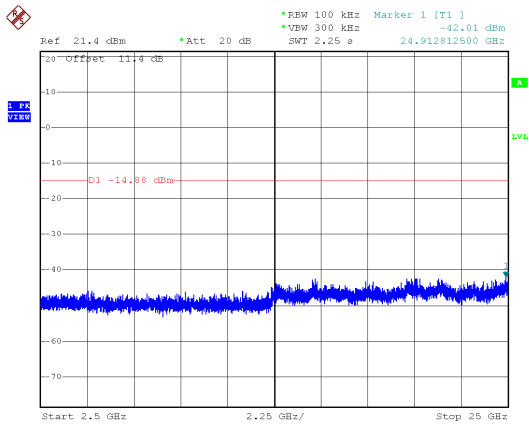
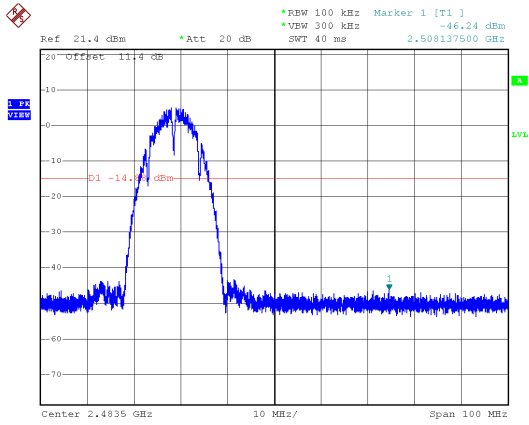
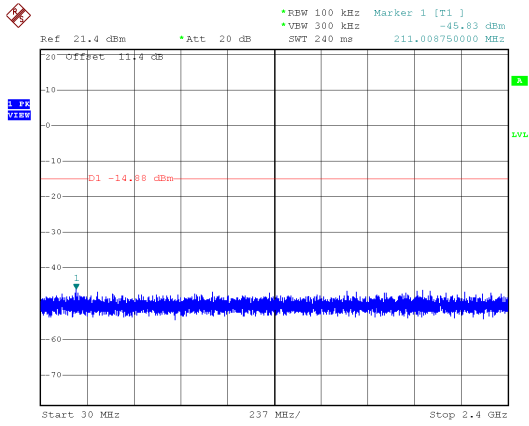
Modulation Type: 802.11b, CH 06





ANT 1

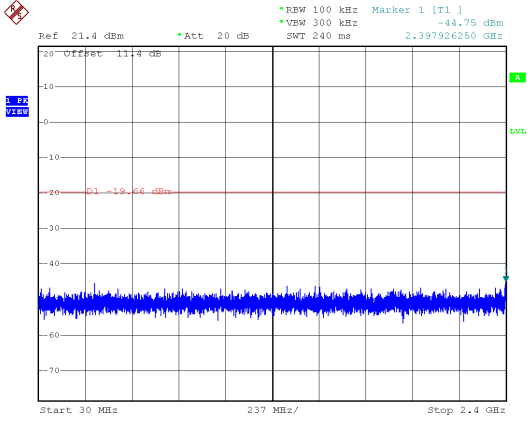
Modulation Type: 802.11b, CH 11



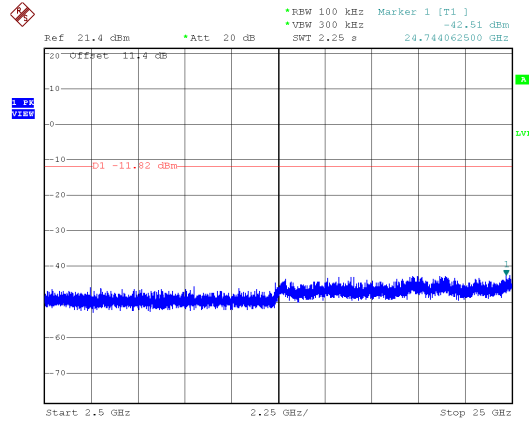
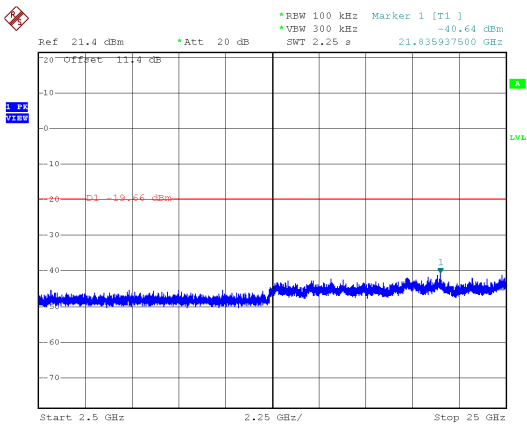
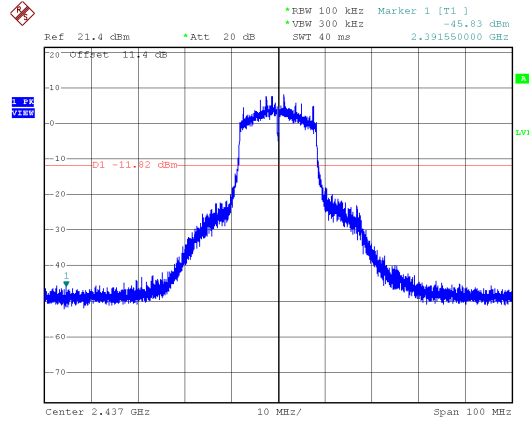
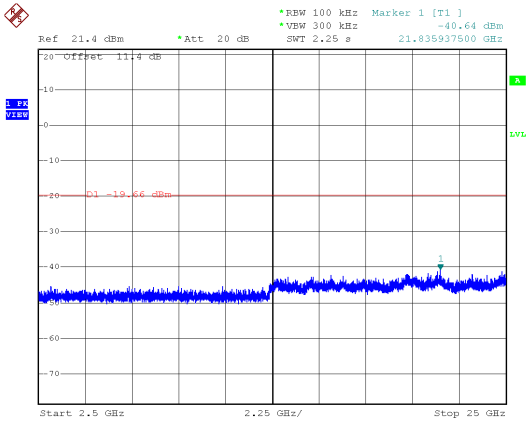
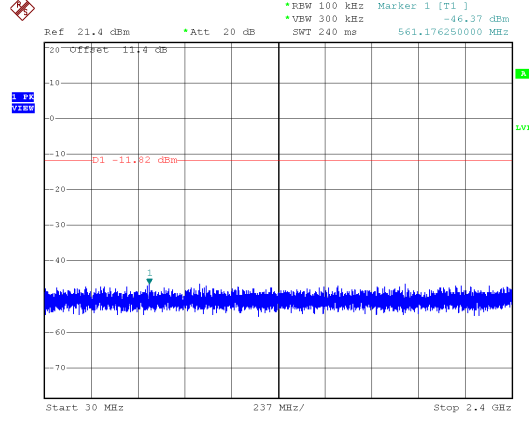


ANT 1

Modulation Type: 802.11g, CH 01



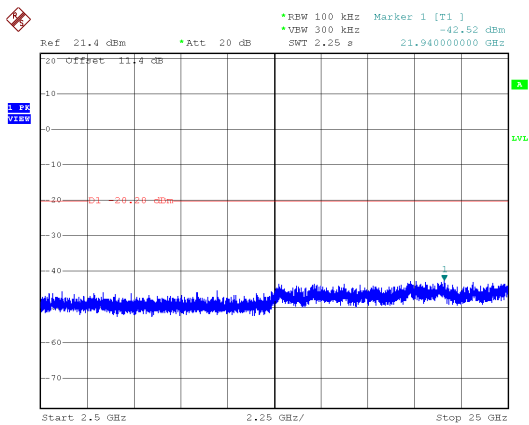
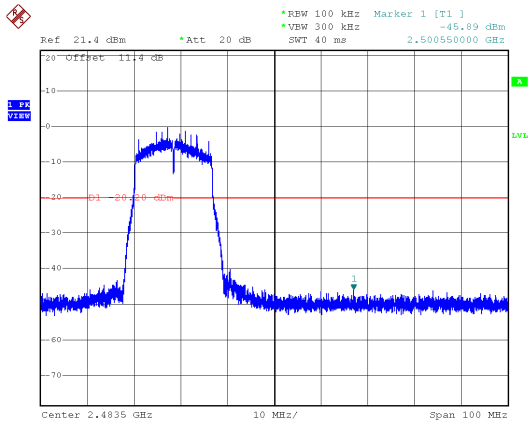
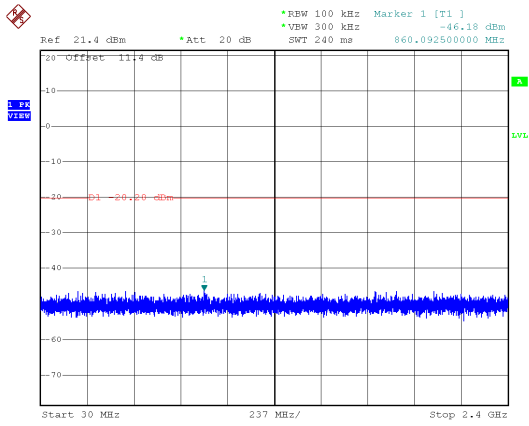
Modulation Type: 802.11g, CH 06





ANT 1

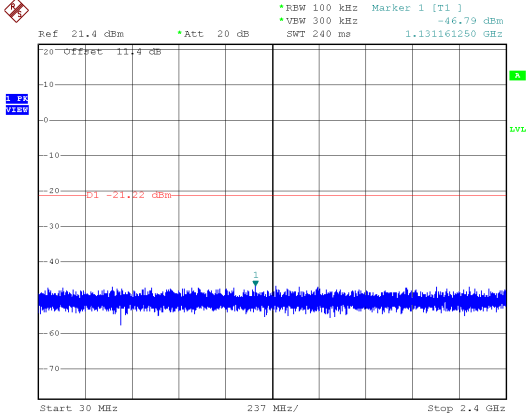
Modulation Type: 802.11g, CH 11



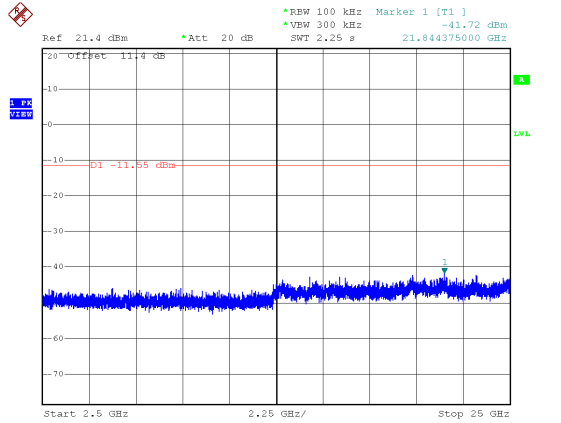
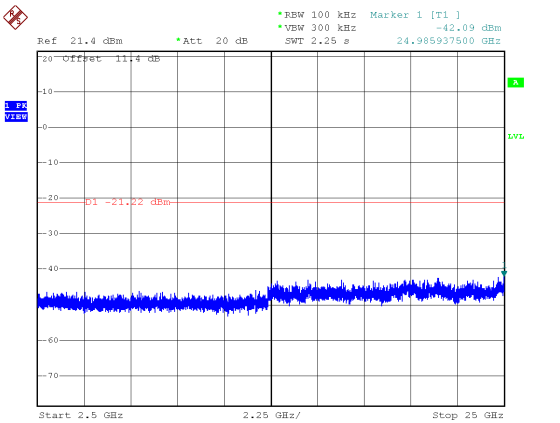
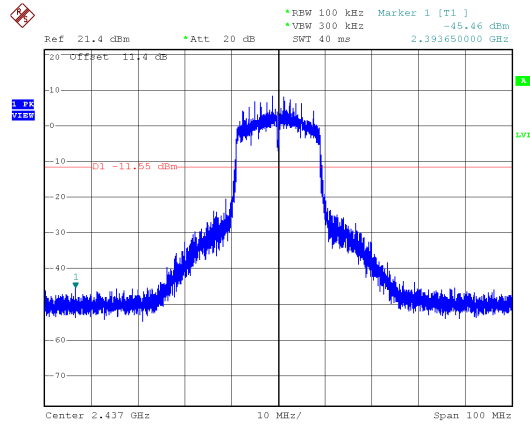
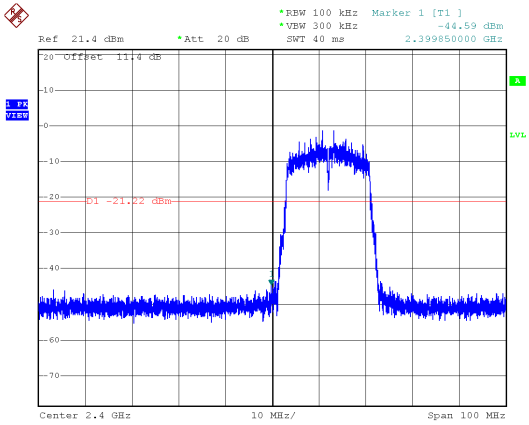
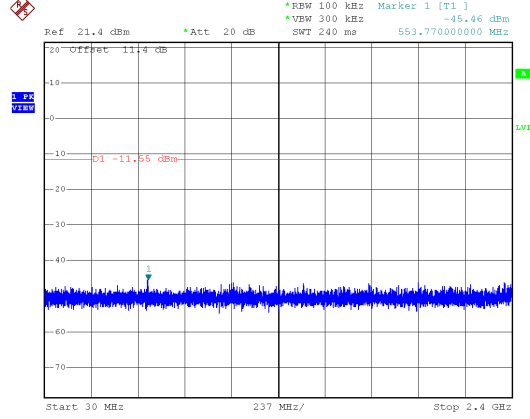


ANT 1

Modulation Type: 802.11ac VHT20, CH01



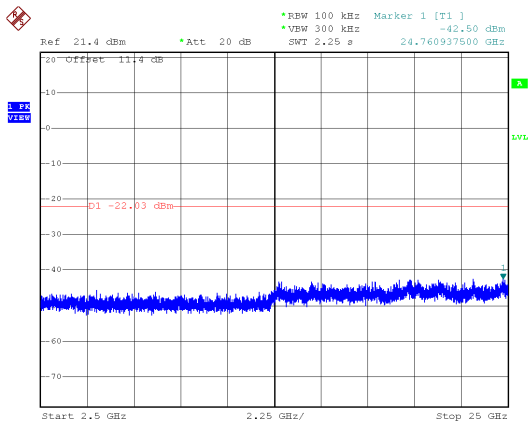
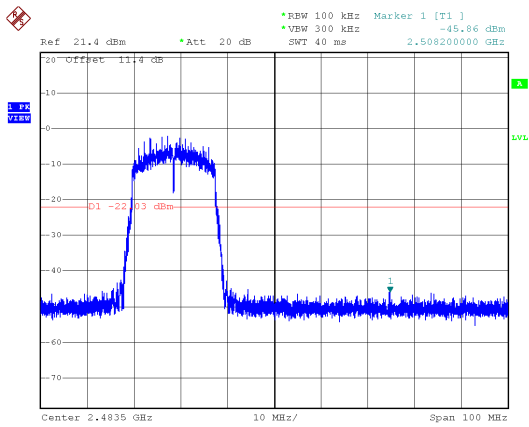
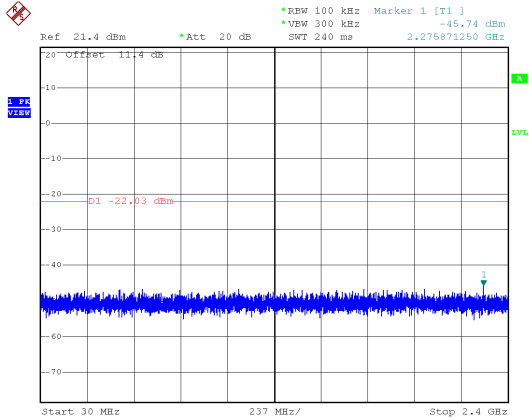
Modulation Type: 802.11ac VHT20, CH06





ANT 1

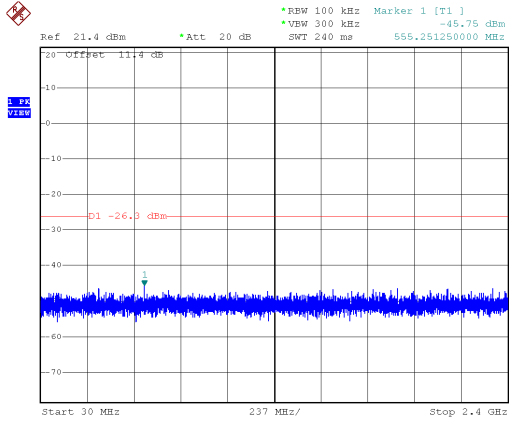
Modulation Type: 802.11ac VHT20, CH11



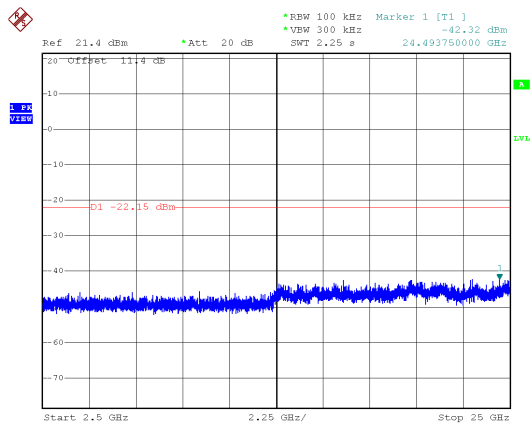
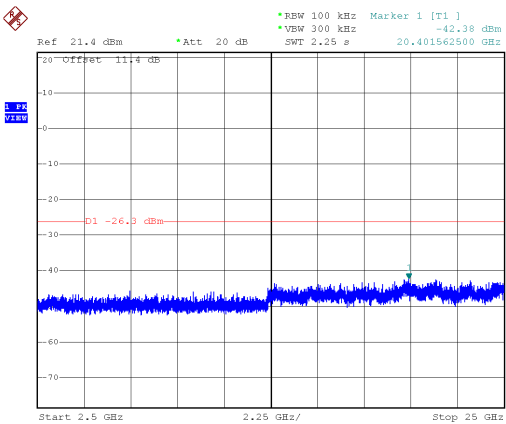
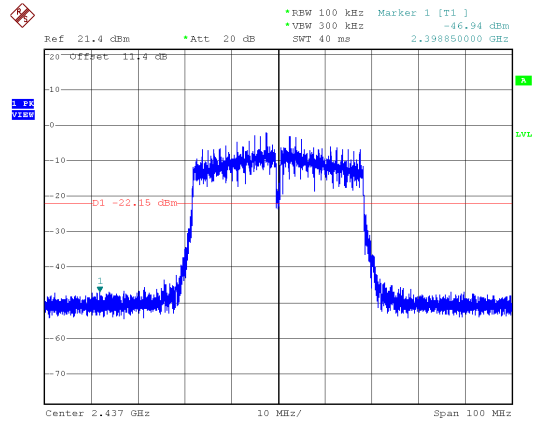
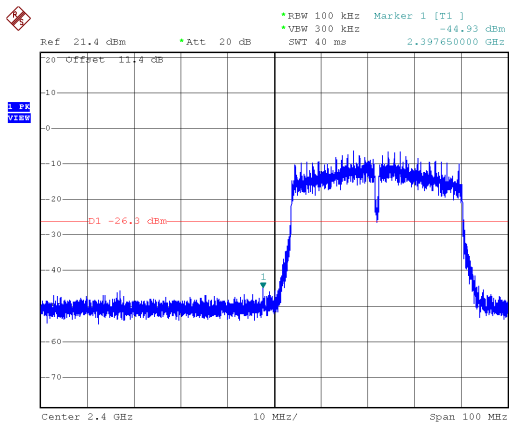
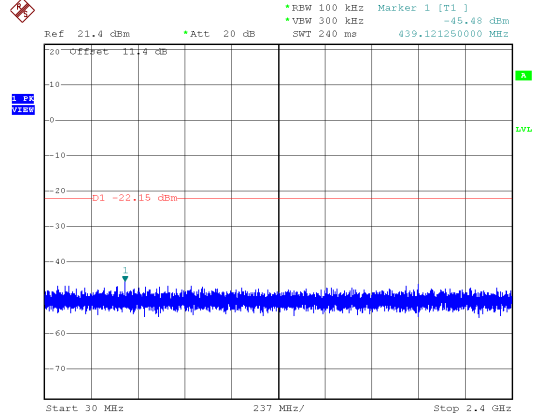


ANT 1

Modulation Type: 802.11ac VHT40, CH03



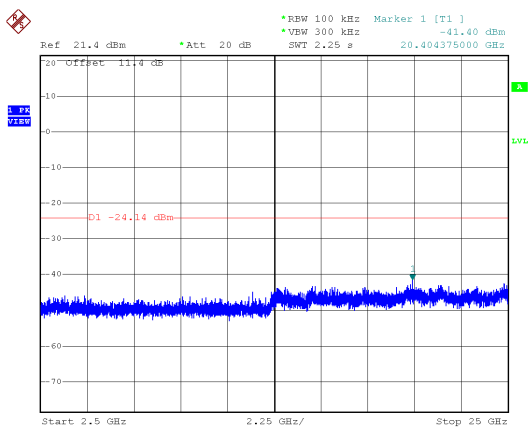
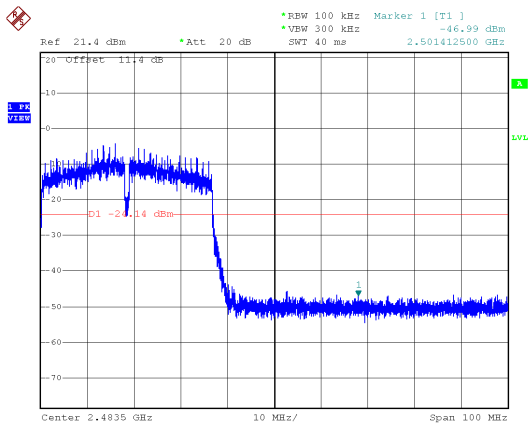
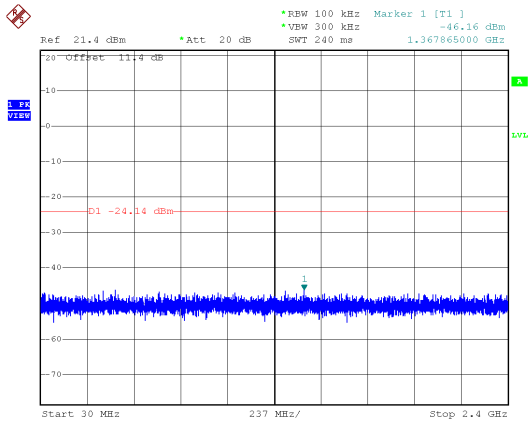
Modulation Type: 802.11ac VHT40, CH06





ANT 1

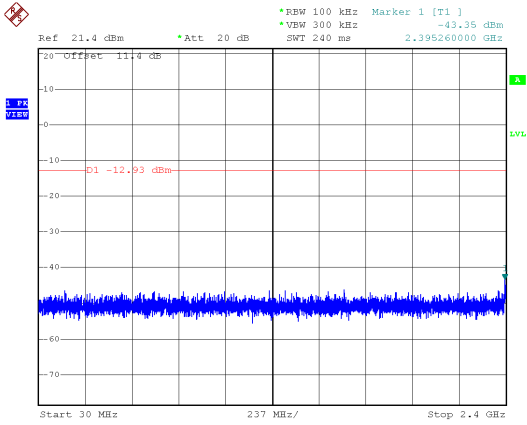
Modulation Type: 802.11ac VHT40, CH09



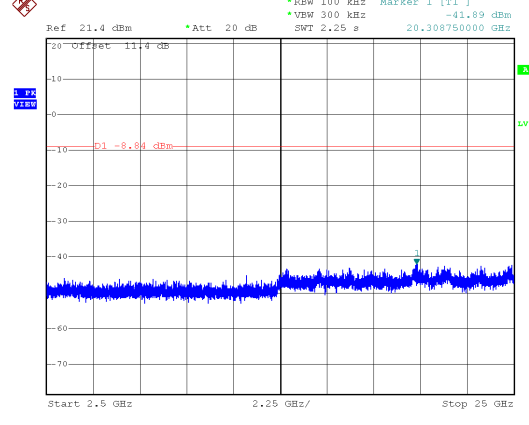
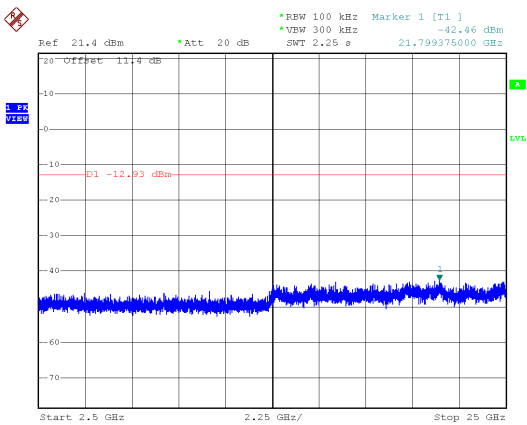
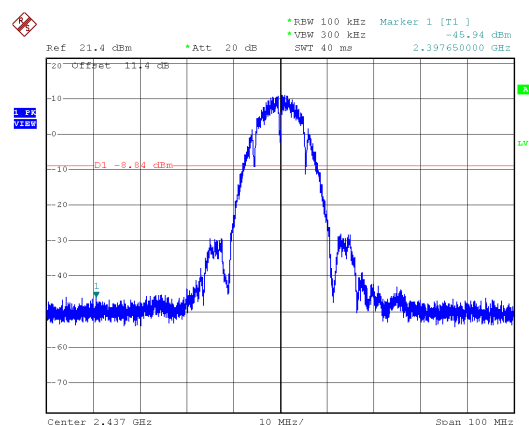
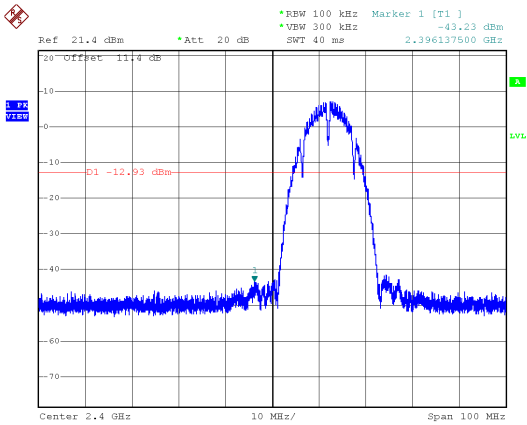
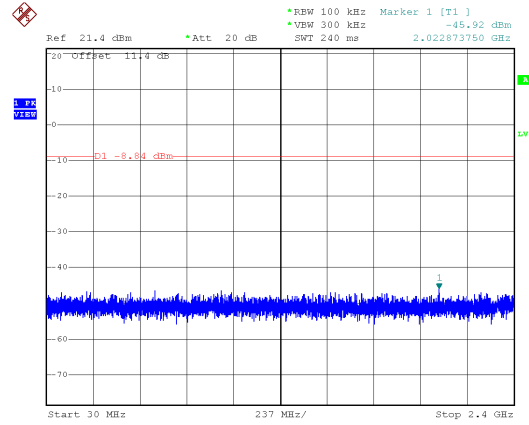


ANT 2

Modulation Type: 802.11b, CH 01



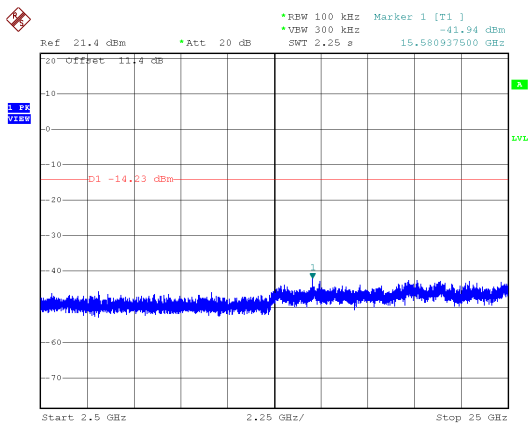
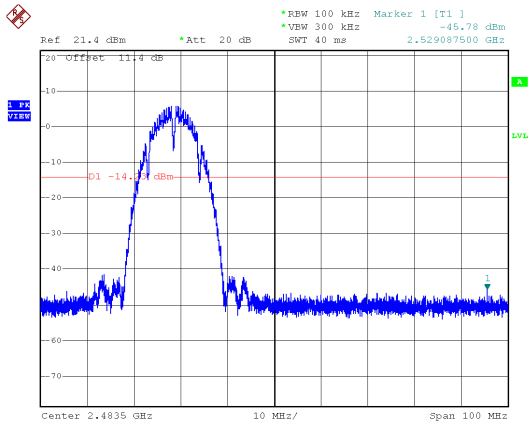
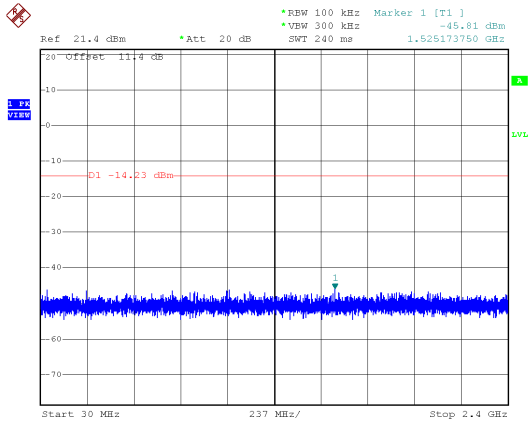
Modulation Type: 802.11b, CH 06





ANT 2

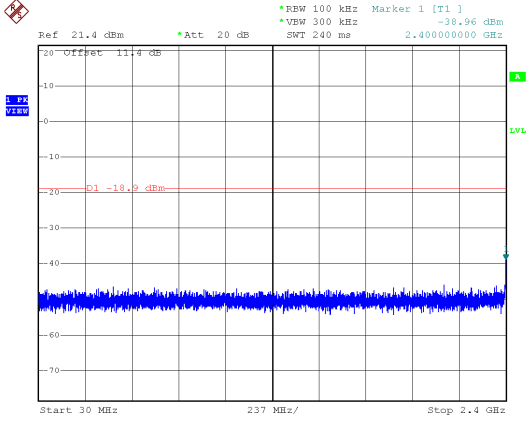
Modulation Type: 802.11b, CH 11



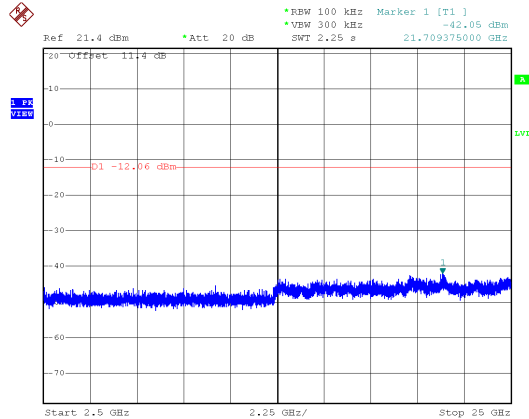
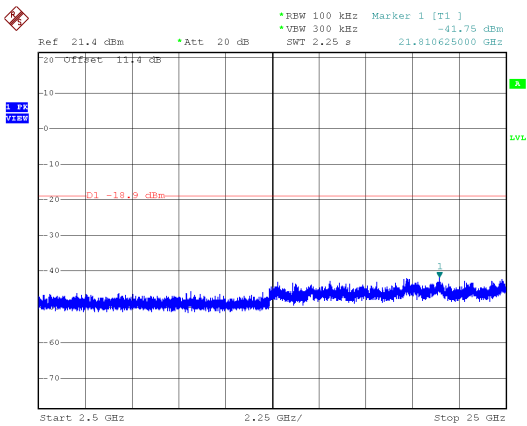
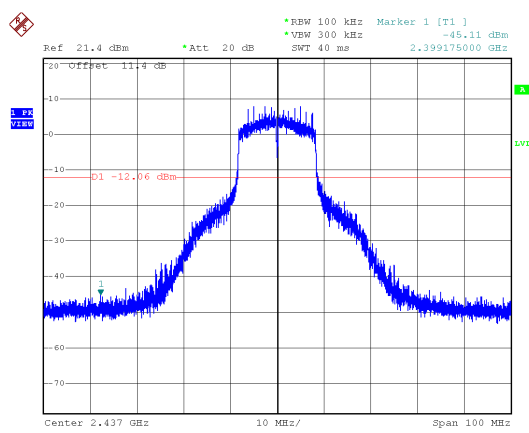
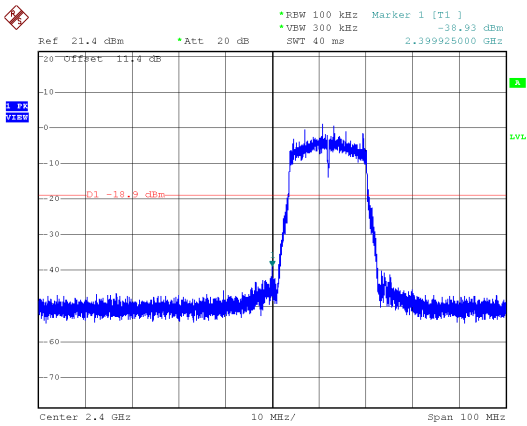
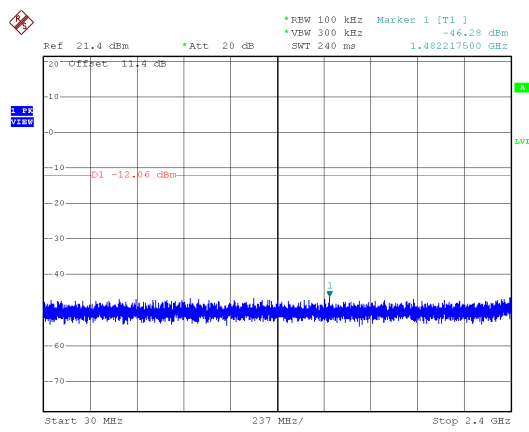


ANT 2

Modulation Type: 802.11g, CH 01



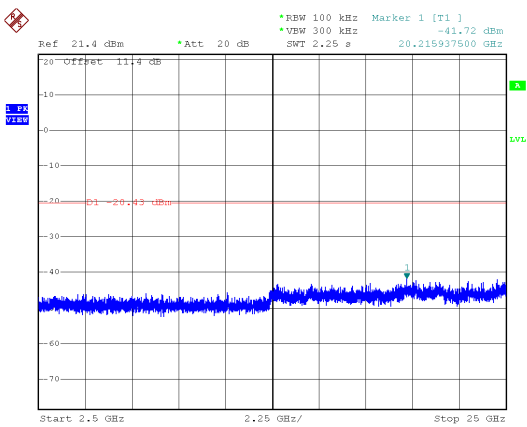
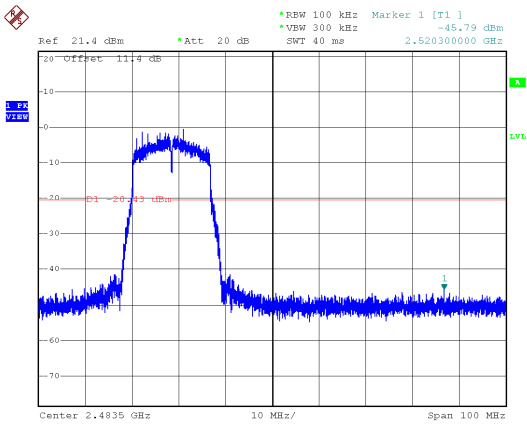
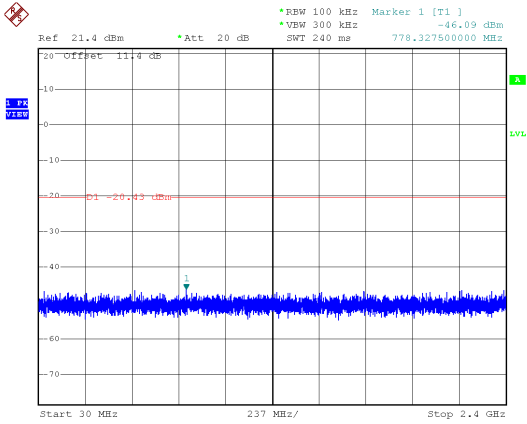
Modulation Type: 802.11g, CH 06





ANT 2

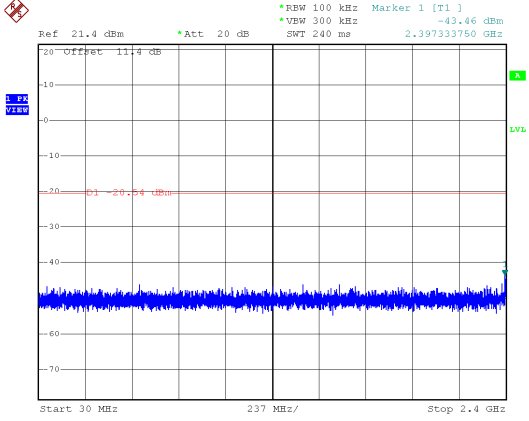
Modulation Type: 802.11g, CH 11



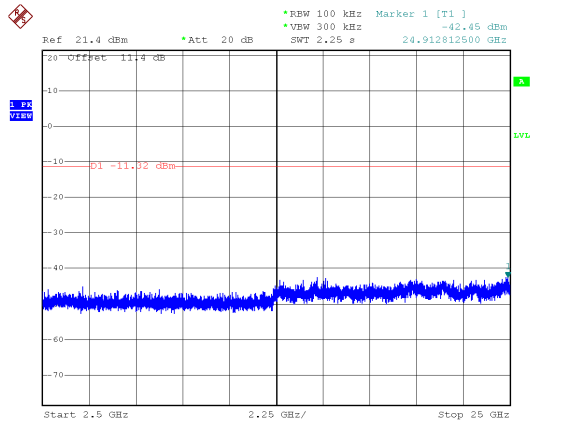
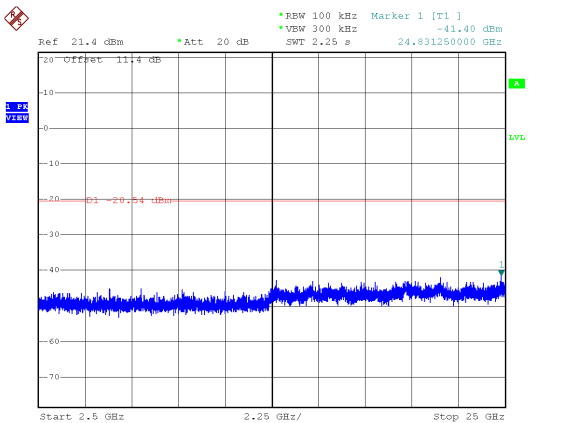
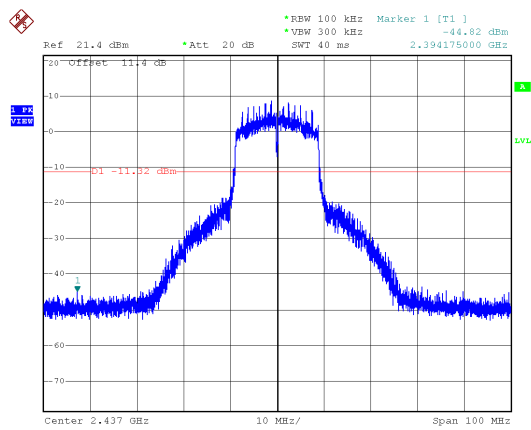
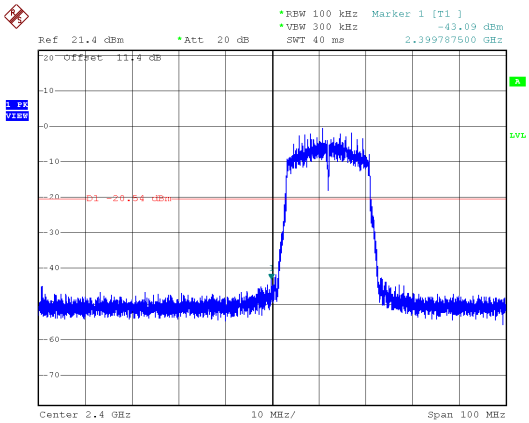
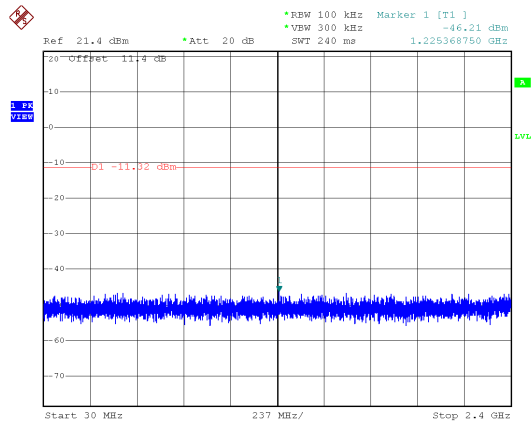


ANT 2

Modulation Type: 802.11ac VHT20, CH01



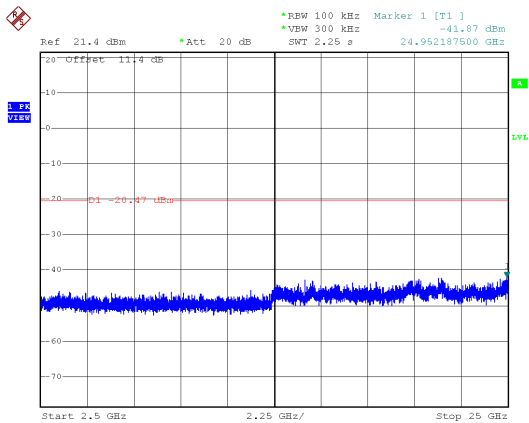
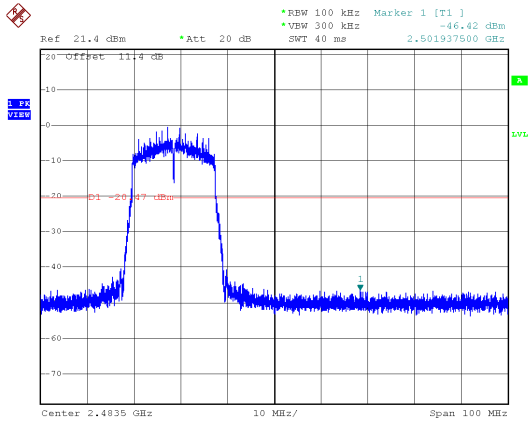
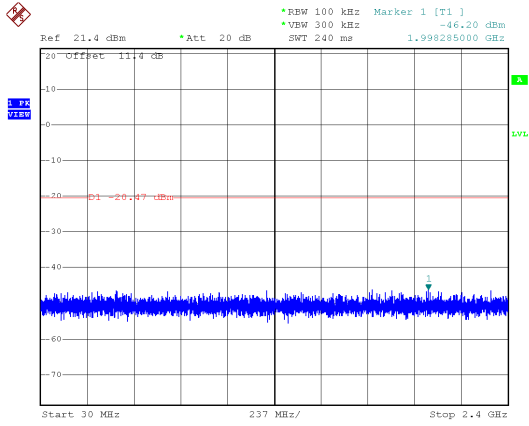
Modulation Type: 802.11ac VHT20, CH06





ANT 2

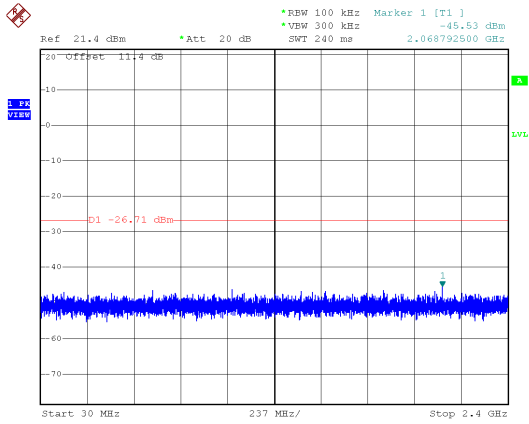
Modulation Type: 802.11ac VHT20, CH11



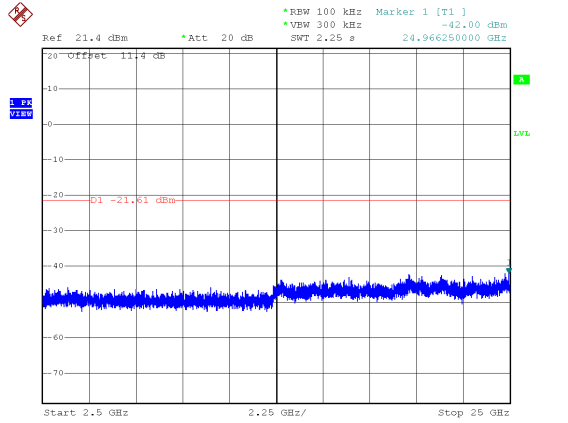
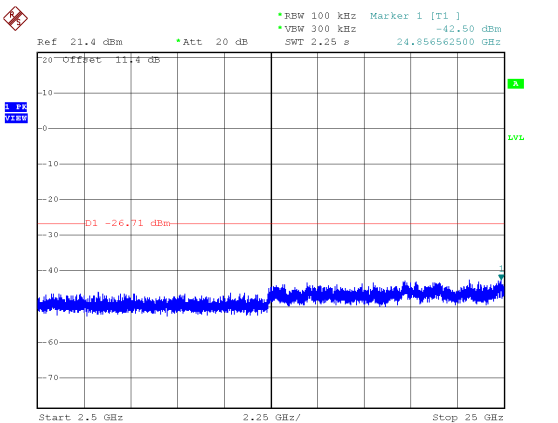
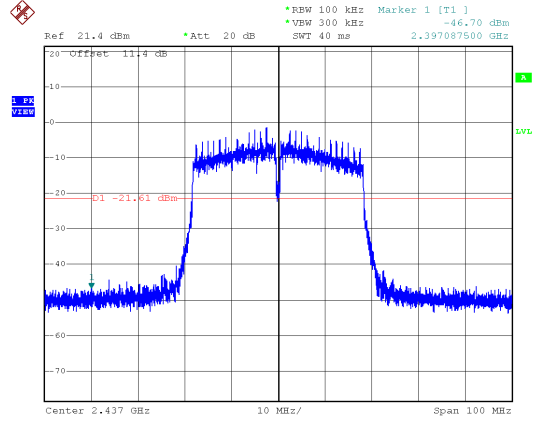
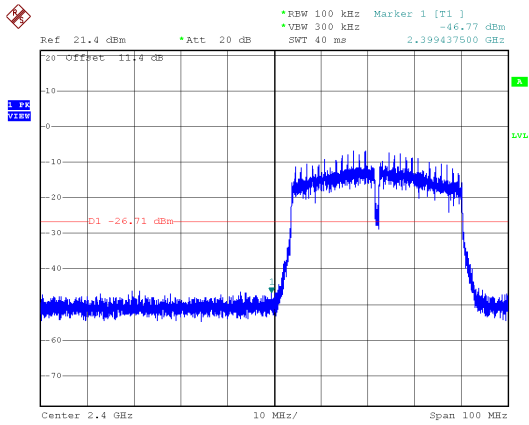
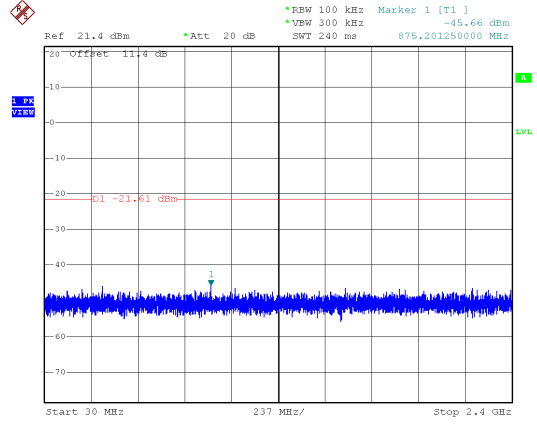


ANT 2

Modulation Type: 802.11ac VHT40, CH03



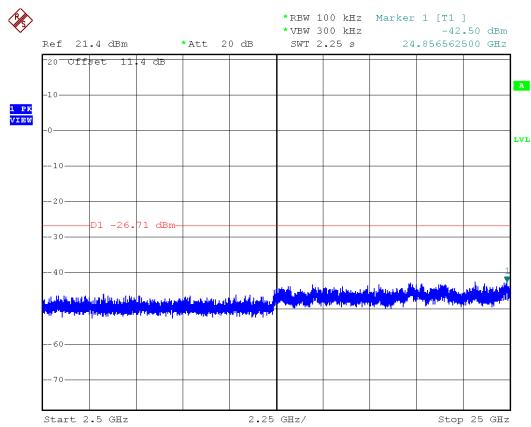
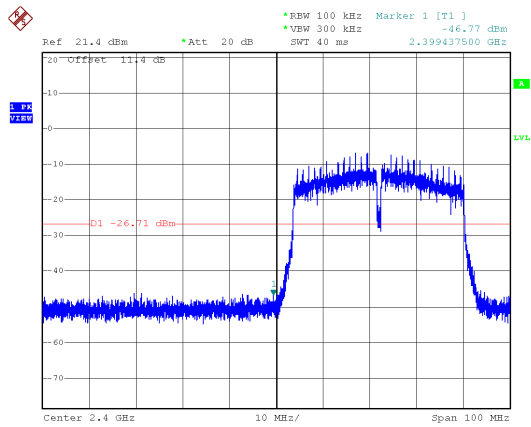
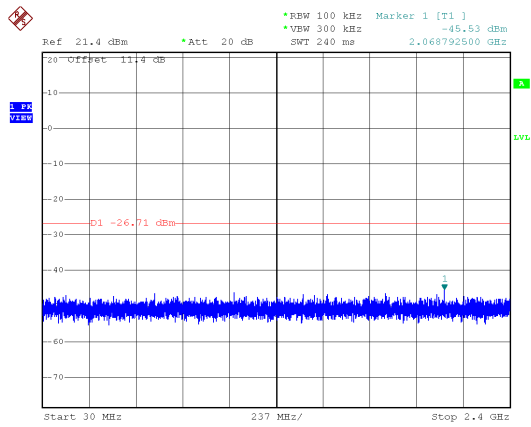
Modulation Type: 802.11ac VHT40, CH06





ANT 2

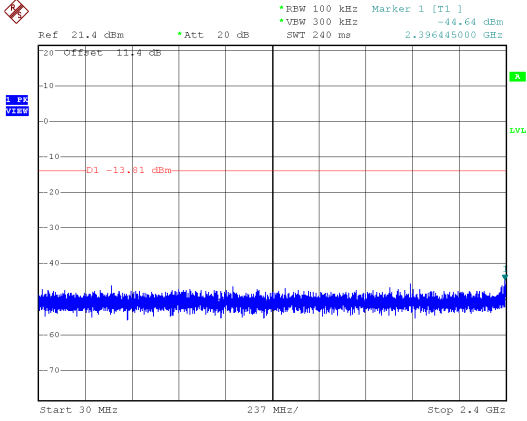
Modulation Type: 802.11ac VHT40, CH09



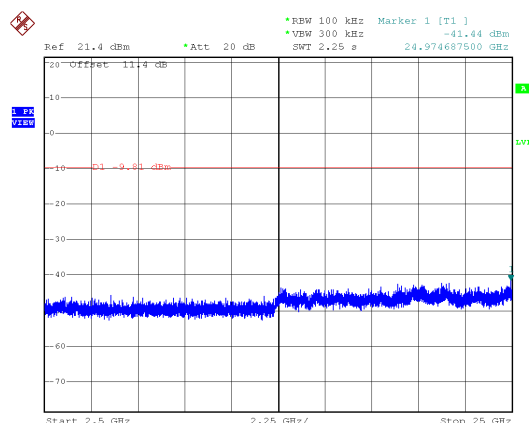
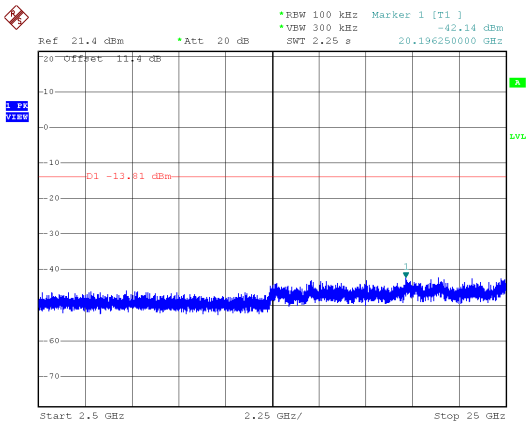
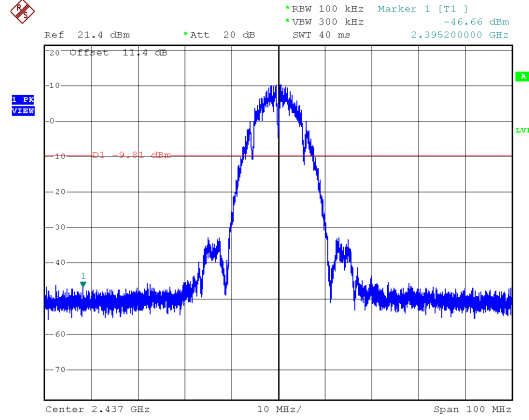
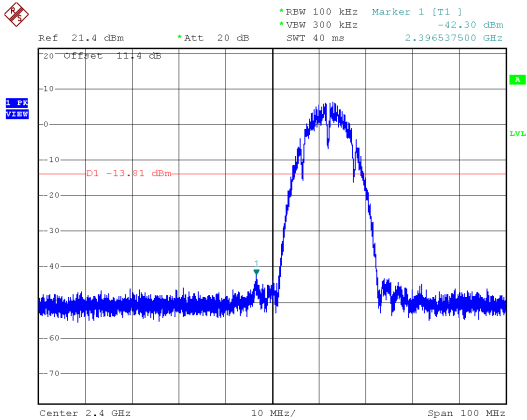
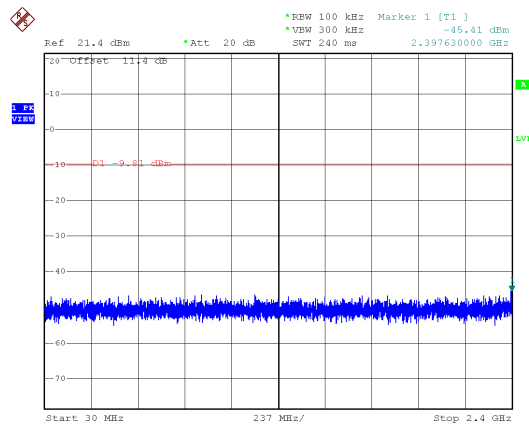


ANT 3

Modulation Type: 802.11b, CH 01



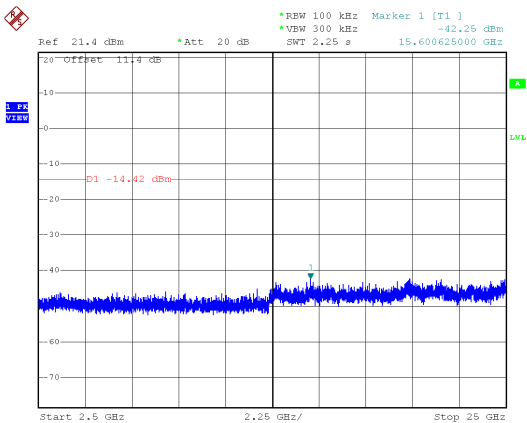
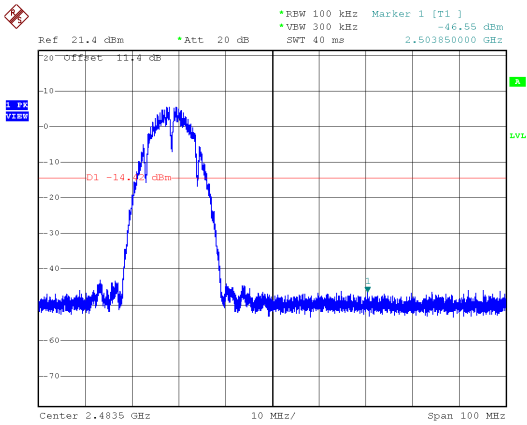
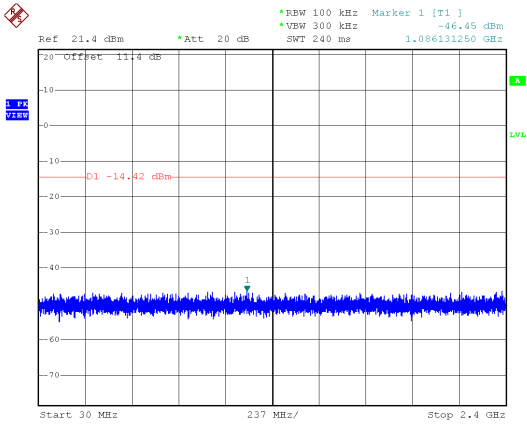
Modulation Type: 802.11b, CH 06





ANT 3

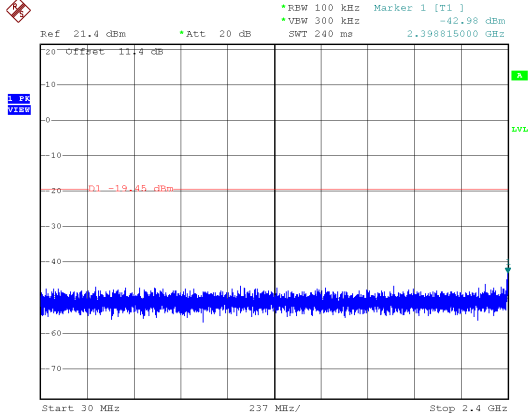
Modulation Type: 802.11b, CH 11



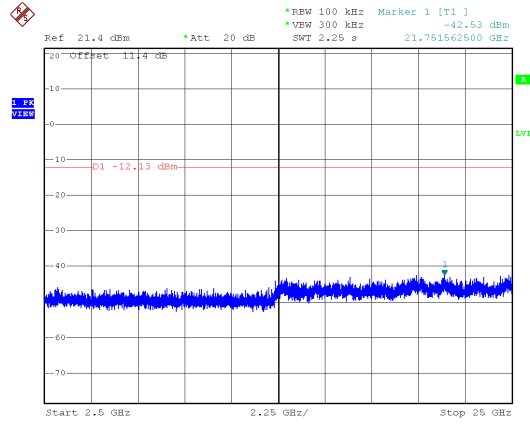
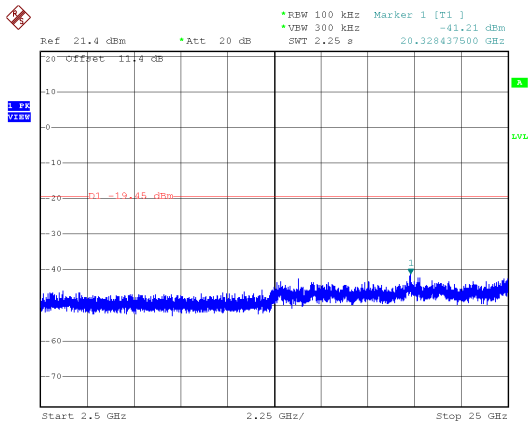
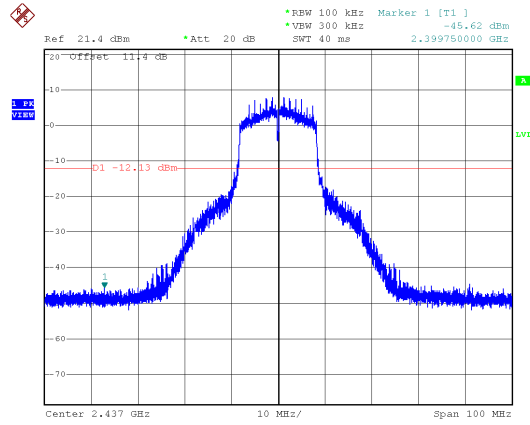
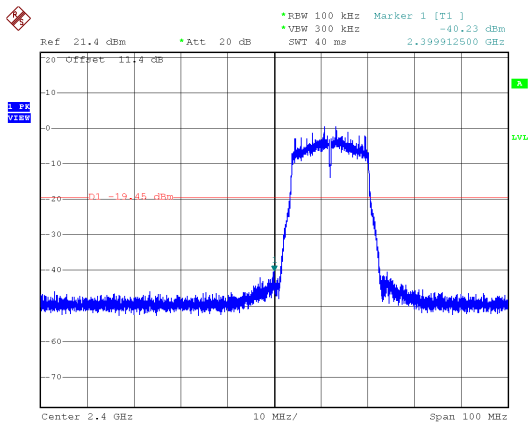
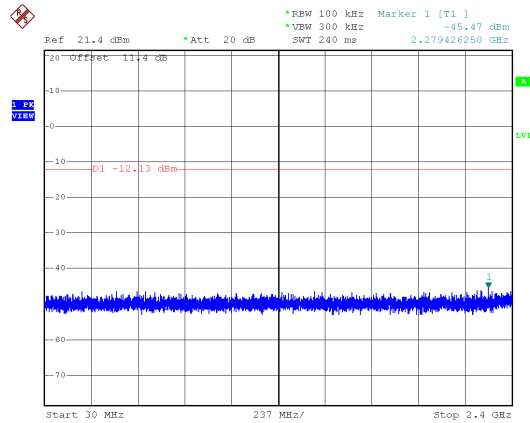


ANT 3

Modulation Type: 802.11g, CH 01



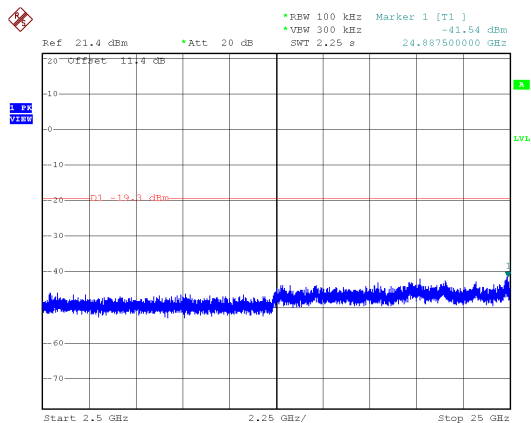
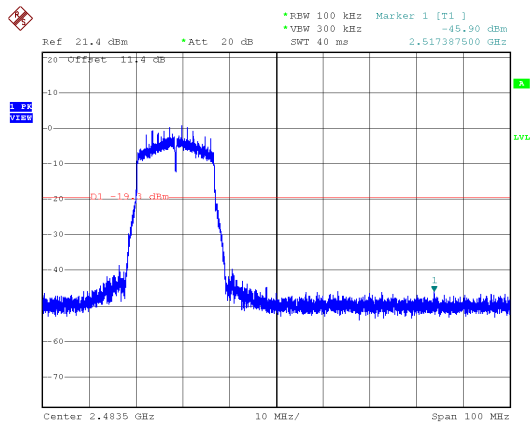
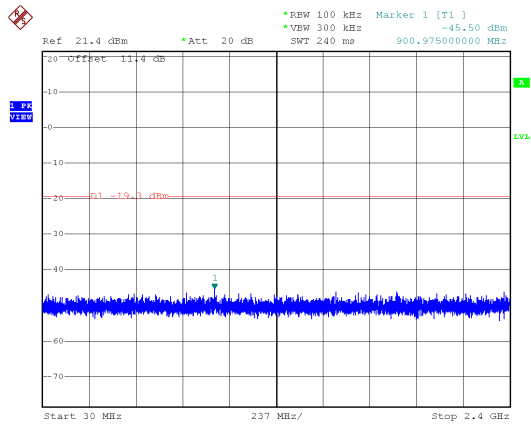
Modulation Type: 802.11g, CH 06





ANT 3

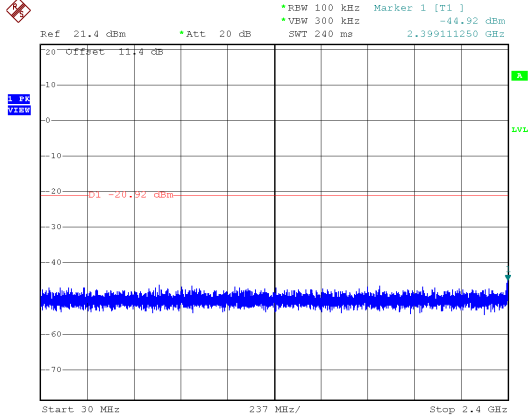
Modulation Type: 802.11g, CH 11



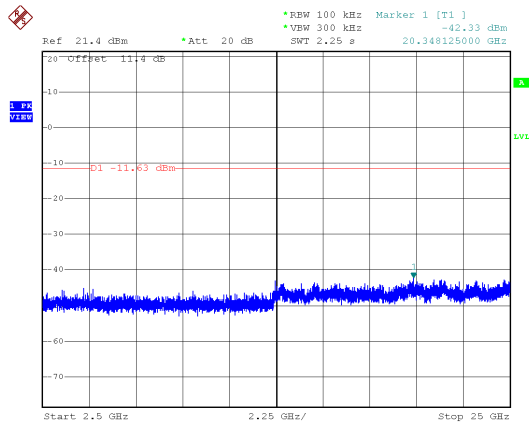
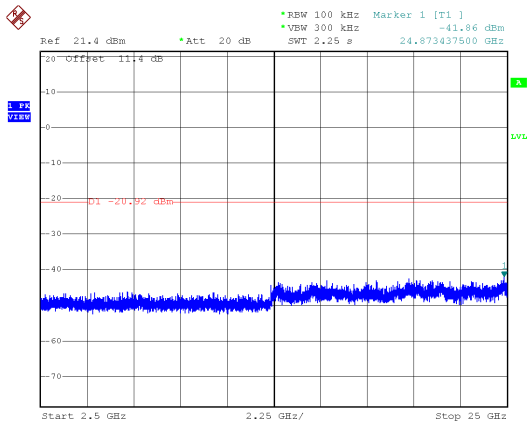
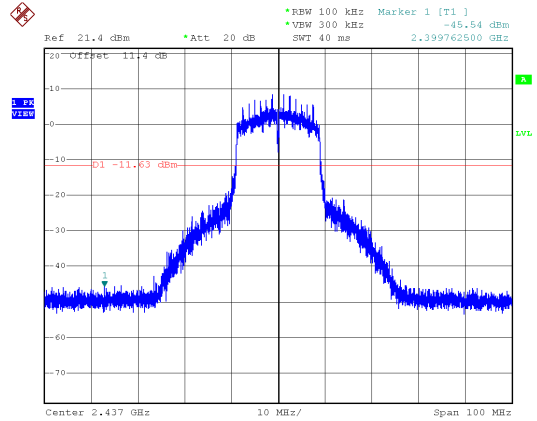
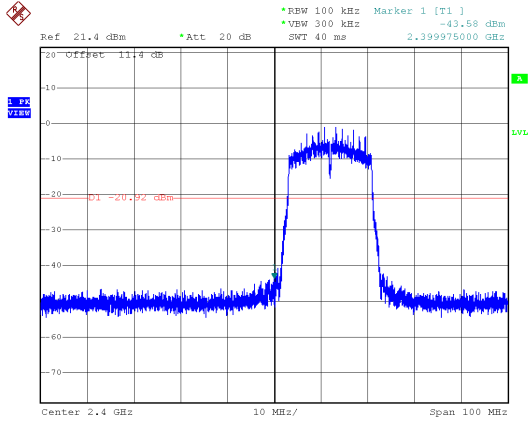
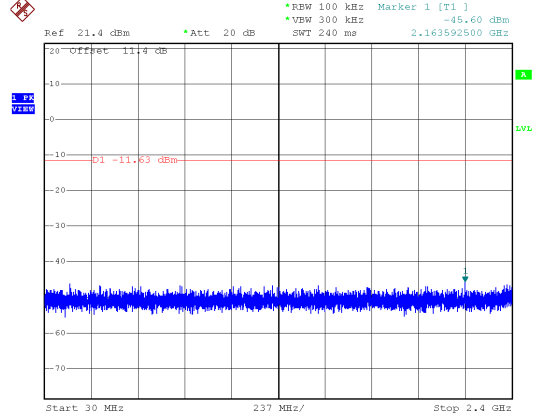


ANT 3

Modulation Type: 802.11ac VHT20, CH01



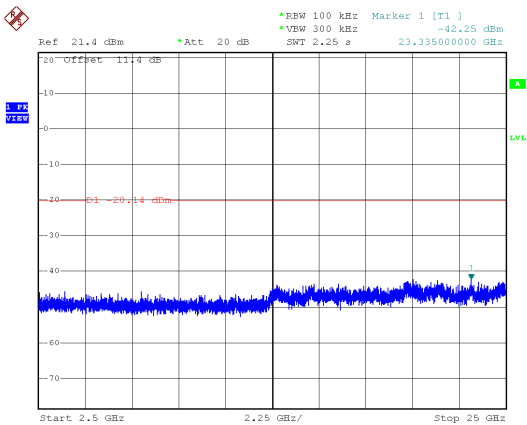
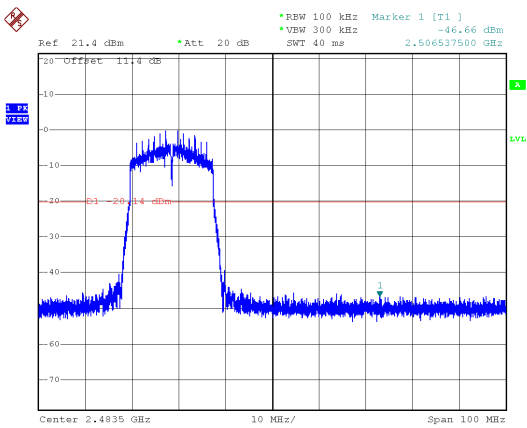
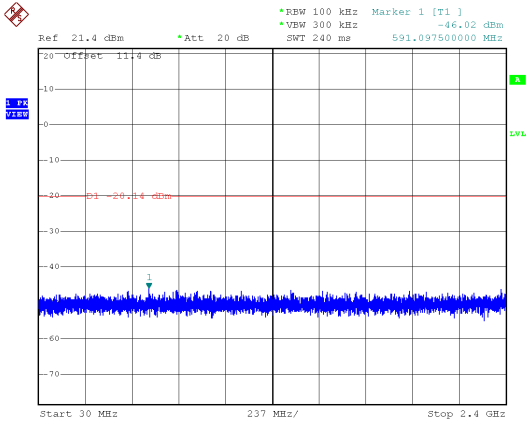
Modulation Type: 802.11ac VHT20, CH06





ANT 31

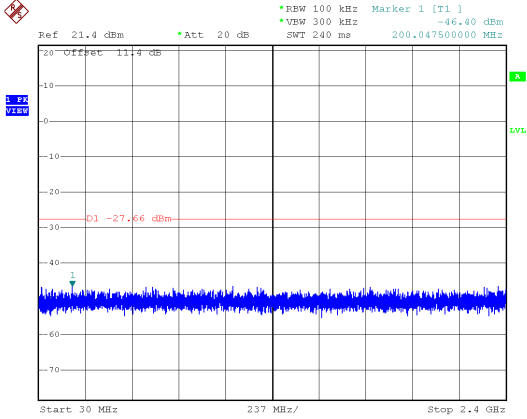
Modulation Type: 802.11ac VHT20, CH11



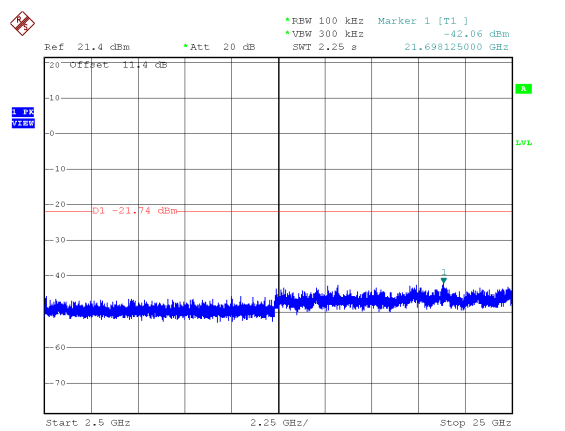
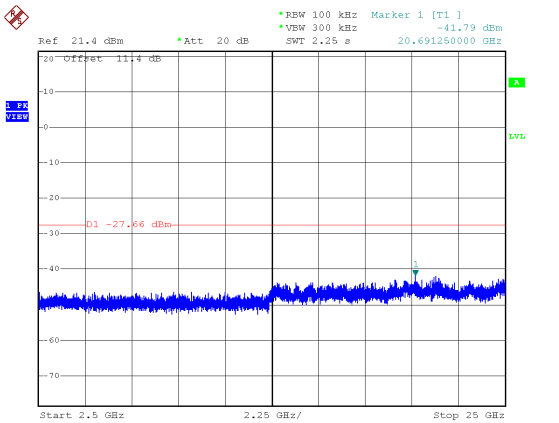
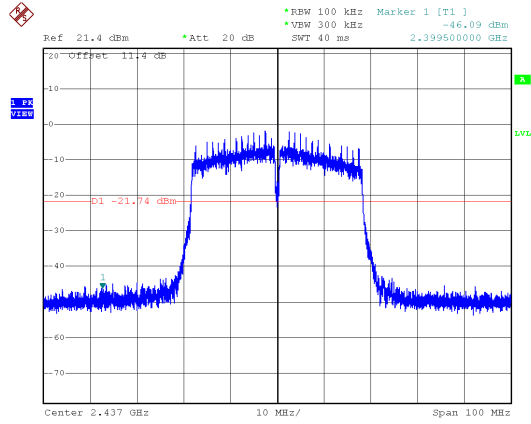
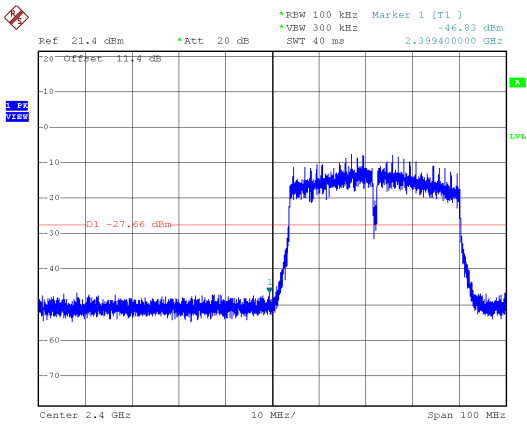
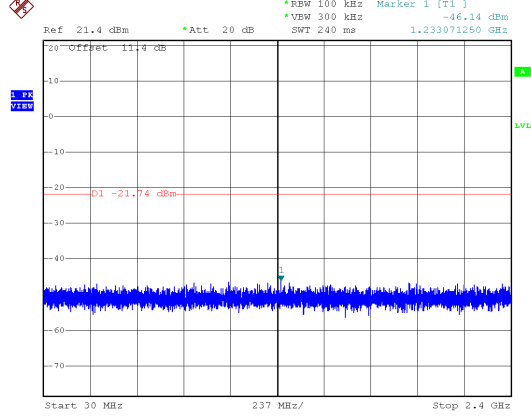


ANT 3

Modulation Type: 802.11ac VHT40, CH03



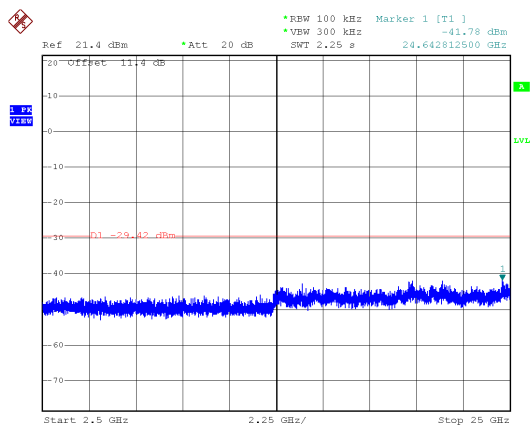
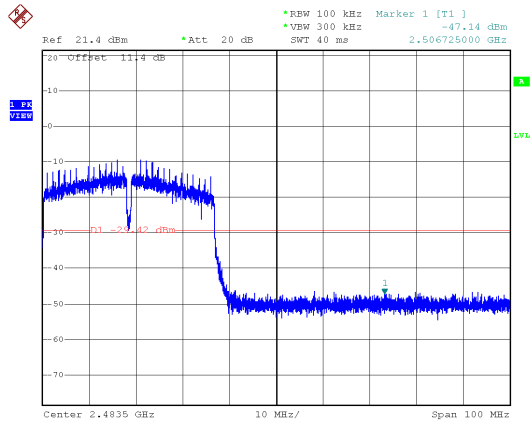
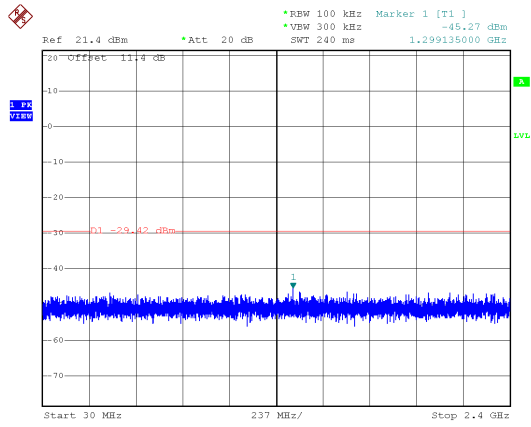
Modulation Type: 802.11ac VHT40, CH06





ANT 3

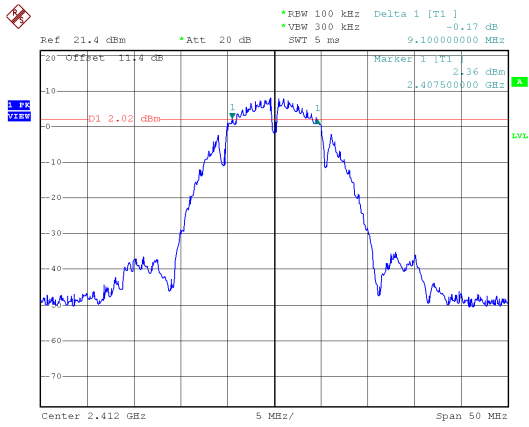
Modulation Type: 802.11ac VHT40, CH09



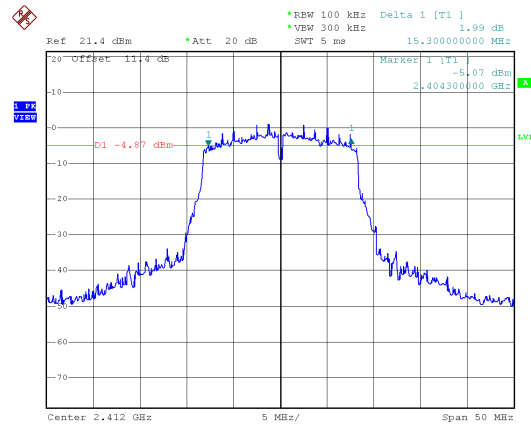


ANT 0

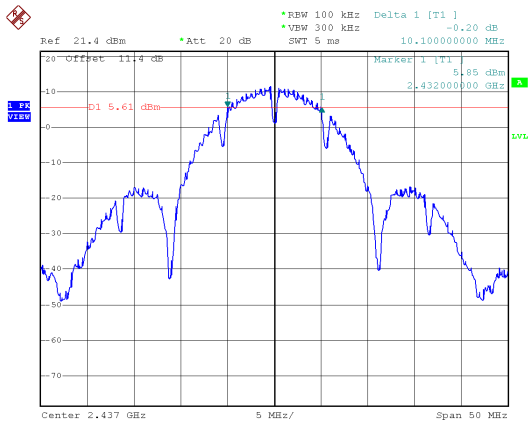
Modulation Type: 802.11b
CH01



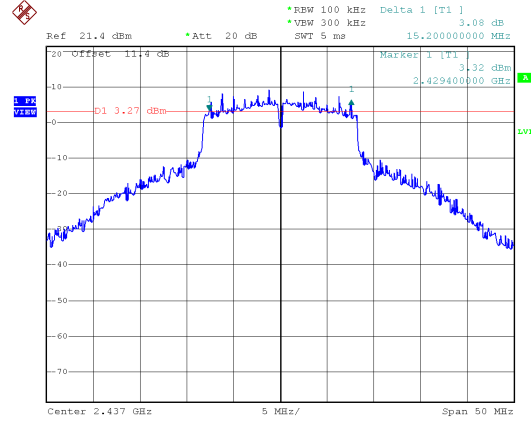
Modulation Type: 802.11g
CH01



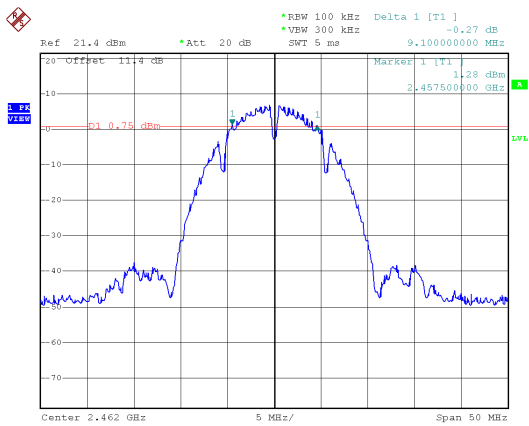
CH06



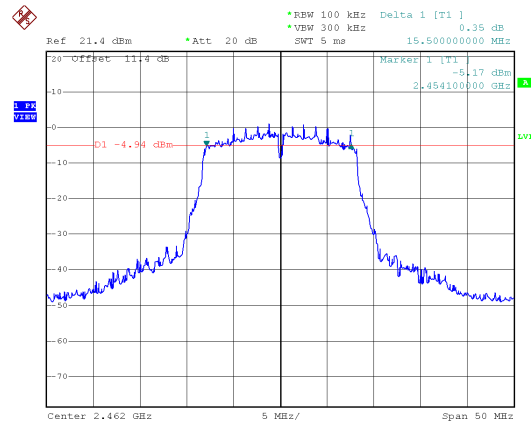
CH06



CH11



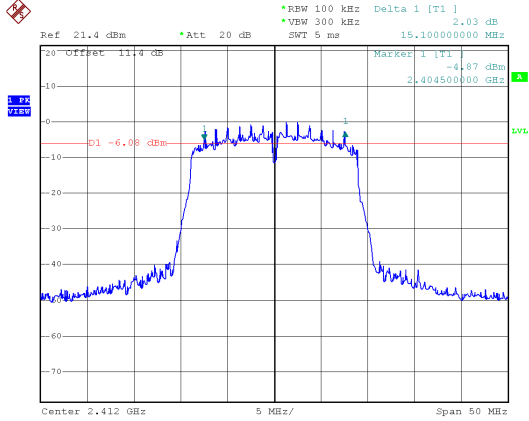
CH11



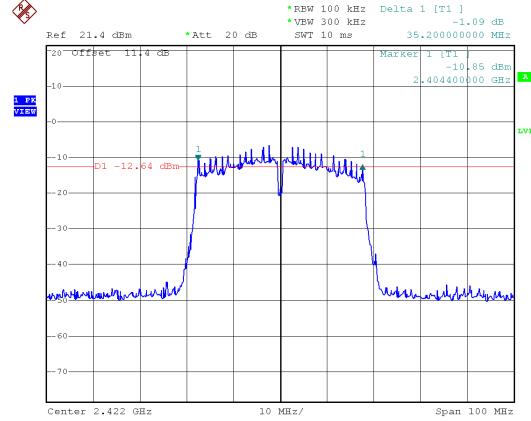


ANT 0

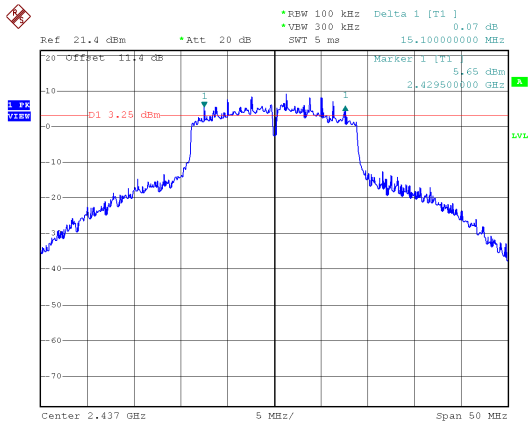
Modulation Type: 802.11ac VHT20
CH01



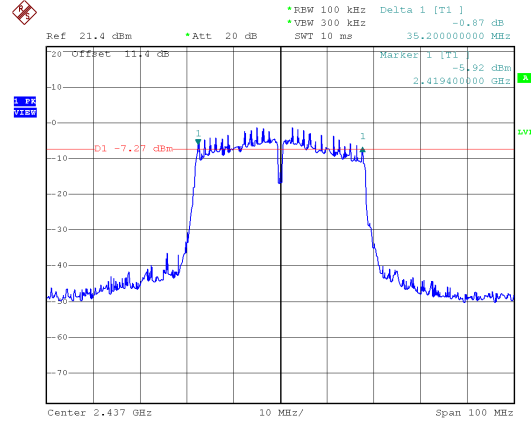
Modulation Type: 802.11ac VHT40
CH03



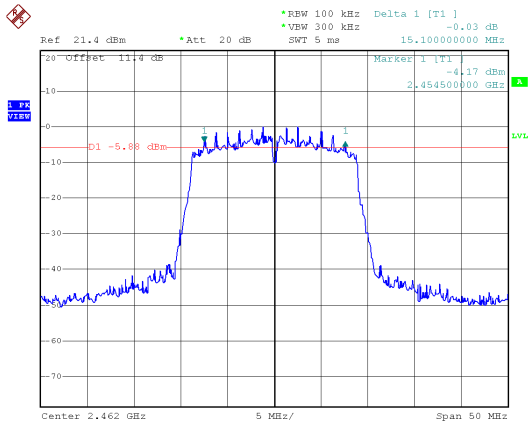
CH06



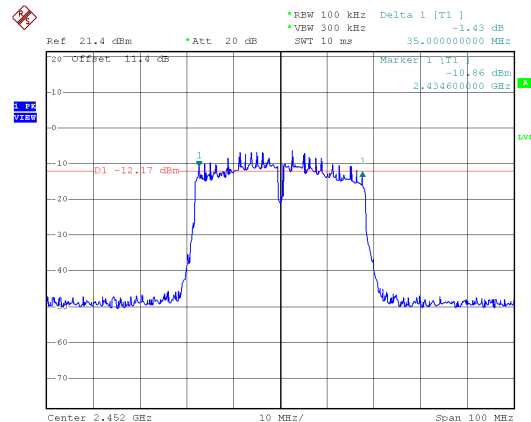
CH06



CH11

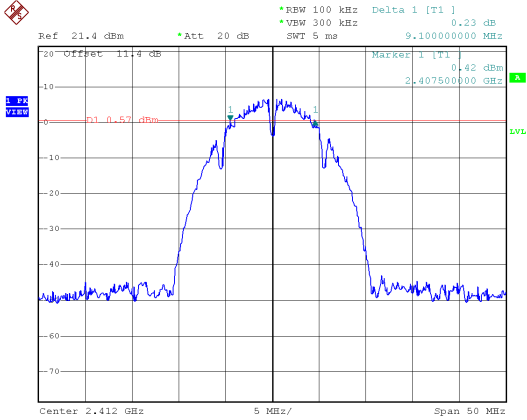


CH09

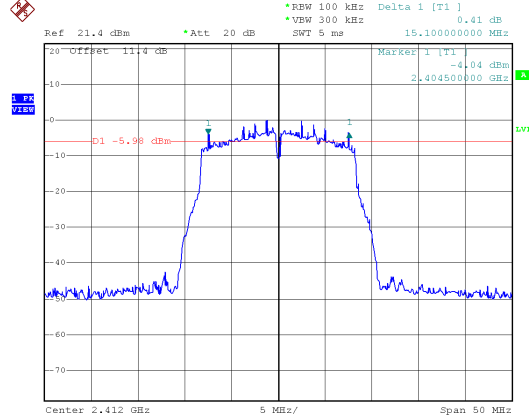




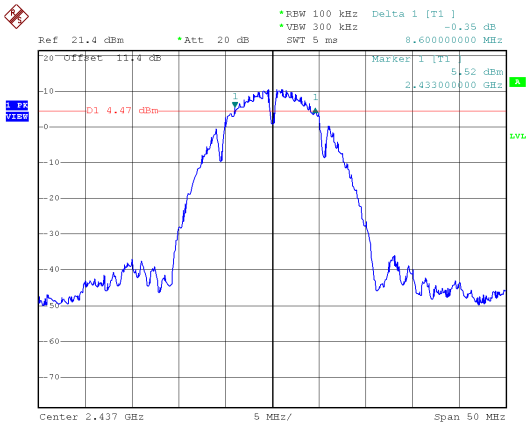
ANT 1
Modulation Type: 802.11b
CH01



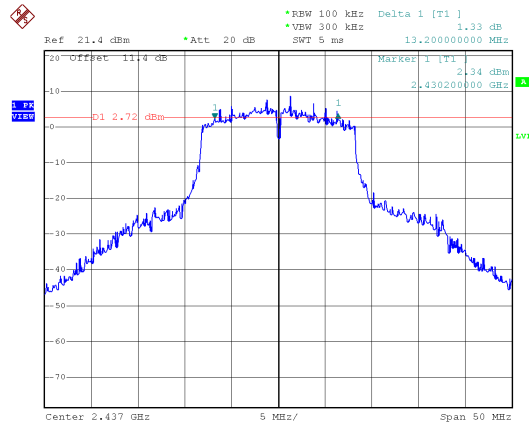
Modulation Type: 802.11g
CH01



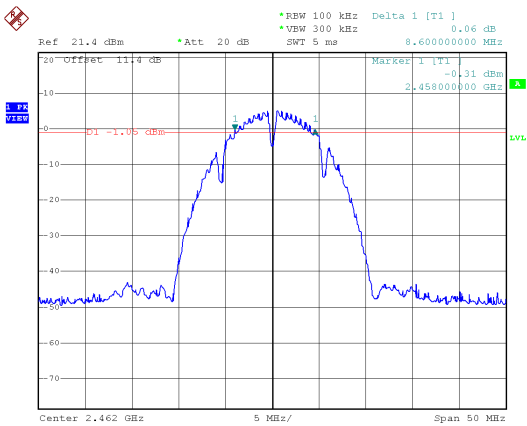
CH06



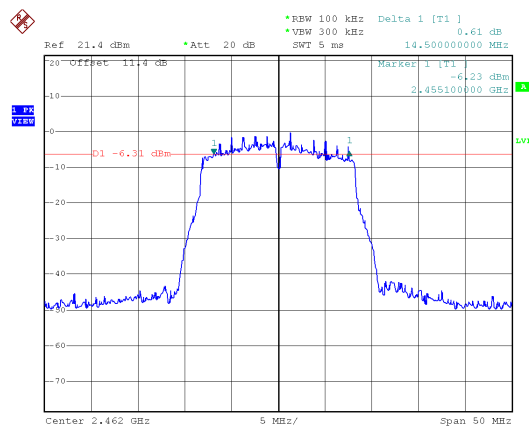
CH06



CH11



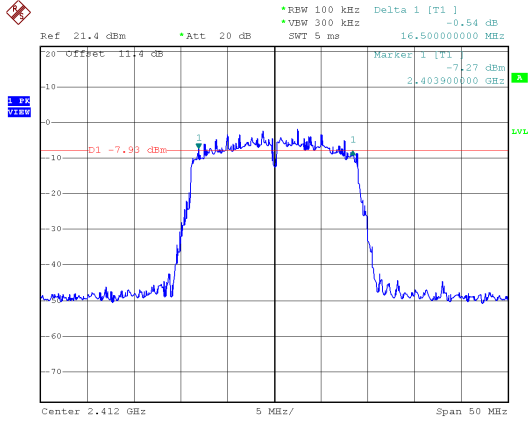
CH11



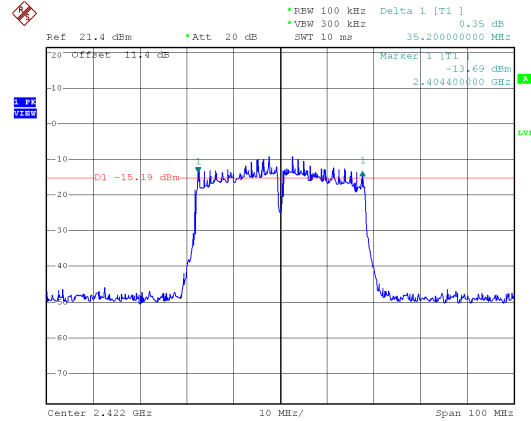


ANT 1

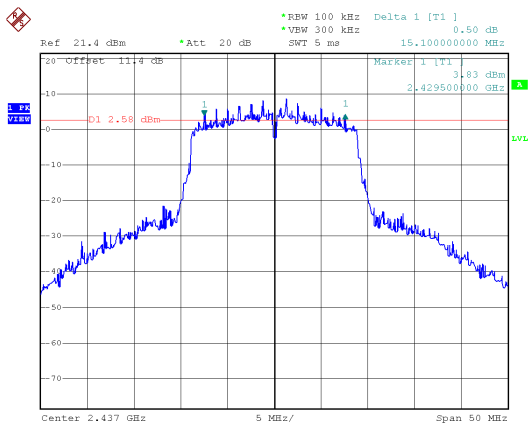
Modulation Type: 802.11ac VHT20
CH01



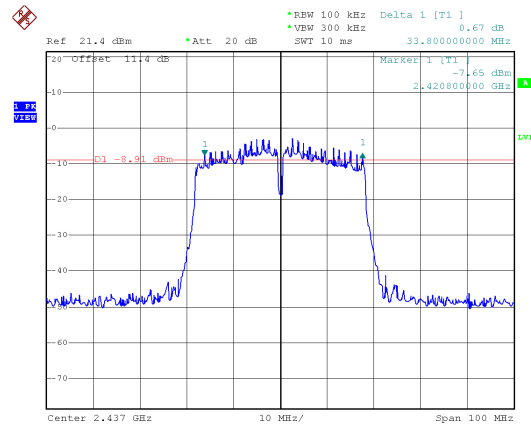
Modulation Type: 802.11ac VHT40
CH03



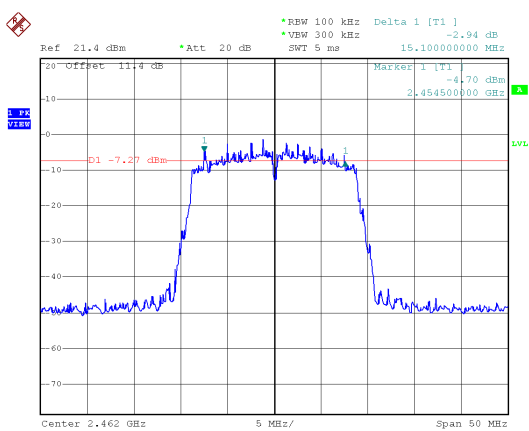
CH06



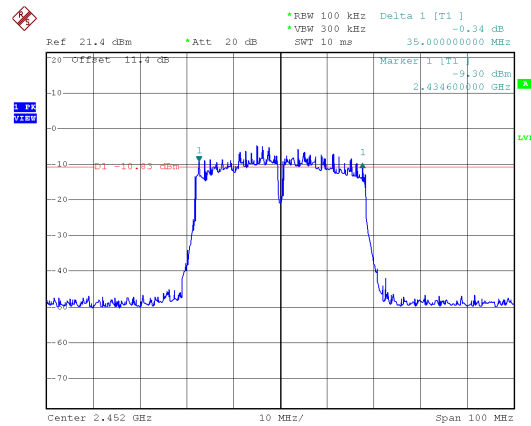
CH06



CH11



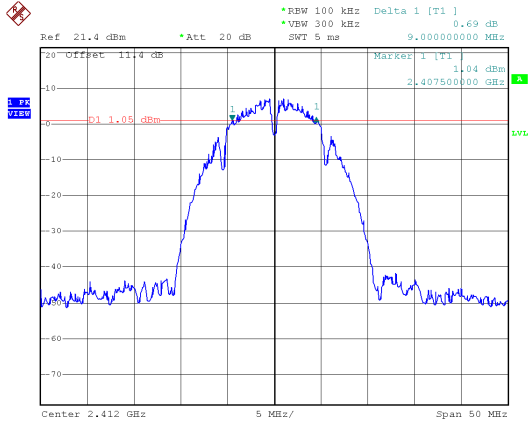
CH09



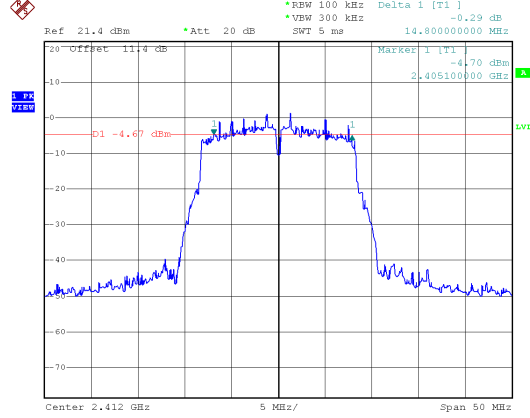


ANT 2

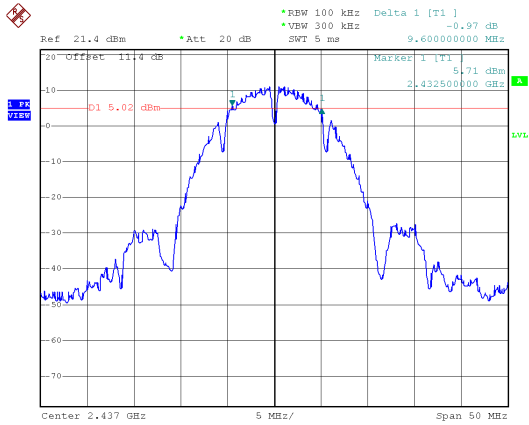
Modulation Type: 802.11b
CH01



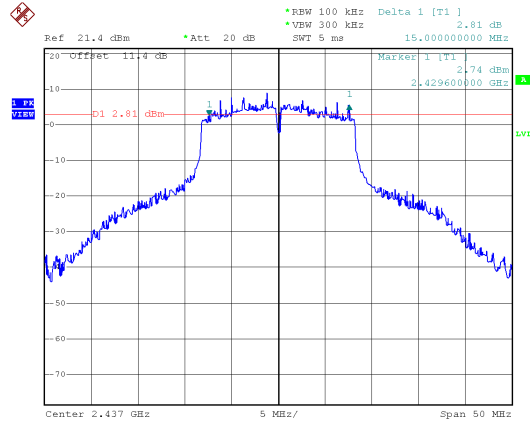
Modulation Type: 802.11g
CH01



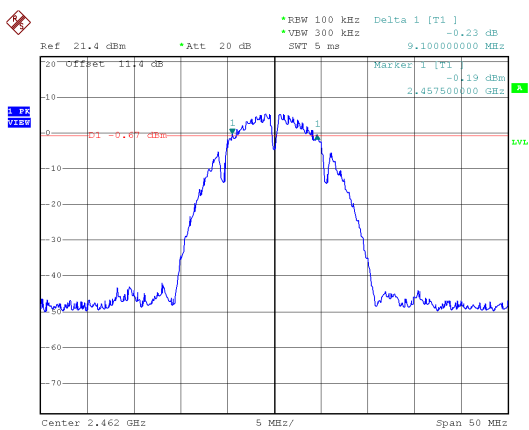
CH06



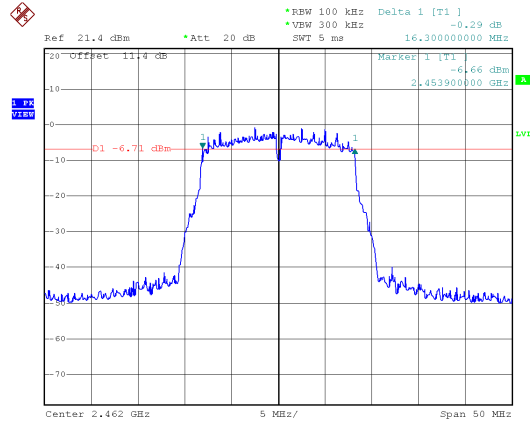
CH06



CH11



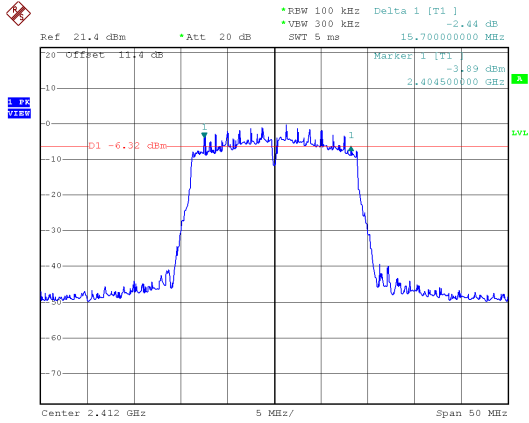
CH11



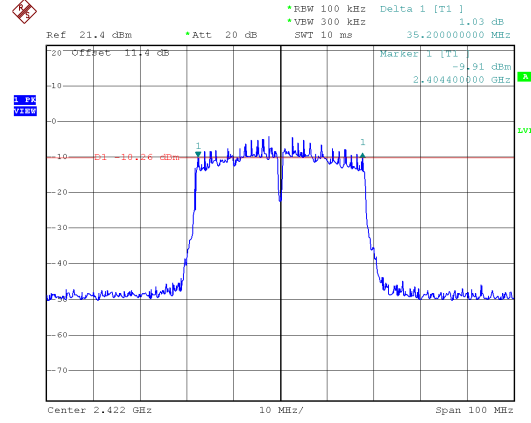


ANT 2

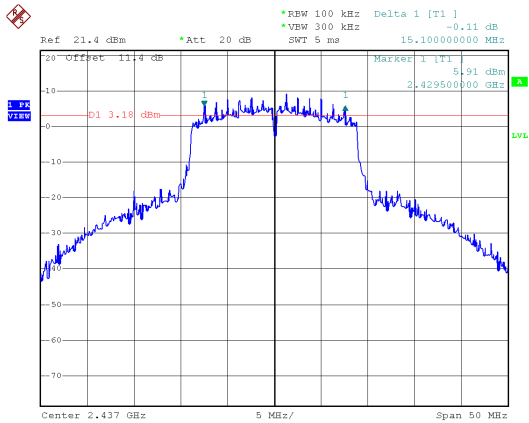
Modulation Type: 802.11ac VHT20
CH01



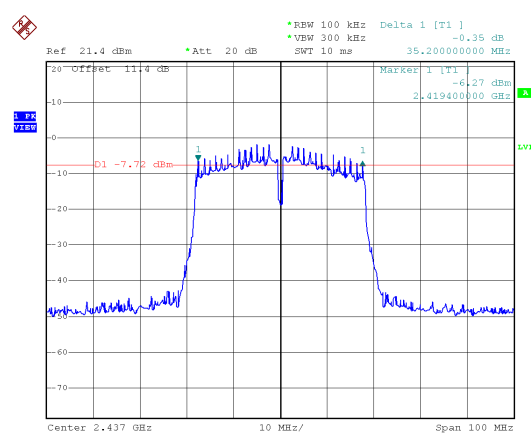
Modulation Type: 802.11ac VHT40
CH03



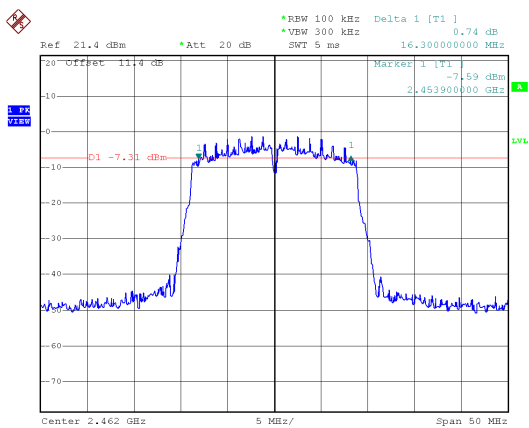
CH06



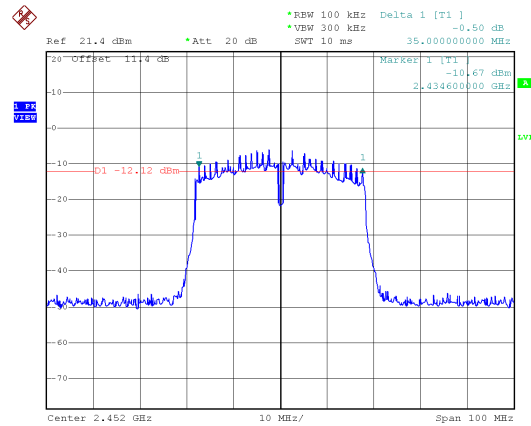
CH06



CH11

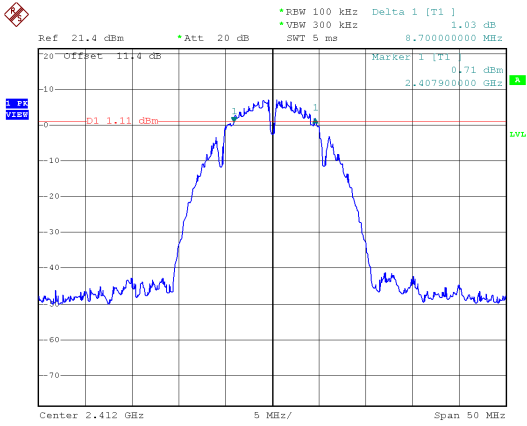


CH09

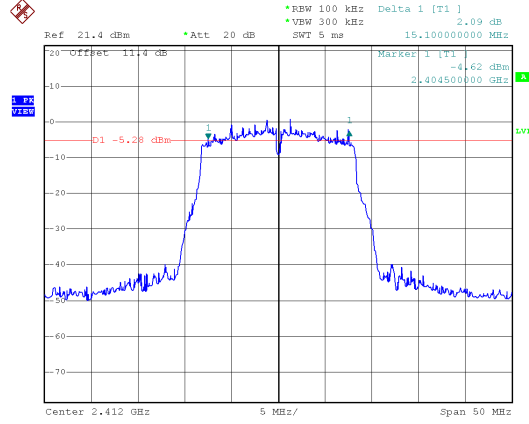




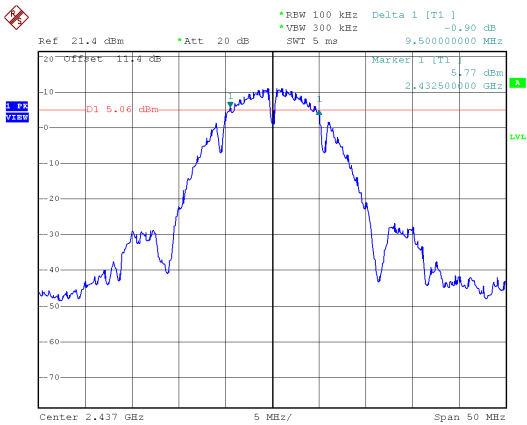
ANT 3
Modulation Type: 802.11b
CH01



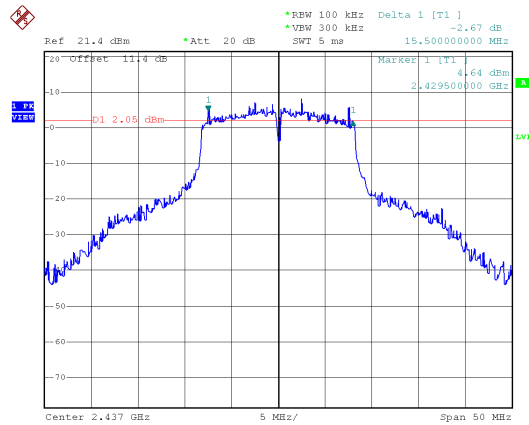
Modulation Type: 802.11g
CH01



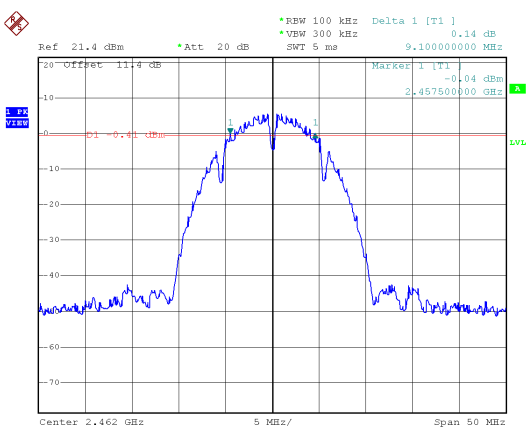
CH06



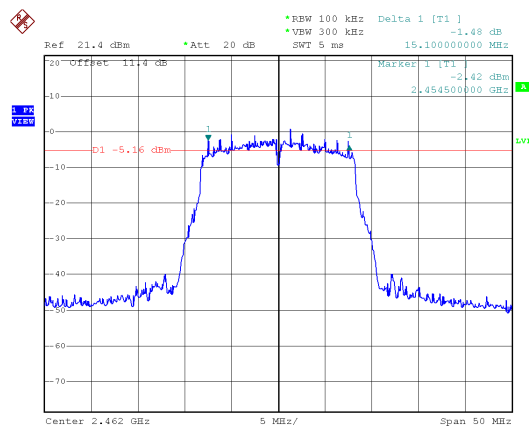
CH06



CH11



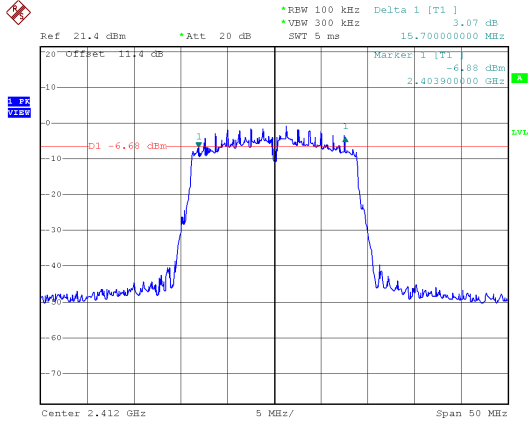
CH11



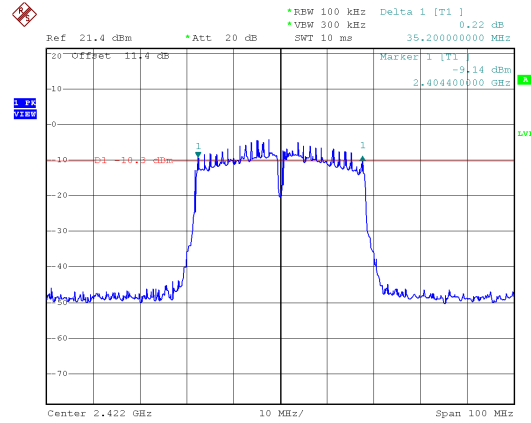


ANT 3

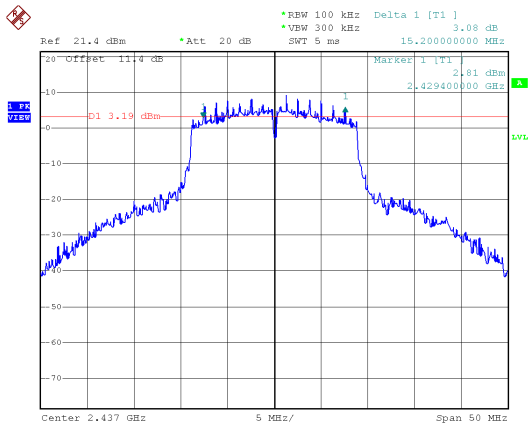
Modulation Type: 802.11ac VHT20
CH01



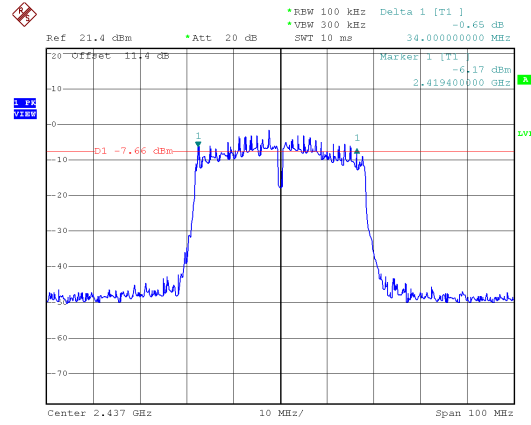
Modulation Type: 802.11ac VHT40
CH03



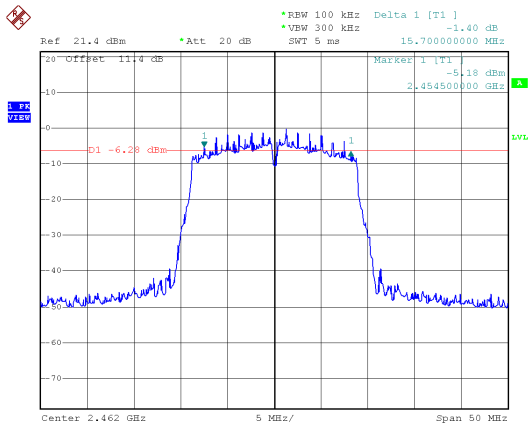
CH06



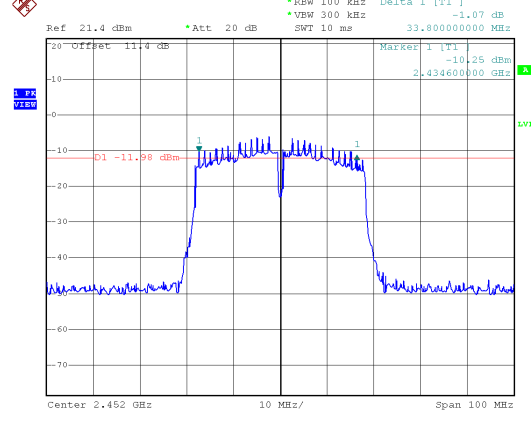
CH06



CH11



CH09





9. Maximum Peak and Average Output Power

9.1 Test Limit

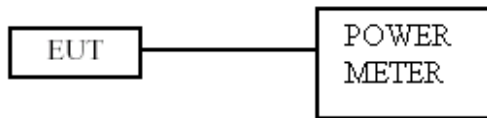
The Maximum Peak Output Power Measurement is 30dBm.

If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

9.2 Test Procedures

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

9.3 Test Setup Layout



9.4 Test Result and Data

Temperature : 24°C
Test Date : Jul. 24, 2017

Humidity : 66%

Non Beamforming

Modulation Type	Channel	Frequency (MHz)	Peak Power Output (dBm)				Total PK Power (mW)	Total PK Power (dBm)	Limit (dBm)
			ANT 0	ANT 1	ANT 2	ANT 3			
IEEE 802.11b (1Mbps)	01	2412	18.01	17.98	18.26	18.85	269.772	24.31	30.00
	06	2437	22.24	23.10	22.42	23.11	750.895	28.76	30.00
	11	2462	18.63	18.69	18.96	19.52	315.147	24.99	30.00
IEEE 802.11g (6Mbps)	01	2412	17.06	17.46	16.33	18.13	214.501	23.31	30.00
	06	2437	23.64	23.91	23.60	23.34	922.104	29.65	30.00
	11	2462	17.03	16.99	15.86	17.82	199.552	23.00	30.00
IEEE 802.11n HT20 (6.5Mbps)	01	2412	15.85	16.33	15.22	18.27	181.822	22.60	30.00
	06	2437	23.7	24.01	23.90	23.49	955.019	29.80	30.00
	11	2462	16.52	16.35	15.62	17.35	178.827	22.52	30.00
IEEE 802.11n HT40 (13.5Mbps)	03	2422	14.56	14.10	14.15	14.32	107.321	20.31	30.00
	06	2437	20.13	20.50	19.52	20.90	427.804	26.31	30.00
	09	2452	16.00	16.22	16.34	17.26	177.954	22.50	30.00
IEEE 802.11ac VHT20 (6.5Mbps)	01	2412	15.87	16.37	15.27	18.26	182.627	22.62	30.00
	06	2437	23.73	24.03	23.92	23.51	959.970	29.82	30.00
	11	2462	16.56	16.35	15.59	17.40	179.620	22.54	30.00
IEEE 802.11ac VHT40 (13.5Mbps)	03	2422	14.59	14.16	14.18	14.35	108.244	20.34	30.00
	06	2437	20.18	20.57	19.58	20.93	432.918	26.36	30.00
	09	2452	16.04	16.27	16.37	17.27	179.228	22.53	30.00



Non Beamforming

Modulation Type	Channel	Frequency (MHz)	Avg. Power Output (dBm)				Total Avg. Power (mW)	Total Avg. Power (dBm)	Limit (dBm)
			ANT 0	ANT 1	ANT 2	ANT 3			
IEEE 802.11b (1Mbps)	01	2412	15.74	15.68	15.98	16.58	159.607	22.03	NA
	06	2437	20.17	21.17	20.30	21.55	484.952	26.86	NA
	11	2462	16.36	16.39	16.70	17.33	187.652	22.73	NA
IEEE 802.11g (6Mbps)	01	2412	11.14	11.60	10.63	12.39	56.355	17.51	NA
	06	2437	19.11	19.68	18.86	20.20	355.993	25.51	NA
	11	2462	11.28	11.20	10.21	12.13	53.436	17.28	NA
IEEE 802.11n HT20 (6.5Mbps)	01	2412	9.63	10.20	9.01	11.06	40.381	16.06	NA
	06	2437	18.86	19.51	18.60	20.22	343.883	25.36	NA
	11	2462	10.26	10.13	9.05	11.25	42.291	16.26	NA
IEEE 802.11n HT40 (13.5Mbps)	03	2422	5.70	5.12	5.21	5.43	13.777	11.39	NA
	06	2437	10.60	10.90	9.82	11.84	48.654	16.87	NA
	09	2452	6.23	6.60	6.68	6.53	17.922	12.53	NA
IEEE 802.11ac VHT20 (6.5Mbps)	01	2412	9.68	10.24	9.04	11.09	40.727	16.10	NA
	06	2437	18.91	19.56	18.64	20.26	347.452	25.41	NA
	11	2462	10.29	10.16	9.10	11.30	42.684	16.30	NA
IEEE 802.11ac VHT40 (13.5Mbps)	03	2422	5.71	5.17	5.23	5.50	13.895	11.43	NA
	06	2437	10.66	10.94	9.85	11.86	49.064	16.91	NA
	09	2452	6.27	6.63	6.69	6.56	18.035	12.56	NA

Note: Average power is for reference only.



Beamforming

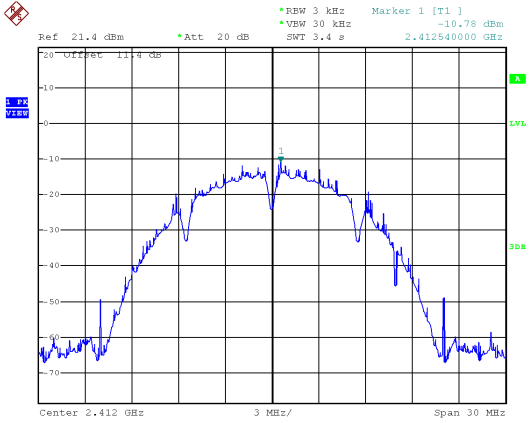
Modulation Type	Channel	Frequency (MHz)	Peak Power Output (dBm)				Total PK Power (mW)	Total PK Power (dBm)	Limit (dBm)
			ANT 0	ANT 1	ANT 2	ANT 3			
IEEE 802.11ac VHT20 (6.5Mbps)	01	2412	9.85	10.35	9.25	12.24	45.66	16.60	26.98
	06	2437	17.71	18.01	17.9	17.49	240.03	23.80	26.98
	11	2462	10.54	10.33	9.57	11.38	44.91	16.52	26.98
IEEE 802.11ac VHT40 (13.5Mbps)	03	2422	8.57	8.14	8.16	8.33	27.06	14.32	26.98
	06	2437	14.16	14.55	13.56	14.91	108.24	20.34	26.98
	09	2452	10.02	10.25	10.35	11.25	44.81	16.51	26.98

Modulation Type	Channel	Frequency (MHz)	Avg. Power Output (dBm)				Total Avg. Power (mW)	Total Avg. Power (dBm)	Limit (dBm)
			ANT 0	ANT 1	ANT 2	ANT 3			
IEEE 802.11ac VHT20 (6.5Mbps)	01	2412	3.66	4.22	3.02	5.07	10.18	10.08	NA
	06	2437	12.89	13.54	12.62	14.24	86.88	19.39	NA
	11	2462	4.27	4.14	3.08	5.28	10.67	10.28	NA
IEEE 802.11ac VHT40 (13.5Mbps)	03	2422	-0.31	-0.85	-0.79	-0.52	3.47	5.41	NA
	06	2437	4.64	4.92	3.83	5.84	12.27	10.89	NA
	09	2452	0.25	0.61	0.67	0.54	4.51	6.54	NA

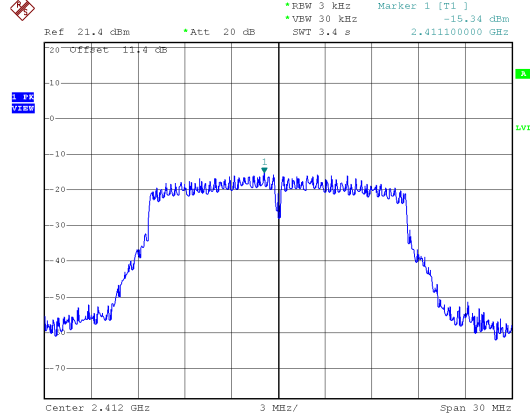
Note: Average power is for reference only.



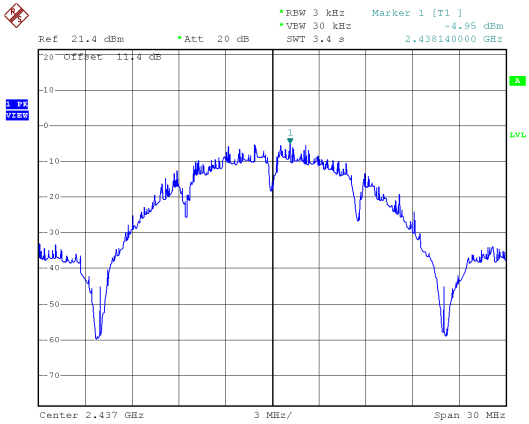
ANT 0
Modulation Type: 802.11b
CH01



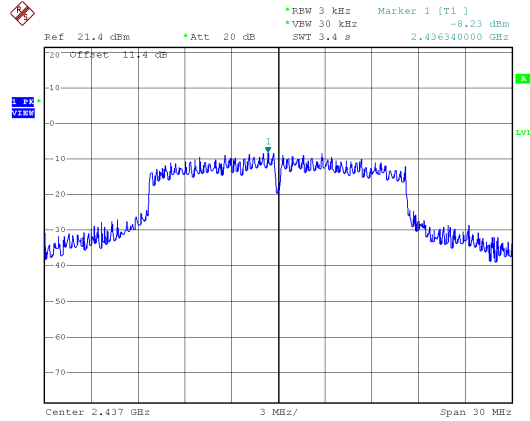
Modulation Type: 802.11g
CH01



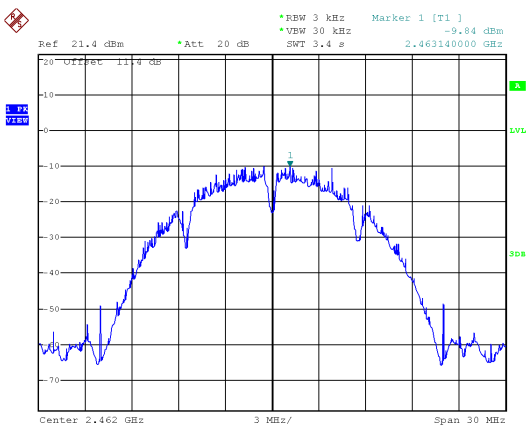
CH06



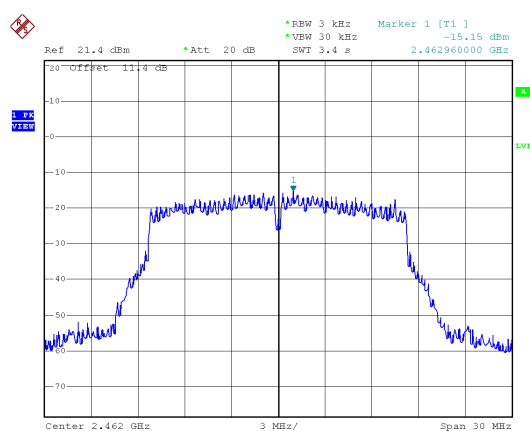
CH06



CH11

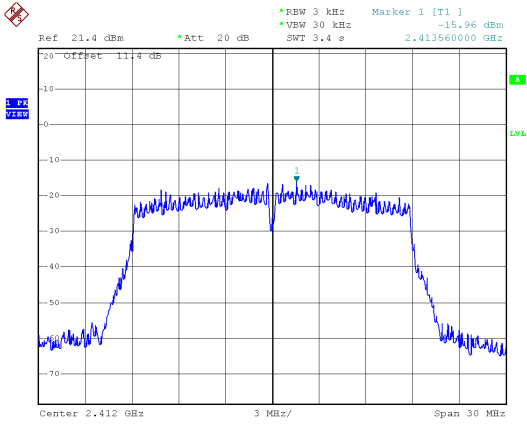


CH11

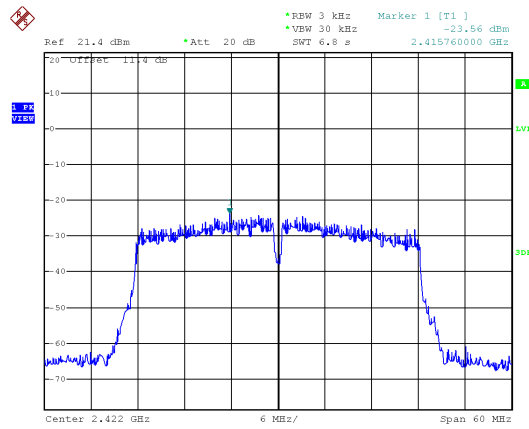




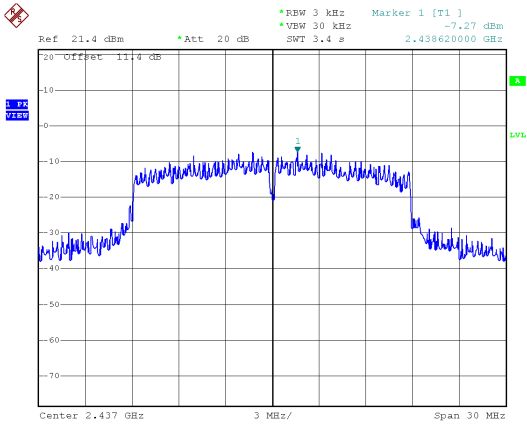
ANT 0
Modulation Type: 802.11ac VHT20
CH01



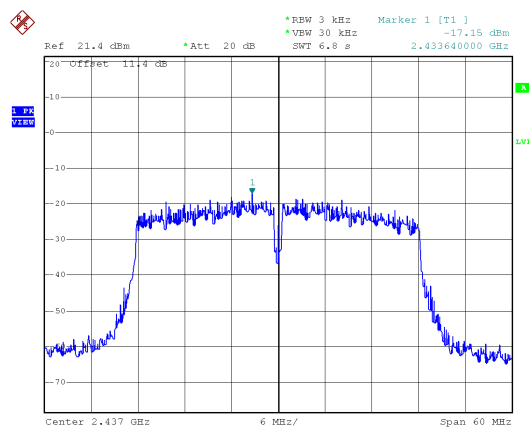
Modulation Type: 802.11ac VHT40
CH03



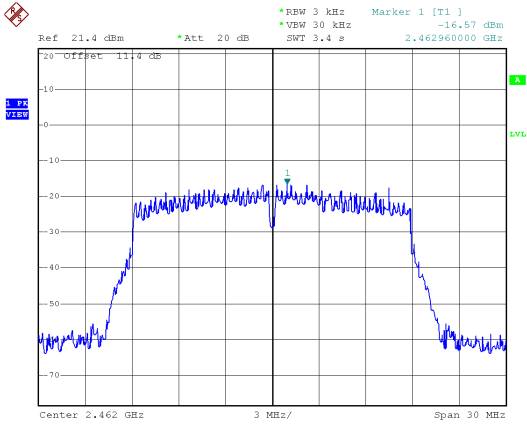
CH06



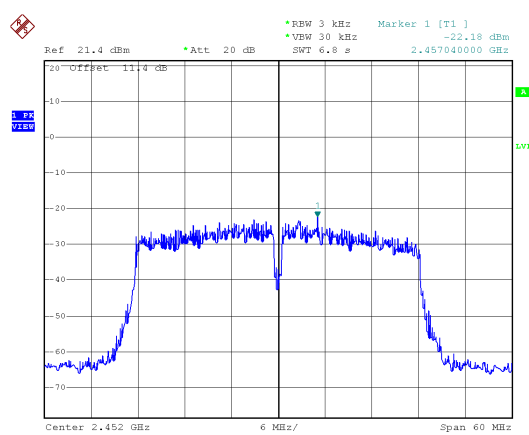
CH06



CH11

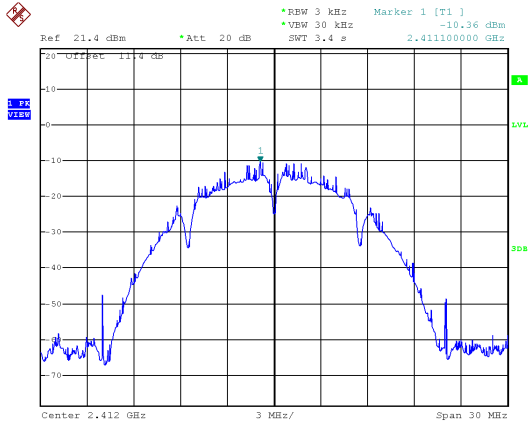


CH09

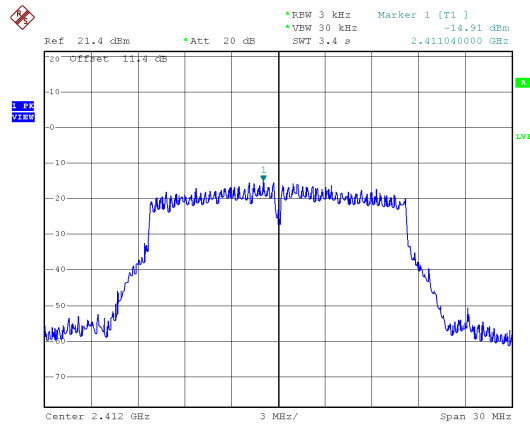




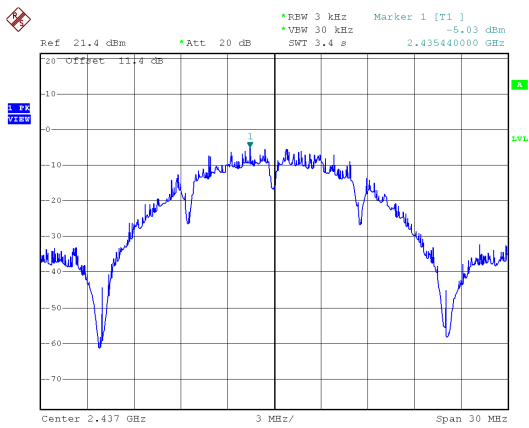
ANT 1
Modulation Type: 802.11b
CH01



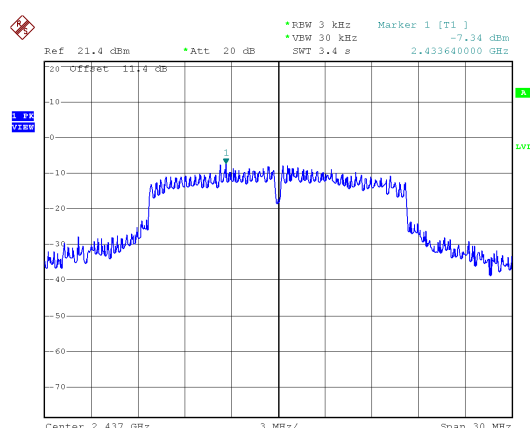
Modulation Type: 802.11g
CH01



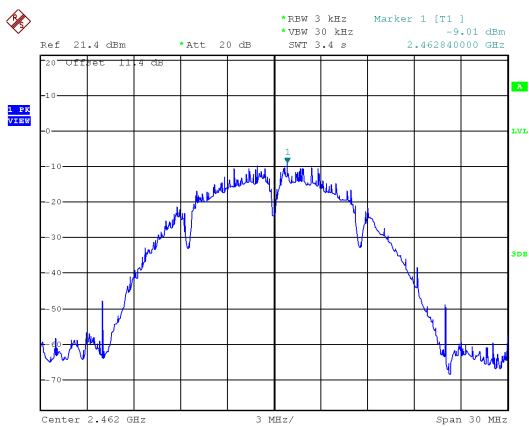
CH06



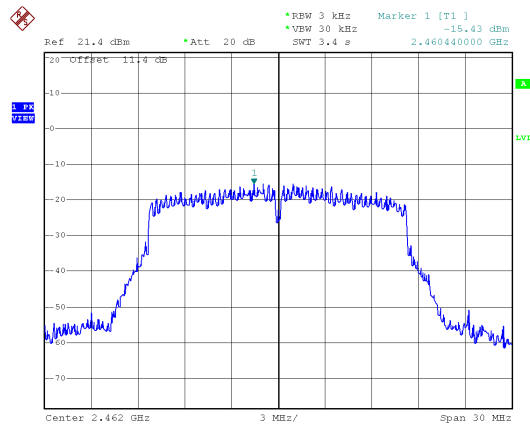
CH06



CH11

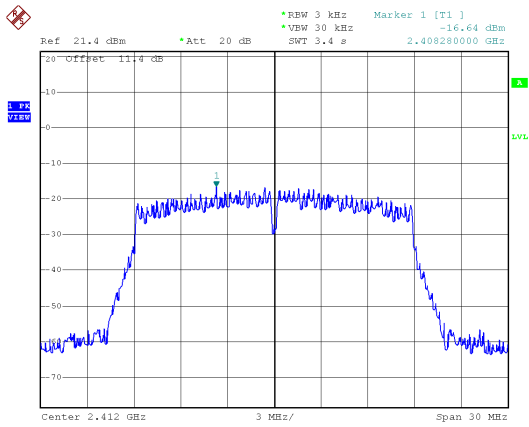


CH11

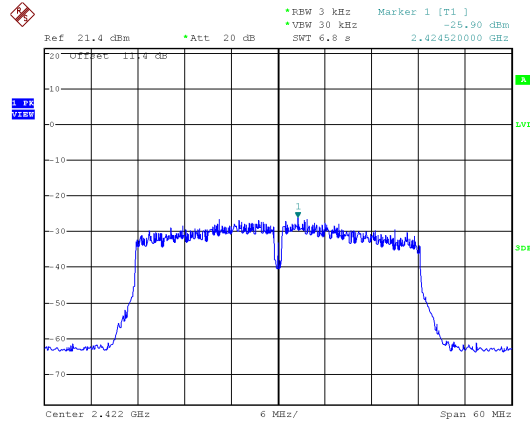




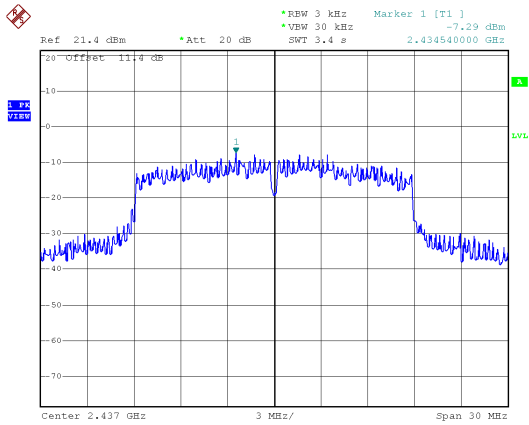
ANT 1
Modulation Type: 802.11ac VHT20
CH01



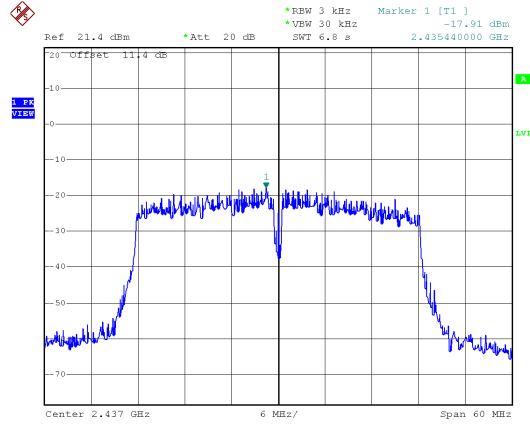
Modulation Type: 802.11ac VHT40
CH03



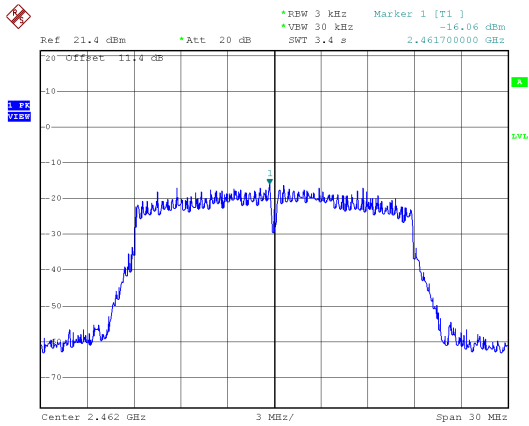
CH06



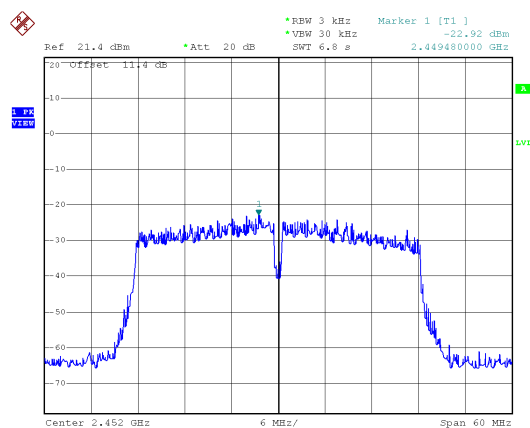
CH06



CH11

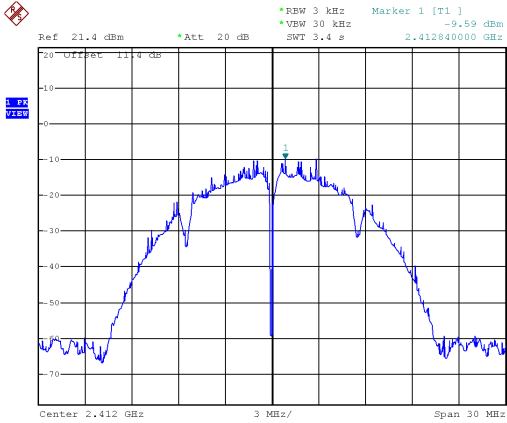


CH09

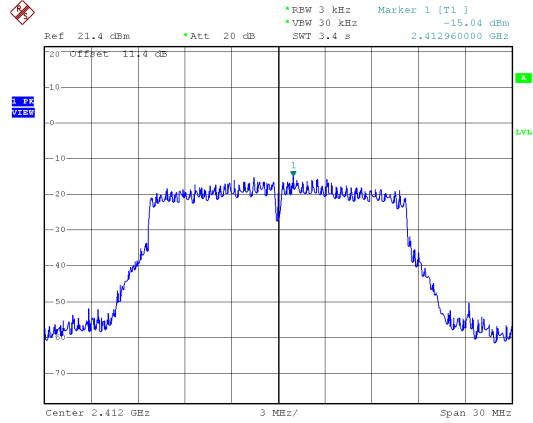




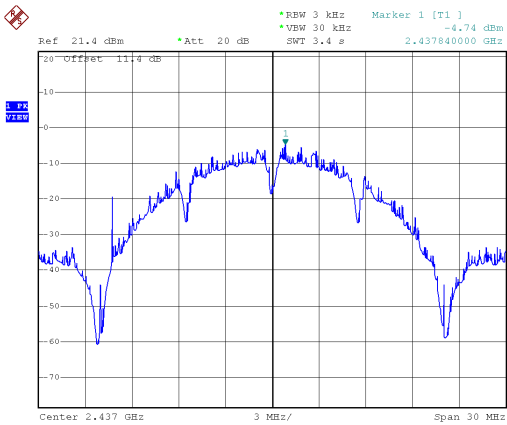
ANT 2
Modulation Type: 802.11b
CH01



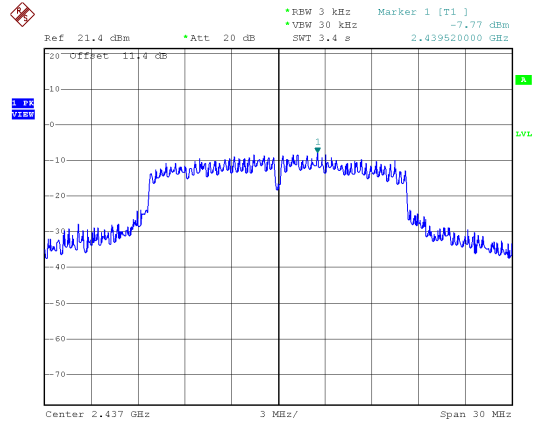
Modulation Type: 802.11g
CH01



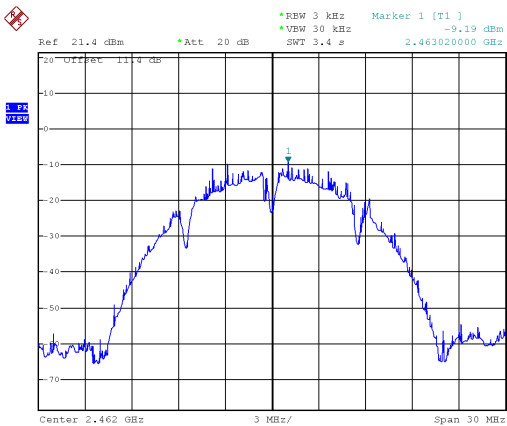
CH06



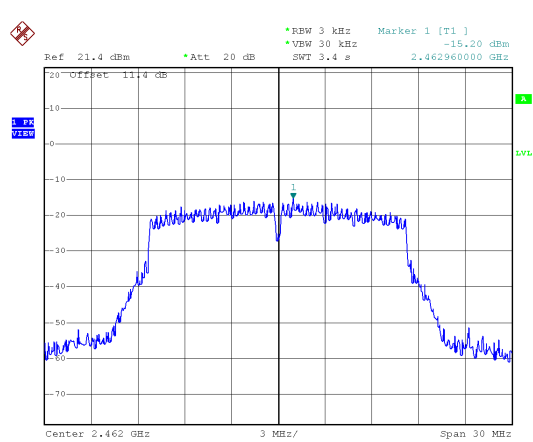
CH06



CH11

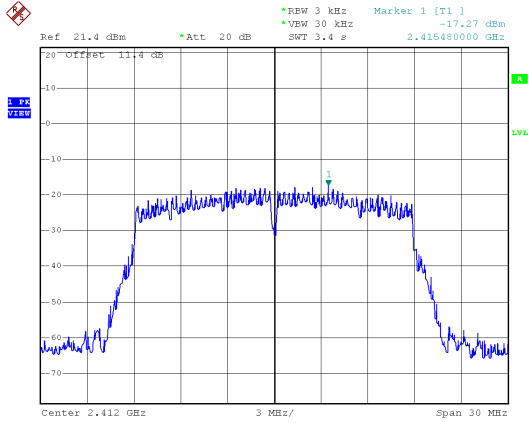


CH11

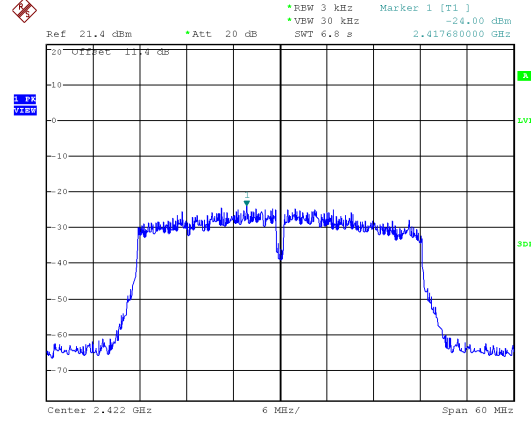




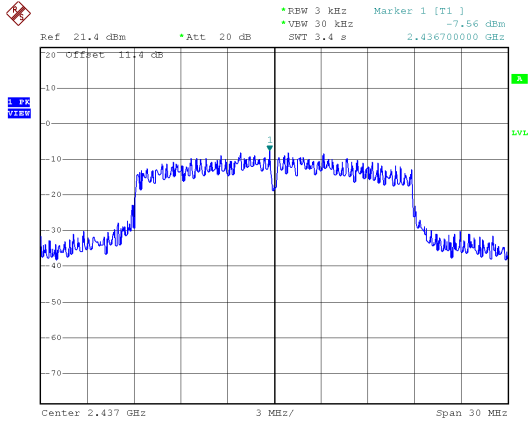
ANT 2
Modulation Type: 802.11ac VHT20
CH01



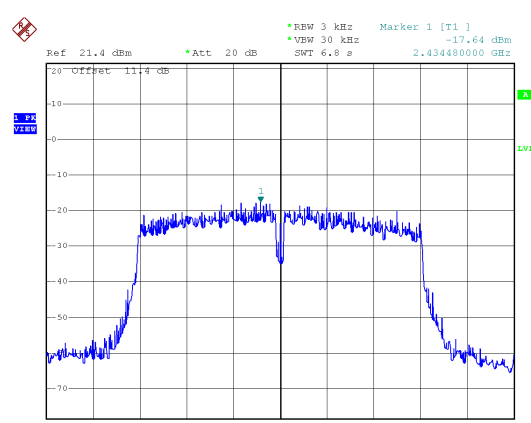
Modulation Type: 802.11ac VHT40
CH03



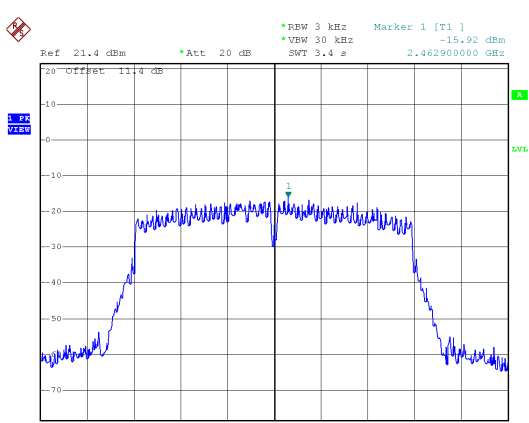
CH06



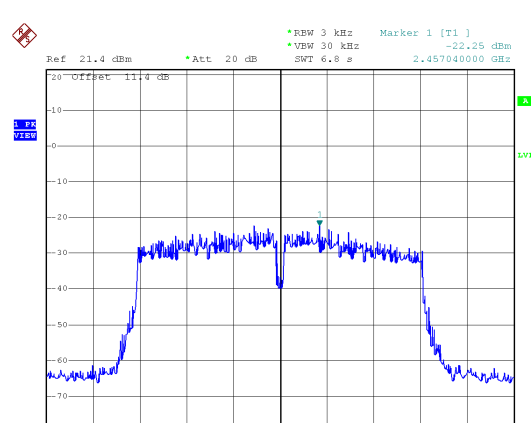
CH06



CH11

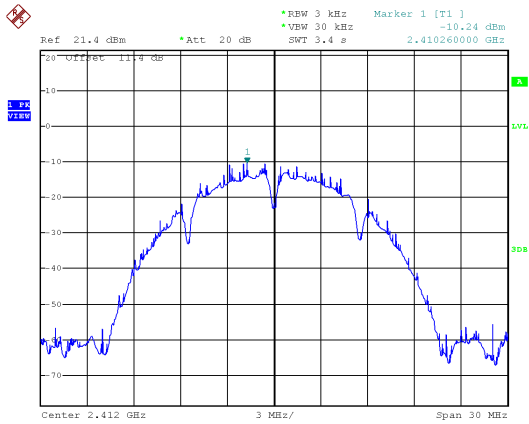


CH09

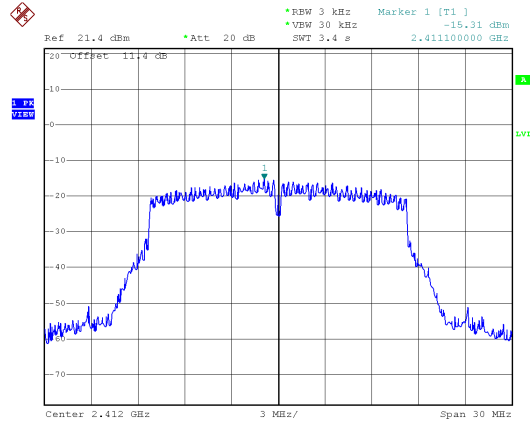




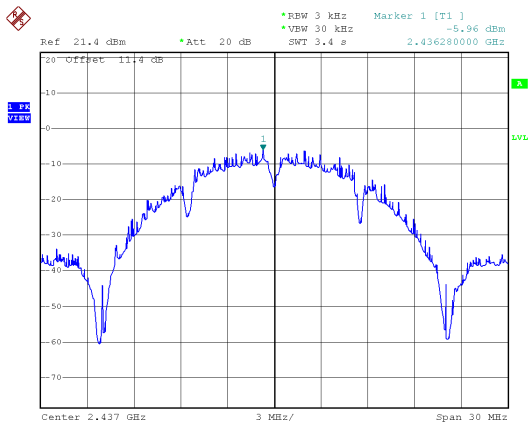
ANT 3
Modulation Type: 802.11b
CH01



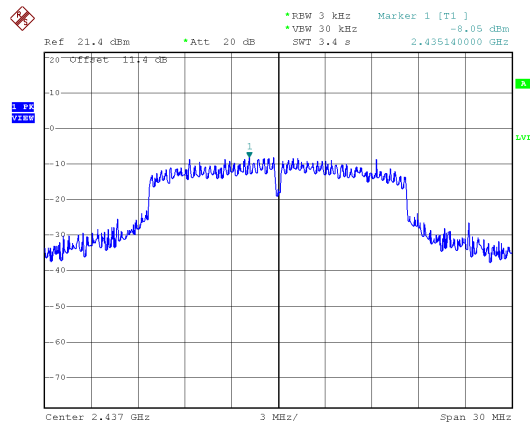
Modulation Type: 802.11g
CH01



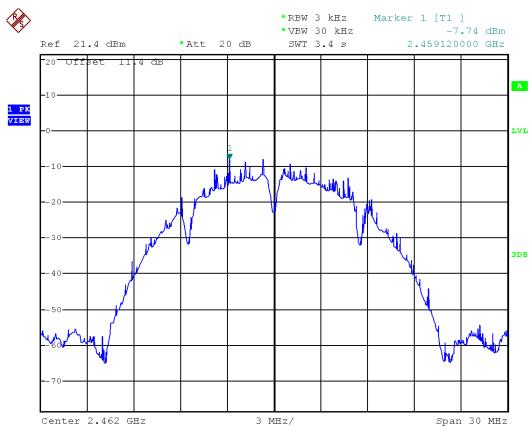
CH06



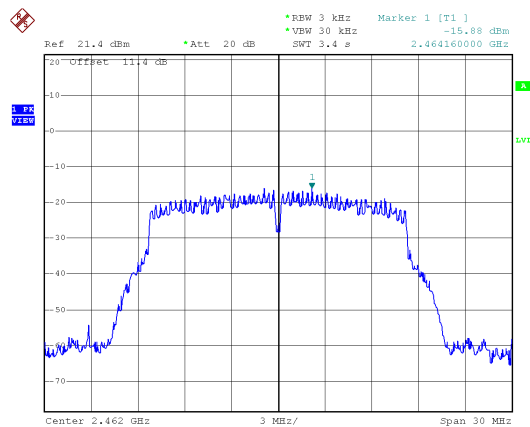
CH06



CH11

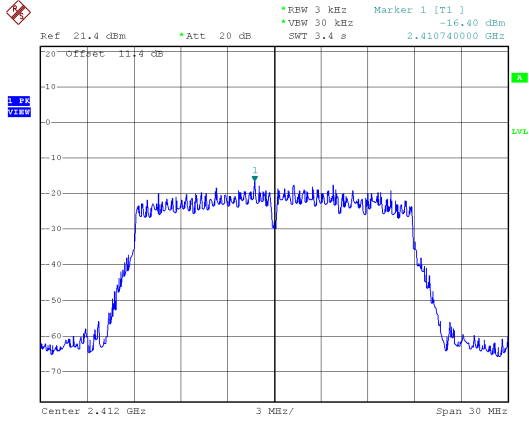


CH11

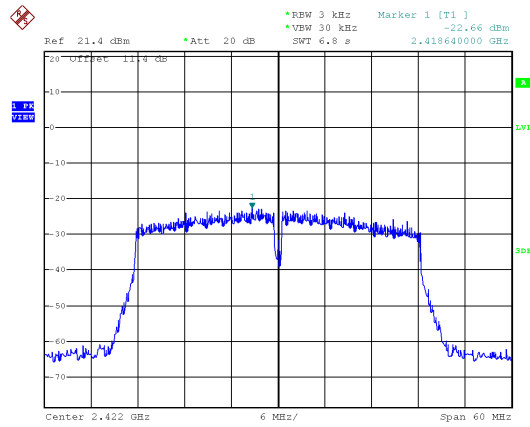




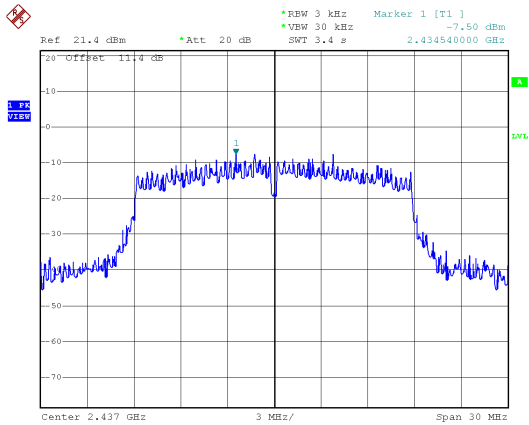
ANT 3
Modulation Type: 802.11ac VHT20
CH01



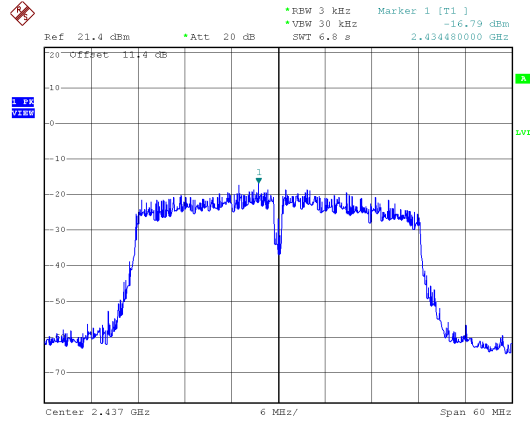
Modulation Type: 802.11ac VHT40
CH03



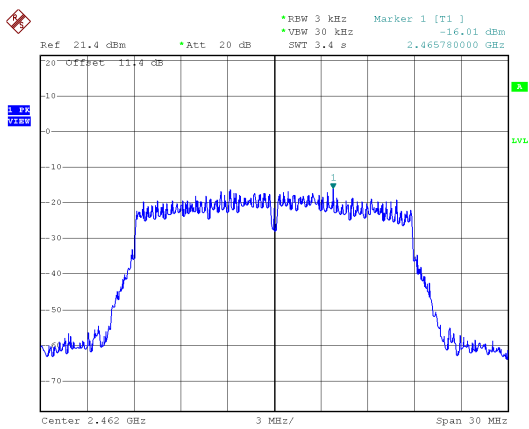
CH06



CH06



CH11



CH09

