5.4 MAXIMUM PEAK OUTPUT POWER

5.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

5.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Anritsu Power Meter	ML2495A	0824006	July 08, 2008	July 07, 2008
Pulse Power Sensor	MA2411B	0738172	April 17, 2009	April 16, 2010

NOTE:
The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

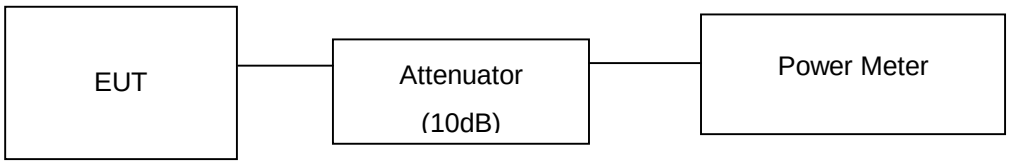
5.4.3 TEST PROCEDURES

1. The transmitter output was connected to the power meter through an attenuator; the bandwidth of the fundamental frequency was measured with the power meter.
2. Record the power level.

5.4.4 DEVIATION FROM TEST STANDARD

No deviation

5.4.5 TEST SETUP



5.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6

5.4.7 TEST RESULTS-ANTENNA 4

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	25.25	24.86	24.76	334.965	306.196	299.226	940.387	29.730	30.00	PASS
3	5785	25.07	24.85	24.43	321.366	305.492	277.332	904.190	29.560	30.00	PASS
5	5825	25.11	24.62	24.42	324.340	289.734	276.694	890.768	29.500	30.00	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	24.81	25.08	24.72	302.691	322.107	296.483	921.281	29.640	30.00	PASS
3	5785	24.82	24.86	24.55	303.389	306.196	285.102	894.687	29.520	30.00	PASS
5	5825	24.49	24.54	25.01	281.190	284.446	316.957	882.593	29.460	30.00	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	23deg. C, 54%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5755	24.96	24.69	24.63	313.329	294.442	290.402	898.173	29.530	30.00	PASS
2	5795	25.01	24.64	24.57	316.957	291.072	286.418	894.447	29.520	30.00	PASS

5.4.8 TEST RESULTS-ANTENNA 5

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	18.33	17.83	16.91	68.077	60.674	49.091	177.842	22.500	23.00	PASS
3	5785	18.42	17.78	17.32	69.502	59.979	53.951	183.432	22.630	23.00	PASS
5	5825	17.85	17.6	18.52	60.954	57.544	71.121	189.619	22.780	23.00	PASS

Note: Power limitation=30-(13-6) =23dBm (For non-point to point application).

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	18.31	17.64	16.82	67.764	58.076	48.084	173.924	22.400	23.00	PASS
3	5785	18.41	17.56	17.55	69.343	57.016	56.885	183.244	22.630	23.00	PASS
5	5825	18.12	17.72	17.61	64.863	59.156	57.677	181.696	22.590	23.00	PASS

Note: Power limitation=30-(13-6) =23dBm (For non-point to point application).

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	20deg. C, 60%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5755	17.86	18.12	16.97	61.094	64.863	49.774	175.731	22.450	23.00	PASS
2	5795	17.86	18.11	17.18	61.094	64.714	52.240	178.048	22.510	23.00	PASS

Note: Power limitation=30-(13-6) =23dBm (For non-point to point application).

5.4.9 TEST RESULTS-ANTENNA 7

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	25.25	24.86	24.76	334.965	306.196	299.226	940.387	29.730	30.00	PASS
3	5785	25.07	24.85	24.43	321.366	305.492	277.332	904.190	29.560	30.00	PASS
5	5825	25.11	24.62	24.42	324.340	289.734	276.694	890.768	29.500	30.00	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	24.81	25.08	24.72	302.691	322.107	296.483	921.281	29.640	30.00	PASS
3	5785	24.82	24.86	24.55	303.389	306.196	285.102	894.687	29.520	30.00	PASS
5	5825	24.49	24.54	25.01	281.190	284.446	316.957	882.593	29.460	30.00	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	20deg. C, 60%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5755	24.96	24.69	24.63	313.329	294.442	290.402	898.173	29.530	30.00	PASS
2	5795	25.01	24.64	24.57	316.957	291.072	286.418	894.447	29.520	30.00	PASS

5.4.10 TEST RESULTS-ANTENNA 8

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	25.25	24.86	24.76	334.965	306.196	299.226	940.387	29.730	30.00	PASS
3	5785	25.07	24.85	24.43	321.366	305.492	277.332	904.190	29.560	30.00	PASS
5	5825	25.11	24.62	24.42	324.340	289.734	276.694	890.768	29.500	30.00	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	24.81	25.08	24.72	302.691	322.107	296.483	921.281	29.640	30.00	PASS
3	5785	24.82	24.86	24.55	303.389	306.196	285.102	894.687	29.520	30.00	PASS
5	5825	24.49	24.54	25.01	281.190	284.446	316.957	882.593	29.460	30.00	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	20deg. C, 60%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5755	24.96	24.69	24.63	313.329	294.442	290.402	898.173	29.530	30.00	PASS
2	5795	25.01	24.64	24.57	316.957	291.072	286.418	894.447	29.520	30.00	PASS

5.4.11 TEST RESULTS-ANTENNA 11

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	17.04	16.68	15.94	50.582	46.559	39.264	136.405	21.350	21.50	PASS
3	5785	16.46	17.01	15.87	44.259	50.234	38.637	133.130	21.240	21.50	PASS
5	5825	16.54	16.53	16.43	45.082	44.978	43.954	134.014	21.270	21.50	PASS

Note: Power limitation=30-(14.5-6) =21.5dBm (For non-point to point application).

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5745	16.81	16.66	16.16	47.973	46.345	41.305	135.623	21.320	21.50	PASS
3	5785	16.34	16.48	15.74	43.053	44.463	37.497	125.013	20.970	21.50	PASS
5	5825	16.48	16.42	16.37	44.463	43.853	43.351	131.667	21.190	21.50	PASS

Note: Power limitation=30-(14.5-6) =21.5dBm (For non-point to point application).

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	20deg. C, 60%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)			PEAK POWER OUTPUT (mW)			TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		Chain 0	Chain 1	Chain 2	Chain 0	Chain 1	Chain 2				
1	5755	16.63	16.58	16.27	46.026	45.499	42.364	133.889	21.270	21.50	PASS
2	5795	16.08	16.34	16.01	40.551	43.053	39.902	123.506	20.920	21.50	PASS

Note: Power limitation=30-(14.5-6) =21.5dBm (For non-point to point application).

5.4.12 TEST RESULTS-ANTENNA 12

802.11a OFDM modulation

MODULATION TYPE	BPSK	**TRANSFER RATE**	6Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	26deg. C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER OUTPUT (mW)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	5745	24.92	310.456	30	PASS
3	5785	24.82	303.389	30	PASS
5	5825	24.77	299.916	30	PASS

5.5 POWER SPECTRAL DENSITY MEASUREMENT

5.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

5.5.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 09, 2008	Aug. 08, 2009

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

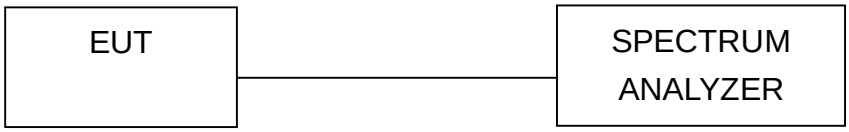
5.5.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.
The sweep time is allowed to be longer than span/3 kHz for a full response of the mixer in the spectrum analyzer.

5.5.4 DEVIATION FROM TEST STANDARD

No deviation

5.5.5 TEST SETUP



5.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

5.5.7 TEST RESULTS – ANTENNA 4

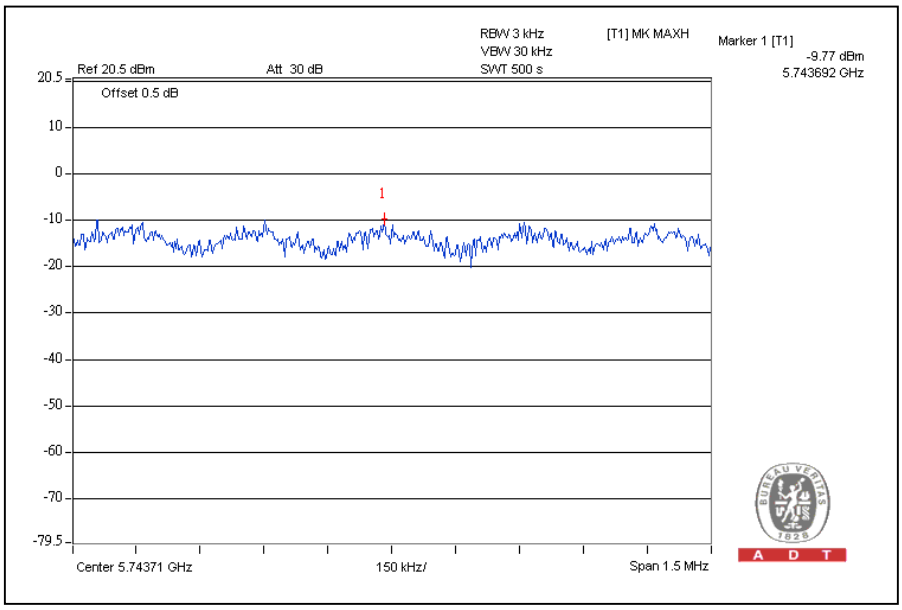
802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

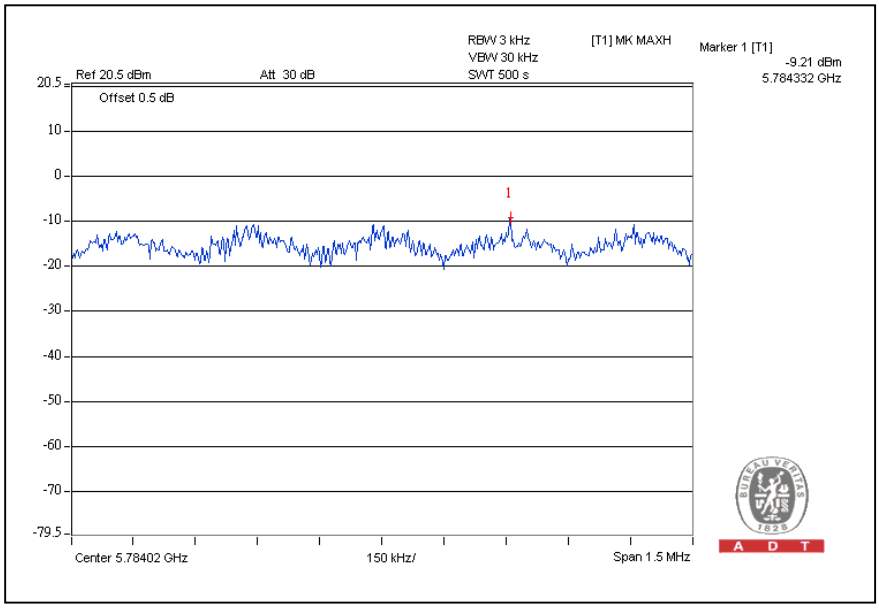
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.105	0.072	0.074	-9.77	-11.41	-11.33	0.251	-6.003	8	PASS
3	5785	0.120	0.075	0.065	-9.21	-11.26	-11.89	0.260	-5.850	8	PASS
5	5825	0.071	0.070	0.180	-11.46	-11.55	-7.44	0.321	-4.935	8	PASS

Chain 0

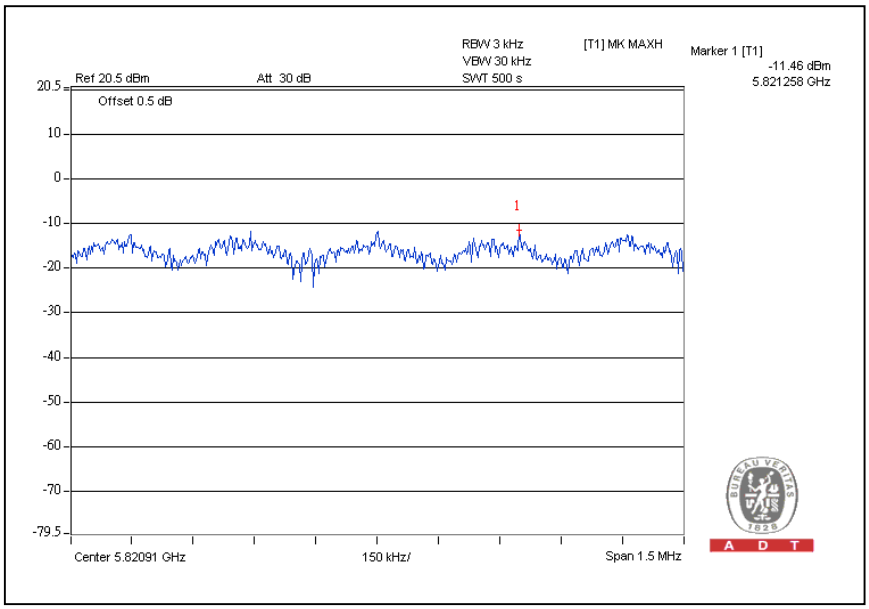
CH1



CH3

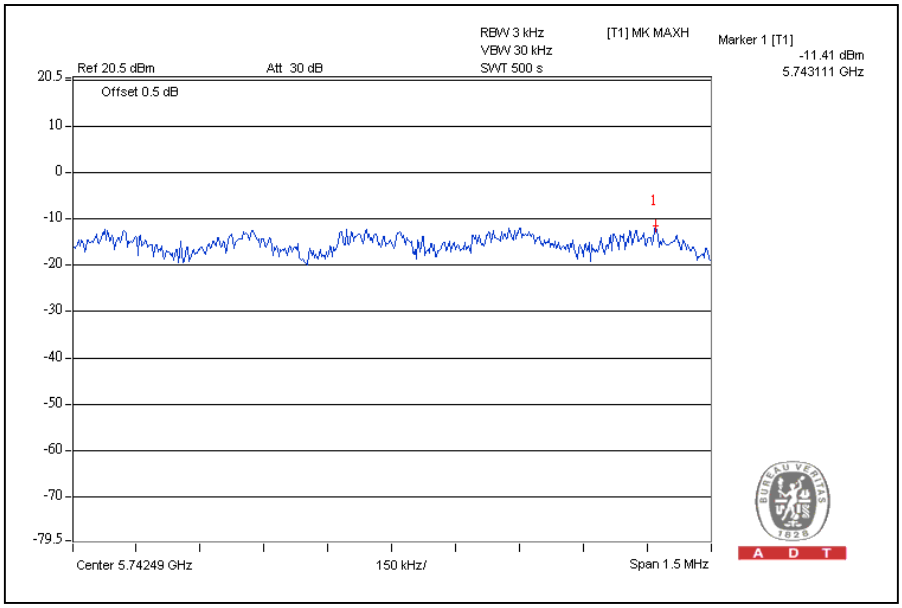

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-9.21 dBm
5.784332 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.78402 GHz
150 kHz/
Span 1.5 MHz

CH5

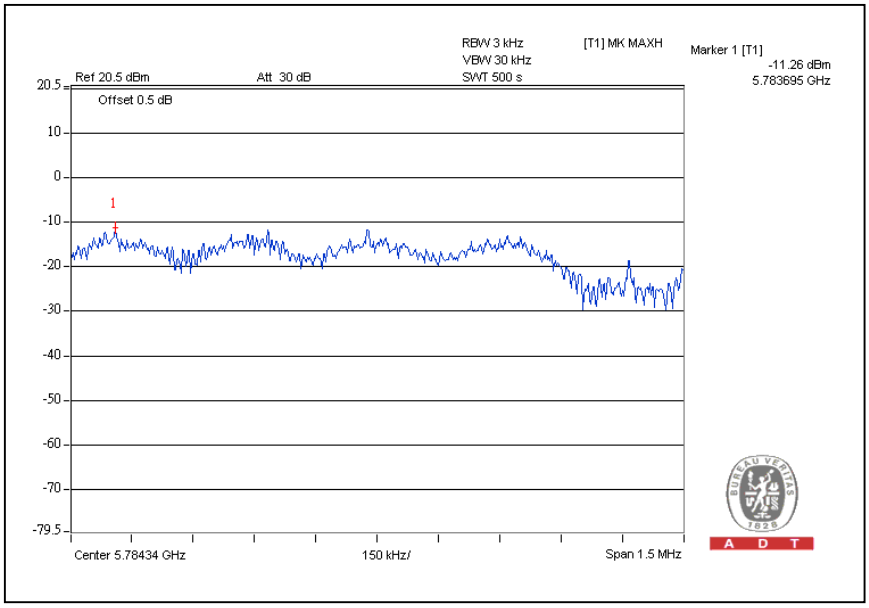

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.46 dBm
5.821258 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82091 GHz
150 kHz/
Span 1.5 MHz

Chain 1

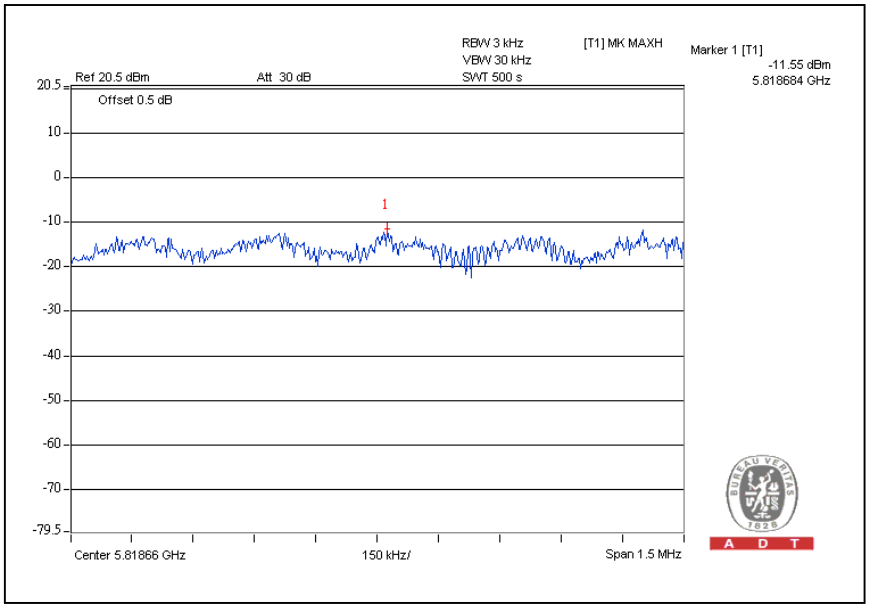
CH1



CH3

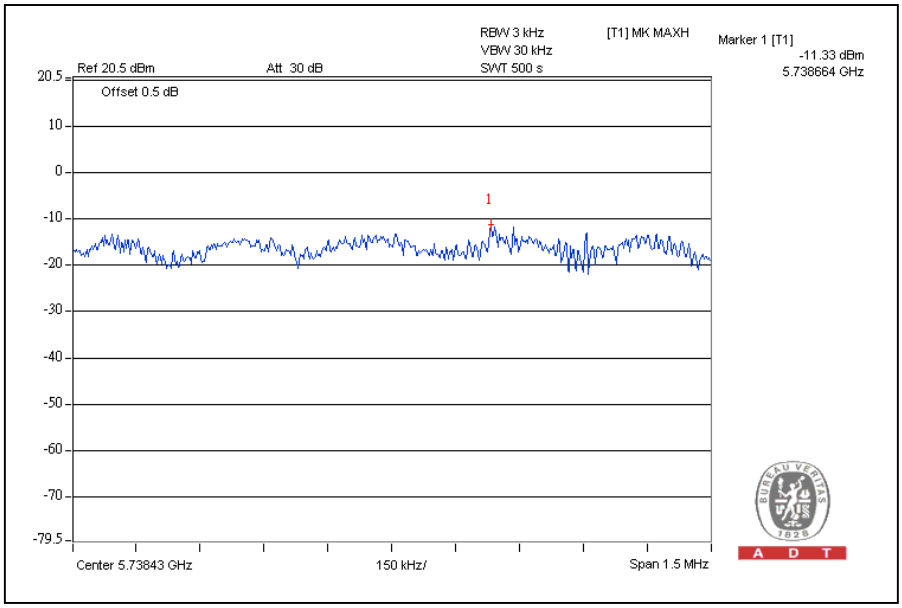


CH5

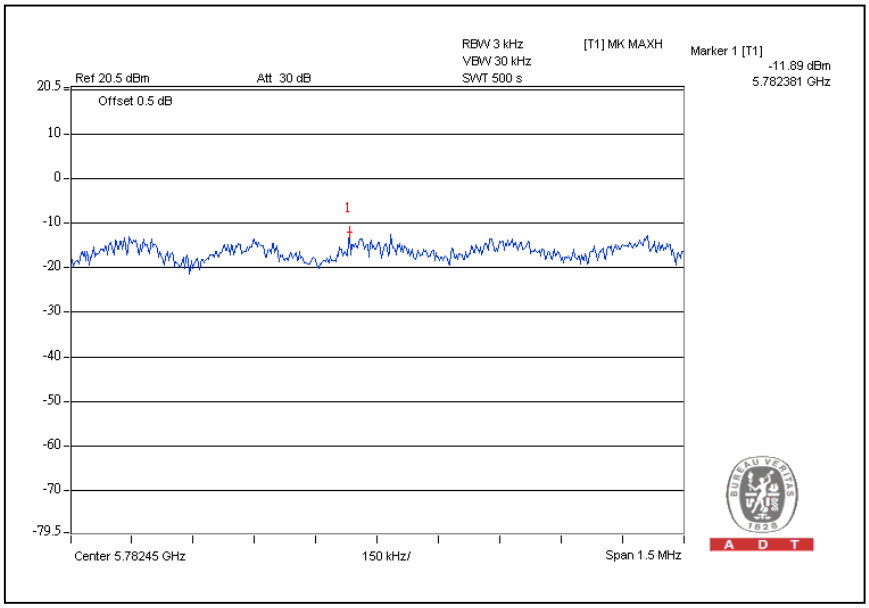

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.55 dBm
5.818684 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.81866 GHz
150 kHz/
Span 1.5 MHz

Chain 2

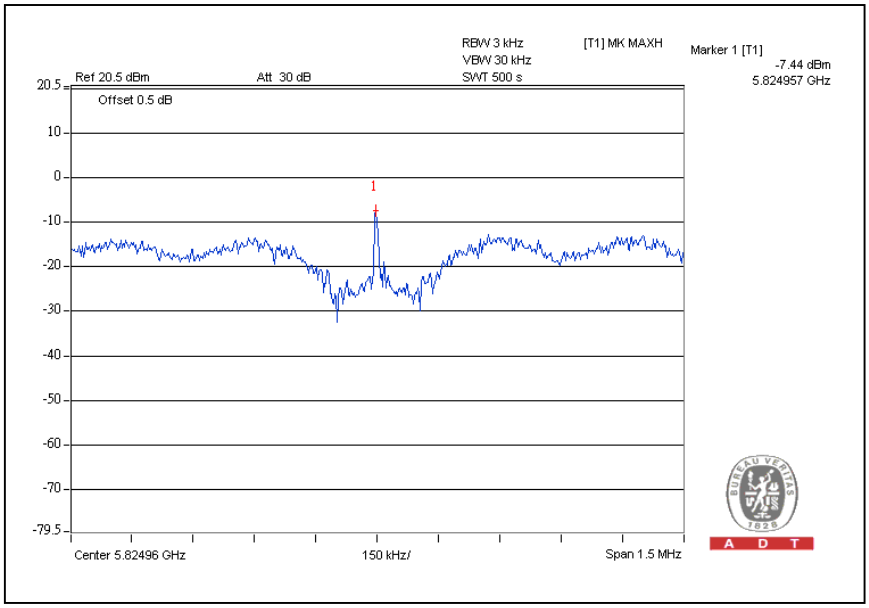
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-7.44 dBm
5.824957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82496 GHz
150 kHz/
Span 1.5 MHz

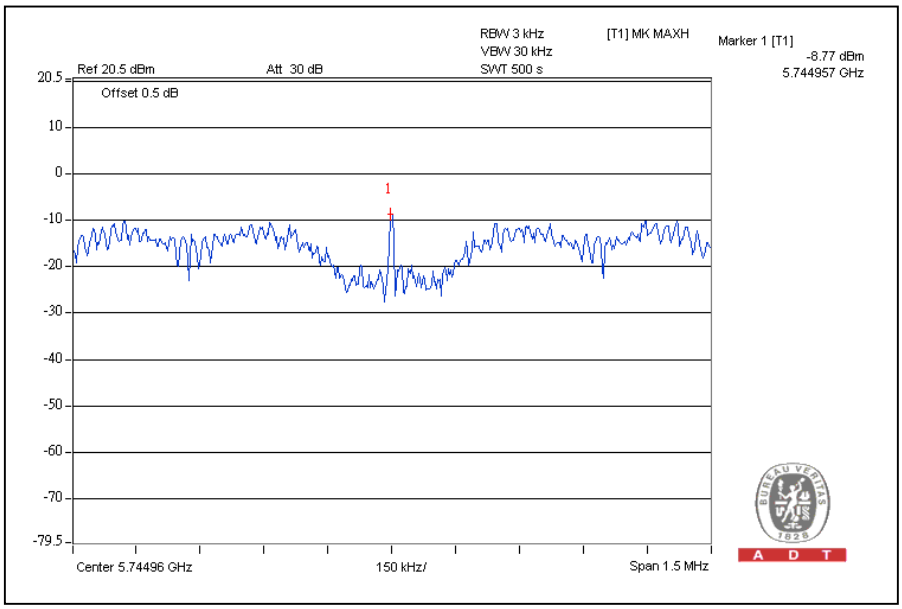
DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

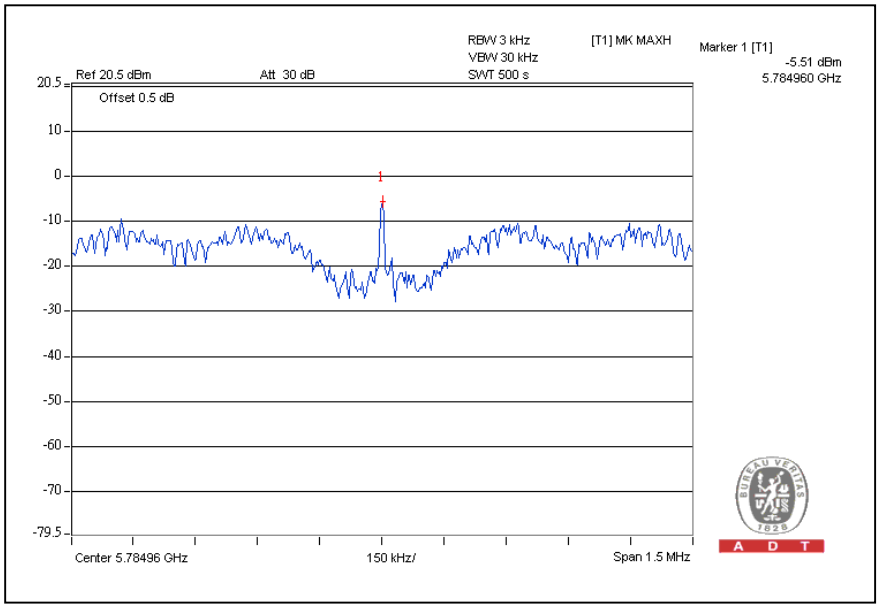
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.133	0.127	0.063	-8.77	-8.96	-12.04	0.323	-4.908	8	PASS
3	5785	0.281	0.137	0.068	-5.51	-8.63	-11.70	0.486	-3.134	8	PASS
5	5825	0.183	0.076	0.089	-7.38	-11.21	-10.53	0.348	-4.584	8	PASS

Chain 0

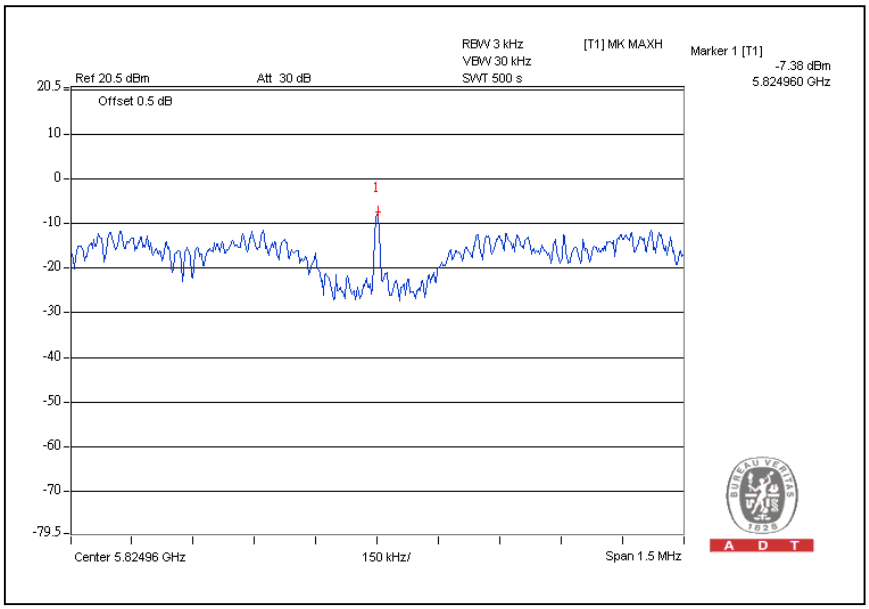
CH1



CH3

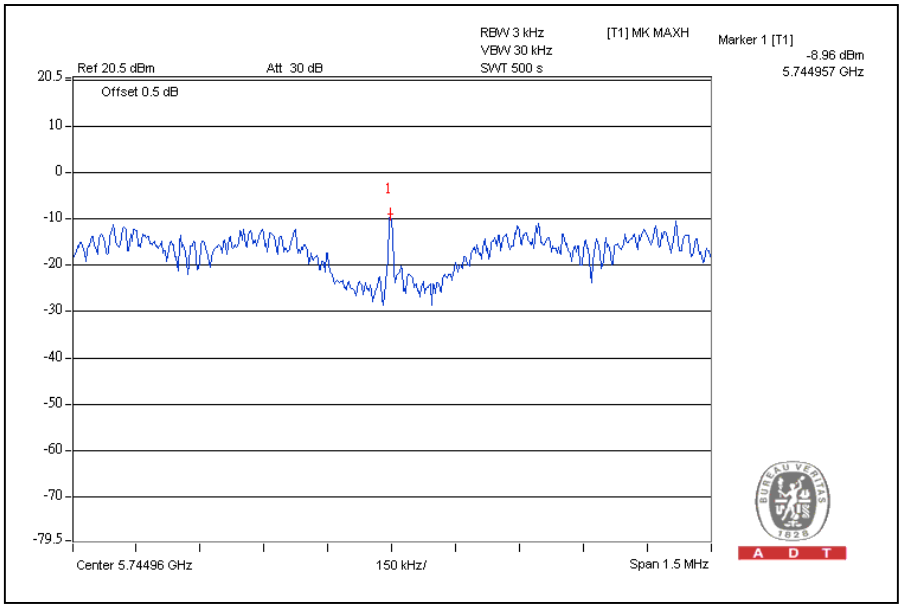

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-5.51 dBm
5.784960 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.78496 GHz
150 kHz/
Span 1.5 MHz

CH5

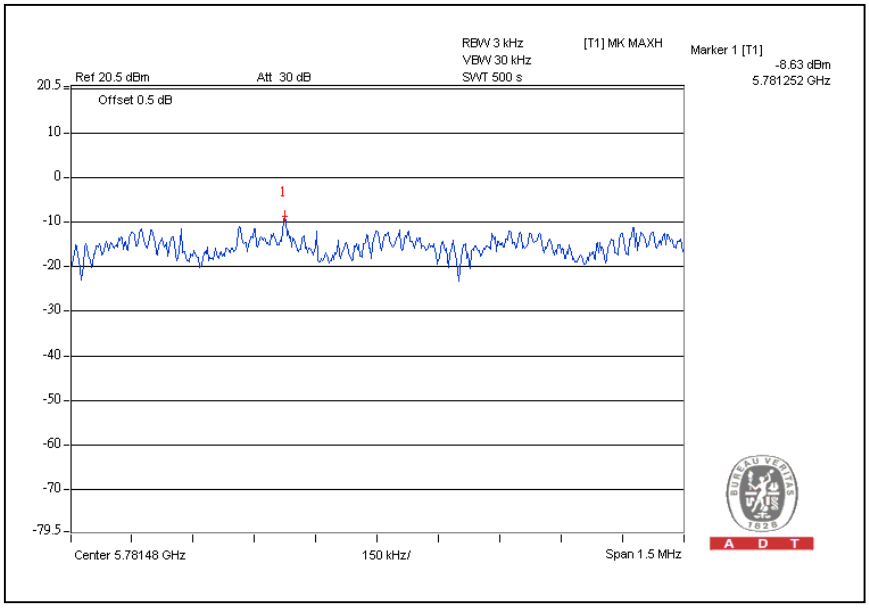

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-7.38 dBm
5.824960 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82496 GHz
150 kHz/
Span 1.5 MHz

Chain 1

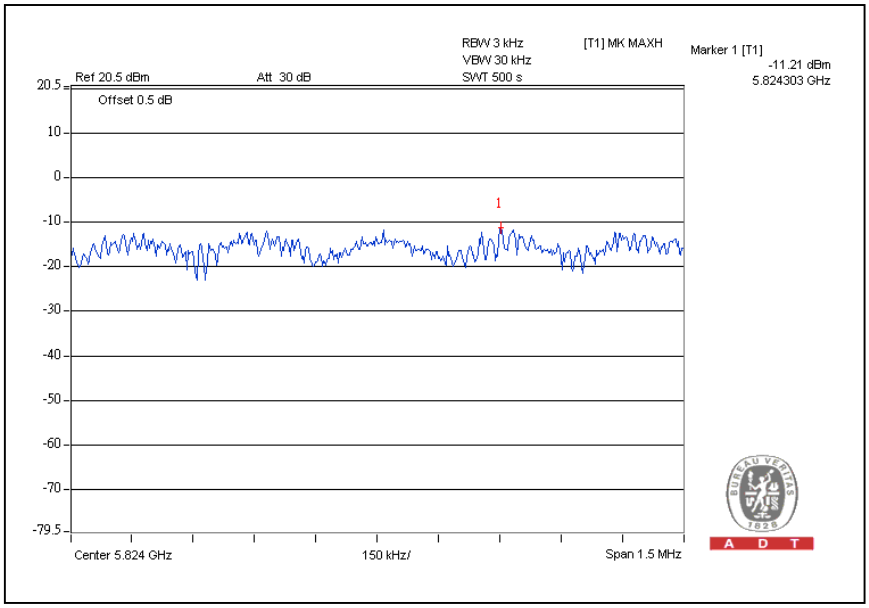
CH1



CH3

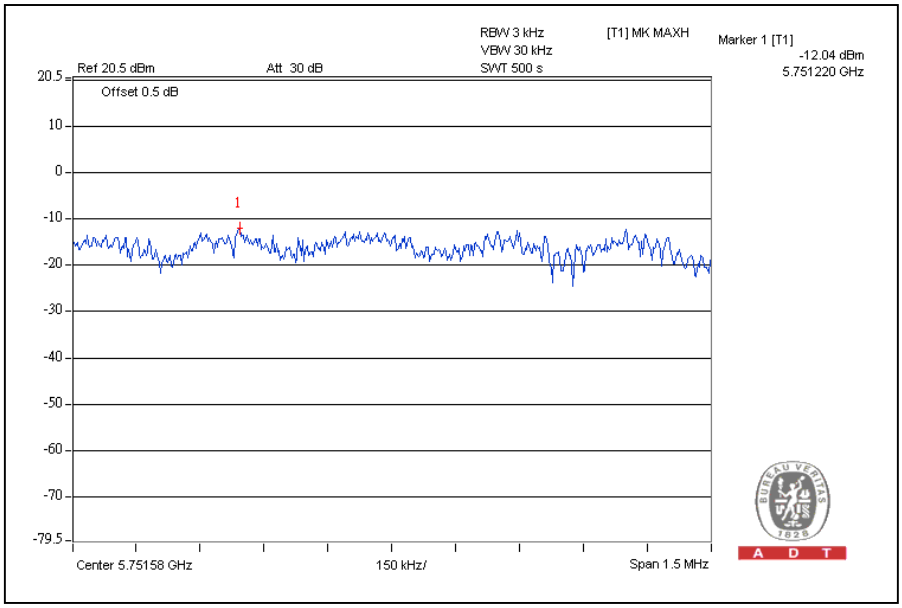


CH5

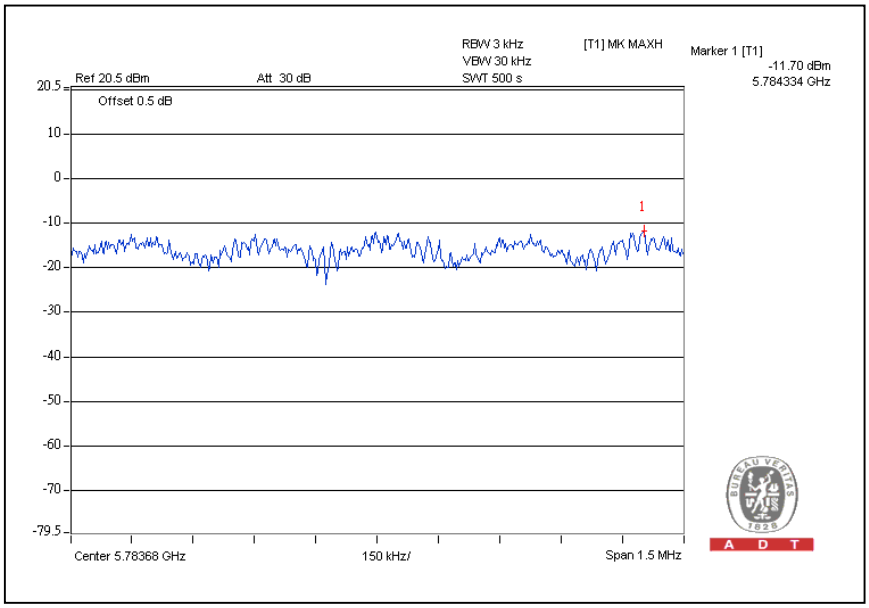

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.21 dBm
5.824303 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.824 GHz
150 kHz/
Span 1.5 MHz

Chain 2

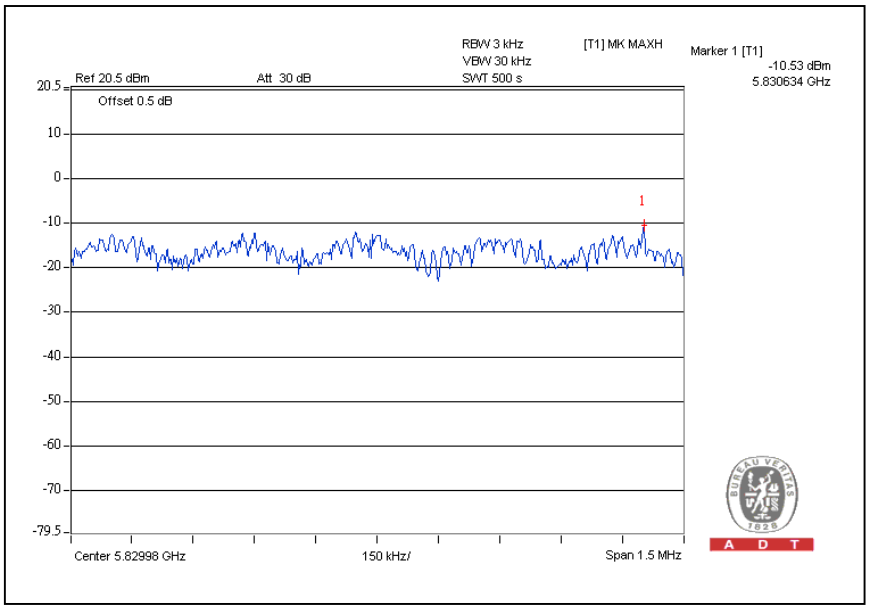
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.53 dBm
5.830634 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.82998 GHz
150 kHz/
Span 1.5 MHz

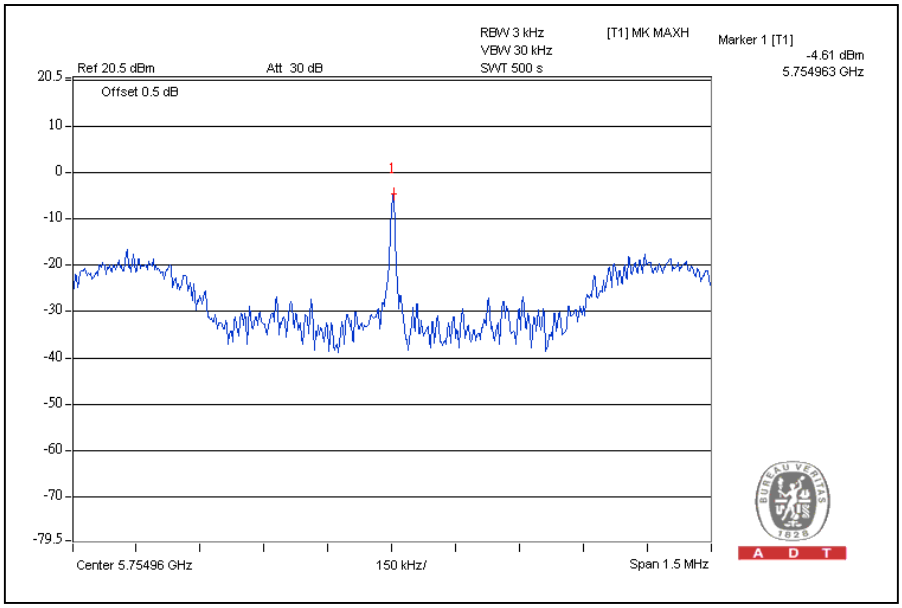
DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 965hPa
TESTED BY	Wen Yu		

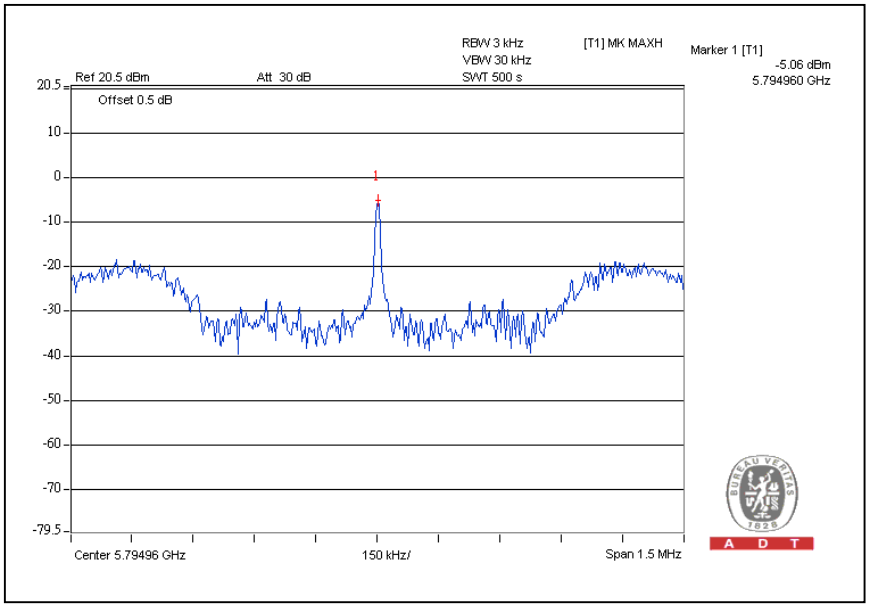
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5755	0.346	0.026	0.190	-4.61	-15.92	-7.21	0.562	-2.503	8	PASS
2	5795	0.312	0.385	0.156	-5.06	-4.15	-8.07	0.853	-0.691	8	PASS

Chain 0

CH1

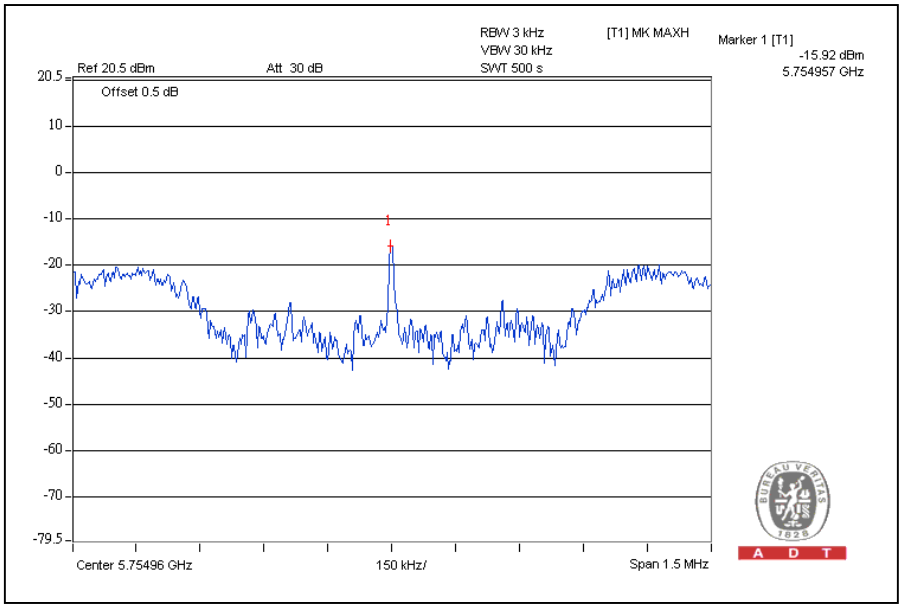


CH2

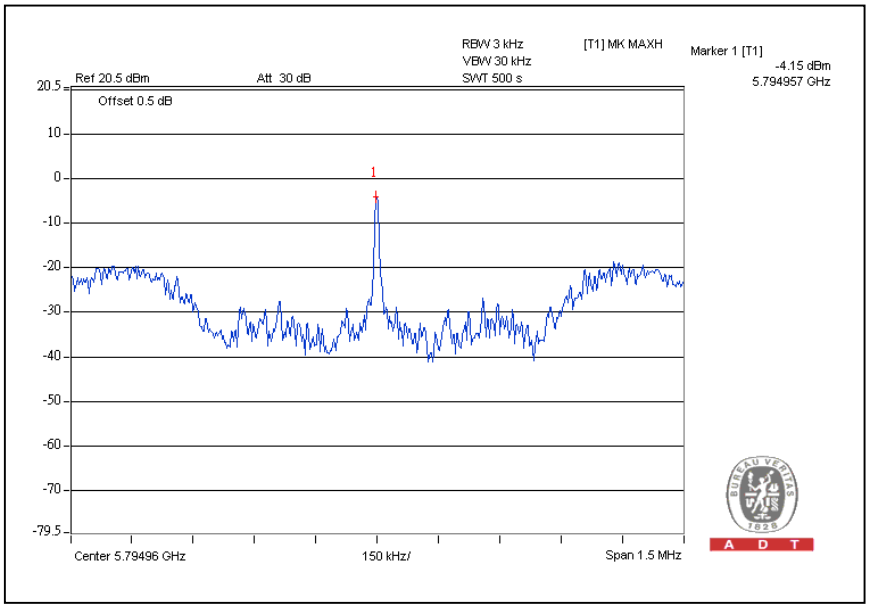


Chain 1

CH1

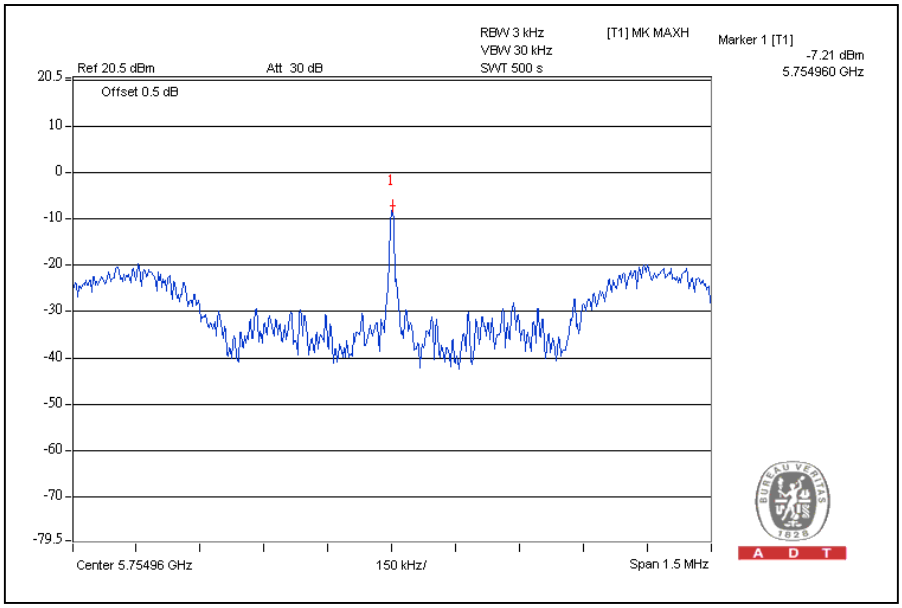


CH2

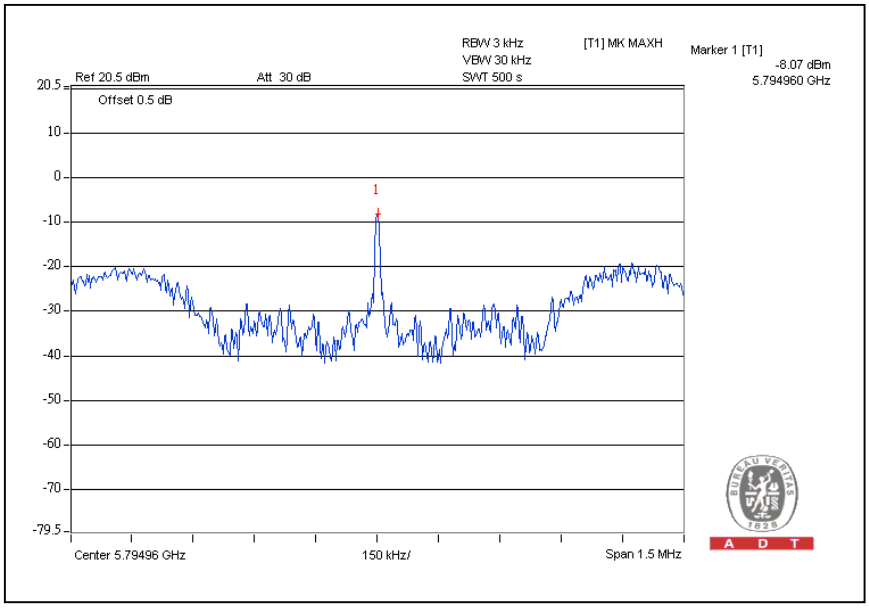


Chain 2

CH1



CH2



5.5.8 TEST RESULTS – ANTENNA 5

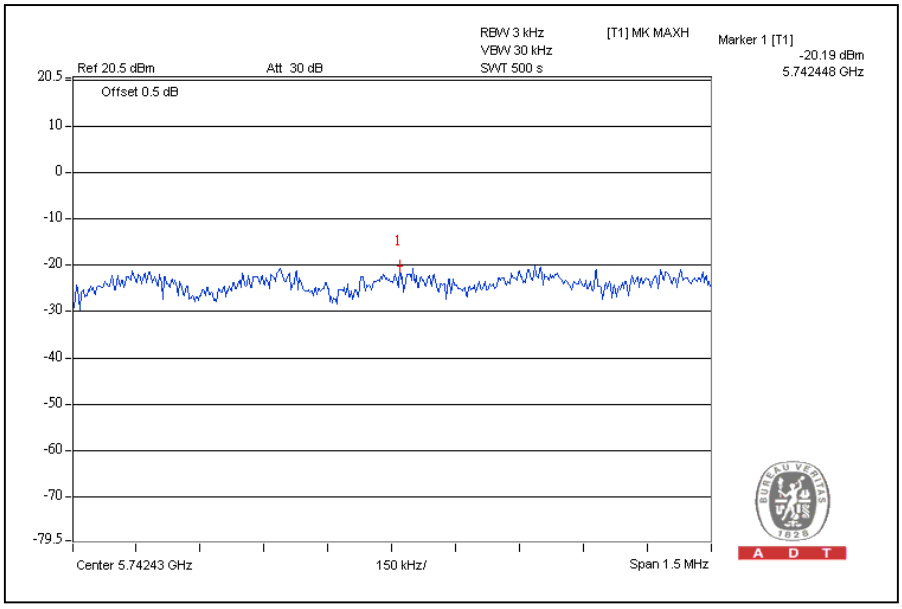
802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

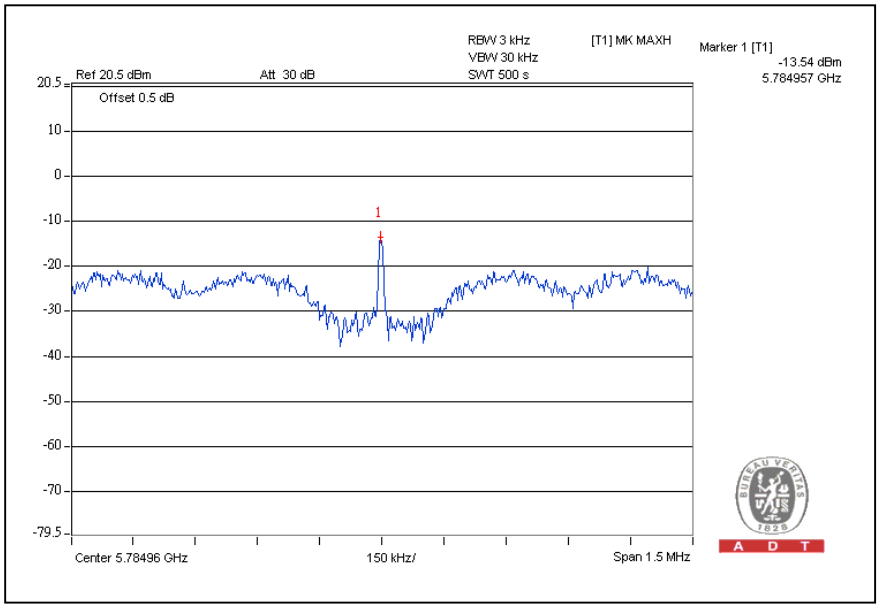
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.010	0.008	0.017	-20.19	-20.77	-17.75	0.035	-14.559	8	PASS
3	5785	0.044	0.009	0.009	-13.54	-20.40	-20.54	0.062	-12.076	8	PASS
5	5825	0.012	0.014	0.013	-19.16	-18.57	-18.88	0.039	-14.089	8	PASS

Chain 0

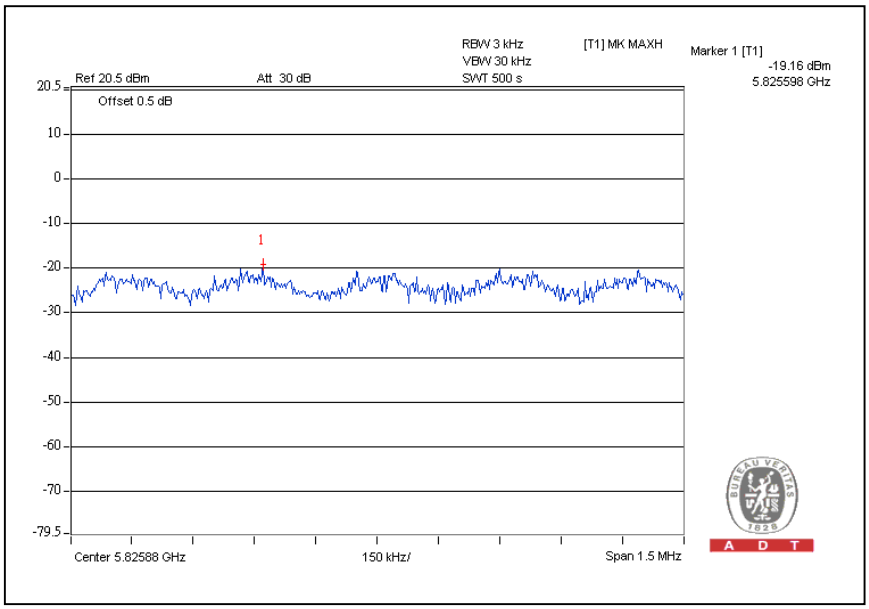
CH1



CH3

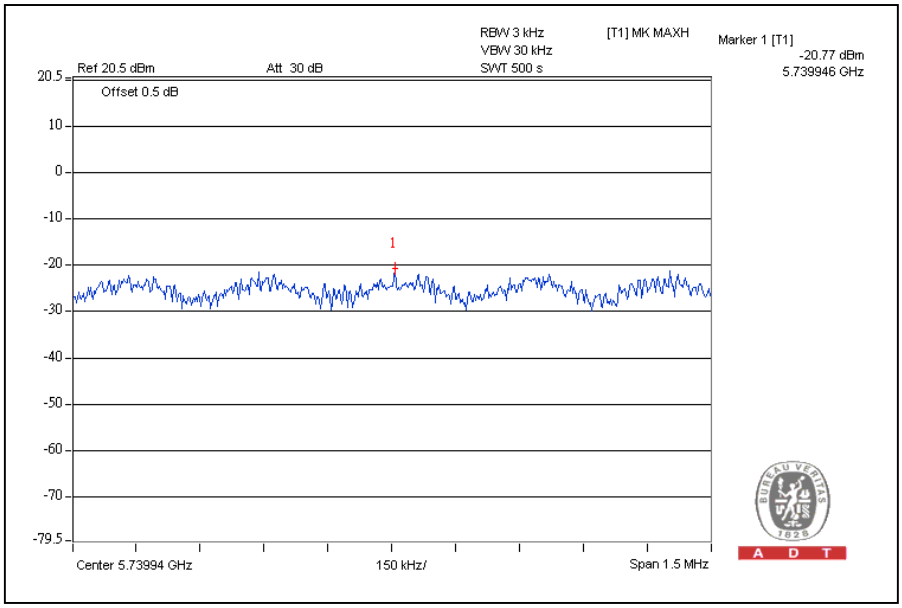

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.54 dBm
5.784957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.78496 GHz
150 kHz/
Span 1.5 MHz

CH5

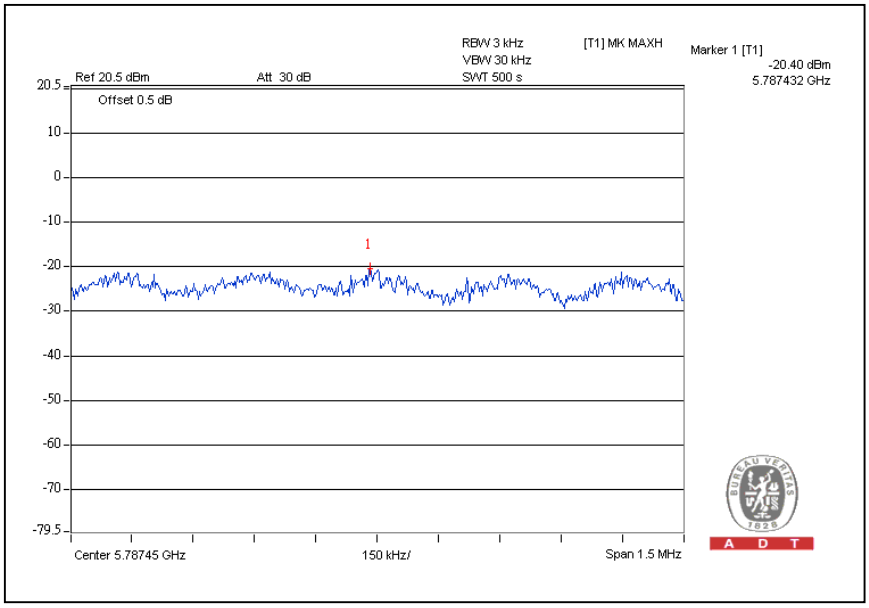

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-19.16 dBm
5.825598 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82588 GHz
150 kHz/
Span 1.5 MHz

Chain 1

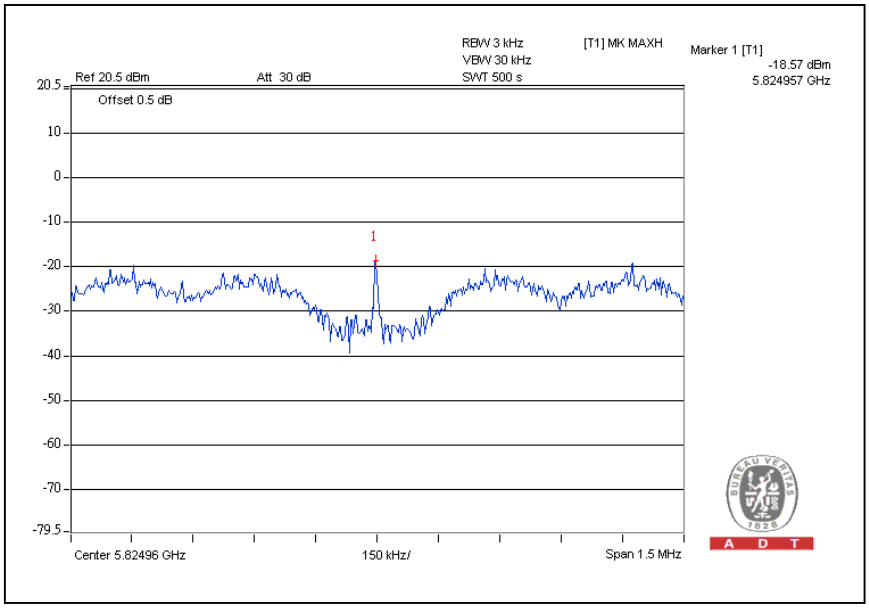
CH1



CH3

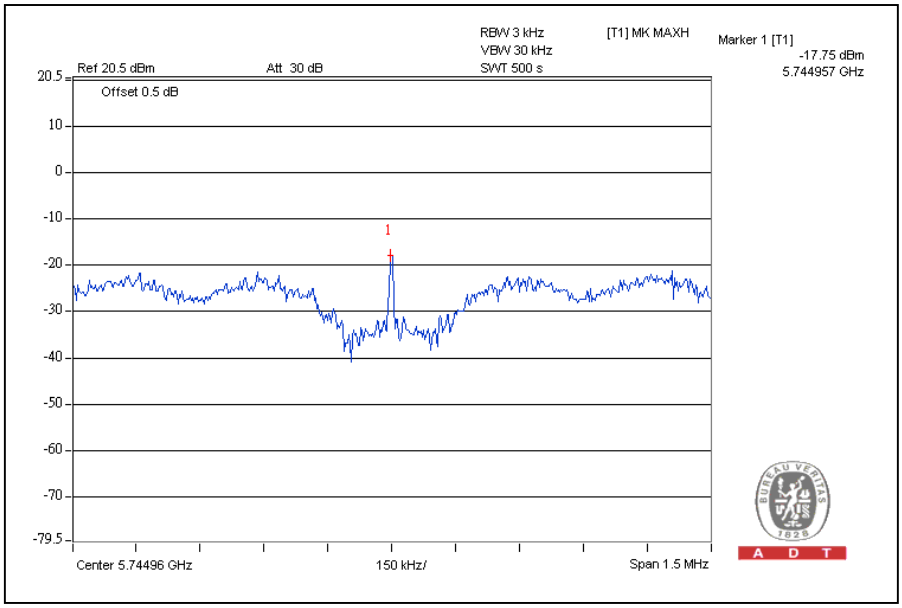


CH5

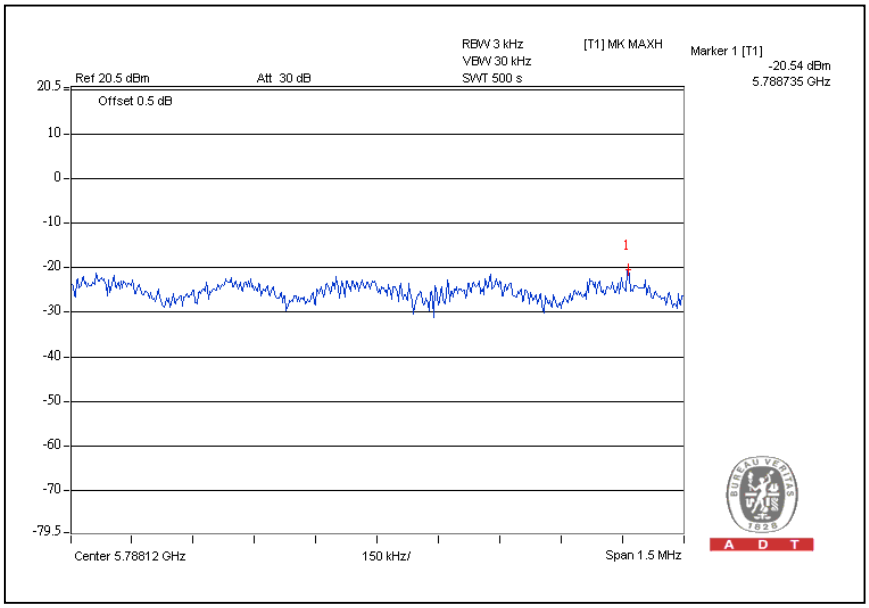

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-18.57 dBm
5.824957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.82496 GHz
150 kHz/
Span 1.5 MHz

Chain 2

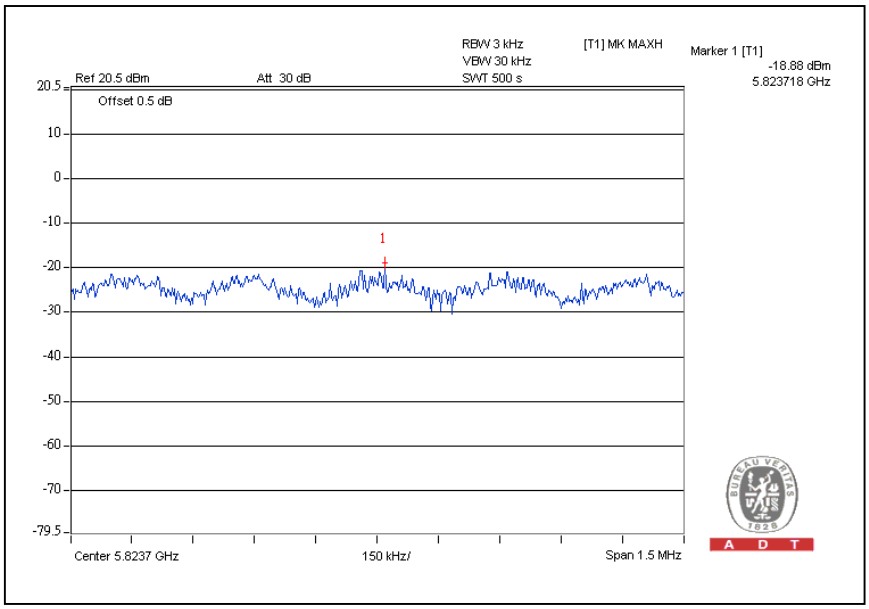
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-18.88 dBm
5.823718 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.8237 GHz
150 kHz/
Span 1.5 MHz

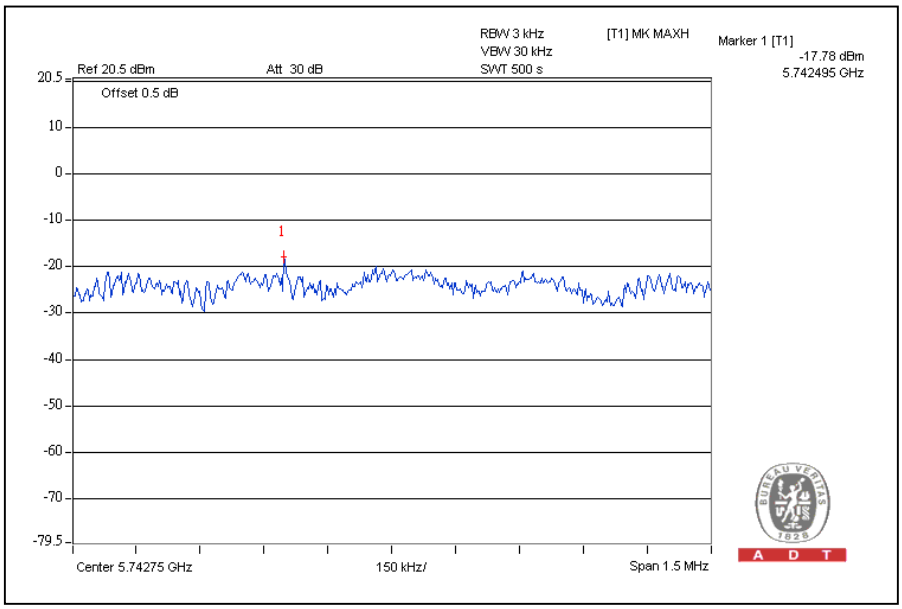
DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

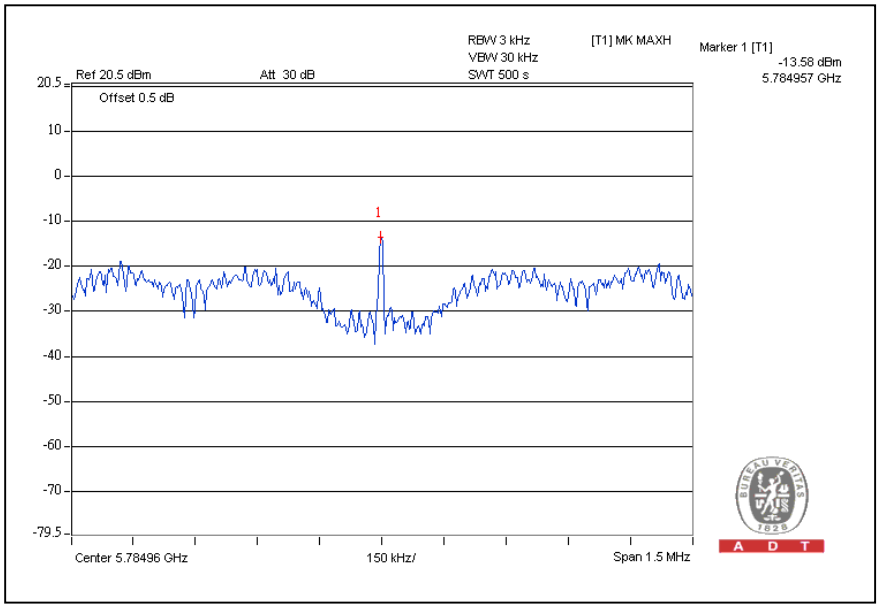
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.017	0.022	0.007	-17.78	-16.65	-21.34	0.046	-13.372	8	PASS
3	5785	0.044	0.011	0.016	-13.58	-19.73	-17.98	0.071	-11.487	8	PASS
5	5825	0.022	0.011	0.010	-16.54	-19.74	-19.89	0.043	-13.665	8	PASS

Chain 0

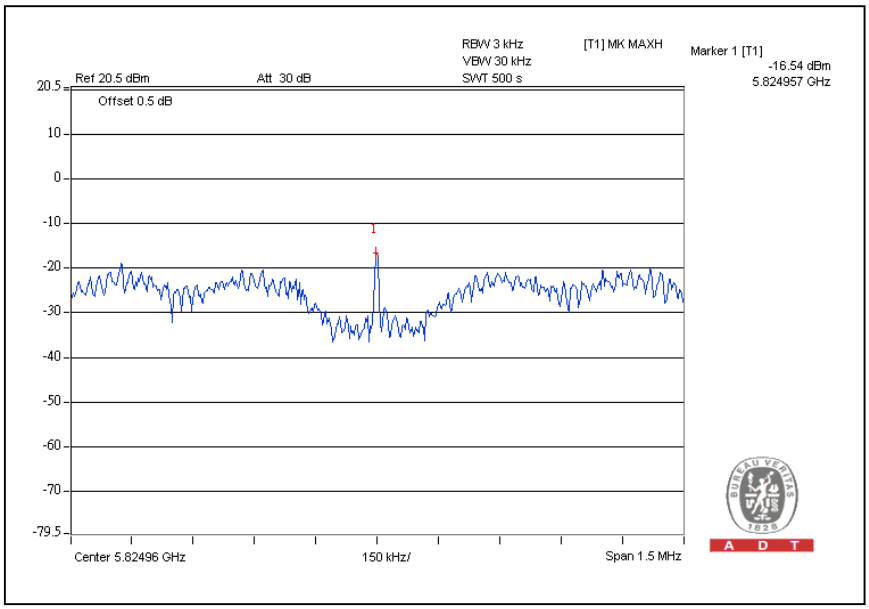
CH1



CH3

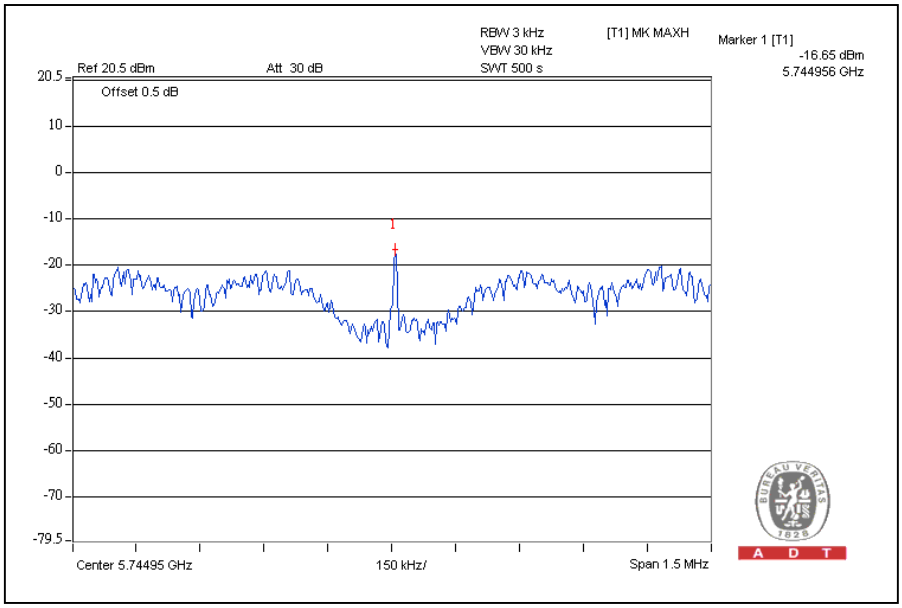

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.58 dBm
5.784957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.78496 GHz
150 kHz/
Span 1.5 MHz

CH5

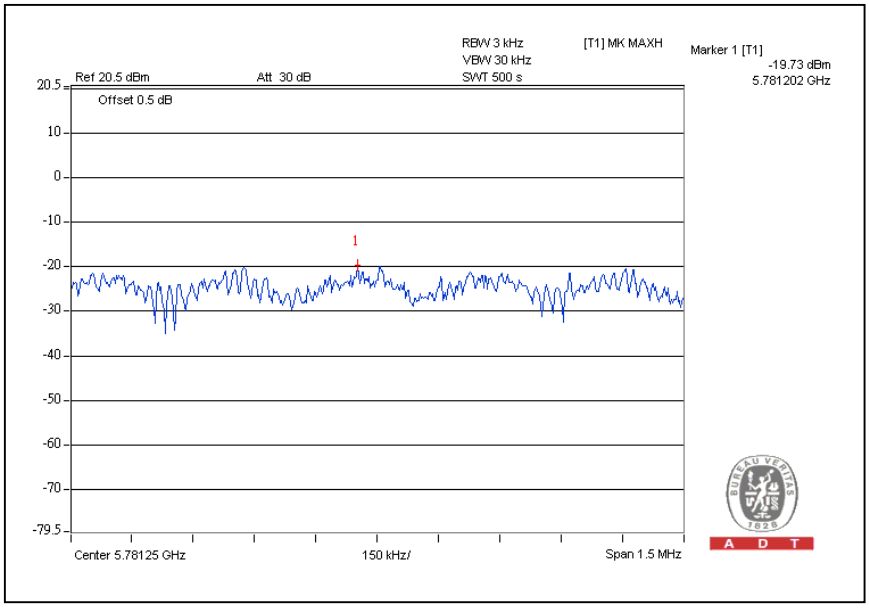

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-16.54 dBm
5.824957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82496 GHz
150 kHz/
Span 1.5 MHz

Chain 1

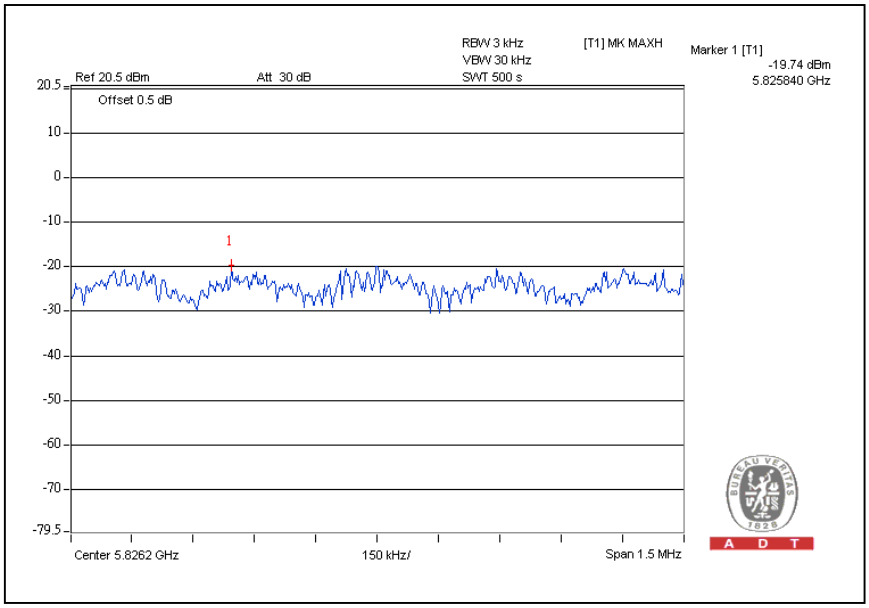
CH1



CH3

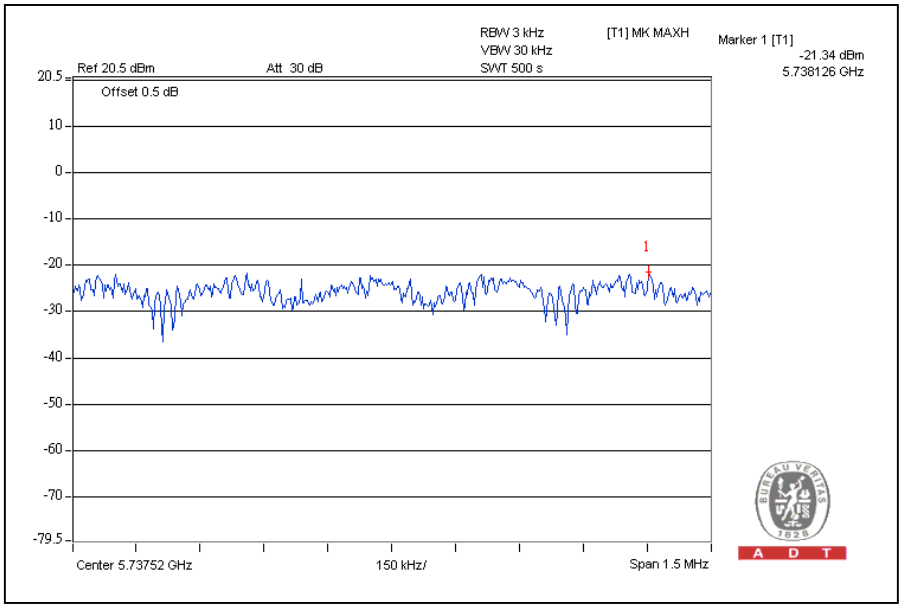


CH5

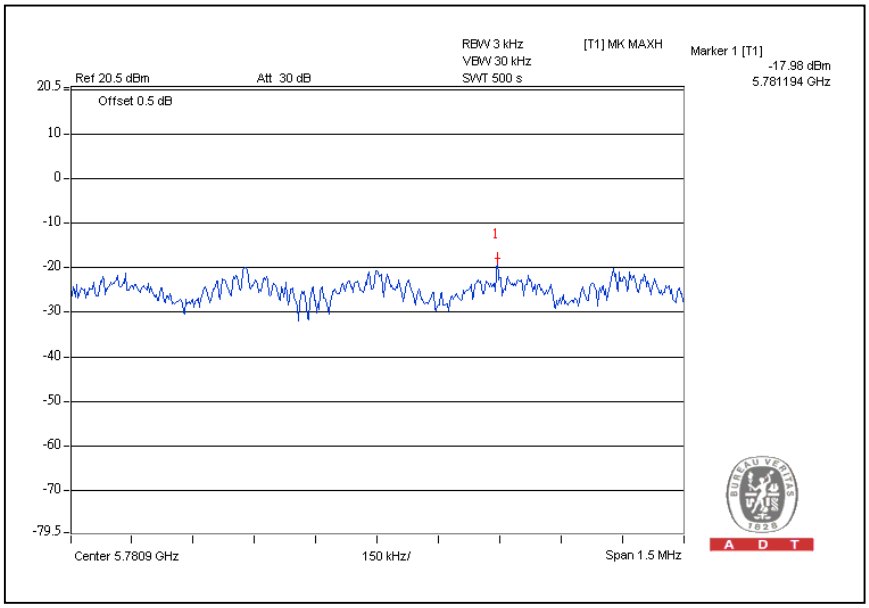

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-19.74 dBm
5.825840 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.8262 GHz
150 kHz/
Span 1.5 MHz

Chain 2

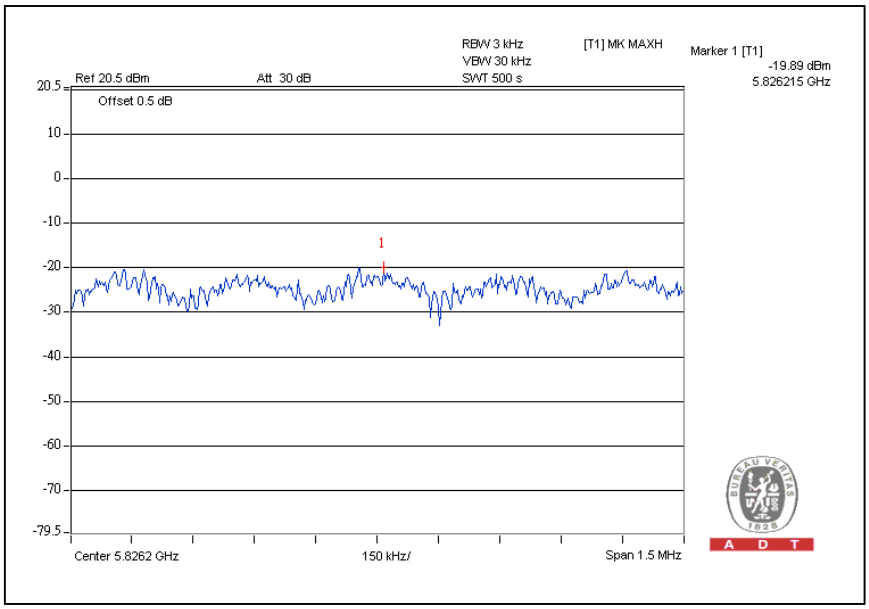
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-19.89 dBm
5.826215 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.8262 GHz
150 kHz/
Span 1.5 MHz

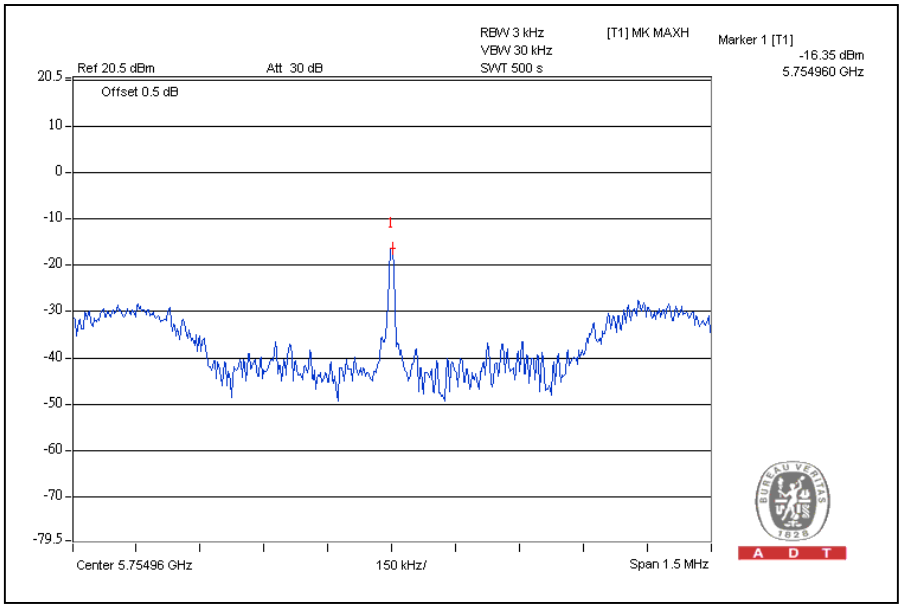
DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 965hPa
TESTED BY	Wen Yu		

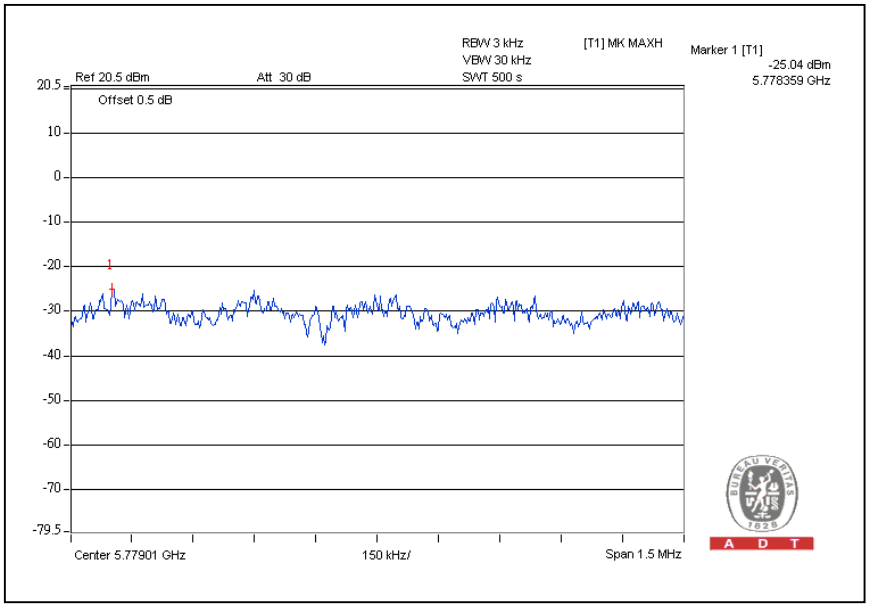
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5755	0.023	0.018	0.003	-16.35	-17.41	-24.64	0.044	-13.565	8	PASS
2	5795	0.003	0.003	0.006	-25.04	-25.30	-22.47	0.012	-19.208	8	PASS

Chain 0

CH1

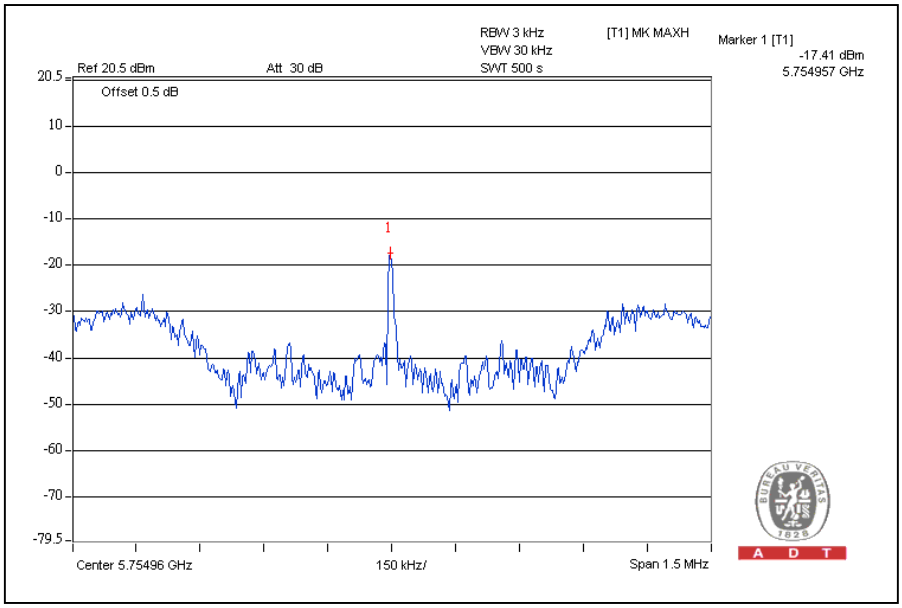


CH2

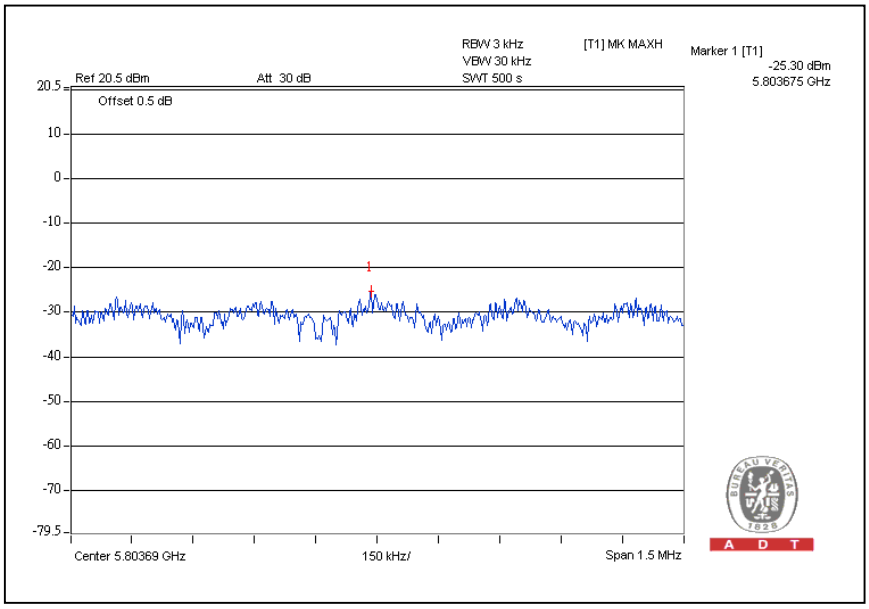


Chain 1

CH1

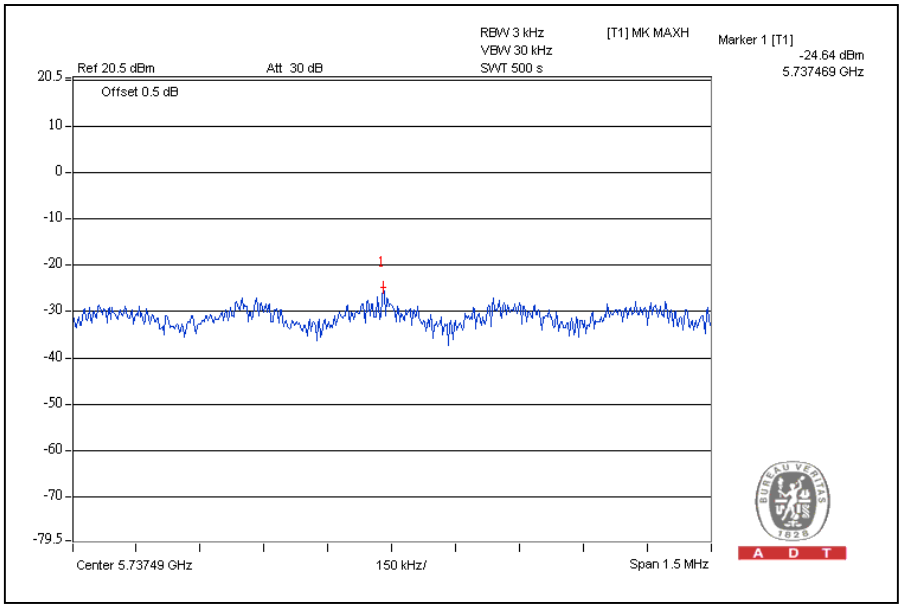


CH2

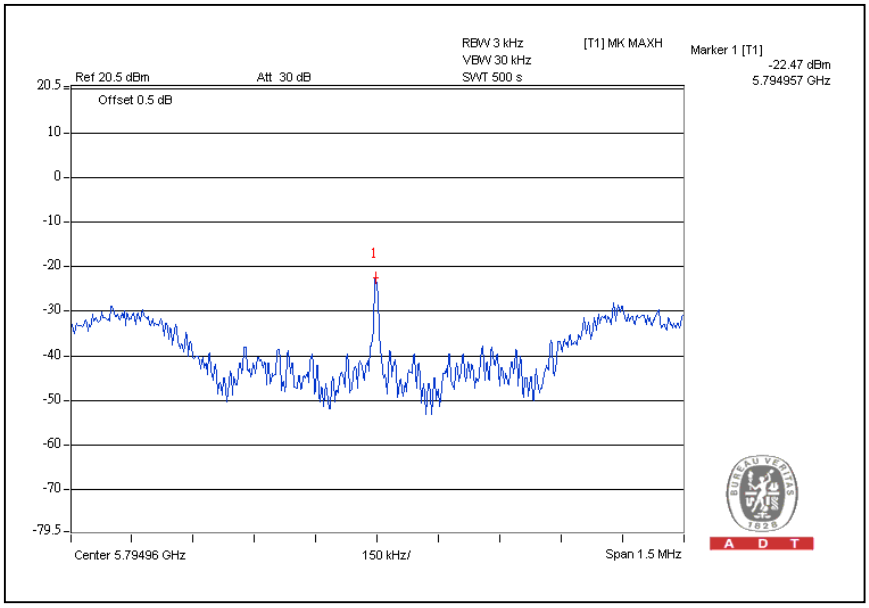


Chain 2

CH1



CH2



5.5.9 TEST RESULTS – ANTENNA 7

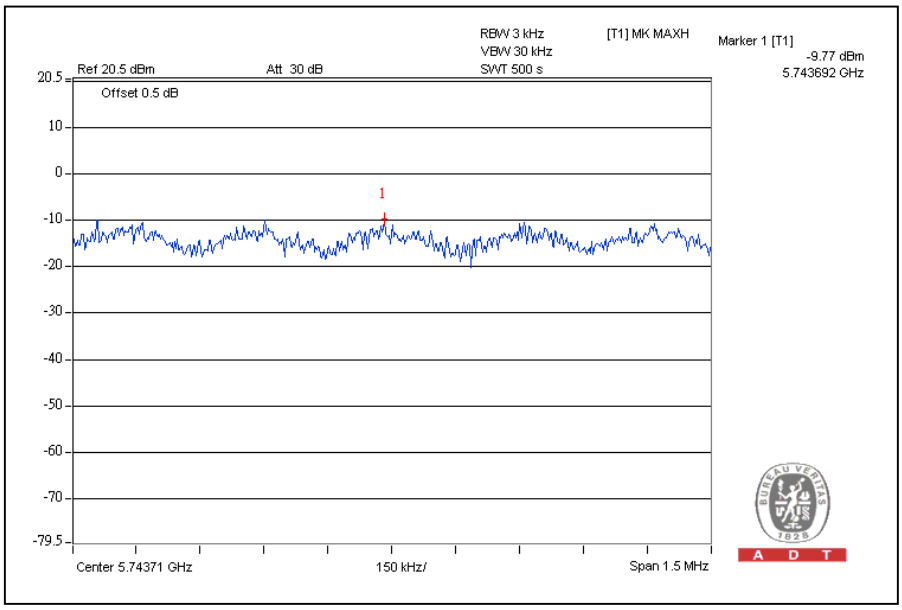
802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

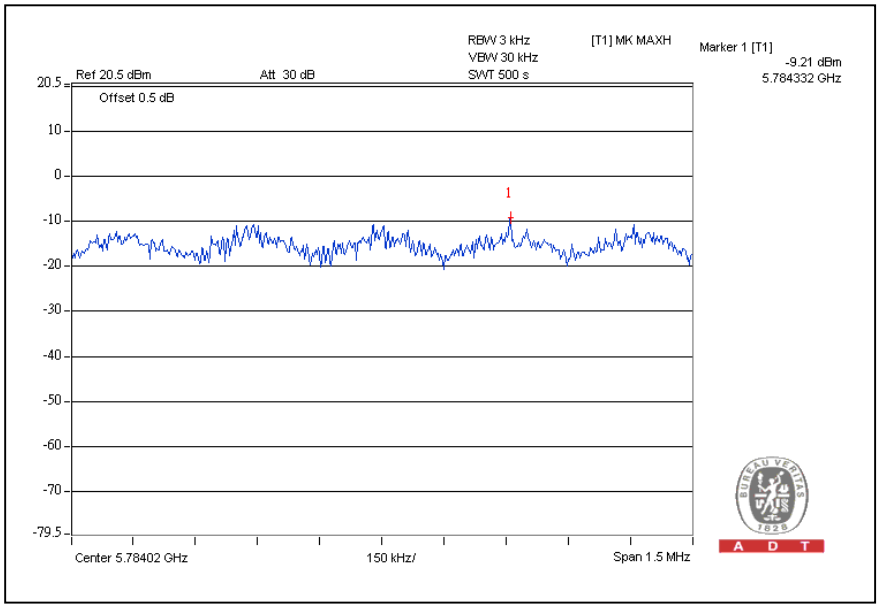
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.105	0.072	0.074	-9.77	-11.41	-11.33	0.251	-6.003	8	PASS
3	5785	0.120	0.075	0.065	-9.21	-11.26	-11.89	0.260	-5.850	8	PASS
5	5825	0.071	0.070	0.180	-11.46	-11.55	-7.44	0.321	-4.935	8	PASS

Chain 0

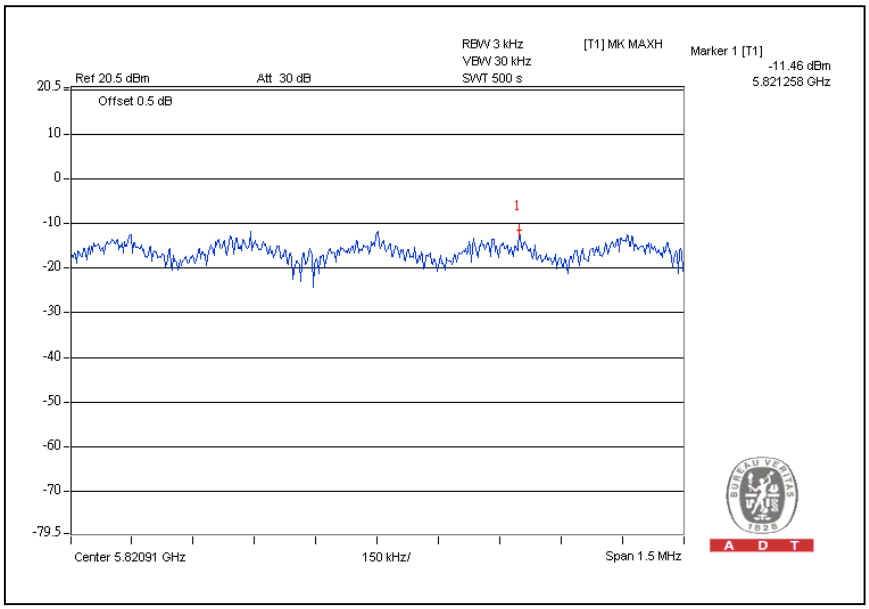
CH1



CH3

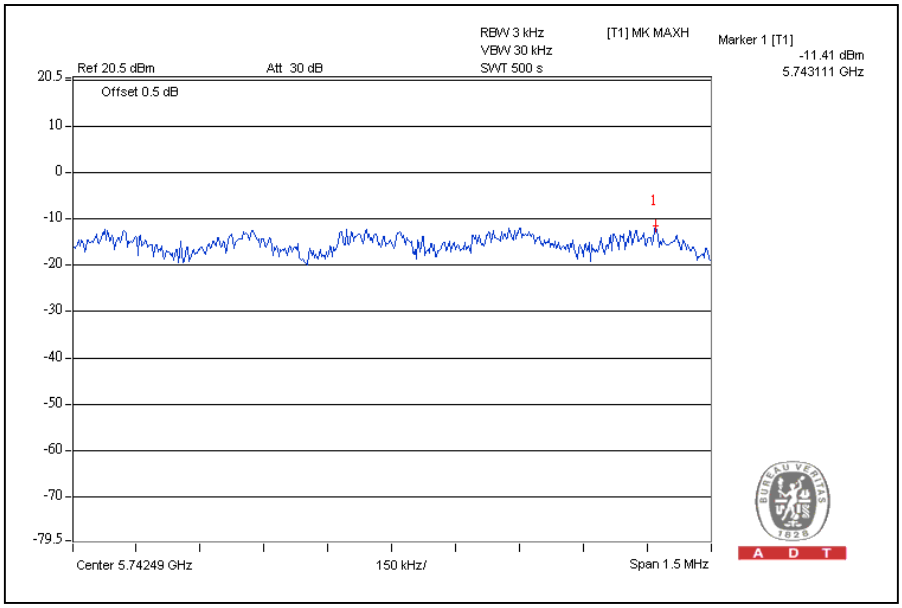

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-9.21 dBm
5.784332 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.78402 GHz
150 kHz/
Span 1.5 MHz

CH5

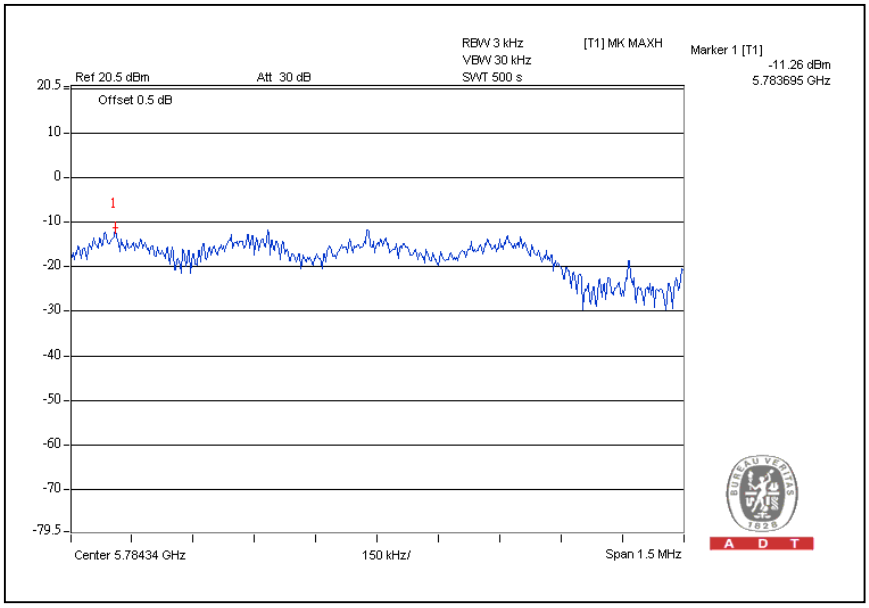

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.46 dBm
5.821258 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82091 GHz
150 kHz/
Span 1.5 MHz

Chain 1

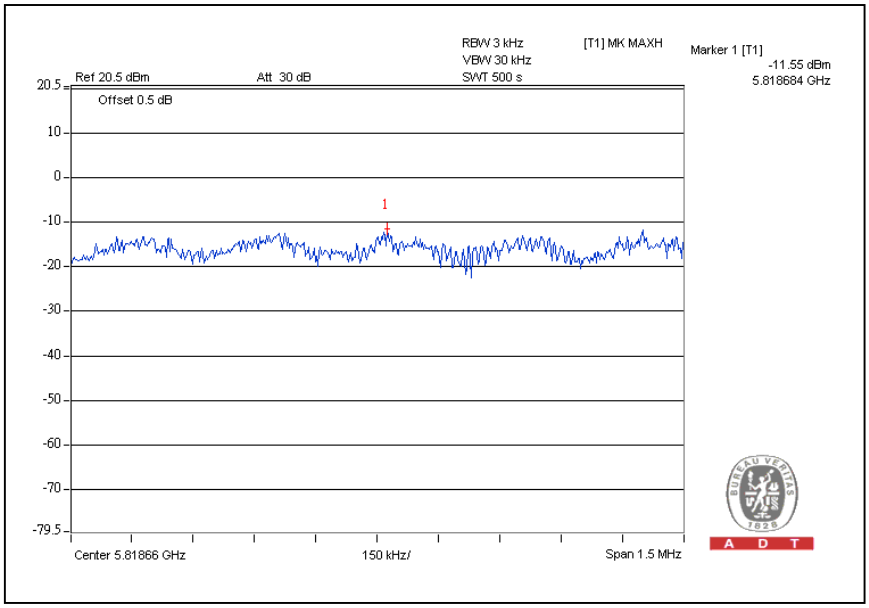
CH1



CH3

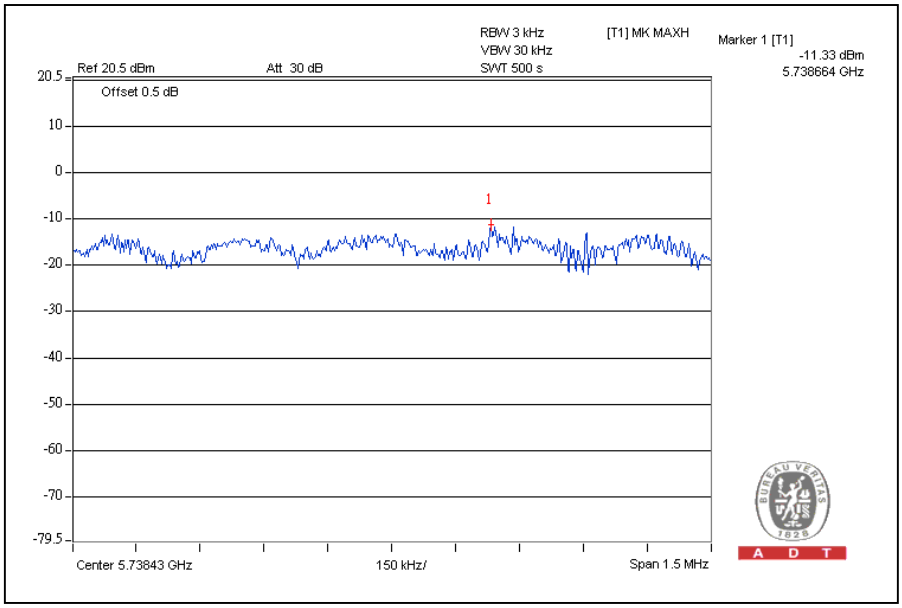


CH5

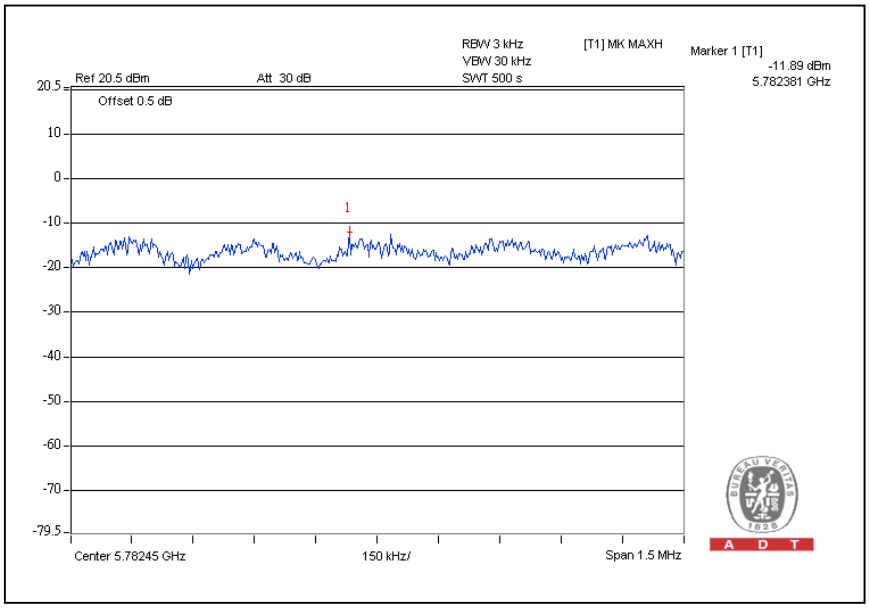

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.55 dBm
5.818684 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.81866 GHz
150 kHz/
Span 1.5 MHz

Chain 2

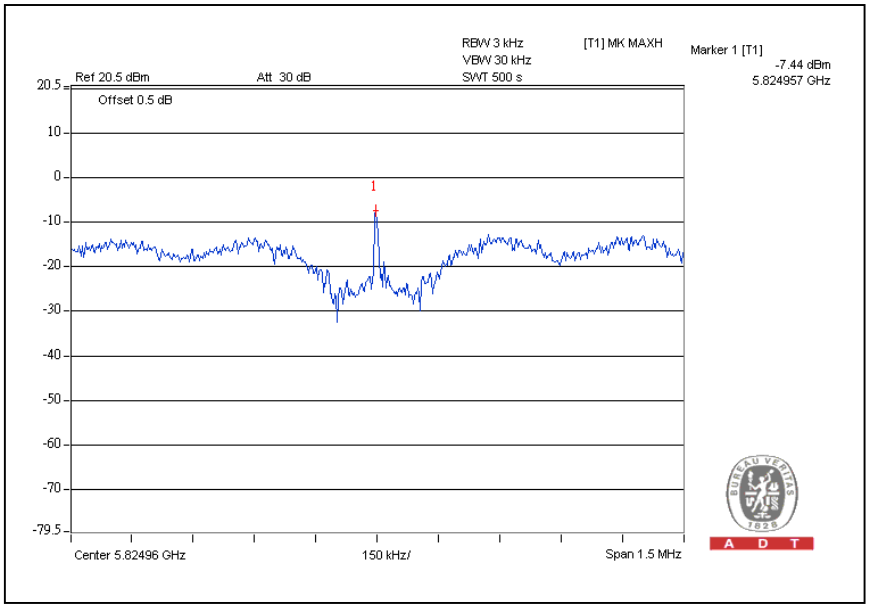
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-7.44 dBm
5.824957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82496 GHz
150 kHz/
Span 1.5 MHz

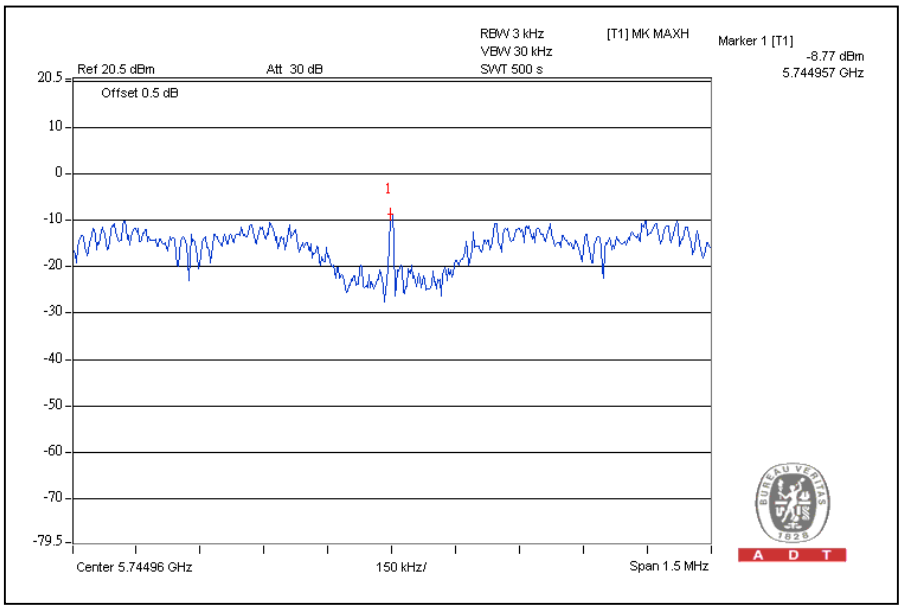
DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

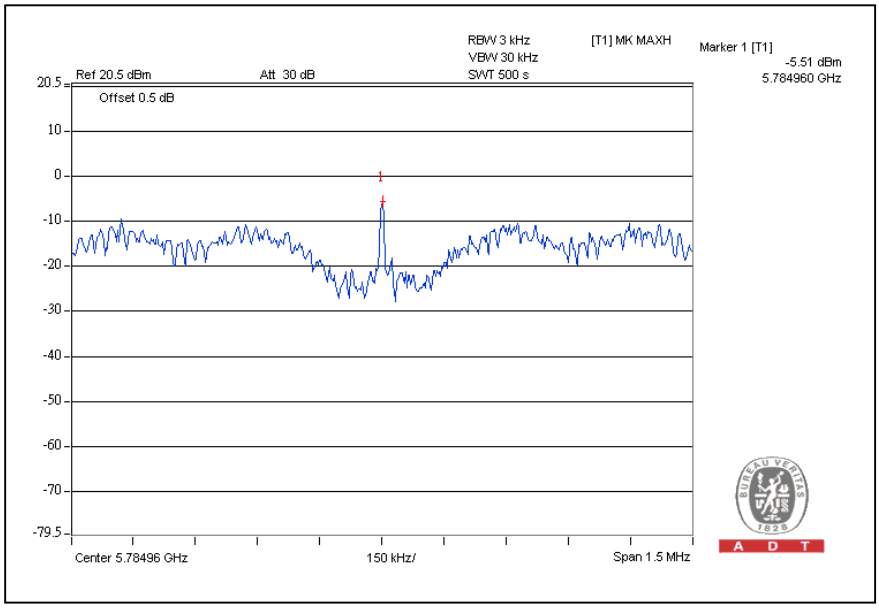
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.133	0.127	0.063	-8.77	-8.96	-12.04	0.323	-4.908	8	PASS
3	5785	0.281	0.137	0.068	-5.51	-8.63	-11.70	0.486	-3.134	8	PASS
5	5825	0.183	0.076	0.089	-7.38	-11.21	-10.53	0.348	-4.584	8	PASS

Chain 0

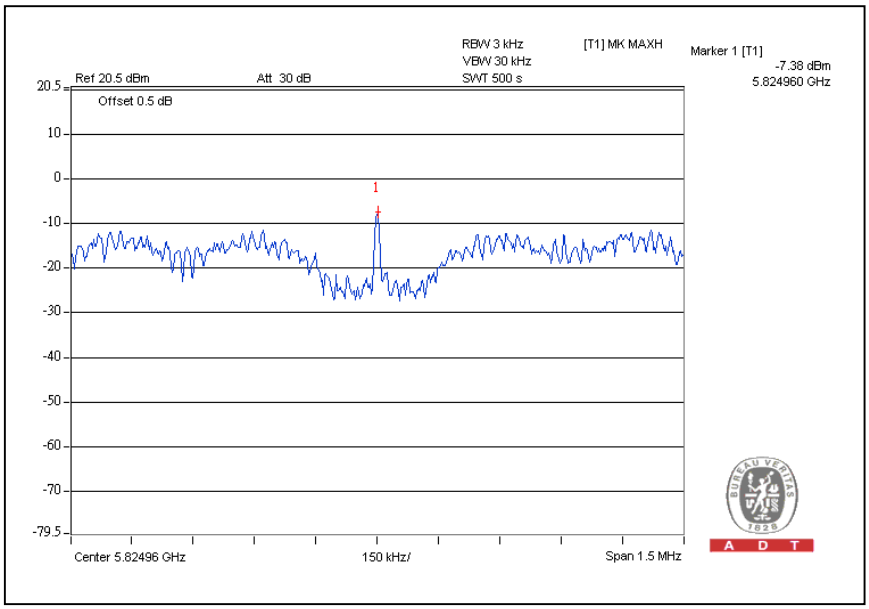
CH1



CH3

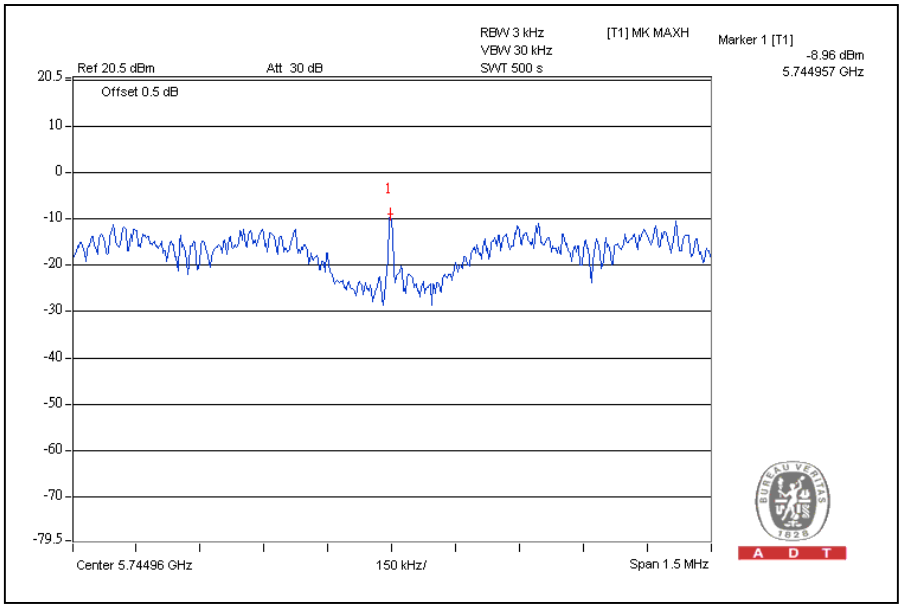

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-5.51 dBm
5.784960 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.78496 GHz
150 kHz/
Span 1.5 MHz

CH5

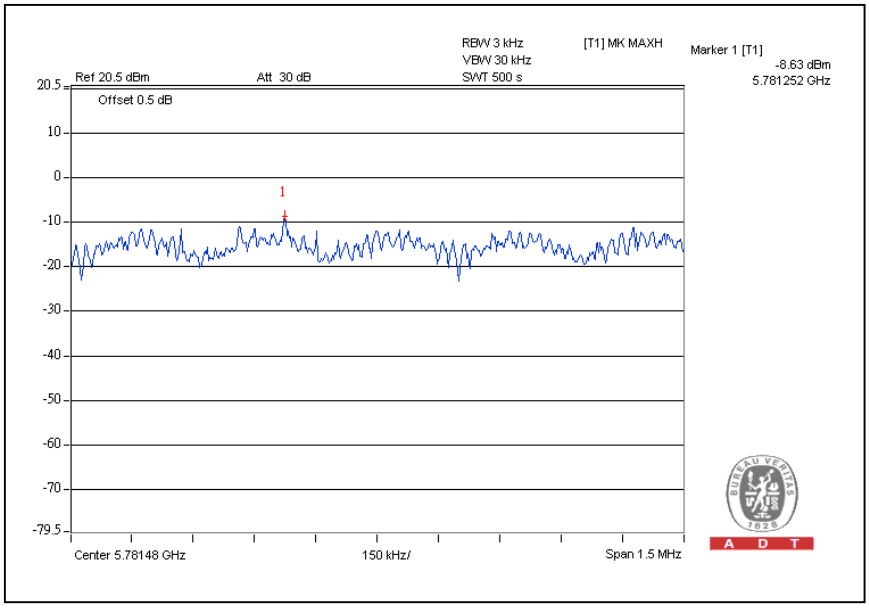

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-7.38 dBm
5.824960 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82496 GHz
150 kHz/
Span 1.5 MHz

Chain 1

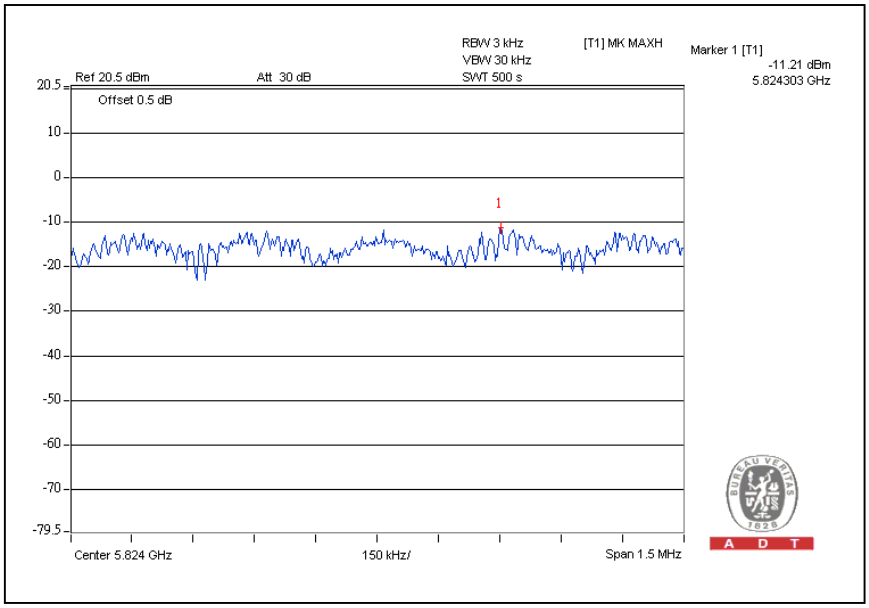
CH1



CH3

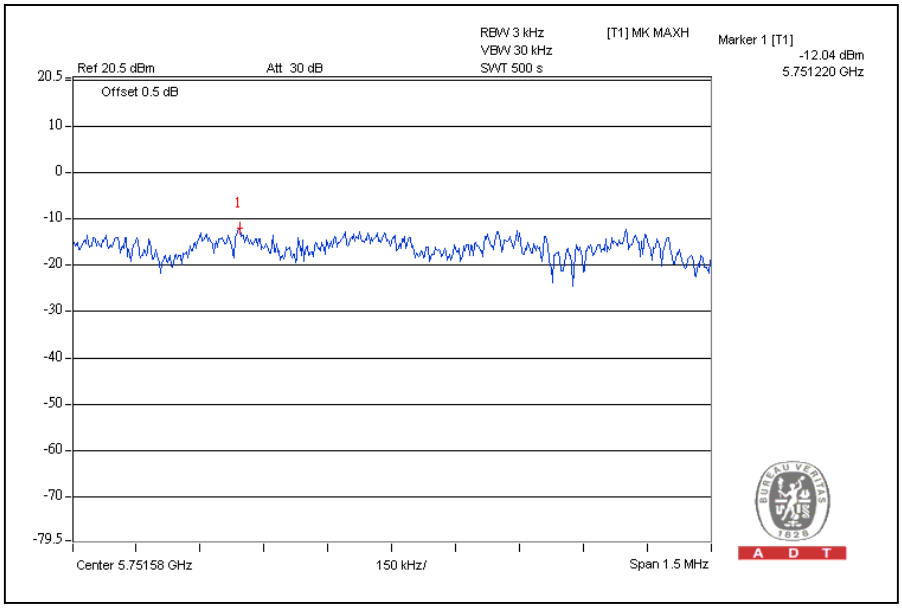


CH5

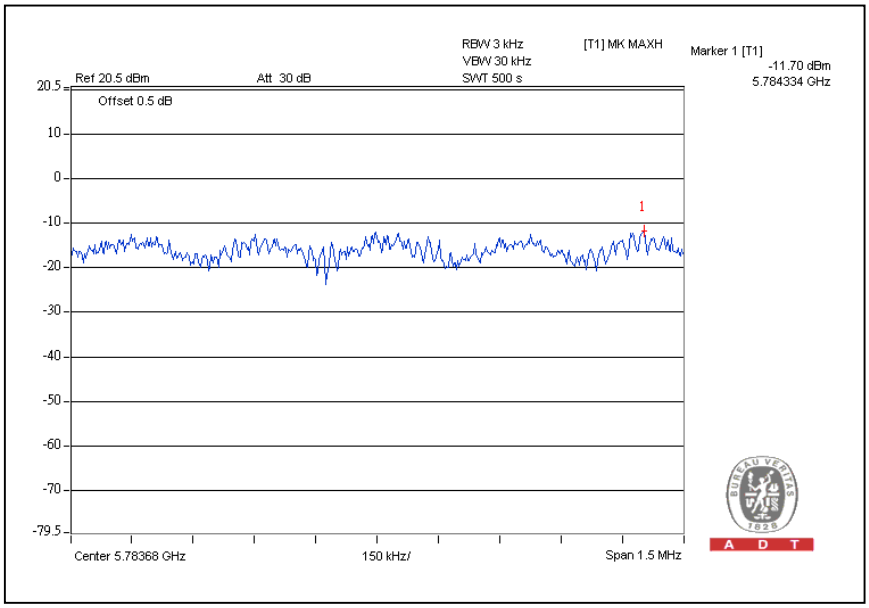

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.21 dBm
5.824303 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.824 GHz
150 kHz/
Span 1.5 MHz

Chain 2

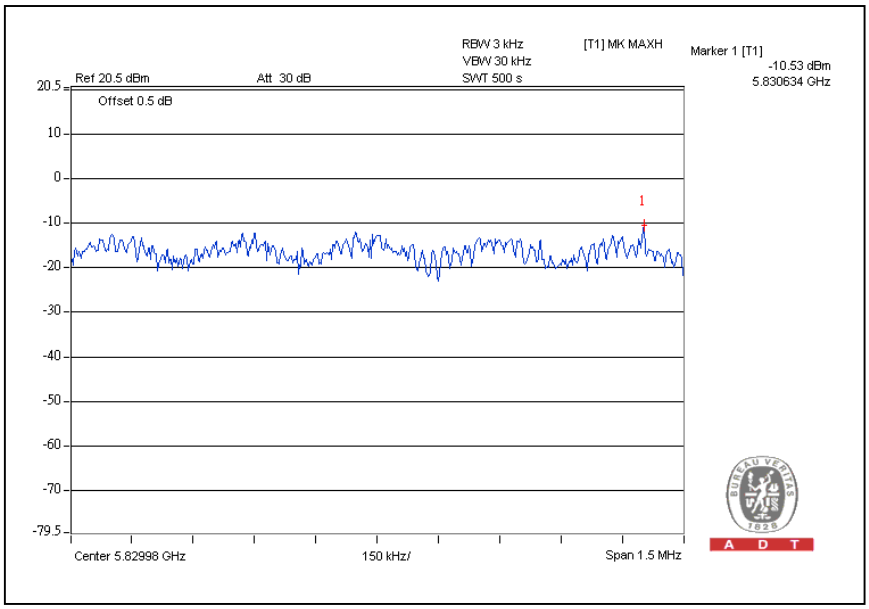
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.53 dBm
5.830634 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.82998 GHz
150 kHz/
Span 1.5 MHz

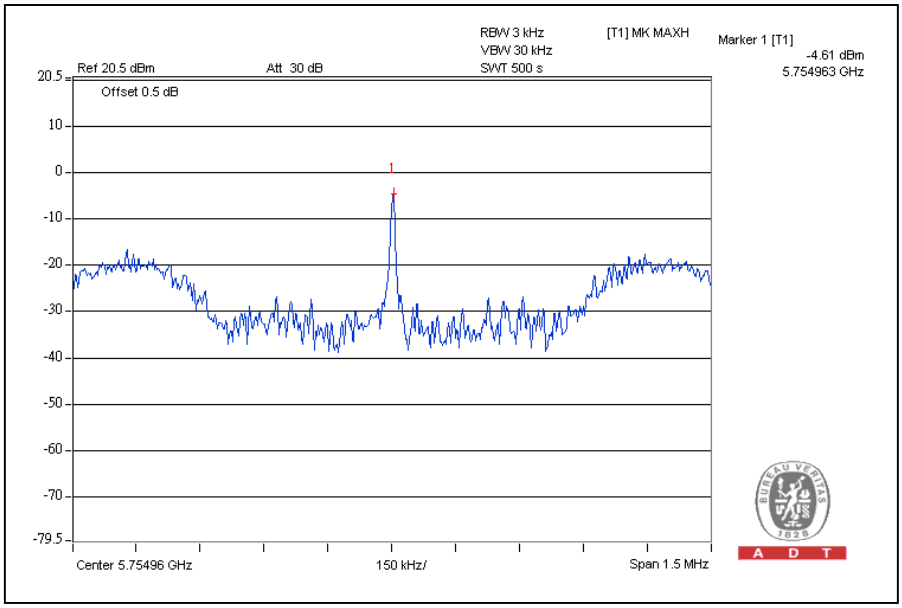
DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 965hPa
TESTED BY	Wen Yu		

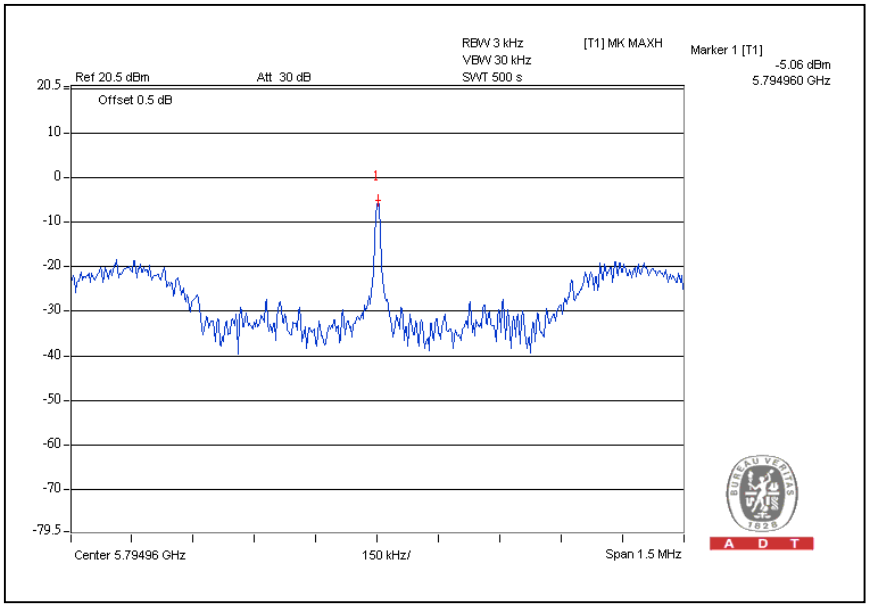
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5755	0.346	0.026	0.190	-4.61	-15.92	-7.21	0.562	-2.503	8	PASS
2	5795	0.312	0.385	0.156	-5.06	-4.15	-8.07	0.853	-0.691	8	PASS

Chain 0

CH1

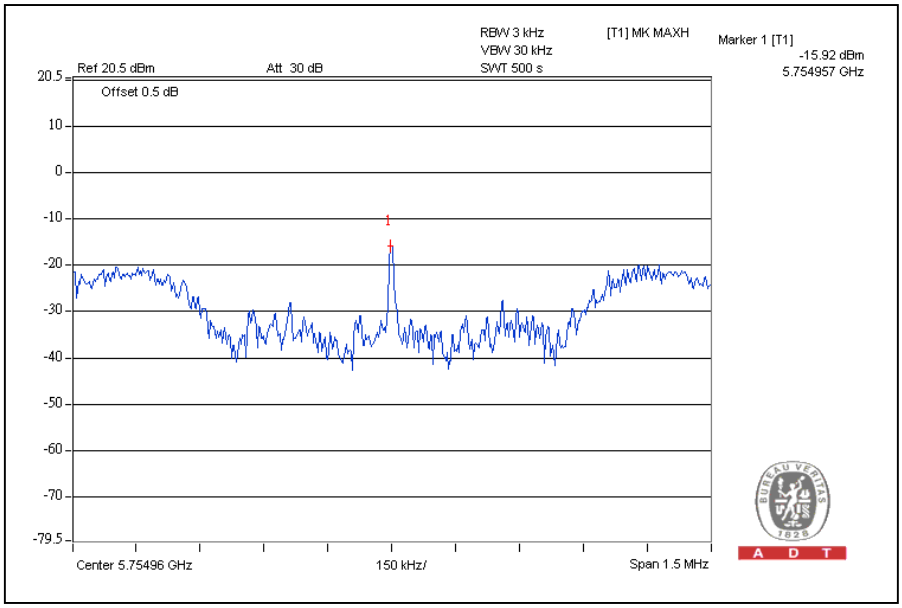


CH2

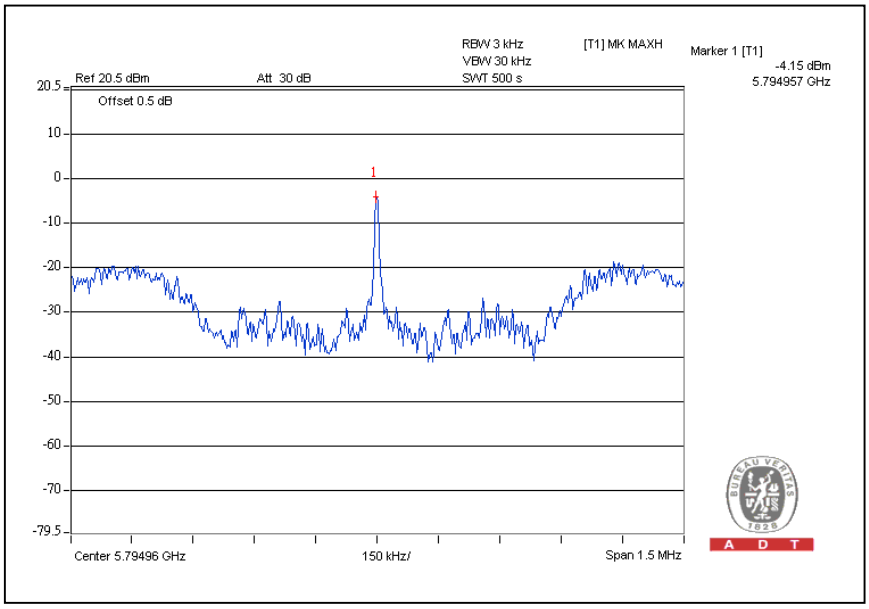


Chain 1

CH1

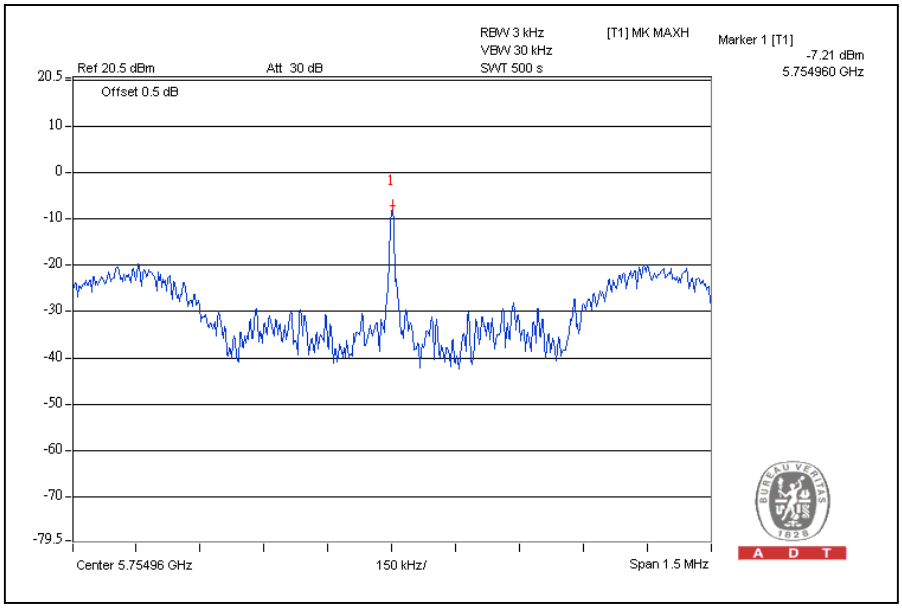


CH2

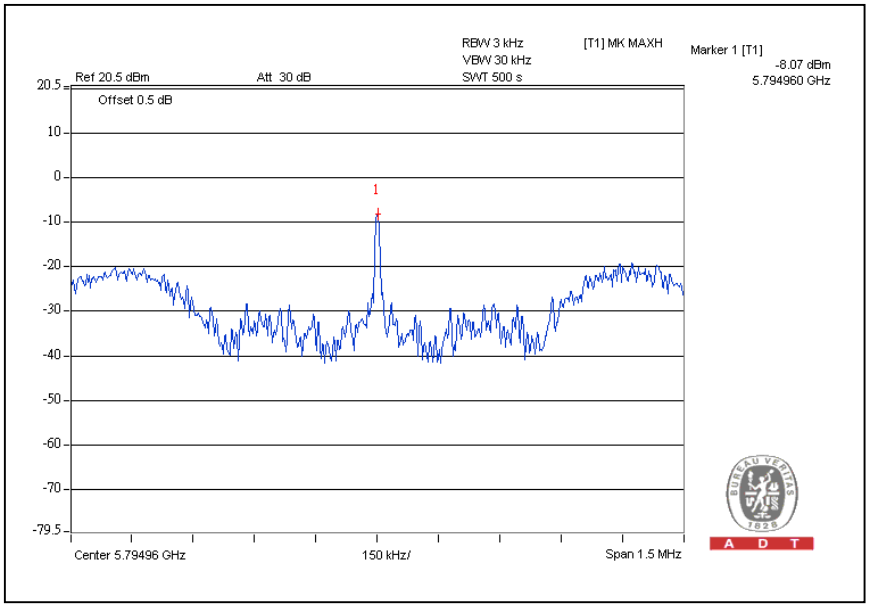


Chain 2

CH1



CH2



5.5.10 TEST RESULTS – ANTENNA 8

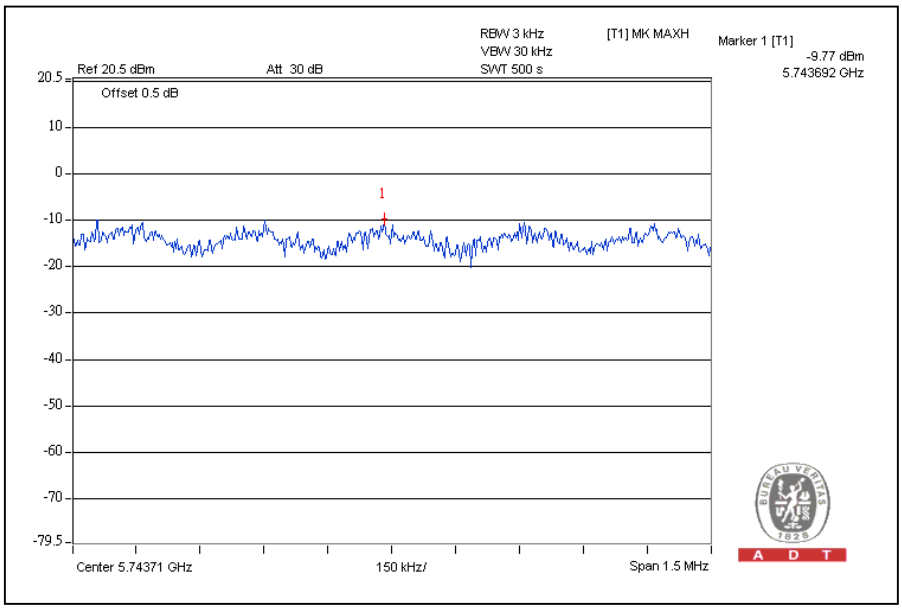
802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

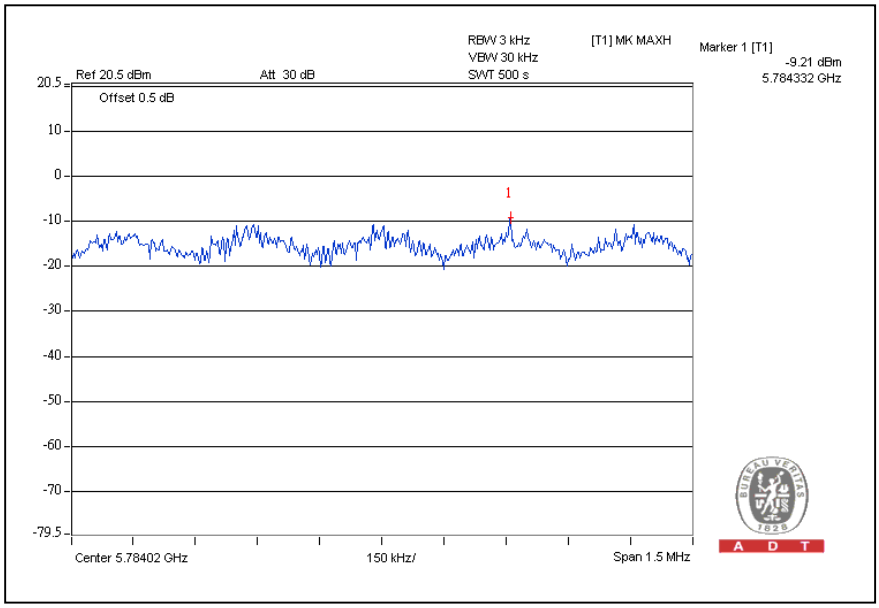
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.105	0.072	0.074	-9.77	-11.41	-11.33	0.251	-6.003	8	PASS
3	5785	0.120	0.075	0.065	-9.21	-11.26	-11.89	0.260	-5.850	8	PASS
5	5825	0.071	0.070	0.180	-11.46	-11.55	-7.44	0.321	-4.935	8	PASS

Chain 0

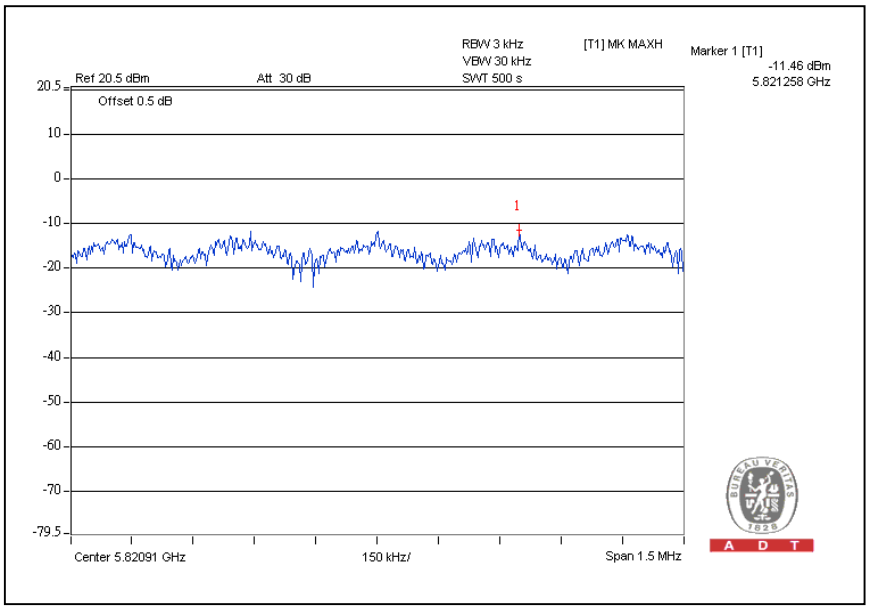
CH1



CH3

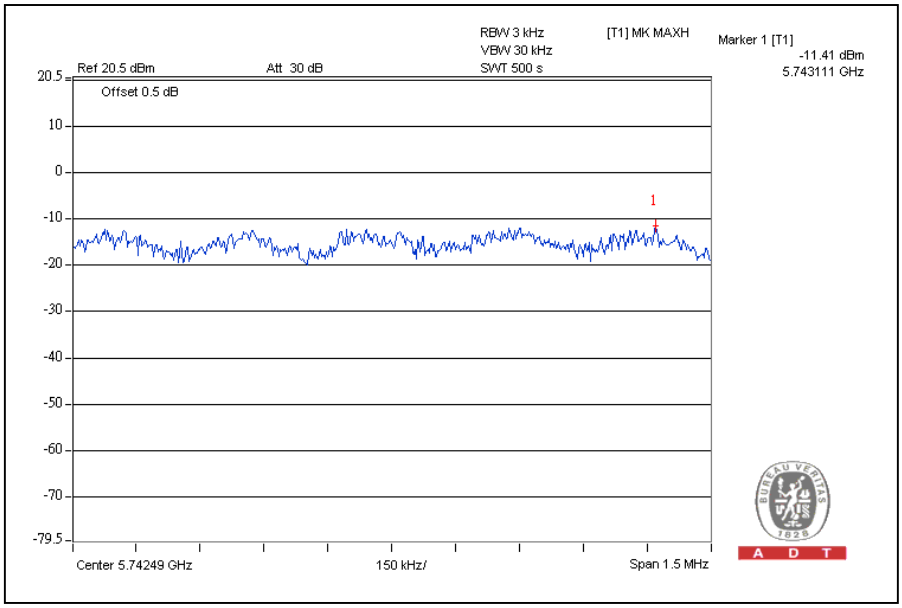

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-9.21 dBm
5.784332 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.78402 GHz
150 kHz/
Span 1.5 MHz

CH5

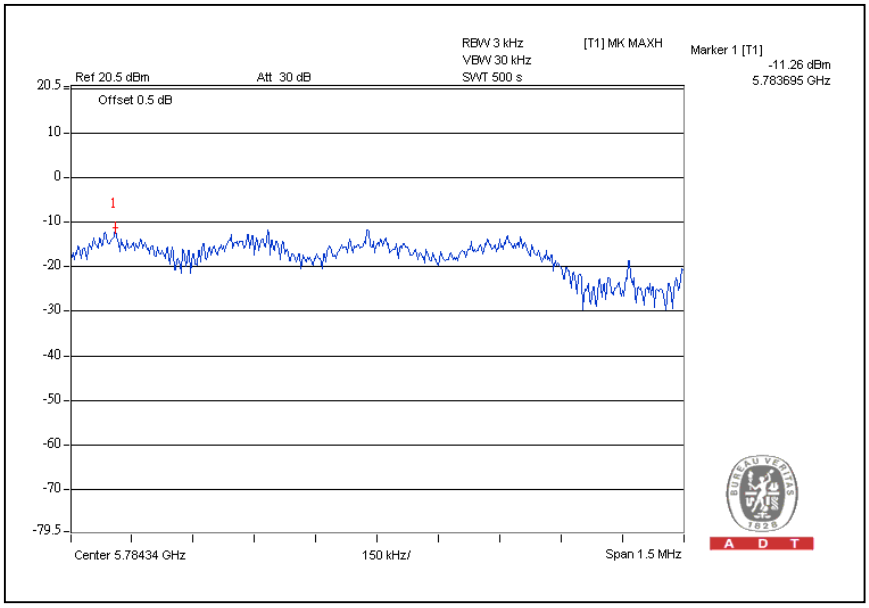

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.46 dBm
5.821258 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82091 GHz
150 kHz/
Span 1.5 MHz

Chain 1

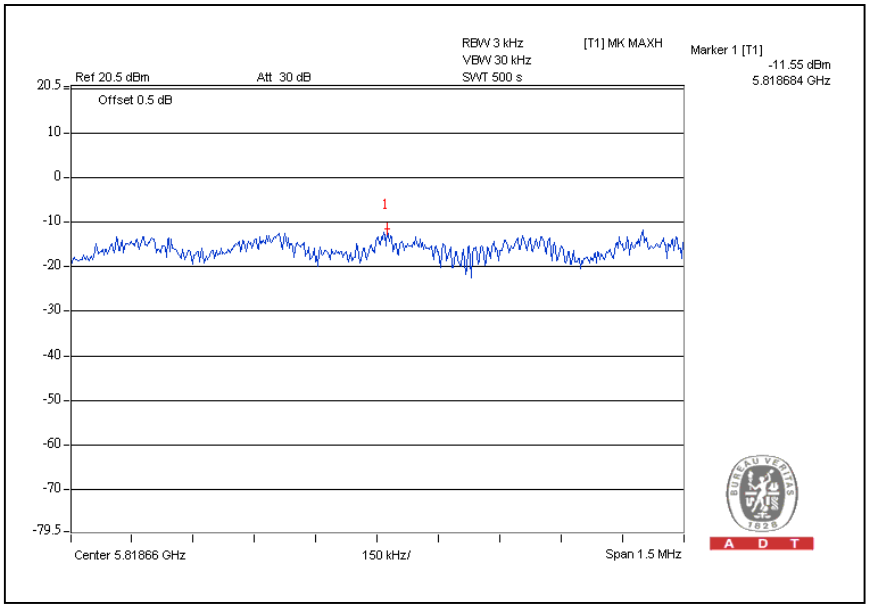
CH1



CH3

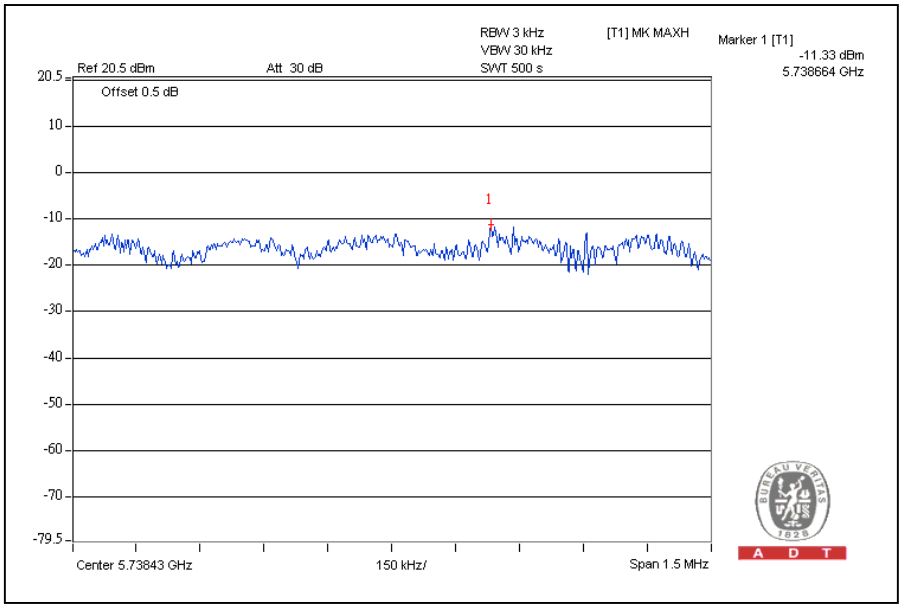


CH5

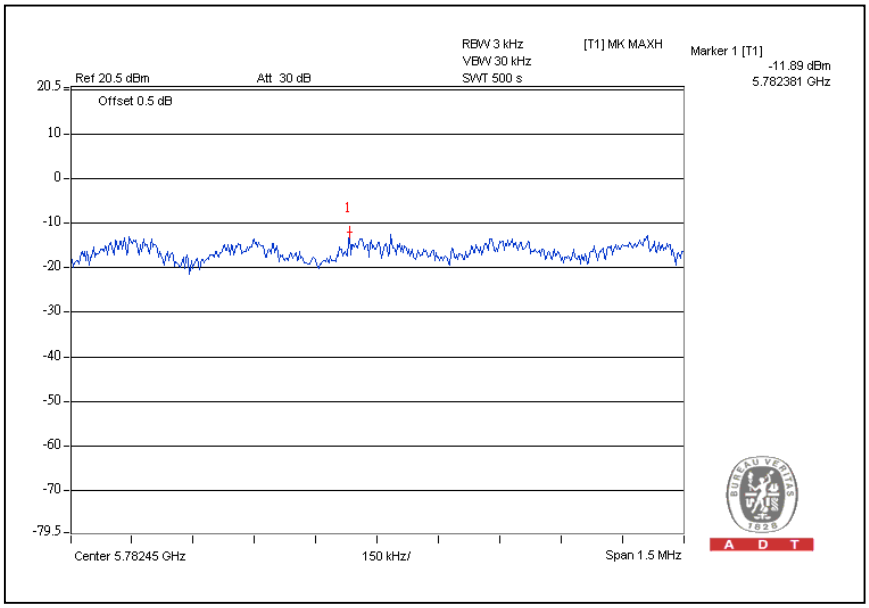

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.55 dBm
5.818684 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.81866 GHz
150 kHz/
Span 1.5 MHz

Chain 2

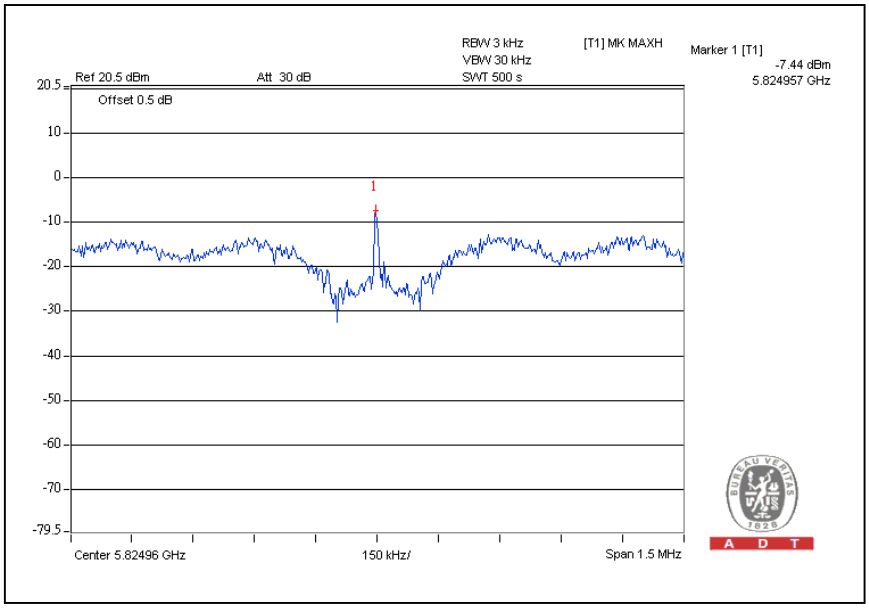
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-7.44 dBm
5.824957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82496 GHz
150 kHz/
Span 1.5 MHz

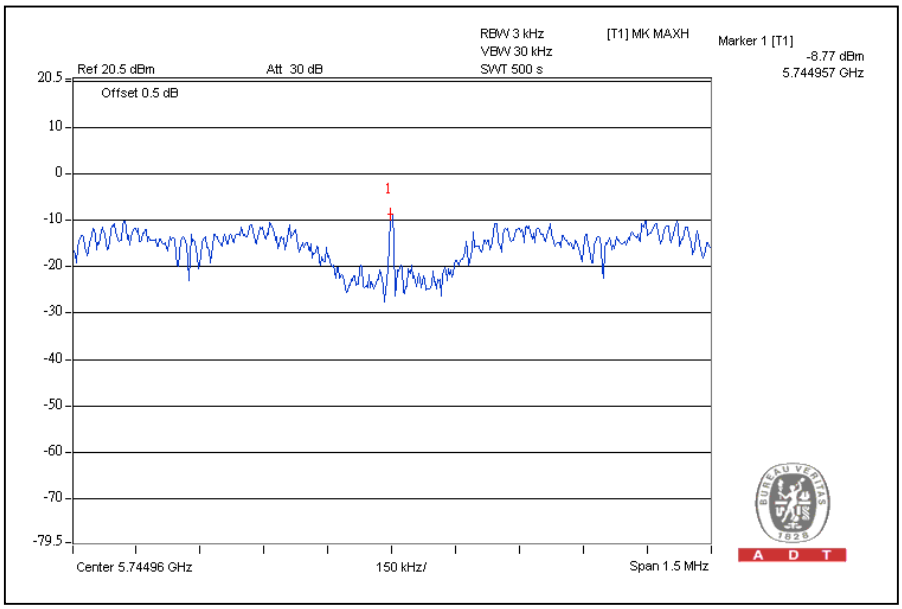
DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

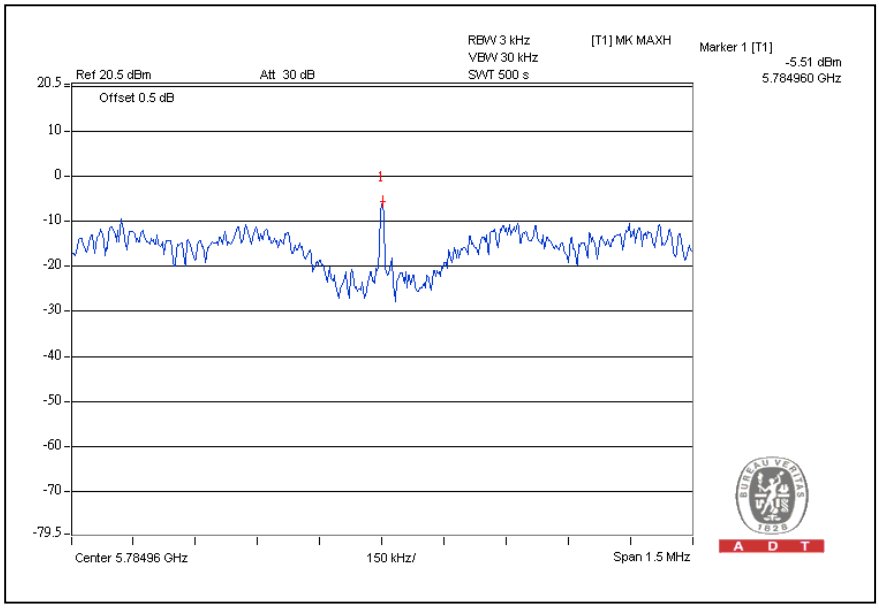
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.133	0.127	0.063	-8.77	-8.96	-12.04	0.323	-4.908	8	PASS
3	5785	0.281	0.137	0.068	-5.51	-8.63	-11.70	0.486	-3.134	8	PASS
5	5825	0.183	0.076	0.089	-7.38	-11.21	-10.53	0.348	-4.584	8	PASS

Chain 0

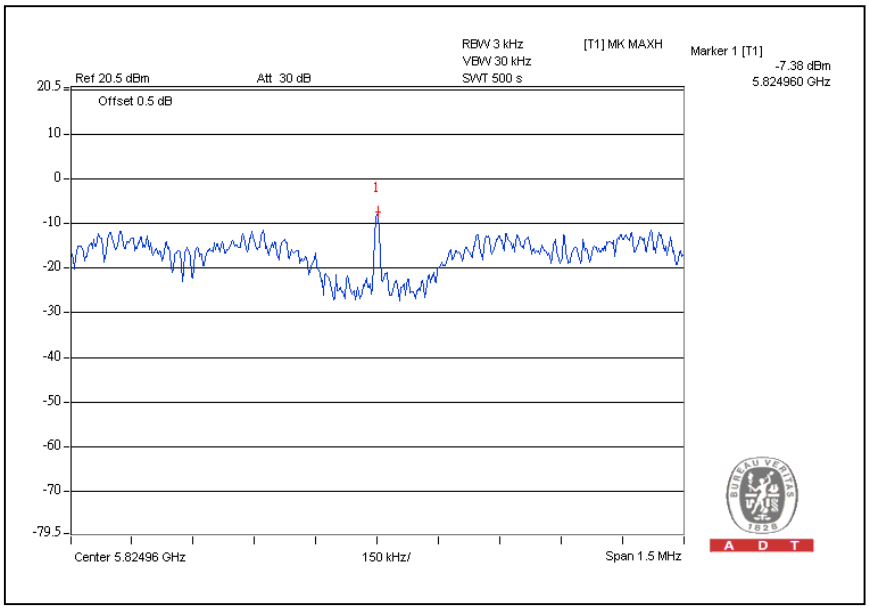
CH1



CH3

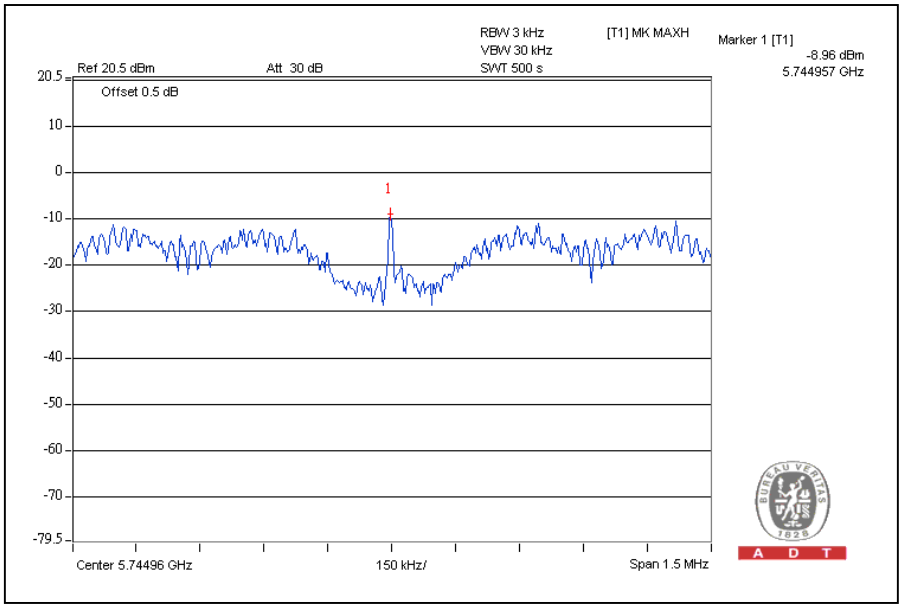

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-5.51 dBm
5.784960 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.78496 GHz
150 kHz/
Span 1.5 MHz

CH5

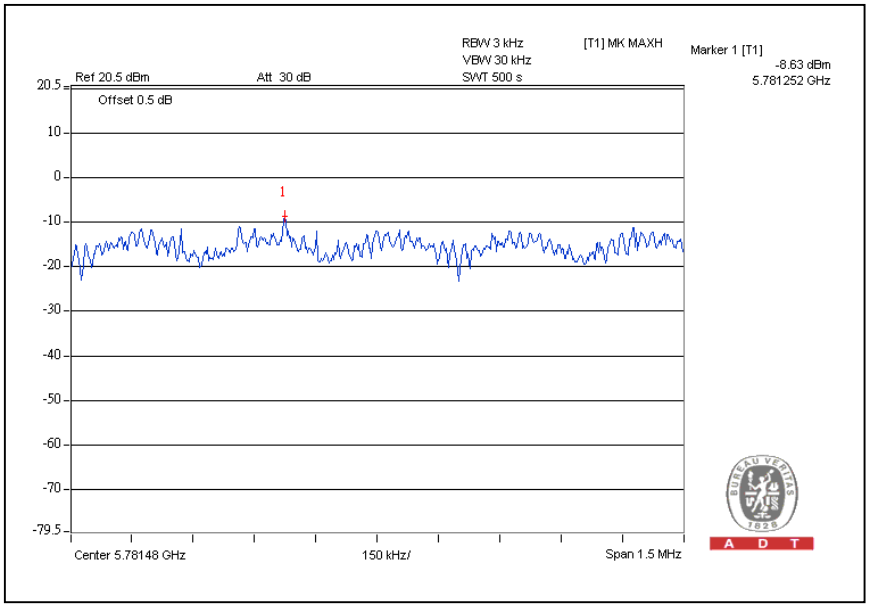

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-7.38 dBm
5.824960 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82496 GHz
150 kHz/
Span 1.5 MHz

Chain 1

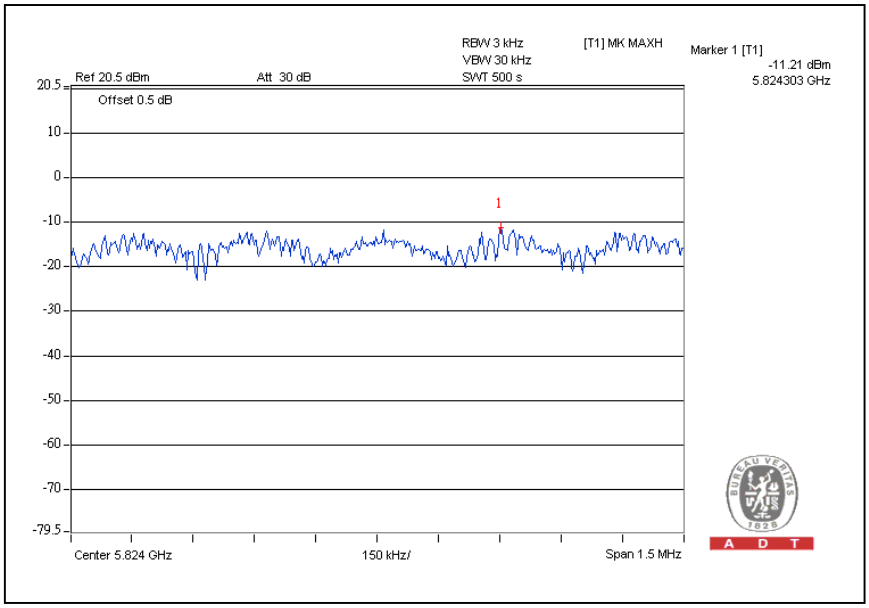
CH1



CH3

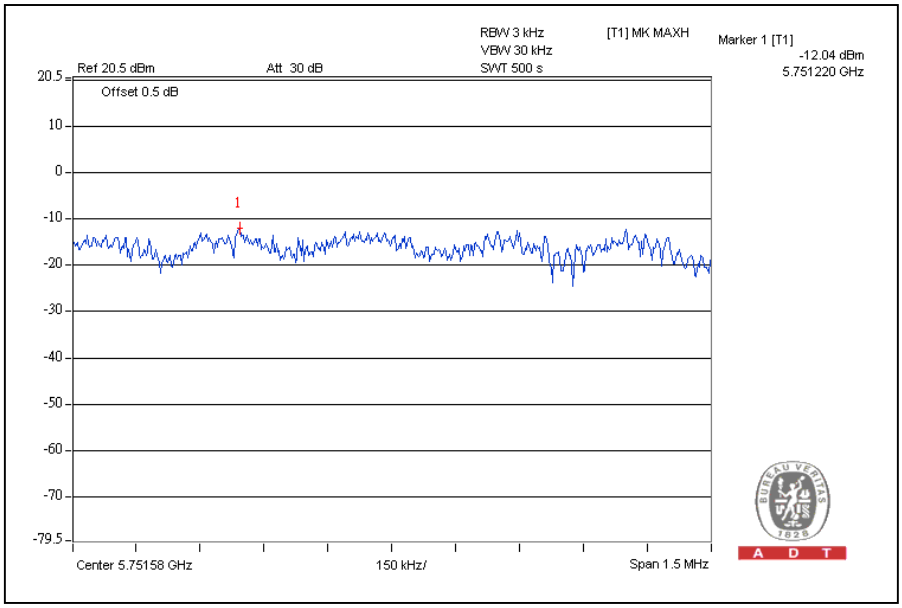


CH5

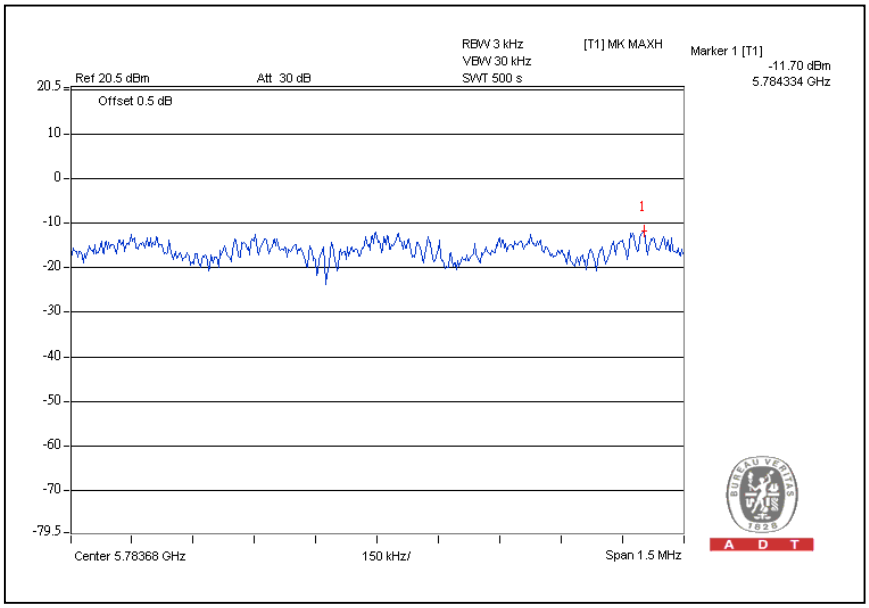

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-11.21 dBm
5.824303 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.824 GHz
150 kHz/
Span 1.5 MHz

Chain 2

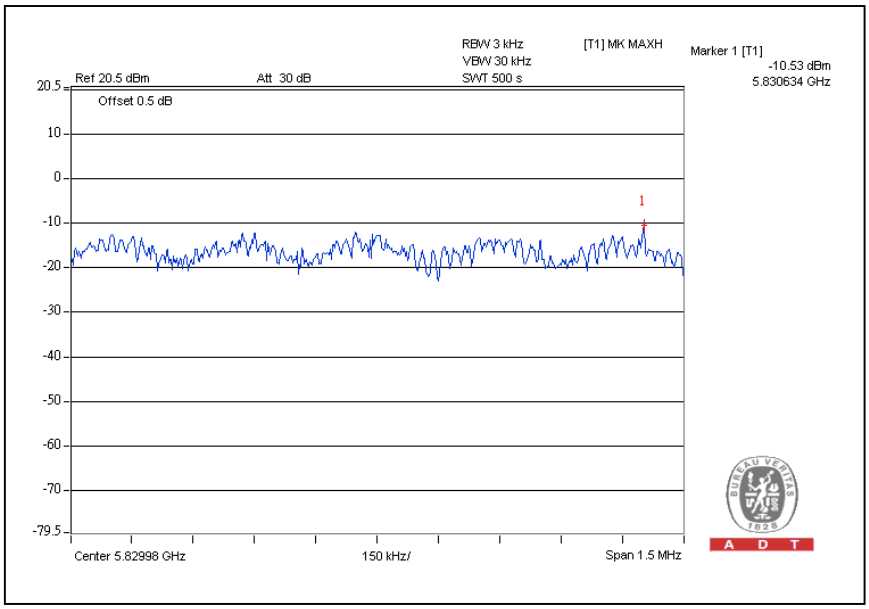
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-10.53 dBm
5.830634 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.82998 GHz
150 kHz/
Span 1.5 MHz

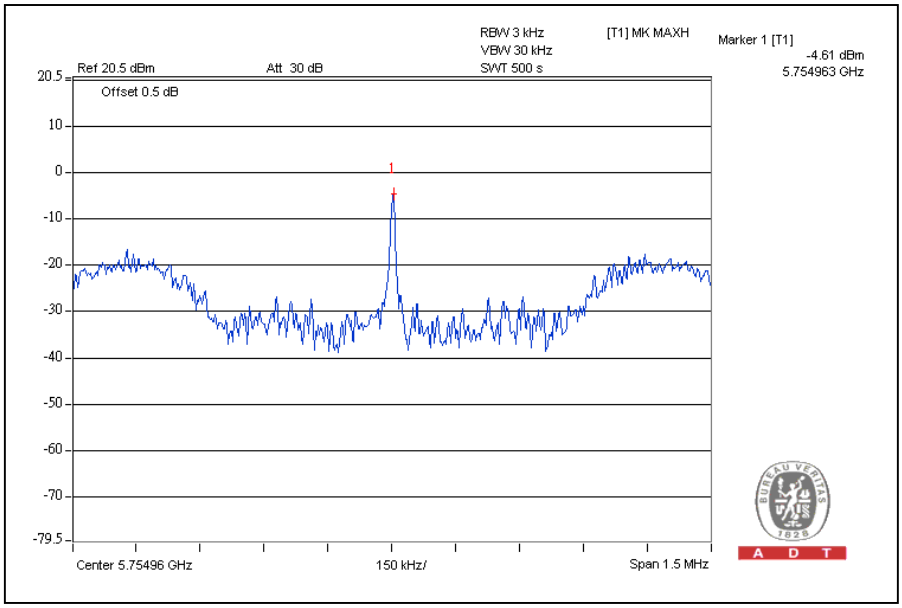
DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	20deg.C, 60%RH, 965hPa
TESTED BY	Wen Yu		

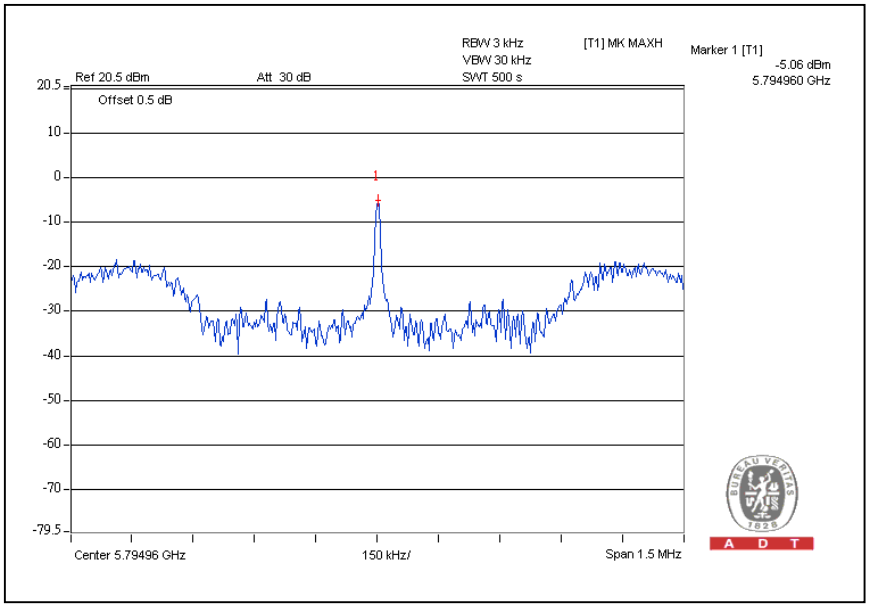
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5755	0.346	0.026	0.190	-4.61	-15.92	-7.21	0.562	-2.503	8	PASS
2	5795	0.312	0.385	0.156	-5.06	-4.15	-8.07	0.853	-0.691	8	PASS

Chain 0

CH1

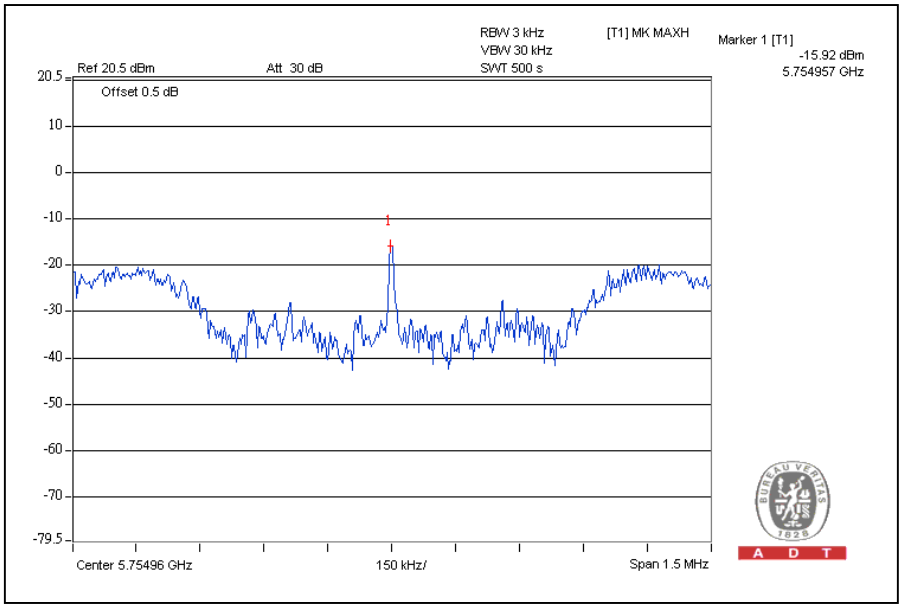


CH2

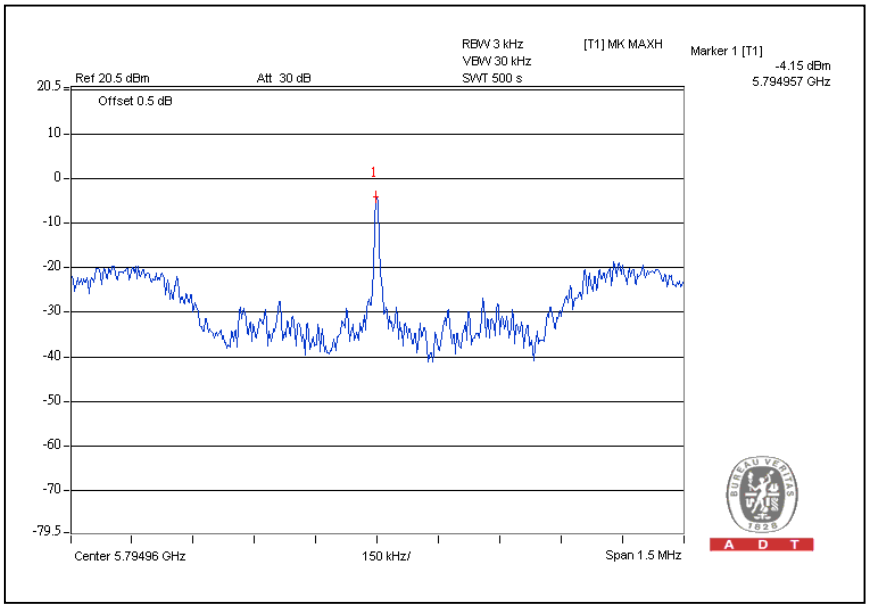


Chain 1

CH1

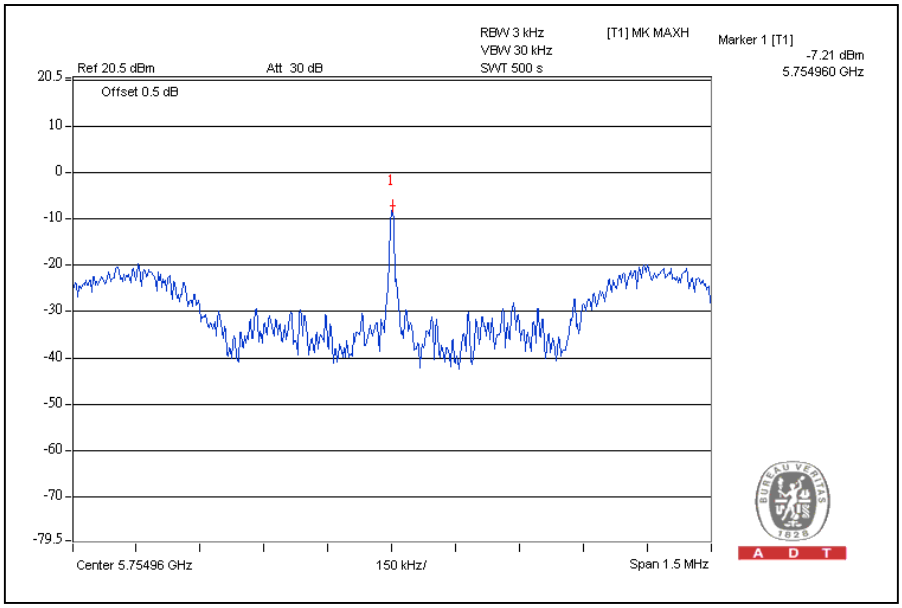


CH2

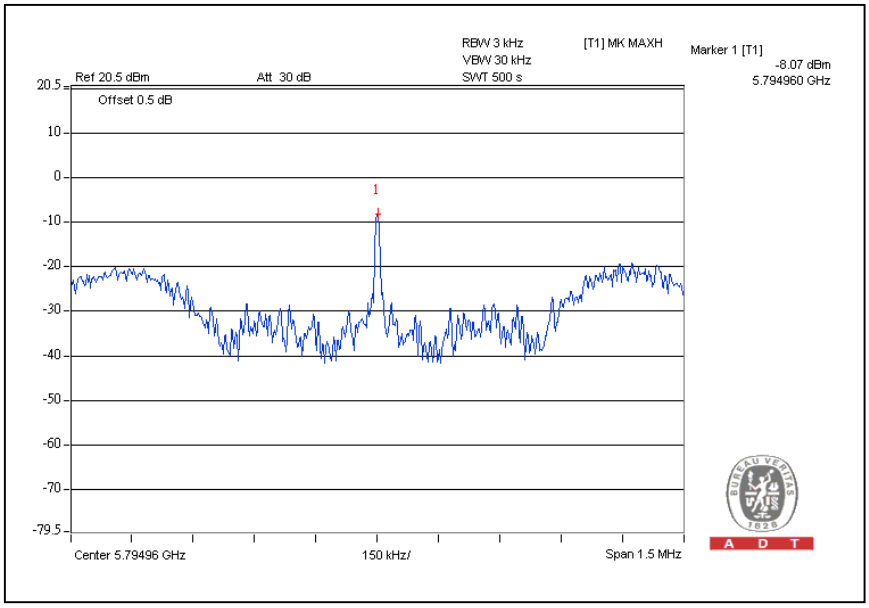


Chain 2

CH1



CH2



5.5.11 TEST RESULTS – ANTENNA 11

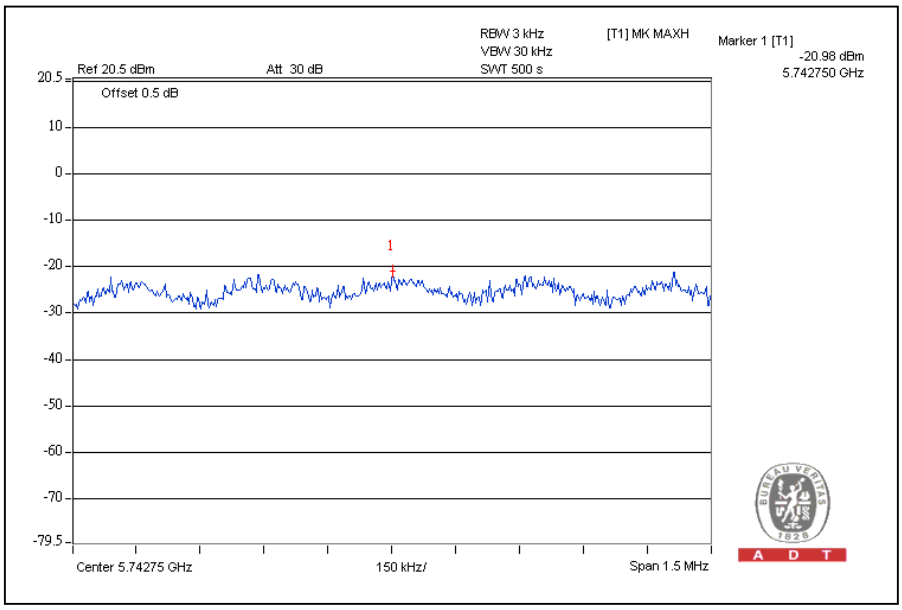
802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

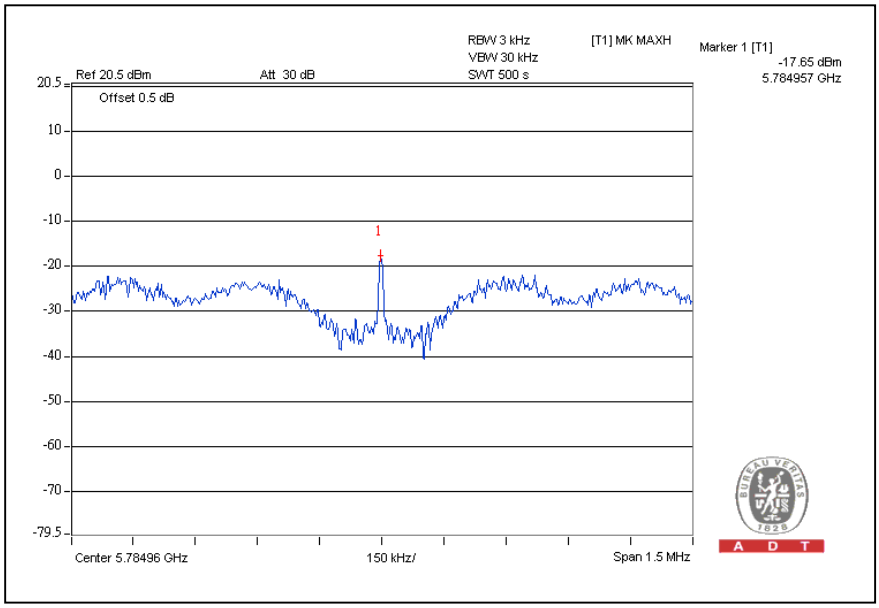
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.008	0.014	0.008	-20.98	-18.40	-21.09	0.030	-15.229	8	PASS
3	5785	0.017	0.008	0.008	-17.65	-21.21	-20.92	0.033	-14.815	8	PASS
5	5825	0.013	0.006	0.007	-18.98	-22.16	-21.32	0.026	-15.850	8	PASS

Chain 0

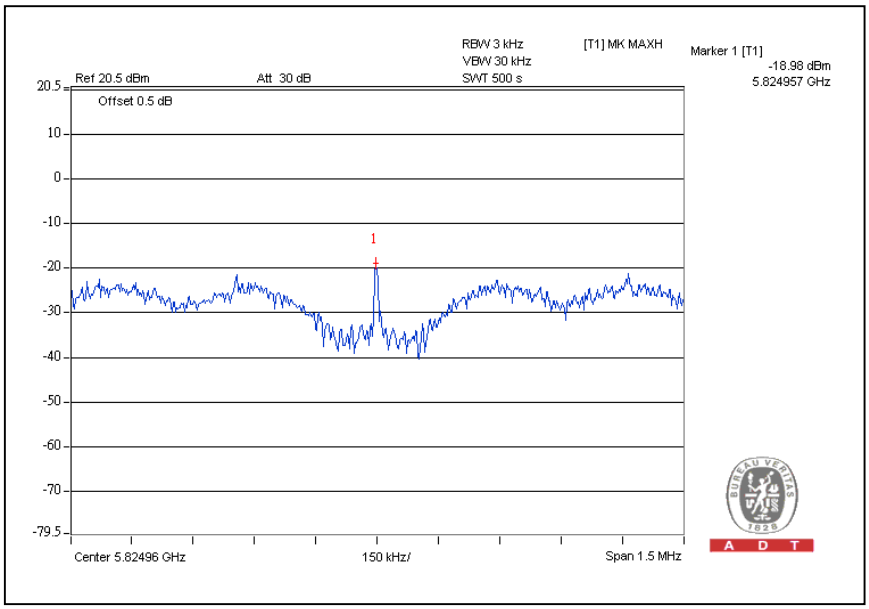
CH1



CH3

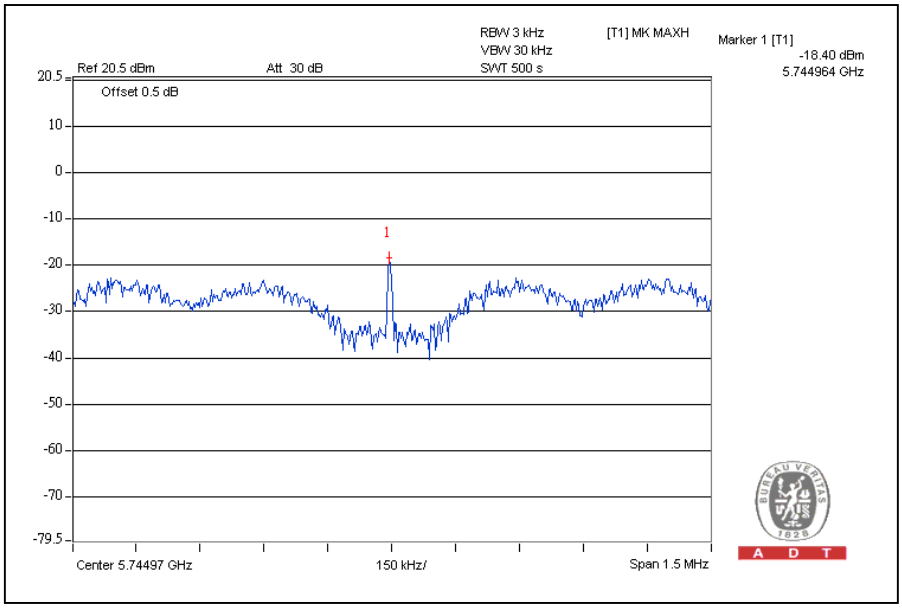

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-17.65 dBm
5.784957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.78496 GHz
150 kHz/
Span 1.5 MHz

CH5

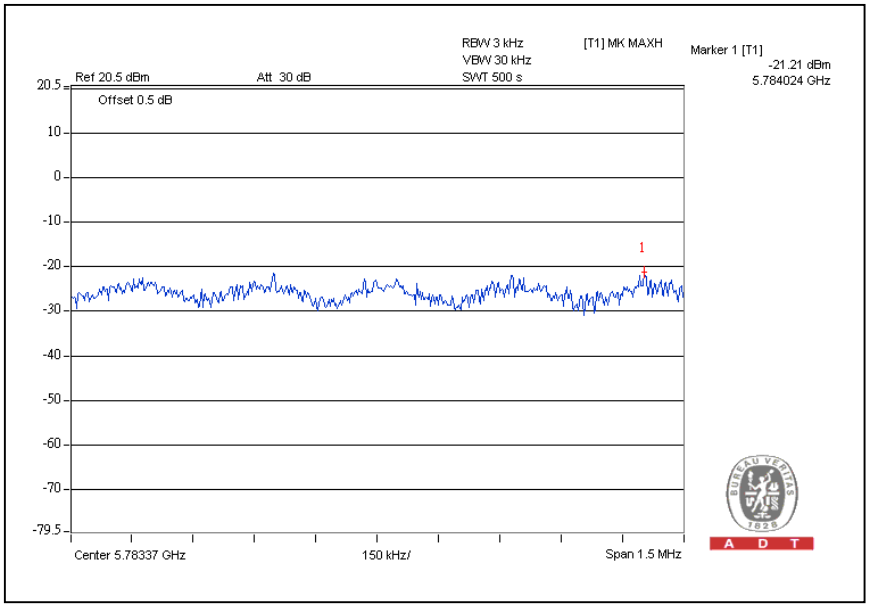

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-18.98 dBm
5.824957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Center 5.82496 GHz
150 kHz/
Span 1.5 MHz

Chain 1

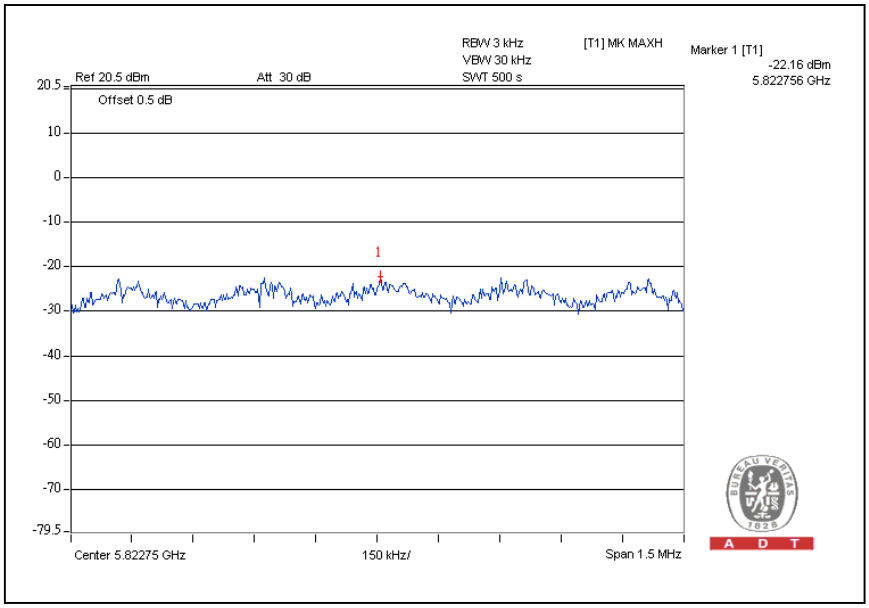
CH1



CH3

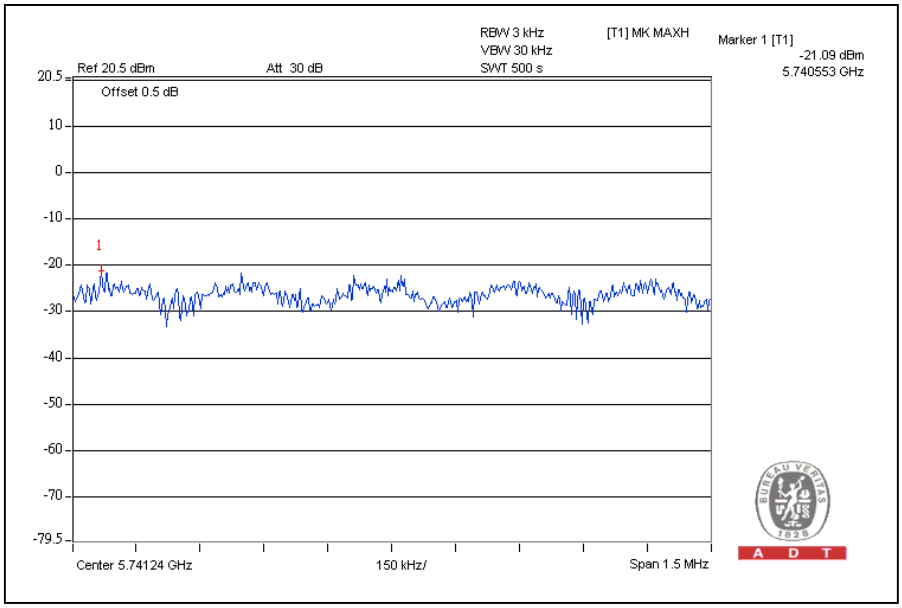


CH5

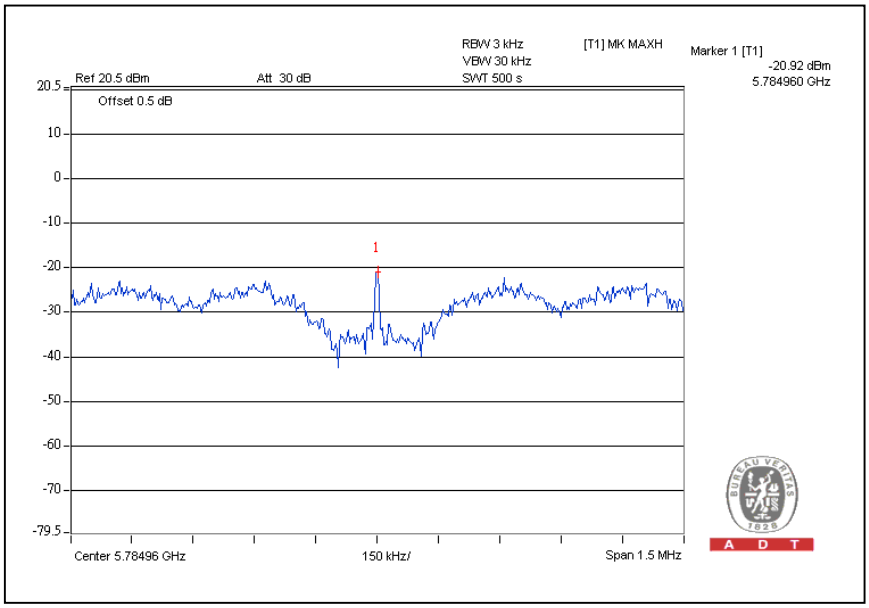

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-22.16 dBm
5.822756 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.82275 GHz
150 kHz/
Span 1.5 MHz

Chain 2

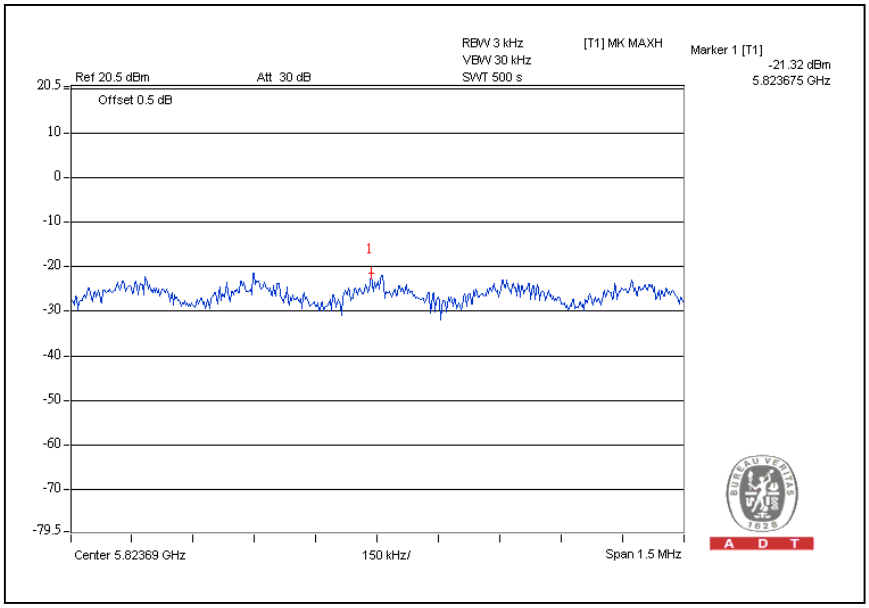
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-21.32 dBm
5.823675 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.82369 GHz
150 kHz/
Span 1.5 MHz

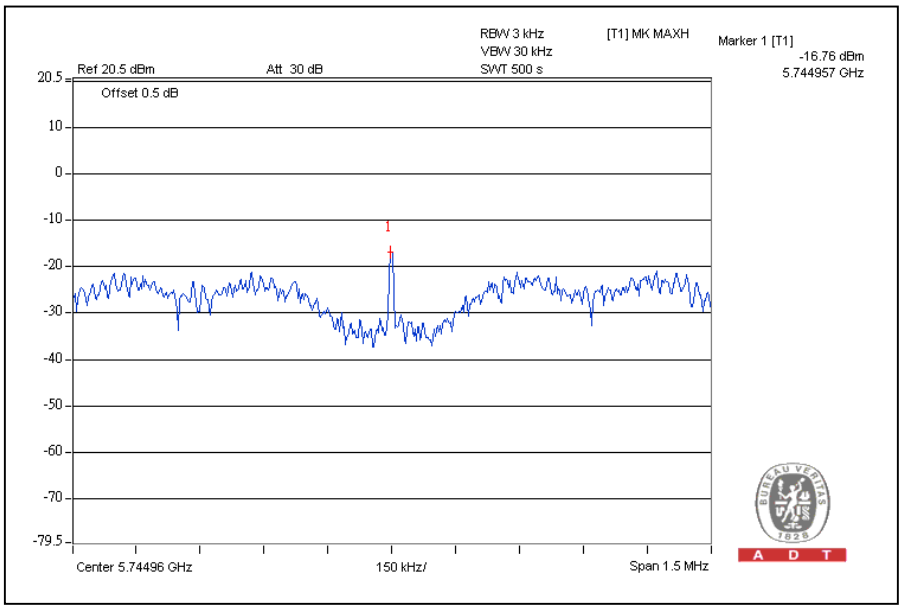
DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

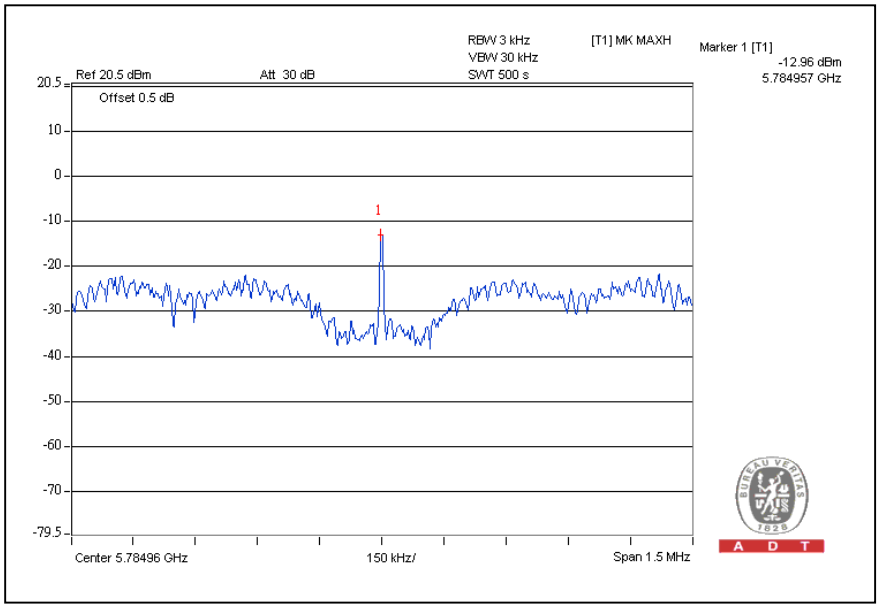
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5745	0.021	0.008	0.008	-16.76	-20.84	-20.93	0.037	-14.318	8	PASS
3	5785	0.051	0.008	0.007	-12.96	-20.81	-21.87	0.066	-11.805	8	PASS
5	5825	0.008	0.007	0.009	-20.80	-21.81	-20.30	0.024	-16.198	8	PASS

Chain 0

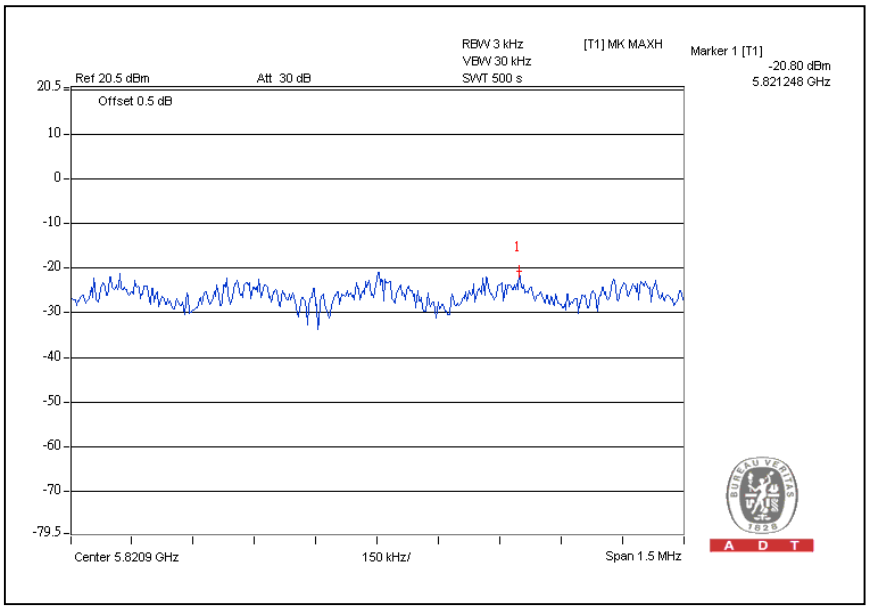
CH1



CH3

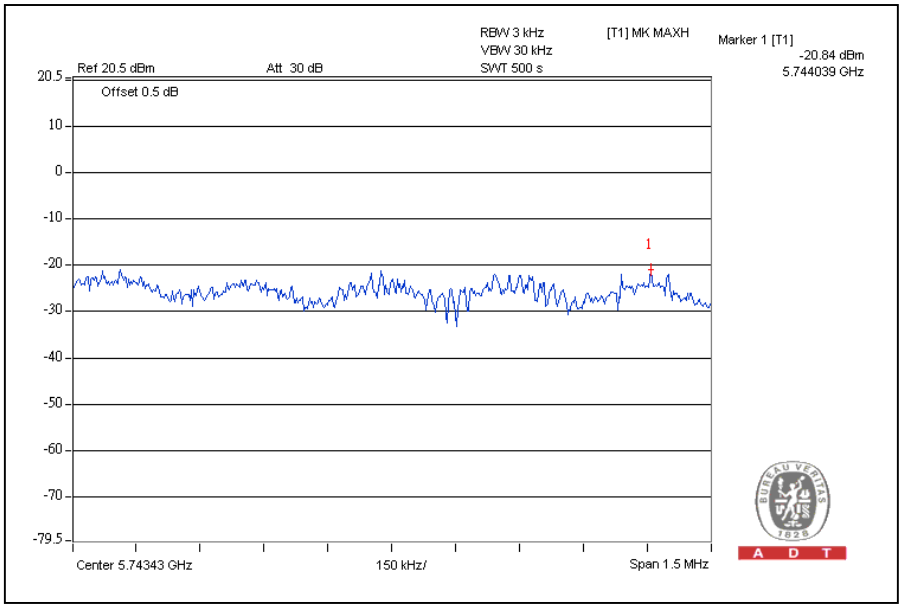

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-12.96 dBm
5.784957 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.78496 GHz
150 kHz/
Span 1.5 MHz

CH5

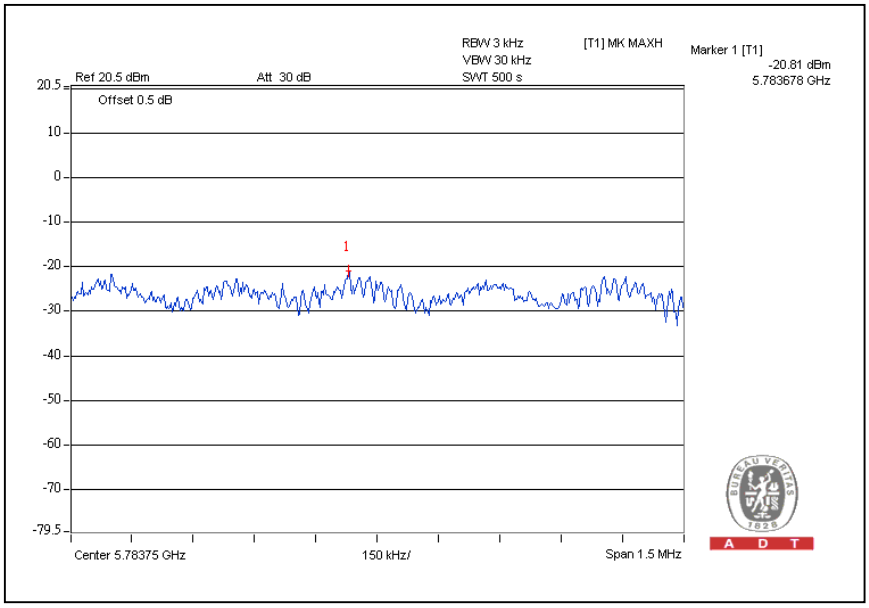

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-20.80 dBm
5.821248 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.8209 GHz
150 kHz/
Span 1.5 MHz

Chain 1

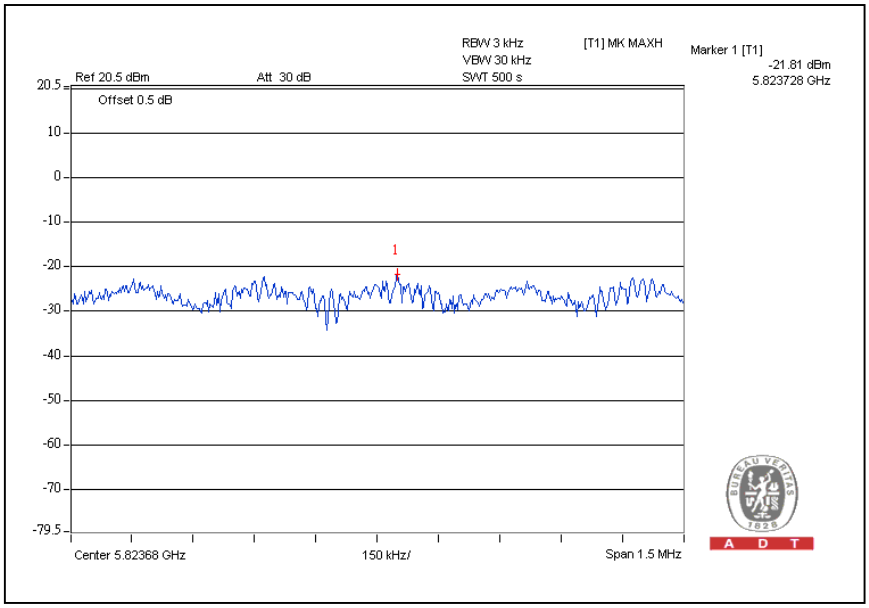
CH1



CH3

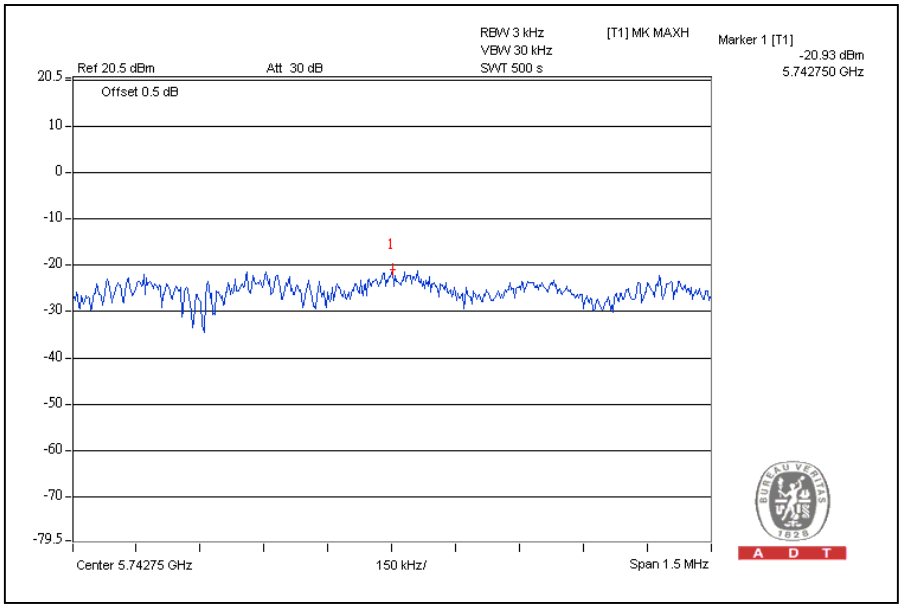


CH5

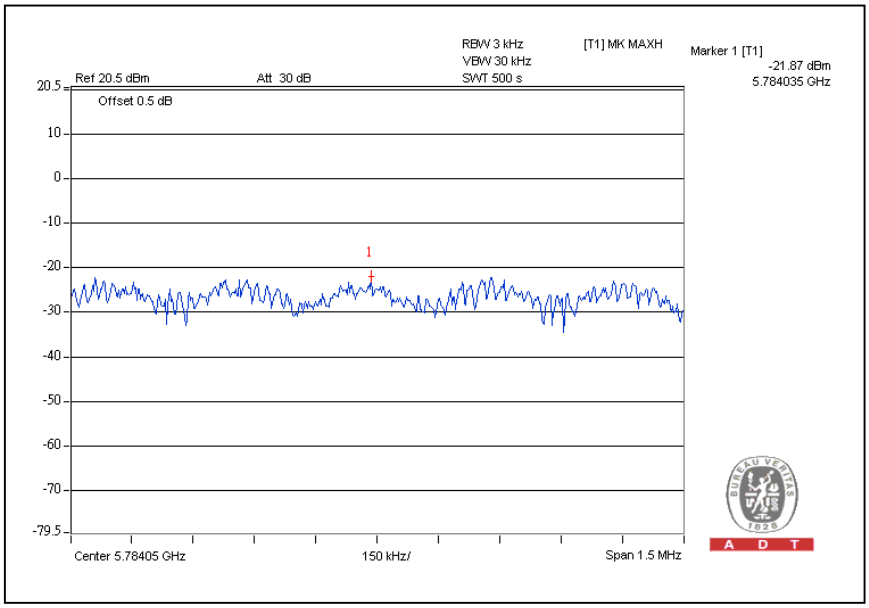

RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-21.81 dBm
5.823728 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.82368 GHz
150 kHz/
Span 1.5 MHz

Chain 2

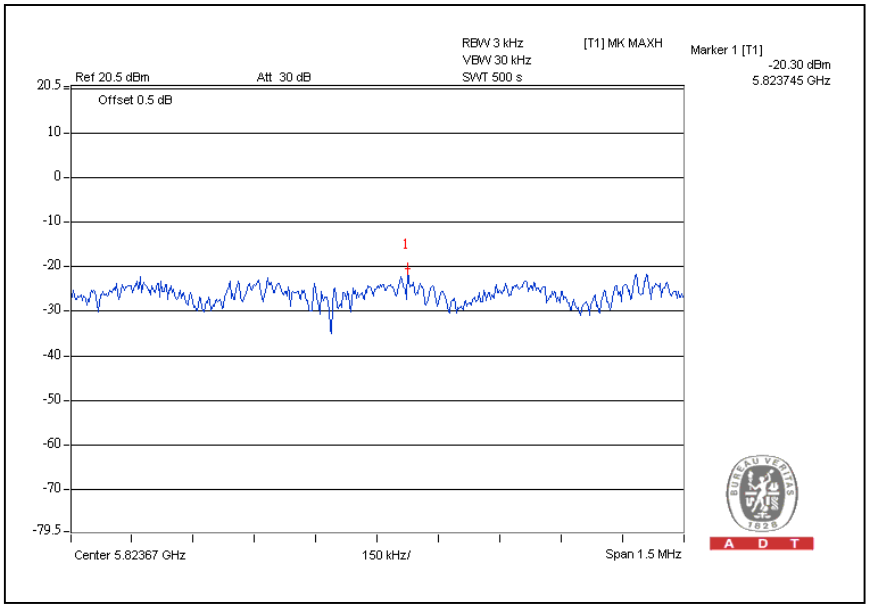
CH1



CH3



CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-20.30 dBm
5.823745 GHz
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
1
Center 5.82367 GHz
150 kHz/
Span 1.5 MHz

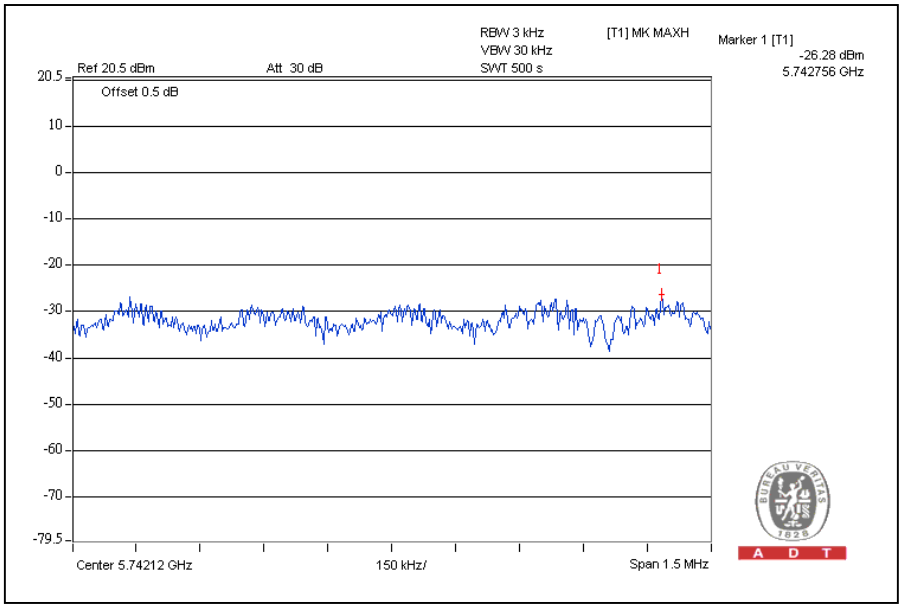
DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13.5Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 965hPa
TESTED BY	Wen Yu		

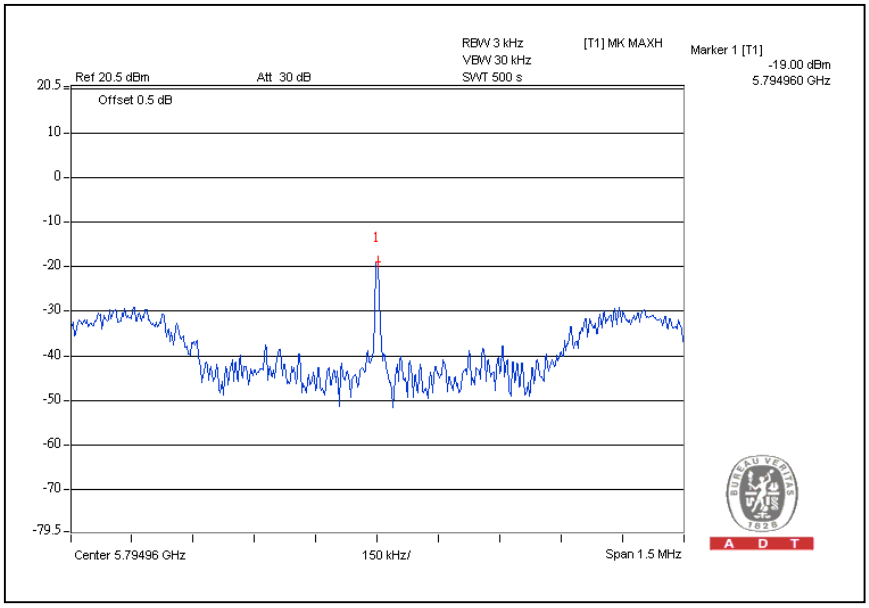
CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)			RF POWER LEVEL IN 3kHz BW (dBm)			TOTAL POWER DENSITY (mW)	TOTAL POWER DENSITY (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	5755	0.002	0.002	0.007	-26.28	-26.77	-21.67	0.011	-19.586	8	PASS
2	5795	0.013	0.003	0.002	-19.00	-25.60	-27.03	0.018	-17.447	8	PASS

Chain 0

CH1

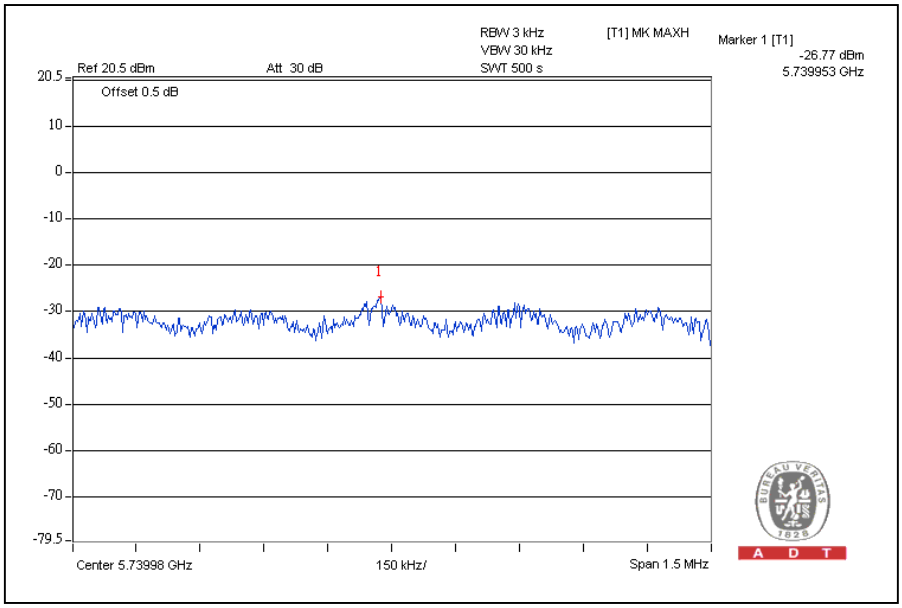


CH2

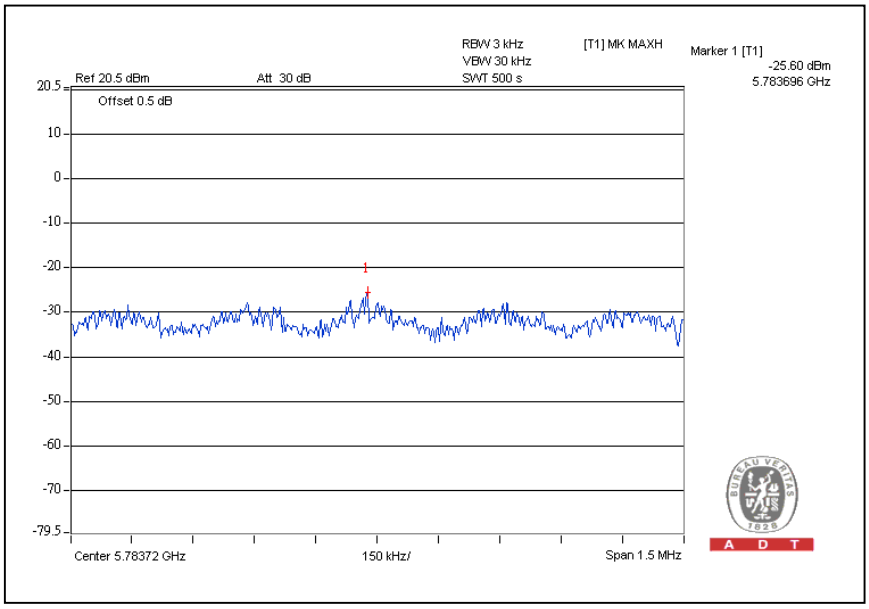


Chain 1

CH1

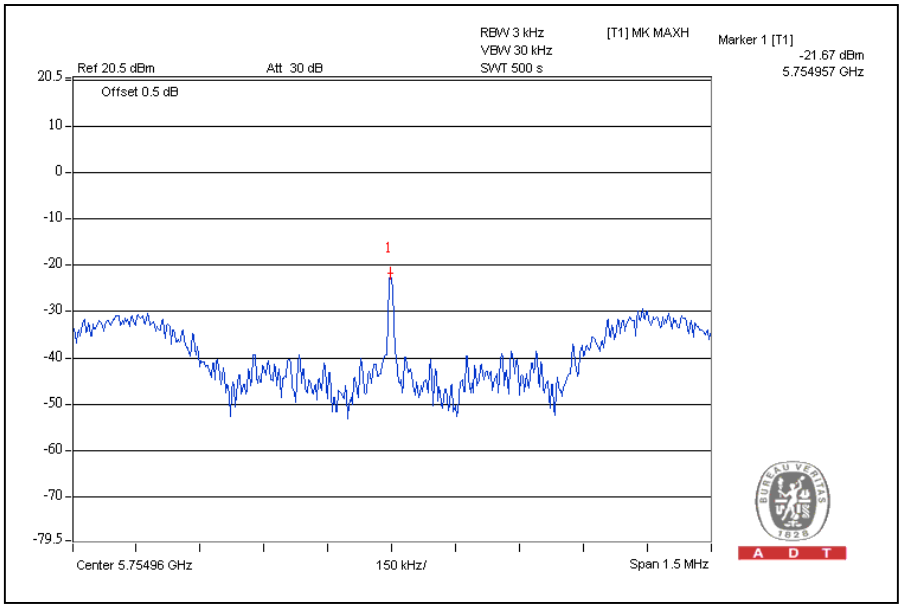


CH2

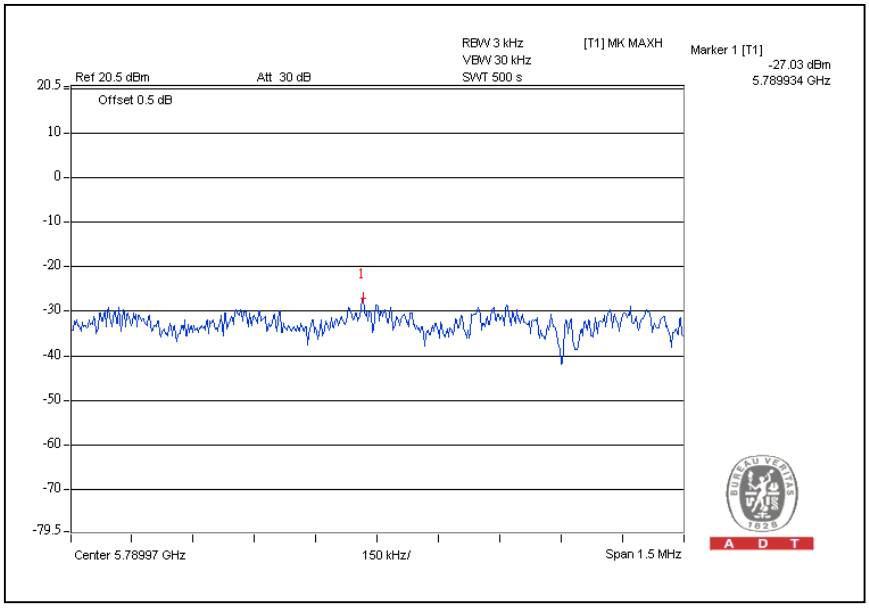


Chain 2

CH1



CH2



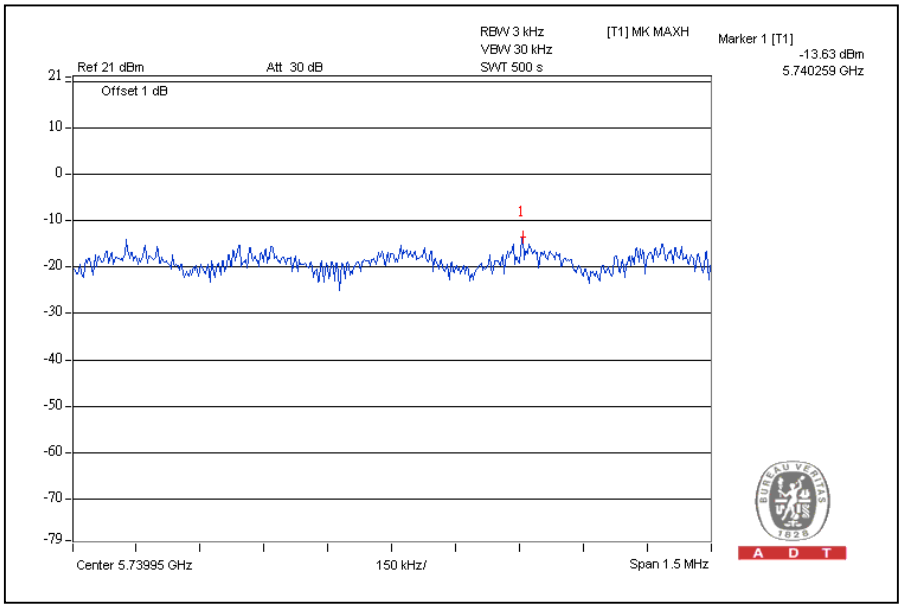
5.5.12 TEST RESULTS – ANTENNA 12

802.11a OFDM modulation

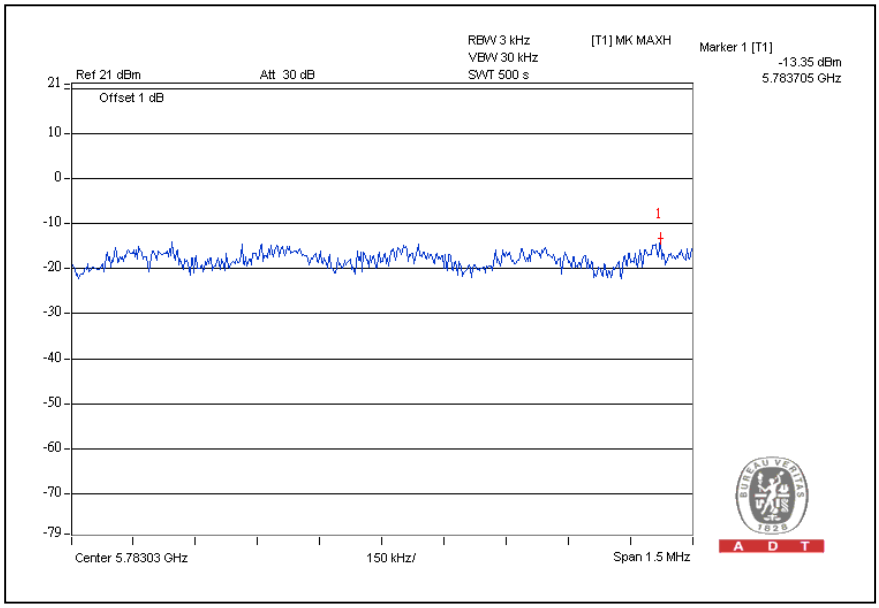
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 63%RH, 965hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (mW)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	5745	-13.63	8	PASS
3	5785	-13.35	8	PASS
5	5825	-12.65	8	PASS

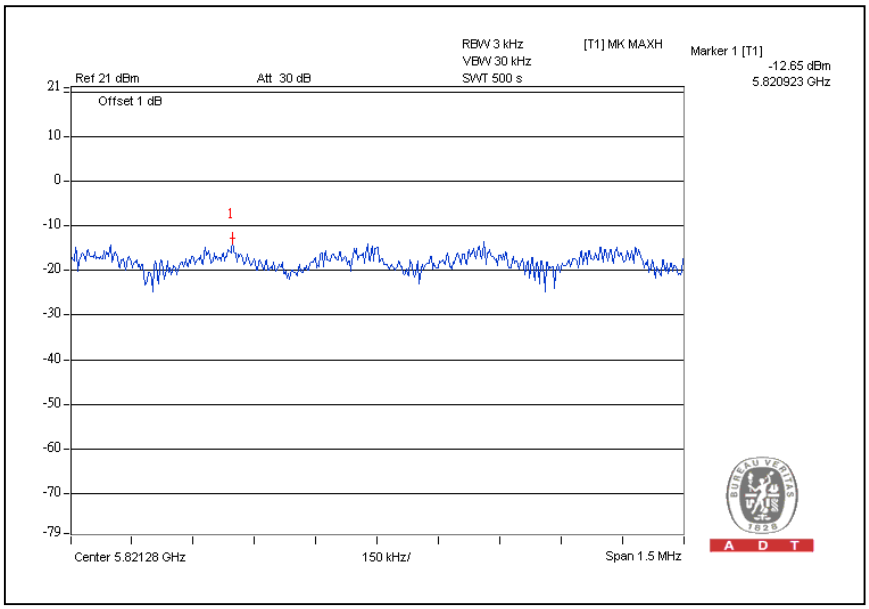
CH1



CH3


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-13.35 dBm
5.783705 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 5.78303 GHz
150 kHz/
Span 1.5 MHz

CH5


RBW 3 kHz
VBW 30 kHz
SWT 500 s
[T1] MK MAXH
Marker 1 [T1]
-12.65 dBm
5.820923 GHz
Ref 21 dBm
Att 30 dB
Offset 1 dB
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Center 5.82128 GHz
150 kHz/
Span 1.5 MHz

5.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

5.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

5.6.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 09, 2008	Aug. 08, 2009

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set RBW of spectrum analyzer to 100 kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges was measured and recorded.

5.6.4 DEVIATION FROM TEST STANDARD

No deviation

5.6.5 EUT OPERATING CONDITION

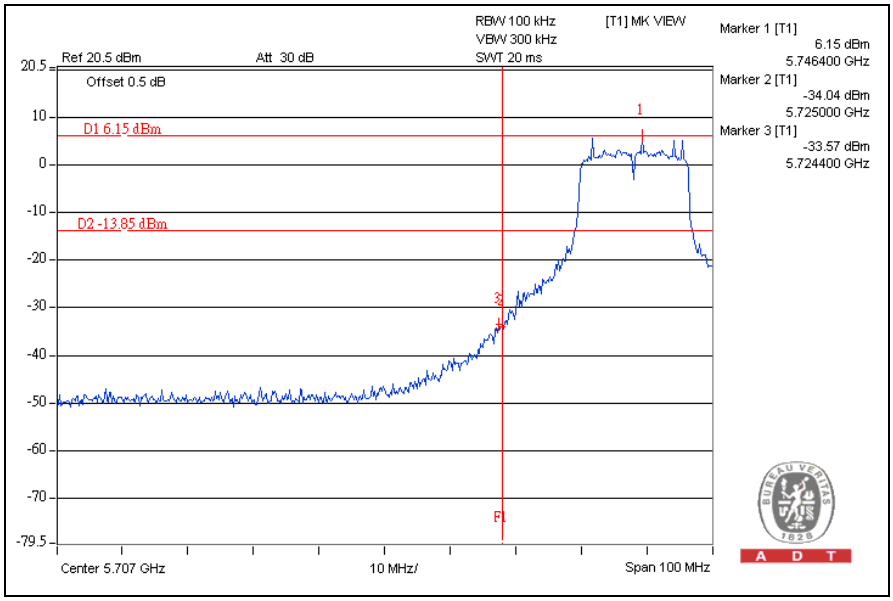
Same as Item 4.3.6

5.6.6 TEST RESULTS - ANTENNA 4

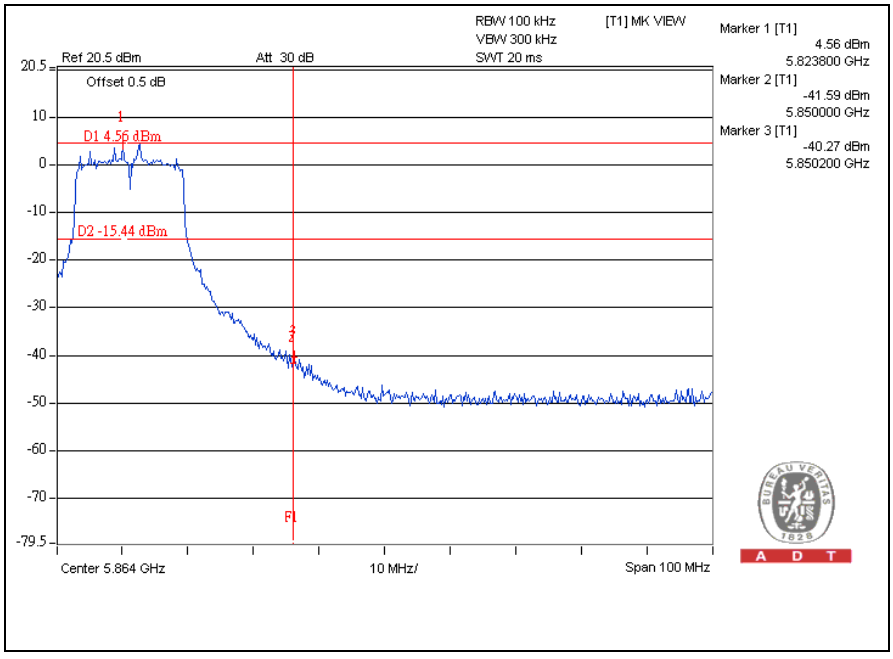
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

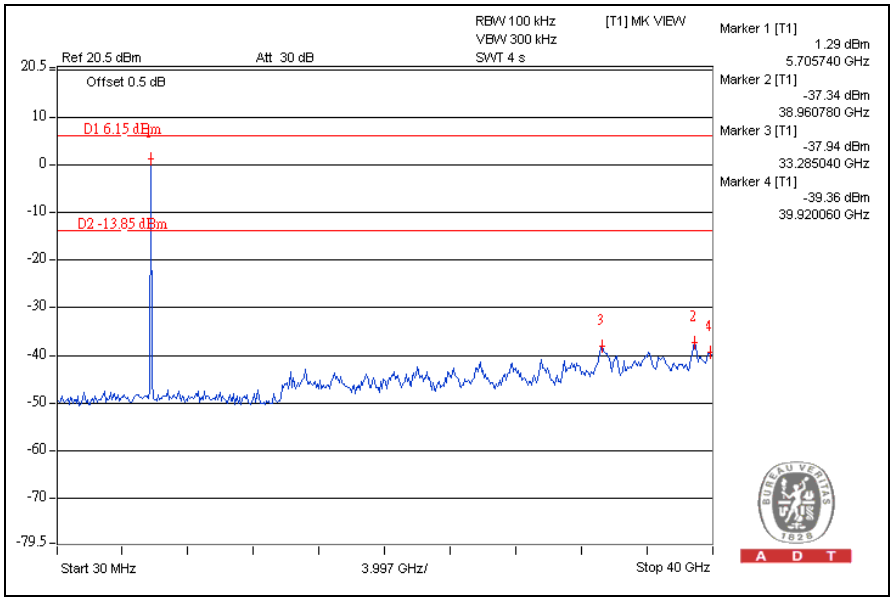
CH1



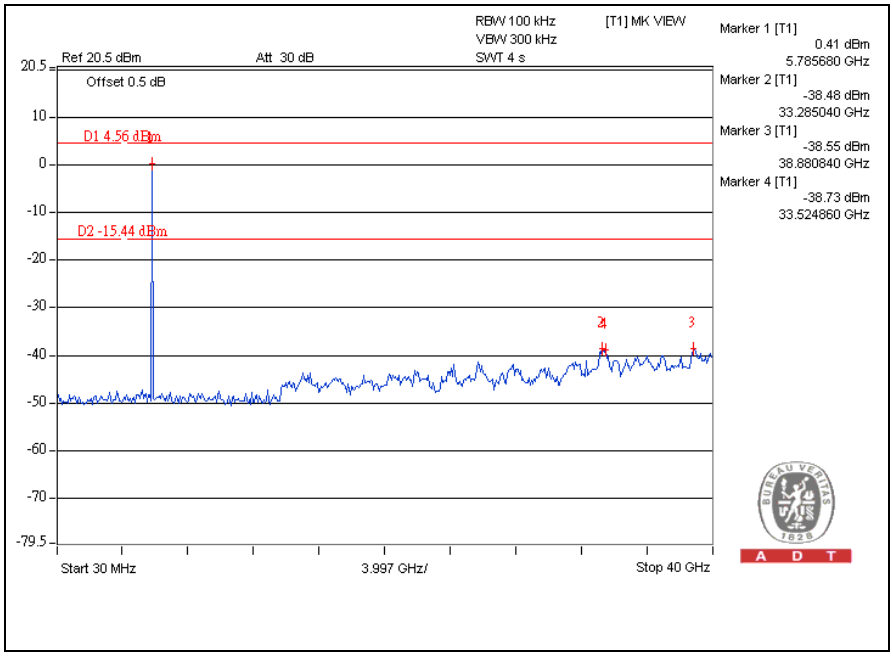
CH5



CH1

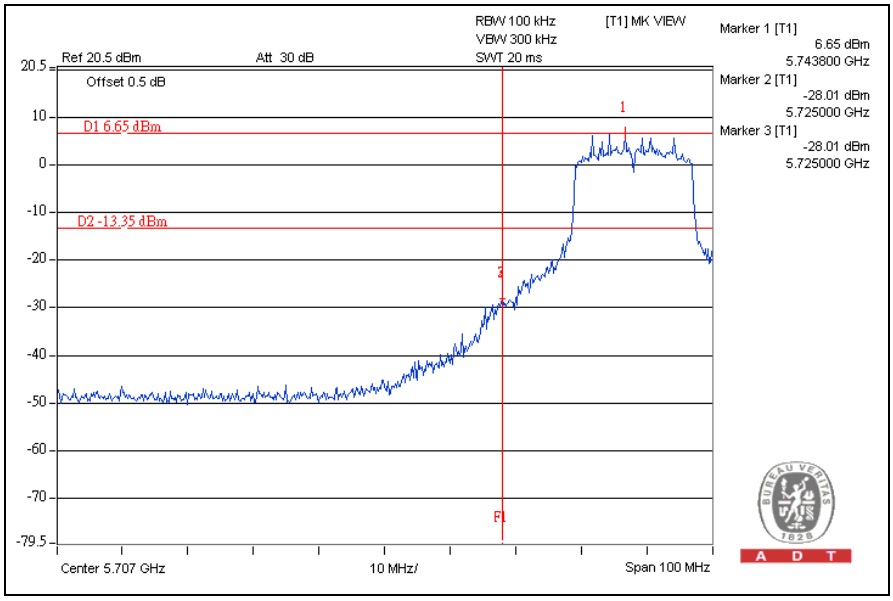

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 6.15 dBm
D2 -13.85 dBm
Marker 1 [T1]
1.29 dBm
5.705740 GHz
Marker 2 [T1]
-37.34 dBm
38.960780 GHz
Marker 3 [T1]
-37.94 dBm
33.285040 GHz
Marker 4 [T1]
-39.36 dBm
39.920060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

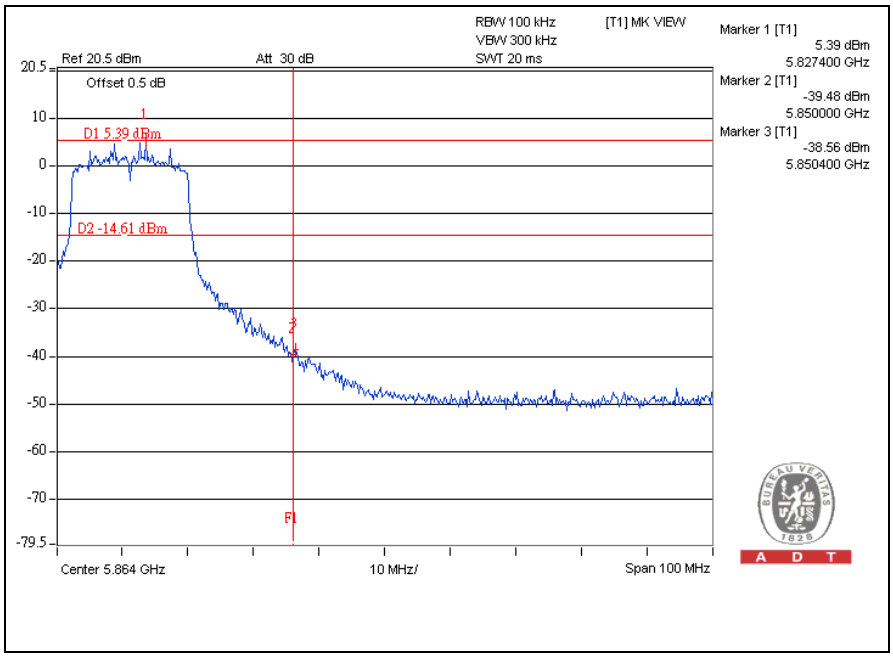

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 4.56 dBm
D2 -15.44 dBm
Marker 1 [T1]
0.41 dBm
5.785680 GHz
Marker 2 [T1]
-38.48 dBm
33.285040 GHz
Marker 3 [T1]
-38.55 dBm
38.880840 GHz
Marker 4 [T1]
-38.73 dBm
33.524860 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

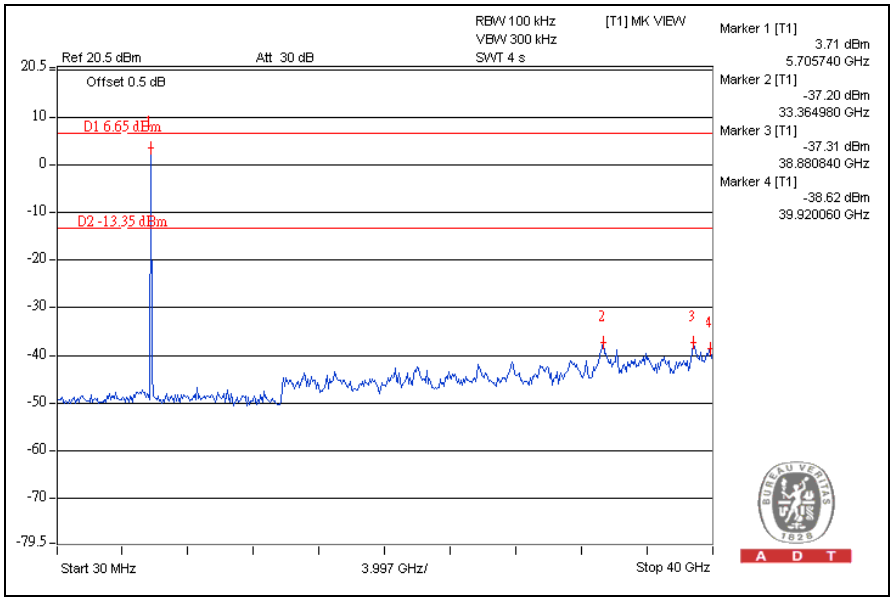
CH1



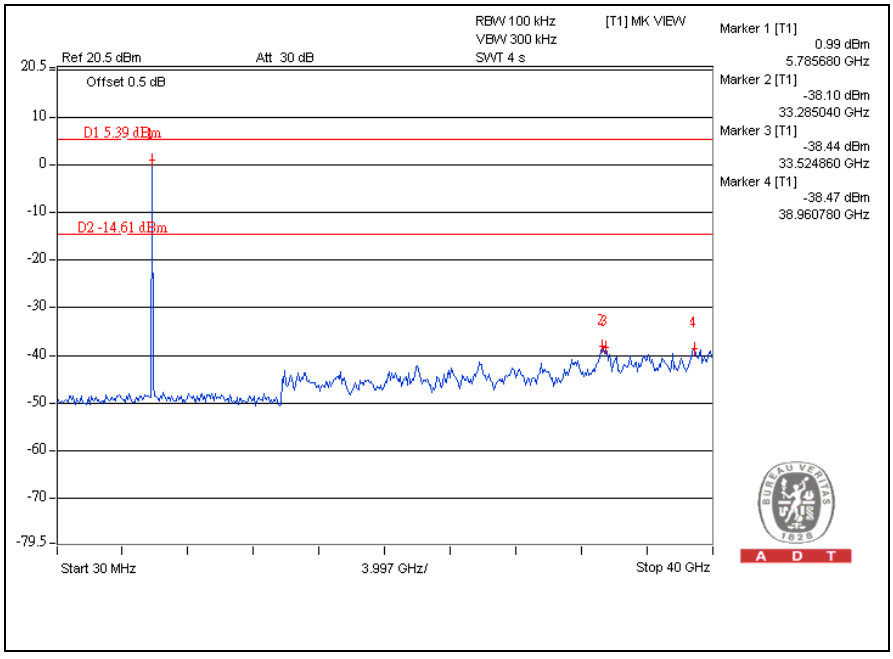
CH5



CH1

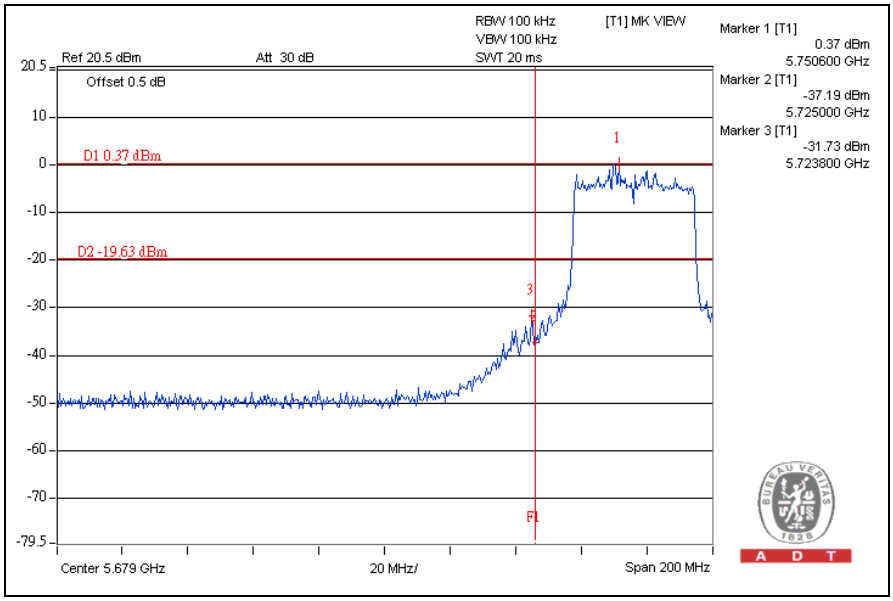

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 6.65 dBm
D2 -13.35 dBm
Marker 1 [T1]
3.71 dBm
5.705740 GHz
Marker 2 [T1]
-37.20 dBm
33.364980 GHz
Marker 3 [T1]
-37.31 dBm
38.880840 GHz
Marker 4 [T1]
-38.62 dBm
39.920060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

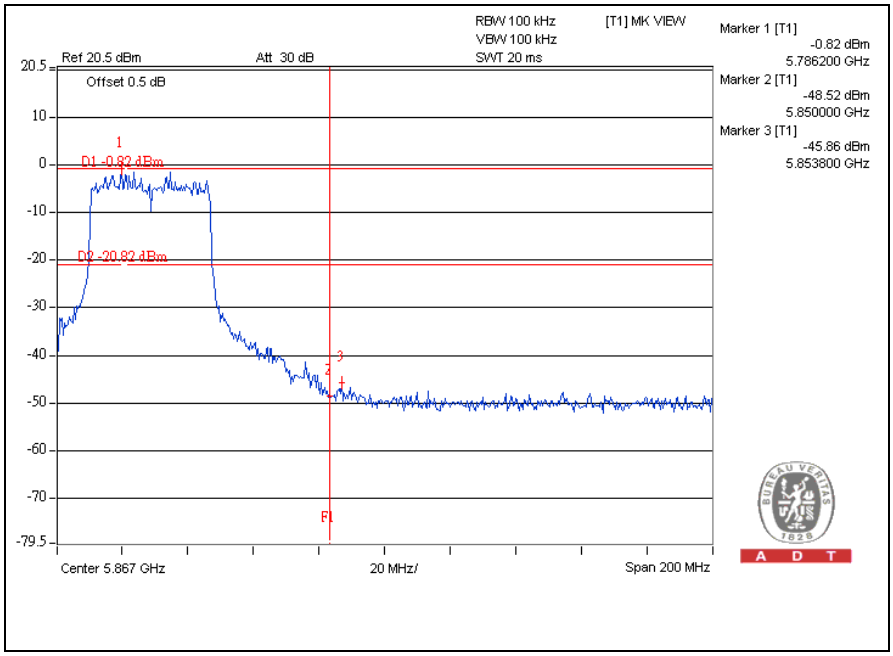

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 5.39 dBm
D2 -14.61 dBm
Marker 1 [T1]
0.99 dBm
5.785680 GHz
Marker 2 [T1]
-38.10 dBm
33.285040 GHz
Marker 3 [T1]
-38.44 dBm
33.524860 GHz
Marker 4 [T1]
-38.47 dBm
38.960780 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

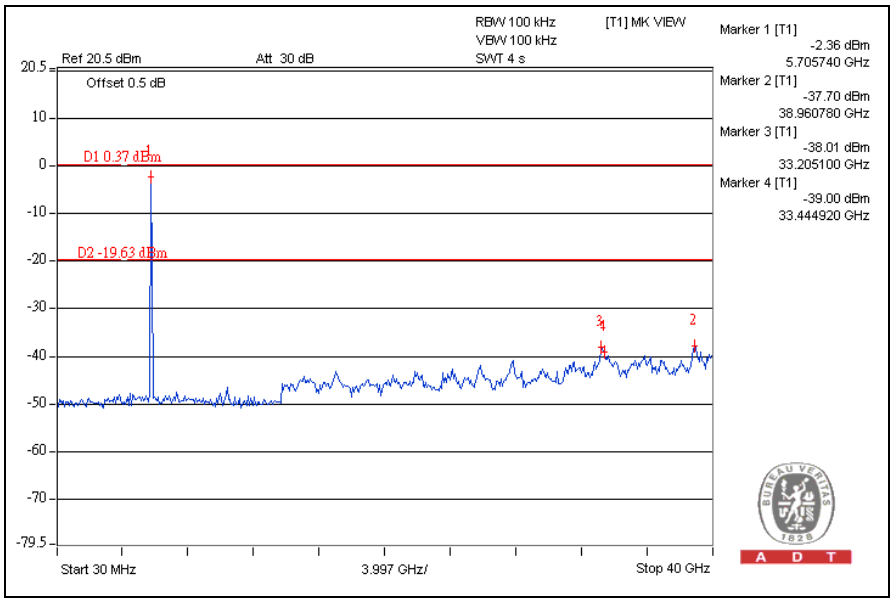
CH1



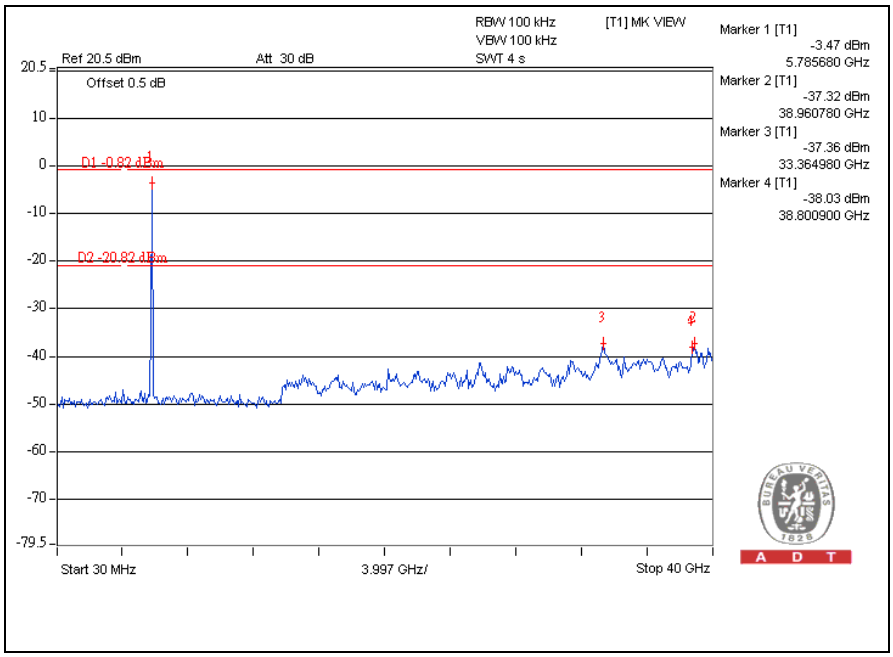
CH2



CH1


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 0.37 dBm
D2 -19.63 dBm
Marker 1 [T1]
-2.36 dBm
5.705740 GHz
Marker 2 [T1]
-37.70 dBm
38.960780 GHz
Marker 3 [T1]
-38.01 dBm
33.205100 GHz
Marker 4 [T1]
-39.00 dBm
33.444920 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH2

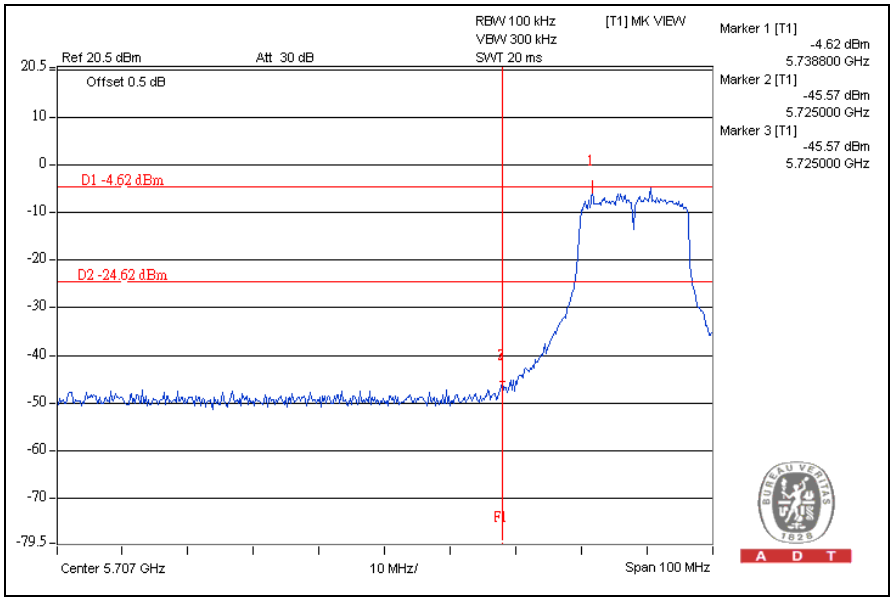

RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.82 dBm
D2 -20.82 dBm
Marker 1 [T1]
-3.47 dBm
5.785680 GHz
Marker 2 [T1]
-37.32 dBm
38.960780 GHz
Marker 3 [T1]
-37.36 dBm
33.364980 GHz
Marker 4 [T1]
-38.03 dBm
38.800900 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

5.6.7 TEST RESULTS - ANTENNA 5

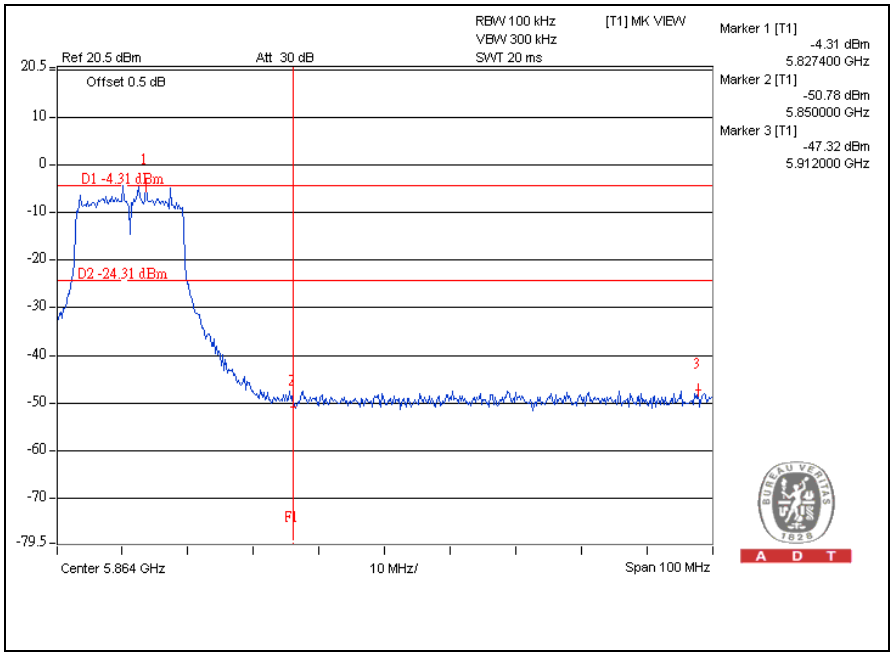
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

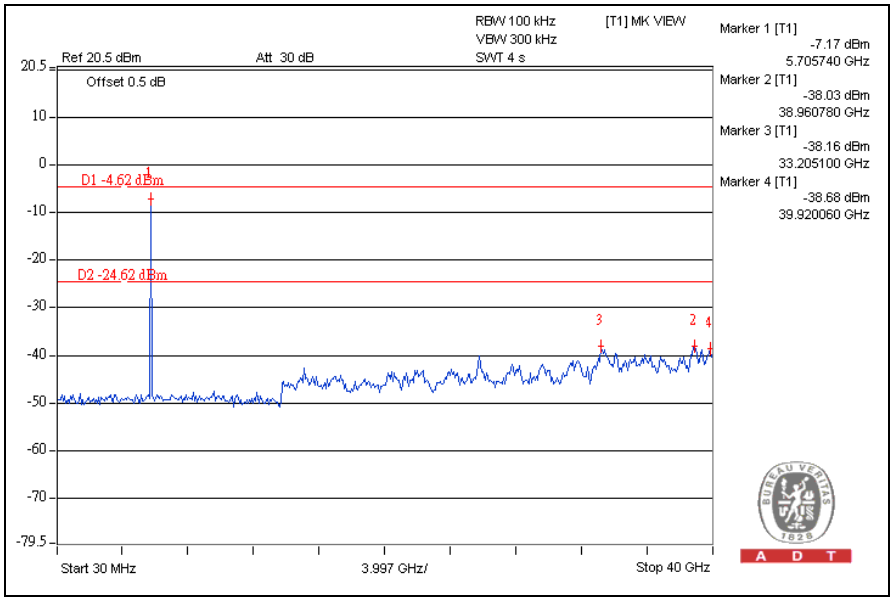
CH1



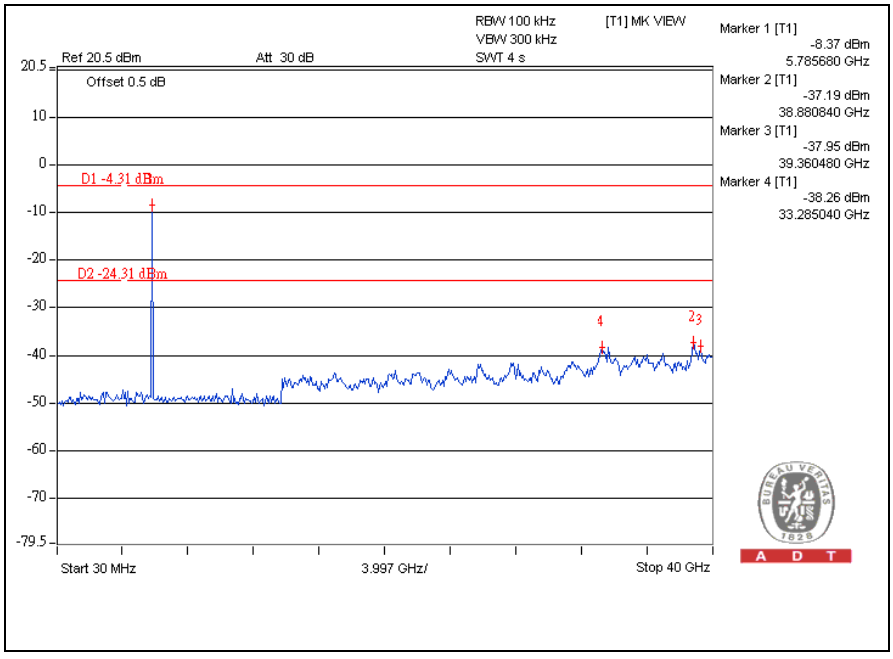
CH5



CH1

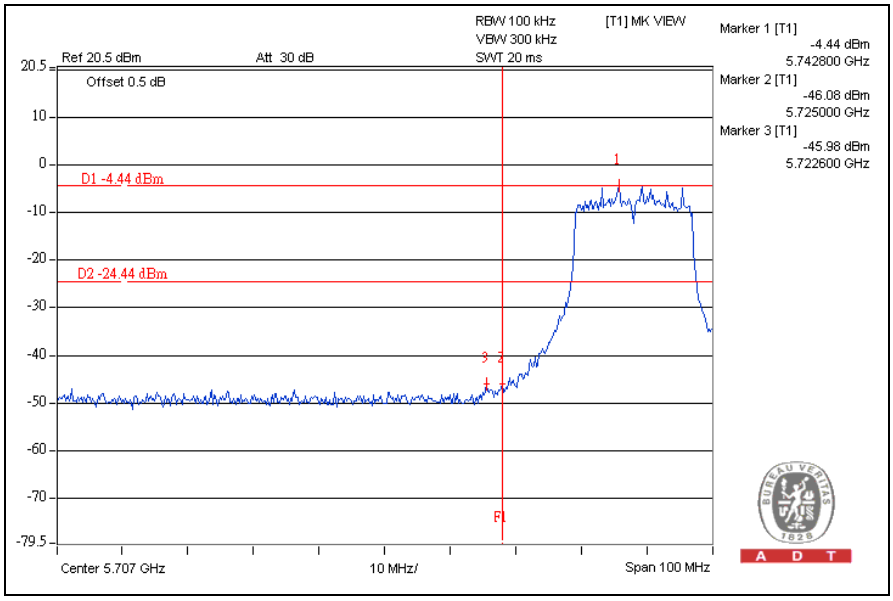

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -4.62 dBm
D2 -24.62 dBm
Marker 1 [T1]
-7.17 dBm
5.705740 GHz
Marker 2 [T1]
-38.03 dBm
38.960780 GHz
Marker 3 [T1]
-38.16 dBm
33.205100 GHz
Marker 4 [T1]
-38.68 dBm
39.920060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

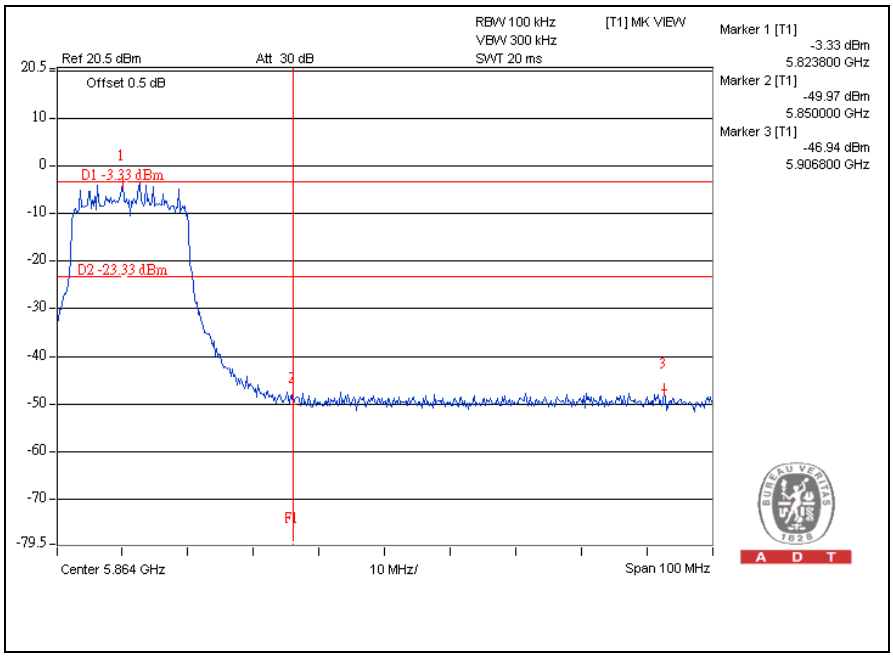

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -4.31 dBm
D2 -24.31 dBm
Marker 1 [T1]
-8.37 dBm
5.785680 GHz
Marker 2 [T1]
-37.19 dBm
38.880840 GHz
Marker 3 [T1]
-37.95 dBm
39.360480 GHz
Marker 4 [T1]
-38.26 dBm
33.285040 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

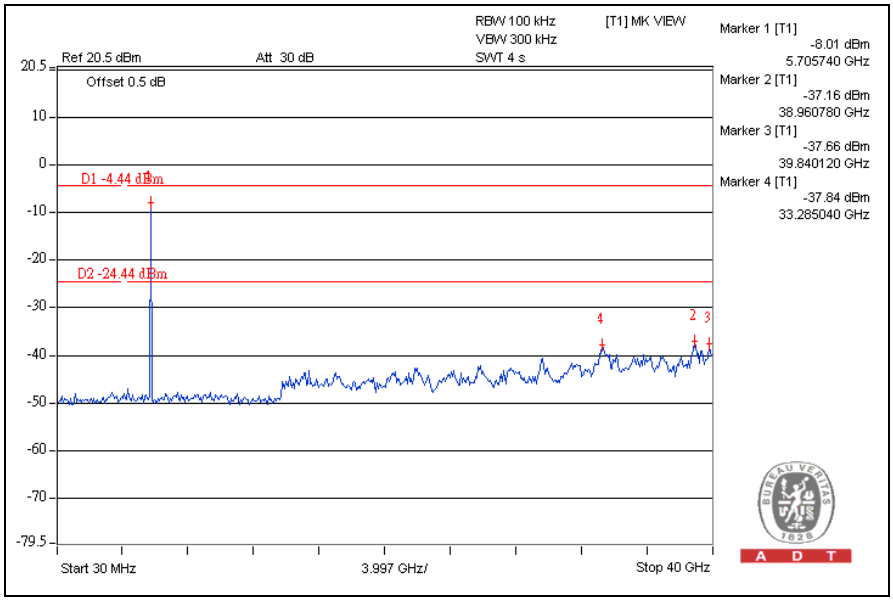
CH1



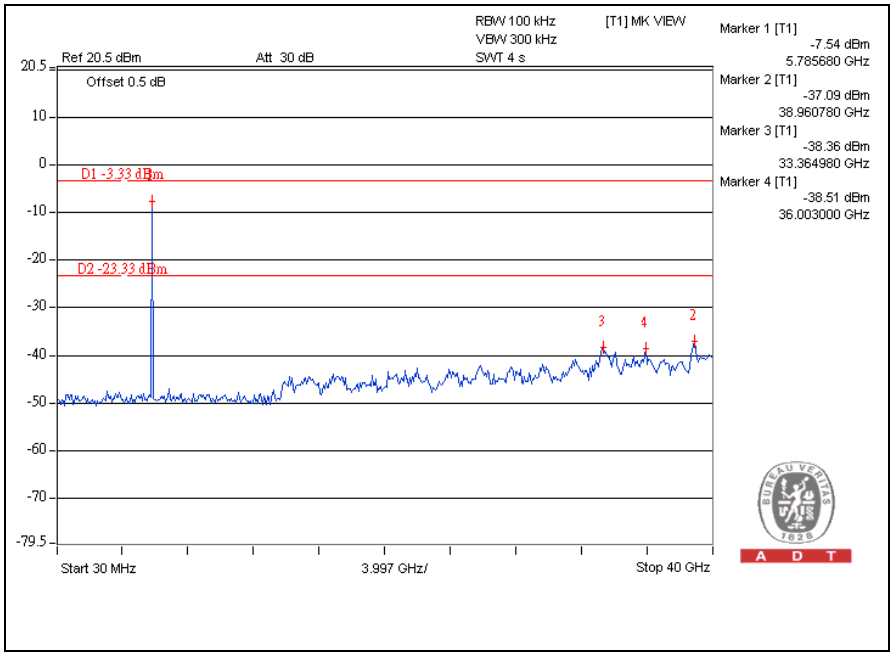
CH5



CH1

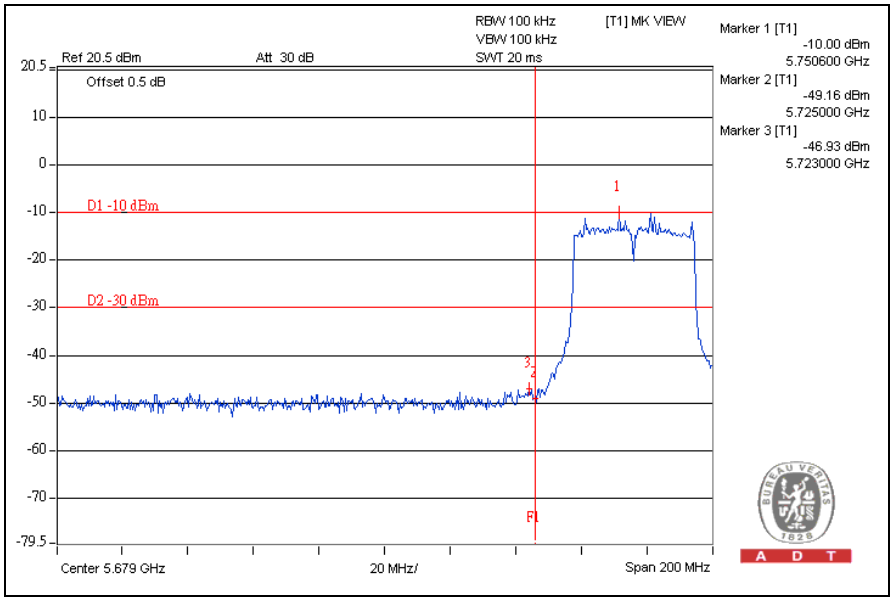

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -4.44 dBm
D2 -24.44 dBm
Marker 1 [T1]
-8.01 dBm
5.705740 GHz
Marker 2 [T1]
-37.16 dBm
38.960780 GHz
Marker 3 [T1]
-37.66 dBm
39.840120 GHz
Marker 4 [T1]
-37.84 dBm
33.285040 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

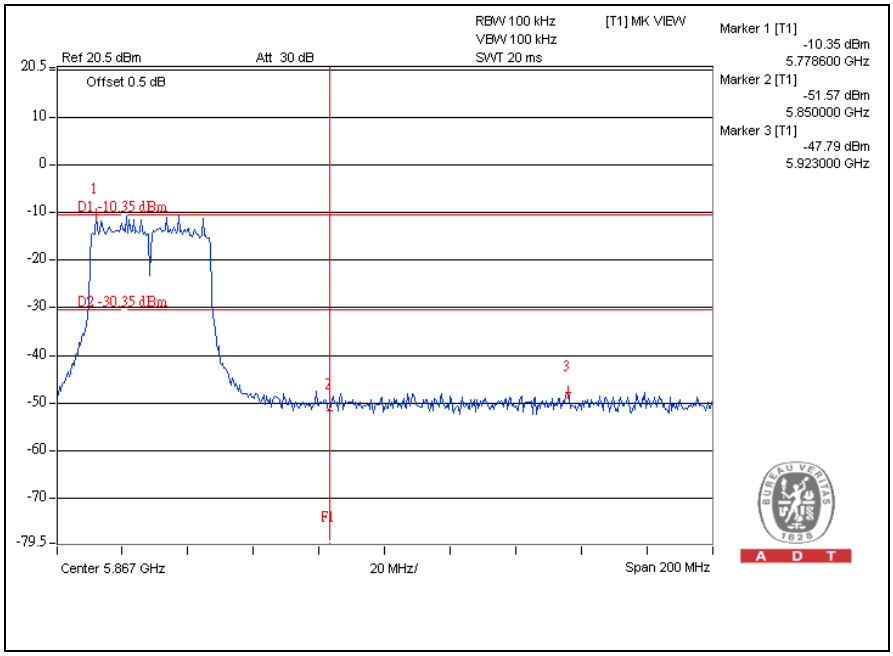

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -3.33 dBm
D2 -23.33 dBm
Marker 1 [T1]
-7.54 dBm
5.785680 GHz
Marker 2 [T1]
-37.09 dBm
38.960780 GHz
Marker 3 [T1]
-38.36 dBm
33.364980 GHz
Marker 4 [T1]
-38.51 dBm
36.003000 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

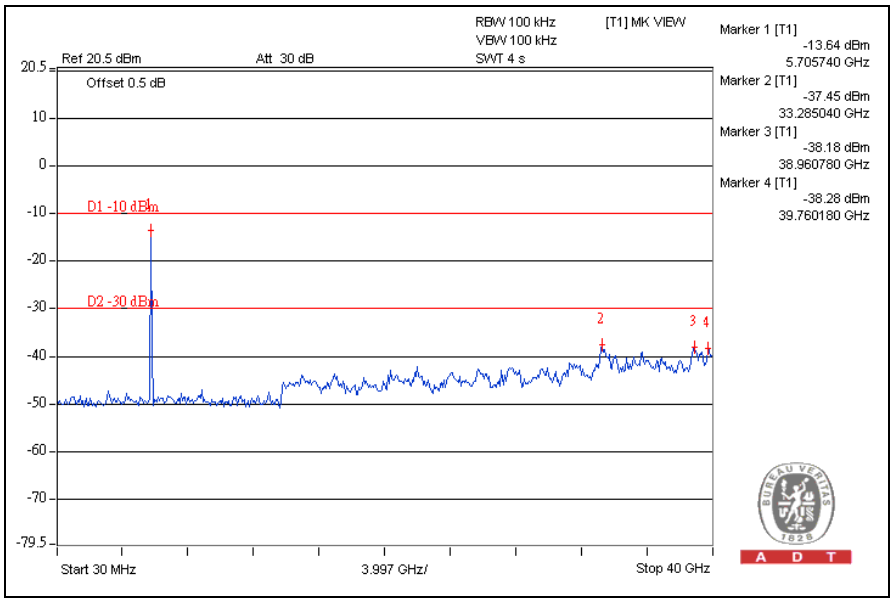
CH1



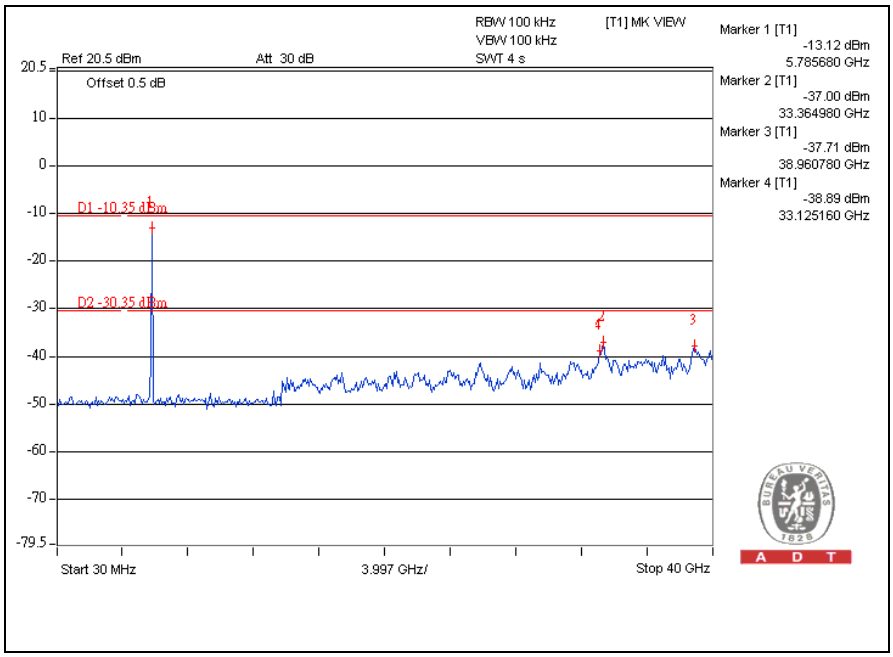
CH2



CH1


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -10 dBm
D2 -30 dBm
Marker 1 [T1]
-13.64 dBm
5.705740 GHz
Marker 2 [T1]
-37.45 dBm
33.285040 GHz
Marker 3 [T1]
-38.18 dBm
38.960780 GHz
Marker 4 [T1]
-38.28 dBm
39.760180 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH2

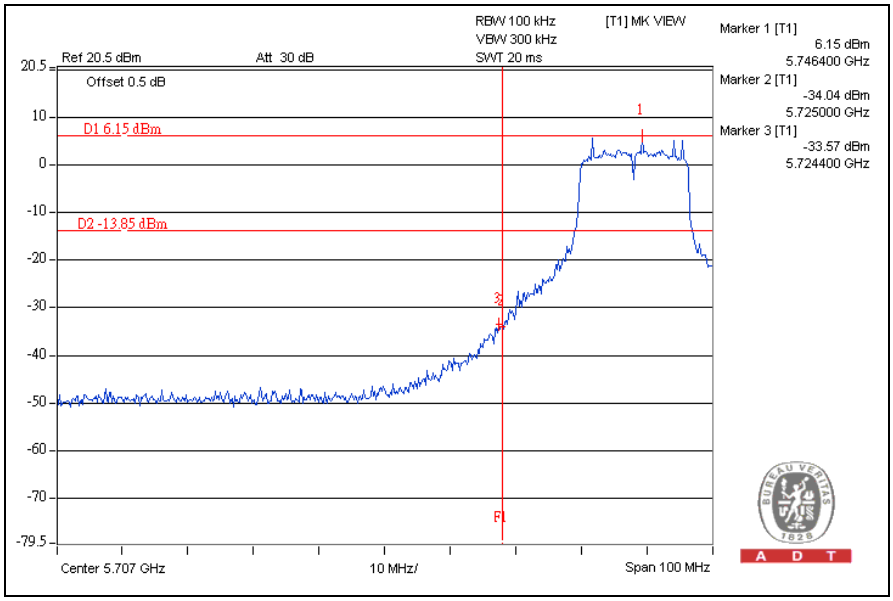

RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -10.35 dBm
D2 -30.35 dBm
Marker 1 [T1]
-13.12 dBm
5.785680 GHz
Marker 2 [T1]
-37.00 dBm
33.364980 GHz
Marker 3 [T1]
-37.71 dBm
38.960780 GHz
Marker 4 [T1]
-38.89 dBm
33.125160 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

5.6.8 TEST RESULTS - ANTENNA 7

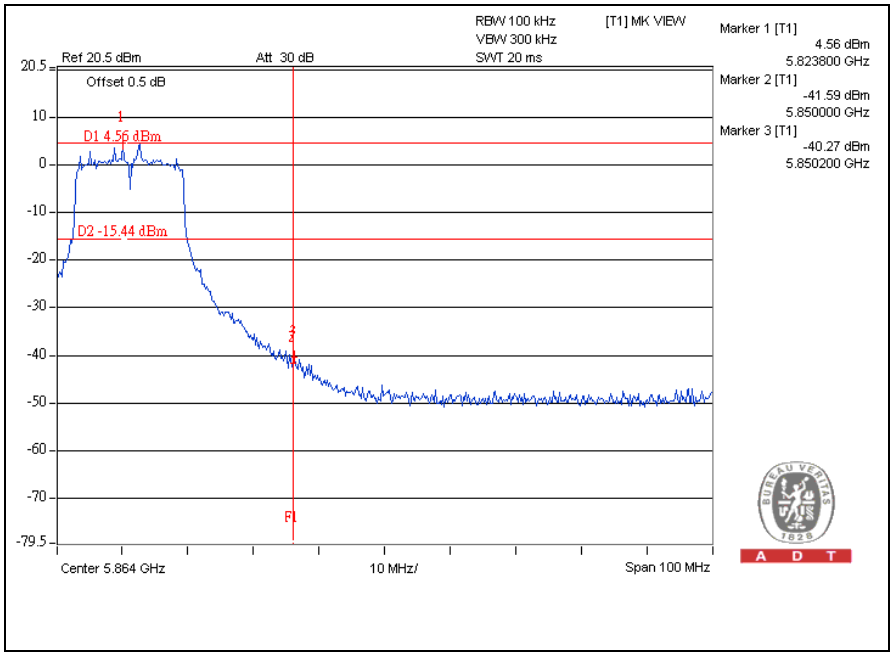
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

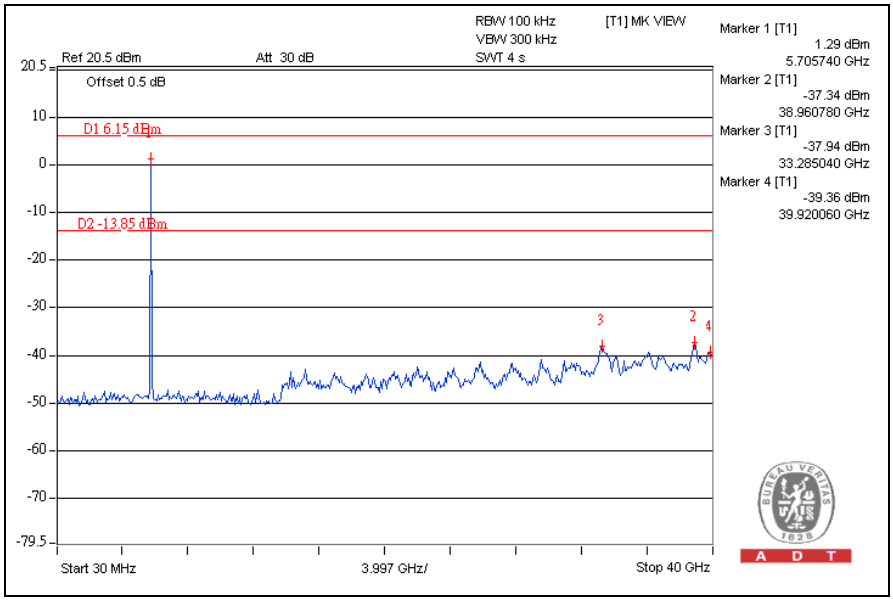
CH1



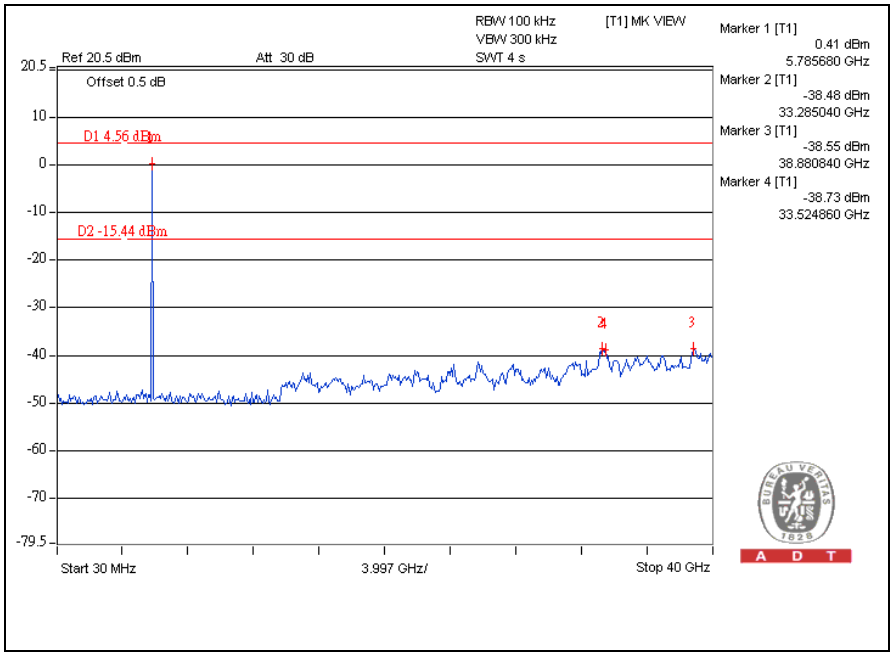
CH5



CH1

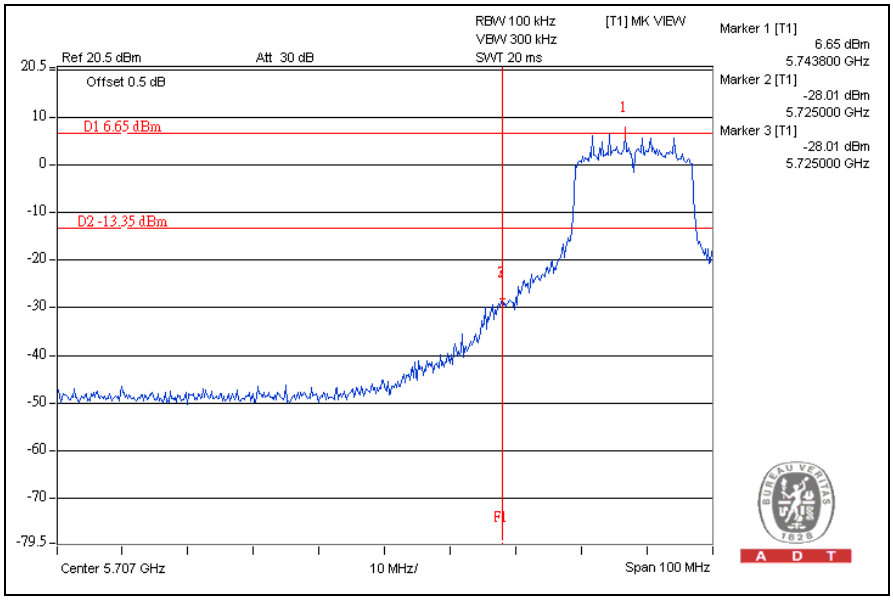

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 6.15 dBm
D2 -13.85 dBm
Marker 1 [T1]
1.29 dBm
5.705740 GHz
Marker 2 [T1]
-37.34 dBm
38.960780 GHz
Marker 3 [T1]
-37.94 dBm
33.285040 GHz
Marker 4 [T1]
-39.36 dBm
39.920060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

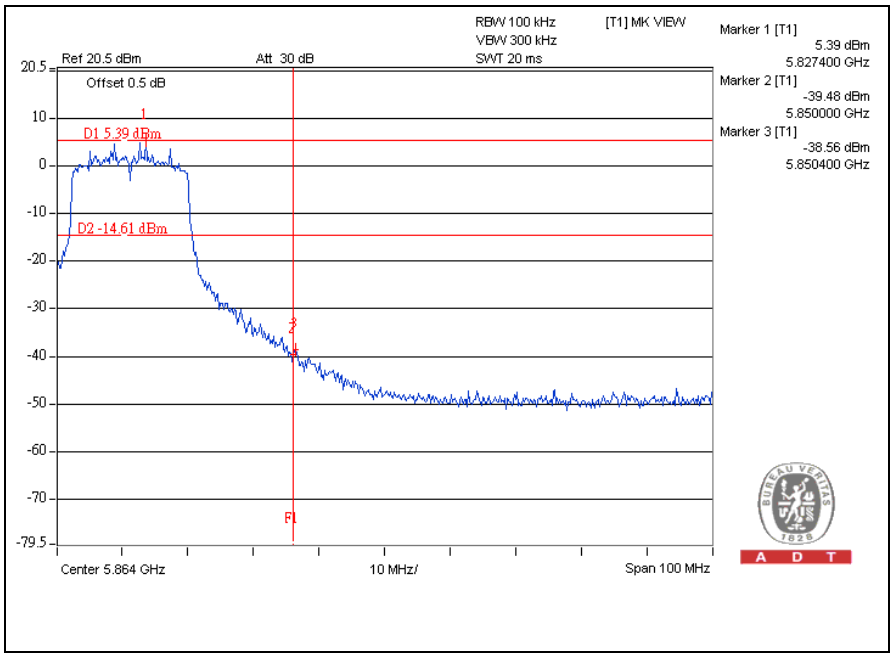

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 4.56 dBm
D2 -15.44 dBm
Marker 1 [T1]
0.41 dBm
5.785680 GHz
Marker 2 [T1]
-38.48 dBm
33.285040 GHz
Marker 3 [T1]
-38.55 dBm
38.880840 GHz
Marker 4 [T1]
-38.73 dBm
33.524860 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

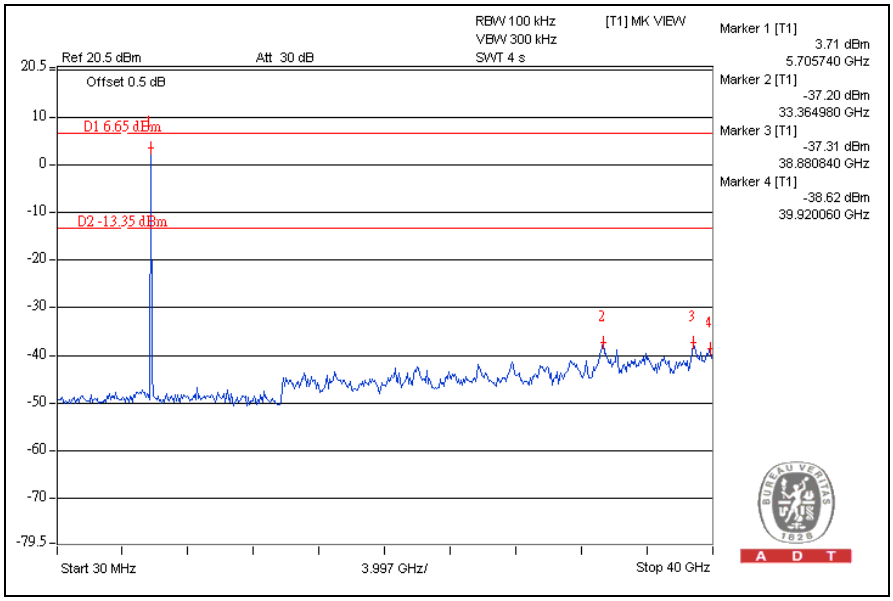
CH1



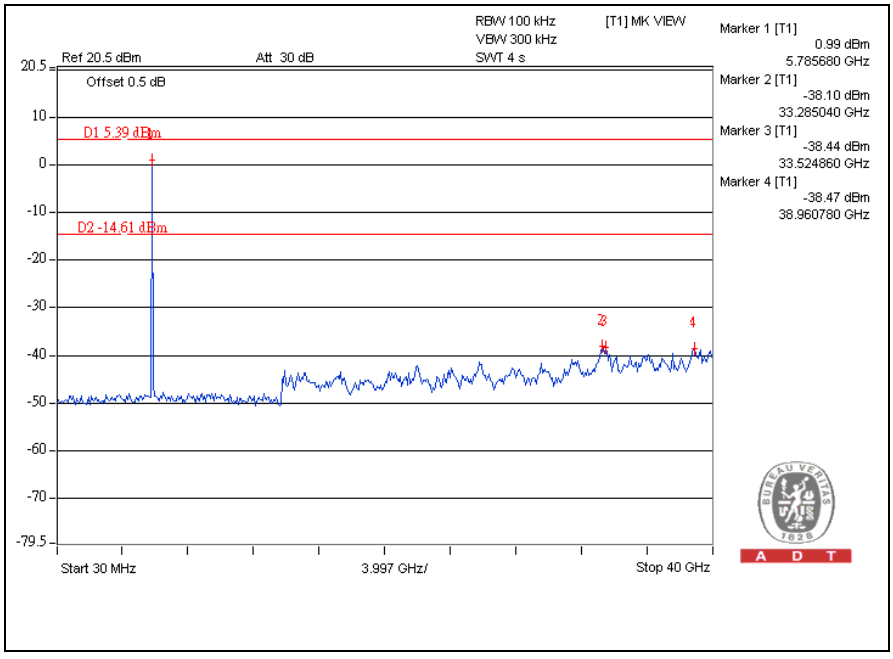
CH5



CH1

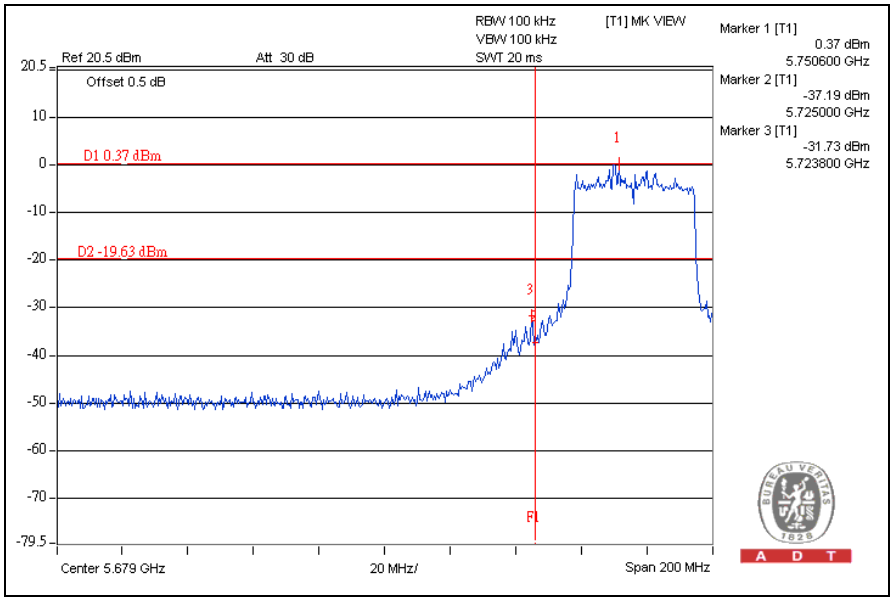

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 6.65 dBm
D2 -13.35 dBm
Marker 1 [T1]
3.71 dBm
5.705740 GHz
Marker 2 [T1]
-37.20 dBm
33.364980 GHz
Marker 3 [T1]
-37.31 dBm
38.880840 GHz
Marker 4 [T1]
-38.62 dBm
39.920060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

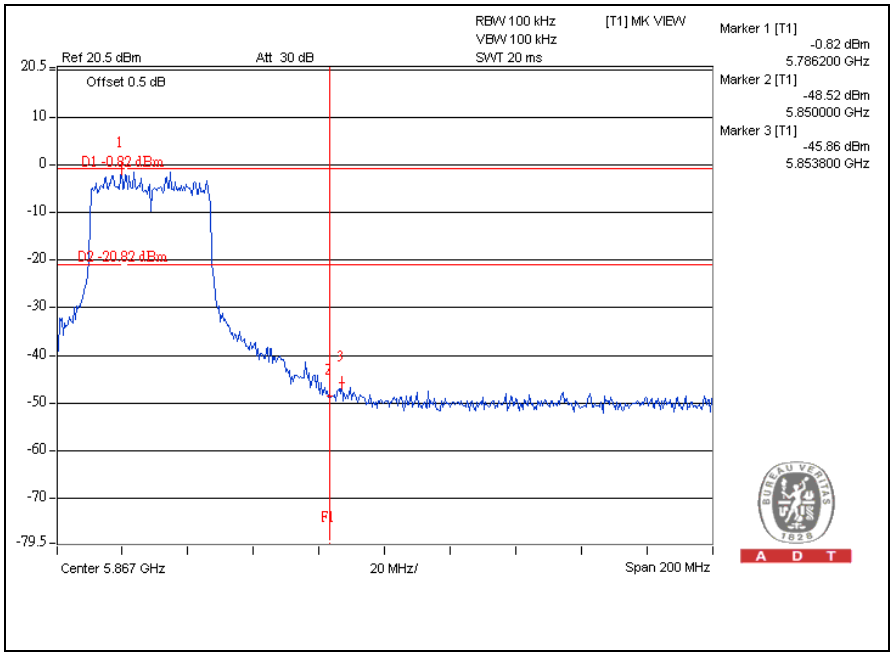

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 5.39 dBm
D2 -14.61 dBm
Marker 1 [T1]
0.99 dBm
5.785680 GHz
Marker 2 [T1]
-38.10 dBm
33.285040 GHz
Marker 3 [T1]
-38.44 dBm
33.524860 GHz
Marker 4 [T1]
-38.47 dBm
38.960780 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

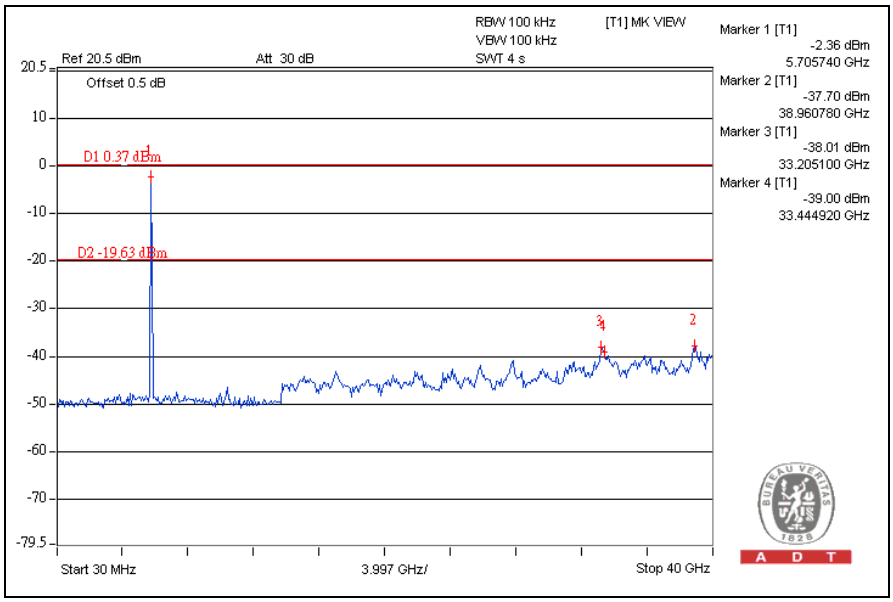
CH1



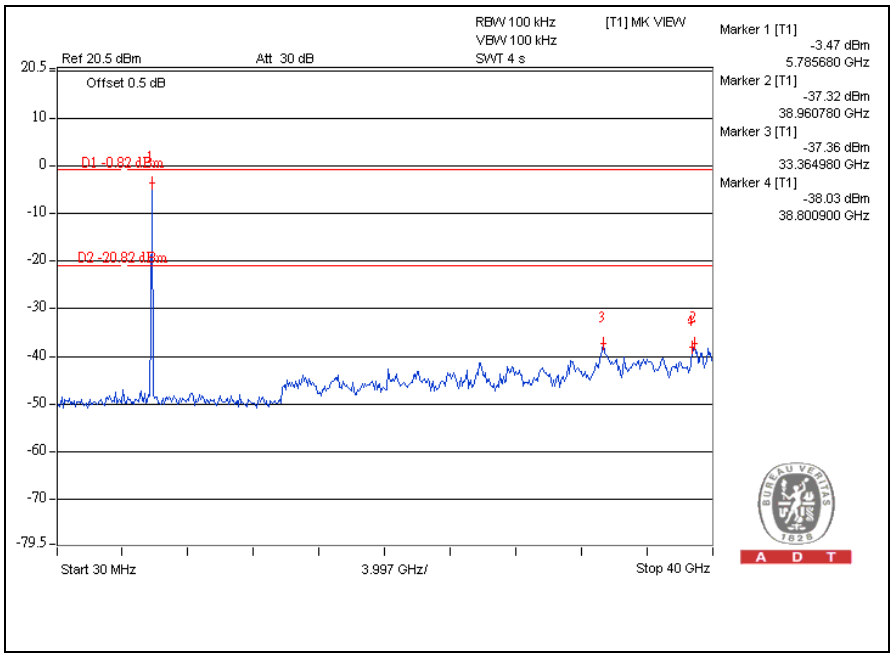
CH2



CH1


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 0.37 dBm
D2 -19.63 dBm
Marker 1 [T1]
-2.36 dBm
5.705740 GHz
Marker 2 [T1]
-37.70 dBm
38.960780 GHz
Marker 3 [T1]
-38.01 dBm
33.205100 GHz
Marker 4 [T1]
-39.00 dBm
33.444920 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH2

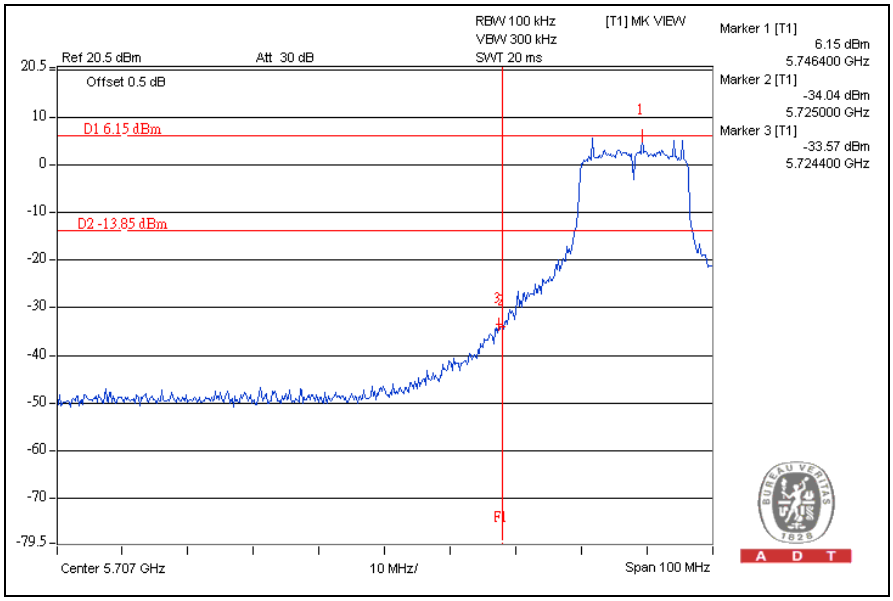

RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.82 dBm
D2 -20.82 dBm
Marker 1 [T1]
-3.47 dBm
5.785680 GHz
Marker 2 [T1]
-37.32 dBm
38.960780 GHz
Marker 3 [T1]
-37.36 dBm
33.364980 GHz
Marker 4 [T1]
-38.03 dBm
38.800900 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

5.6.9 TEST RESULTS - ANTENNA 8

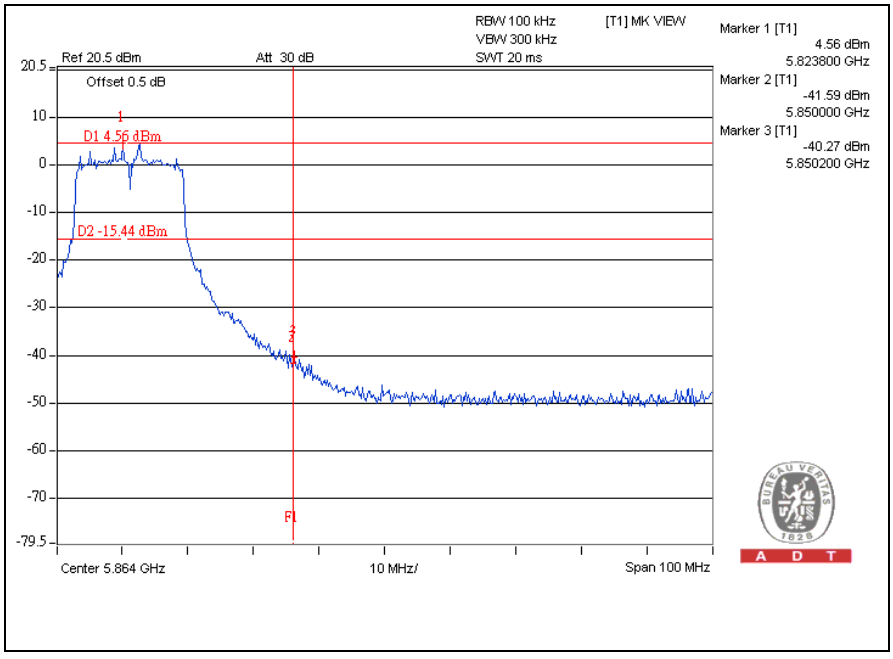
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

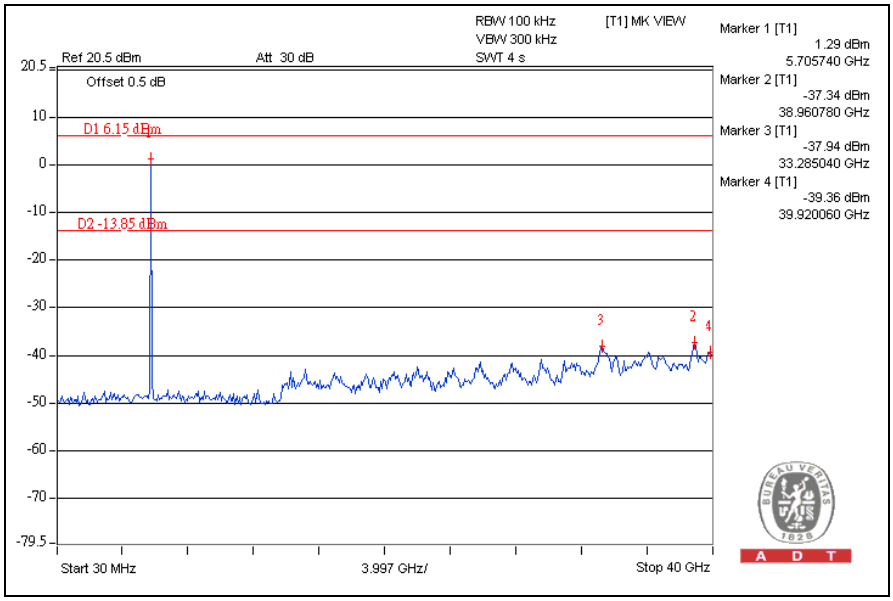
CH1



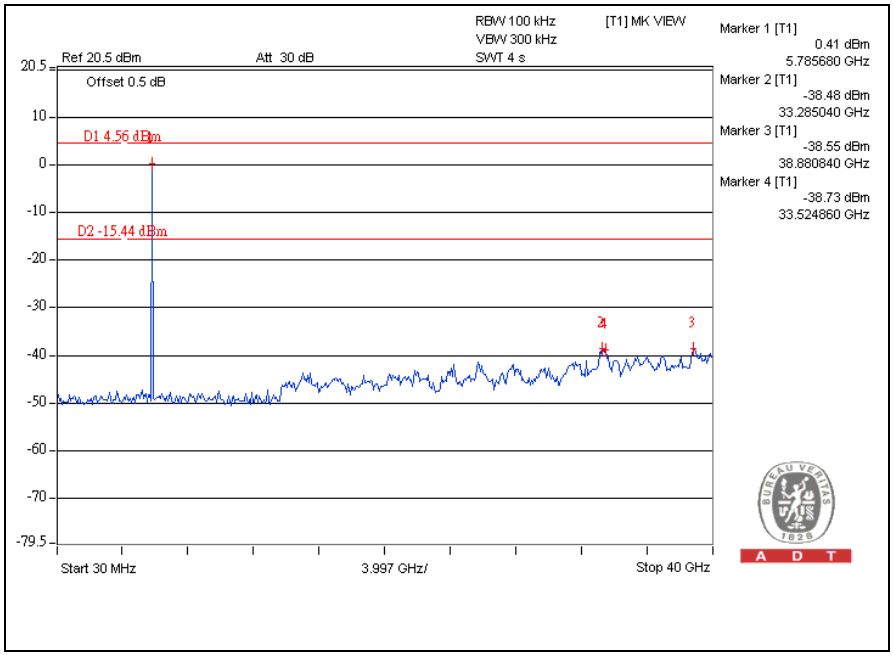
CH5



CH1

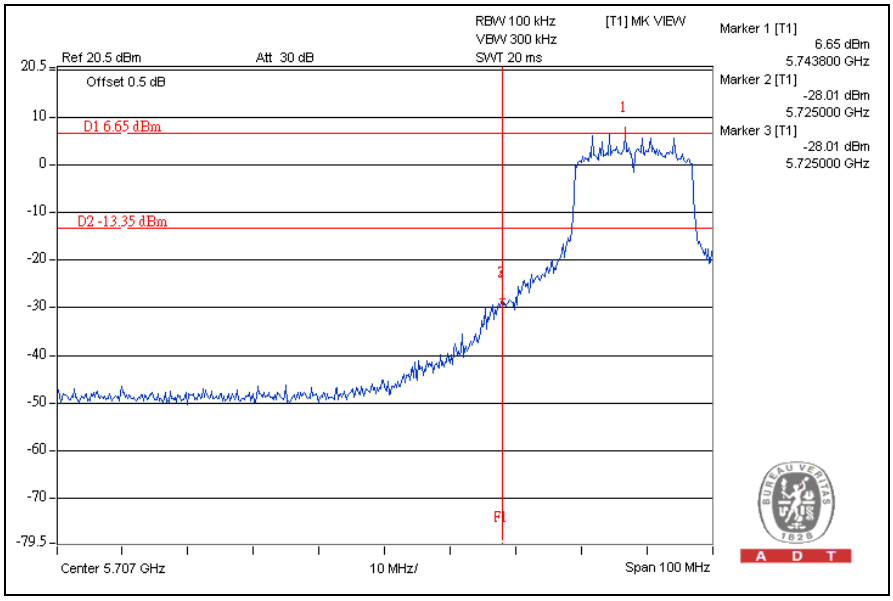

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 6.15 dBm
D2 -13.85 dBm
Marker 1 [T1]
1.29 dBm
5.705740 GHz
Marker 2 [T1]
-37.34 dBm
38.960780 GHz
Marker 3 [T1]
-37.94 dBm
33.285040 GHz
Marker 4 [T1]
-39.36 dBm
39.920060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

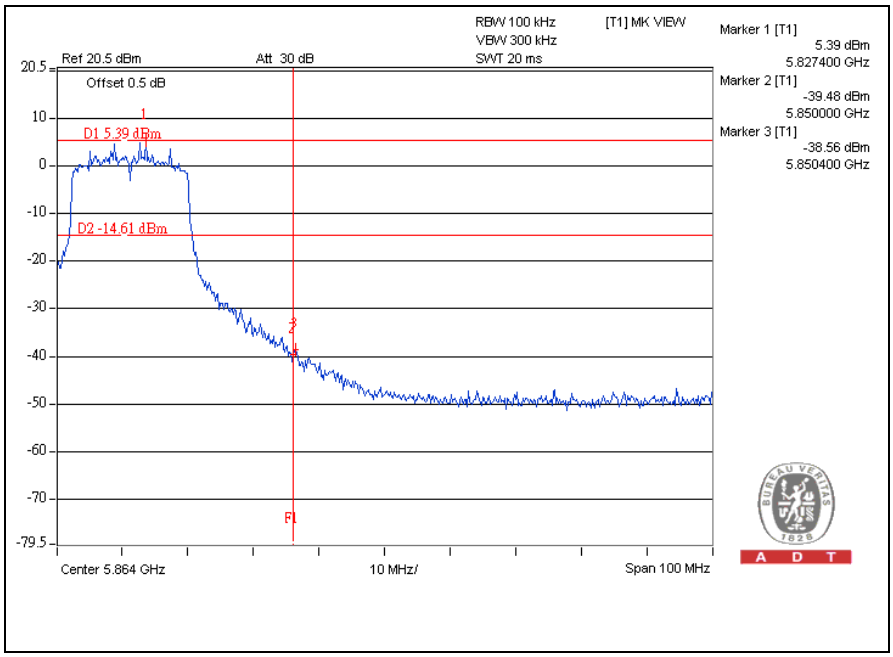

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 4.56 dBm
D2 -15.44 dBm
Marker 1 [T1]
0.41 dBm
5.785680 GHz
Marker 2 [T1]
-38.48 dBm
33.285040 GHz
Marker 3 [T1]
-38.55 dBm
38.880840 GHz
Marker 4 [T1]
-38.73 dBm
33.524860 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

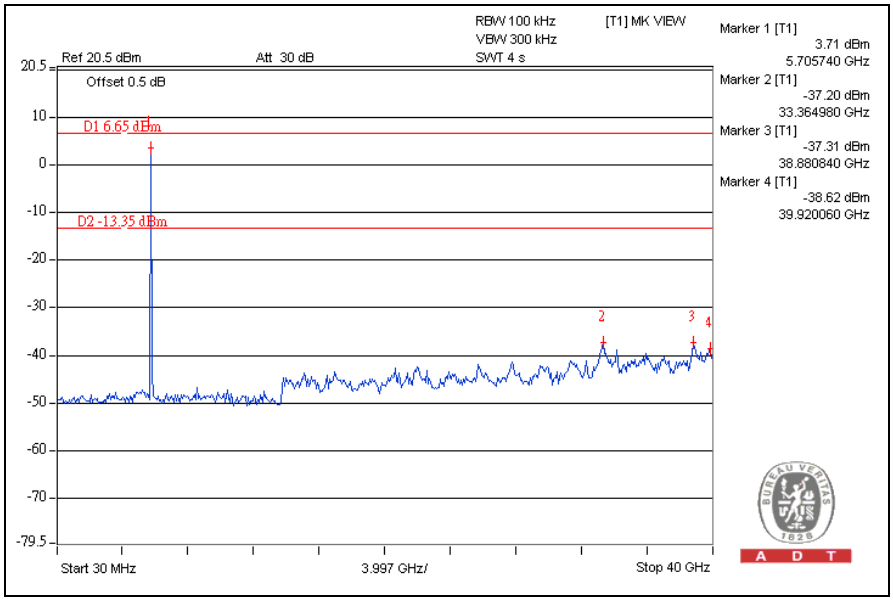
CH1



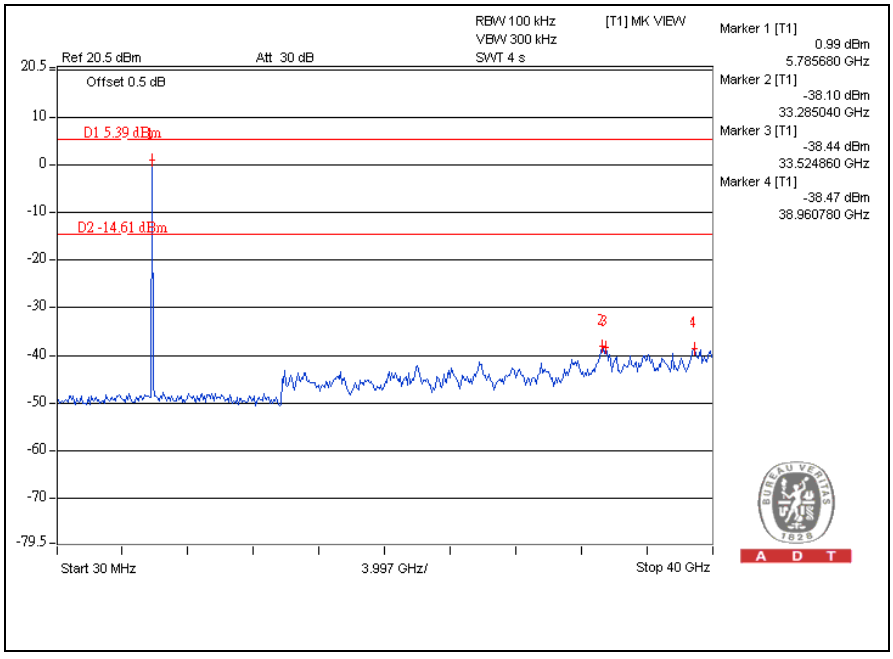
CH5



CH1

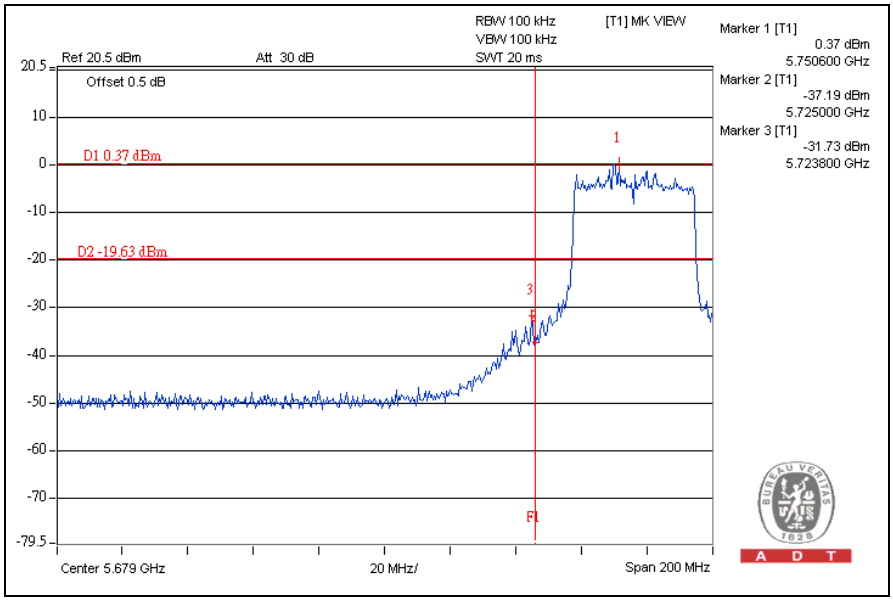

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 6.65 dBm
D2 -13.35 dBm
Marker 1 [T1]
3.71 dBm
5.705740 GHz
Marker 2 [T1]
-37.20 dBm
33.364980 GHz
Marker 3 [T1]
-37.31 dBm
38.880840 GHz
Marker 4 [T1]
-38.62 dBm
39.920060 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

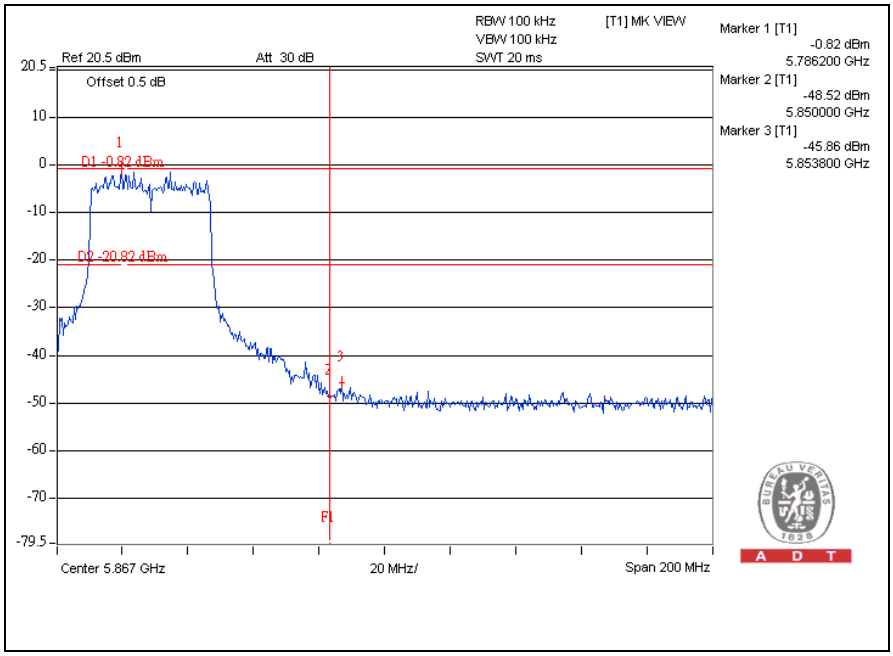

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 5.39 dBm
D2 -14.61 dBm
Marker 1 [T1]
0.99 dBm
5.785680 GHz
Marker 2 [T1]
-38.10 dBm
33.285040 GHz
Marker 3 [T1]
-38.44 dBm
33.524860 GHz
Marker 4 [T1]
-38.47 dBm
38.960780 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

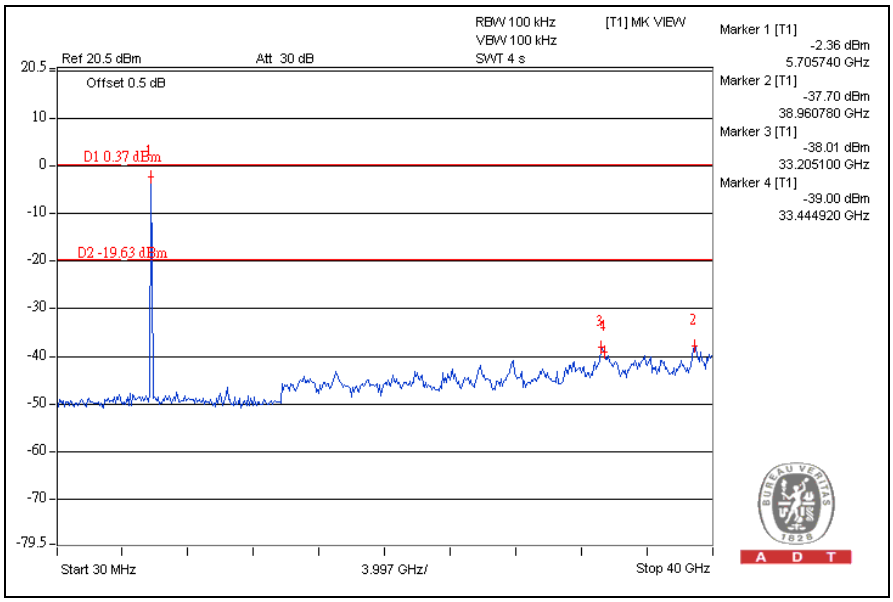
CH1



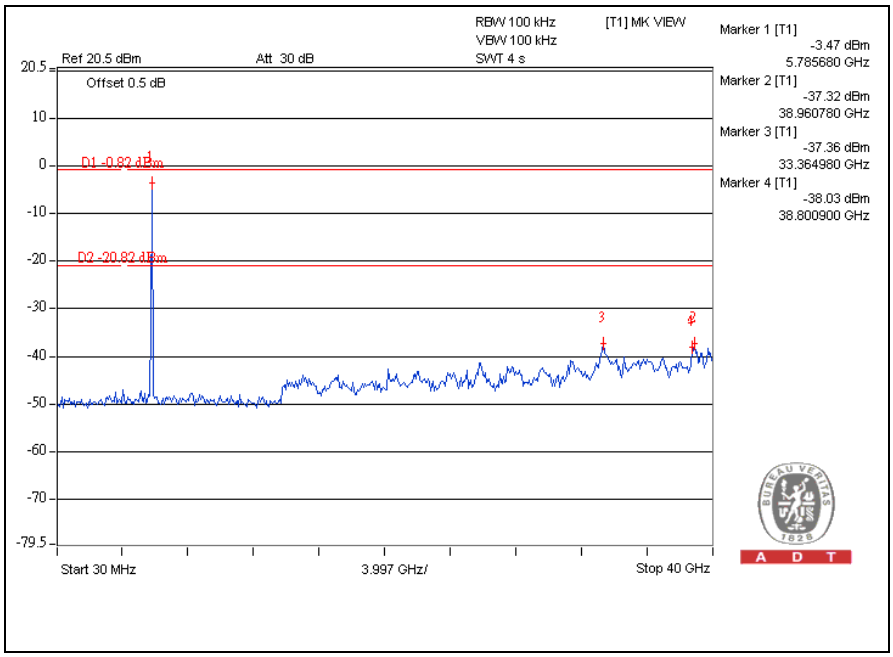
CH2



CH1


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 0.37 dBm
D2 -19.63 dBm
Marker 1 [T1]
-2.36 dBm
5.705740 GHz
Marker 2 [T1]
-37.70 dBm
38.960780 GHz
Marker 3 [T1]
-38.01 dBm
33.205100 GHz
Marker 4 [T1]
-39.00 dBm
33.444920 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH2

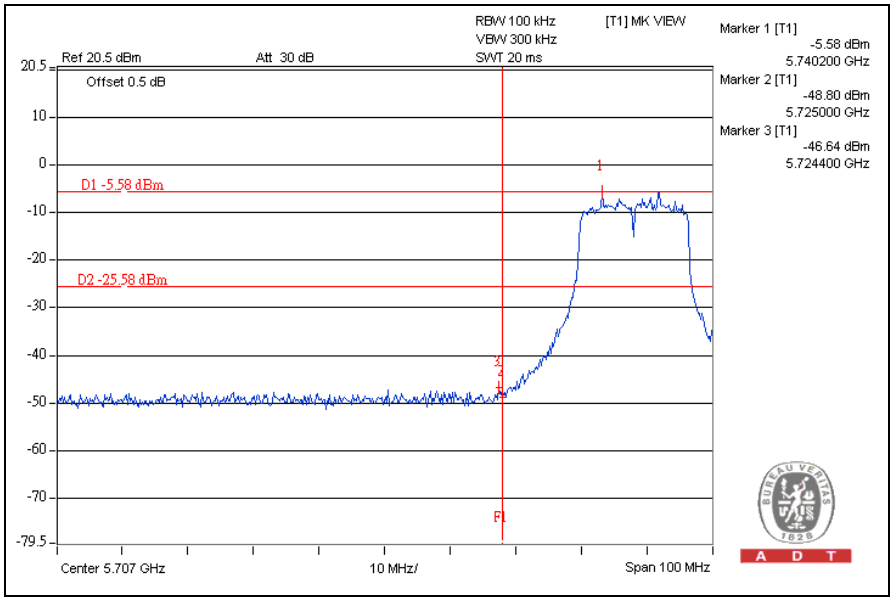

RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -0.82 dBm
D2 -20.82 dBm
Marker 1 [T1]
-3.47 dBm
5.785680 GHz
Marker 2 [T1]
-37.32 dBm
38.960780 GHz
Marker 3 [T1]
-37.36 dBm
33.364980 GHz
Marker 4 [T1]
-38.03 dBm
38.800900 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

5.6.10 TEST RESULTS - ANTENNA 11

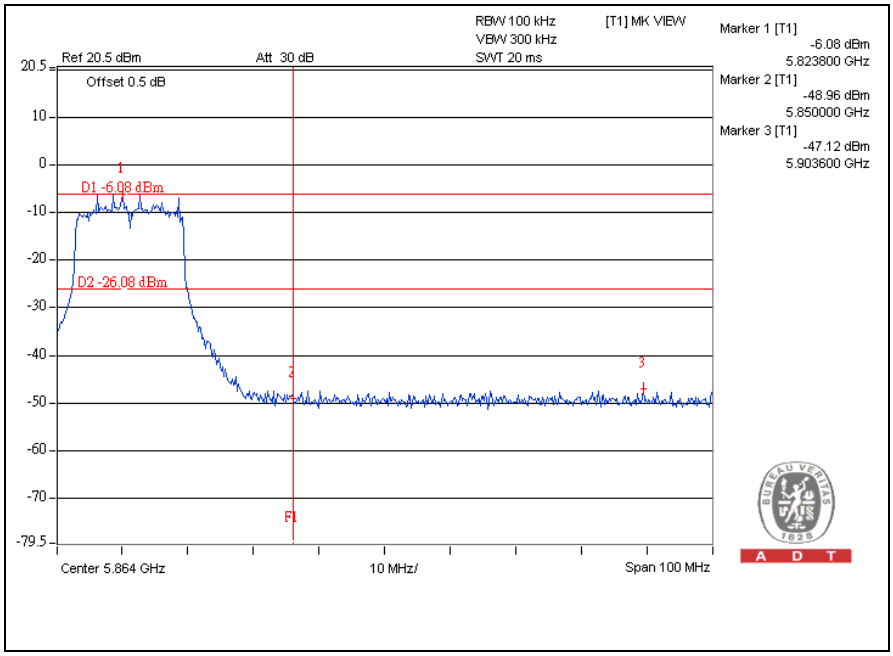
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

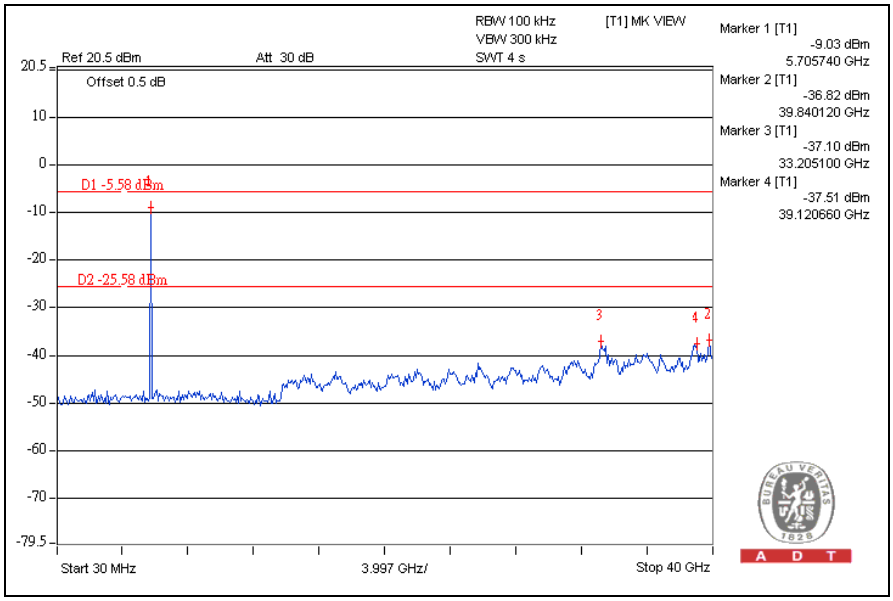
CH1



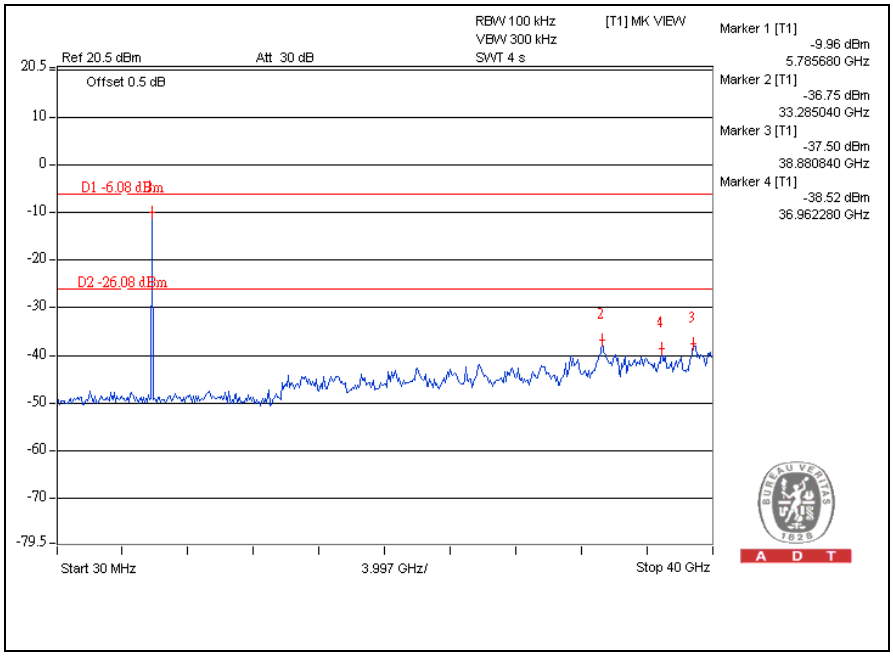
CH5



CH1

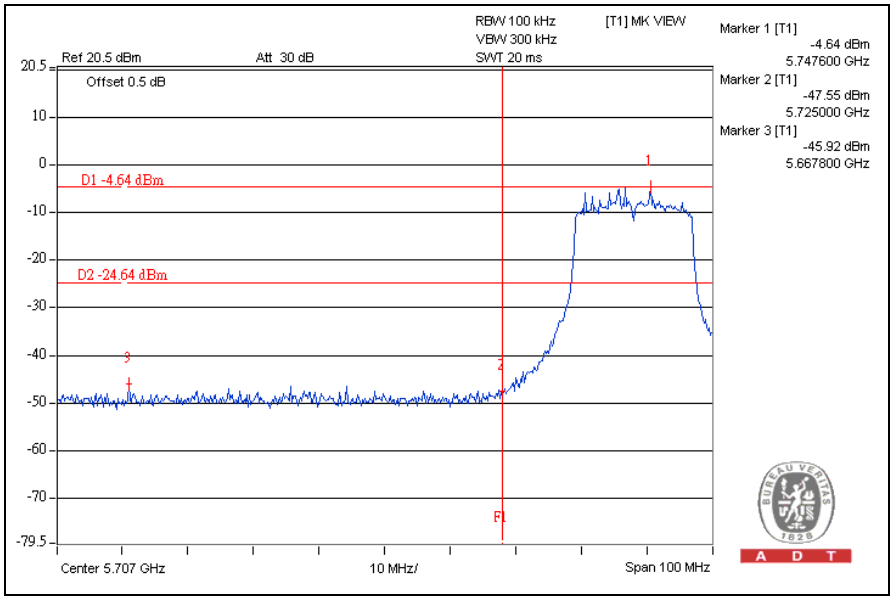

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -5.58 dBm
D2 -25.58 dBm
Marker 1 [T1]
-9.03 dBm
5.705740 GHz
Marker 2 [T1]
-36.82 dBm
39.840120 GHz
Marker 3 [T1]
-37.10 dBm
33.205100 GHz
Marker 4 [T1]
-37.51 dBm
39.120660 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

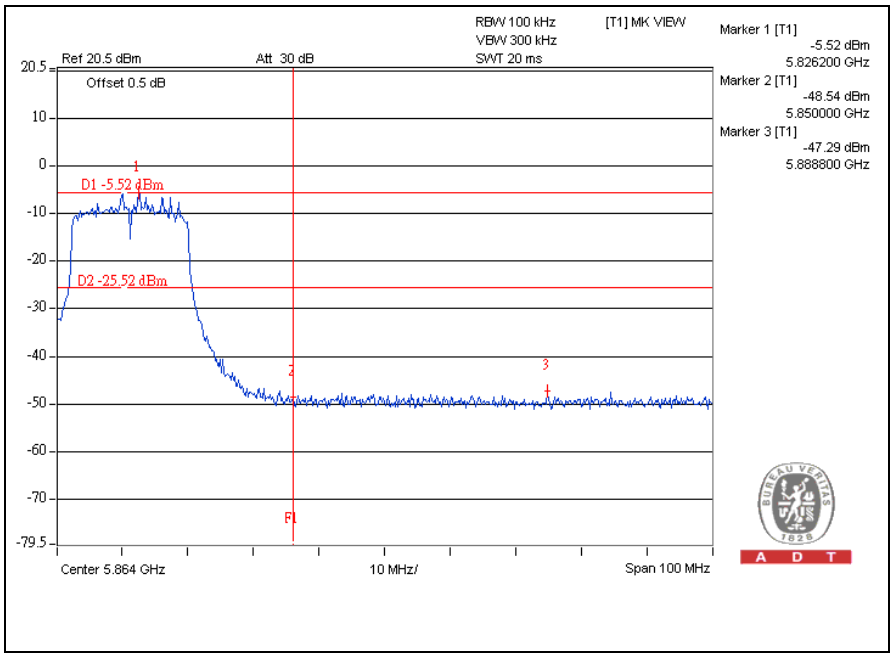

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -6.08 dBm
D2 -26.08 dBm
Marker 1 [T1]
-9.96 dBm
5.785680 GHz
Marker 2 [T1]
-36.75 dBm
33.285040 GHz
Marker 3 [T1]
-37.50 dBm
38.880840 GHz
Marker 4 [T1]
-38.52 dBm
36.962280 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

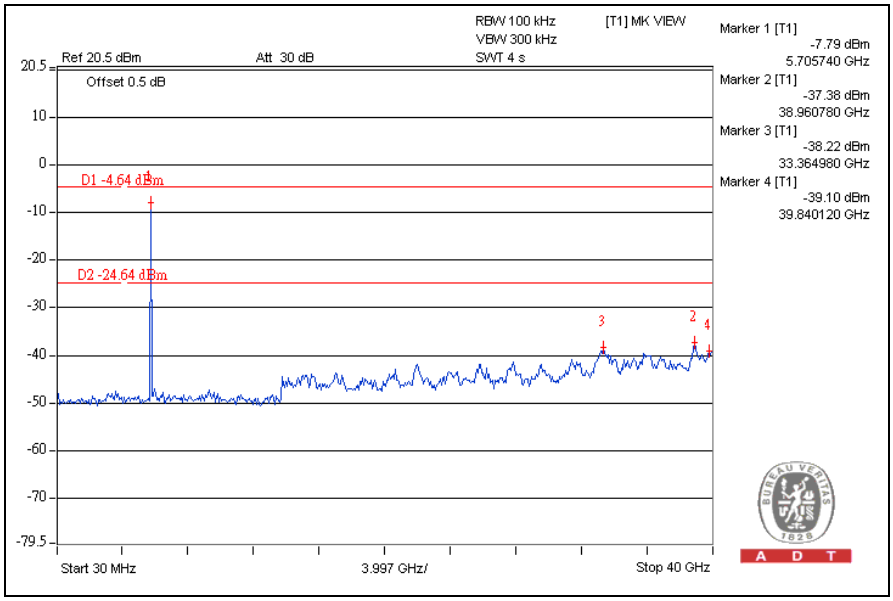
CH1



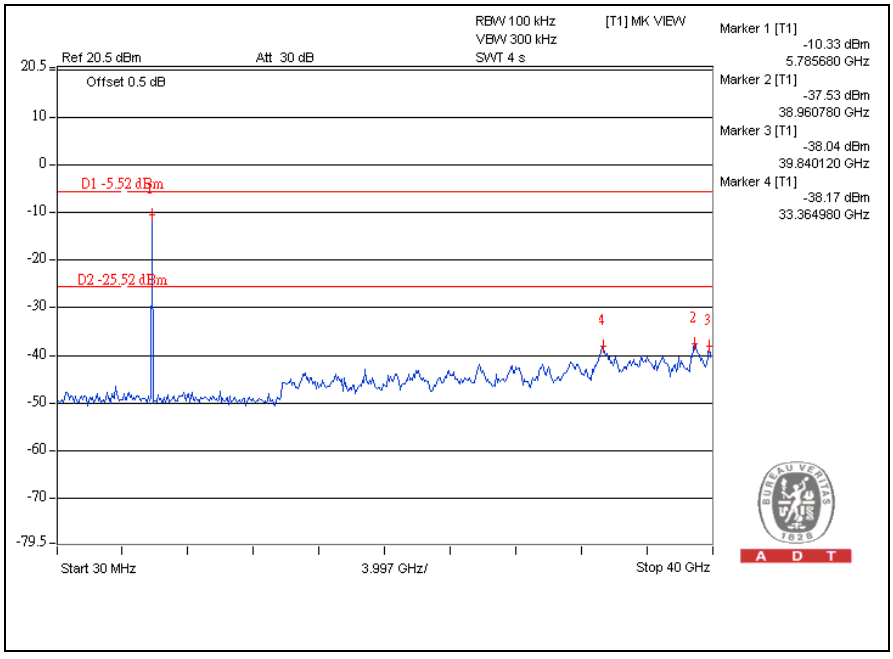
CH5



CH1

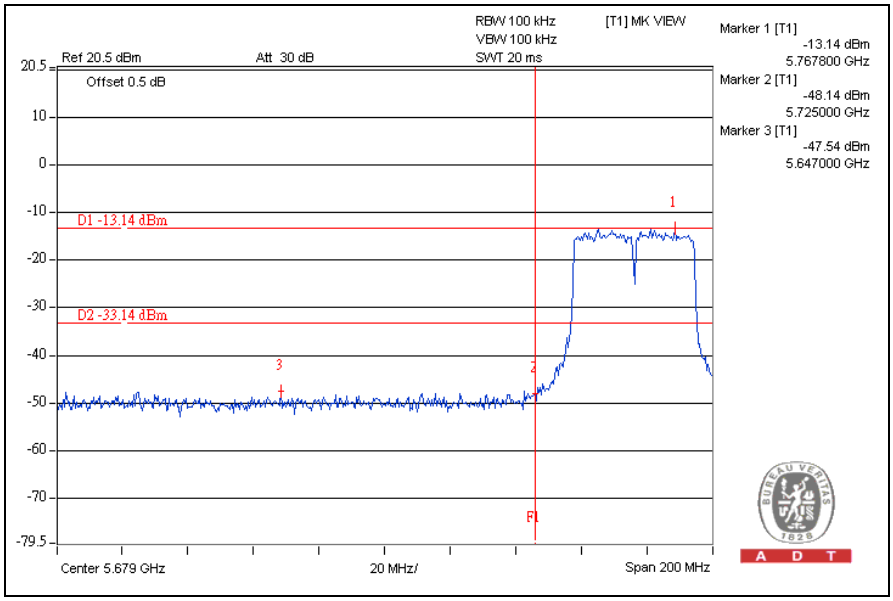

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -4.64 dBm
D2 -24.64 dBm
Marker 1 [T1]
-7.79 dBm
5.705740 GHz
Marker 2 [T1]
-37.38 dBm
38.960780 GHz
Marker 3 [T1]
-38.22 dBm
33.364980 GHz
Marker 4 [T1]
-39.10 dBm
39.840120 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5

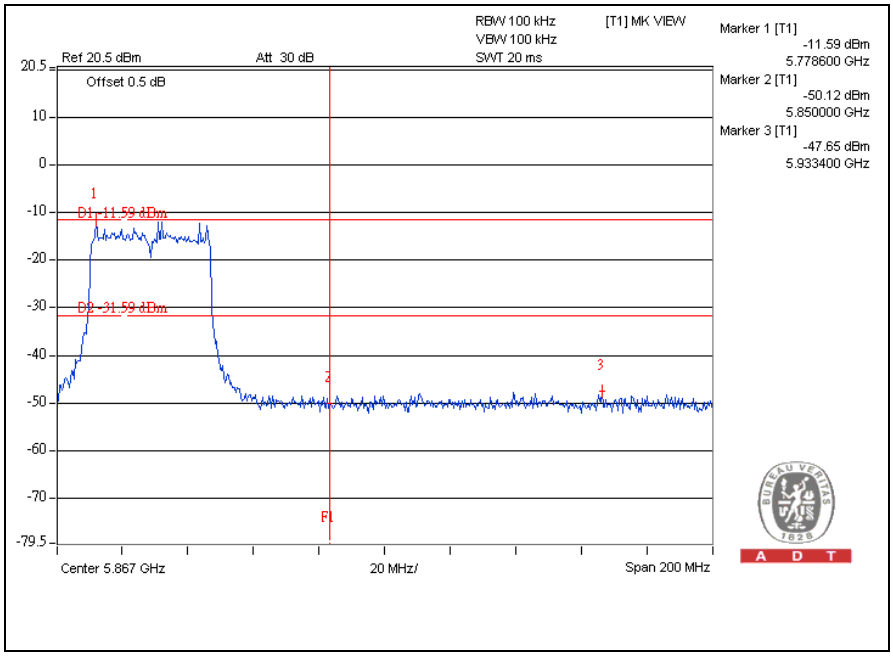

RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -5.52 dBm
D2 -25.52 dBm
Marker 1 [T1]
-10.33 dBm
5.785680 GHz
Marker 2 [T1]
-37.53 dBm
38.960780 GHz
Marker 3 [T1]
-38.04 dBm
39.840120 GHz
Marker 4 [T1]
-38.17 dBm
33.364980 GHz
20.5
10
0
-10
-20
-30
-40
-50
-60
-70
-79.5
Start 30 MHz
3.997 GHz/
Stop 40 GHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

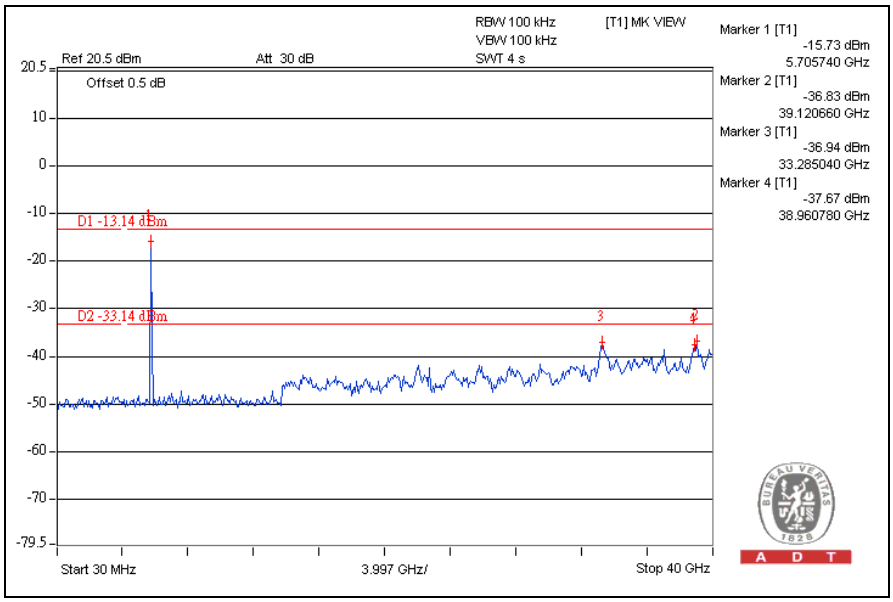
CH1



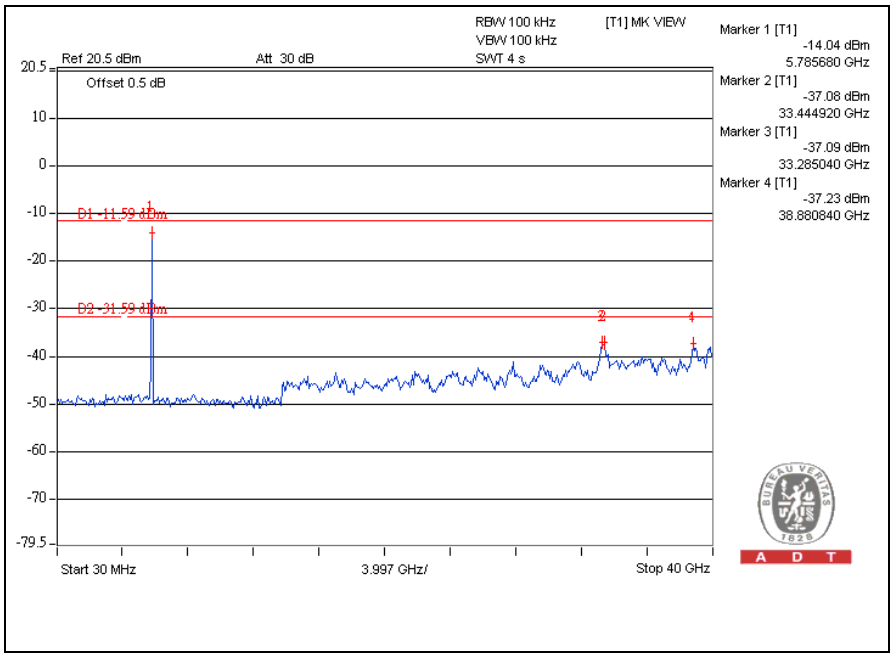
CH2



CH1


RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -13.14 dBm
D2 -33.14 dBm
Marker 1 [T1]
-15.73 dBm
5.705740 GHz
Marker 2 [T1]
-36.83 dBm
39.120660 GHz
Marker 3 [T1]
-36.94 dBm
33.285040 GHz
Marker 4 [T1]
-37.67 dBm
38.960780 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH2

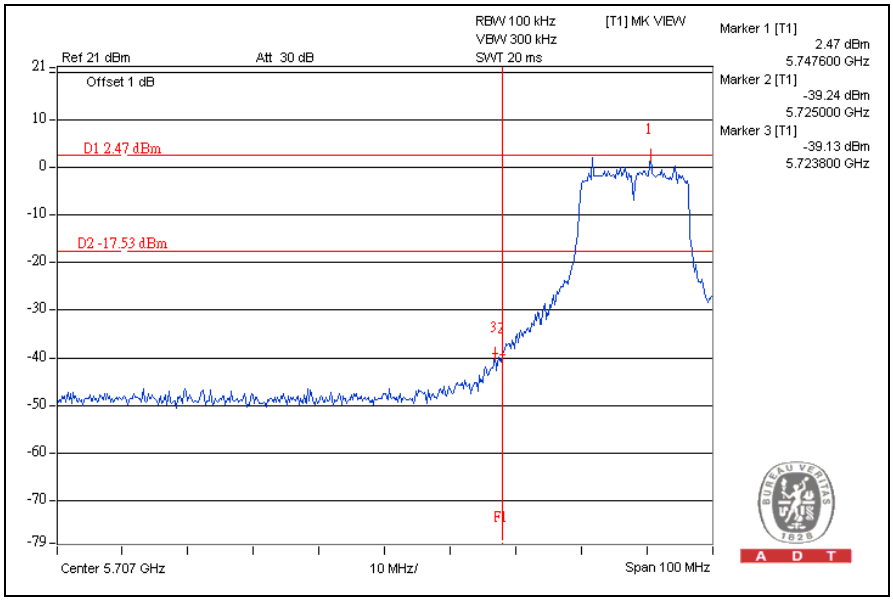

RBW 100 kHz
VBW 100 kHz
SWT 4 s
[T1] MK VIEW
Ref 20.5 dBm
Att 30 dB
Offset 0.5 dB
D1 -11.59 dBm
D2 -31.59 dBm
Marker 1 [T1]
-14.04 dBm
5.785680 GHz
Marker 2 [T1]
-37.08 dBm
33.444920 GHz
Marker 3 [T1]
-37.09 dBm
33.285040 GHz
Marker 4 [T1]
-37.23 dBm
38.880840 GHz
Start 30 MHz
3.997 GHz/
Stop 40 GHz

5.6.11 TEST RESULTS - ANTENNA 12

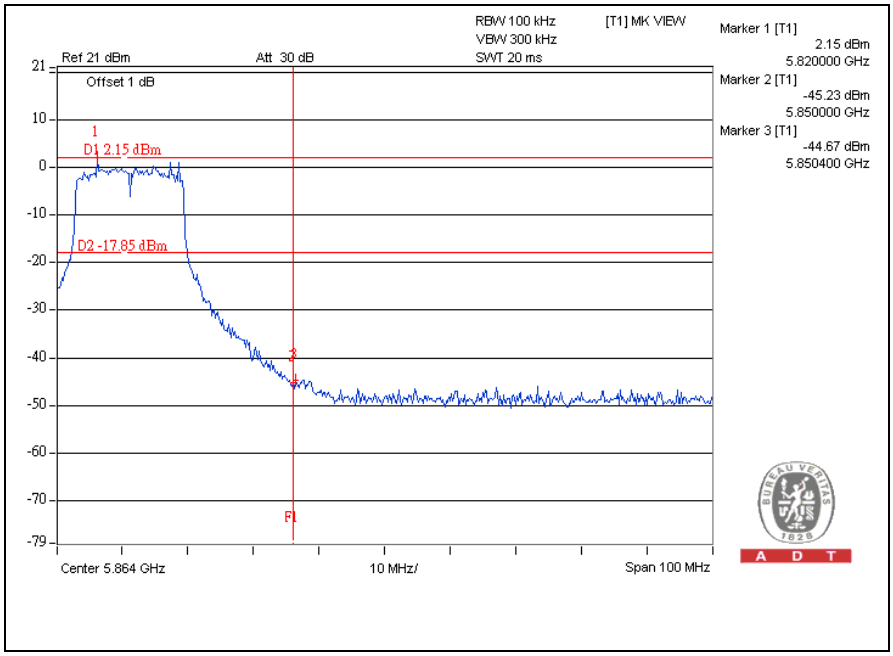
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

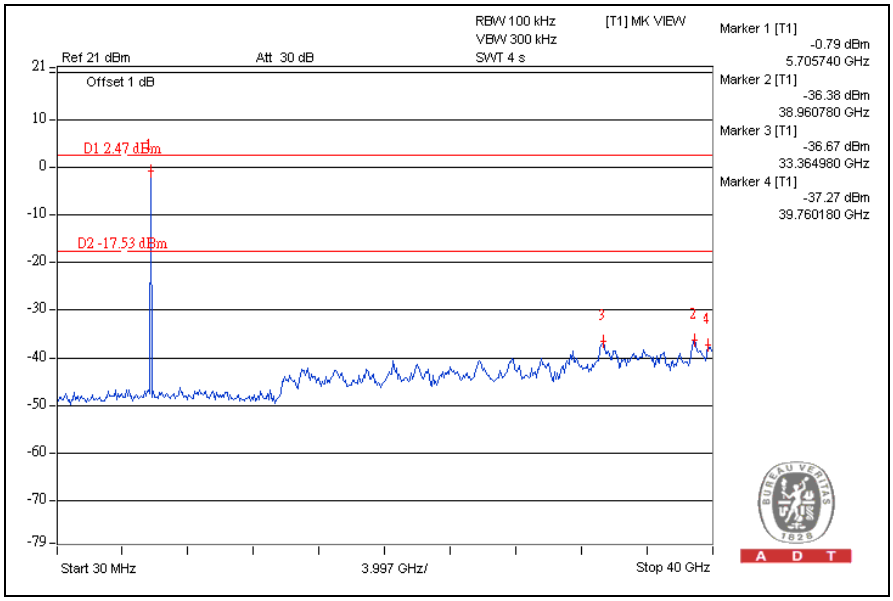
CH1



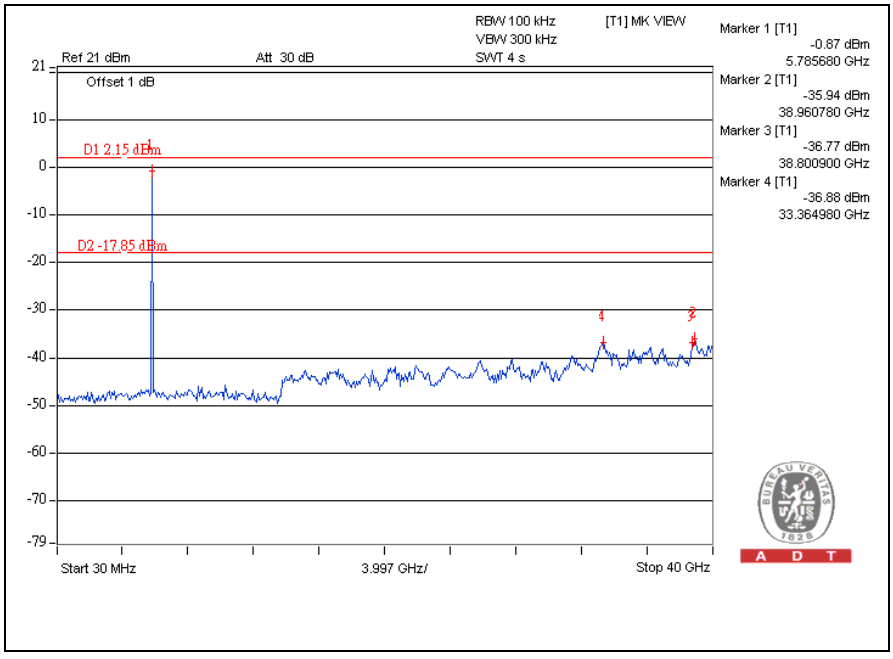
CH5



CH1


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 2.47 dBm
D2 -17.53 dBm
Marker 1 [T1]
-0.79 dBm
5.705740 GHz
Marker 2 [T1]
-36.38 dBm
38.960780 GHz
Marker 3 [T1]
-36.67 dBm
33.364980 GHz
Marker 4 [T1]
-37.27 dBm
39.760180 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

CH5


RBW 100 kHz
VBW 300 kHz
SWT 4 s
[T1] MK VIEW
Ref 21 dBm
Att 30 dB
Offset 1 dB
D1 2.15 dBm
D2 -17.85 dBm
Marker 1 [T1]
-0.87 dBm
5.785680 GHz
Marker 2 [T1]
-35.94 dBm
38.960780 GHz
Marker 3 [T1]
-36.77 dBm
38.800900 GHz
Marker 4 [T1]
-36.88 dBm
33.364980 GHz
21
10
0
-10
-20
-30
-40
-50
-60
-70
-79
Start 30 MHz
3.997 GHz/
Stop 40 GHz

5.7 ANTENNA REQUIREMENT

5.7.1 STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247(a), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

5.7.2 ANTENNA CONNECTED CONSTRUCTION

There are twelve antennas provided to this EUT, please refer to the following table:

No	Brand	Model	Antenna Type	Connecter Type (External only)	Frequency range (MHz)	Indoor or Outdoor
1	Symbol	ML-2499-BYGA2-01R	YAGI	Type N-Female	2400~2500	Indoor
2	Symbol	ML-2499-11PNA2-01R	Panel	RP-BNC-Female	2400~2500	Indoor
3	Symbol	ML-2452-APA2-01	Dipole	RP-SMA MALE	2400-2500, 5150-5850	Indoor
4	Motolora	ML-2452-PTA2M3X3-1	Embedded	RP-SMA-Male	2400-2500, 4900-5990	Indoor
5	Symbol	ML-5299-WPNA1-01R	Panel	RP-SMA-Female	5150-5875	Indoor
6	Symbol	ML-2499-HPA3-01R	Dipole	RP-BNC FEMALE	2400-2500	Indoor
7	Symbol	ML-5299-HPA1-01R	Dipole	RP-SMA FEMALE	5150-5875	Indoor
8	Motolora	ML-2452-PTA3M3-036	Patch	RP-SMA-Male	2400-2500, 4900-5990	Indoor
9	WHA YU	ML-2452-APA6J-01	Dipole	SMA Plug Reverse	2400-2500, 4900-5990	Indoor
10	Motolora	ML-2452-PNL9M3-036	Panel	Reverse SMA	2400-2500, 5150-5875	Indoor
11	Motolora	ML-5299-BYGA15-012	YAGI	Type N Female connector	4900-5800	Indoor
12	WHA YU	M25.90002.S01	Dipole	I-PEX	2400-2500, 5150-5850	Indoor

No	Brand	Model	Gain (dBi)	Cable Loss(dB) (External only, if any)	Net Gain (dB)	Cable Length (External only, if any)
1	Symbol	ML-2499-BYGA2-01R	14.2	0.3	13.9	12 inch
2	Symbol	ML-2499-11PNA2-01R	11.2	2.7	8.5	96 inch
3	Symbol	ML-2452-APA2-01	3 / 4	N/A	3 / 4	N/A

4	Motolora	ML-2452-PTA2M3X3-1	1 / 2	N/A	1 / 2	N/A
5	Symbol	ML-5299-WPNA1-01R	14.2	1.2	13	36 inch
6	Symbol	ML-2499-HPA3-01R	4.6	1.3	3.3	48 inch
7	Symbol	ML-5299-HPA1-01R	5.9	0.84	5.06	36 inch
8	Motolora	ML-2452-PTA3M3-036	6/7	0.92 / 1.97	5.08 / 5.03	36 inch
9	WHA YU	ML-2452-APA6J-01	-6 / -6	N/A	2.4GHz Peak gain : -5.76dBi 5GHz Peak gain : band 1: -3.77dBi band 2: -3.38dBi band 3: -2.84dBi band 4: -2.94dBi	N/A
10	Motolora	ML-2452-PNL9M3-036	8 / 10.7	N/A	8 / 10.7	36 inch
11	Motolora	ML-5299-BYGA15-012	14.5	N/A	14.5	3 ft
12	WHA YU	M25.90002.S01	3.03 / 4.06	N/A	3.03 / 4.06	63mm

Note :
1. For Radio card 1: The antennas 1~11 will be use, therefore antenna 1, 2, 4, 6, 8, were chosen for final test.
2. For Radio card 2: The antennas 1~11 will be use, therefore antenna 4, 5, 7, 8, 11, were chosen for final test.
3. For Radio card 3: The antenna 12 will be use only, therefore antenna 12 was chosen for final test.

6. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025:

USA	FCC, NVLAP
Germany	TUV Rheinland
Japan	VCCI
Norway	NEMKO
Canada	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
Netherlands	Telefication
Singapore	GOST-ASIA (MOU)
Russia	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also

7.APPENDIX-A- MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

8.APPENDIX-B- POWER MEASUREMENT FOR EACH DATA RATE

For 2.4GHz

11b CH06	Data Rate	**1**	2	5.5	11
	Peak Power (dBm)	**29.806**	29.756	29.685	29.644

11g CH01	Data Rate	**6**	9	12	18	24	36	48	54
	Peak Power (dBm)	**29.945**	29.852	29.874	29.658	29.587	29.648	29.725	29.687

11n HT20 CH01	Data Rate	**MCS 0**	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
	Peak Power (dBm)	**29.942**	29.513	29.315	29.354	29.154	29.054	28.894	29.057
	Data Rate	MCS 8	MCS 9	MCS 10	MCS 11	MCS 12	MCS 13	MCS 14	MCS 15
	Peak Power (dBm)	29.856	29.736	29.524	29.265	29.154	29.358	29.369	29.485

11n HT40 CH06	Data Rate	**MCS 0**	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
	Peak Power (dBm)	**29.997**	28.897	28.826	28.756	28.739	28.816	28.634	28.547
	Data Rate	MCS 8	MCS 9	MCS 10	MCS 11	MCS 12	MCS 13	MCS 14	MCS 15
	Peak Power (dBm)	28.893	28.756	28.867	28.965	28.983	28.991	29.025	29.064

For 5GHz<15.247>

11A CH149	Data Rate	**6**	9	12	18	24	36	48	54
	Peak Power (dBm)	**29.733**	29.642	29.613	29.548	29.642	29.459	29.413	29.352

11n HT20 CH149	Data Rate	**MCS 0**	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
	Peak Power (dBm)	**29.644**	29.567	29.458	29.492	29.395	29.298	29.344	29.357
	Data Rate	MCS 8	MCS 9	MCS 10	MCS 11	MCS 12	MCS 13	MCS 14	MCS 15
	Peak Power (dBm)	29.568	29.277	29.547	29.354	29.468	29.521	29.435	29.295

11n HT40 CH151	Data Rate	**MCS 0**	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
	Peak Power (dBm)	**29.534**	28.695	28.754	28.769	28.795	28.642	28.527	28.647
	Data Rate	MCS 8	MCS 9	MCS 10	MCS 11	MCS 12	MCS 13	MCS 14	MCS 15
	Peak Power (dBm)	28.533	28.678	28.605	28.619	28.622	28.739	28.841	28.852

For 5GHz<15.407>

11a CH36	Data Rate	**6**	9	12	18	24	36	48	54
	Peak Power (dBm)	**14.912**	14.856	14.755	14.533	14.628	14.486	14.358	14.269

11n HT20 CH36	Data Rate	**MCS 0**	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
	Peak Power (dBm)	**14.858**	14.802	14.736	14.642	14.592	14.287	14.386	14.054
	Data Rate	MCS 8	MCS 9	MCS 10	MCS 11	MCS 12	MCS 13	MCS 14	MCS 15
	Peak Power (dBm)	14.756	14.347	14.085	14.466	14.315	14.422	14.587	14.638

11n HT40 CH46	Data Rate	**MCS 0**	MCS 1	MCS 2	MCS 3	MCS 4	MCS 5	MCS 6	MCS 7
	Peak Power (dBm)	**16.641**	16.535	16.423	16.258	16.124	16.257	16.318	16.519
	Data Rate	MCS 8	MCS 9	MCS 10	MCS 11	MCS 12	MCS 13	MCS 14	MCS 15
	Peak Power (dBm)	16.428	16.439	16.287	16.154	16.318	16.458	16.121	16.064

---END---