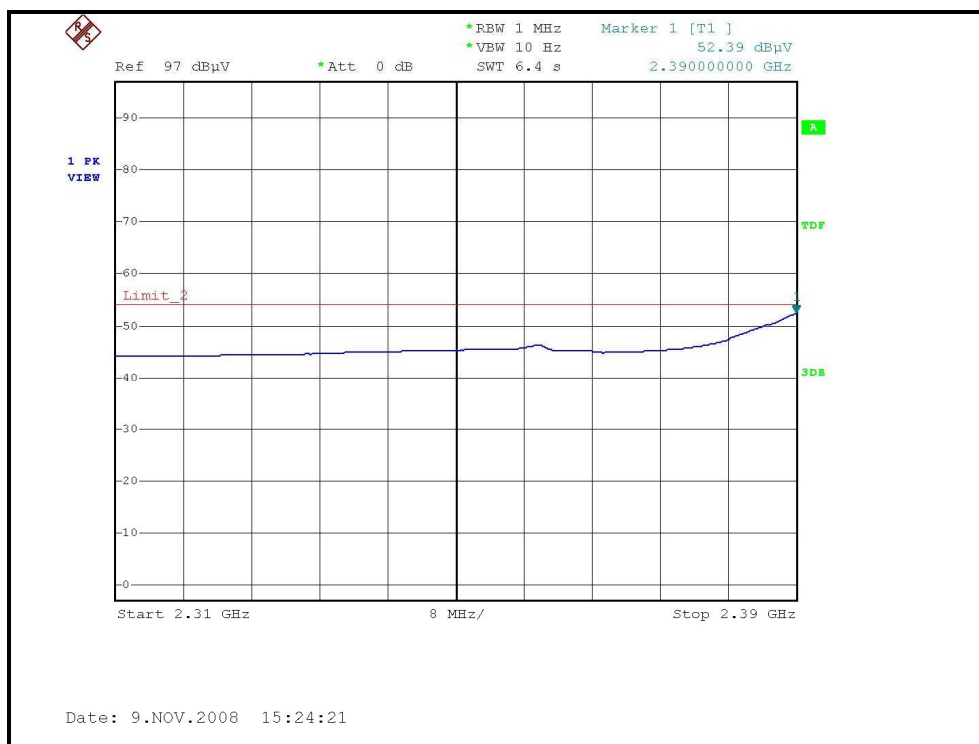
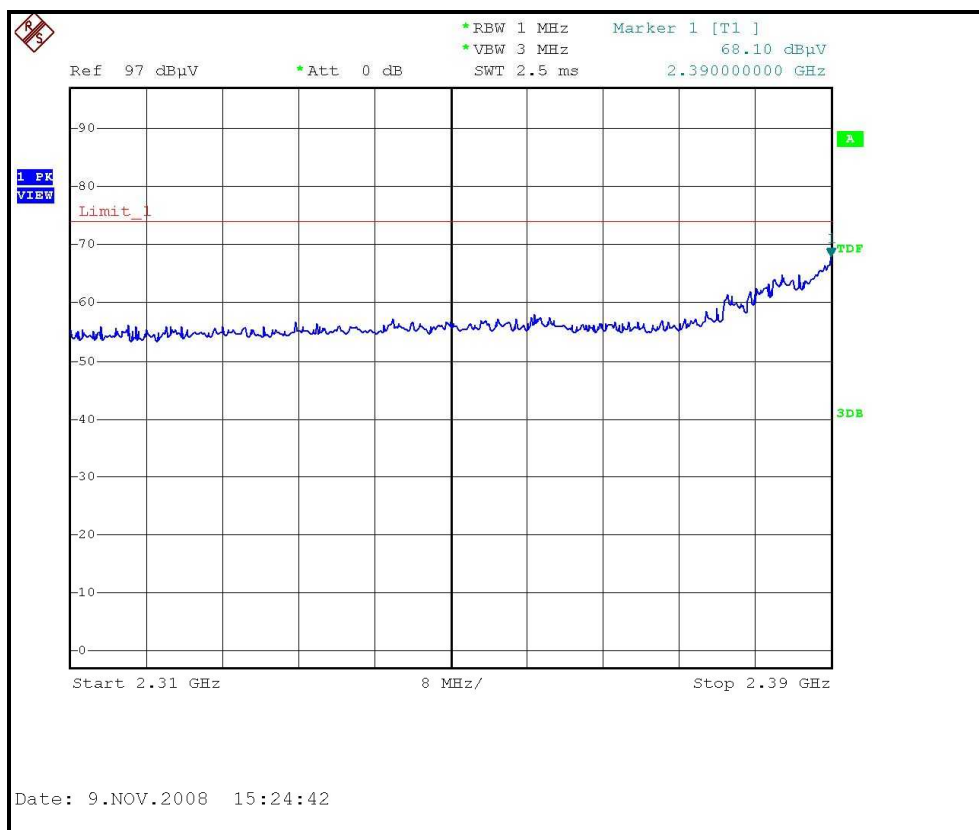


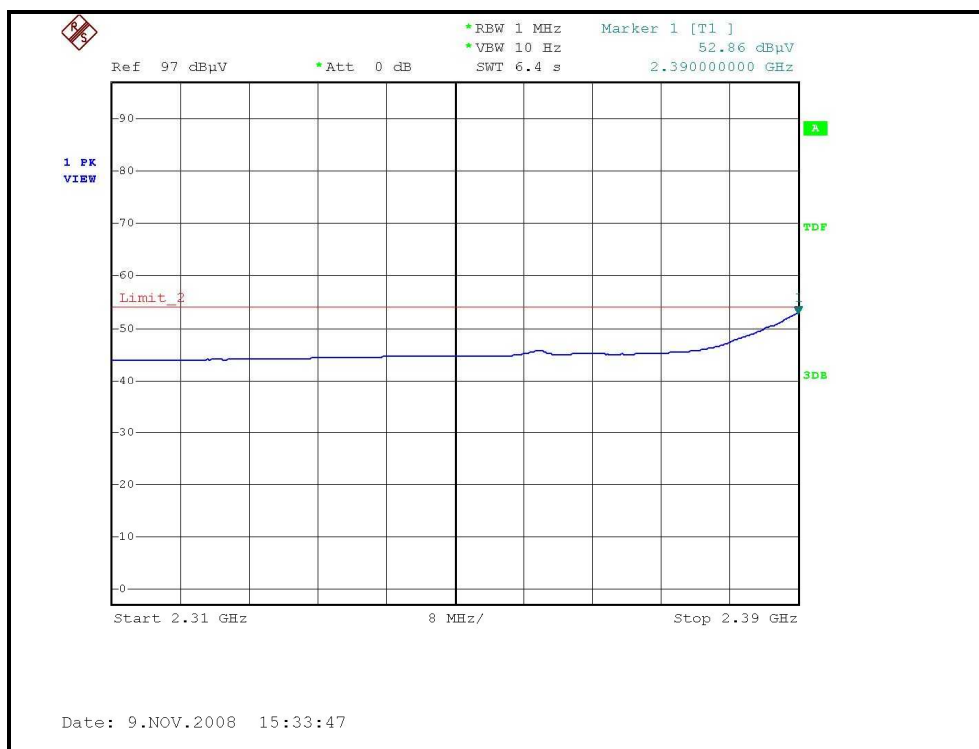
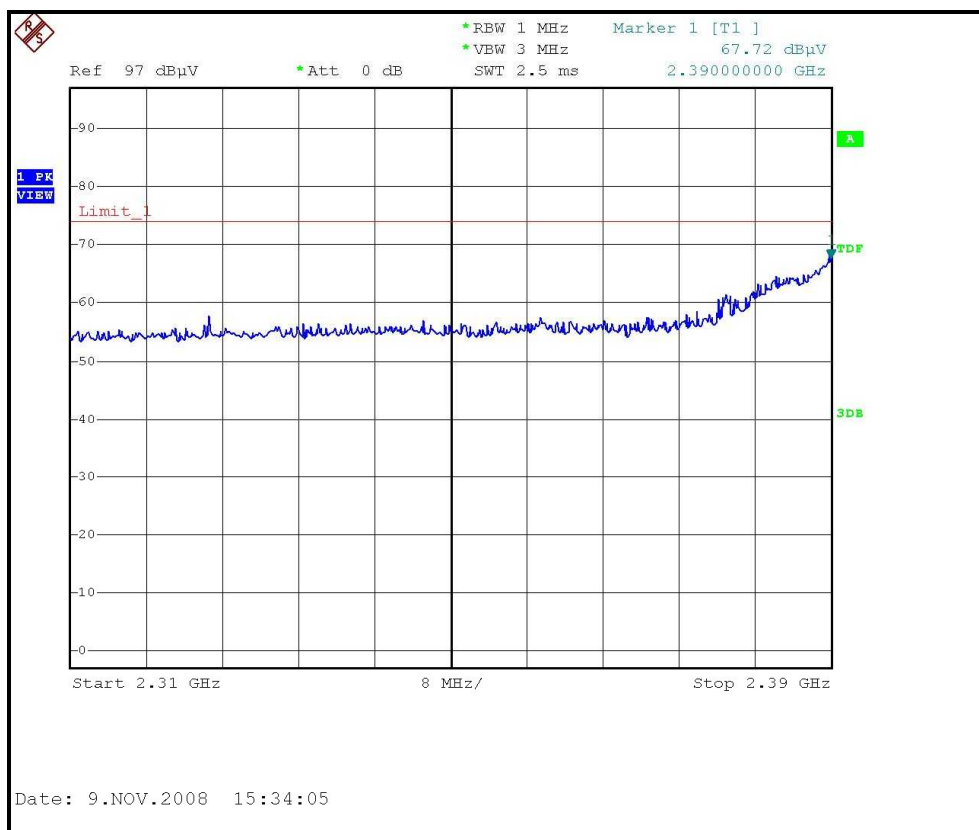
RESTRICTED BANDEDGE (802.11g MODE,CH1, HORIZONTAL)



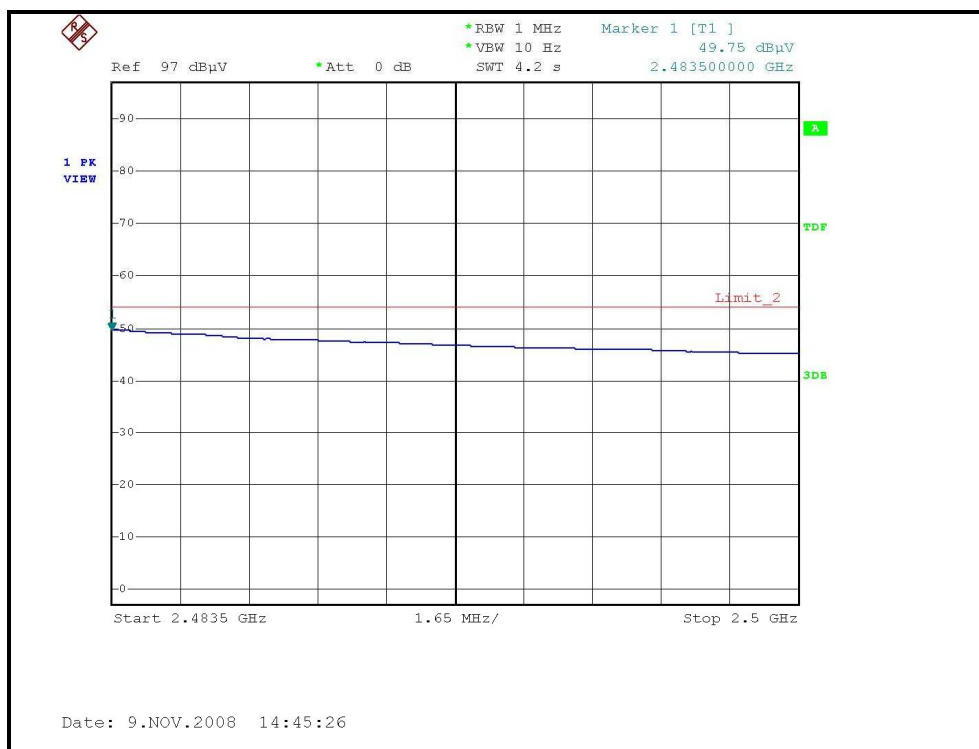
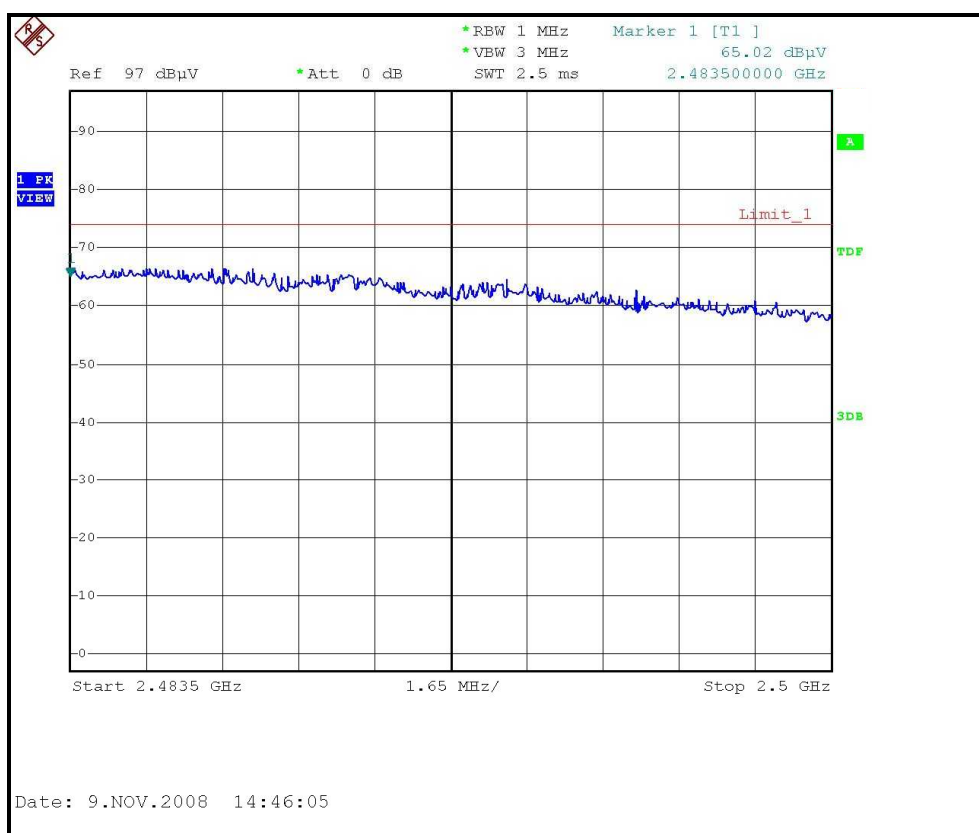


A D T

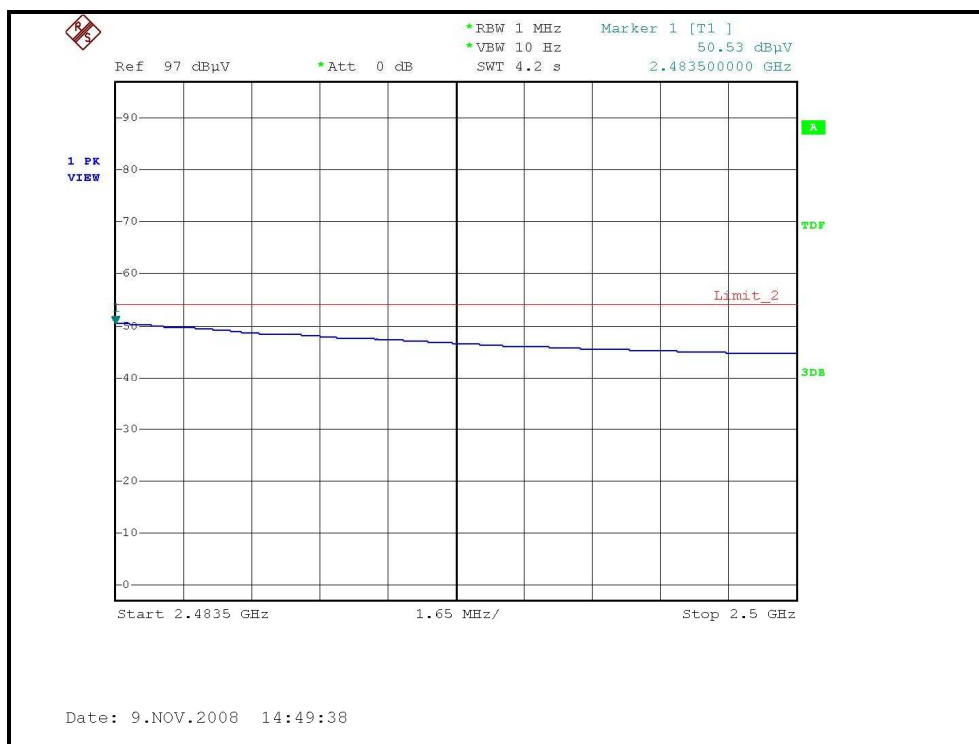
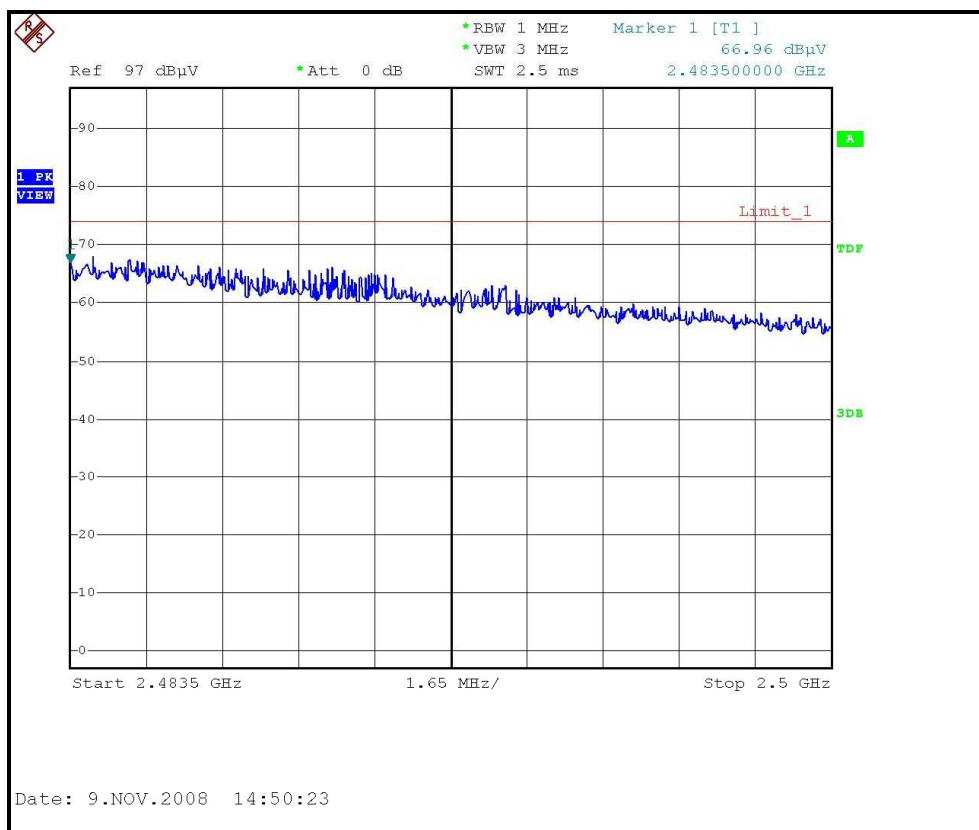
RESTRICTED BANDEDGE (802.11g MODE,CH1, VERTICAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, HORIZONTAL)



RESTRICTED BANDEDGE (802.11g MODE,CH11, VERTICAL)





A D T

DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.32 PK	74.00	-9.68	1.28 H	106	34.26	30.06
2	2390.00	50.73 AV	54.00	-3.27	1.28 H	106	20.67	30.06
3	*2412.00	108.80 PK			1.29 H	104	78.65	30.15
4	*2412.00	97.30 AV			1.29 H	104	67.15	30.15
5	4824.00	45.40 PK	74.00	-28.60	1.27 H	130	9.94	35.46
6	4824.00	31.30 AV	54.00	-22.70	1.27 H	130	-4.16	35.46
7	#7236.00	55.00 PK	88.80	-33.80	1.24 H	4	13.15	41.85
8	#7236.00	40.80 AV	77.30	-36.50	1.24 H	4	-1.05	41.85
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	64.55 PK	74.00	-9.45	1.00 V	21	34.49	30.06
2	2390.00	50.38 AV	54.00	-3.62	1.00 V	21	20.32	30.06
3	*2412.00	107.70 PK			1.00 V	22	77.55	30.15
4	*2412.00	96.00 AV			1.00 V	22	65.85	30.15
5	4824.00	44.60 PK	74.00	-29.40	1.60 V	350	9.14	35.46
6	4824.00	30.40 AV	54.00	-23.60	1.60 V	350	-5.06	35.46
7	#7236.00	59.00 PK	87.70	-28.70	1.16 V	36	17.15	41.85
8	#7236.00	44.30 AV	76.00	-31.70	1.16 V	36	2.45	41.85

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. “#”:The radiated frequency is out the restricted band.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 6	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	112.20 PK			1.29 H	104	81.96	30.24
2	*2437.00	100.30 AV			1.29 H	104	70.06	30.24
3	4874.00	47.50 PK	74.00	-26.50	1.24 H	133	11.95	35.55
4	4874.00	32.30 AV	54.00	-21.70	1.24 H	133	-3.25	35.55
5	7311.00	56.30 PK	74.00	-17.70	1.25 H	6	14.26	42.04
6	7311.00	42.40 AV	54.00	-11.60	1.25 H	6	0.36	42.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2437.00	110.40 PK			1.00 V	22	80.16	30.24
2	*2437.00	98.70 AV			1.00 V	22	68.46	30.24
3	4874.00	46.30 PK	74.00	-27.70	1.61 V	324	10.75	35.55
4	4874.00	31.20 AV	54.00	-22.80	1.61 V	324	-4.35	35.55
5	7311.00	61.70 PK	74.00	-12.30	1.34 V	35	19.66	42.04
6	7311.00	48.20 AV	54.00	-5.80	1.34 V	35	6.16	42.04

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.



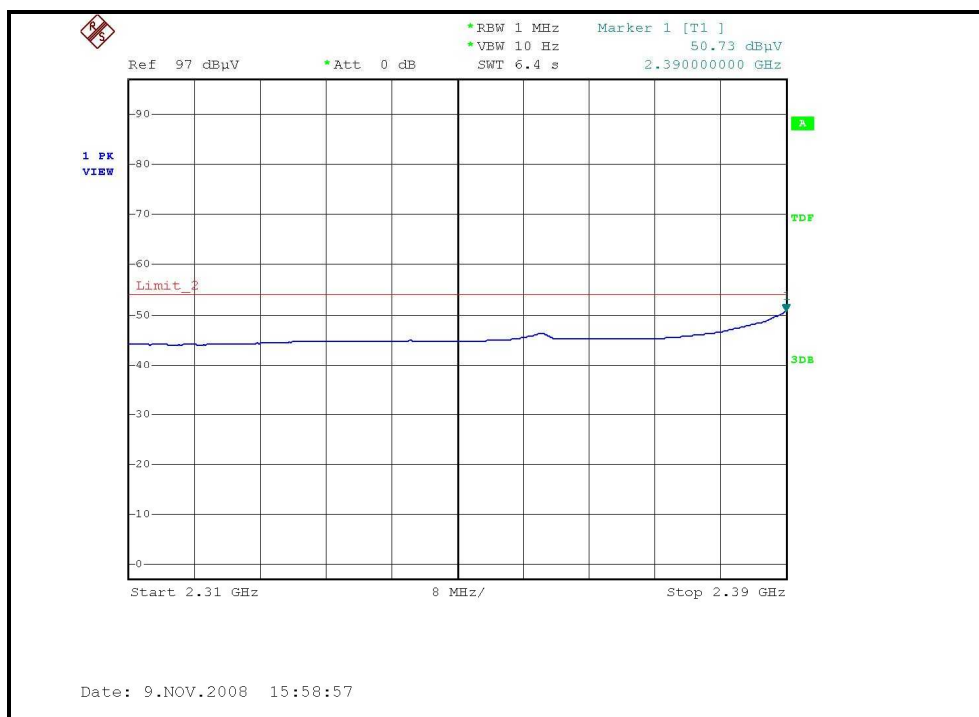
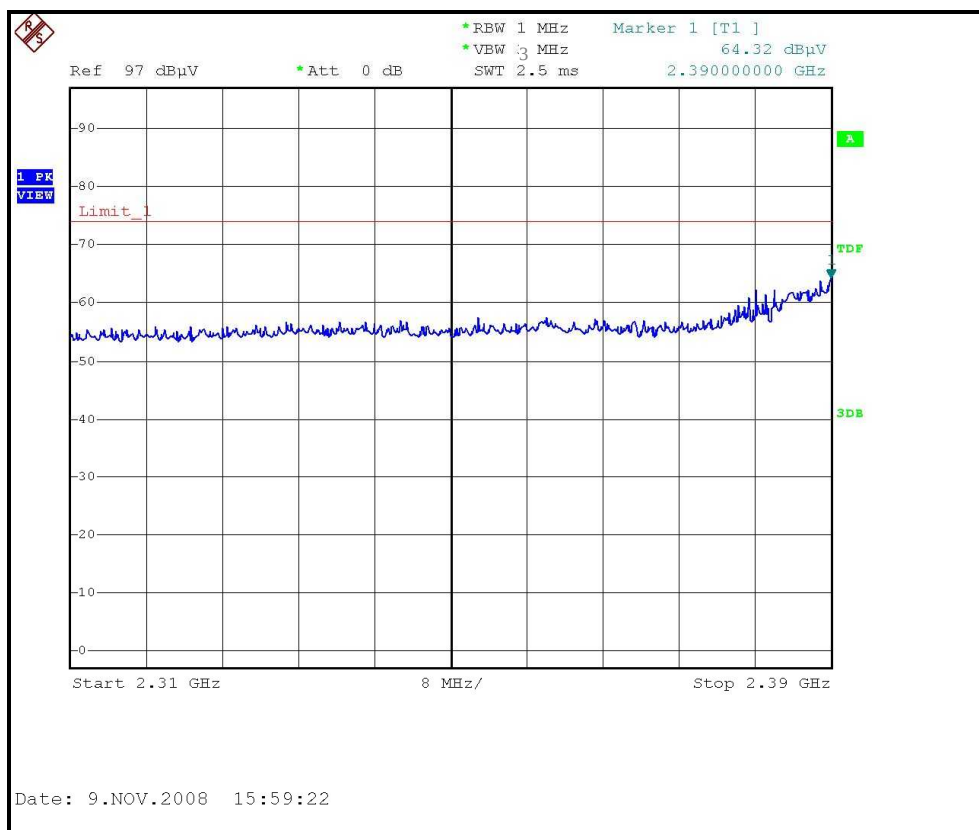
A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 11	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

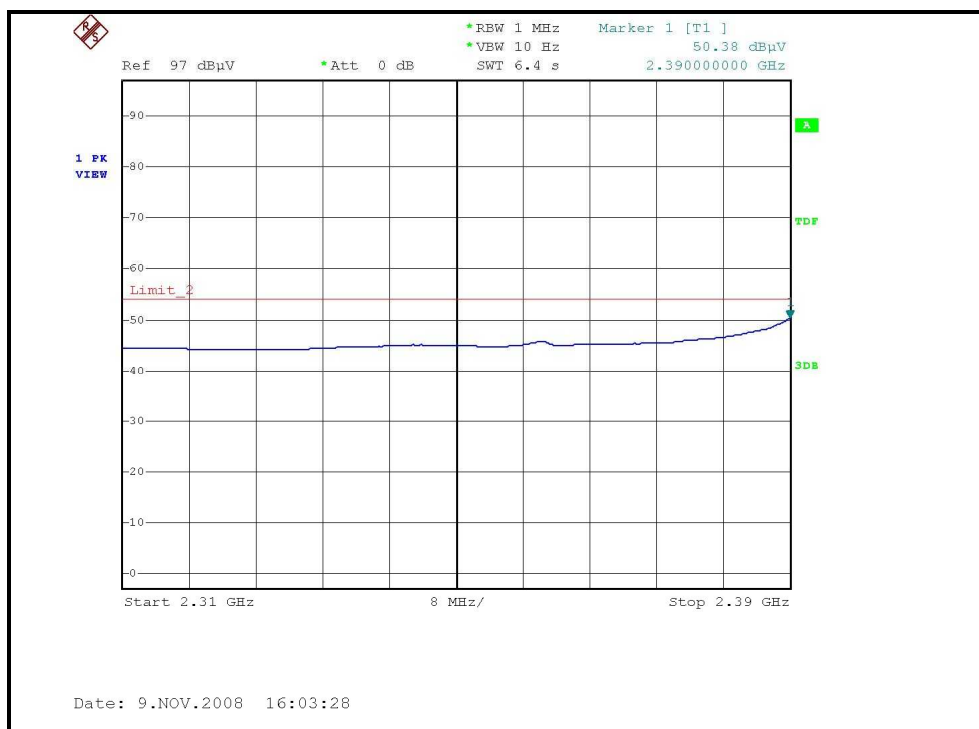
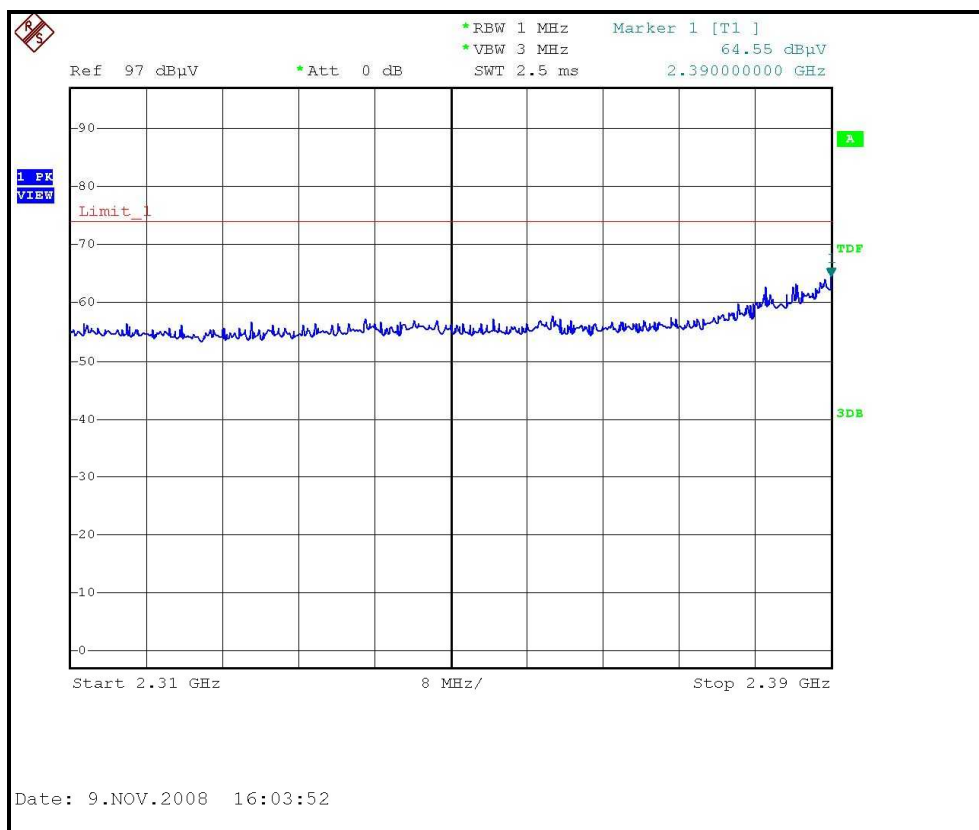
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.20 PK			1.29 H	104	77.86	30.34
2	*2462.00	96.50 AV			1.29 H	104	66.16	30.34
3	2483.50	65.27 PK	74.00	-8.73	1.26 H	104	34.84	30.43
4	2483.50	48.95 AV	54.00	-5.05	1.26 H	104	18.52	30.43
5	4924.00	48.20 PK	74.00	-25.80	1.26 H	133	12.57	35.63
6	4924.00	33.10 AV	54.00	-20.90	1.26 H	133	-2.53	35.63
7	7386.00	50.60 PK	74.00	-23.40	1.38 H	7	8.37	42.23
8	7386.00	36.70 AV	54.00	-17.30	1.38 H	7	-5.53	42.23
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2462.00	108.70 PK			1.00 V	21	78.36	30.34
2	*2462.00	96.70 AV			1.00 V	21	66.36	30.34
3	2483.50	64.20 PK	74.00	-9.80	1.00 V	22	33.77	30.43
4	2483.50	48.46 AV	54.00	-5.54	1.00 V	22	18.03	30.43
5	4924.00	47.30 PK	74.00	-26.70	1.54 V	332	11.67	35.63
6	4924.00	32.40 AV	54.00	-21.60	1.54 V	332	-3.23	35.63
7	7386.00	55.60 PK	74.00	-18.40	1.40 V	35	13.37	42.23
8	7386.00	42.10 AV	54.00	-11.90	1.40 V	35	-0.13	42.23

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.

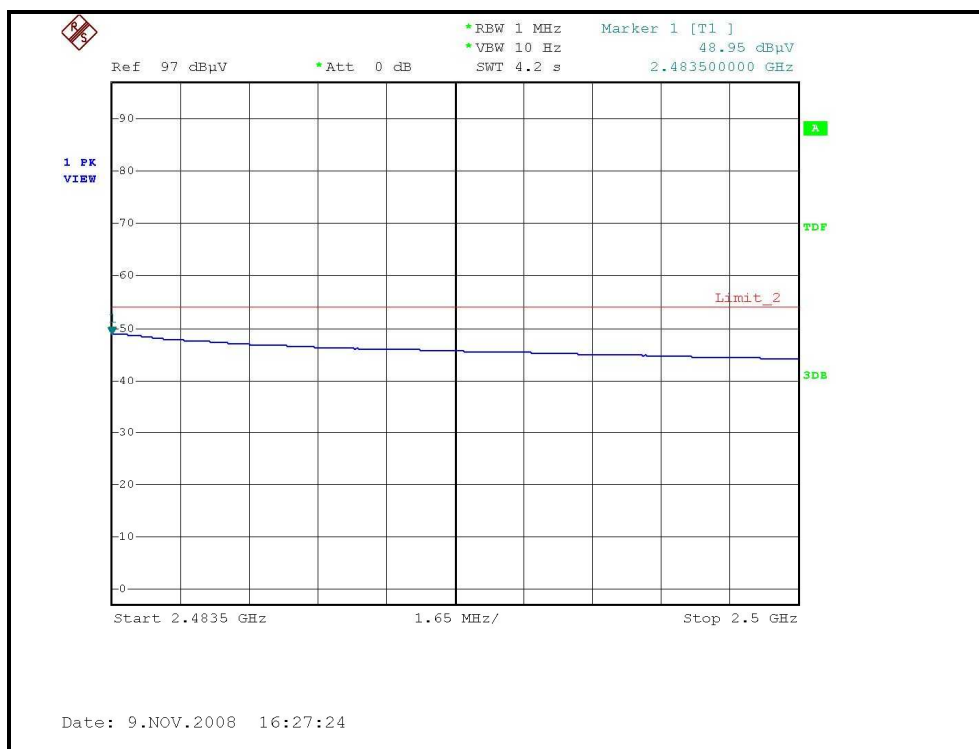
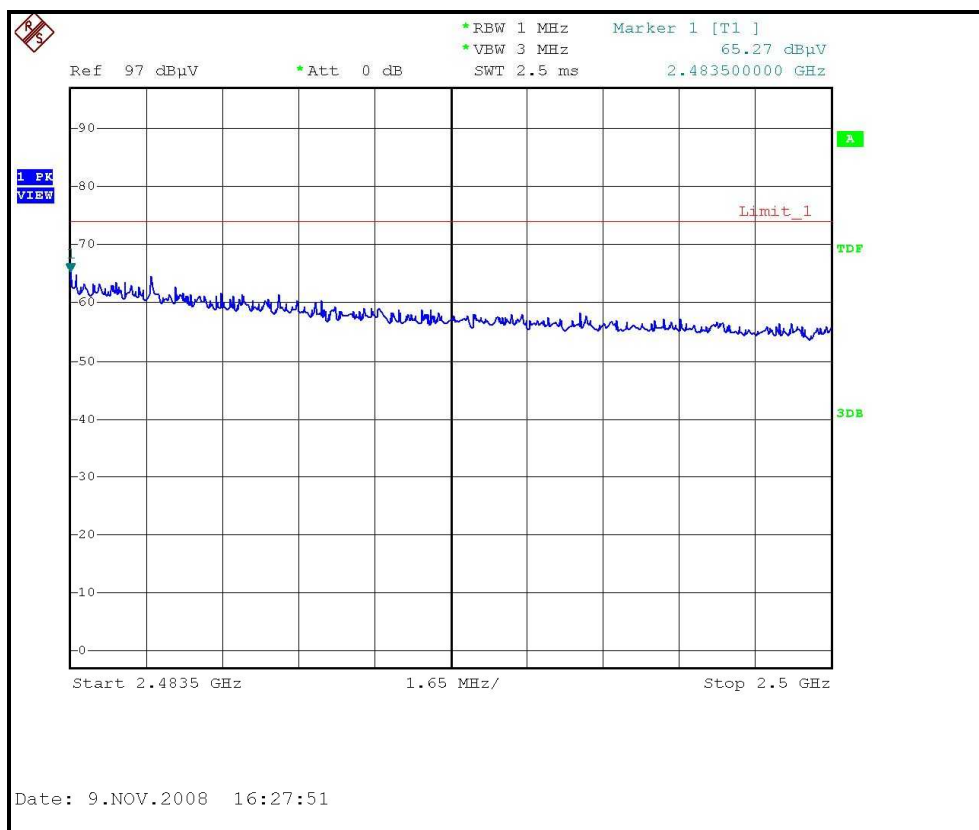
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, HORIZONTAL)



RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH1, VERTICAL)



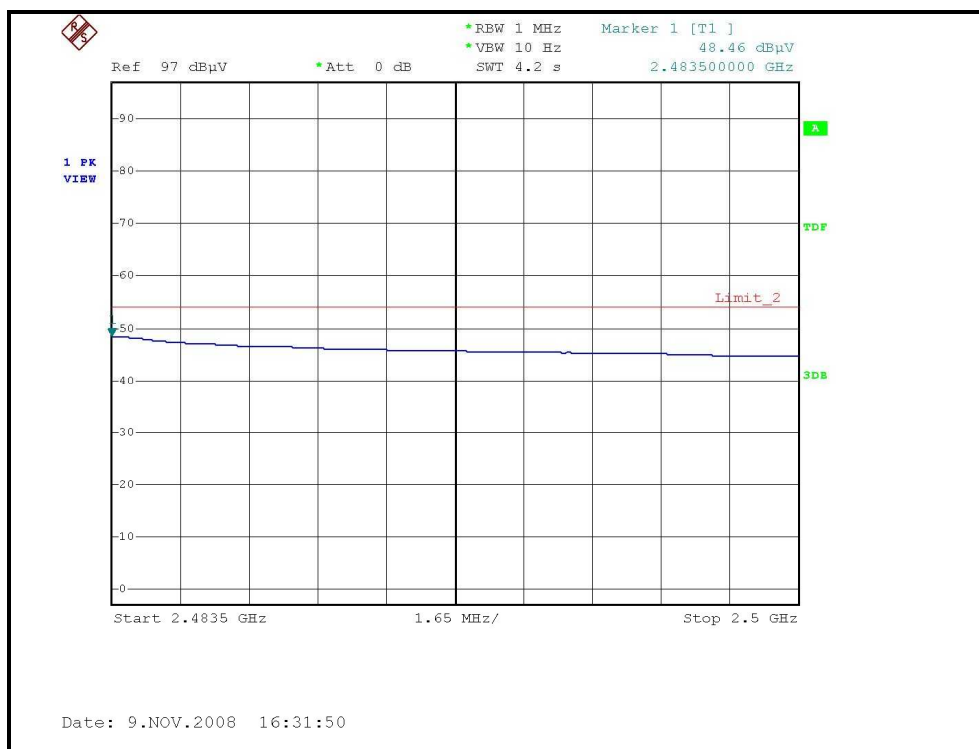
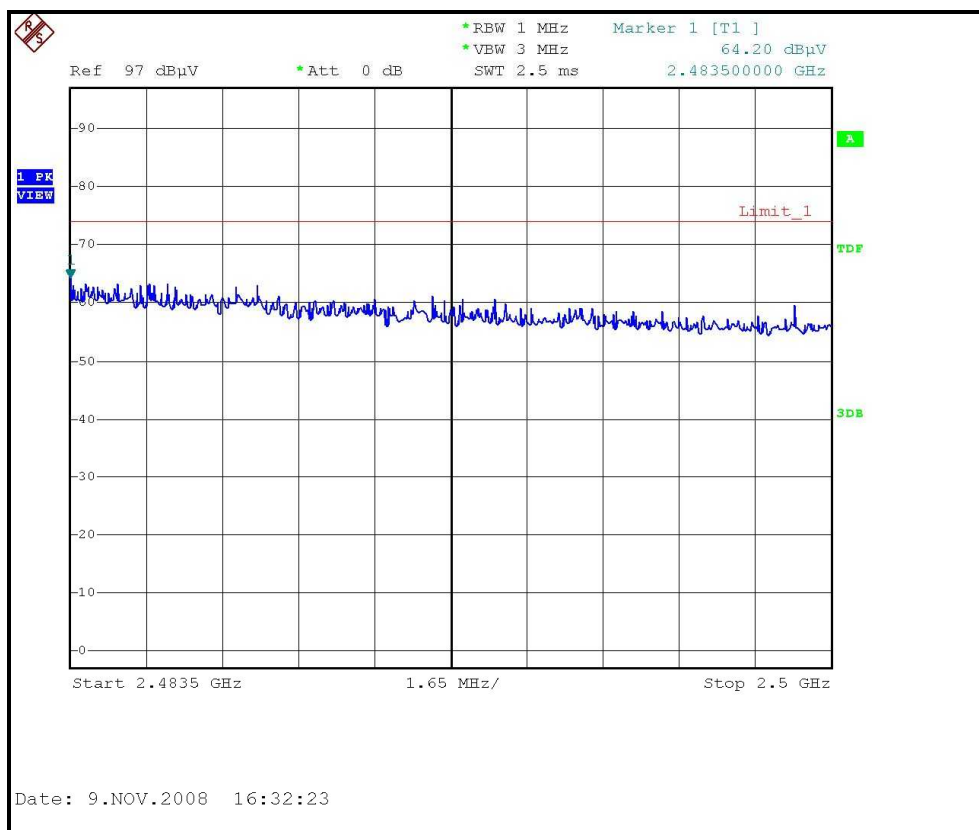
RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, HORIZONTAL)





A D T

RESTRICTED BANDEDGE (DRAFT 802.11n (20MHz) MODE,CH11, VERTICAL)





A D T

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	56.07 PK	74.00	-17.93	1.25 H	99	26.01	30.06
2	2390.00	44.15 AV	54.00	-9.85	1.25 H	99	14.09	30.06
3	*2422.00	105.20 PK			1.26 H	112	75.01	30.19
4	*2422.00	94.10 AV			1.26 H	112	63.91	30.19
5	4844.00	46.20 PK	74.00	-27.80	1.32 H	127	10.70	35.50
6	4844.00	31.60 AV	54.00	-22.40	1.32 H	127	-3.90	35.50
7	7266.00	54.20 PK	74.00	-19.80	1.26 H	5	12.27	41.93
8	7266.00	41.80 AV	54.00	-12.20	1.26 H	5	-0.13	41.93
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	69.74 PK	74.00	-4.26	1.02 V	32	39.68	30.06
2	2390.00	53.13 AV	54.00	-0.87	1.02 V	32	23.07	30.06
3	*2422.00	106.90 PK			1.00 V	29	76.71	30.19
4	*2422.00	95.80 AV			1.00 V	29	65.61	30.19
5	4844.00	44.50 PK	74.00	-29.50	1.61 V	314	9.00	35.50
6	4844.00	30.30 AV	54.00	-23.70	1.61 V	314	-5.20	35.50
7	7266.00	58.20 PK	74.00	-15.80	1.17 V	42	16.27	41.93
8	7266.00	43.70 AV	54.00	-10.30	1.17 V	42	1.77	41.93

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * “: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 4	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	57.10 PK	74.00	-16.90	1.24 H	117	27.04	30.06
2	2390.00	44.13 AV	54.00	-9.87	1.24 H	117	14.07	30.06
3	*2437.00	104.20 PK			1.25 H	113	73.96	30.24
4	*2437.00	93.70 AV			1.25 H	113	63.46	30.24
5	2483.50	58.26 PK	74.00	-15.74	1.26 H	102	27.83	30.43
6	2483.50	44.45 AV	54.00	-9.55	1.26 H	102	14.02	30.43
7	4874.00	46.80 PK	74.00	-27.20	1.31 H	129	11.25	35.55
8	4874.00	32.70 AV	54.00	-21.30	1.31 H	129	-2.85	35.55
9	7311.00	55.30 PK	74.00	-18.70	1.28 H	7	13.26	42.04
10	7311.00	42.30 AV	54.00	-11.70	1.28 H	7	0.26	42.04
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2390.00	68.84 PK	74.00	-5.16	1.00 V	49	38.78	30.06
2	2390.00	52.21 AV	54.00	-1.79	1.00 V	49	22.15	30.06
3	*2437.00	106.30 PK			1.00 V	42	76.06	30.24
4	*2437.00	95.10 AV			1.00 V	42	64.86	30.24
5	2483.50	72.28 PK	74.00	-1.72	1.01 V	53	41.85	30.43
6	2483.50	53.22 AV	54.00	-0.78	1.01 V	53	22.79	30.43
7	4874.00	45.60 PK	74.00	-28.40	1.62 V	320	10.05	35.55
8	4874.00	31.20 AV	54.00	-22.80	1.62 V	320	-4.35	35.55
9	7311.00	59.30 PK	74.00	-14.70	1.11 V	49	17.26	42.04
10	7311.00	44.20 AV	54.00	-9.80	1.11 V	49	2.16	42.04

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 7	FREQUENCY RANGE	1 ~ 25GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25 deg. C, 65%RH 965hPa	TESTED BY	Frank Liu
TEST MODE	PCB Antenna		

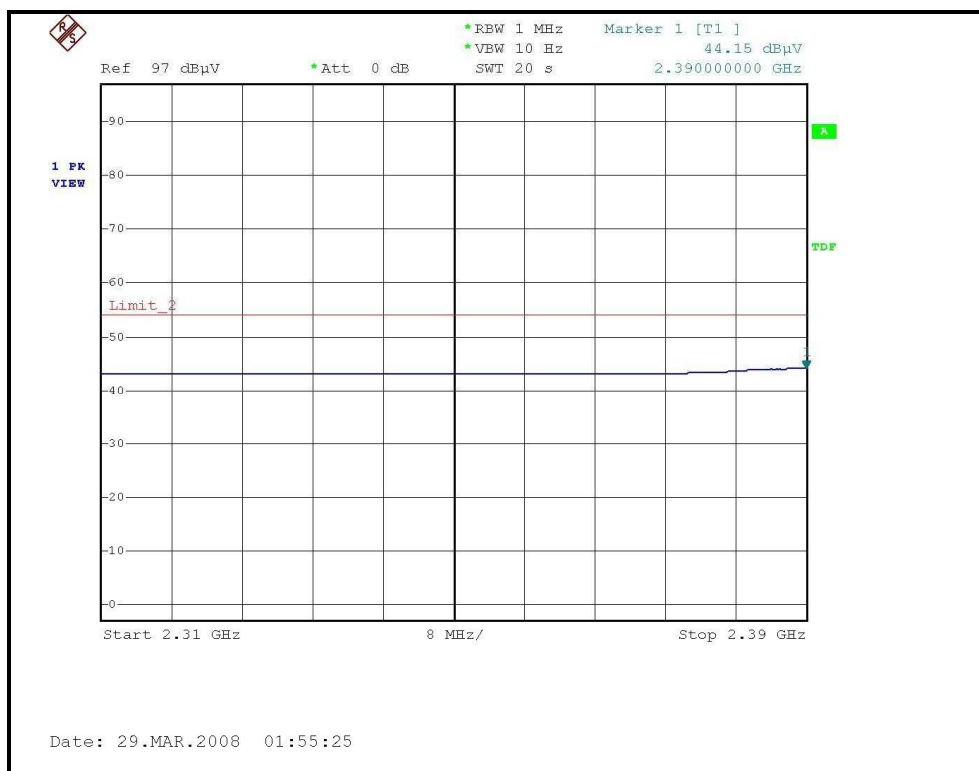
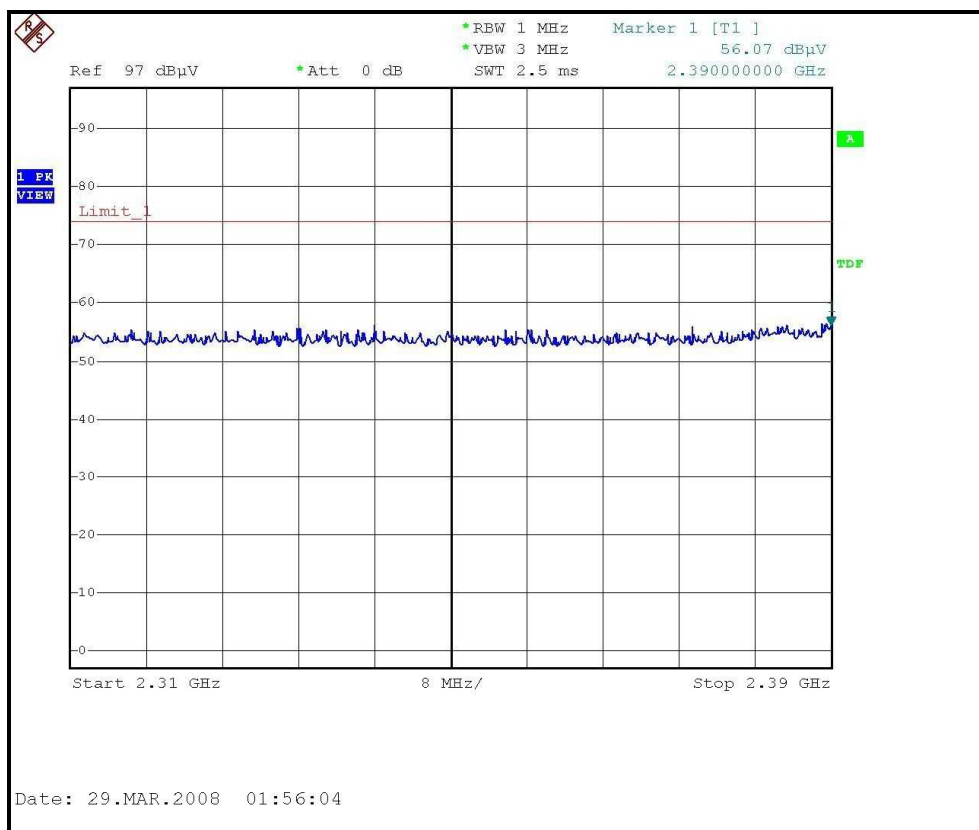
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	102.80 PK			1.24 H	119	72.50	30.30
2	*2452.00	92.10 AV			1.24 H	119	61.80	30.30
3	2483.50	58.53 PK	74.00	-15.47	1.21 H	105	28.10	30.43
4	2483.50	44.44 AV	54.00	-9.56	1.21 H	105	14.01	30.43
5	4904.00	47.20 PK	74.00	-26.80	1.30 H	124	11.60	35.60
6	4904.00	33.80 AV	54.00	-20.20	1.30 H	124	-1.80	35.60
7	7356.00	56.70 PK	74.00	-17.30	1.26 H	9	14.54	42.16
8	7356.00	43.20 AV	54.00	-10.80	1.26 H	9	1.04	42.16
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2452.00	104.30 PK			1.02 V	21	74.00	30.30
2	*2452.00	93.80 AV			1.02 V	21	63.50	30.30
3	2483.50	71.81 PK	74.00	-2.19	1.00 V	26	41.38	30.43
4	2483.50	53.06 AV	54.00	-0.94	1.00 V	26	22.63	30.43
5	4904.00	46.30 PK	74.00	-27.70	1.58 V	324	10.70	35.60
6	4904.00	32.60 AV	54.00	-21.40	1.58 V	324	-3.00	35.60
7	7356.00	60.40 PK	74.00	-13.60	1.13 V	56	18.24	42.16
8	7356.00	45.10 AV	54.00	-8.90	1.13 V	56	2.94	42.16

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.



A D T

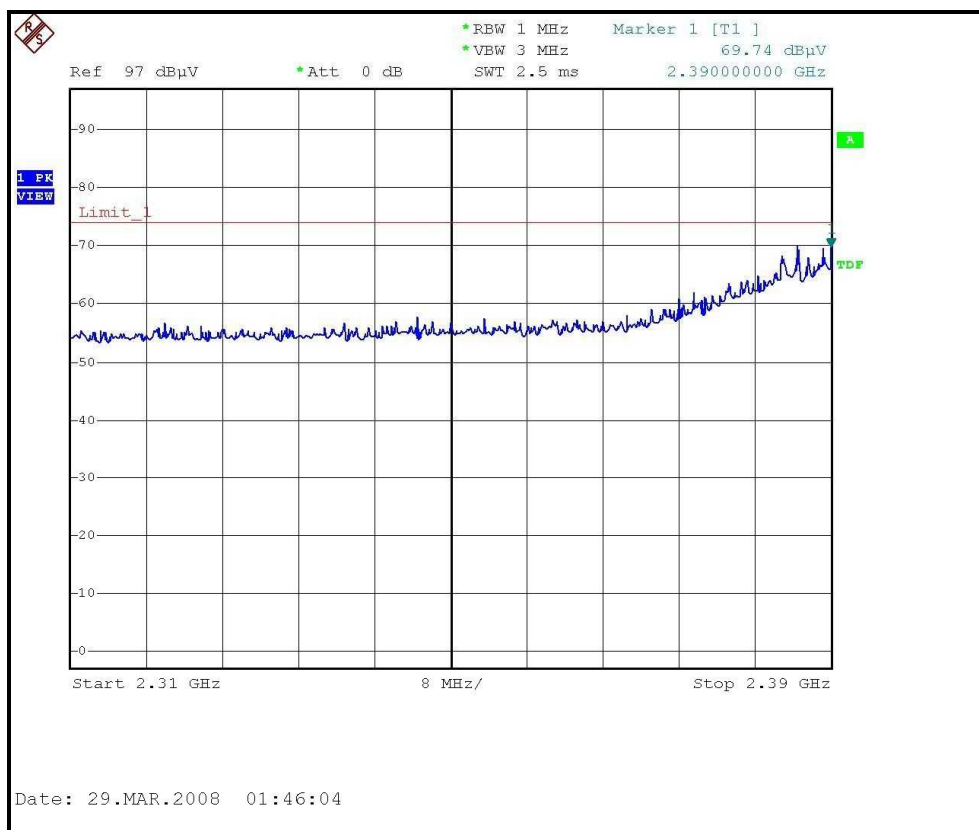
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, HORIZONTAL)





A D T

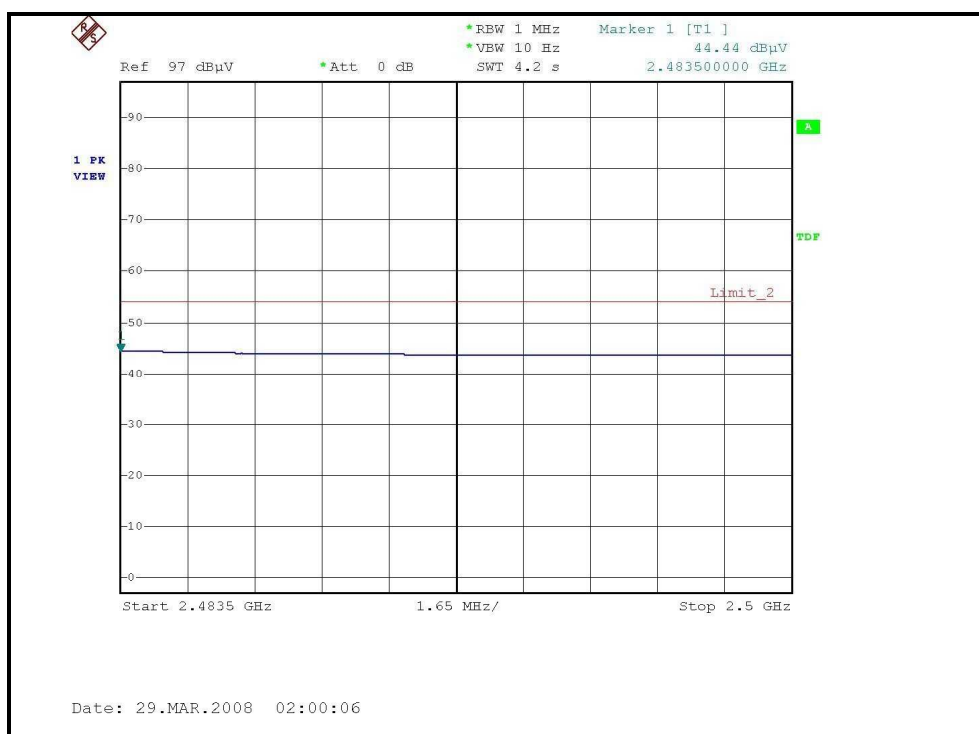
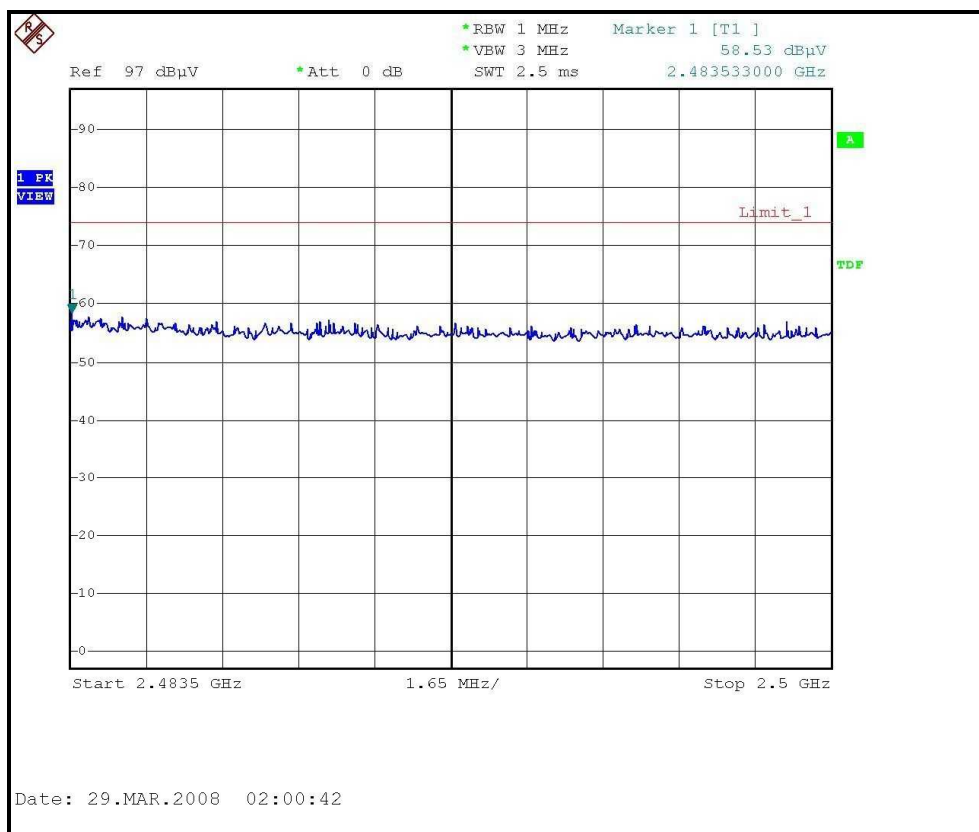
RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH1, VERTICAL)



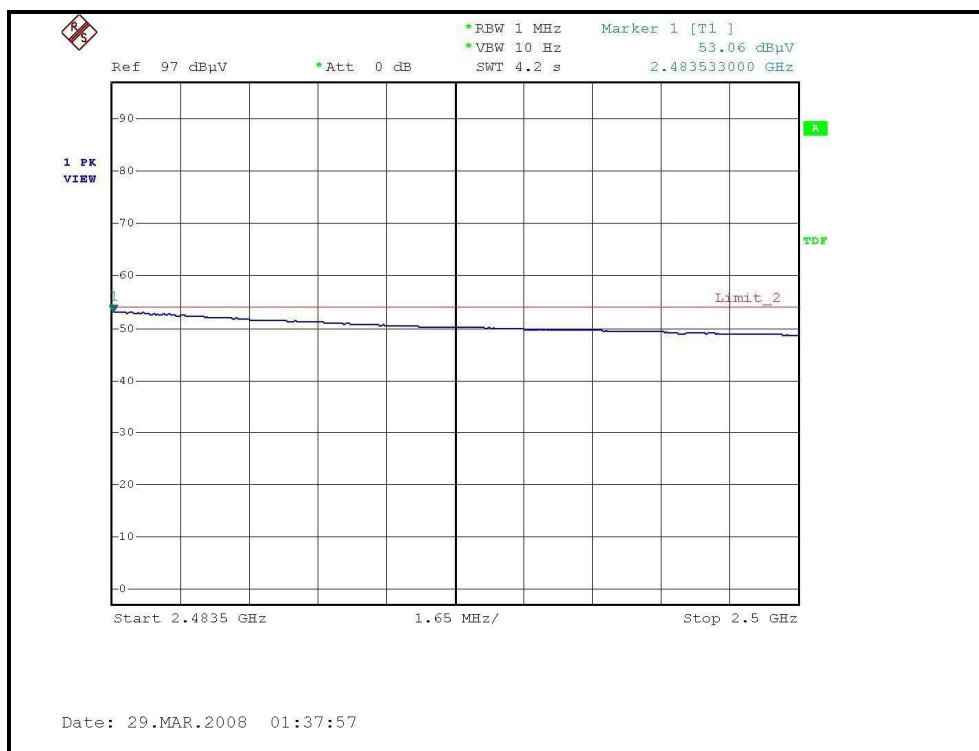
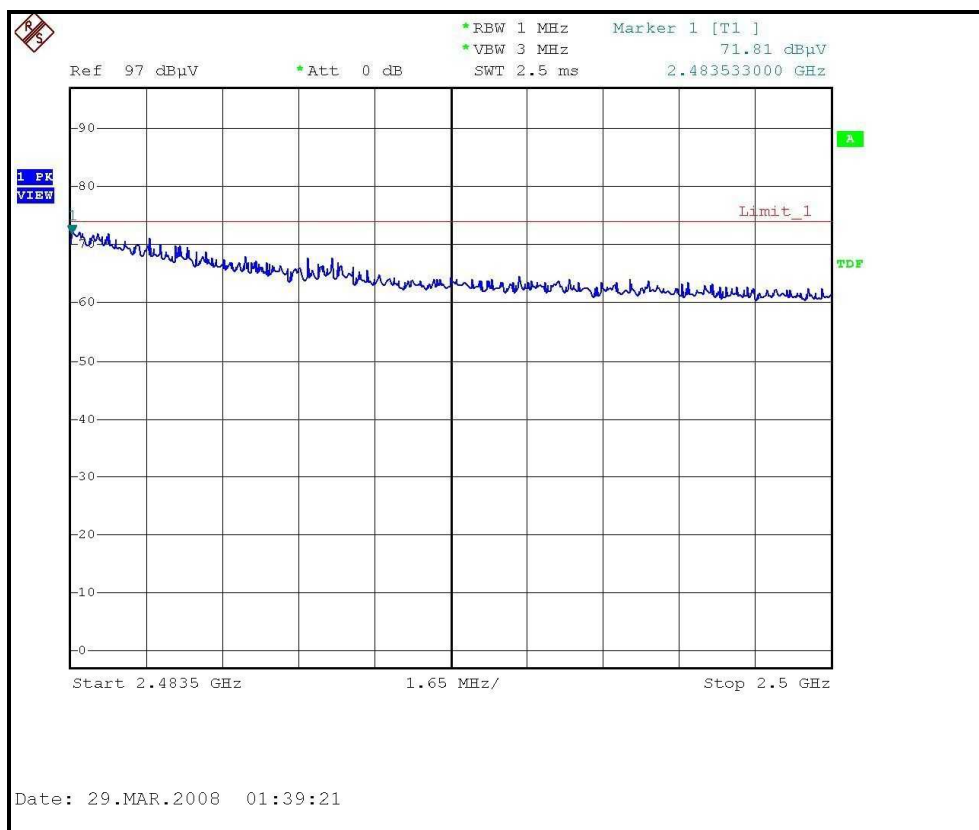


A D T

RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, HORIZONTAL)



RESTRICTED BANDEDGE (DRAFT 802.11n (40MHz) MODE,CH7, VERTICAL)



4.3 6dB BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

4.3.2 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 measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



A D T

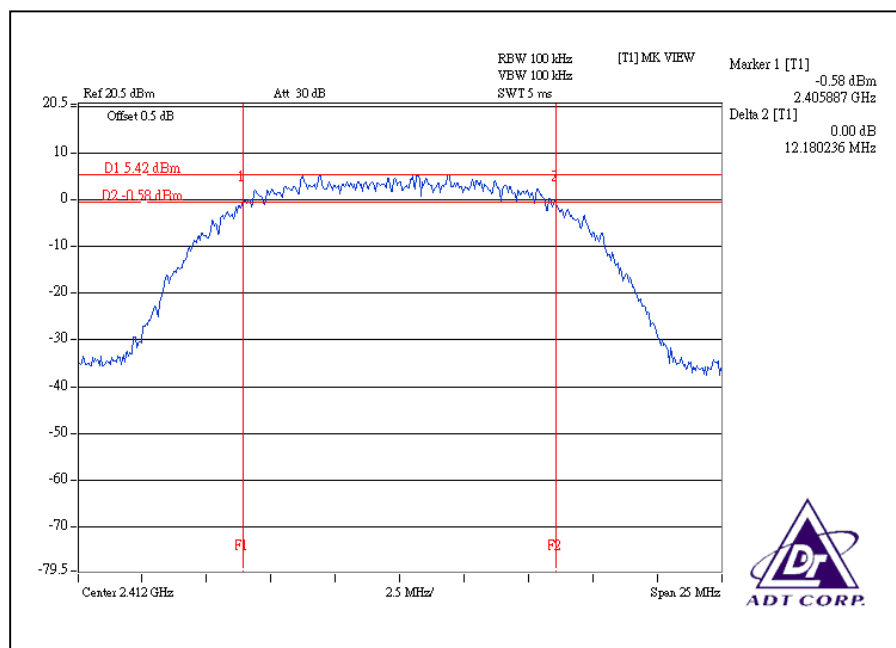
4.3.7 TEST RESULTS

802.11b DSSS MODULATION:

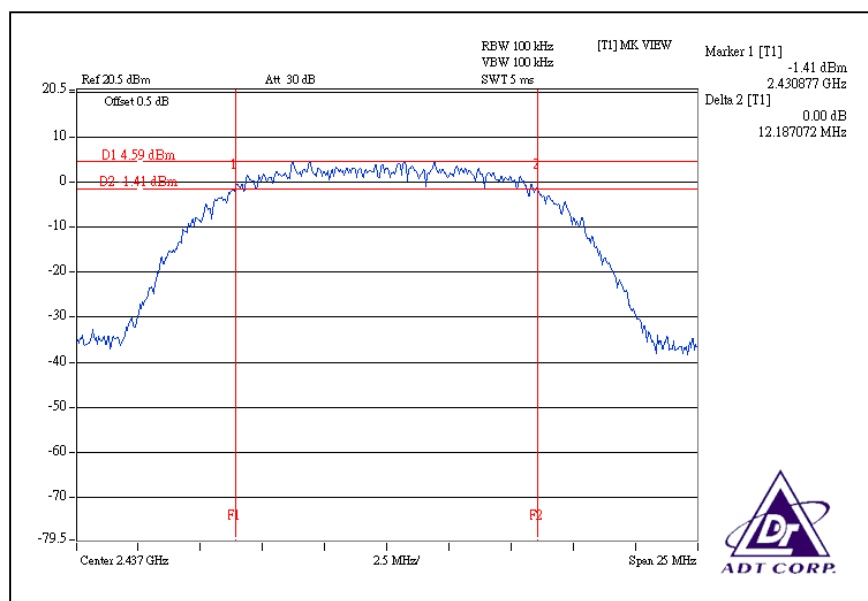
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	12.18	0.5	PASS
6	2437	12.19	0.5	PASS
11	2462	12.19	0.5	PASS

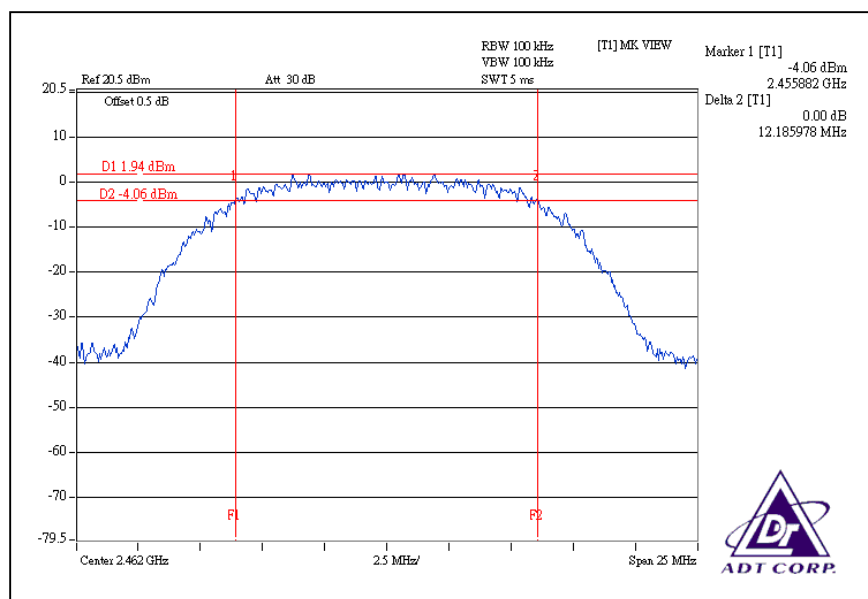
CH1



CH6



CH11





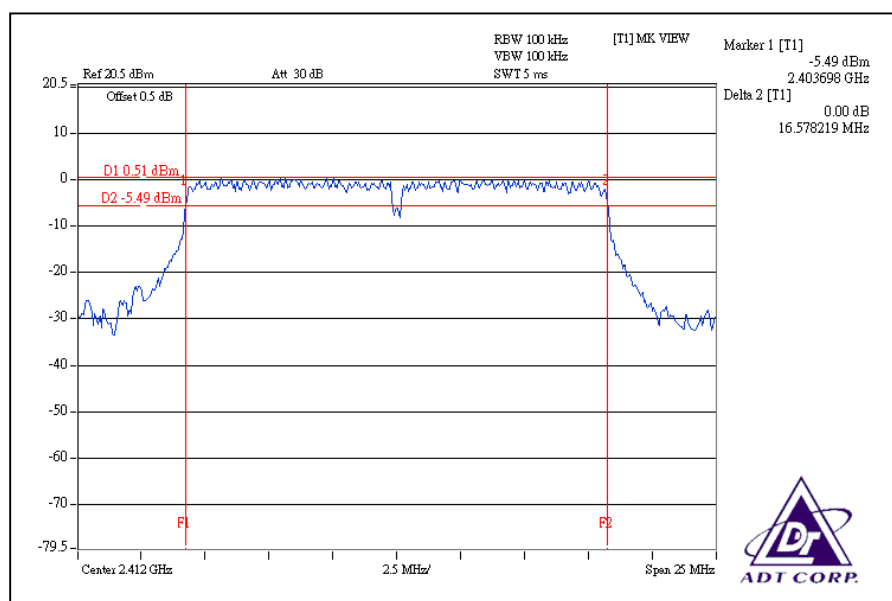
A D T

802.11g OFDM MODULATION:

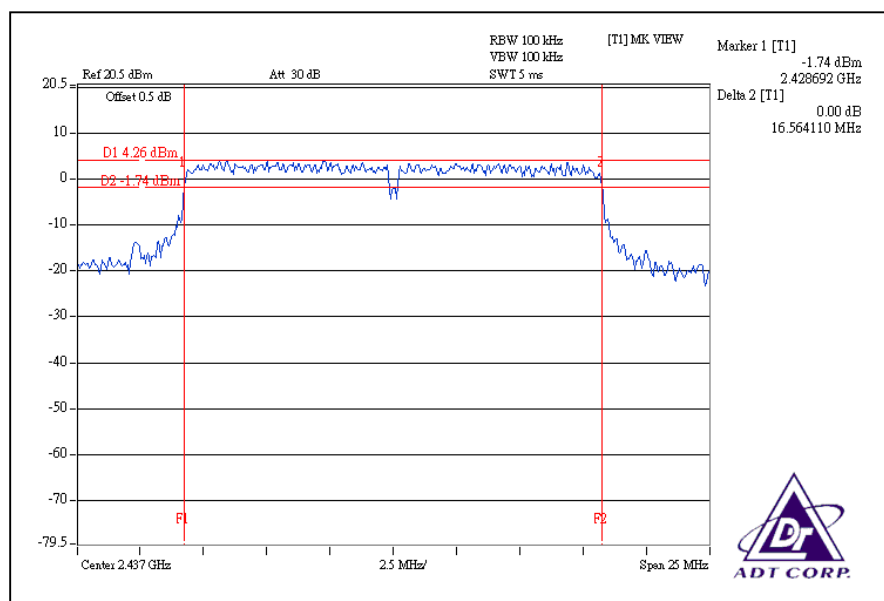
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	2412	16.58	0.5	PASS
6	2437	16.56	0.5	PASS
11	2462	16.58	0.5	PASS

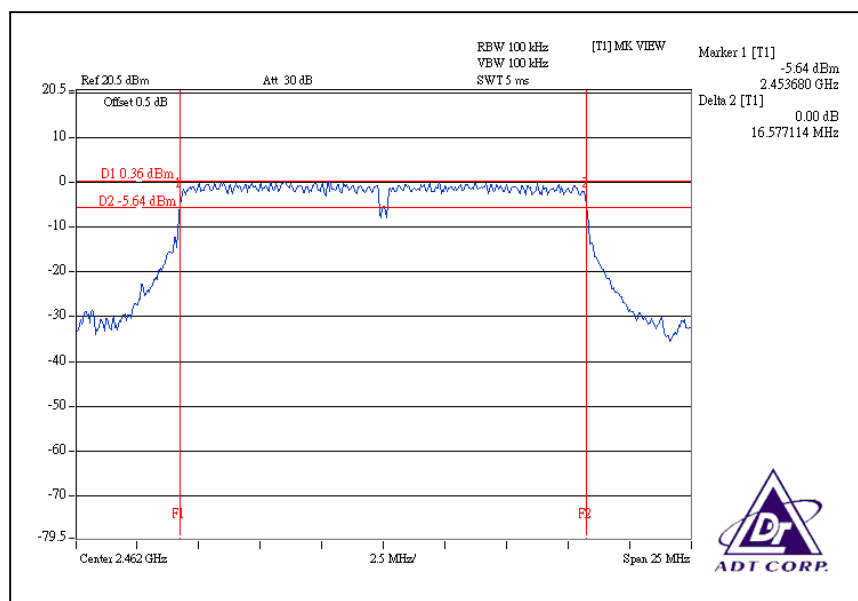
CH1



CH6



CH11





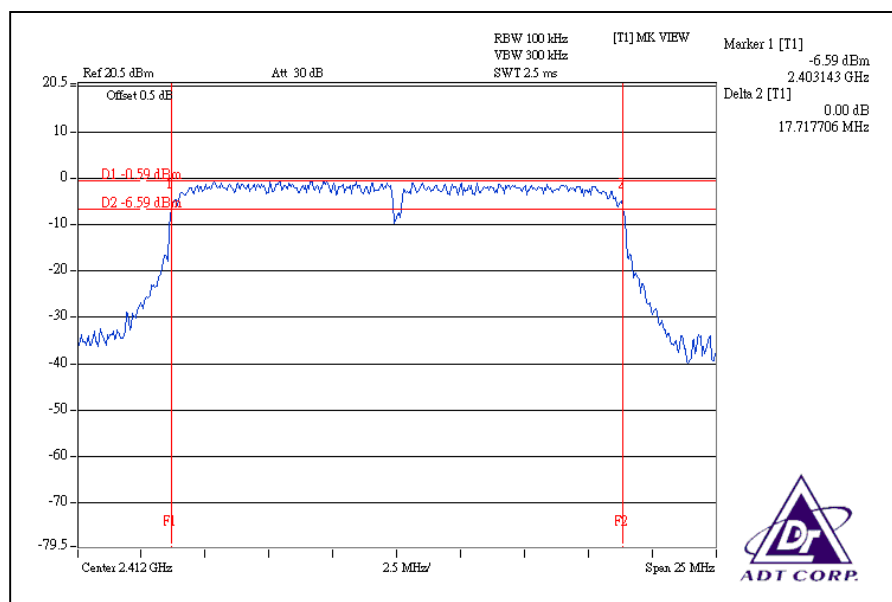
A D T

DRAFT 802.11n (20MHz) OFDM MODULATION:

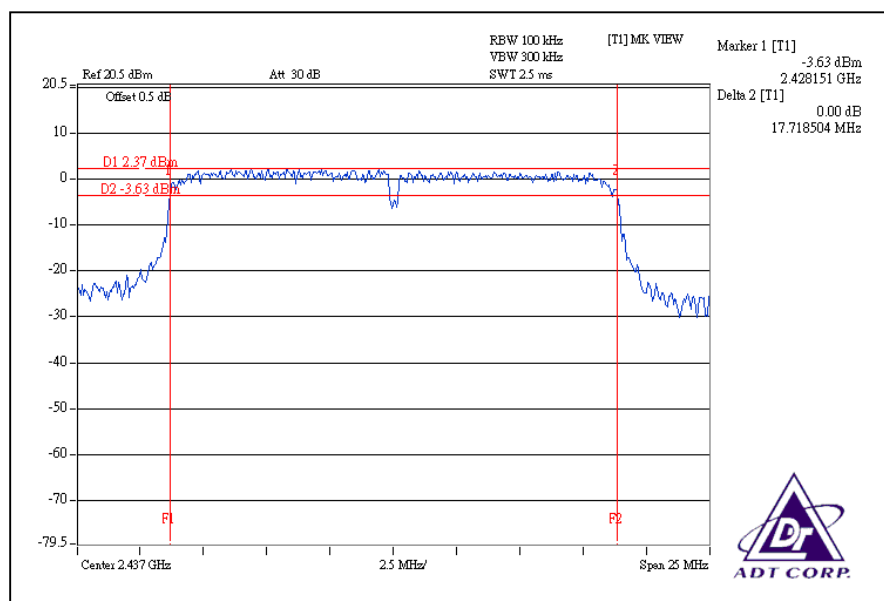
MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2412	17.72	17.43	0.5	PASS
6	2437	17.72	17.62	0.5	PASS
11	2462	17.74	17.67	0.5	PASS

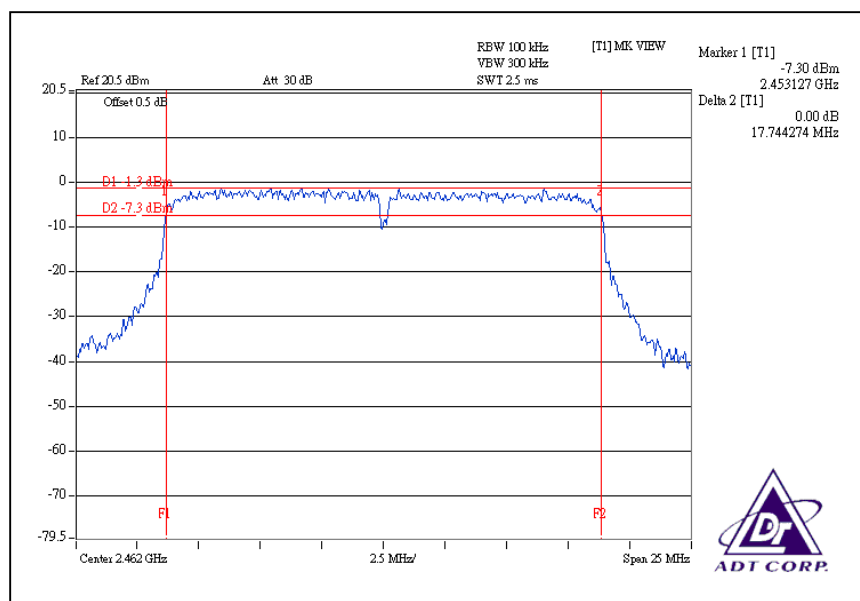
For Chain(0): CH1



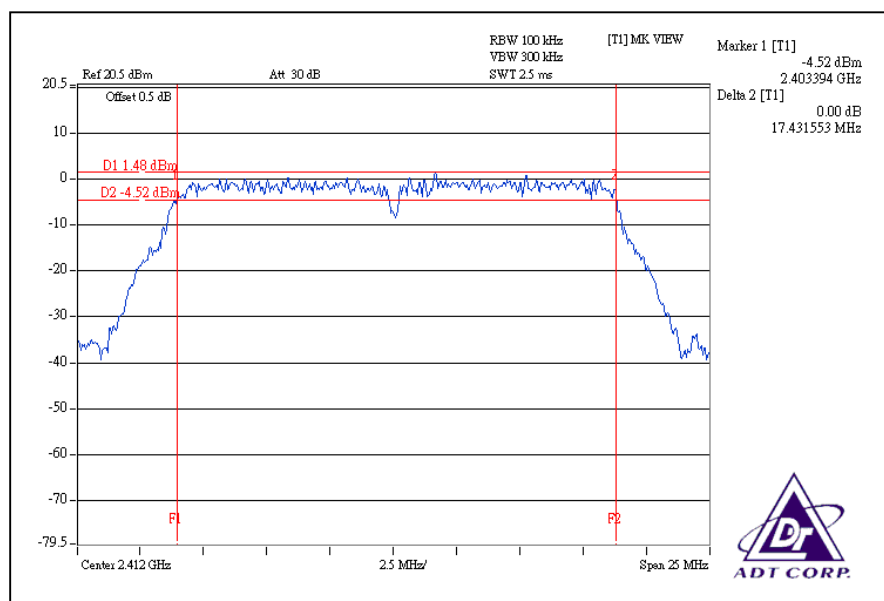
CH6



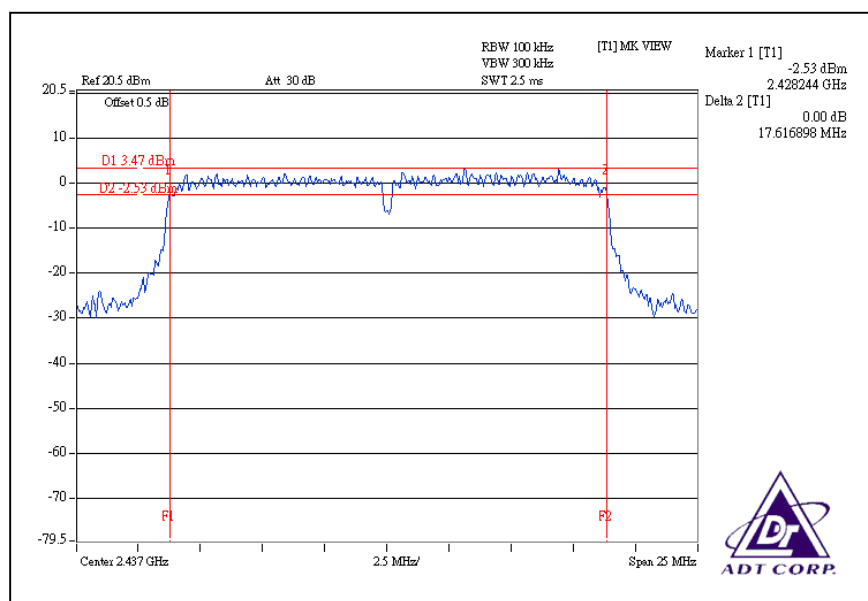
CH11



For CHAIN(1): CH1



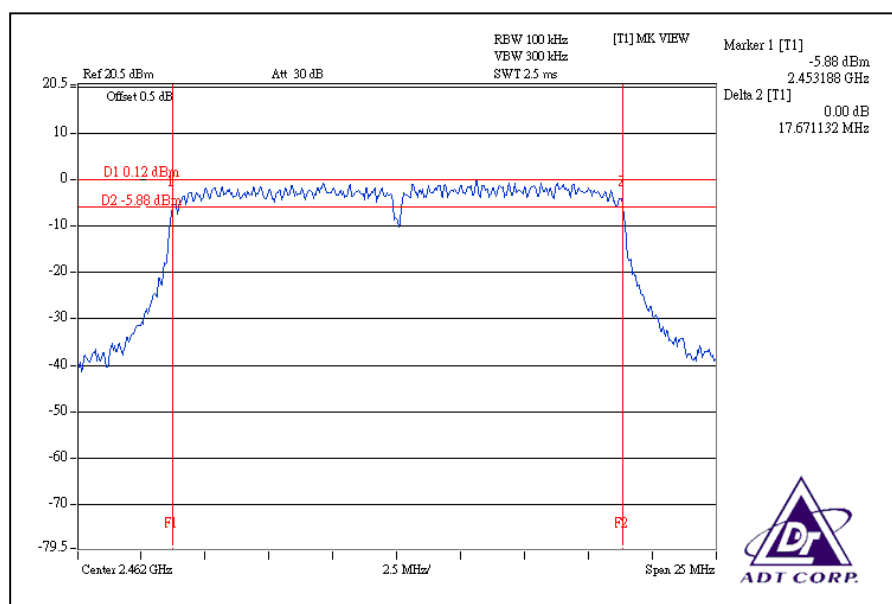
CH6





A D T

CH11





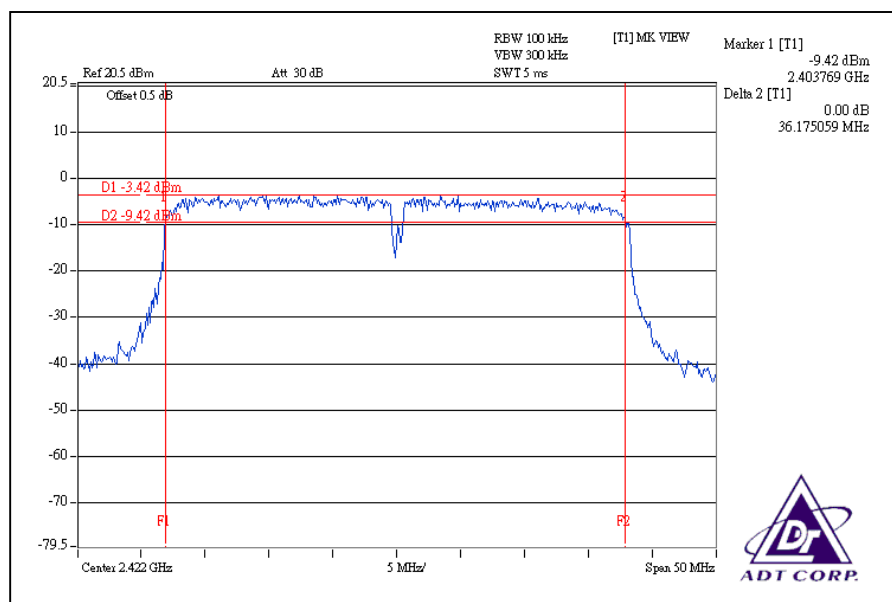
A D T

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	2422	36.18	36.41	0.5	PASS
4	2437	36.46	36.45	0.5	PASS
7	2452	36.06	35.97	0.5	PASS

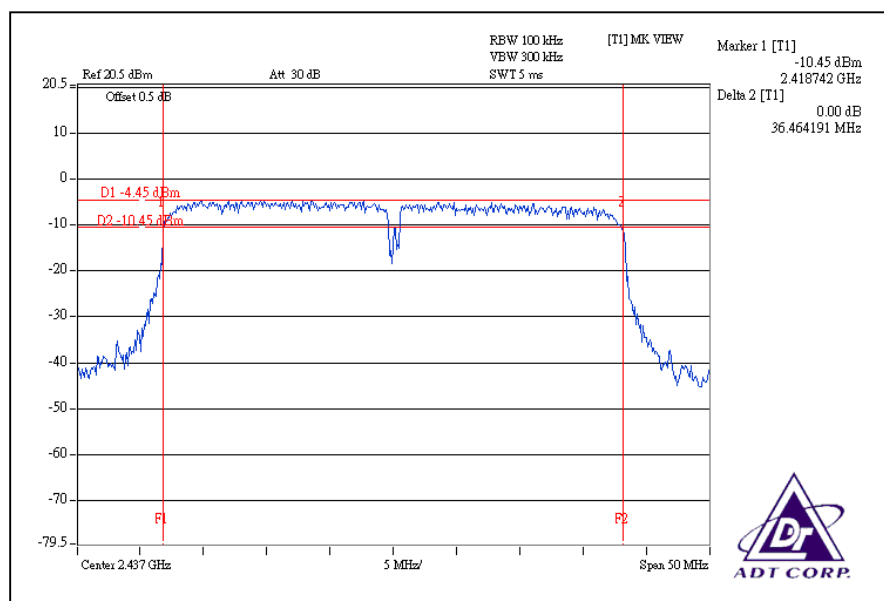
For Chain (0): CH1



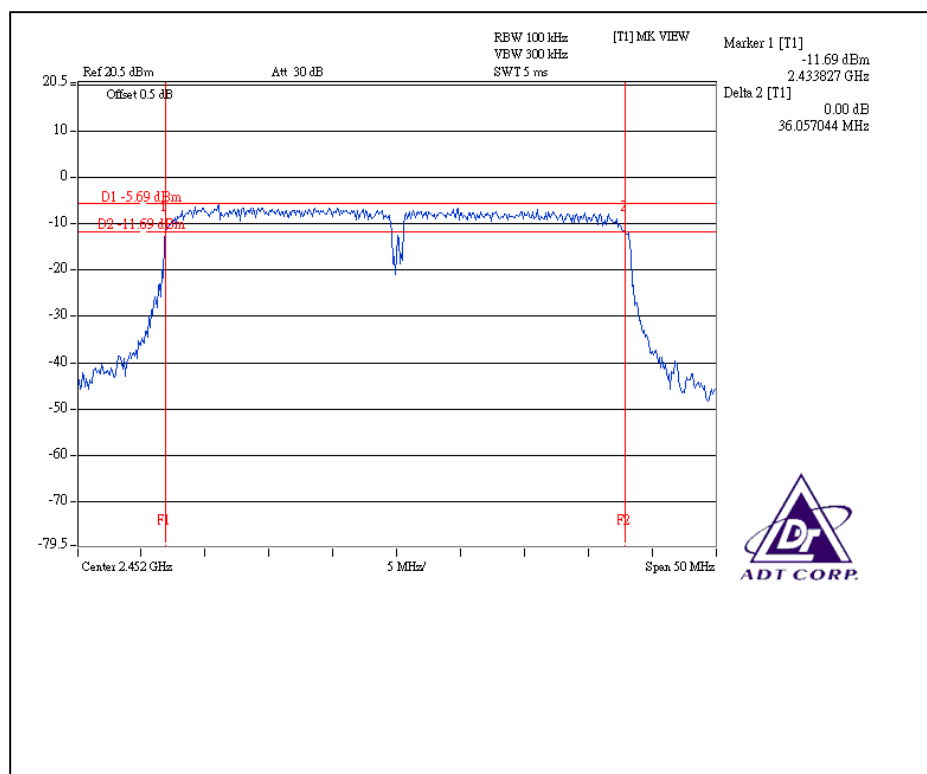


A D T

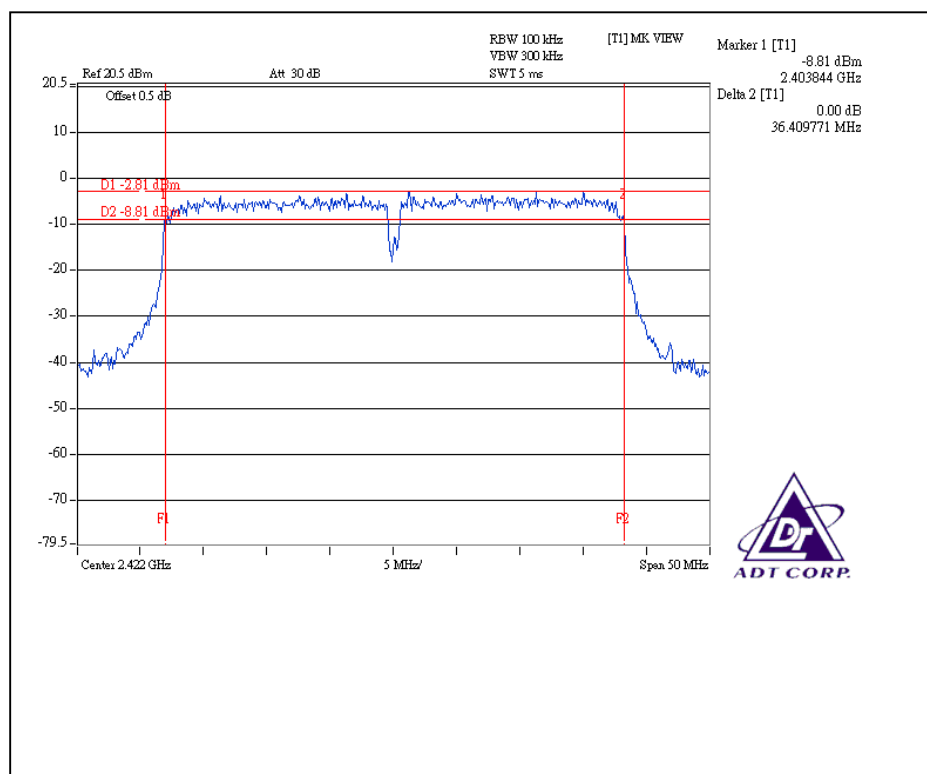
CH4



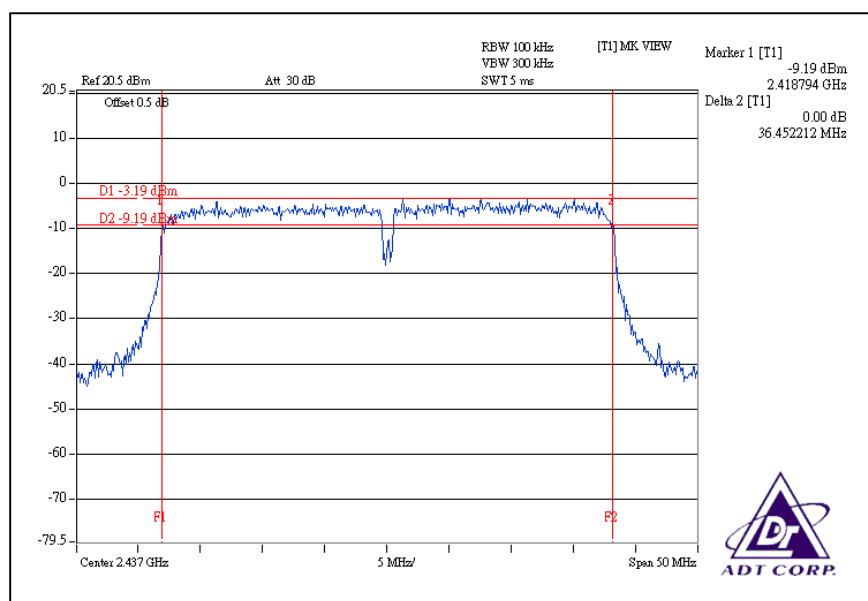
CH7



For Chain (1): CH1



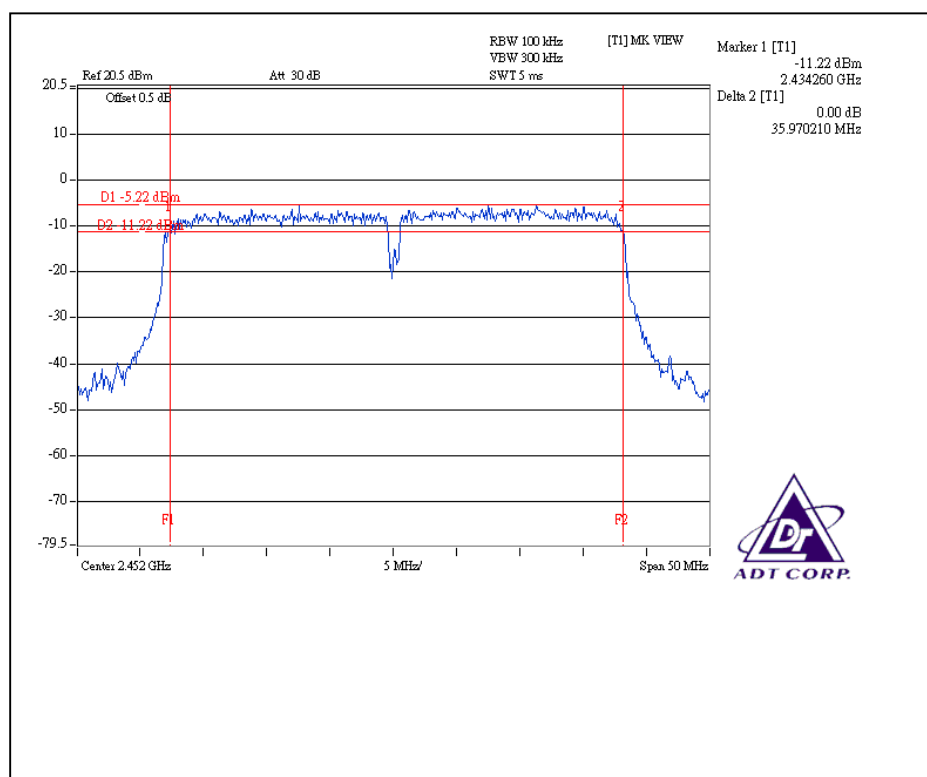
CH4





A D T

CH7





4.4 MAXIMUM PEAK OUTPUT POWER

4.4.1 LIMITS OF MAXIMUM PEAK OUTPUT POWER MEASUREMENT

The Maximum Peak Output Power Measurement is 30dBm.

4.4.2 INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 13, 2008	Aug. 12, 2009
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 26, 2007	Dec. 25, 2008
Anritsu Power Meter	ML2495A	0824006	NA	NA
Pulse Power Sensor	MA2411B	0738172	NA	NA

NOTE:

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

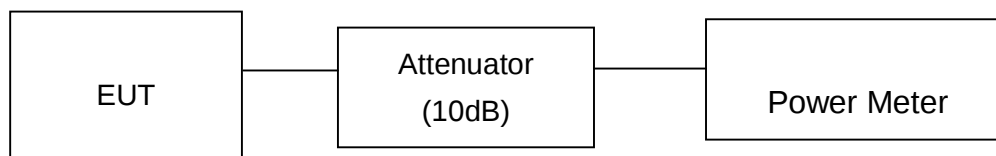
4.4.3 TEST PROCEDURES

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.

4.4.4 DEVIATION FROM TEST STANDARD

No deviation

4.4.5 TEST SETUP



4.4.6 EUT OPERATING CONDITIONS

Same as Item 4.3.6



4.4.7 TEST RESULTS

802.11b DSSS MODULATION:

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	134.276	21.28	30	PASS
6	2437	104.713	20.20	30	PASS
11	2462	75.858	18.80	30	PASS

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	2412	266.686	24.26	30	PASS
6	2437	302.691	24.81	30	PASS
11	2462	272.270	24.35	30	PASS



A D T

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2412	223.872	199.526	23.50	23.00	423.398	26.27	30	PASS
6	2437	276.694	272.898	24.42	24.36	549.592	27.40	30	PASS
11	2462	221.820	213.796	23.46	23.30	435.616	26.39	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	2422	213.304	209.411	23.29	23.21	422.715	26.26	30	PASS
4	2437	204.174	204.174	23.10	23.10	408.348	26.11	30	PASS
7	2452	147.911	141.254	21.70	21.50	289.165	24.61	30	PASS



A D T

4.5 POWER SPECTRAL DENSITY MEASUREMENT

4.5.1 LIMITS OF POWER SPECTRAL DENSITY MEASUREMENT

The Maximum of Power Spectral Density Measurement is 8dBm.

4.5.2 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 measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

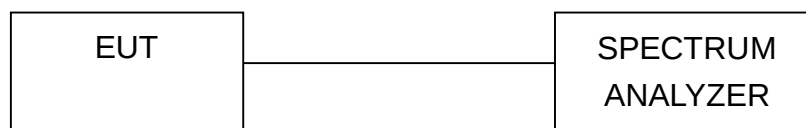
4.5.3 TEST PROCEDURE

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 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded. The sweep time is allowed to be longer than span/3kHz for a full response of the mixer in the spectrum analyzer.

4.5.4 DEVIATION FROM TEST STANDARD

No deviation

4.5.5 TEST SETUP



4.5.6 EUT OPERATING CONDITION

Same as Item 4.3.6

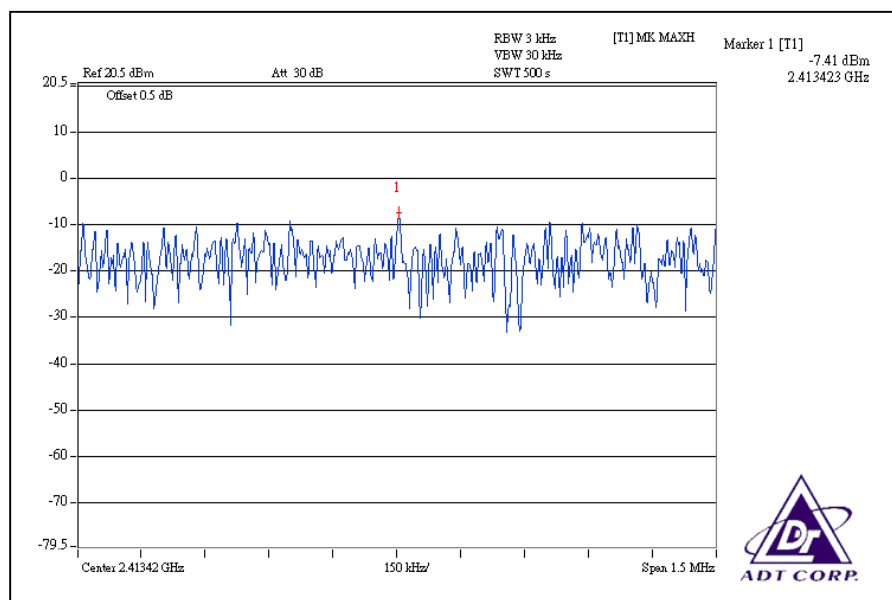
4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

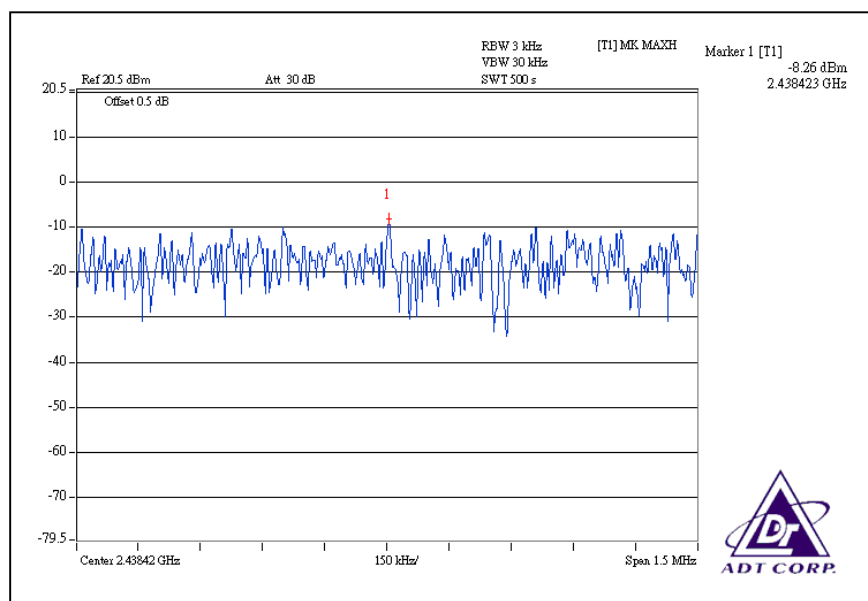
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-7.41	8	PASS
6	2437	-8.26	8	PASS
11	2462	-10.90	8	PASS

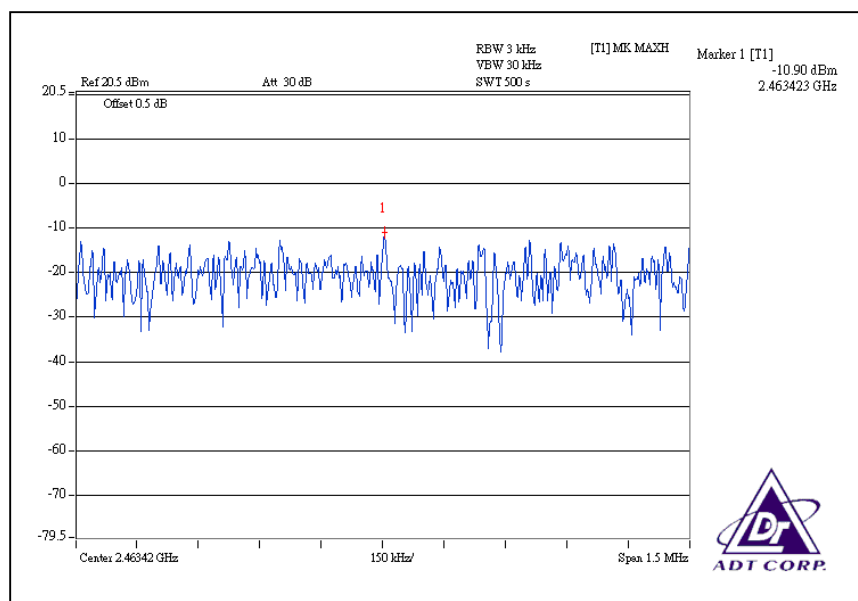
CH1



CH6



CH11





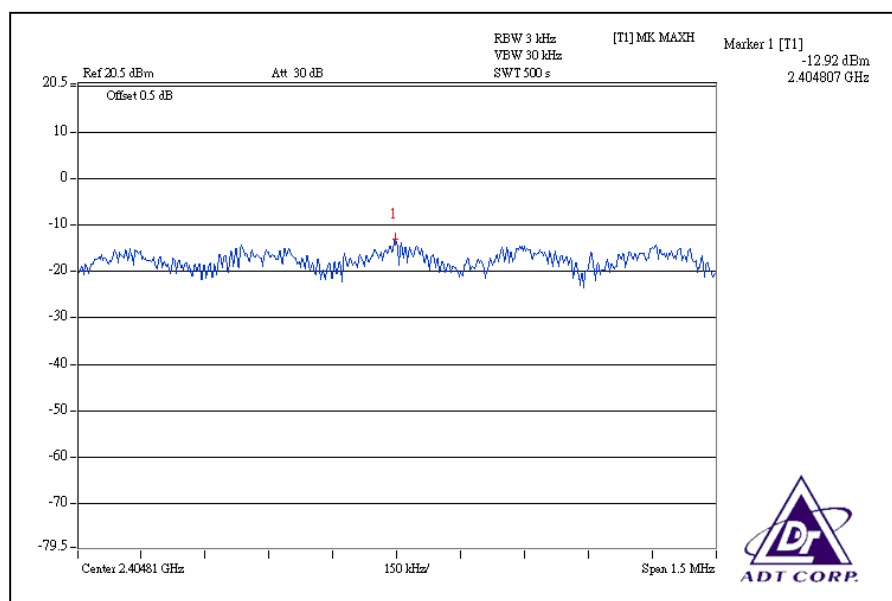
A D T

802.11g OFDM MODULATION:

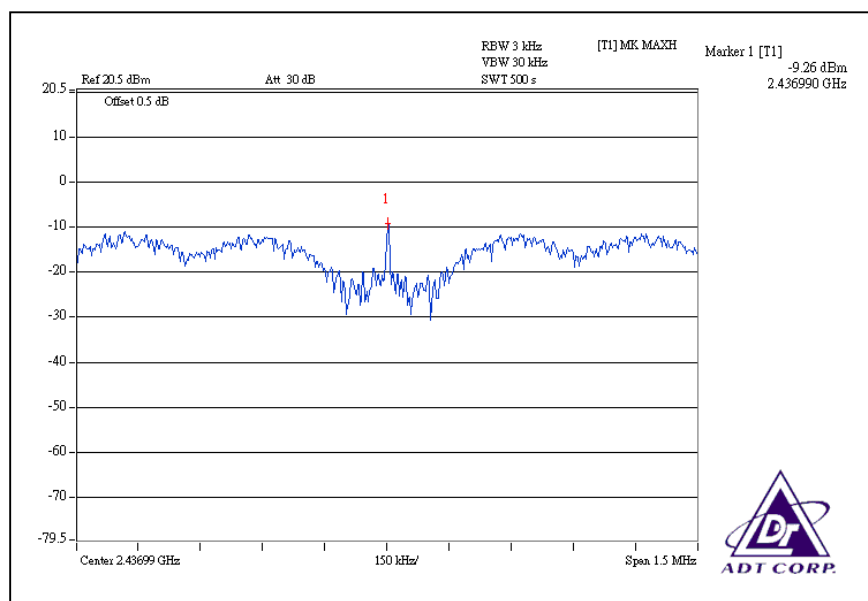
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	2412	-12.92	8	PASS
6	2437	-9.26	8	PASS
11	2462	-12.49	8	PASS

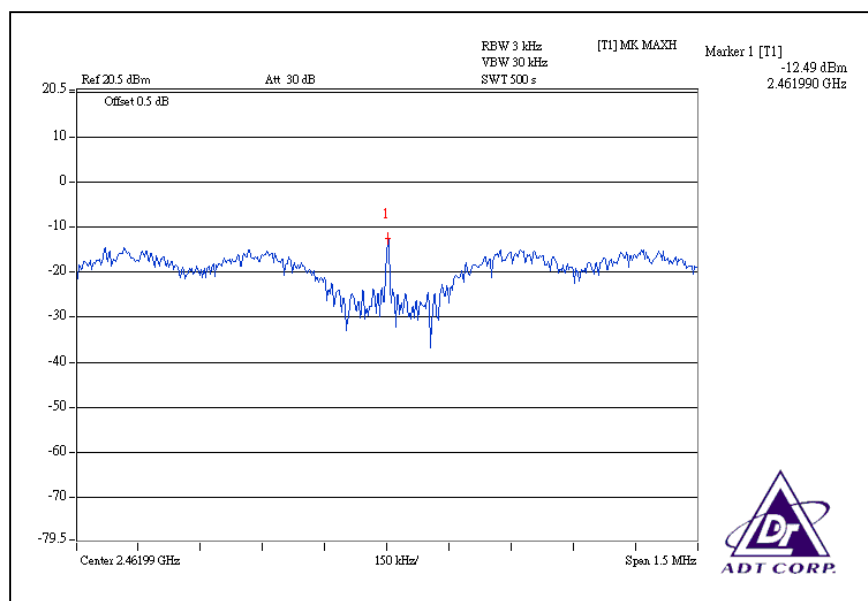
CH1



CH6



CH11





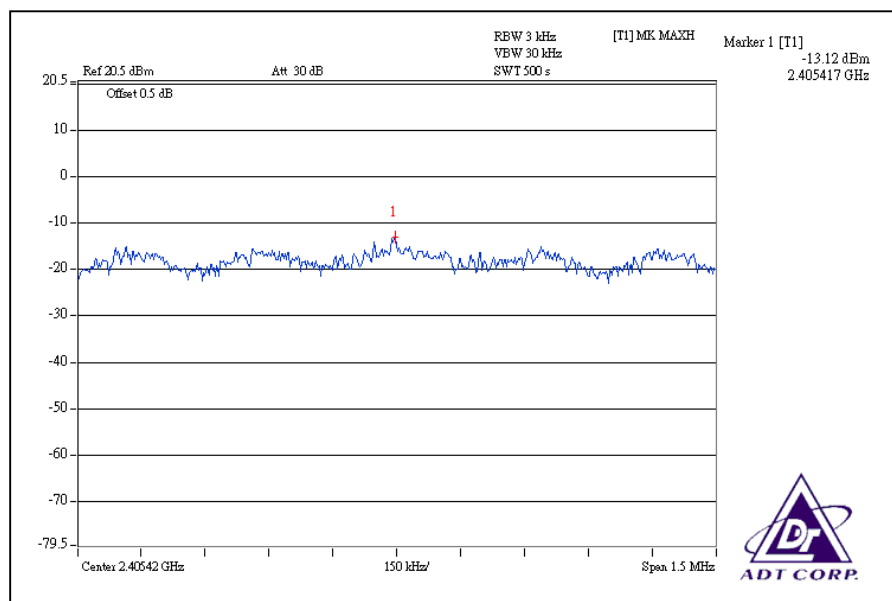
A D T

DRAFT 802.11n (20MHz) OFDM MODULATION:

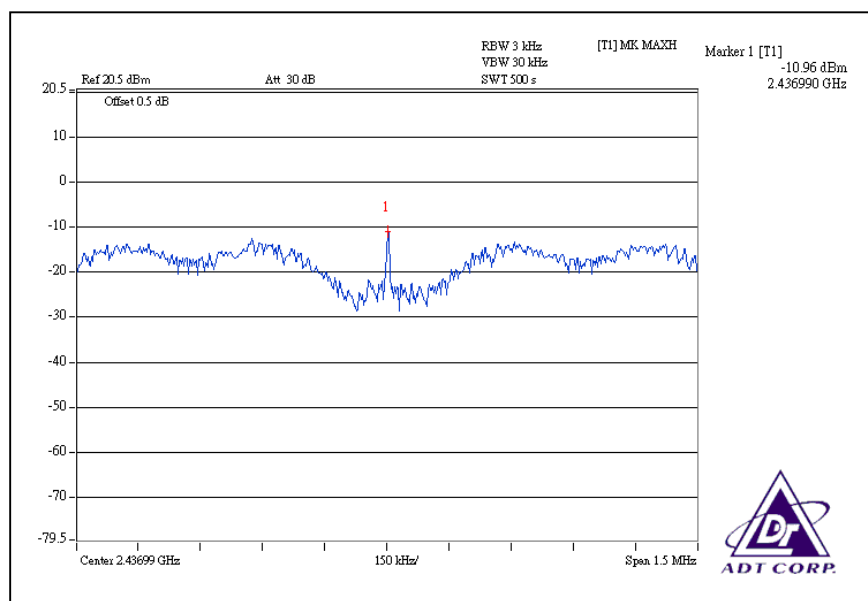
MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25 deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

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(0)	CHAIN(1)				
1	2412	0.049	0.032	-13.12	-14.97	0.081	-10.92	8	PASS
6	2437	0.080	0.065	-10.96	-11.85	0.145	-8.39	8	PASS
11	2462	0.041	0.038	-13.83	-14.24	0.079	-11.02	8	PASS

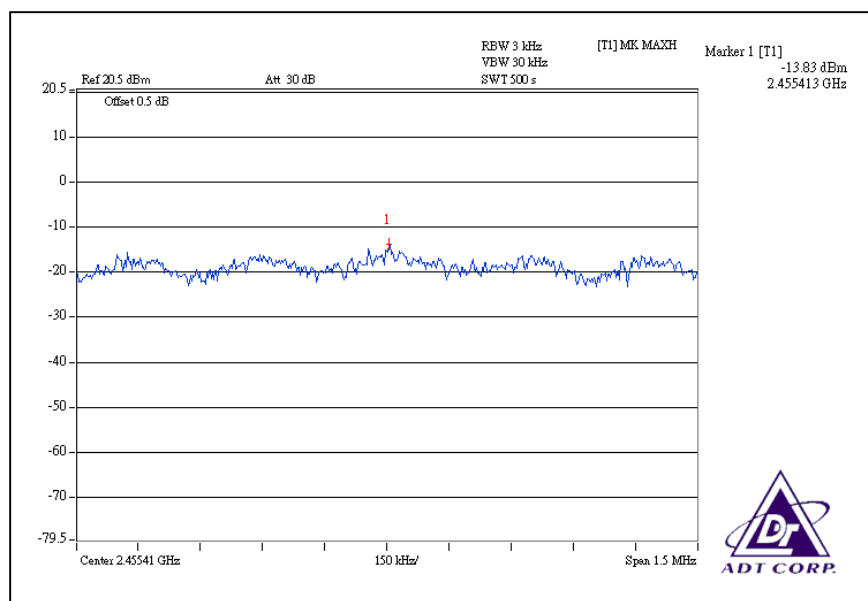
For Chain(0): CH1



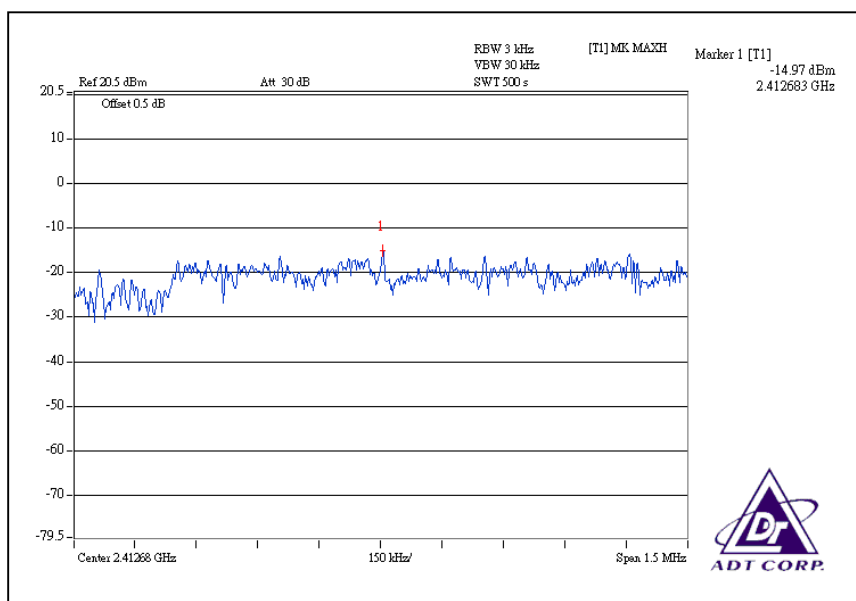
CH6



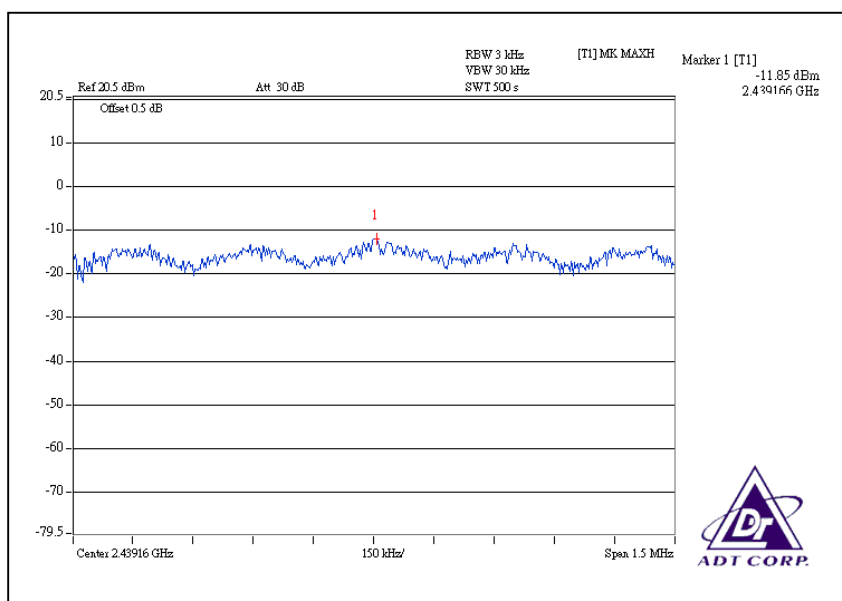
CH11



For Chain (1): CH1



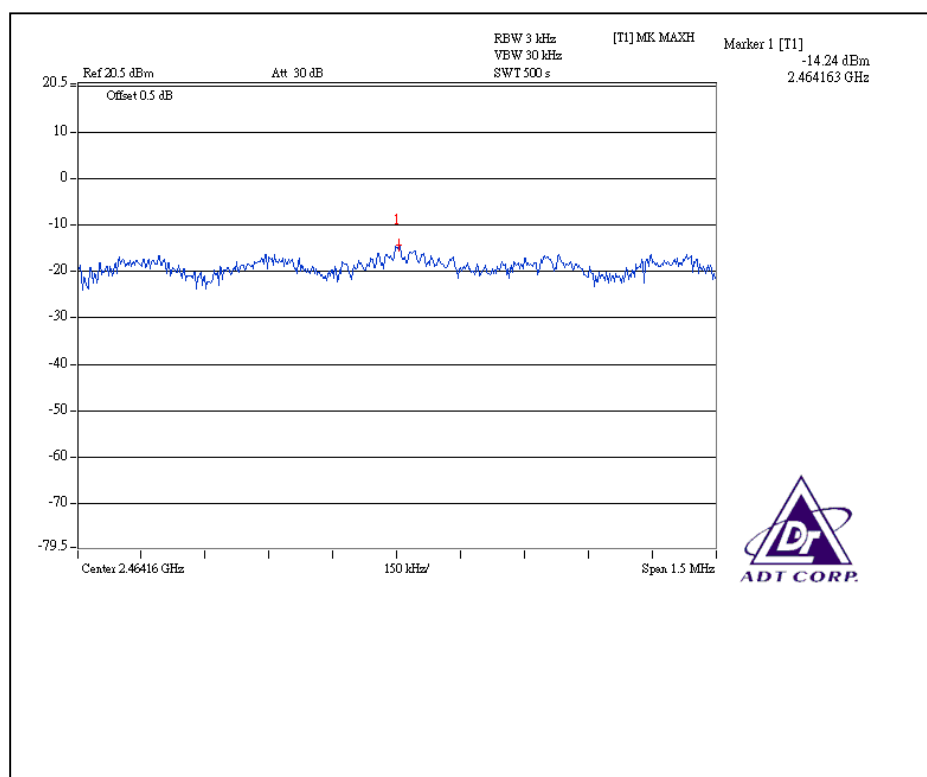
CH6





A D T

CH11





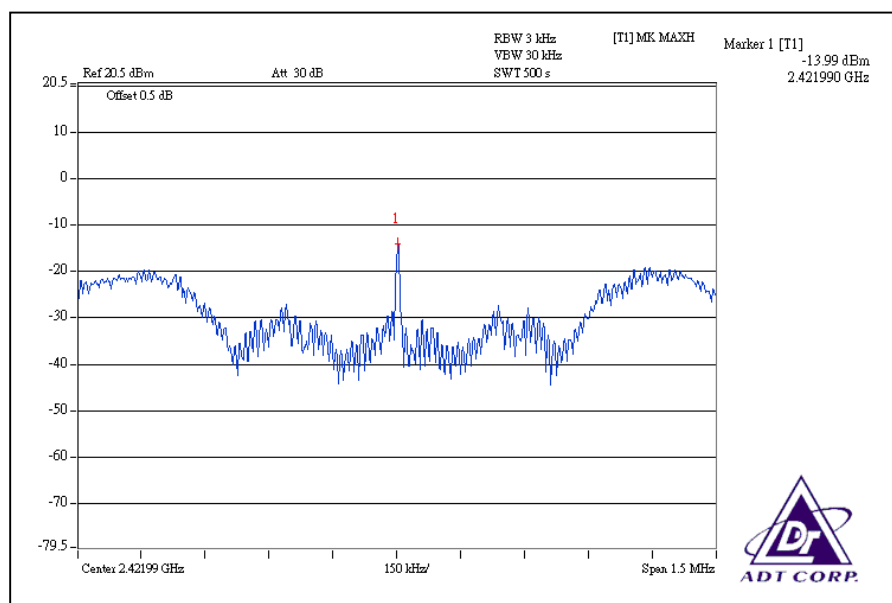
A D T

DRAFT 802.11n (40MHz) OFDM MODULATION:

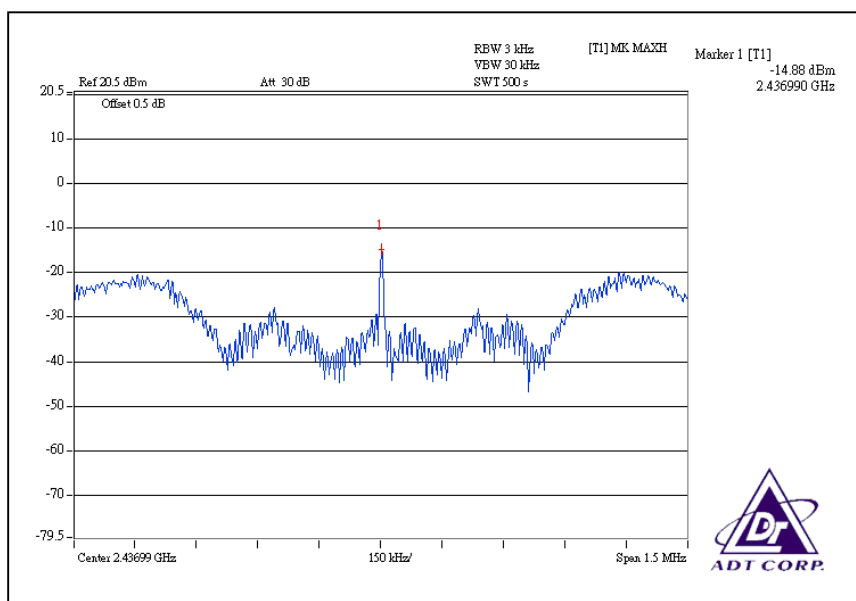
MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

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(0)	CHAIN(1)				
1	2422	0.040	0.017	-13.99	-17.62	0.057	-12.44	8	PASS
4	2437	0.033	0.017	-14.88	-17.80	0.050	-13.01	8	PASS
7	2452	0.022	0.009	-16.61	-20.60	0.031	-15.09	8	PASS

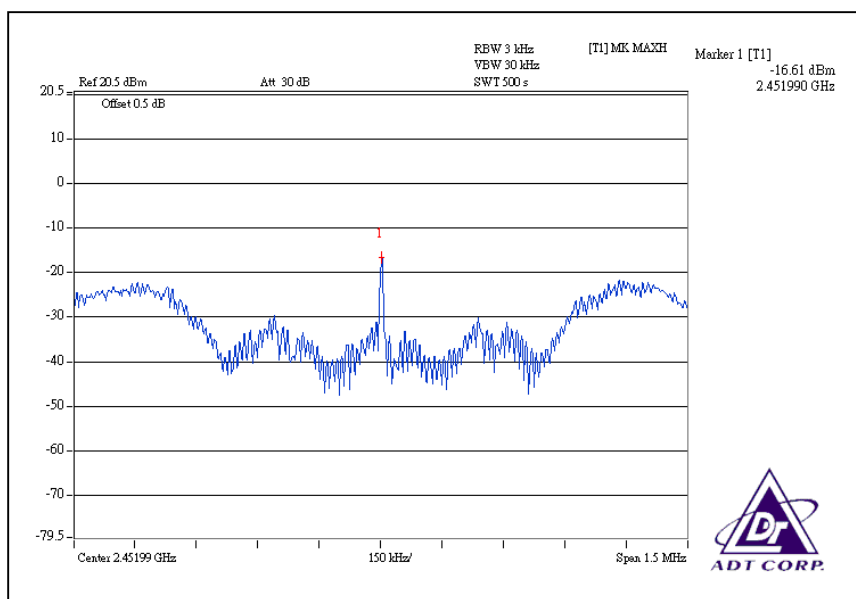
For Chain (0): CH1



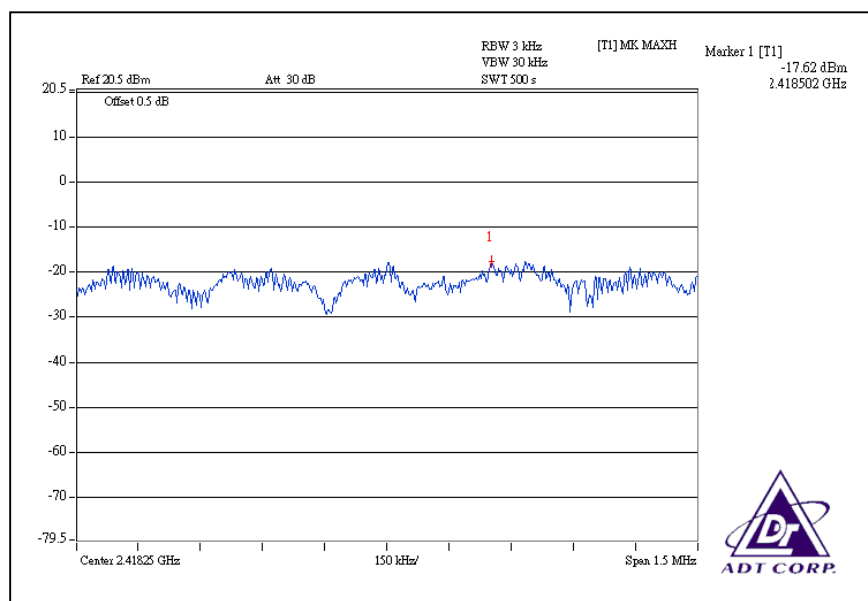
CH4



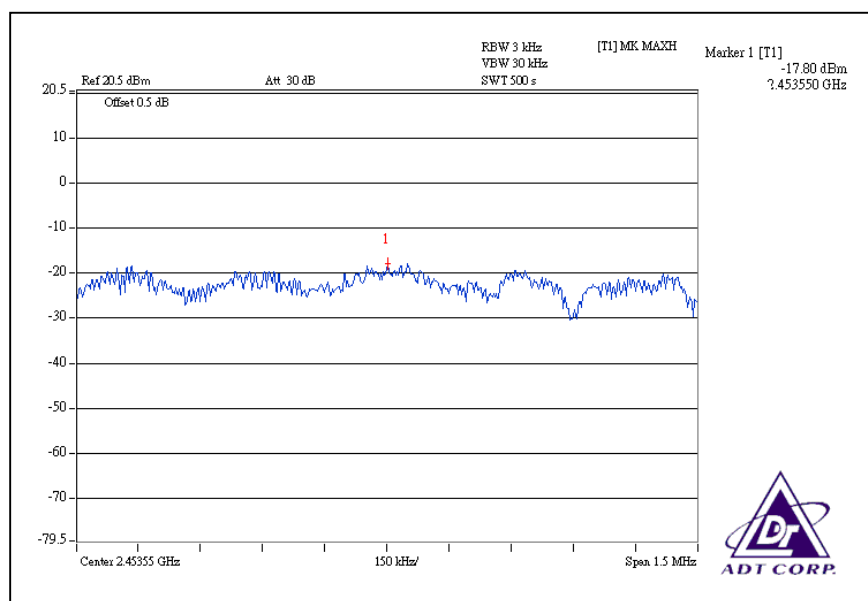
CH7



For Chain (1): CH1



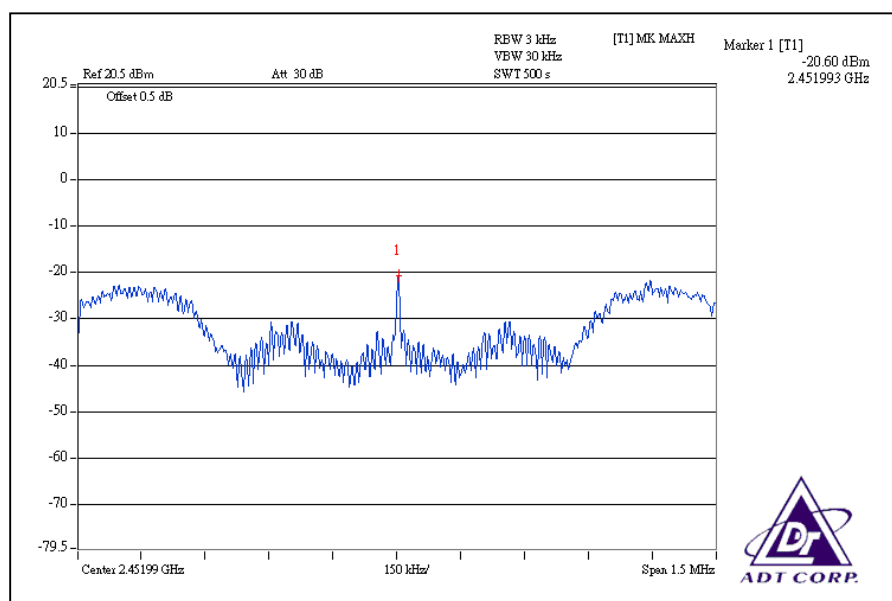
CH4





A D T

CH7



4.6 CONDUCTED OUT-BAND EMISSION MEASUREMENT

4.6.1 LIMITS OF CONDUCTED OUT-BAND EMISSION MEASUREMENT

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

4.6.2 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 measurement uncertainty is less than $\pm 2.6\text{dB}$, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.6.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low loss cable. Set RBW of spectrum analyzer to 100kHz and VBW of spectrum analyzer to 300kHz with suitable frequency span including 100 MHz bandwidth from band edge. The band edges were measured and recorded.

The spectrum plots (RBW = 100kHz, VBW = 300kHz) are attached on the following pages.



A D T

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 EUT OPERATING CONDITION

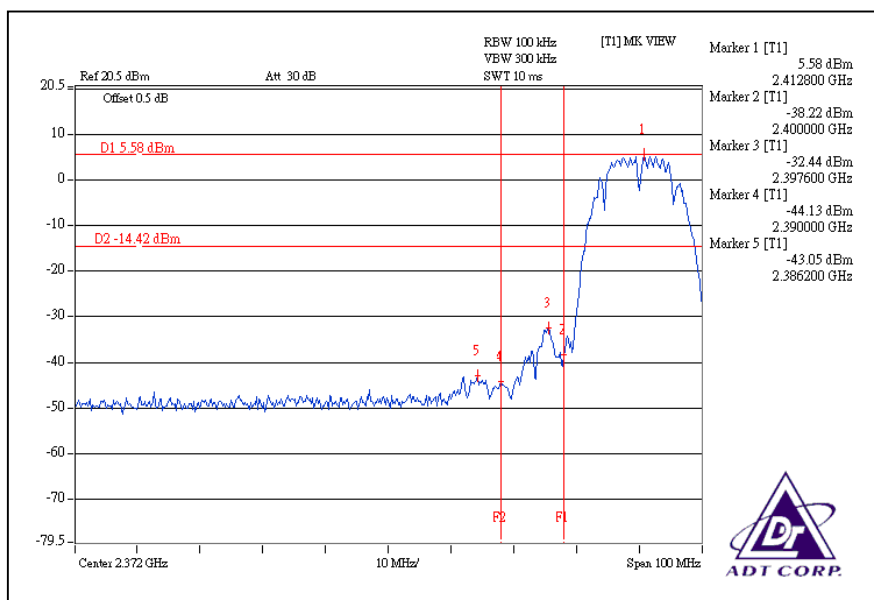
Same as Item 4.3.6

4.6.6 TEST RESULTS

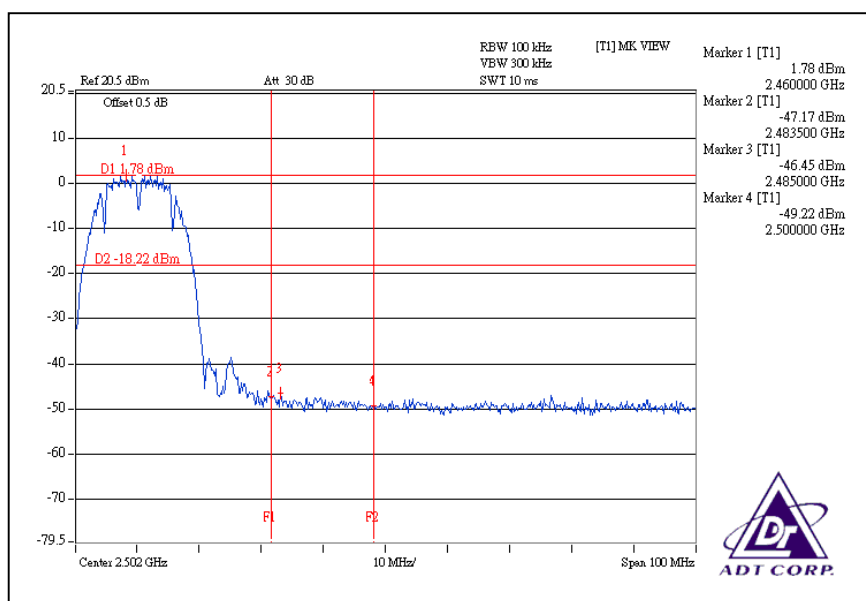
The spectrum plots are attached on the following images. D1 line indicates the highest level, and D2 line indicates the 20dB offset below D1. It shows compliance with the requirement in part 15.247(d).

802.11b DSSS MODULATION:

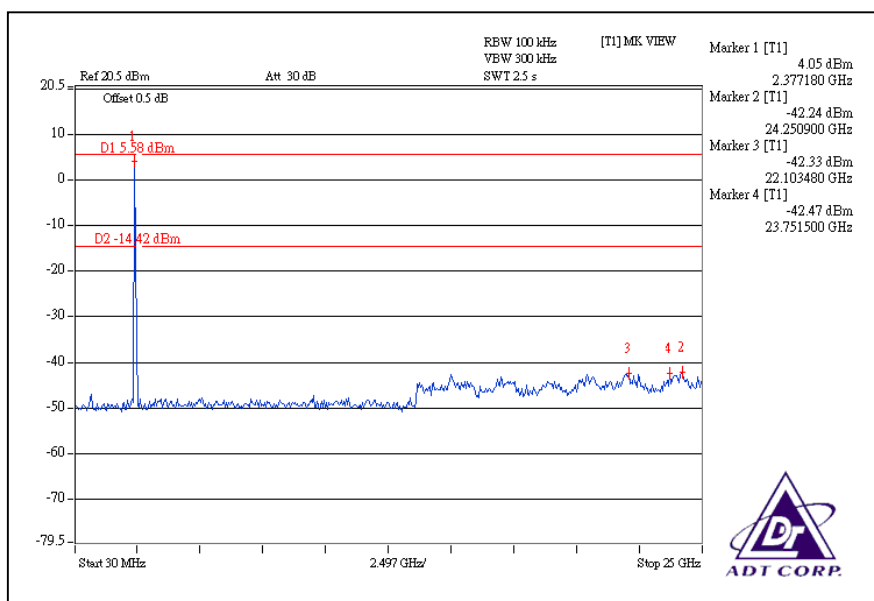
CH1



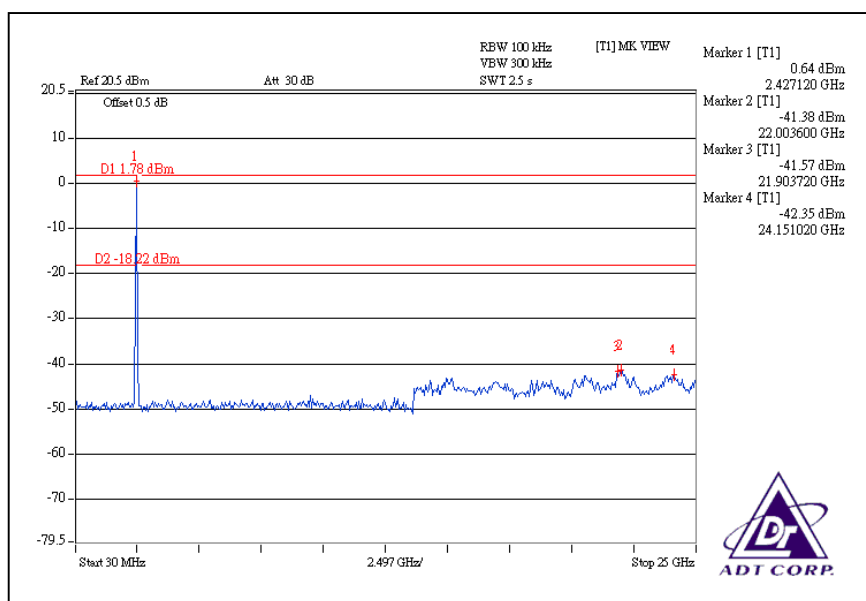
CH11



CH1

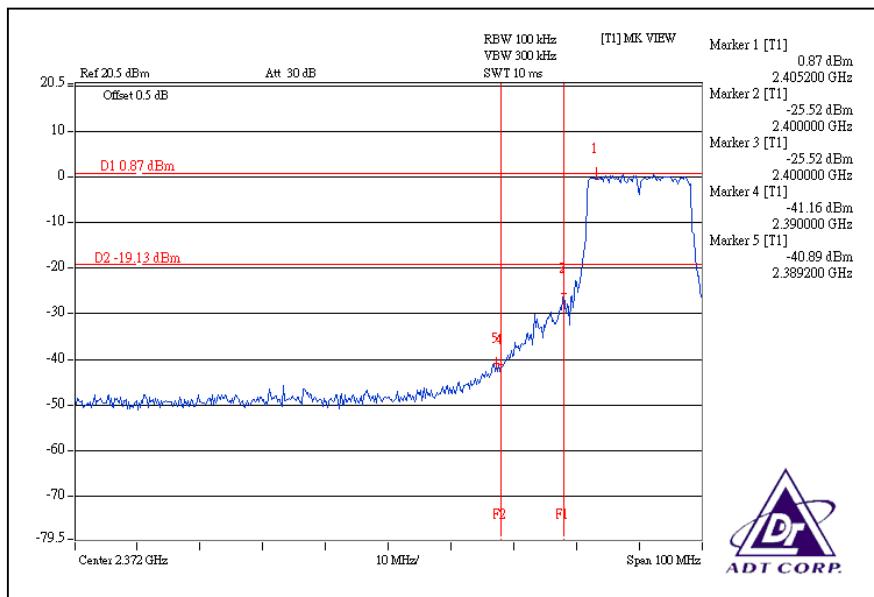


CH11

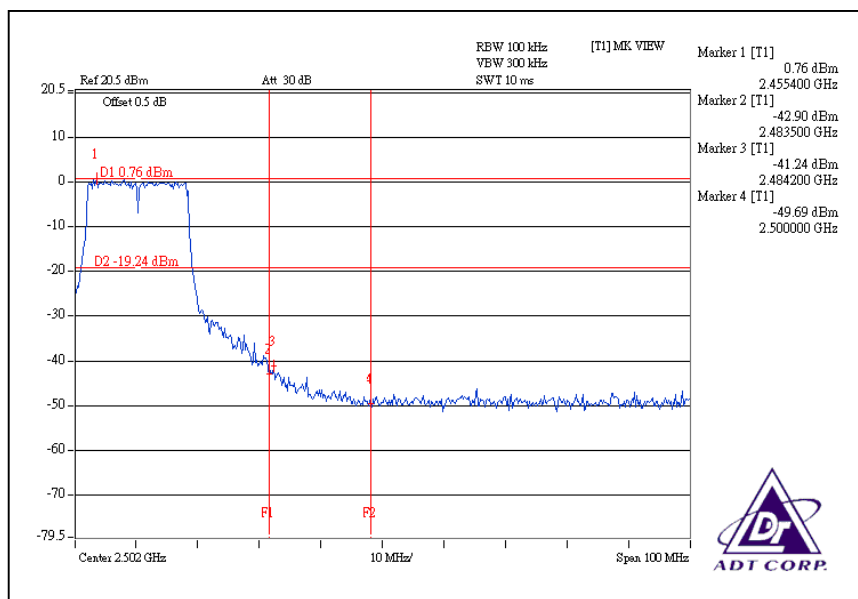


802.11g OFDM MODULATION:

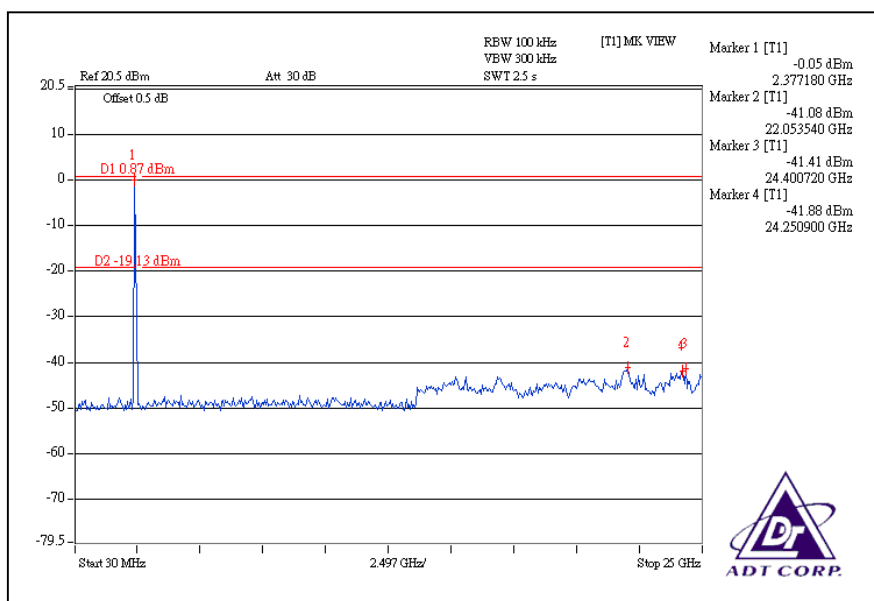
CH1



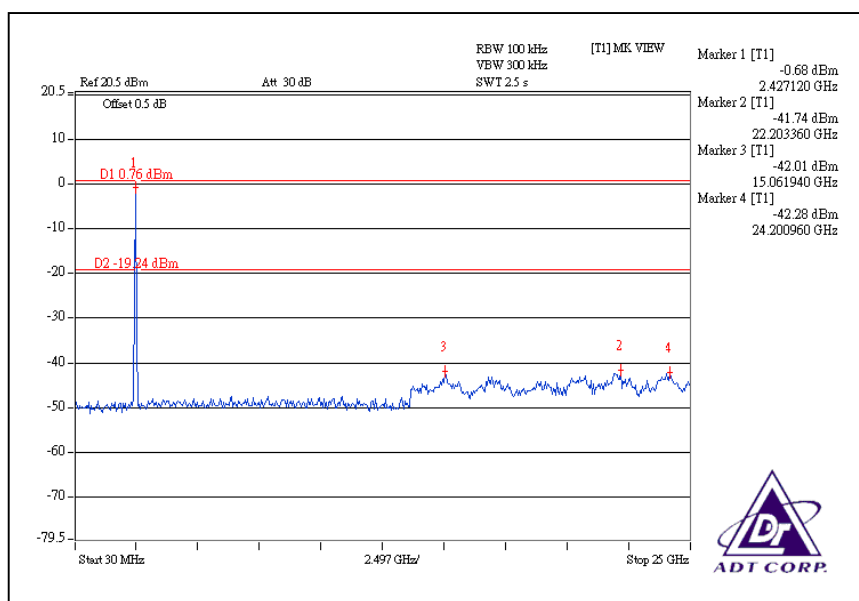
CH11



CH1

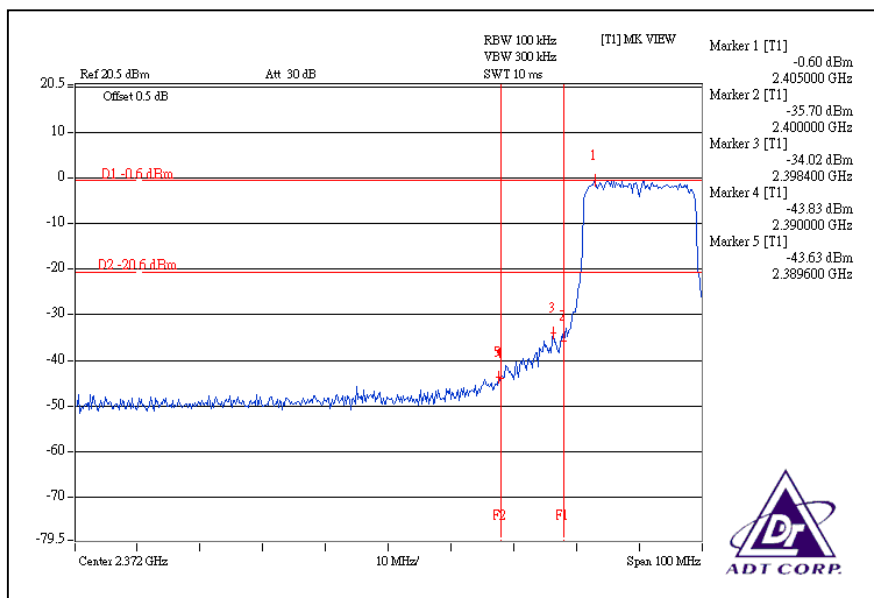


CH11

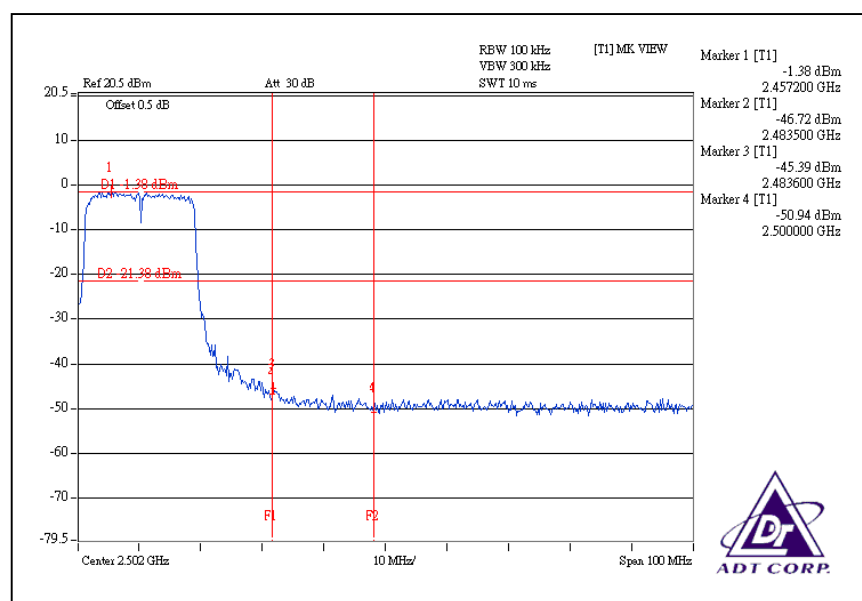


DRAFT 802.11n (20MHz) OFDM MODULATION:

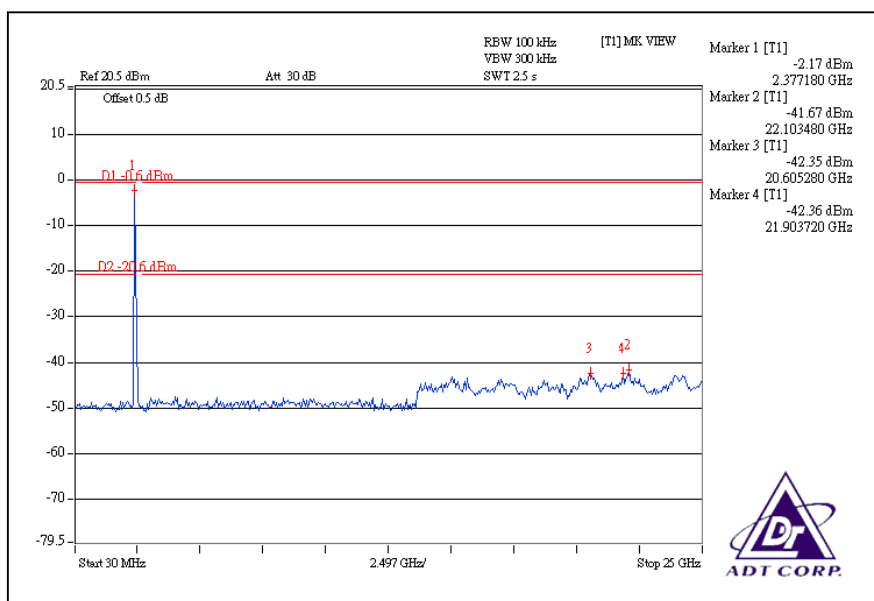
For Chain (0):CH1



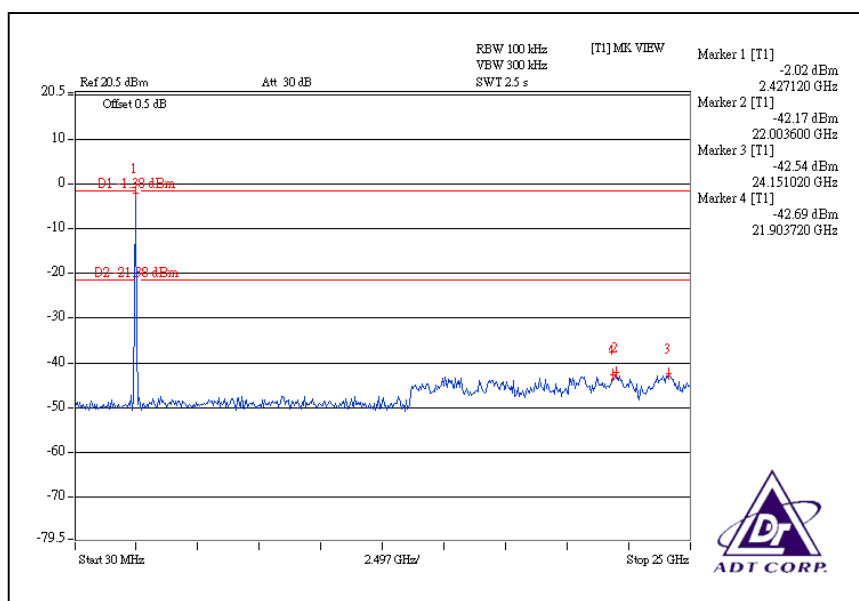
CH11



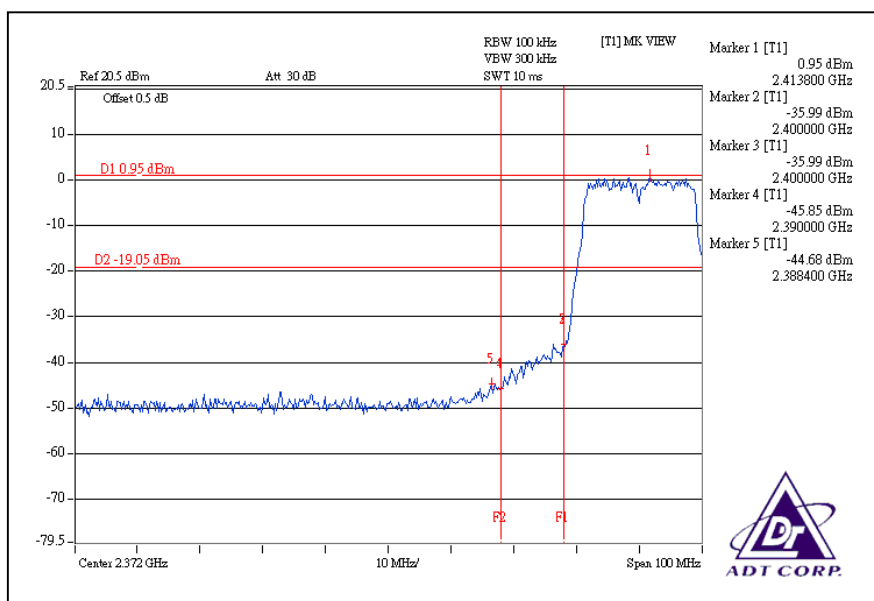
CH1



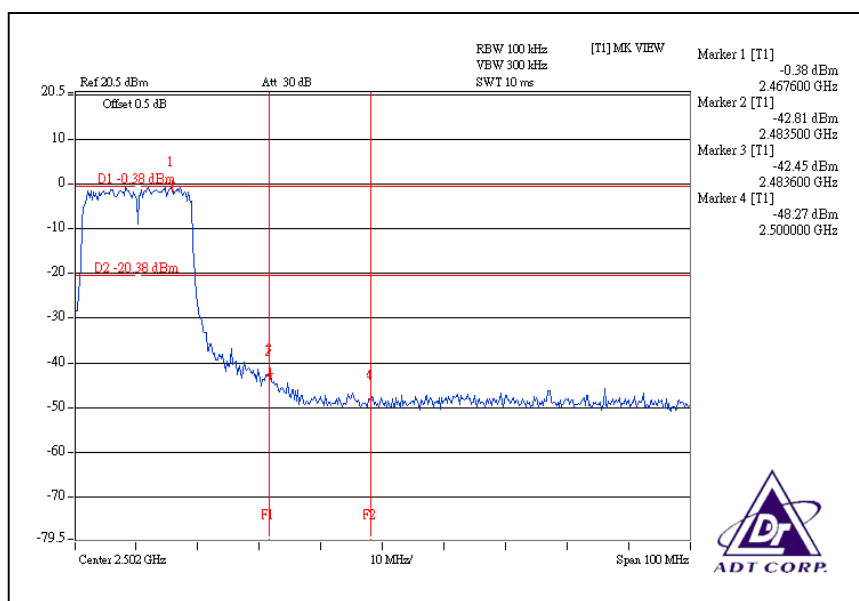
CH11



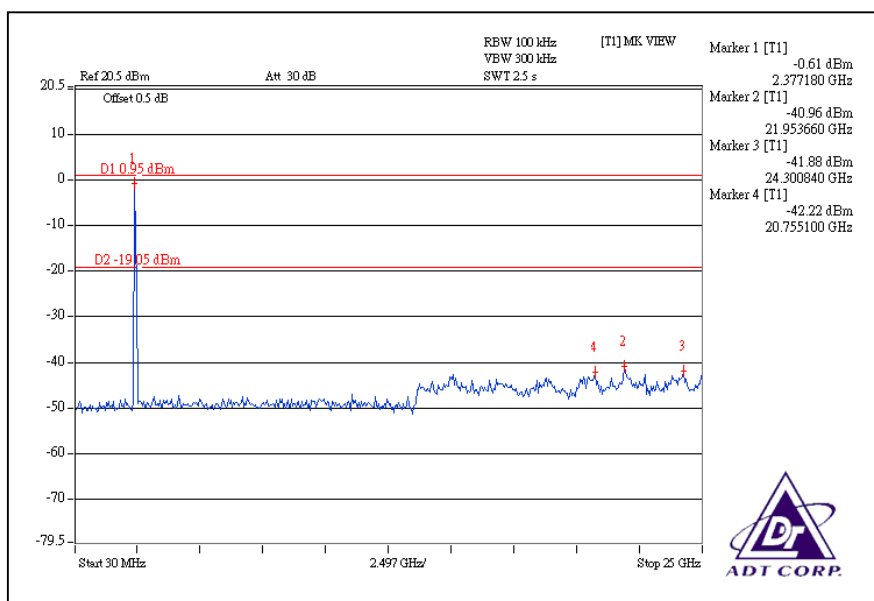
For Chain (1):CH1



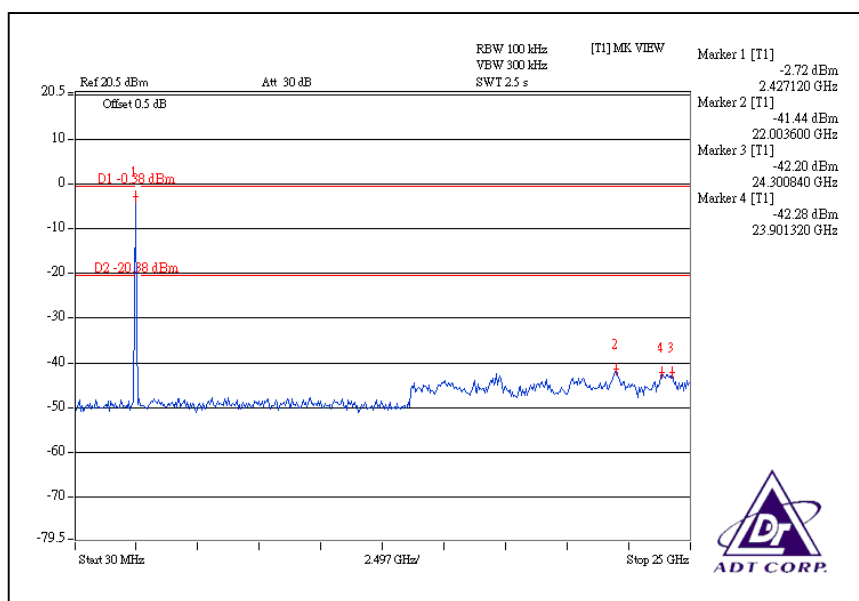
CH11



CH1

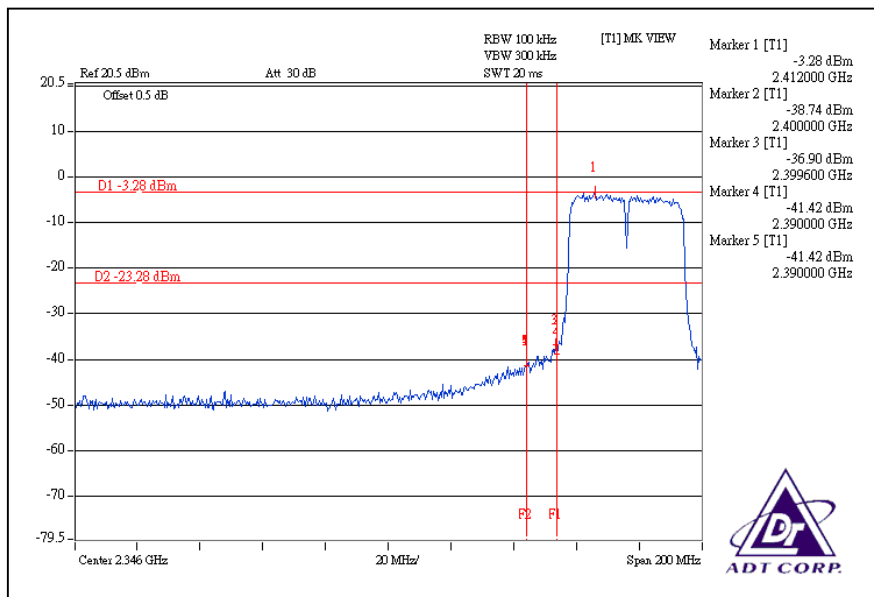


CH11

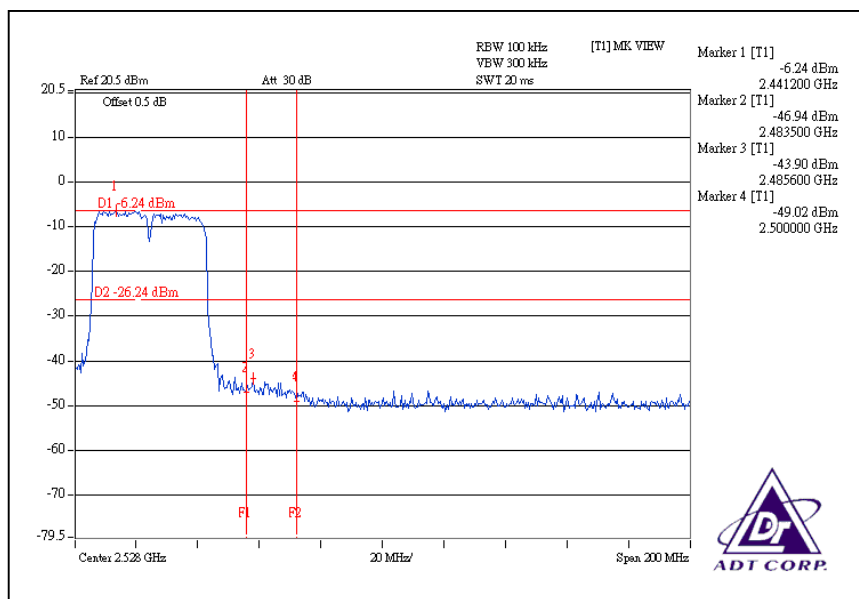


DRAFT 802.11n (40MHz) OFDM MODULATION:

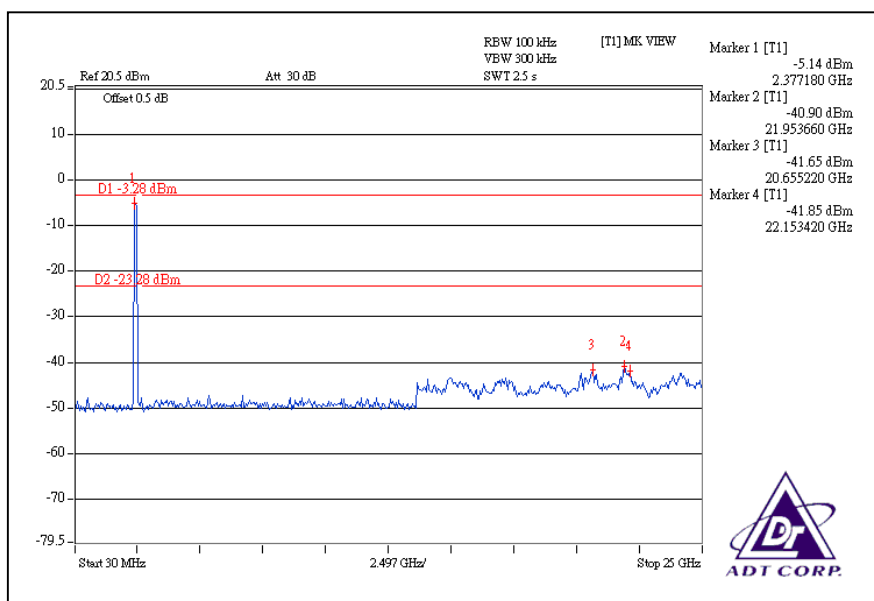
For Chain (0):CH1



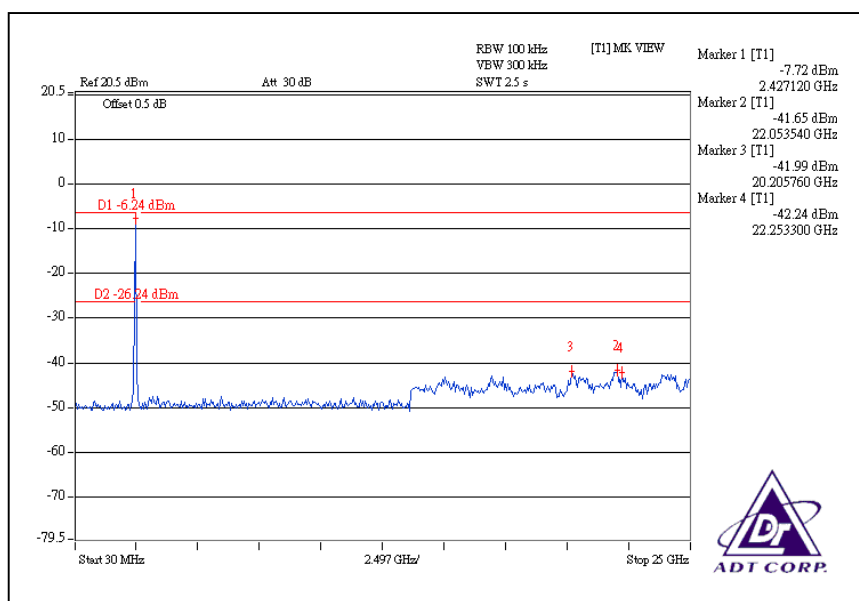
CH7



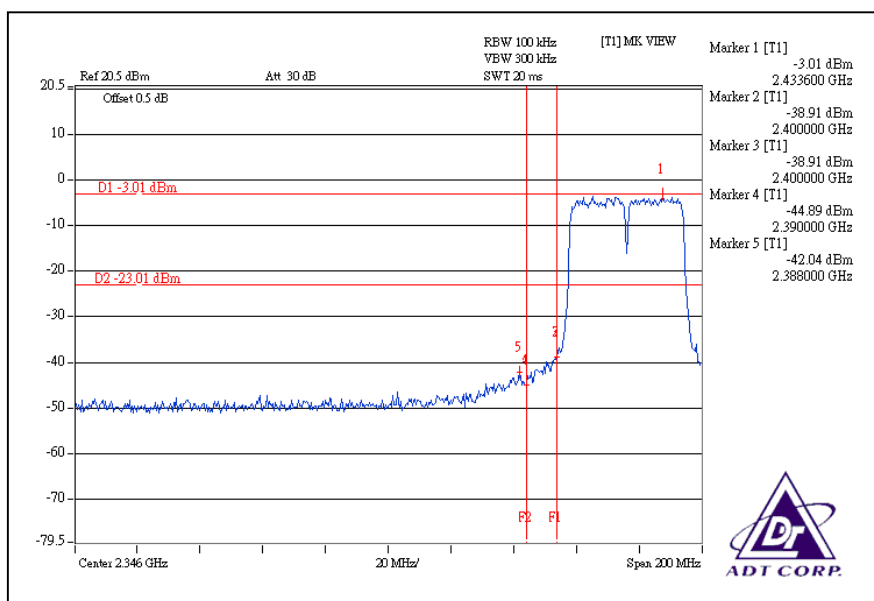
CH1



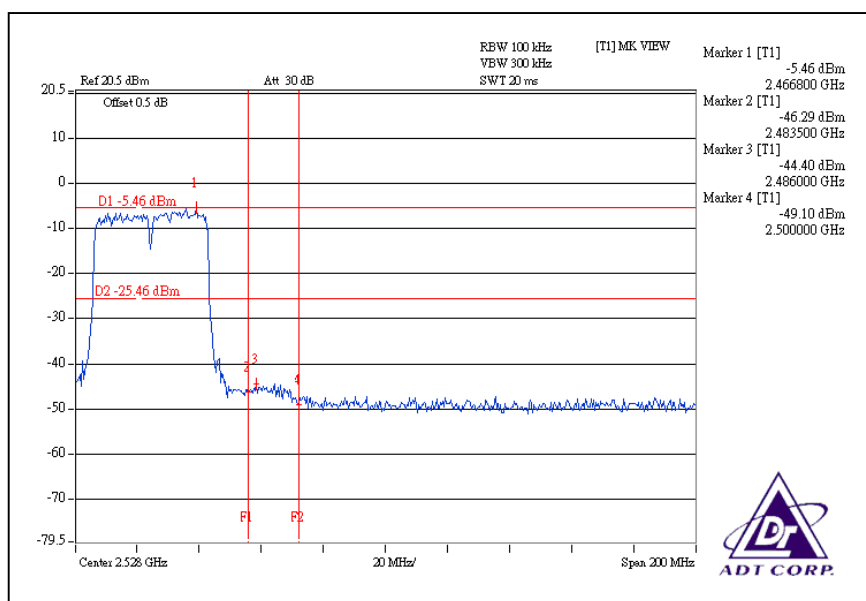
CH7



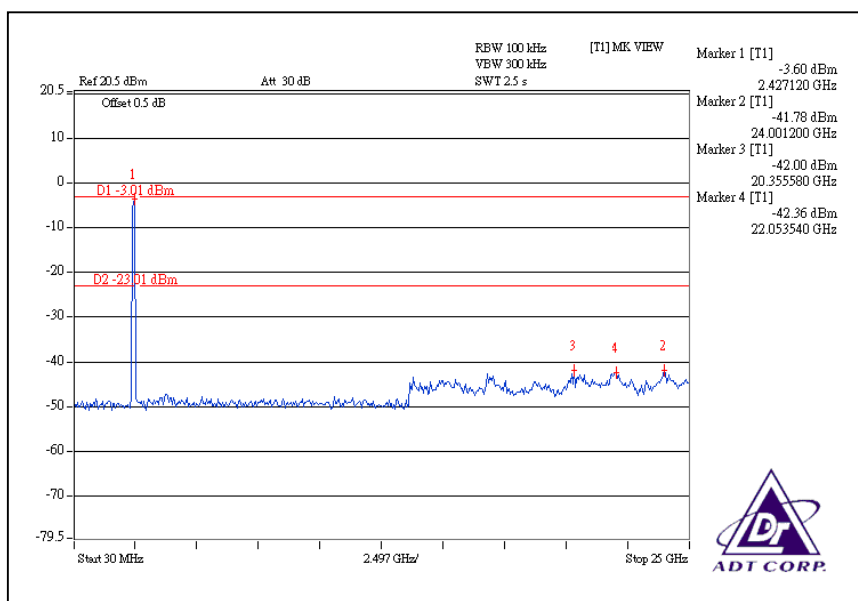
For Chain (1):CH1



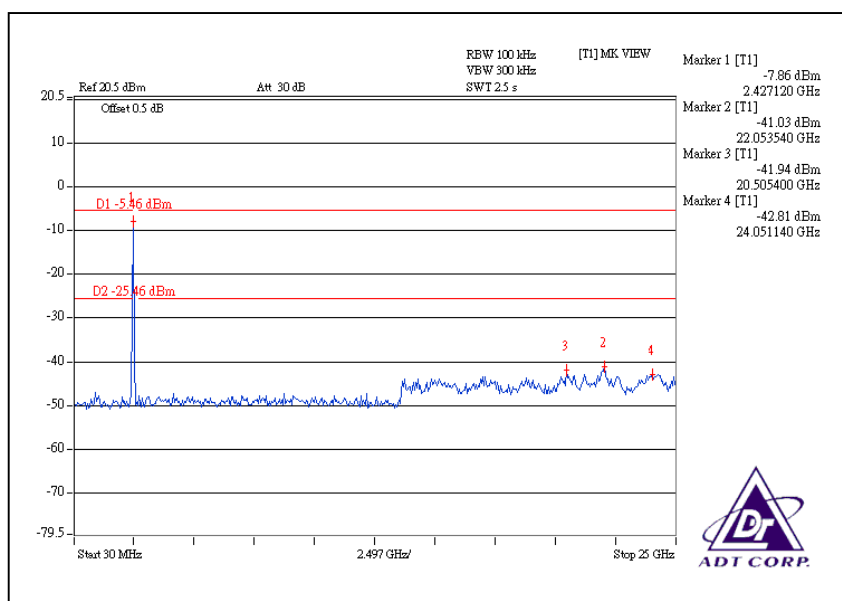
CH7



CH1



CH7





4.7 ANTENNA REQUIREMENT

4.7.1 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 (b), 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.

4.7.2 ANTENNA CONNECTED CONSTRUCTION

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

Set No.	Transmitter Circuit	Antenna Gain	For 2.4GHz Gain (dBi)	For 5.15~5.25GHz Gain (dBi)	For 5.725~5.850GHz Gain (dBi)	Cable Length (cm)
Set. 1	Chain(0), Chain(1), Chain(2)	Gain (dBi)	2.31	2.26	3.91	18
		Cable Loss (dB)	1.48	1.45	1.53	
		Net Gain (dB)	0.83	0.81	2.38	
Set 2	Chain(0)	Gain (dBi)	2.31	2.26	3.91	40
		Cable Loss (dB)	1.51	2.16	2.29	
		Net Gain (dB)	0.8	0.1	1.62	
	Chain(1)	Gain (dBi)	2.31	2.26	3.91	18
		Cable Loss (dB)	1.48	1.45	1.53	
		Net Gain (dB)	0.83	0.81	2.38	
	Chain(2)	Gain (dBi)	2.31	2.26	3.91	27
		Cable Loss (dB)	1.16	1.17	1.87	
		Net Gain (dB)	1.15	1.09	2.04	
Set 3	Chain(0), Chain(1)	Gain (dBi)	3.72	3.55	2.76	25.5
		Cable Loss (dB)	0.52	0.82	1.00	
		Net Gain (dB)	3.2	2.73	1.76	
	Chain(2)	Gain (dBi)	3.72	3.55	2.76	12
		Cable Loss (dB)	0.51	0.75	0.90	
		Net Gain (dB)	3.21	2.8	1.86	
Set 4	Chain(0)	Gain (dBi) involve cable loss	2.65	NA	NA	11
	Chain(1), Chain(2)	Gain (dBi) involve cable loss	2.49	NA	NA	10
Set 5	Chain(0), Chain(1), Chain(2)	Gain (dBi) involve cable loss	2.43	NA	NA	6



A D T

Set No.	Transmitter Circuit	Antenna Type	Manufacture	Model No.	Antenna Connector
Set 1	Chain(0)	Dipole	WANSHIH ELECTRONIC CO., LTD.	WSS001	RP-SMA(M)
	Chain(1)				
	Chain(2)				
Set 2	Chain(0)	Dipole	WANSHIH ELECTRONIC CO., LTD.	WSS001	RP-SMA(M)
	Chain(1)				
	Chain(2)				
Set 3	Chain(0)	Dipole	WHA YU INDUSTRIAL CO., LTD.	C056-510399-A	SMA Plug Reverse
	Chain(1)				
	Chain(2)				
Set 4	Chain(0)	PCB	WHA YU GROUP	C037-510934-A (SSR-83320)	I-PEX
	Chain(1)			C037-510935-A (SSR-83347)	
	Chain(2)			C037-510935-A (SSR-83347)	
Set 5	Chain(0)	PCB	WHA YU GROUP	C037-510953-A (SSR-84244)	MHF Plug
	Chain(1)				
	Chain(2)				

5. TEST TYPES AND RESULTS (802.11a, 5725~5850MHz Band)

5.1 CONDUCTED EMISSION MEASUREMENT

5.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

- NOTE:**
1. The lower limit shall apply at the transition frequencies.
 2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
 3. All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

5.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Test Receiver	ESCS 30	847124/029	Feb. 29, 2008	Feb. 28, 2009
Line-Impedance Stabilization Network (for EUT)	ENV-216	100071	Nov. 27, 2007	Nov. 26, 2008
Line-Impedance Stabilization Network (for Peripheral)	ESH3-Z5	848773/004	Nov. 05, 2008	Nov. 04, 2009
RF Cable (JYEBAO)	5DFB	COBCAB-001	July 24, 2008	July 23, 2009
50 ohms Terminator	50	3	Nov. 05, 2008	Nov. 04, 2009
Software	BV ADT_Cond_V7.3.6	NA	NA	NA

Note:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The test was performed in Shielded Room No. B.
- 3 The VCCI Con B Registration No. is C-2193.

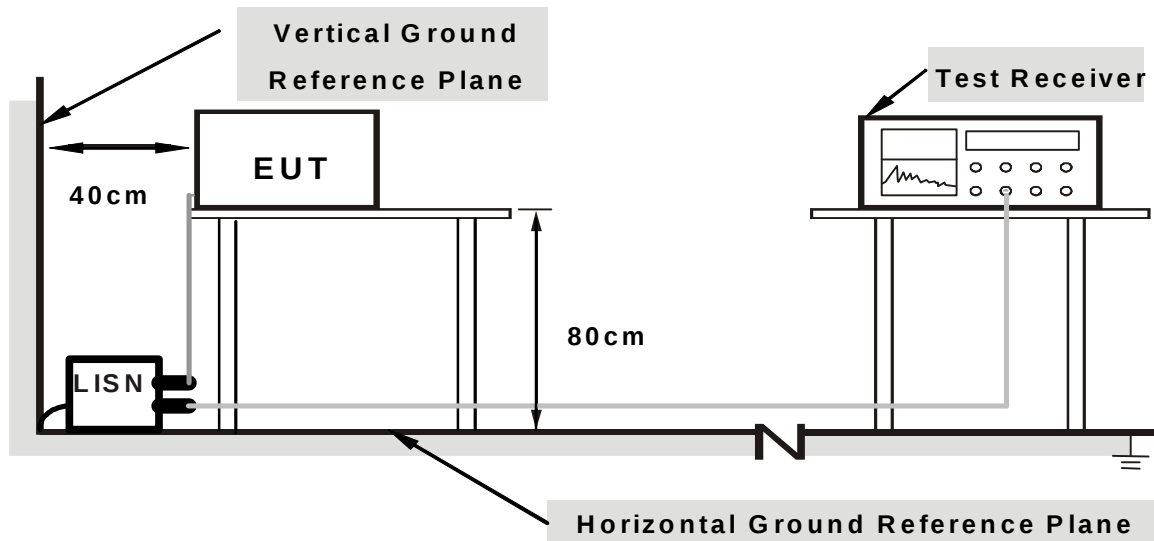
5.1.3 TEST PROCEDURES

- a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.
- c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit – 20dB) were not recorded.

5.1.4 DEVIATION FROM TEST STANDARD

No deviation

5.1.5 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.1.6 EUT OPERATING CONDITIONS

Same as the 4.1.6

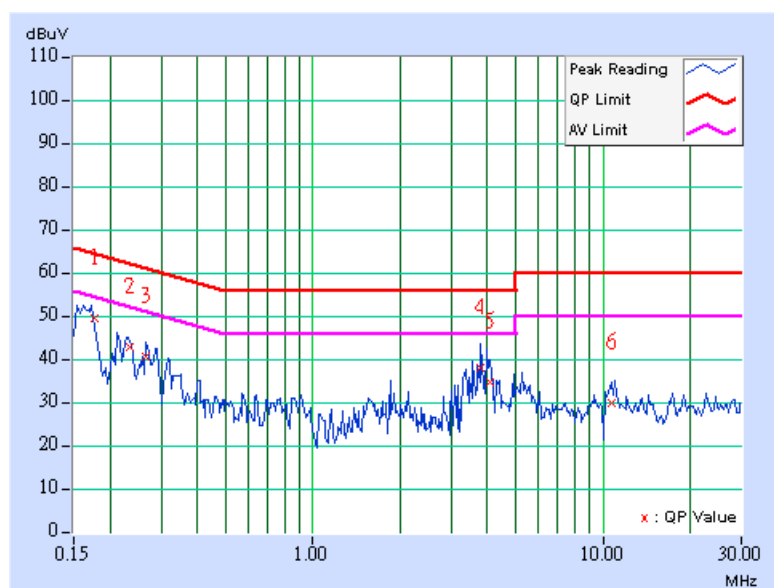
5.1.7 TEST RESULTS

802.11a OFDM MODULATION:

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Line (L)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 69%RH, 965hPa	TESTED BY	Phoenix Huang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.176	9.69	39.69	-	49.38	-	64.67	54.67	-15.30	-
2	0.234	9.74	32.95	-	42.69	-	62.32	52.32	-19.62	-
3	0.267	9.78	30.98	-	40.76	-	61.20	51.20	-20.44	-
4	3.805	9.76	28.28	-	38.04	-	56.00	46.00	-17.96	-
5	4.098	9.76	24.86	-	34.62	-	56.00	46.00	-21.38	-
6	10.754	9.86	20.32	-	30.18	-	60.00	50.00	-29.82	-

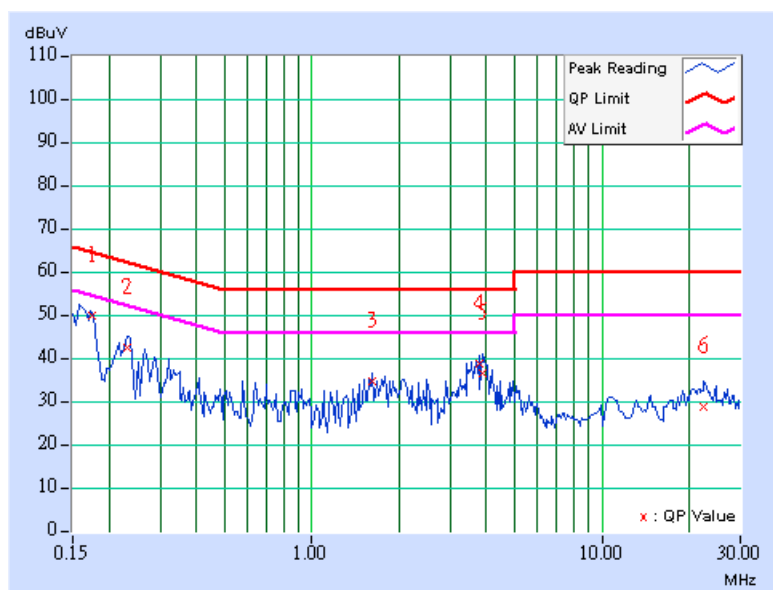
- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	PHASE	Neutral (N)
MODULATION TYPE	BPSK	6dB BANDWIDTH	9 kHz
TRANSFER RATE	6Mbps	INPUT POWER (SYSTEM)	120Vac, 60 Hz
ENVIRONMENTAL CONDITIONS	25deg. C, 69%RH, 965hPa	TESTED BY	Phoenix Huang

No	Freq. [MHz]	Corr. Factor (dB)	Reading Value [dB (uV)]		Emission Level [dB (uV)]		Limit [dB (uV)]		Margin (dB)	
			Q.P.	AV.	Q.P.	AV.	Q.P.	AV.	Q.P.	AV.
1	0.175	9.68	39.71	-	49.39	-	64.73	54.73	-15.33	-
2	0.232	9.74	32.61	-	42.35	-	62.38	52.38	-20.03	-
3	1.621	9.70	24.83	-	34.53	-	56.00	46.00	-21.47	-
4	3.773	9.76	28.59	-	38.35	-	56.00	46.00	-17.65	-
5	3.875	9.76	26.52	-	36.28	-	56.00	46.00	-19.72	-
6	22.418	10.11	18.73	-	28.84	-	60.00	50.00	-31.16	-

- REMARKS:**
1. Q.P. and AV. are abbreviations of quasi-peak and average individually.
 2. "-": The Quasi-peak reading value also meets average limit and measurement with the average detector is unnecessary.
 3. The emission levels of other frequencies were very low against the limit.
 4. Margin value = Emission level - Limit value
 5. Correction factor = Insertion loss + Cable loss
 6. Emission Level = Correction Factor + Reading Value.



5.2 RADIATED EMISSION MEASUREMENT

5.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

5.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 16, 2008	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2008	Sep. 24, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	April 01, 2008	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 30, 2008	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2007	Dec. 16, 2008
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 28, 2008	Jan. 27, 2009
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	SF102	22054-2	Dec. 07, 2007	Dec. 06, 2008
RF Cable	8DFB	STCCAB-30M-1GHz	Oct. 07, 2008	Oct. 06, 2009
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

5.2.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

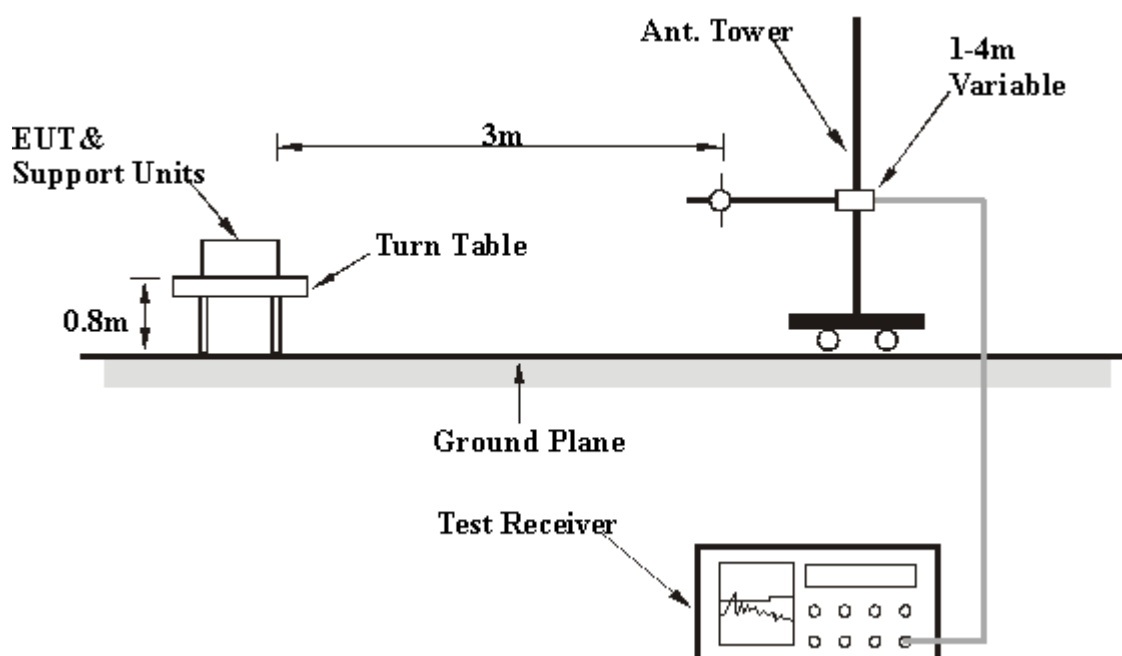
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

5.2.4 DEVIATION FROM TEST STANDARD

No deviation

5.2.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

5.2.6 EUT OPERATING CONDITIONS

Same as the 4.1.6



A D T

Below 1GHz Test Data

5.2.7 TEST RESULTS

BELOW 1GHz WORST-CASE DATA : 802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Quasi-Peak
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Eric Lee

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	132.55	28.24 QP	43.50	-15.26	2.01 H	245	13.69	14.55
2	166.33	27.62 QP	43.50	-15.88	2.32 H	62	12.19	15.43
3	265.54	26.31 QP	46.00	-19.69	1.65 H	25	10.38	15.93
4	299.99	23.95 QP	46.00	-22.05	1.02 H	23	6.93	17.02
5	398.96	41.02 QP	46.00	-4.98	1.36 H	52	19.92	21.10
6	400.00	30.33 QP	46.00	-15.67	1.40 H	311	9.19	21.14
7	500.02	36.11 QP	46.00	-9.89	1.63 H	191	13.45	22.66
8	797.92	44.27 QP	46.00	-1.73	1.85 H	124	14.39	29.88
9	800.00	32.54 QP	46.00	-13.46	1.65 H	3	2.60	29.94
10	1000.00	43.62 QP	54.00	-10.38	1.54 H	225	10.92	32.70
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	133.33	24.32 QP	43.50	-19.18	1.65 V	32	9.72	14.60
2	166.03	25.34 QP	43.50	-18.16	1.62 V	320	9.88	15.46
3	265.54	25.74 QP	46.00	-20.26	1.65 V	223	9.81	15.93
4	300.01	22.14 QP	46.00	-23.86	1.55 V	296	5.12	17.02
5	398.95	38.98 QP	46.00	-7.02	1.26 V	0	17.88	21.10
6	400.01	31.88 QP	46.00	-14.12	1.60 V	360	10.74	21.14
7	500.00	32.96 QP	46.00	-13.04	1.41 V	87	10.30	22.66
8	797.91	42.62 QP	46.00	-3.38	1.02 V	236	12.74	29.88
9	999.99	42.65 QP	54.00	-11.35	1.02 V	215	9.95	32.70

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.



A D T

Above 1GHz Test Data

5.2.8 TEST RESULTS

802.11a OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4596.00	54.30 PK	74.00	-19.70	1.00 H	42	19.22	35.08
2	4596.00	40.60 AV	54.00	-13.40	1.00 H	42	5.52	35.08
3	*5745.00	97.60 PK			1.25 H	205	60.39	37.21
4	*5745.00	87.10 AV			1.25 H	205	49.89	37.21
5	11490.00	57.40 PK	74.00	-16.60	1.40 H	33	10.37	47.03
6	11490.00	43.30 AV	54.00	-10.70	1.40 H	33	-3.73	47.03
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4596.00	54.60 PK	74.00	-19.40	1.15 V	314	19.52	35.08
2	4596.00	40.80 AV	54.00	-13.20	1.15 V	314	5.72	35.08
3	*5745.00	111.10 PK			1.14 V	294	73.89	37.21
4	*5745.00	100.50 AV			1.14 V	294	63.29	37.21
5	11490.00	59.50 PK	74.00	-14.50	1.14 V	111	12.47	47.03
6	11490.00	45.50 AV	54.00	-8.50	1.14 V	111	-1.53	47.03

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.
 5. “ * ”: Fundamental frequency.
 6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4628.00	54.10 PK	74.00	-19.90	1.00 H	12	18.96	35.14
2	4628.00	40.40 AV	54.00	-13.60	1.00 H	12	5.26	35.14
3	*5785.00	98.10 PK			1.23 H	204	60.79	37.31
4	*5785.00	87.50 AV			1.23 H	204	50.19	37.31
5	11570.00	57.00 PK	74.00	-17.00	1.38 H	62	10.03	46.97
6	11570.00	43.40 AV	54.00	-10.60	1.38 H	62	-3.57	46.97
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4628.00	54.20 PK	74.00	-19.80	1.14 V	309	19.06	35.14
2	4628.00	40.70 AV	54.00	-13.30	1.14 V	309	5.56	35.14
3	*5785.00	111.40 PK			1.14 V	294	74.09	37.31
4	*5785.00	101.10 AV			1.14 V	294	63.79	37.31
5	11570.00	59.70 PK	74.00	-14.30	1.18 V	111	12.73	46.97
6	11570.00	45.50 AV	54.00	-8.50	1.18 V	111	-1.47	46.97

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4660.00	54.30 PK	74.00	-19.70	1.00 H	37	19.11	35.19
2	4660.00	40.90 AV	54.00	-13.10	1.00 H	37	5.71	35.19
3	*5825.00	98.00 PK			1.24 H	206	60.58	37.42
4	*5825.00	87.60 AV			1.24 H	206	50.18	37.42
5	11650.00	56.40 PK	74.00	-17.60	1.36 H	58	9.50	46.90
6	11650.00	43.10 AV	54.00	-10.90	1.36 H	58	-3.80	46.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4660.00	54.50 PK	74.00	-19.50	1.12 V	103	19.31	35.19
2	4660.00	41.10 AV	54.00	-12.90	1.12 V	103	5.91	35.19
3	*5825.00	1116.00 PK			1.13 V	293	1078.58	37.42
4	*5825.00	101.30 AV			1.13 V	293	63.88	37.42
5	11650.00	58.20 PK	74.00	-15.80	1.18 V	113	11.30	46.90
6	11650.00	44.30 AV	54.00	-9.70	1.18 V	113	-2.60	46.90

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

DRAFT 802.11n (20MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4596.00	54.10 PK	74.00	-19.90	1.06 H	12	19.02	35.08
2	4596.00	40.50 AV	54.00	-13.50	1.06 H	12	5.42	35.08
3	*5745.00	96.40 PK			1.27 H	196	59.19	37.21
4	*5745.00	85.00 AV			1.27 H	196	47.79	37.21
5	11490.00	59.80 PK	74.00	-14.20	1.34 H	24	12.77	47.03
6	11490.00	46.00 AV	54.00	-8.00	1.34 H	24	-1.03	47.03
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4596.00	54.50 PK	74.00	-19.50	1.17 V	341	19.42	35.08
2	4596.00	40.70 AV	54.00	-13.30	1.17 V	341	5.62	35.08
3	*5745.00	113.90 PK			1.05 V	278	76.69	37.21
4	*5745.00	102.20 AV			1.05 V	278	64.99	37.21
5	11490.00	65.70 PK	74.00	-8.30	1.25 V	68	18.67	47.03
6	11490.00	50.90 AV	54.00	-3.10	1.25 V	68	3.87	47.03

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 3	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4628.00	53.80 PK	74.00	-20.20	1.00 H	26	18.66	35.14
2	4628.00	40.30 AV	54.00	-13.70	1.00 H	26	5.16	35.14
3	*5785.00	95.70 PK			1.26 H	195	58.39	37.31
4	*5785.00	84.40 AV			1.26 H	195	47.09	37.31
5	11570.00	59.00 PK	74.00	-15.00	1.31 H	28	12.03	46.97
6	11570.00	44.70 AV	54.00	-9.30	1.31 H	28	-2.27	46.97
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4628.00	54.60 PK	74.00	-19.40	1.16 V	335	19.46	35.14
2	4628.00	41.30 AV	54.00	-12.70	1.16 V	335	6.16	35.14
3	*5785.00	114.20 PK			1.16 V	113	76.89	37.31
4	*5785.00	102.60 AV			1.16 V	113	65.29	37.31
5	11570.00	64.40 PK	74.00	-9.60	1.37 V	131	17.43	46.97
6	11570.00	49.70 AV	54.00	-4.30	1.37 V	131	2.73	46.97

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 5	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4660.00	54.20 PK	74.00	-19.80	1.00 H	42	19.01	35.19
2	4660.00	40.70 AV	54.00	-13.30	1.00 H	42	5.51	35.19
3	*5825.00	95.90 PK			1.28 H	197	58.48	37.42
4	*5825.00	84.70 AV			1.28 H	197	47.28	37.42
5	11650.00	58.70 PK	74.00	-15.30	1.33 H	29	11.80	46.90
6	11650.00	44.10 AV	54.00	-9.90	1.33 H	29	-2.80	46.90
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4660.00	54.60 PK	74.00	-19.40	1.13 V	333	19.41	35.19
2	4660.00	41.90 AV	54.00	-12.10	1.13 V	333	6.71	35.19
3	*5825.00	113.80 PK			1.13 V	294	76.38	37.42
4	*5825.00	102.30 AV			1.13 V	294	64.88	37.42
5	11650.00	63.20 PK	74.00	-10.80	1.30 V	68	16.30	46.90
6	11650.00	48.80 AV	54.00	-5.20	1.30 V	68	1.90	46.90

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

DRAFT 802.11n (40MHz) OFDM MODULATION

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 1	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4604.00	53.10 PK	74.00	-20.90	1.14 H	8	18.01	35.09
2	4604.00	39.70 AV	54.00	-14.30	1.14 H	8	4.61	35.09
3	*5755.00	94.10 PK			1.27 H	195	56.87	37.23
4	*5755.00	83.30 AV			1.27 H	195	46.07	37.23
5	11510.00	57.70 PK	74.00	-16.30	1.28 H	26	10.68	47.02
6	11510.00	43.90 AV	54.00	-10.10	1.28 H	26	-3.12	47.02
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4604.00	54.70 PK	74.00	-19.30	1.06 V	59	19.61	35.09
2	4604.00	40.80 AV	54.00	-13.20	1.06 V	59	5.71	35.09
3	*5755.00	110.10 PK			1.15 V	294	72.87	37.23
4	*5755.00	98.20 AV			1.15 V	294	60.97	37.23
5	11510.00	62.10 PK	74.00	-11.90	1.25 V	68	15.08	47.02
6	11510.00	47.20 AV	54.00	-6.80	1.25 V	68	0.18	47.02

- REMARKS:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * ”: Fundamental frequency.
6. The limit value is defined as per 15.247.



A D T

EUT TEST CONDITION		MEASUREMENT DETAIL	
CHANNEL	Channel 2	FREQUENCY RANGE	1 ~ 40GHz
INPUT POWER (SYSTEM)	120Vac, 60 Hz	DETECTOR FUNCTION	Peak (PK) Average (AV)
ENVIRONMENTAL CONDITIONS	25deg. C, 65%RH 965hPa	TESTED BY	Rex Huang

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4636.00	53.40 PK	74.00	-20.60	1.17 H	4	18.25	35.15
2	4636.00	39.90 AV	54.00	-14.10	1.17 H	4	4.75	35.15
3	*5795.00	92.50 PK			1.28 H	196	55.16	37.34
4	*5795.00	81.70 AV			1.28 H	196	44.36	37.34
5	11590.00	57.60 PK	74.00	-16.40	1.29 H	27	10.65	46.95
6	11590.00	43.70 AV	54.00	-10.30	1.29 H	27	-3.25	46.95
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	4636.00	54.30 PK	74.00	-19.70	1.11 V	81	19.15	35.15
2	4636.00	40.70 AV	54.00	-13.30	1.11 V	81	5.55	35.15
3	*5795.00	109.60 PK			1.17 V	113	72.26	37.34
4	*5795.00	98.70 AV			1.17 V	113	61.36	37.34
5	11590.00	62.20 PK	74.00	-11.80	1.29 V	67	15.25	46.95
6	11590.00	46.50 AV	54.00	-7.50	1.29 V	67	-0.45	46.95

REMARKS: 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
3. The other emission levels were very low against the limit.
4. Margin value = Emission level – Limit value.
5. “ * “: Fundamental frequency.
6. The limit value is defined as per 15.247.



5.3 6dB BANDWIDTH MEASUREMENT

5.3.1 LIMITS OF 6dB BANDWIDTH MEASUREMENT

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

5.3.2 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 measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2.The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

5.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 100kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

5.3.4 DEVIATION FROM TEST STANDARD

No deviation

5.3.5 TEST SETUP



5.3.6 EUT OPERATING CONDITIONS

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.



A D T

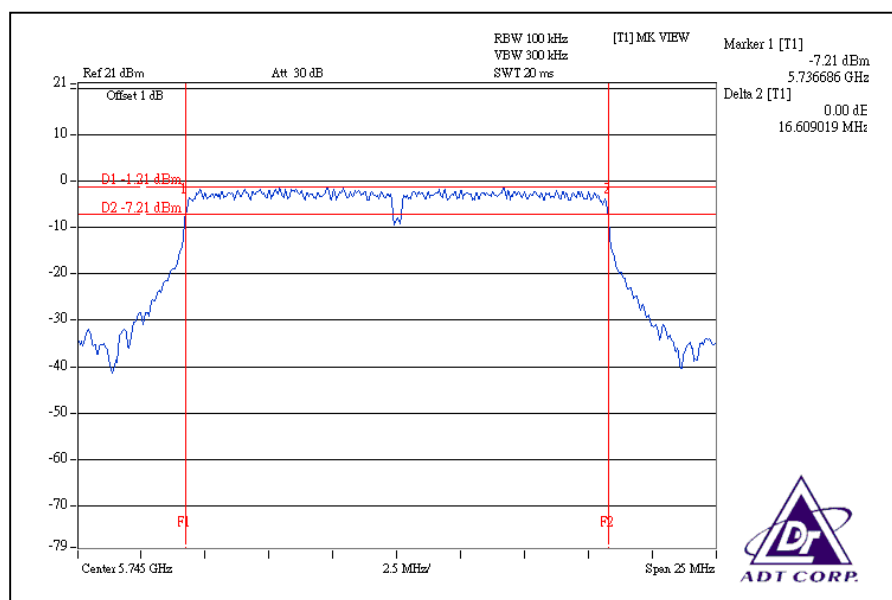
5.3.7 TEST RESULTS

802.11a OFDM MODULATION:

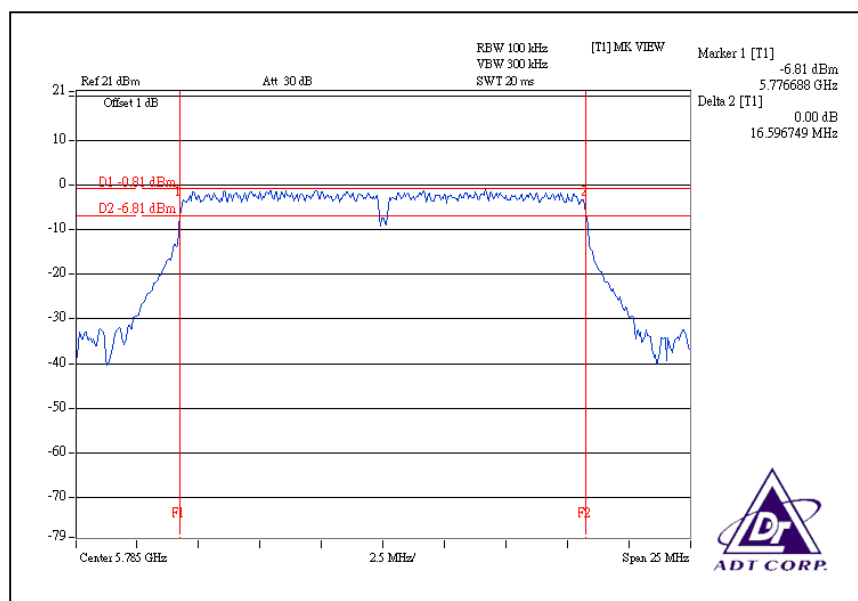
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS / FAIL
1	5745	16.61	0.5	PASS
3	5785	16.60	0.5	PASS
5	5825	16.57	0.5	PASS

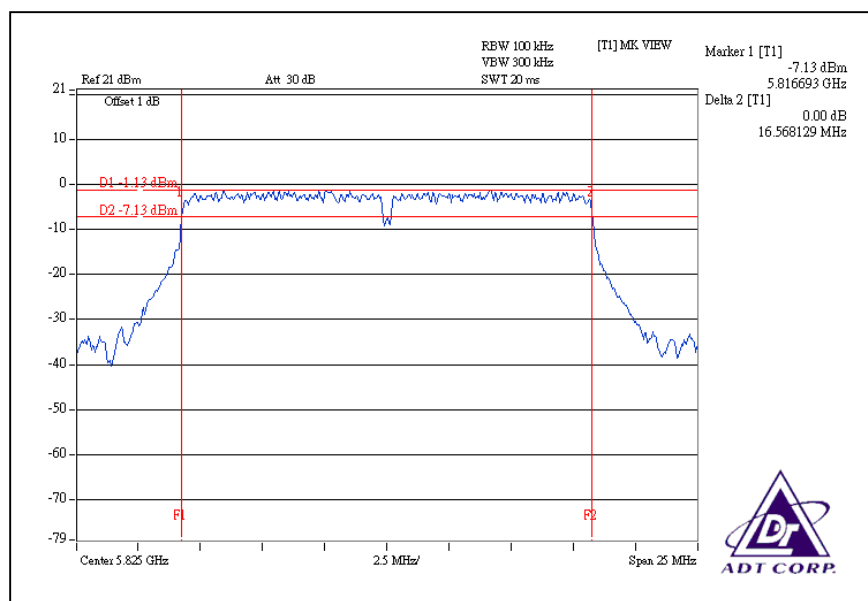
CH1



CH3



CH5

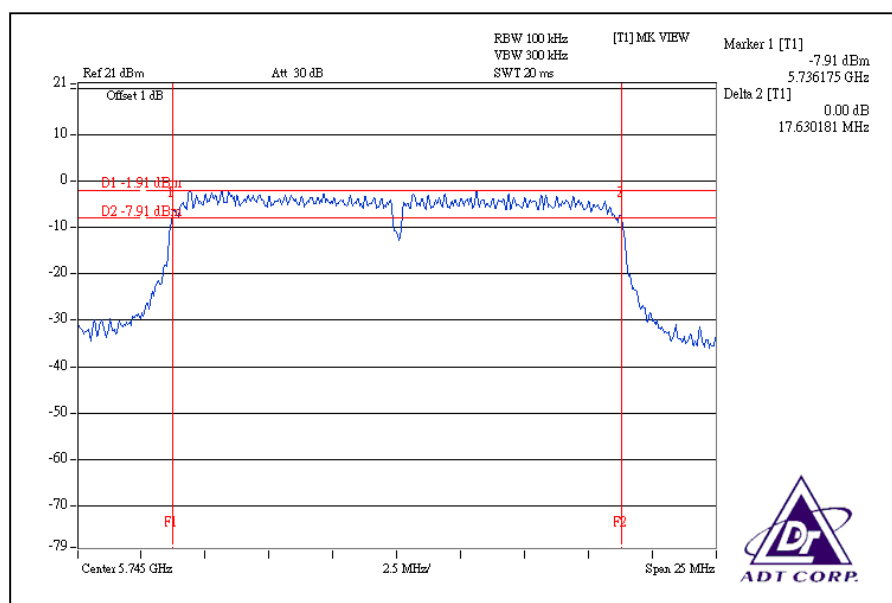


DRAFT 802.11n (20MHz) OFDM MODULATION:

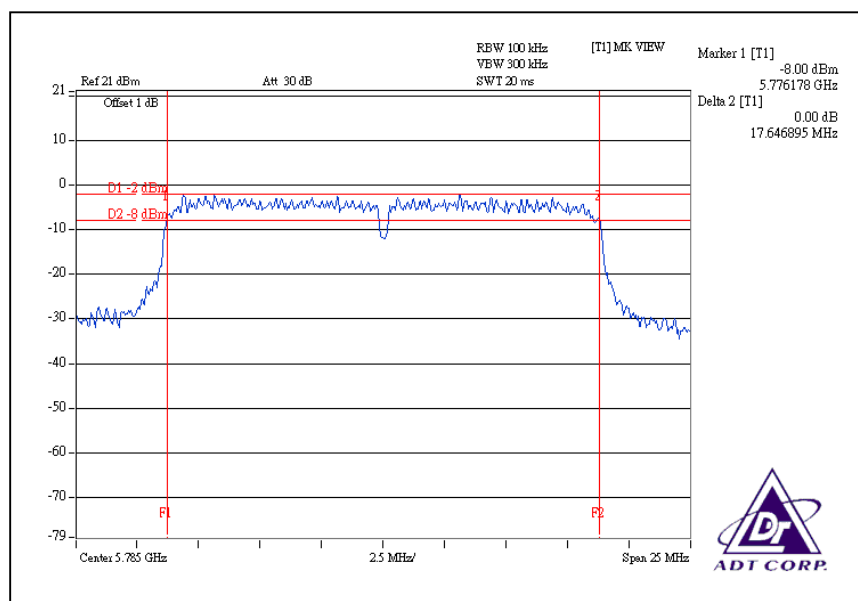
MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	5745	17.63	17.67	0.5	PASS
3	5785	17.65	17.67	0.5	PASS
5	5825	17.62	17.66	0.5	PASS

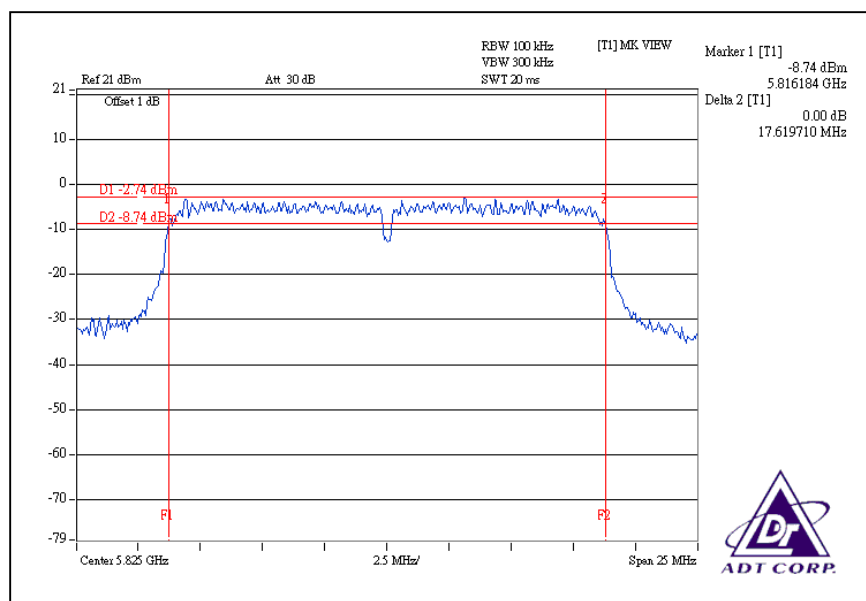
For Chain (0): CH1



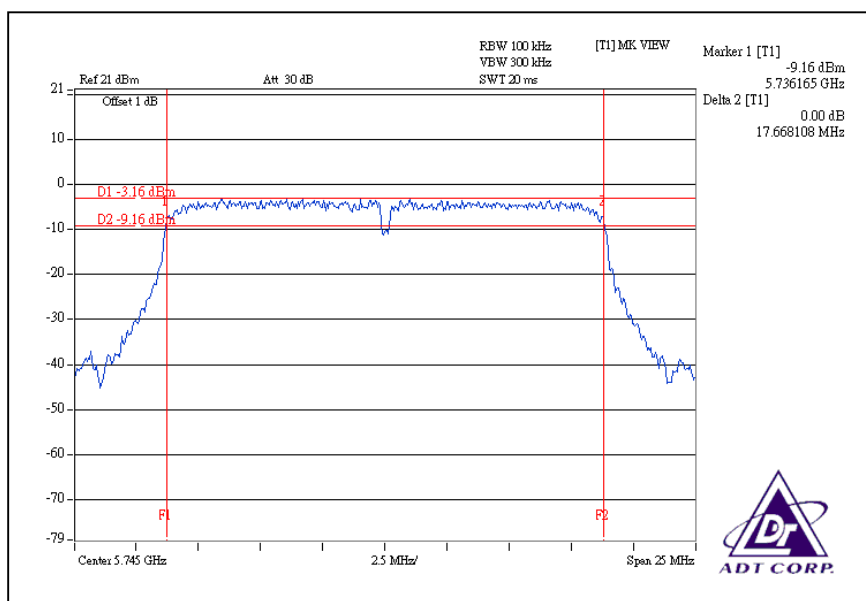
CH3



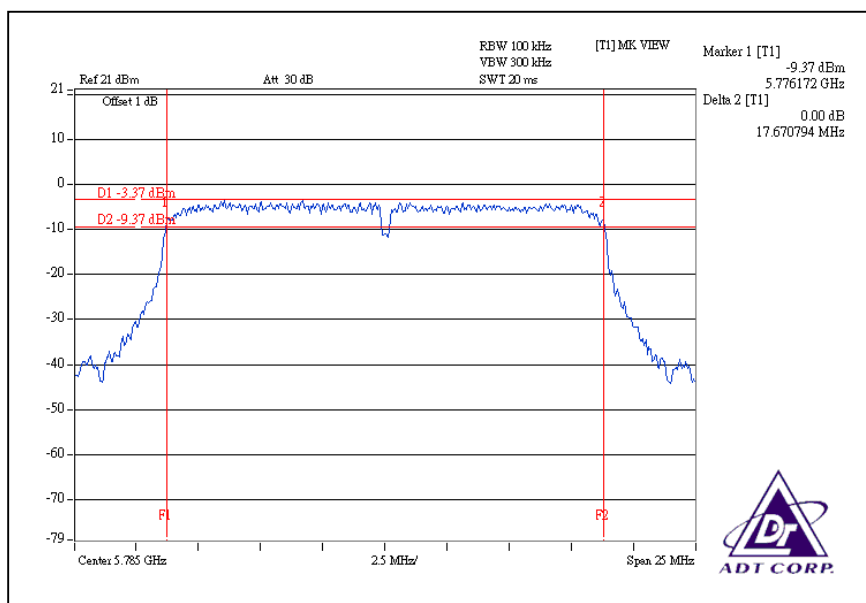
CH5



For Chain (1): CH1



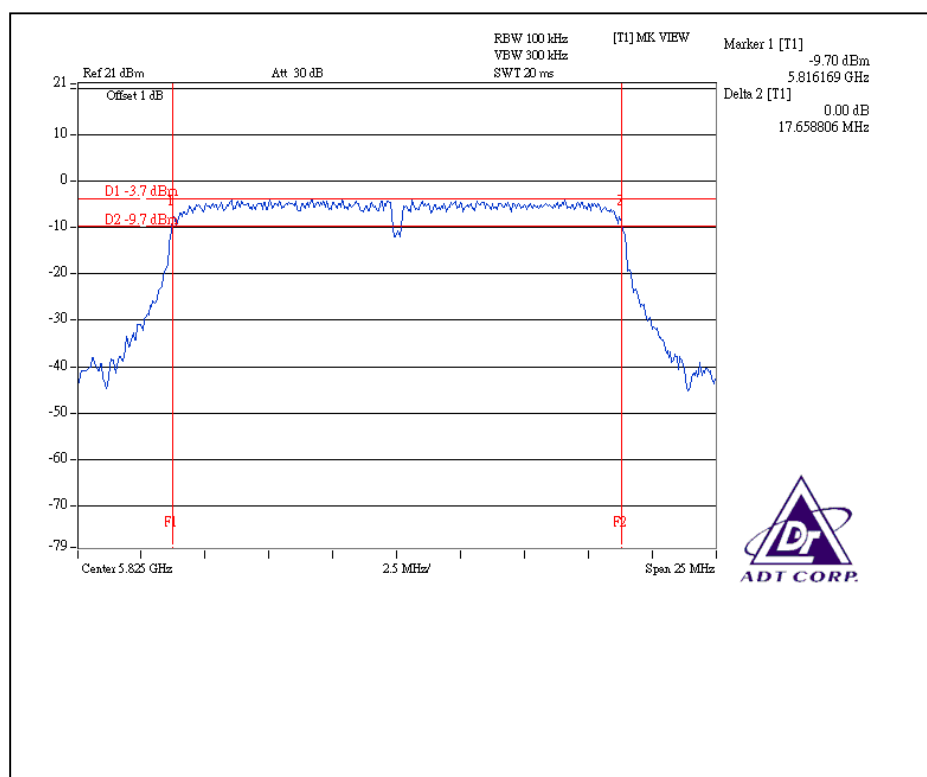
CH3





A D T

CH5





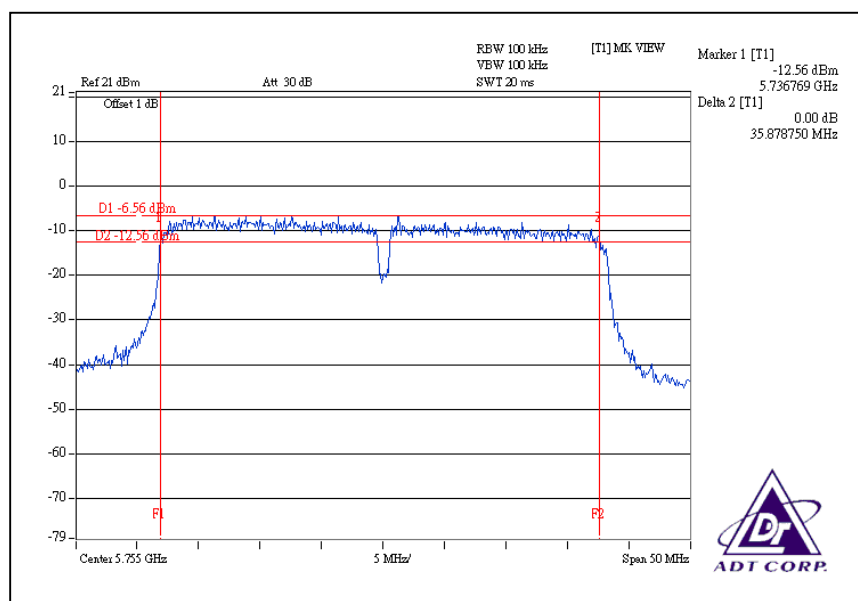
A D T

DRAFT 802.11n (40MHz) OFDM MODULATION:

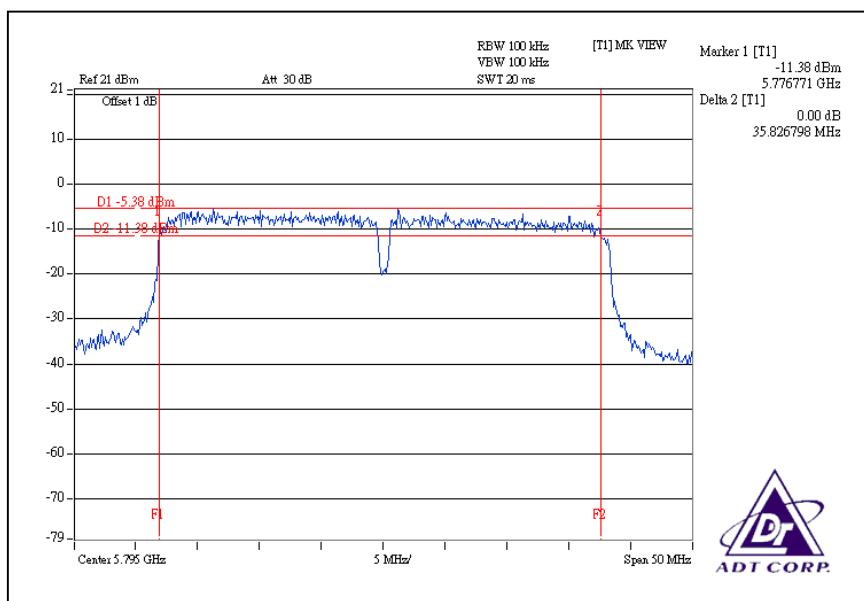
MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS / FAIL
		CHAIN(0)	CHAIN(1)		
1	5755	35.88	37.35	0.5	PASS
2	5795	35.83	36.47	0.5	PASS

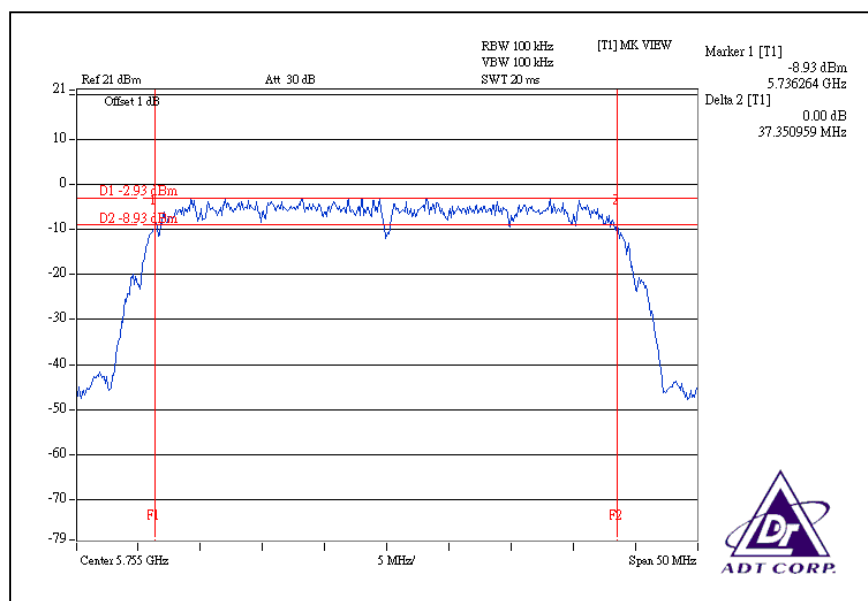
For Chain (0): CH1



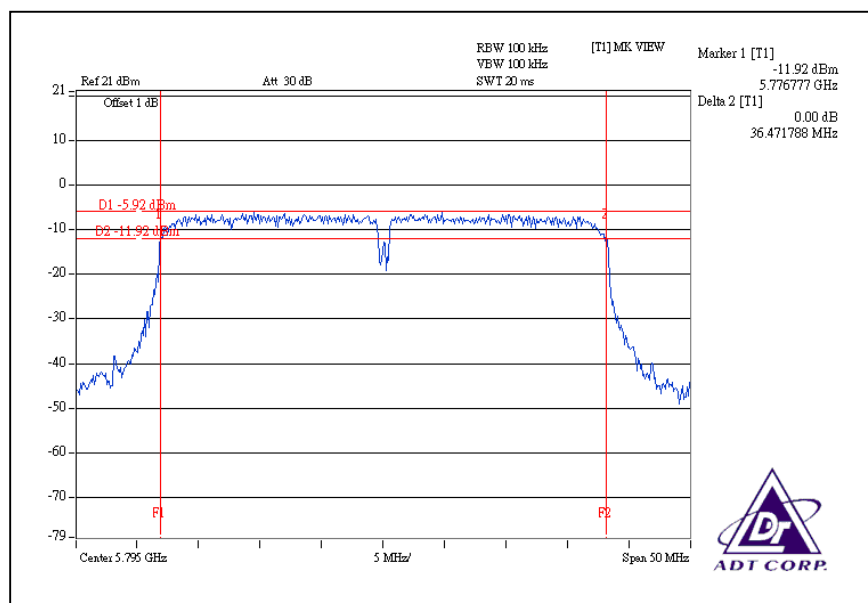
CH2



For Chain (1): CH1



CH2





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
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 13, 2008	Aug. 12, 2009
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 26, 2007	Dec. 25, 2008
Anritsu Power Meter	ML2495A	0824006	NA	NA
Pulse Power Sensor	MA2411B	0738172	NA	NA

NOTE:

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

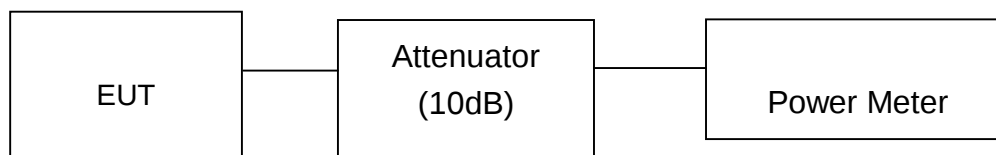
5.4.3 TEST PROCEDURES

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

802.11a OFDM modulation

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)	PEAK POWER OUTPUT (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
1	5745	174.181	22.41	30	PASS
3	5785	196.336	22.93	30	PASS
5	5825	206.538	23.15	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	5745	122.744	104.713	20.89	20.20	227.457	23.57	30	PASS
3	5785	114.551	121.339	20.59	20.84	235.890	23.73	30	PASS
5	5825	116.413	122.180	20.66	20.87	238.593	23.78	30	PASS



A D T

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg. C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (mW)		PEAK POWER OUTPUT (dBm)		TOTAL PEAK POWER (mW)	TOTAL PEAK POWER (dBm)	PEAK POWER LIMIT (dBm)	PASS / FAIL
		CHAIN(0)	CHAIN(1)	CHAIN(0)	CHAIN(1)				
1	5755	122.180	109.648	20.87	20.40	231.828	23.65	30	PASS
2	5795	125.314	109.901	20.98	20.41	235.215	23.71	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 measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2.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

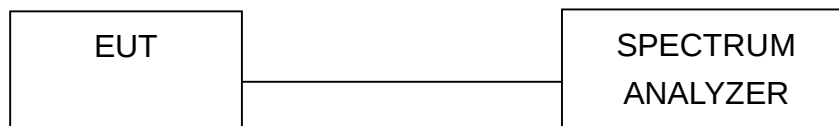
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3 kHz RBW and 30 kHz VBW, set sweep time = span/3 kHz. The power spectral density was measured and recorded.

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

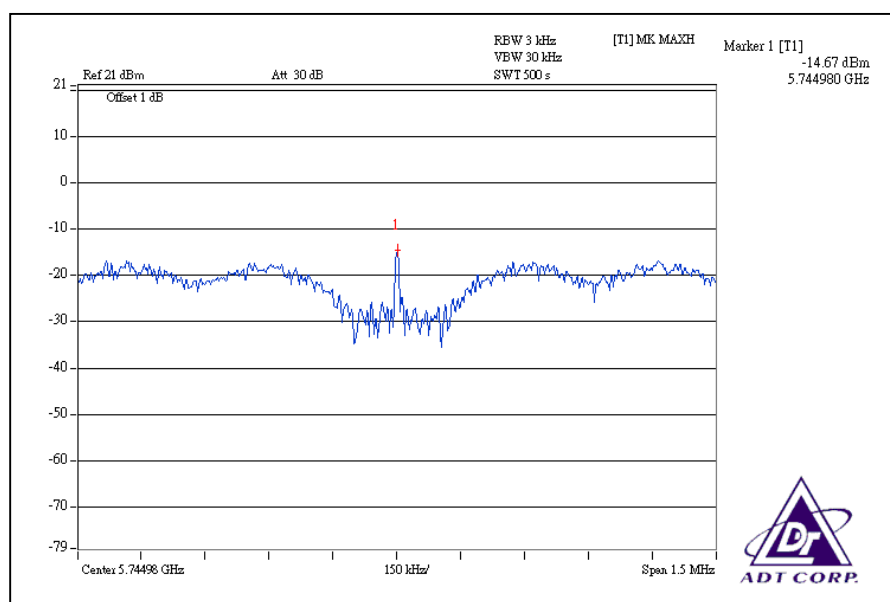
5.5.7 TEST RESULTS

802.11a OFDM modulation

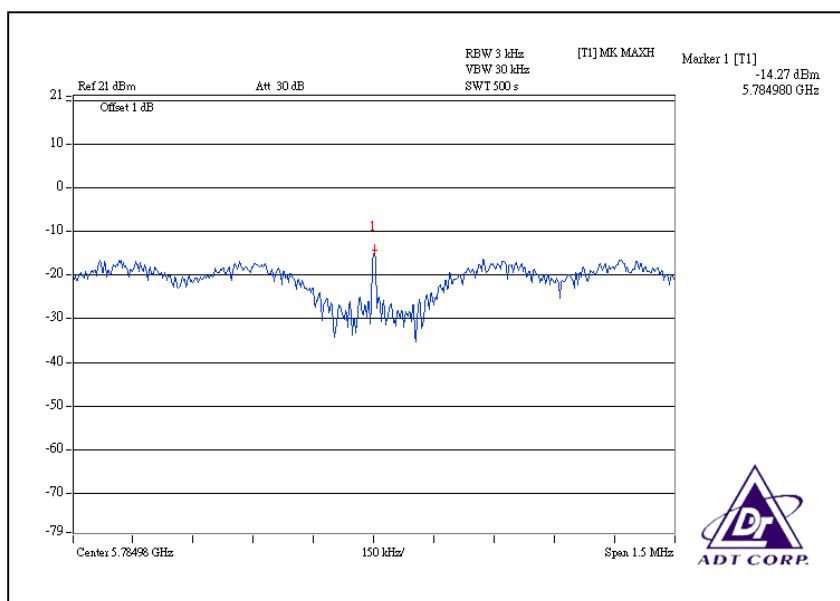
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS / FAIL
1	5745	-14.67	8	PASS
3	5785	-14.27	8	PASS
5	5825	-14.35	8	PASS

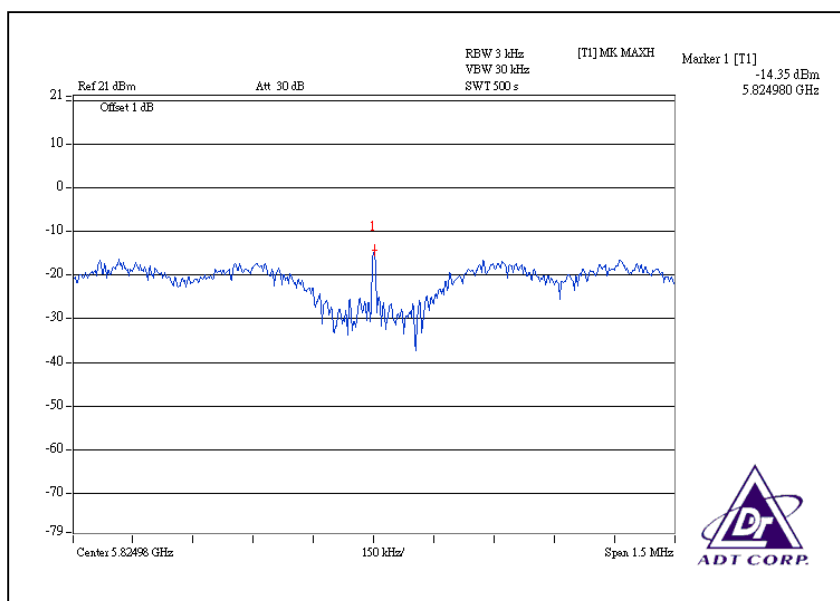
CH1



CH3



CH5





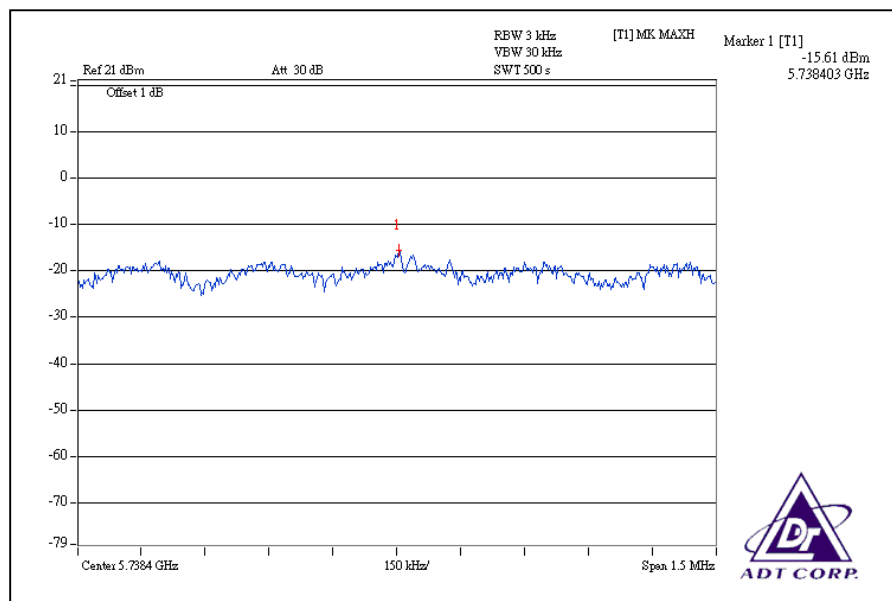
A D T

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	13Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

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(0)	CHAIN(1)				
1	5745	0.027	0.025	-15.61	-16.07	0.052	-12.84	8	PASS
3	5785	0.019	0.021	-17.16	-16.85	0.040	-13.98	8	PASS
5	5825	0.018	0.017	-17.50	-17.64	0.035	-14.56	8	PASS

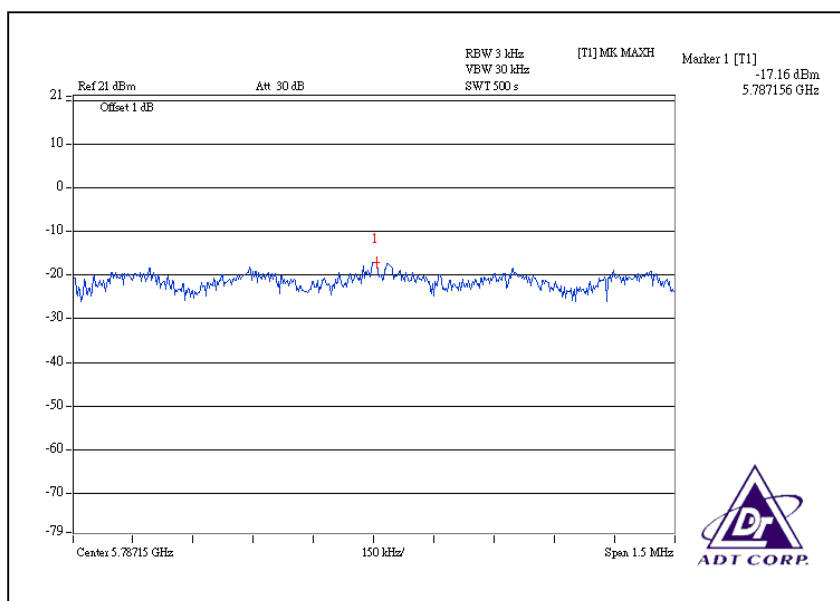
For Chain(0): CH1



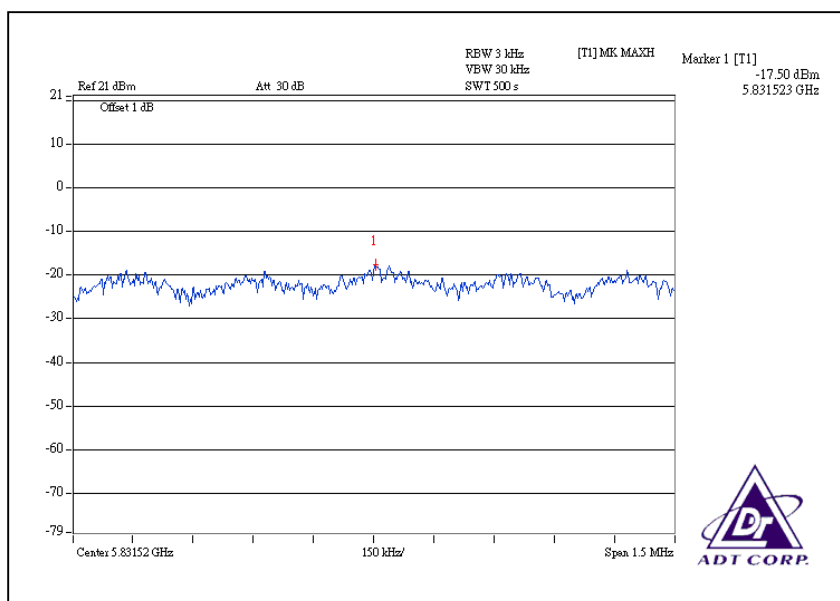


A D T

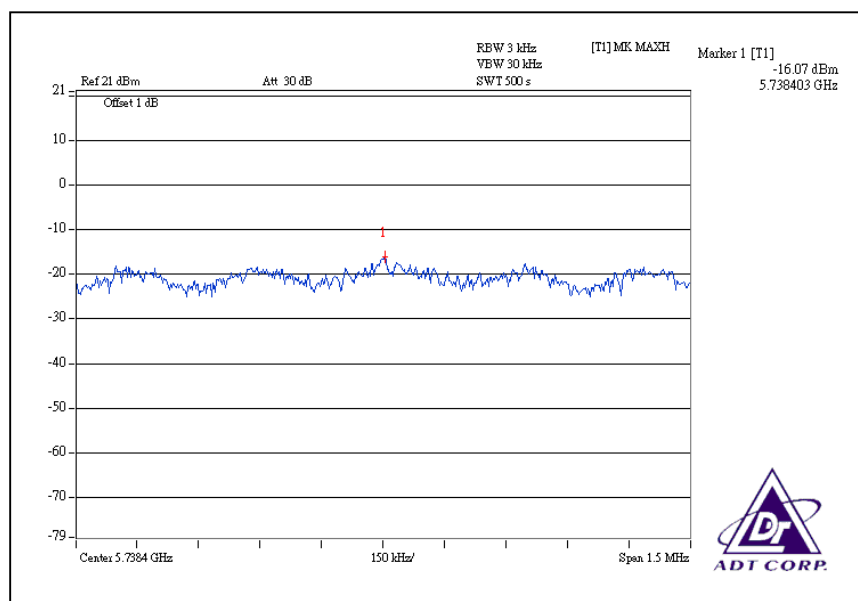
CH3



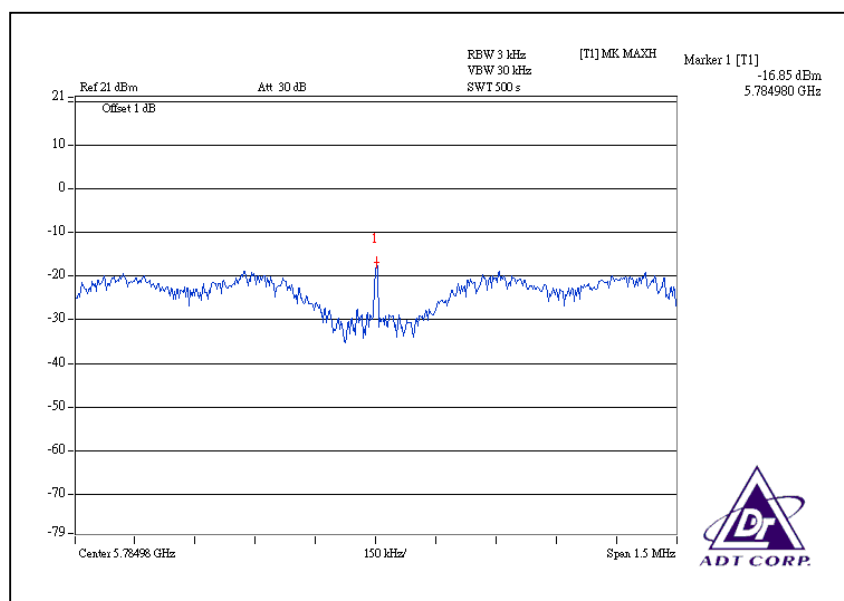
CH5



For Chain (1): CH1



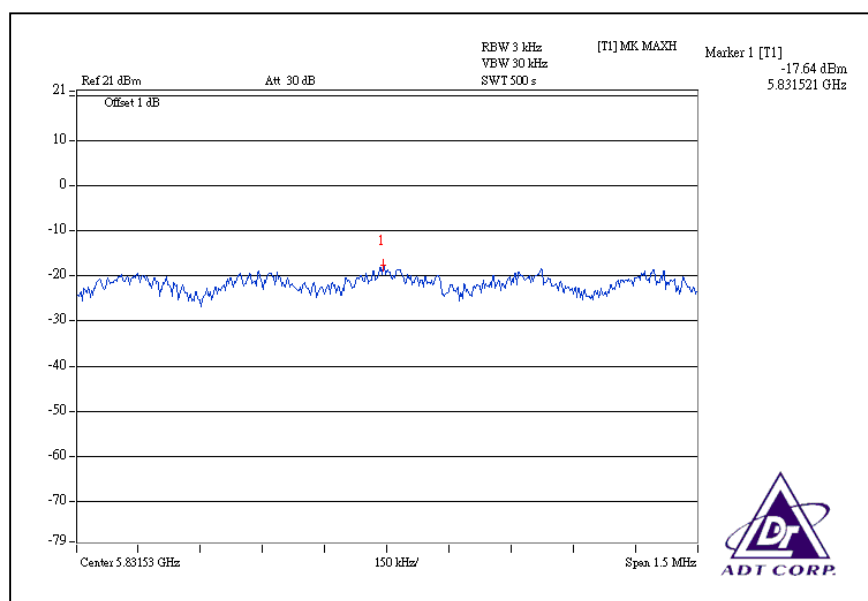
CH3





A D T

CH5





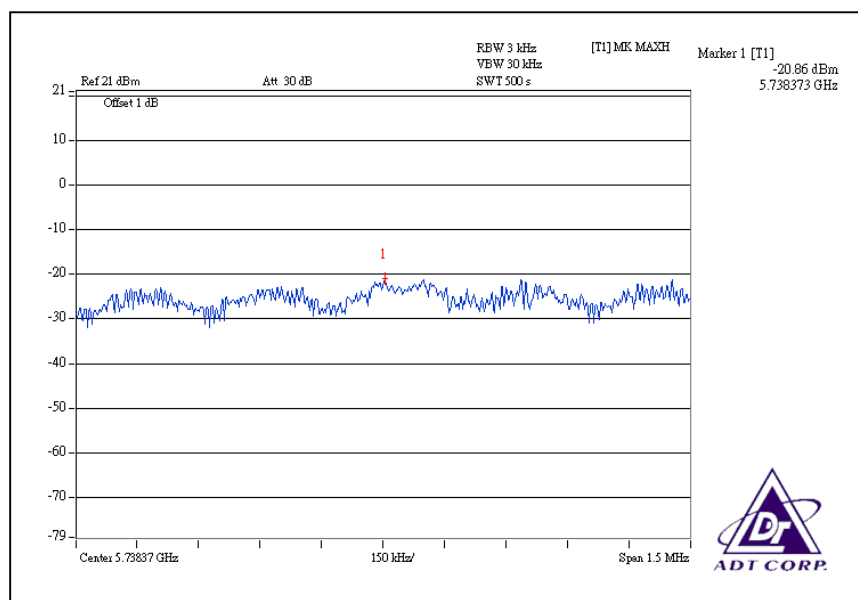
A D T

DRAFT 802.11n (40MHz) OFDM MODULATION:

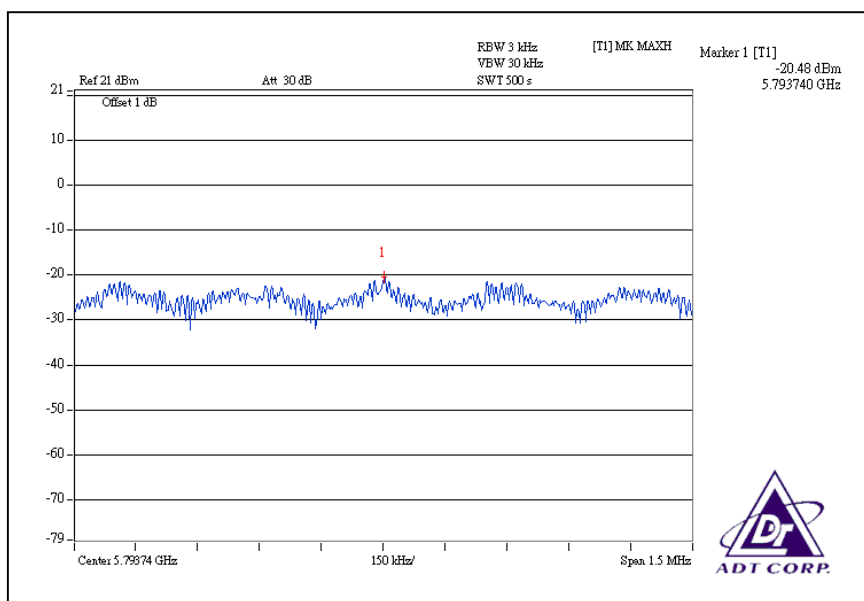
MODULATION TYPE	BPSK	TRANSFER RATE	27Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	25deg.C, 60%RH, 965hPa
TESTED BY	Rex Huang		

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(0)	CHAIN(1)				
1	5755	0.008	0.026	-20.86	-15.82	0.034	-14.69	8	PASS
2	5795	0.009	0.023	-20.48	-16.42	0.032	-14.95	8	PASS

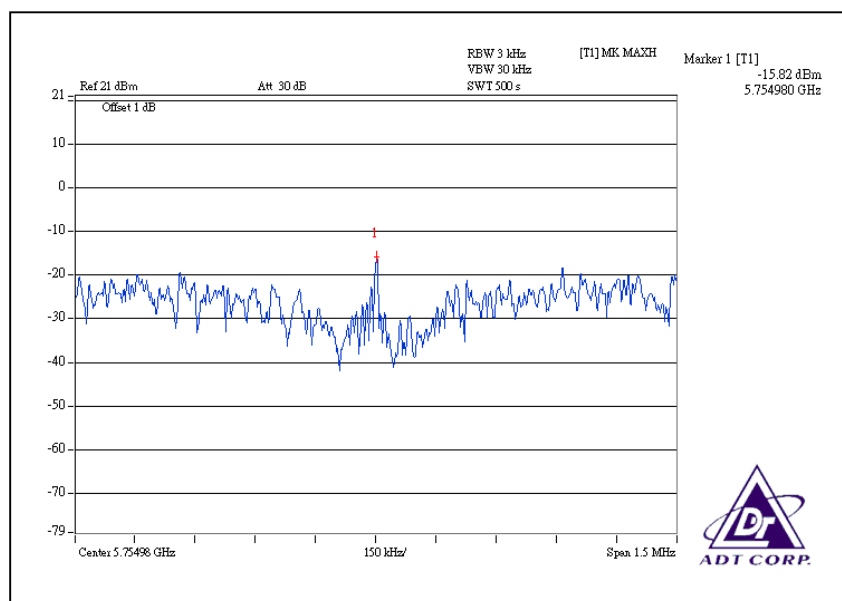
For Chain(0): CH1



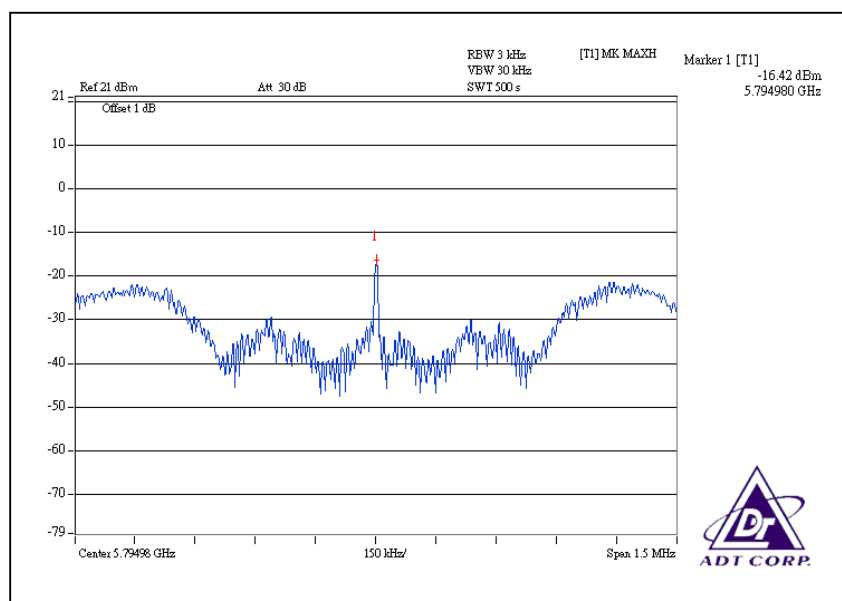
CH2



For Chain (1): CH1



CH2





A D T

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 measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2.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 loss 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



A D T

5.6.5 EUT OPERATING CONDITION

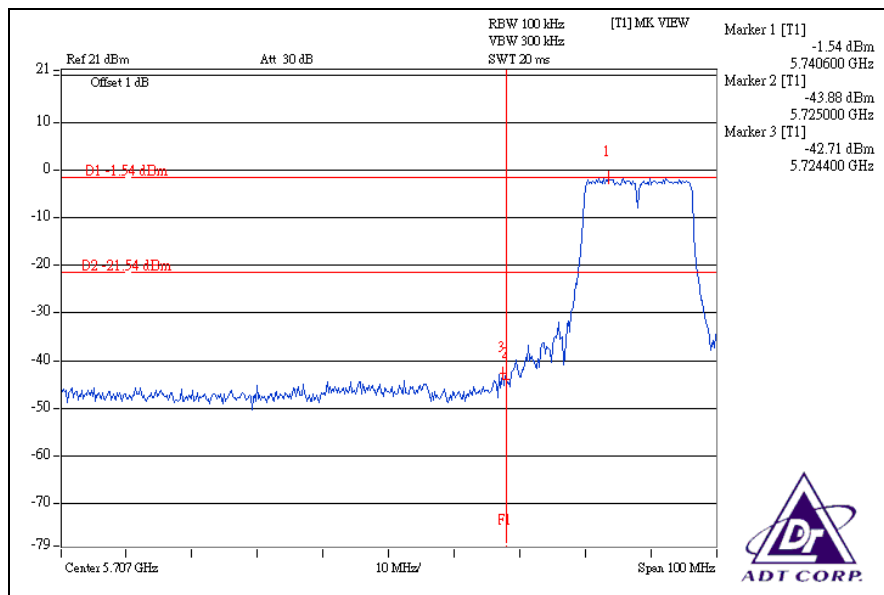
Same as Item 4.3.6

5.6.6 TEST RESULTS

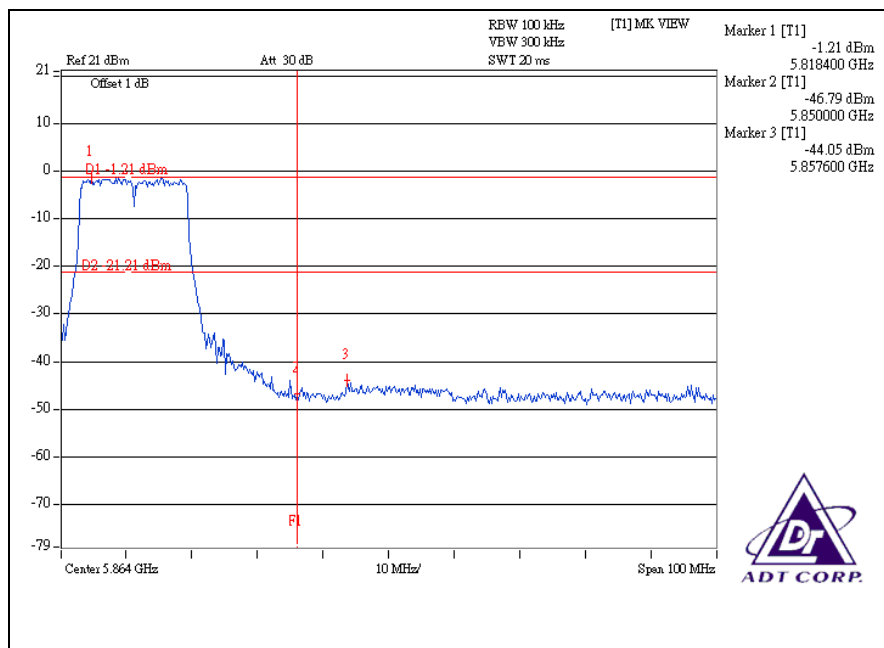
The spectrum plots are attached on the following pages. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.247(d).

802.11a OFDM modulation

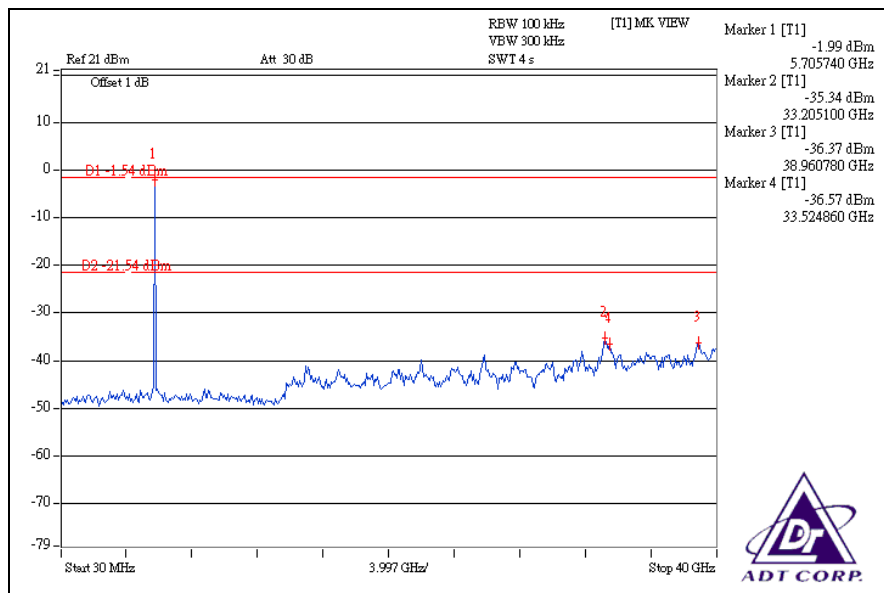
CH1



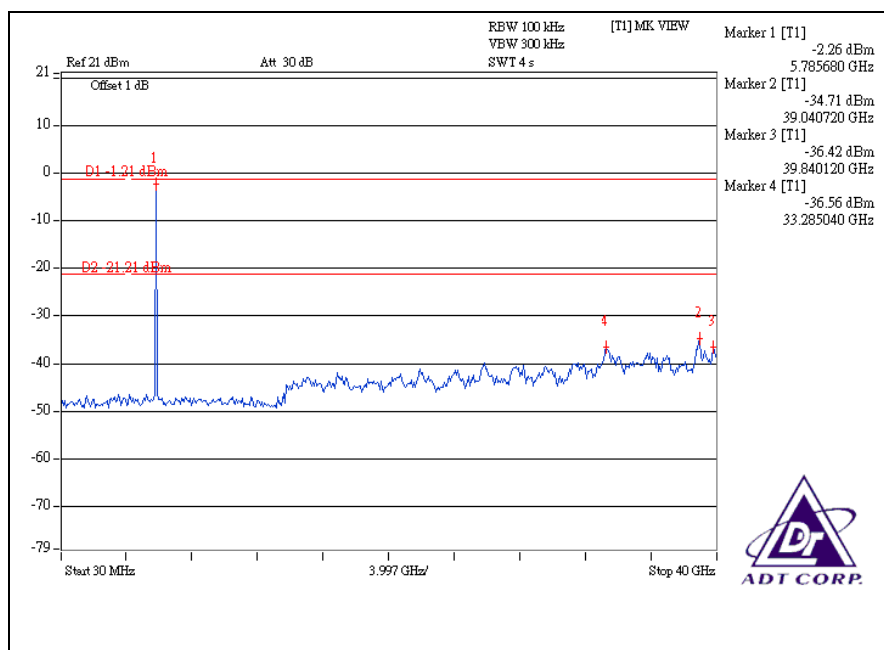
CH5



CH1

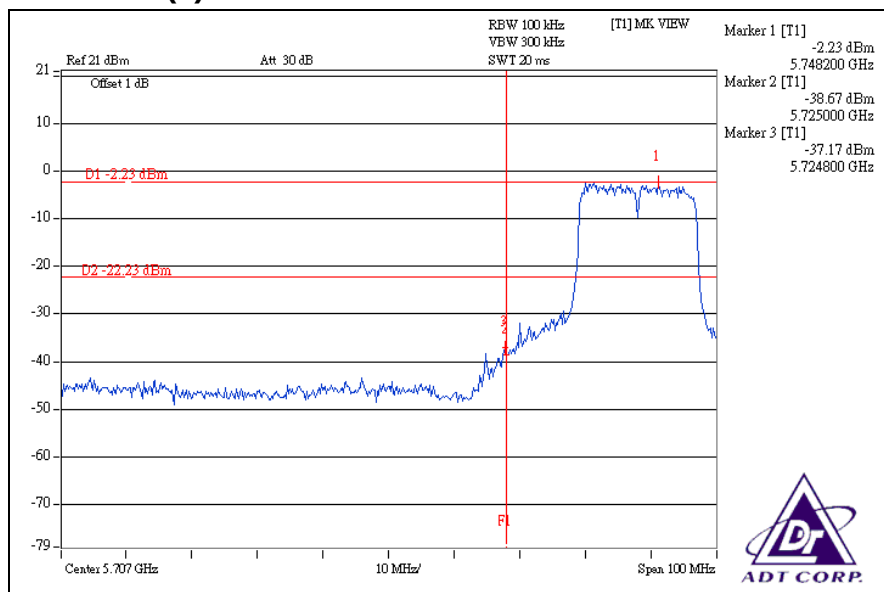


CH5

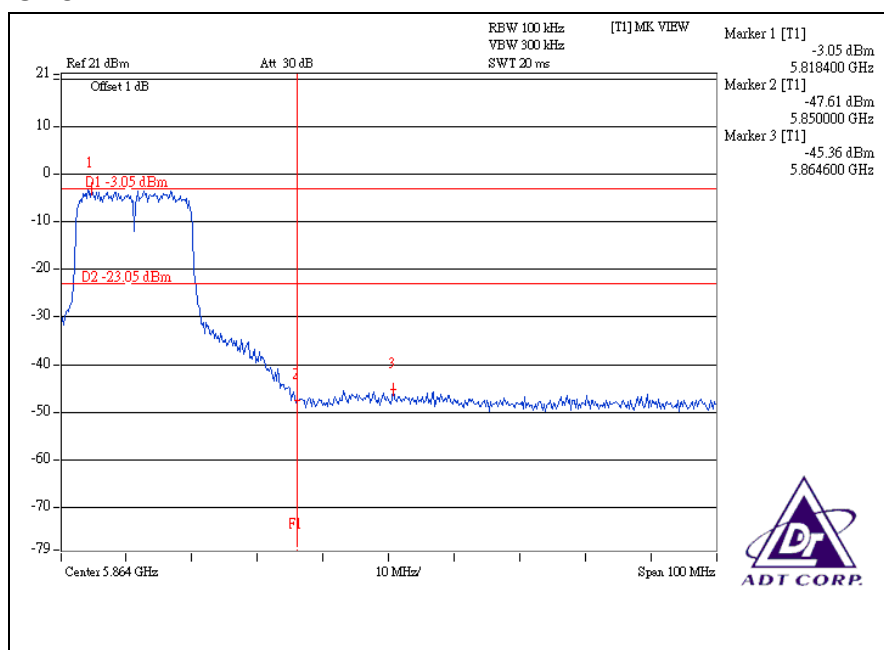


DRAFT 802.11n (20MHz) OFDM MODULATION:

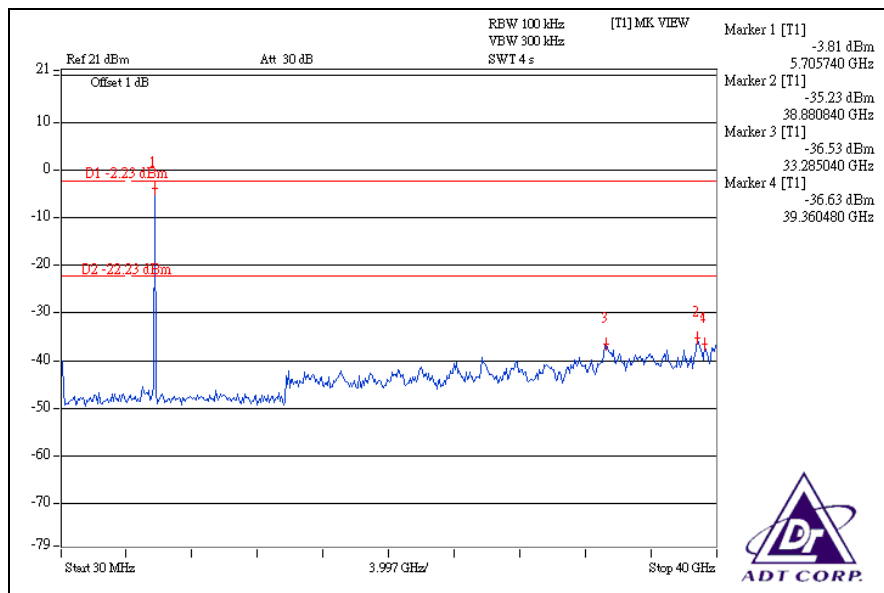
For chain (0) :CH1



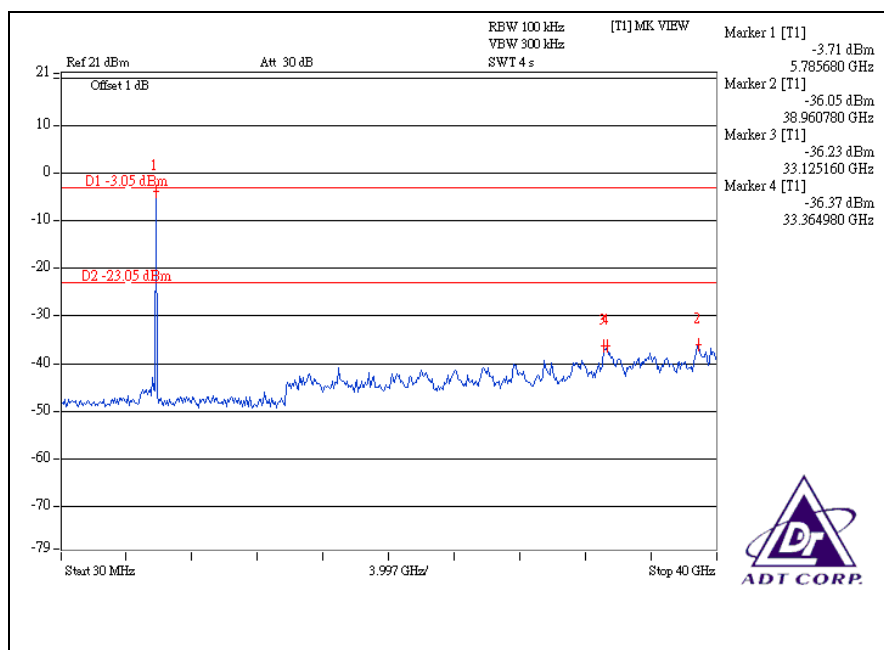
CH5



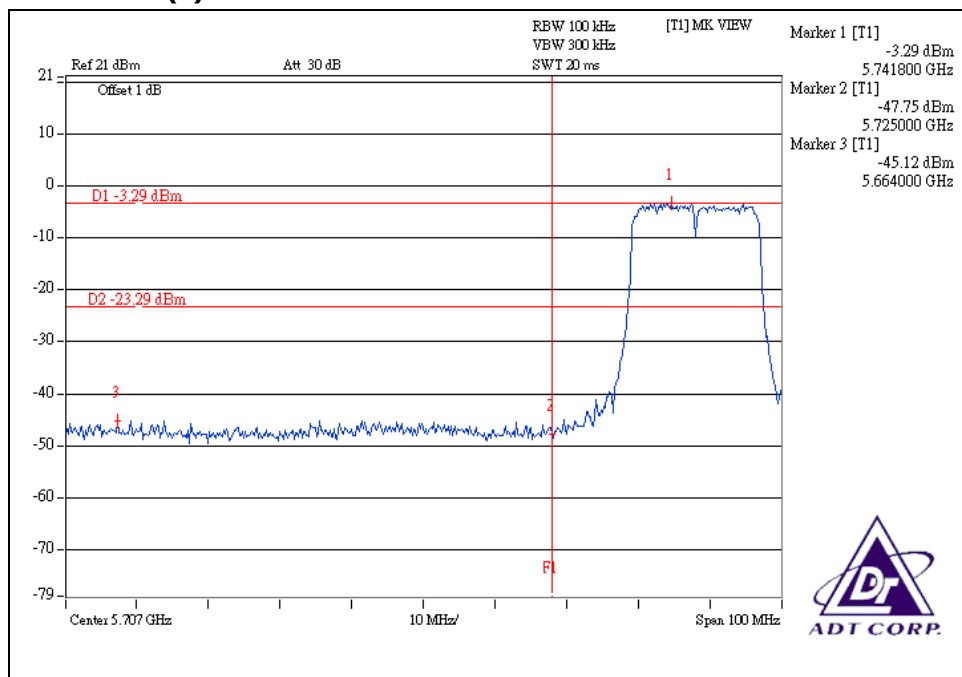
CH1



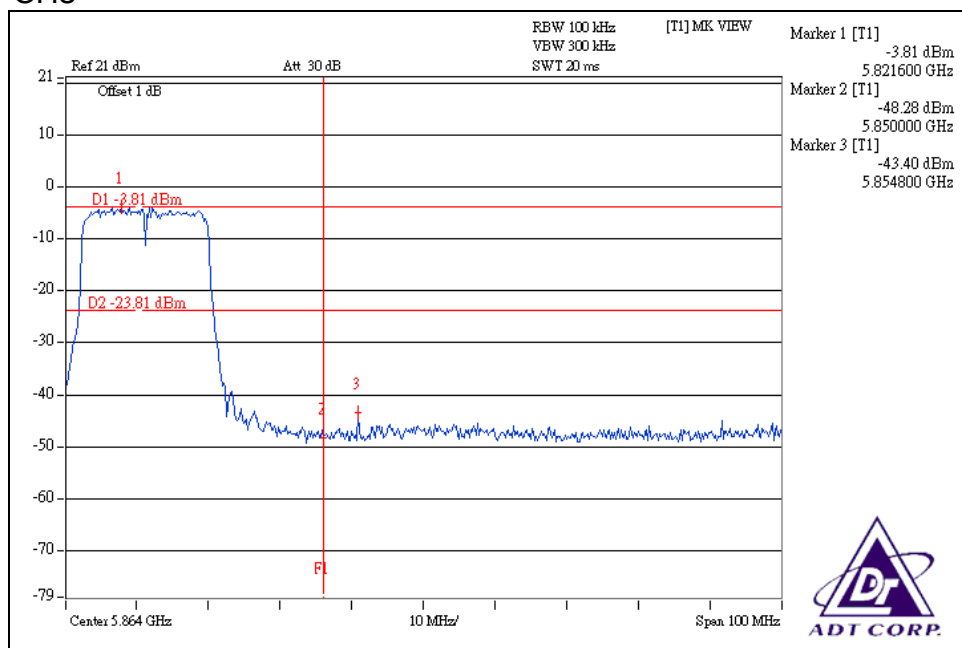
CH5



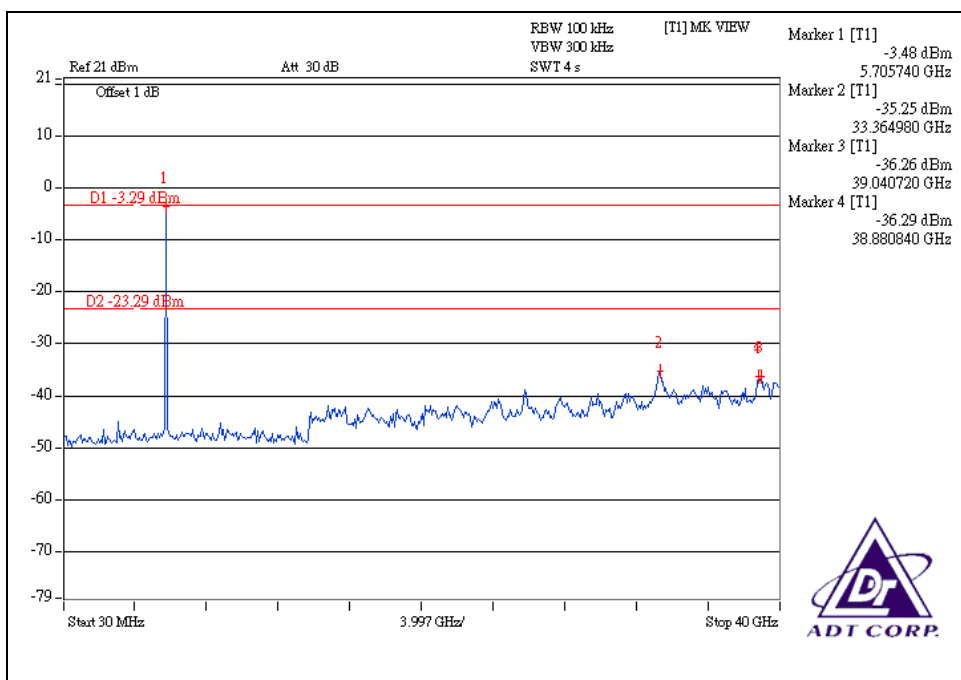
For chain (1):CH1



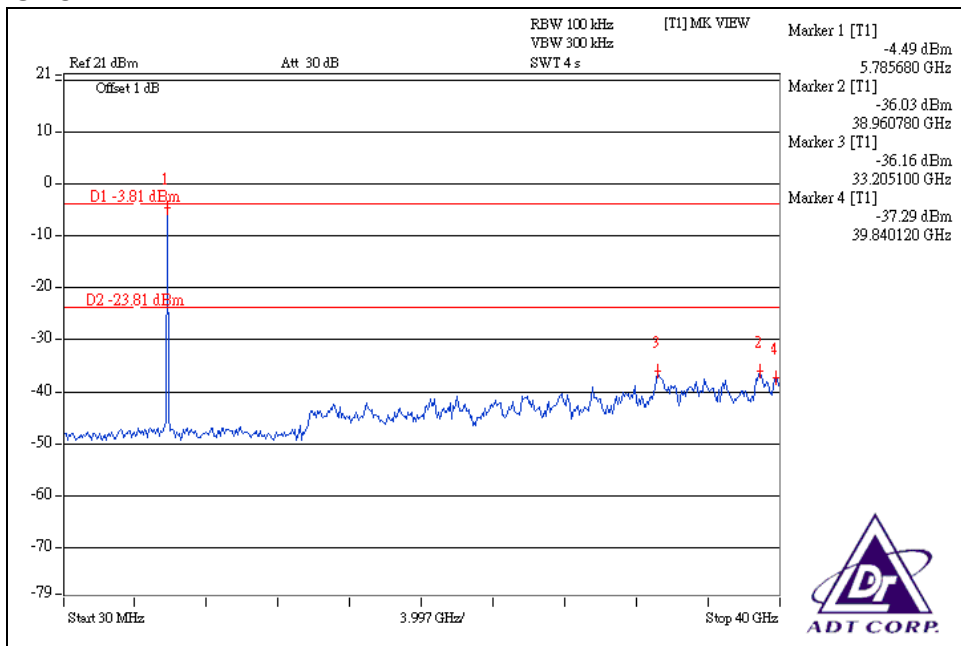
CH5



CH1

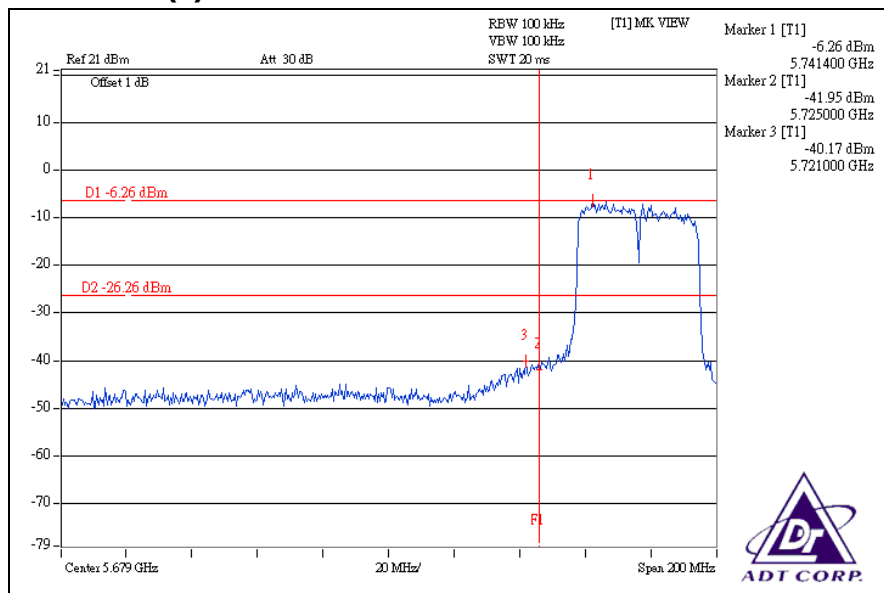


CH5

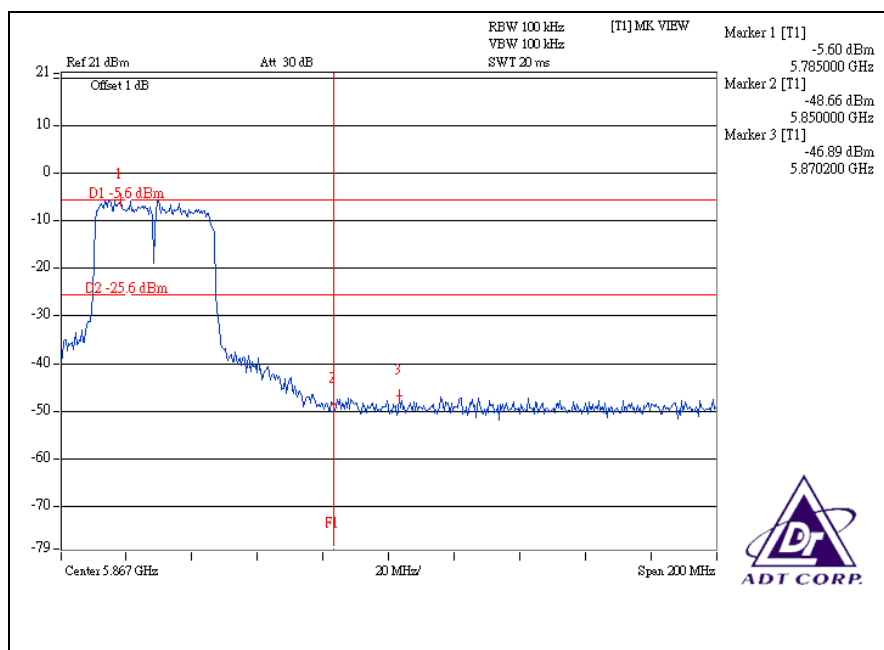


DRAFT 802.11n (40MHz) OFDM MODULATION:

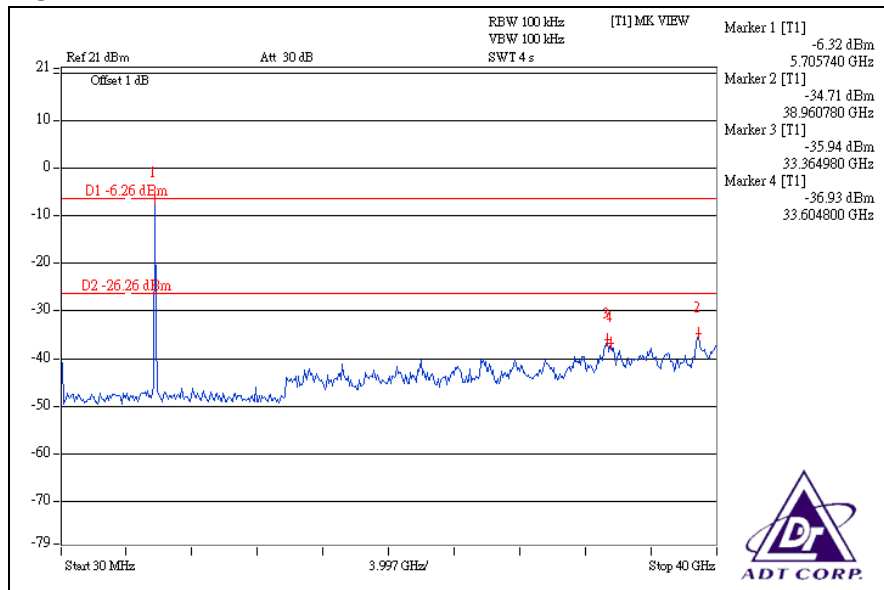
For chain (0) :CH1



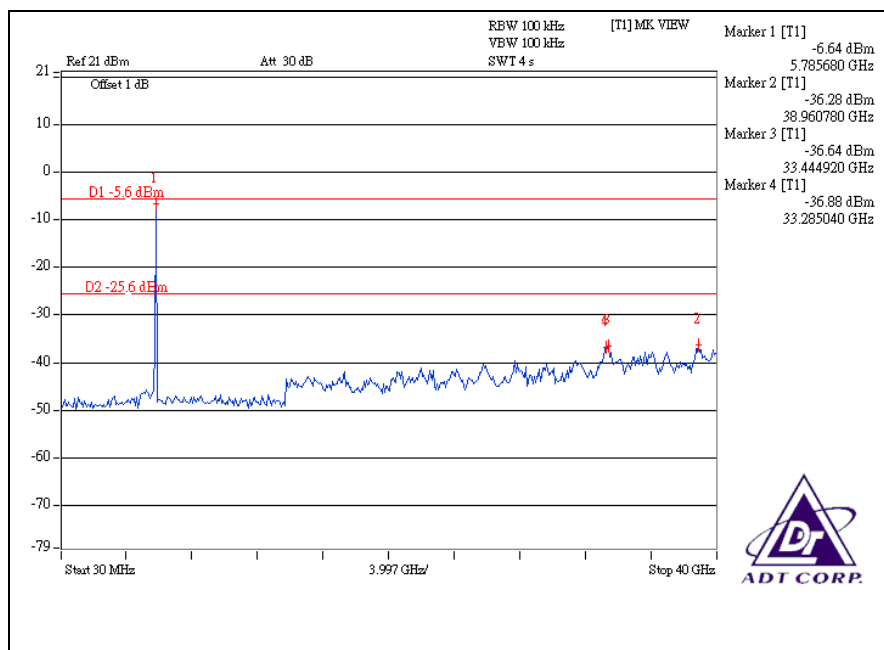
CH2



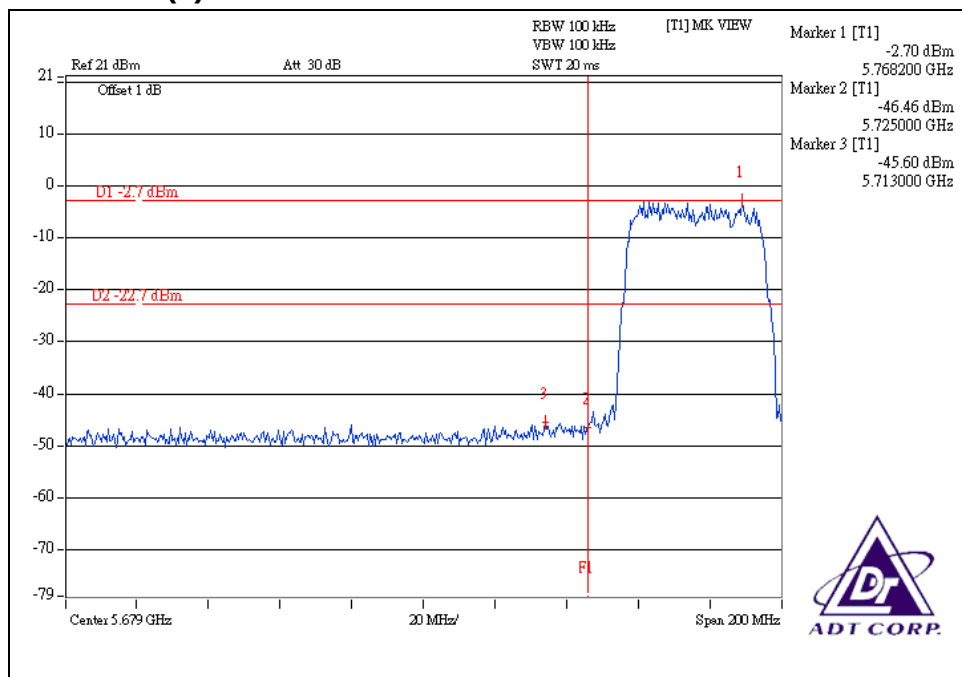
CH1



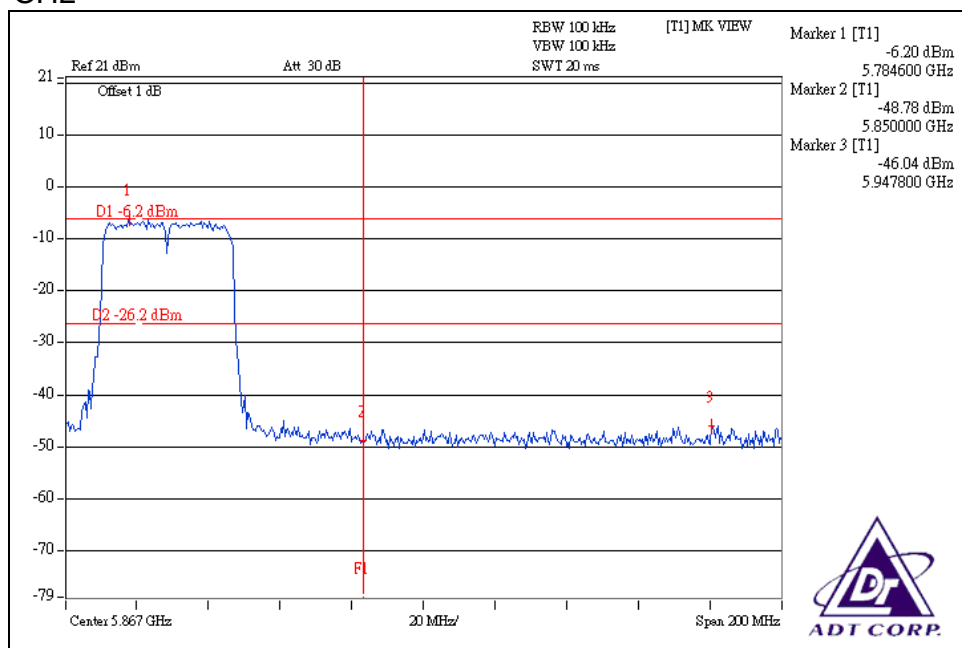
CH2



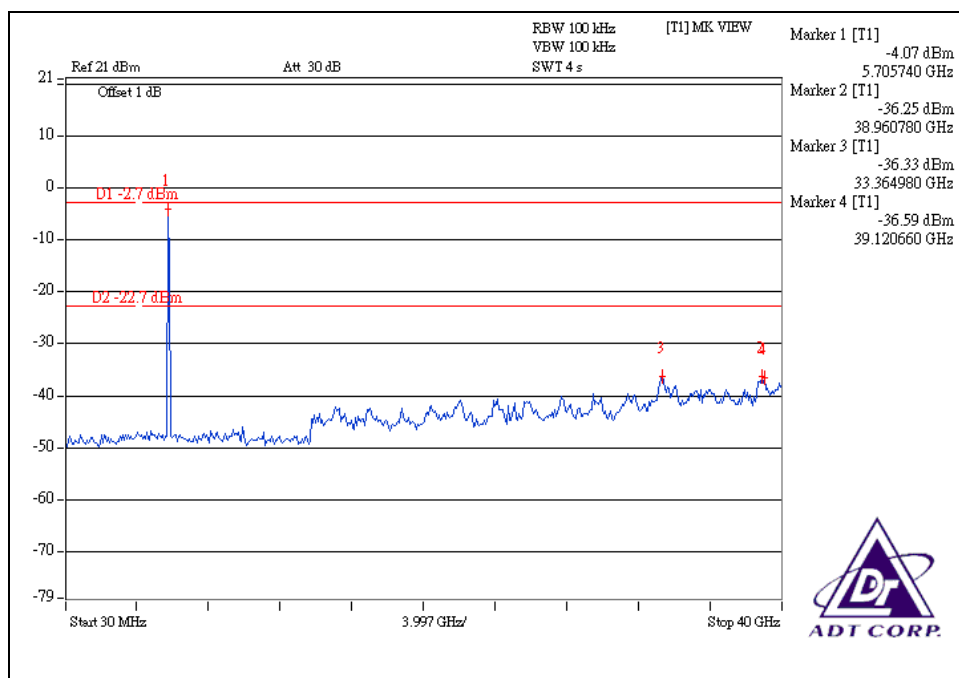
For chain (1) :CH1



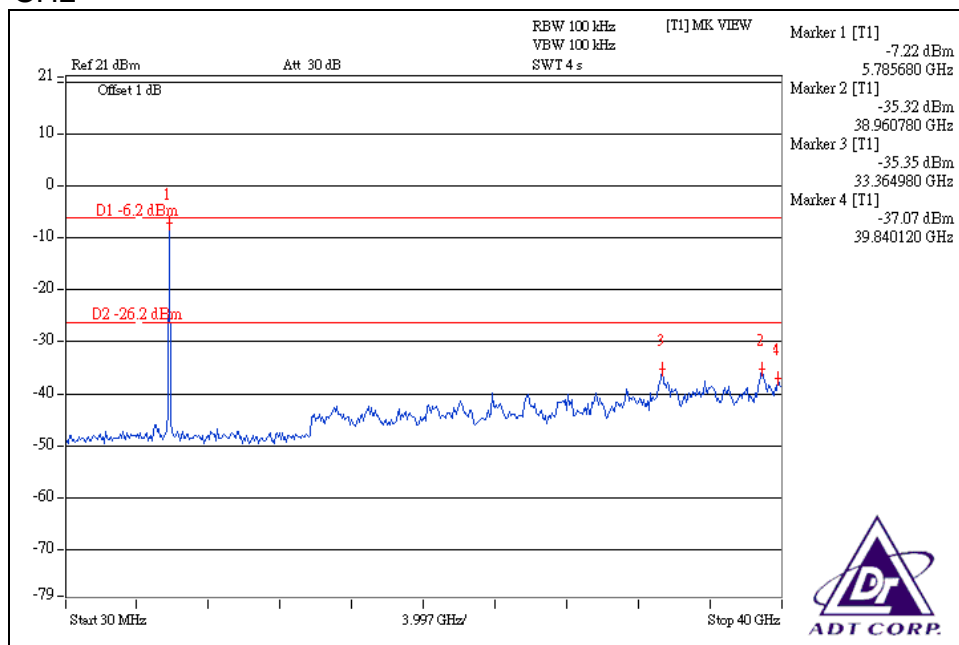
CH2



CH1



CH2



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 five set antennas provided to this EUT, please refer to the following table:

Set No.	Transmitter Circuit	Antenna Gain	For 2.4GHz Gain (dBi)	For 5.15~5.25GHz Gain (dBi)	For 5.725~5.850GHz Gain (dBi)	Cable Length (cm)
Set. 1	Chain(0), Chain(1), Chain(2)	Gain (dBi)	2.31	2.26	3.91	18
		Cable Loss (dB)	1.48	1.45	1.53	
		Net Gain (dB)	0.83	0.81	2.38	
Set 2	Chain(0)	Gain (dBi)	2.31	2.26	3.91	40
		Cable Loss (dB)	1.51	2.16	2.29	
		Net Gain (dB)	0.8	0.1	1.62	
	Chain(1)	Gain (dBi)	2.31	2.26	3.91	18
		Cable Loss (dB)	1.48	1.45	1.53	
		Net Gain (dB)	0.83	0.81	2.38	
	Chain(2)	Gain (dBi)	2.31	2.26	3.91	27
		Cable Loss (dB)	1.16	1.17	1.87	
		Net Gain (dB)	1.15	1.09	2.04	
Set 3	Chain(0), Chain(1)	Gain (dBi)	3.72	3.55	2.76	25.5
		Cable Loss (dB)	0.52	0.82	1.00	
		Net Gain (dB)	3.2	2.73	1.76	
	Chain(2)	Gain (dBi)	3.72	3.55	2.76	12
		Cable Loss (dB)	0.51	0.75	0.90	
		Net Gain (dB)	3.21	2.8	1.86	
Set 4	Chain(0)	Gain (dBi) involve cable loss	2.65	NA	NA	11
	Chain(1), Chain(2)	Gain (dBi) involve cable loss	2.49	NA	NA	10
Set 5	Chain(0), Chain(1), Chain(2)	Gain (dBi) involve cable loss	2.43	NA	NA	6



A D T

Set No.	Transmitter Circuit	Antenna Type	Manufacture	Model No.	Antenna Connector
Set 1	Chain(0)	Dipole	WANSHIH ELECTRONIC CO., LTD.	WSS001	RP-SMA(M)
	Chain(1)				
	Chain(2)				
Set 2	Chain(0)	Dipole	WANSHIH ELECTRONIC CO., LTD.	WSS001	RP-SMA(M)
	Chain(1)				
	Chain(2)				
Set 3	Chain(0)	Dipole	WHA YU INDUSTRIAL CO., LTD.	C056-510399-A	SMA Plug Reverse
	Chain(1)				
	Chain(2)				
Set 4	Chain(0)	PCB	WHA YU GROUP	C037-510934-A (SSR-83320)	I-PEX
	Chain(1)			C037-510935-A (SSR-83347)	
	Chain(2)			C037-510935-A (SSR-83347)	
Set 5	Chain(0)	PCB	WHA YU GROUP	C037-510953-A (SSR-84244)	MHF Plug
	Chain(1)				
	Chain(2)				

**A D T**

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



A D T

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.

--- END ---