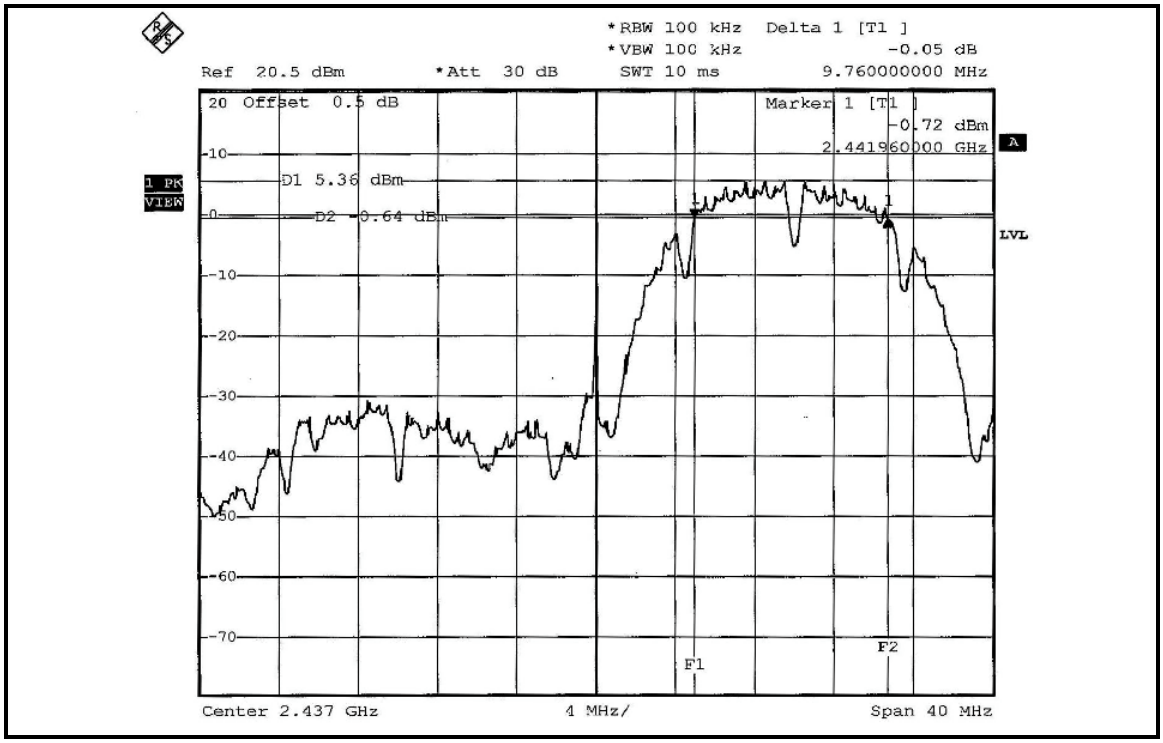
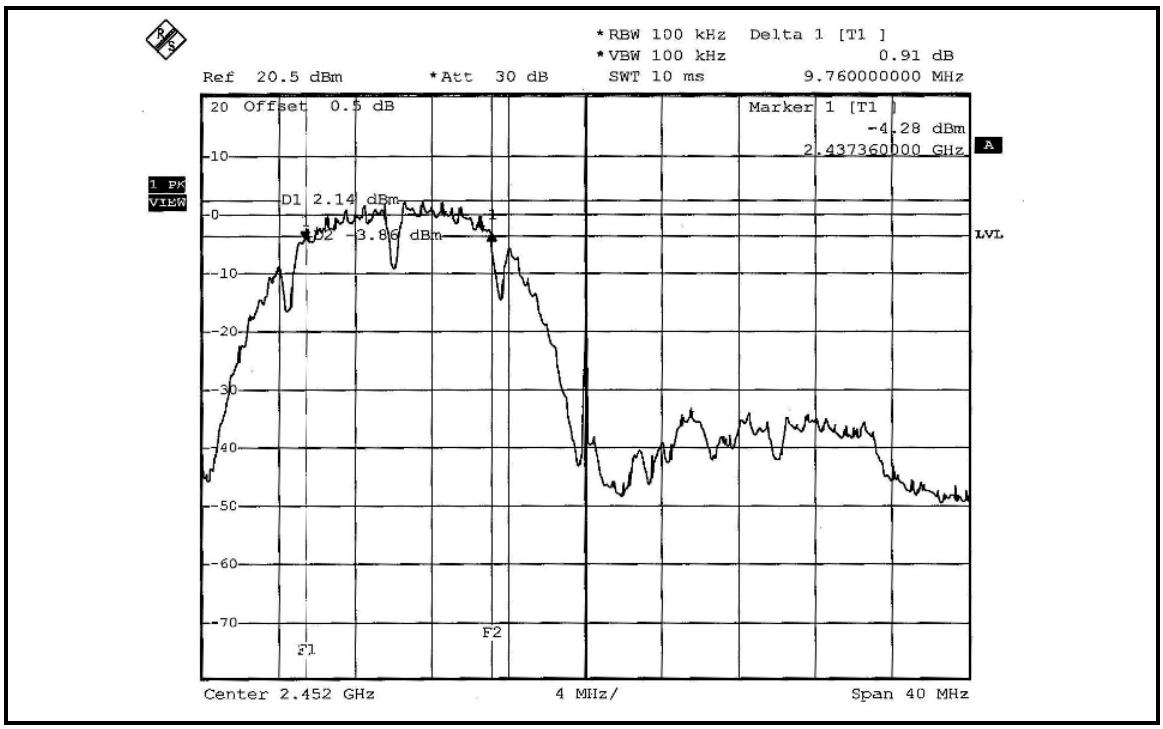
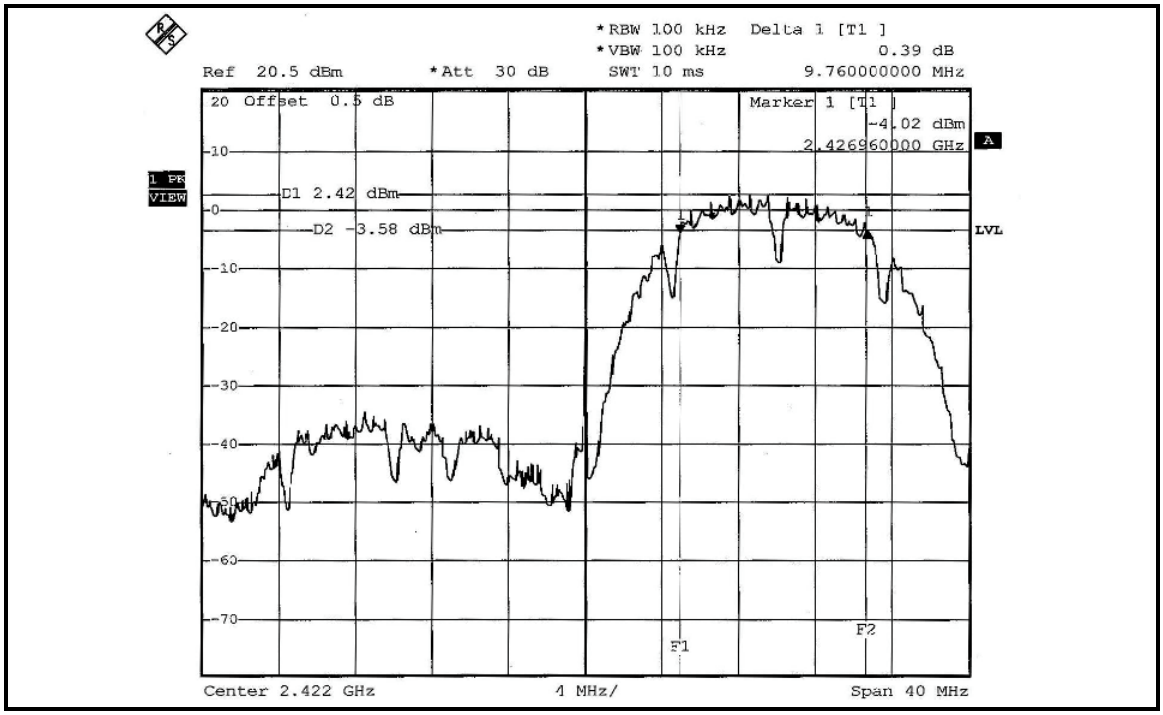
CH 4


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
-0.05 dB
9.760000000 MHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
Marker 1 [T1]
-0.72 dBm
2.441960000 GHz
1 PK VIEW
D1 5.36 dBm
D2 -0.64 dBm
LVL
F1
F2
Center 2.437 GHz
4 MHz/
Span 40 MHz

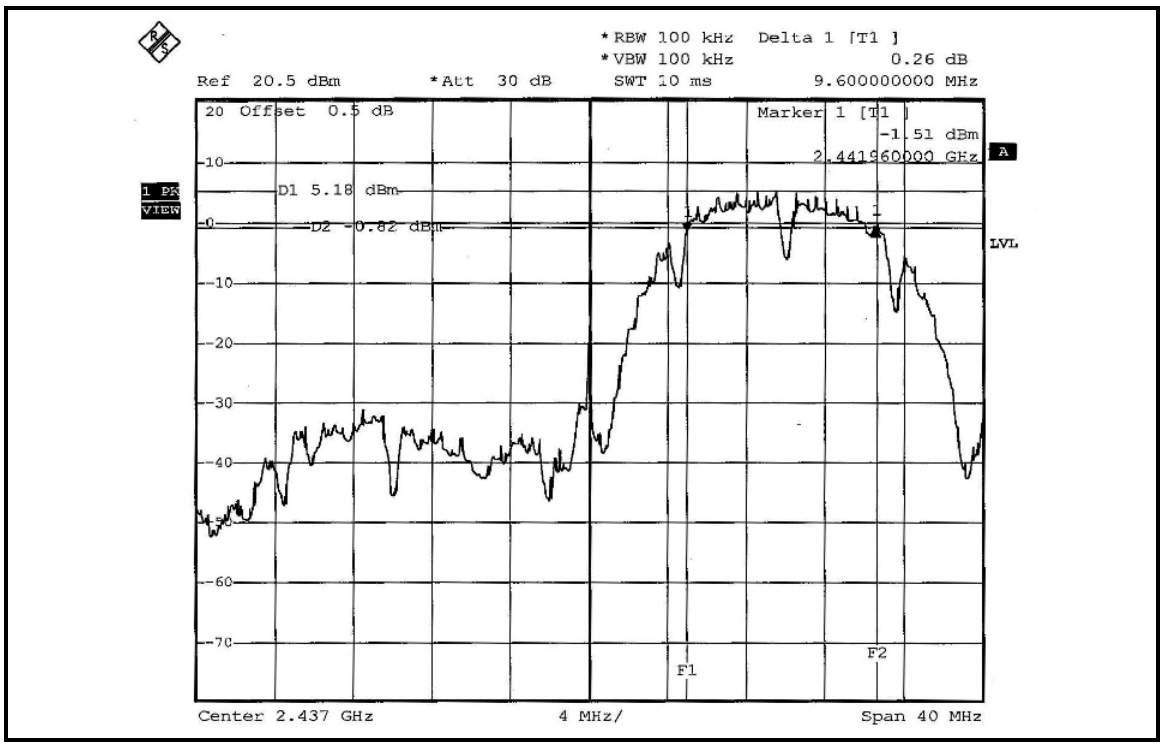
CH 7


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
0.91 dB
9.760000000 MHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
Marker 1 [T1]
-4.28 dBm
2.437360000 GHz
1 PK VIEW
D1 2.14 dBm
D2 -3.86 dBm
LVL
F1
F2
Center 2.452 GHz
4 MHz/
Span 40 MHz

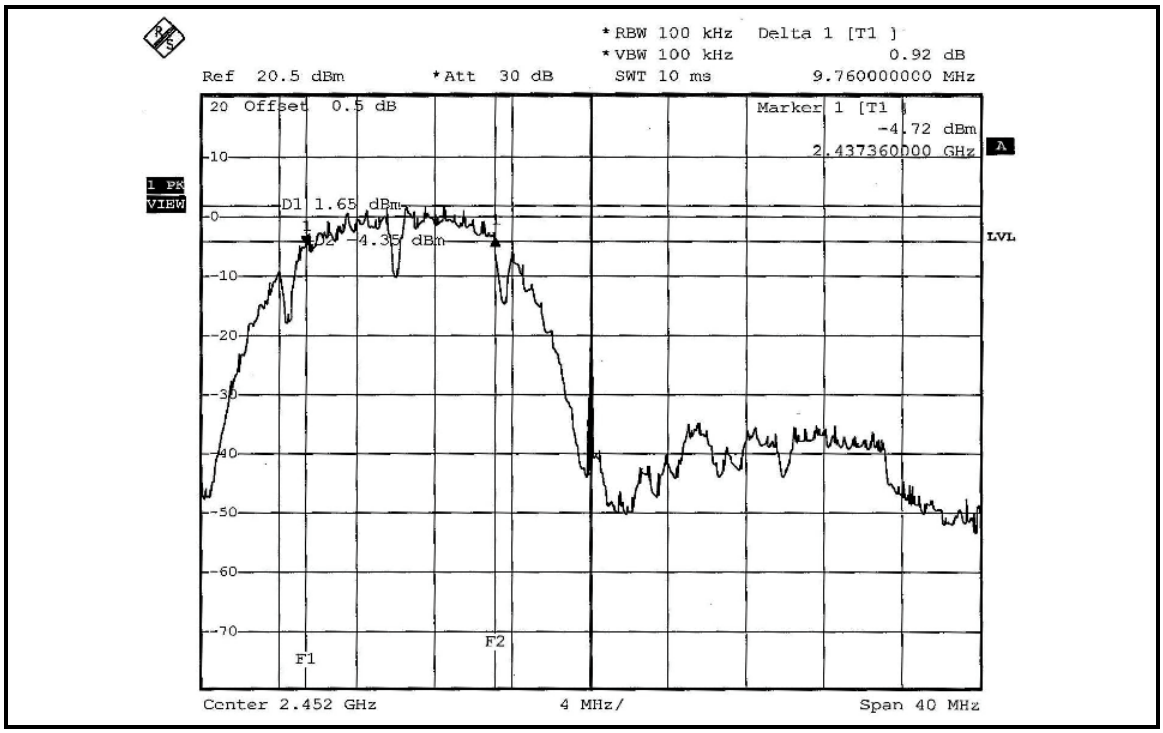
FOR CHAIN 1: CH 1



CH 4



CH 7


*RBW 100 kHz
*VBW 100 kHz
SWT 10 ms
Delta 1 [T1]
0.92 dB
9.760000000 MHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
Marker 1 [T1]
-4.72 dBm
2.437360000 GHz
1 PK
VIEW
D1 1.65 dBm
D2 -4.35 dBm
LVL
F1
F2
Center 2.452 GHz
4 MHz/
Span 40 MHz

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 UNTIL
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006
AGILENT SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2006
DIGITAL RT OSCILLOSCOPE	TDS1012	C037299	Nov. 28, 2006
NARDA DETECTOR	4503A	FSCM99899	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. A detector was used on the output port of the EUT. An oscilloscope was used to read the response of the detector.
2. Replaced the EUT by the signal generator. The center frequency of the S.G was adjusted to the center frequency of the measured channel.
3. Adjusted the power to have the same reading on oscilloscope. 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	26deg.C, 70%RH, 991hPa
TESTED BY	Match Tsui		

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	51.286	50.933	17.10	17.07	102.219	20.095	30	PASS
6	2437	64.417	63.826	18.09	18.05	128.243	21.080	30	PASS
11	2462	45.290	44.978	16.56	16.53	90.268	19.555	30	PASS

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Match Tsui		

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	51.168	50.699	17.09	17.05	101.867	20.080	30	PASS
6	2437	90.157	89.536	19.55	19.52	**179.693**	22.545	30	PASS
11	2462	40.458	39.994	16.07	16.02	80.452	19.055	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION: DUAL TX:

MODULATION TYPE	BPSK	TRANSFER RATE	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Match Tsui		

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	51.168	50.699	17.09	17.05	101.867	20.080	30	PASS
6	2437	89.536	90.157	19.52	19.55	**179.693**	22.545	30	PASS
11	2462	40.738	40.272	16.10	16.05	81.010	19.085	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION: DUAL TX:

MODULATION TYPE	BPSK	TRANSFER RATE	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Match Tsui		

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	32.137	31.696	15.07	15.01	63.833	18.050	30	PASS
4	2437	40.458	40.179	16.07	16.04	80.637	19.065	30	PASS
7	2452	32.285	32.137	15.09	15.07	64.422	18.090	30	PASS

802.11b (CB mode) OFDM MODULATION: DUAL TX:

MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Match Tsui		

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	40.644	40.365	16.09	16.06	81.009	19.085	30	PASS
4	2437	72.111	71.450	18.58	18.54	143.561	21.570	30	PASS
7	2452	35.975	35.481	15.56	15.50	71.456	18.540	30	PASS

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 UNTIL
R&S SPECTRUM ANALYZER	FSEK30	100049	Aug. 14, 2006

NOTE: 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

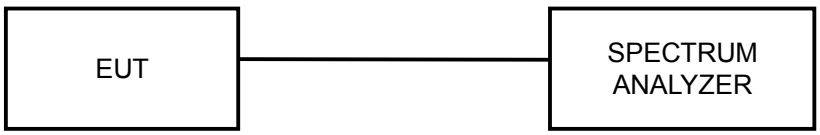
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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.

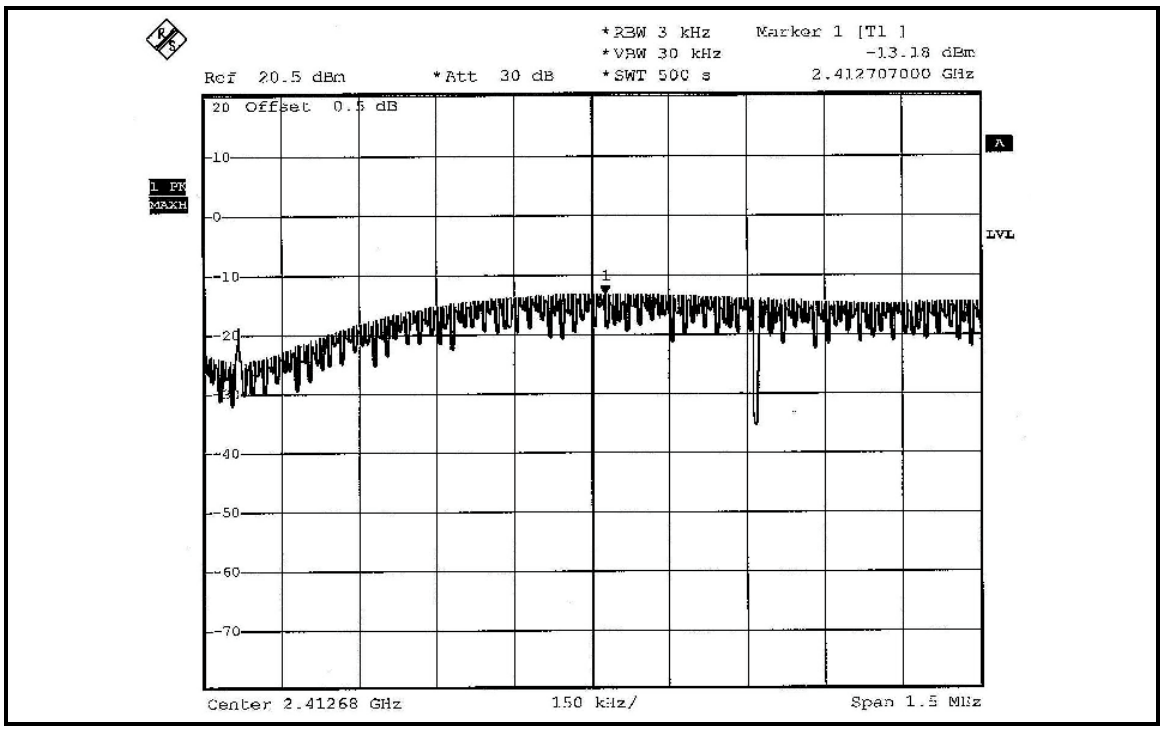
4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

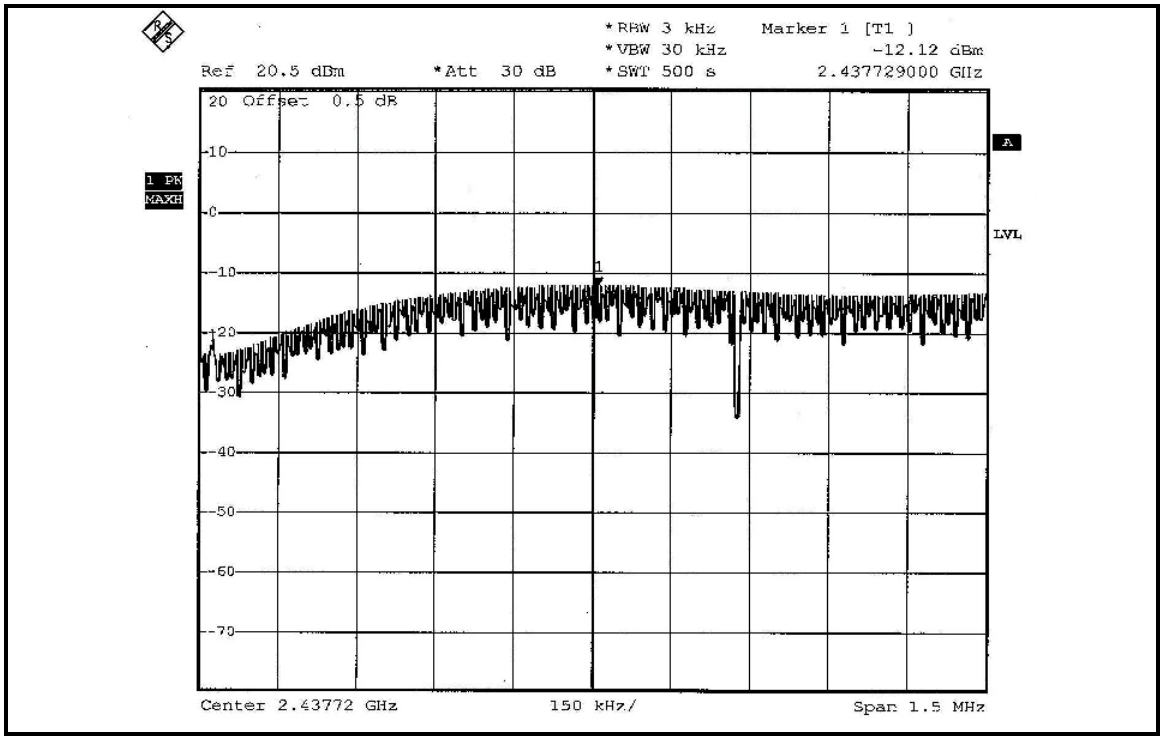
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	22deg.C, 64%RH, 991hPa
TESTED BY	Brad Wu		

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)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	0.048	0.046	-13.18	-13.34	0.094	-10.27	8	PASS
6	2437	0.062	0.060	-12.12	-12.22	0.122	-9.14	8	PASS
11	2462	0.044	0.041	-13.58	-13.86	0.085	-10.71	8	PASS

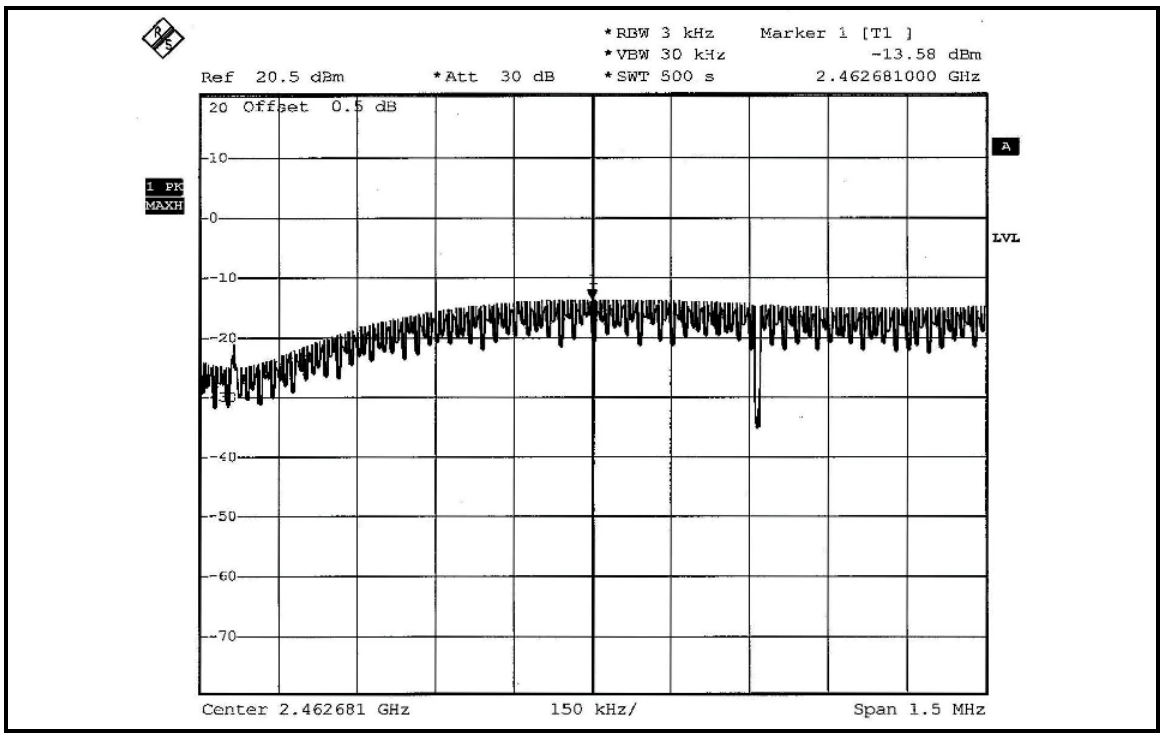
FOR CHAIN 0: CH 1



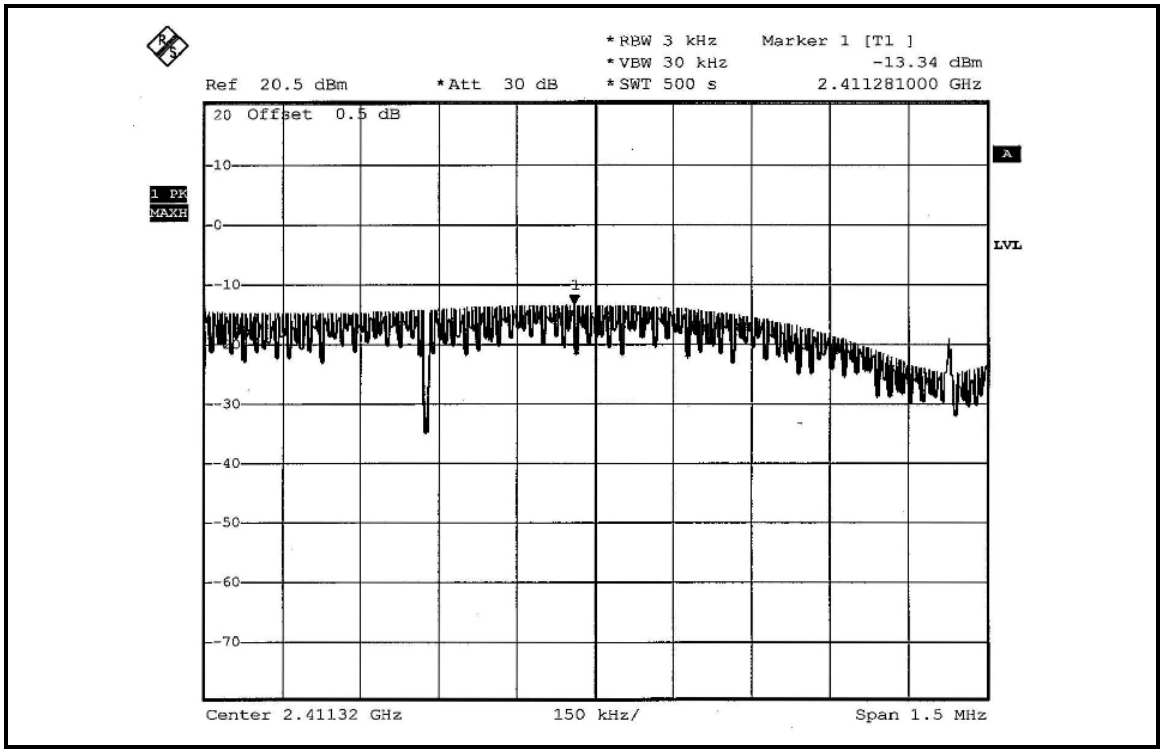
CH 6


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-12.12 dBm
2.437729000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK MAXH
A
LVL
-10
0
-10
-20
-30
-40
-50
-60
-70
Center 2.43772 GHz
150 kHz/
Span 1.5 MHz

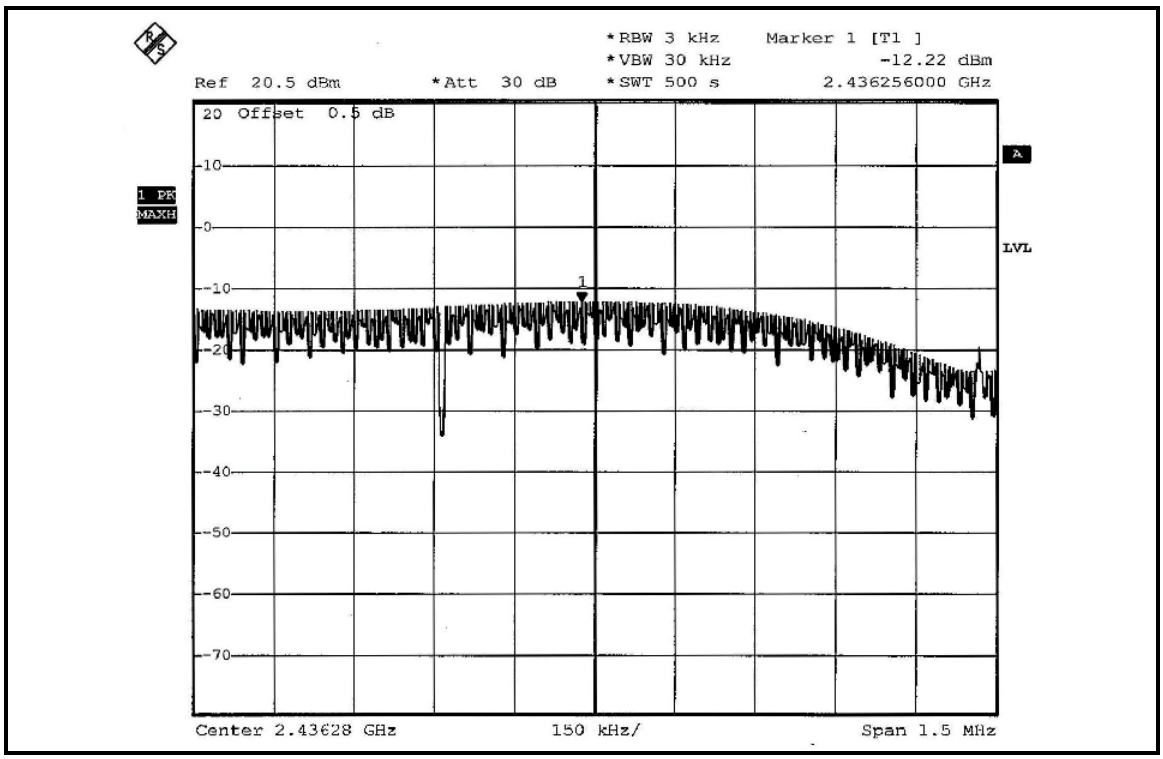
CH 11


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-13.58 dBm
2.462681000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK MAXH
A
LVL
-10
0
-10
-20
-30
-40
-50
-60
-70
Center 2.462681 GHz
150 kHz/
Span 1.5 MHz

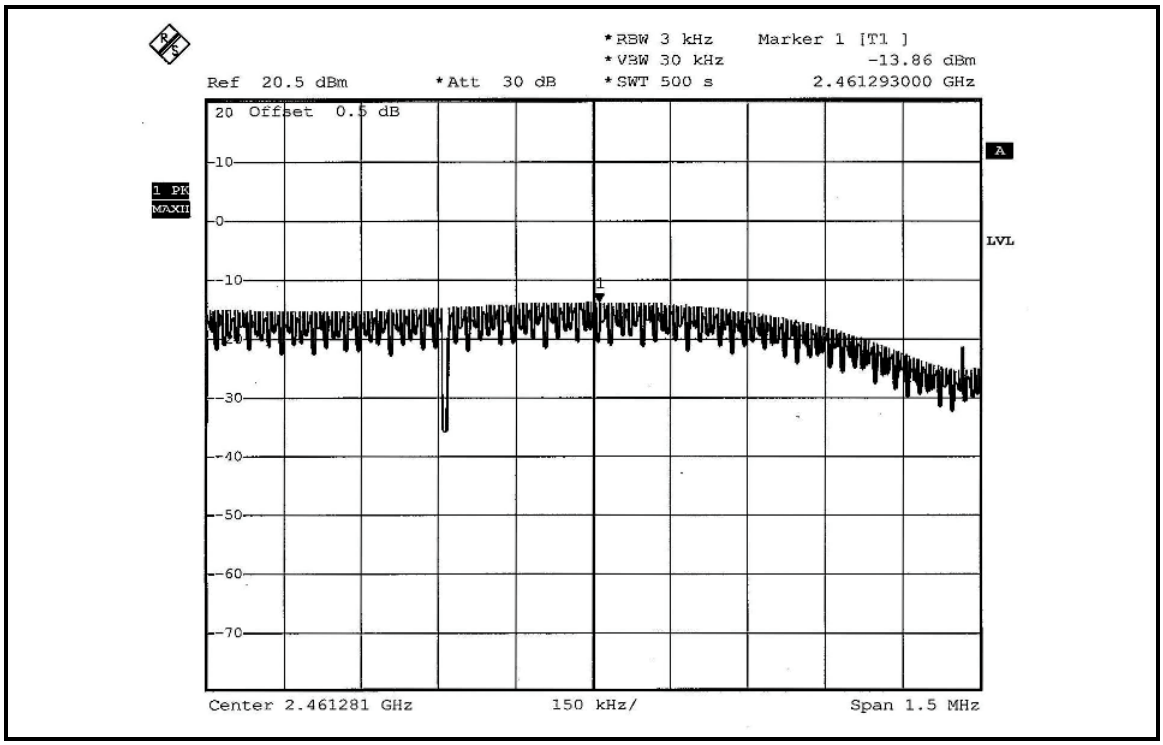
FOR CHAIN 1: CH 1



CH 6



CH 11

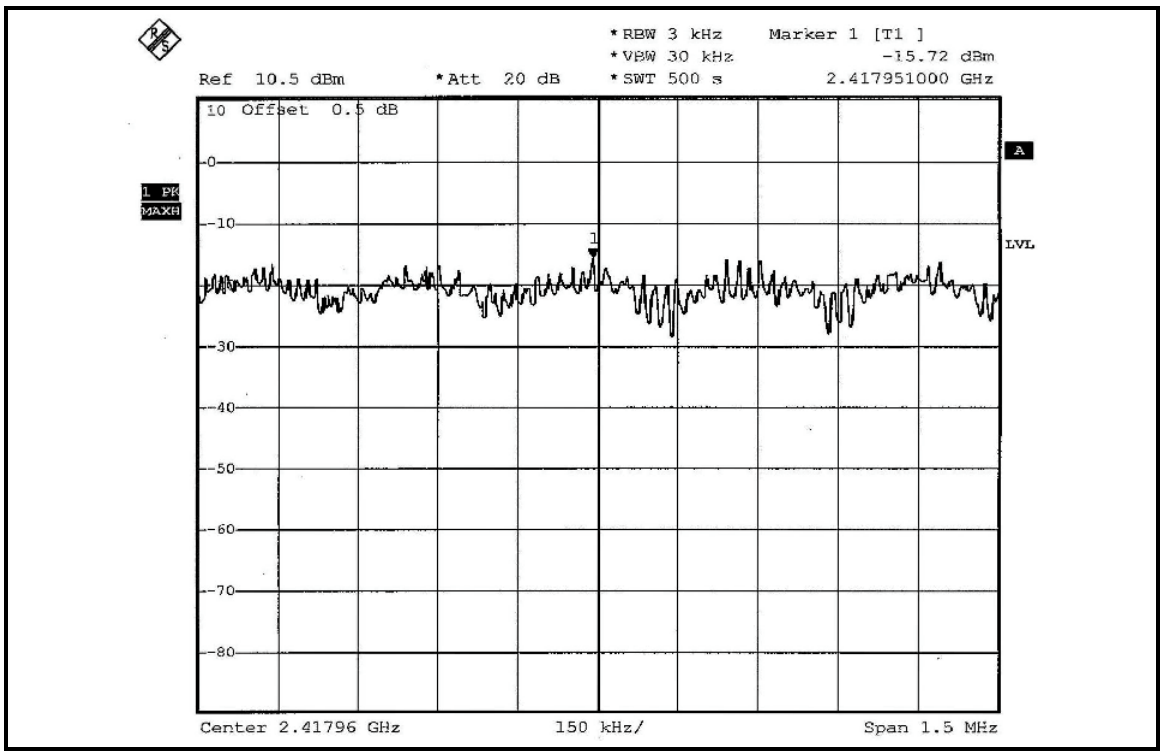

*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-13.86 dBm
2.461293000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK
MAXH
A
LVL
10
0
-10
-30
-40
-50
-60
-70
Center 2.461281 GHz
150 kHz/
Span 1.5 MHz

802.11g OFDM MODULATION:

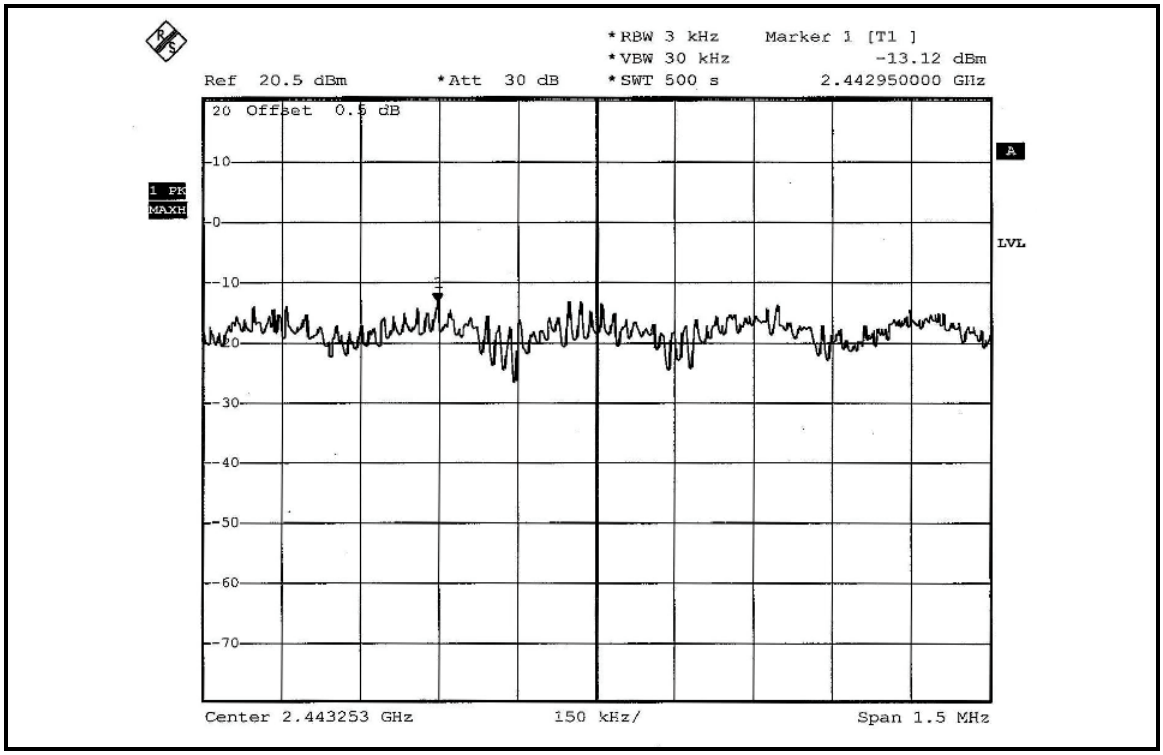
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	22deg.C, 64%RH, 991hPa
TESTED BY	Brad Wu		

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)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	0.027	0.025	-15.72	-16.10	0.052	-12.84	8	PASS
6	2437	0.049	0.047	-13.12	-13.29	0.096	-10.18	8	PASS
11	2462	0.022	0.022	-16.65	-16.66	0.044	-13.57	8	PASS

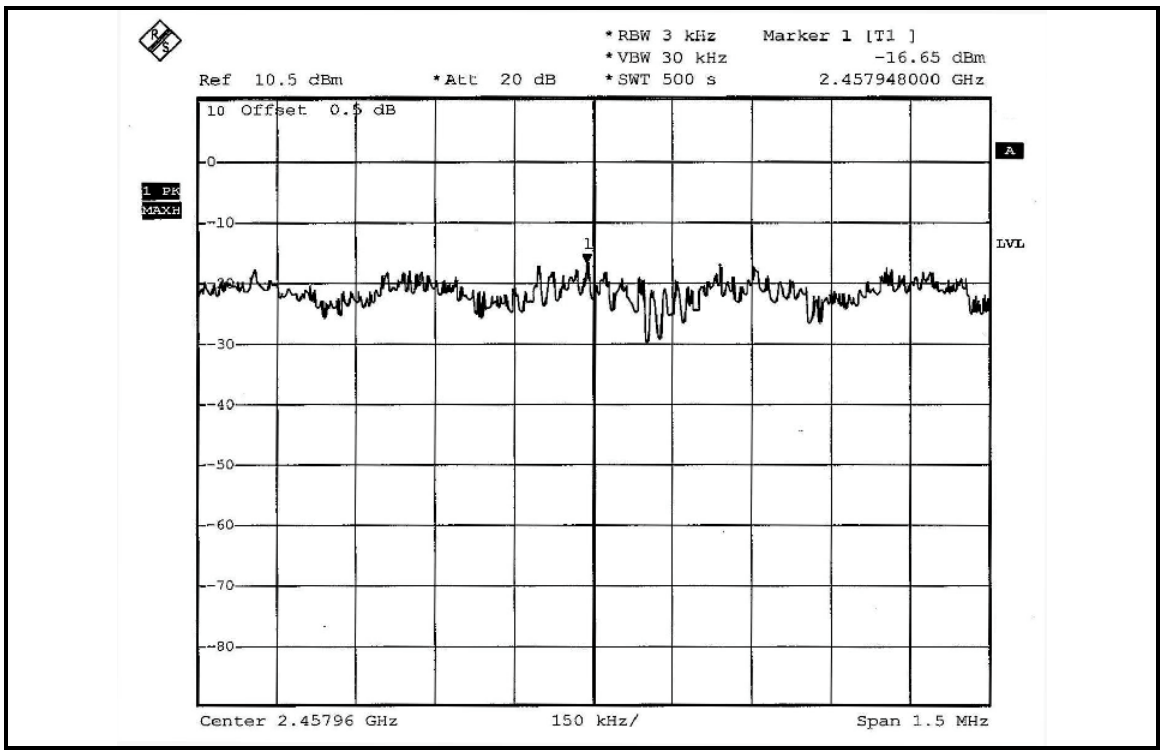
FOR CHAIN 0: CH 1



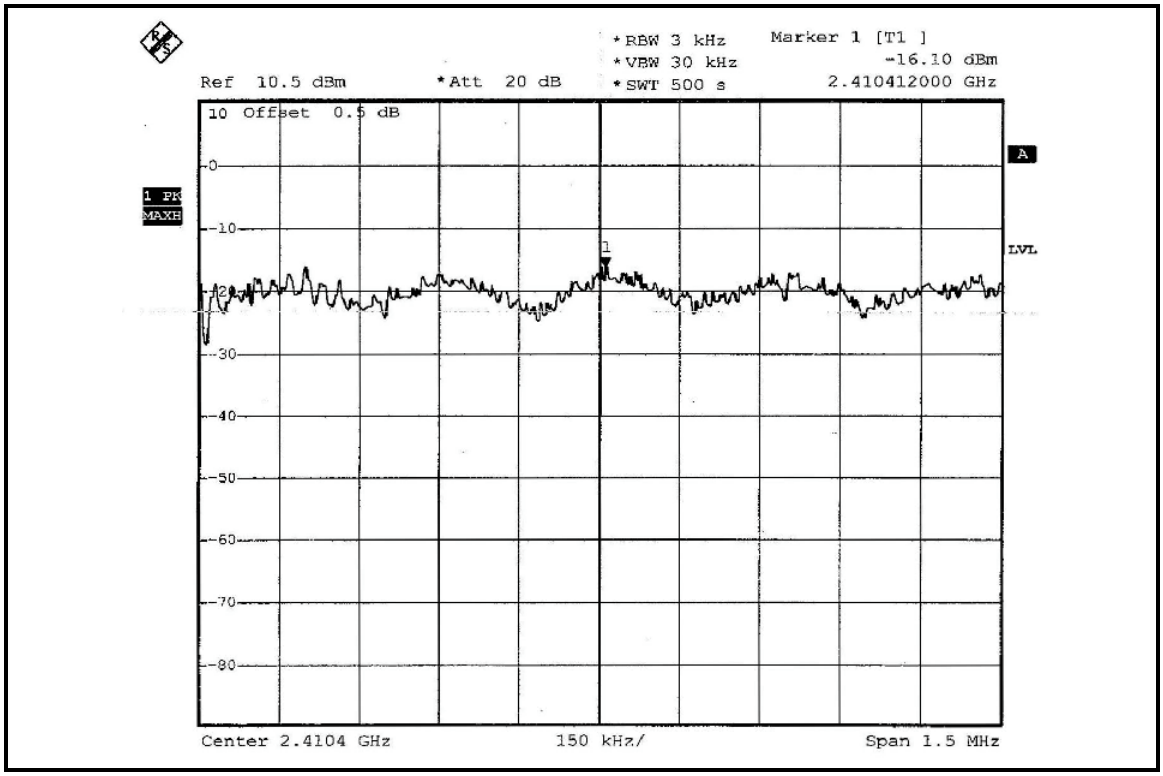
CH 6


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-13.12 dBm
2.442950000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK
MAXH
A
LVL
10
0
-10
-20
-30
-40
-50
-60
-70
Center 2.443253 GHz
150 kHz/
Span 1.5 MHz

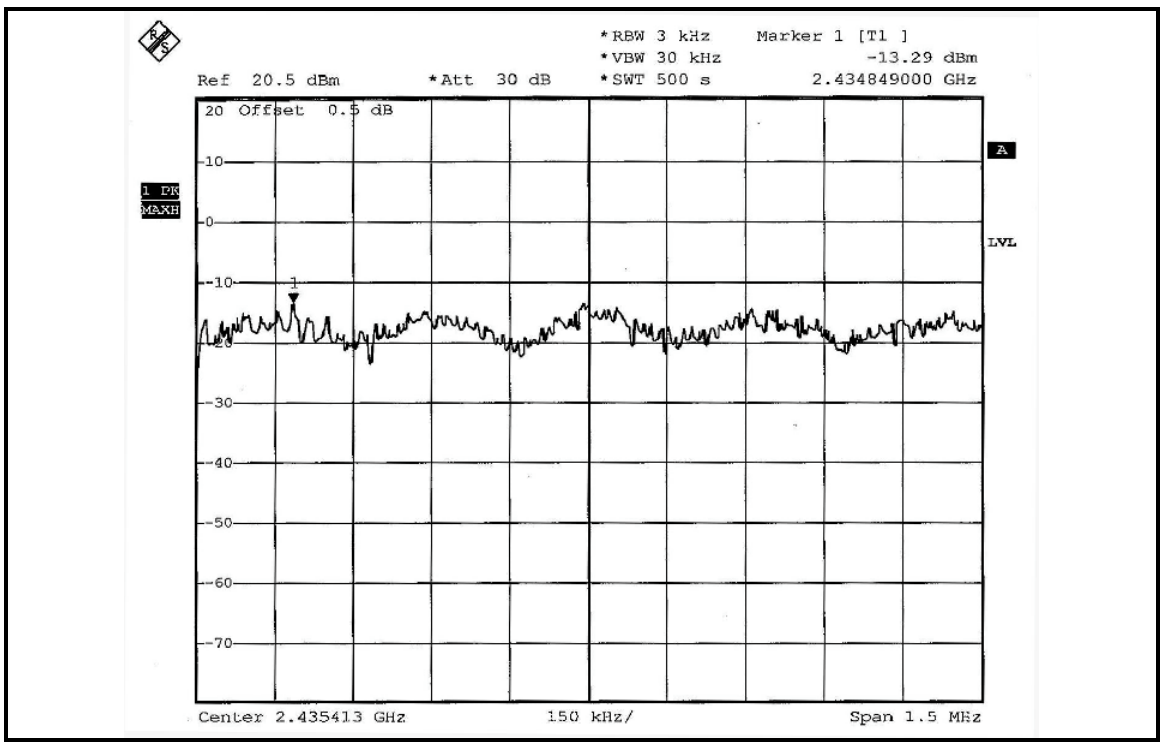
CH 11


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-16.65 dBm
2.457948000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
1
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.45796 GHz
150 kHz/
Span 1.5 MHz

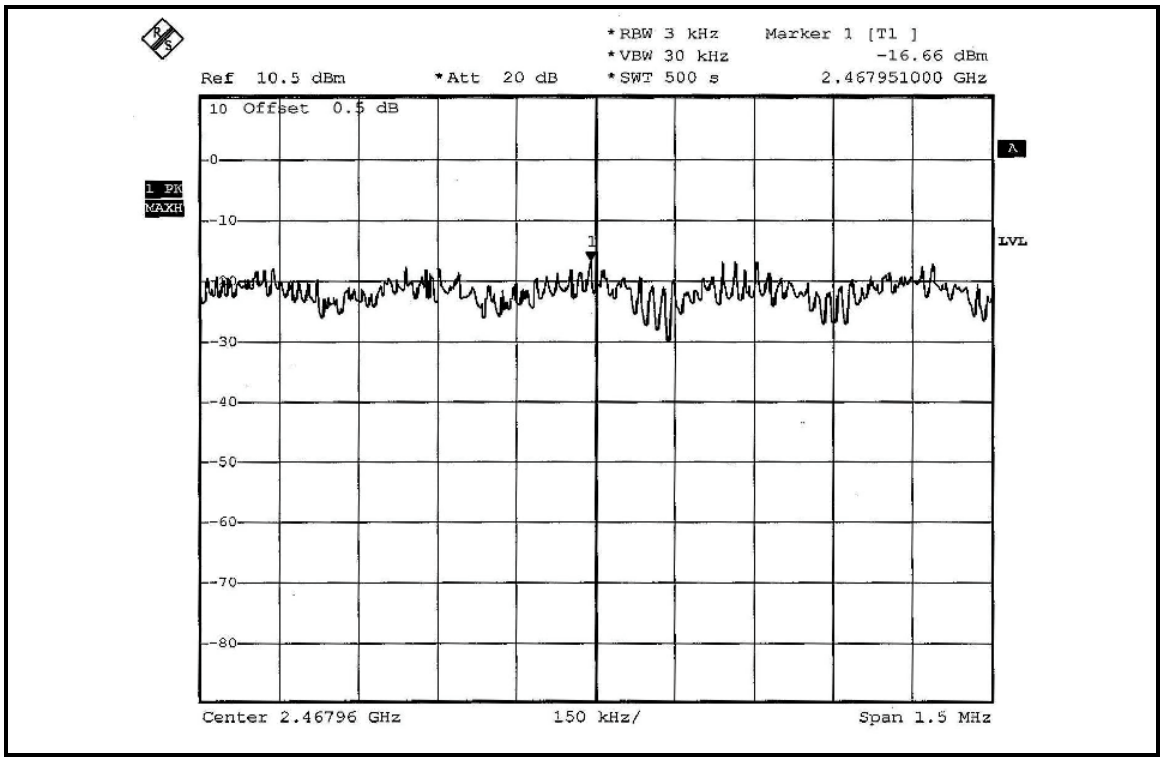
FOR CHAIN 1: CH 1



CH 6



CH 11

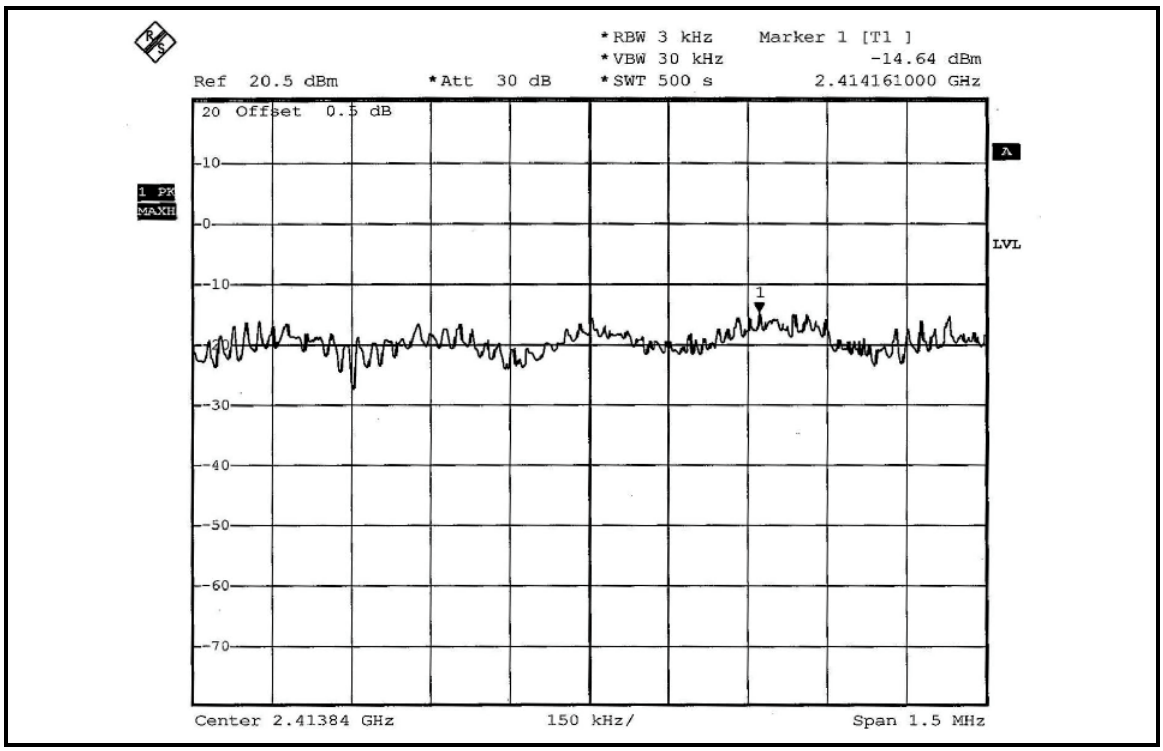

*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-16.66 dBm
2.467951000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
LVL
-0
-10
-30
-40
-50
-60
-70
-80
Center 2.46796 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (20MHz) OFDM MODULATION: DUAL TX:

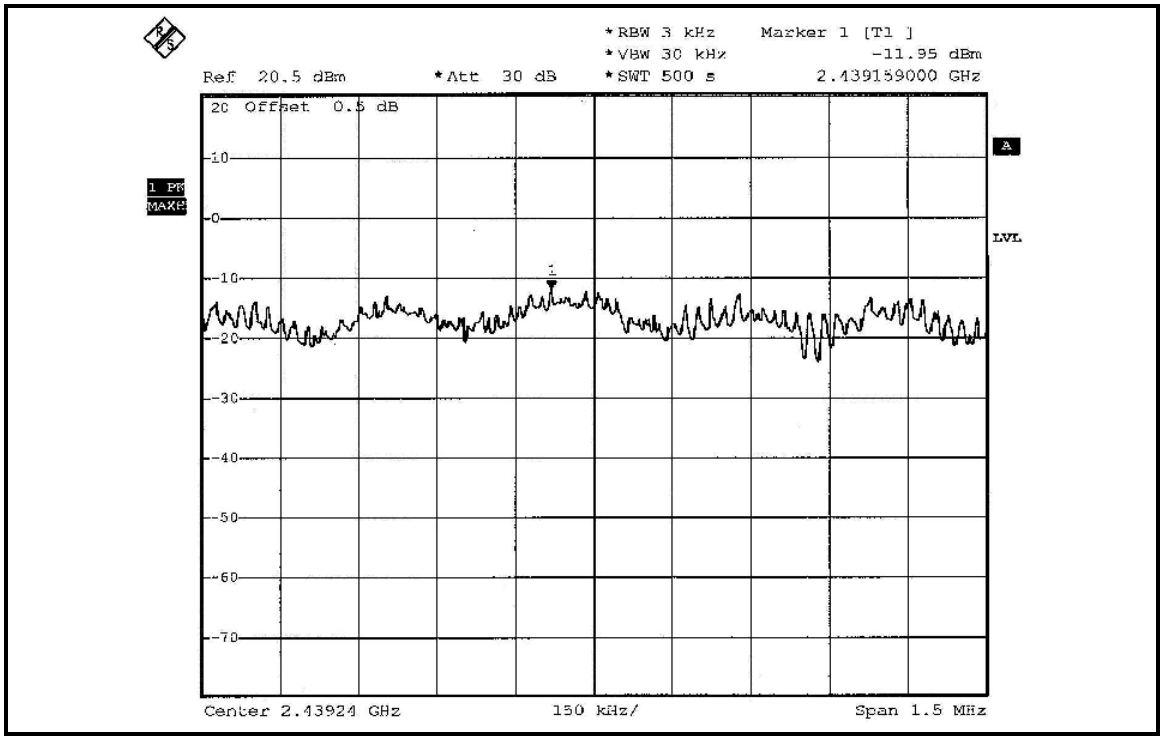
MODULATION TYPE	BPSK	**TRANSFER RATE**	7.2Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	26deg.C, 70%RH, 991hPa
TESTED BY	Match Tsui		

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)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2412	0.034	0.033	-14.64	-14.85	0.067	-11.74	8	PASS
6	2437	0.064	0.063	-11.95	-11.98	0.127	-8.96	8	PASS
11	2462	0.027	0.026	-15.71	-15.83	0.053	-12.76	8	PASS

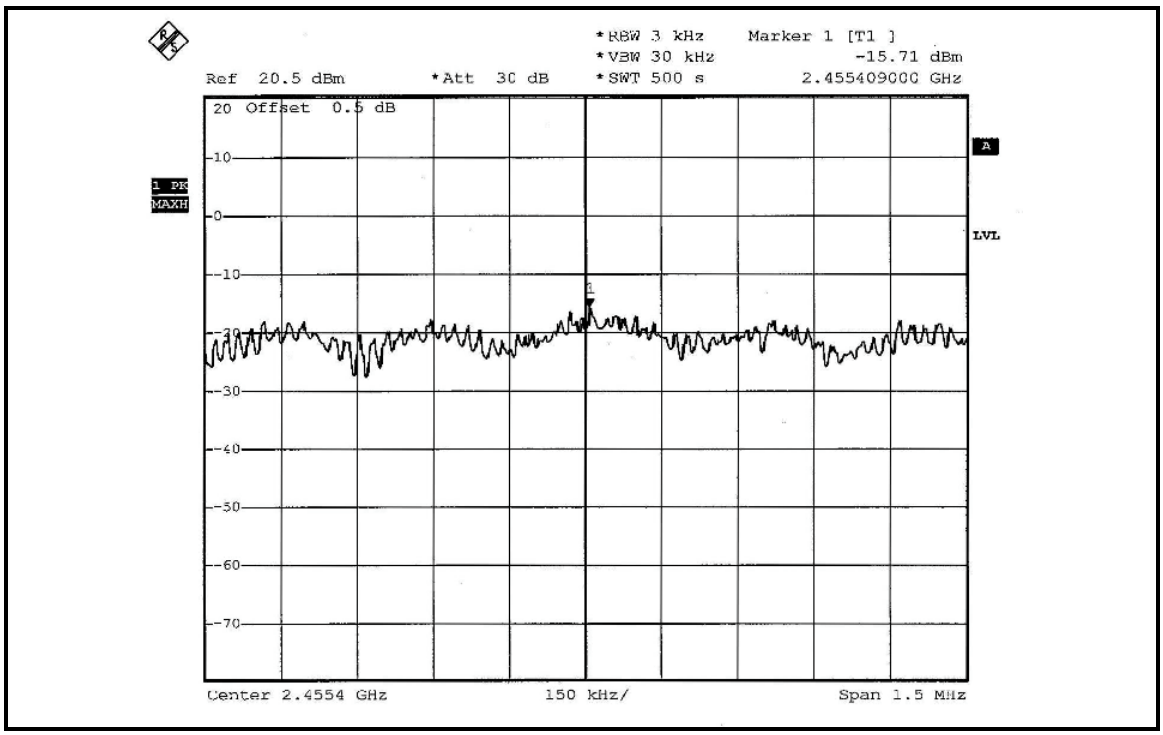
FOR CHAIN 0: CH 1



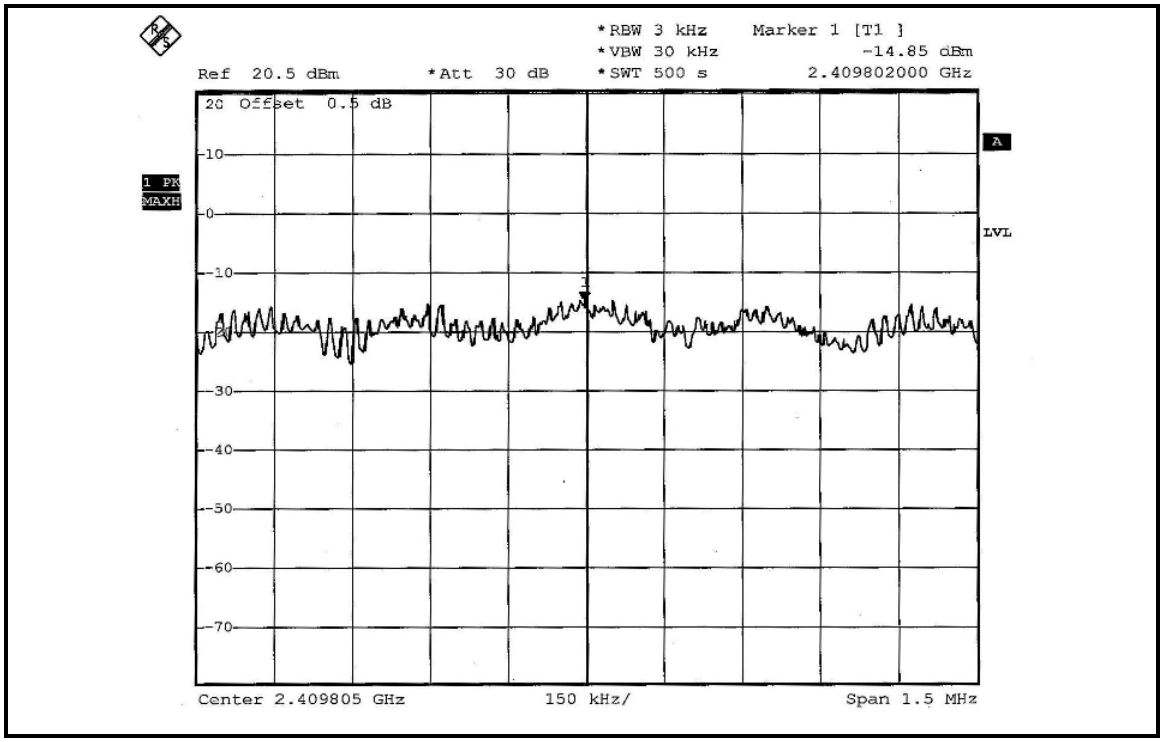
CH 6


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-11.95 dBm
Ref 20.5 dBm
*Att 30 dB
*SWT 500 s
2.439159000 GHz
20 Offset 0.5 dB
1 PK
MAXH
A
LVL
10
0
-10
-20
-30
-40
-50
-60
-70
Center 2.43924 GHz
150 kHz/
Span 1.5 MHz

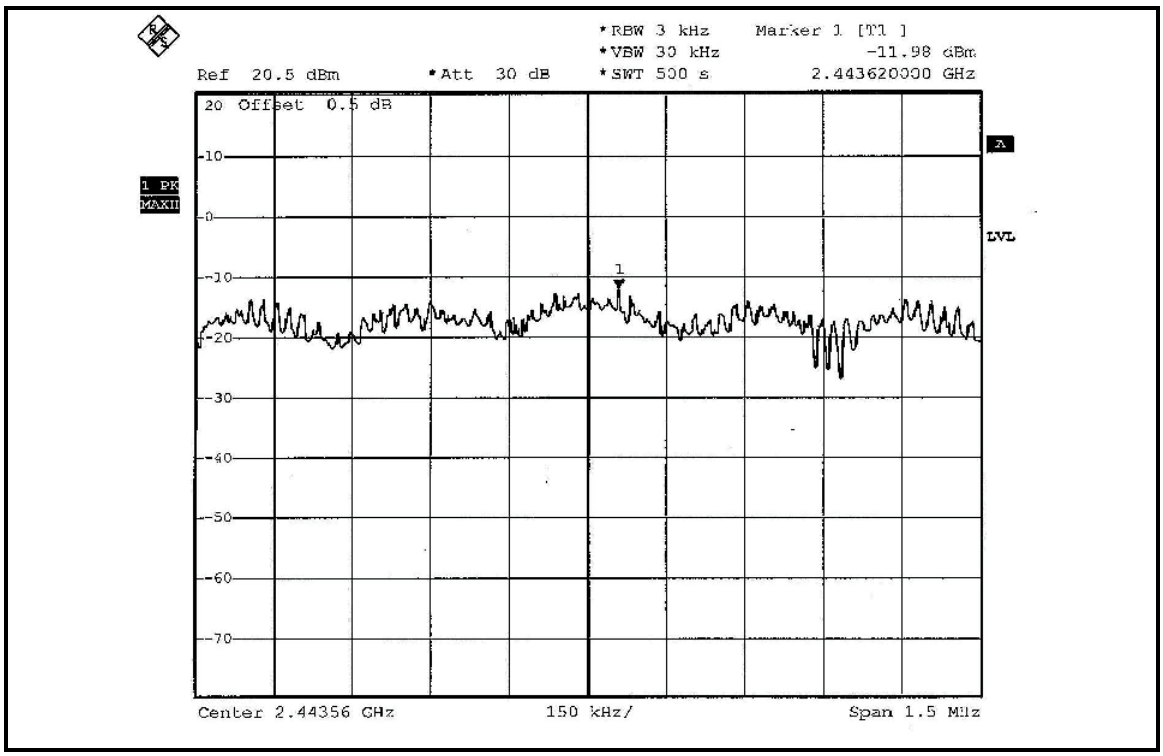
CH 11


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-15.71 dBm
Ref 20.5 dBm
*Att 30 dB
*SWT 500 s
2.455409000 GHz
20 Offset 0.5 dB
1 PK
MAXH
A
LVL
10
0
-10
-20
-30
-40
-50
-60
-70
Center 2.4554 GHz
150 kHz/
Span 1.5 MHz

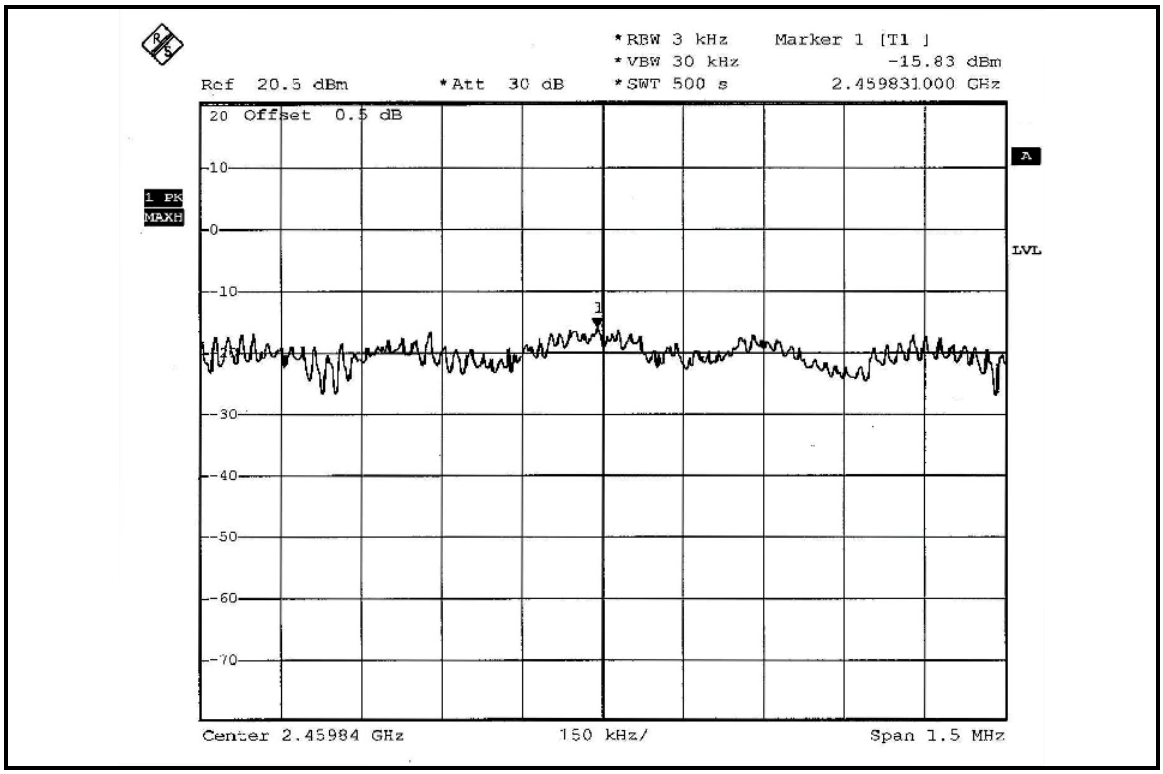
FOR CHAIN 1: CH 1



CH 6



CH 11

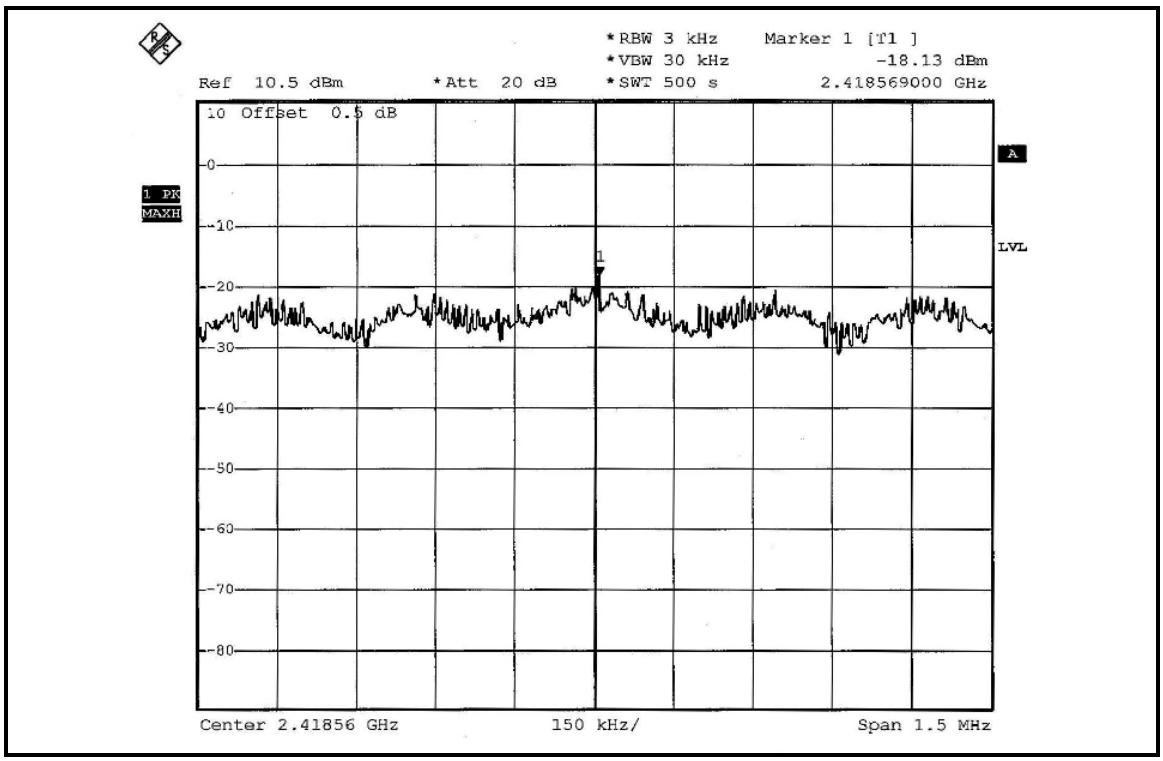

*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-15.83 dBm
2.459831000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK
MAXH
A
LVL
10
0
-10
-30
-40
-50
-60
-70
Center 2.45984 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (40MHz) OFDM MODULATION: DUAL TX:

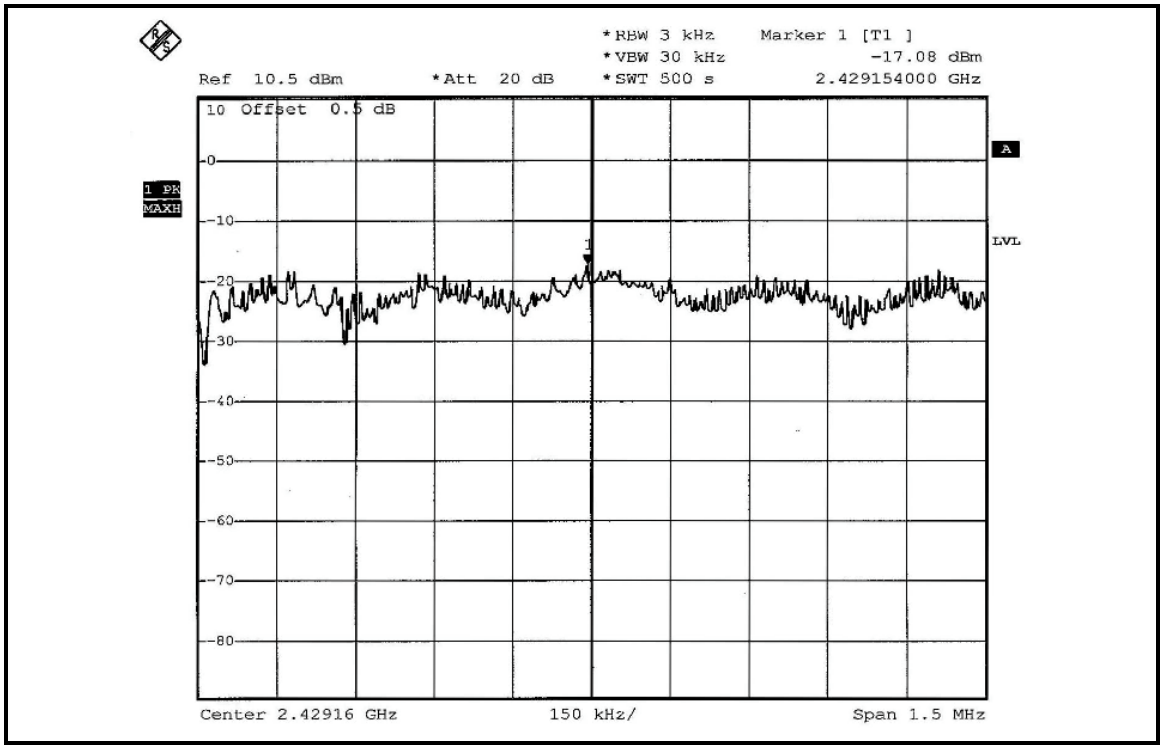
MODULATION TYPE	BPSK	TRANSFER RATE	15Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Match Tsui		

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)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2422	0.015	0.015	-18.13	-18.21	0.030	-15.23	8	PASS
4	2437	0.020	0.020	-17.08	-16.89	0.040	-13.98	8	PASS
7	2452	0.016	0.015	-18.08	-18.17	0.031	-15.09	8	PASS

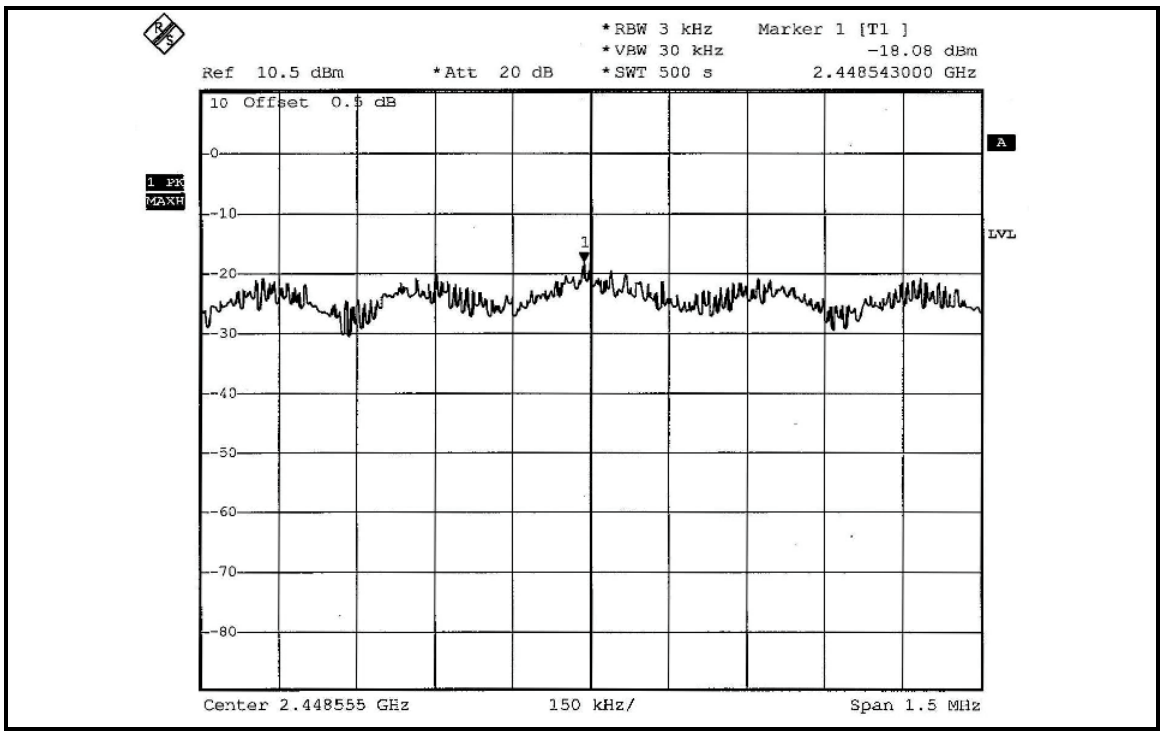
FOR CHAIN 0: CH 1



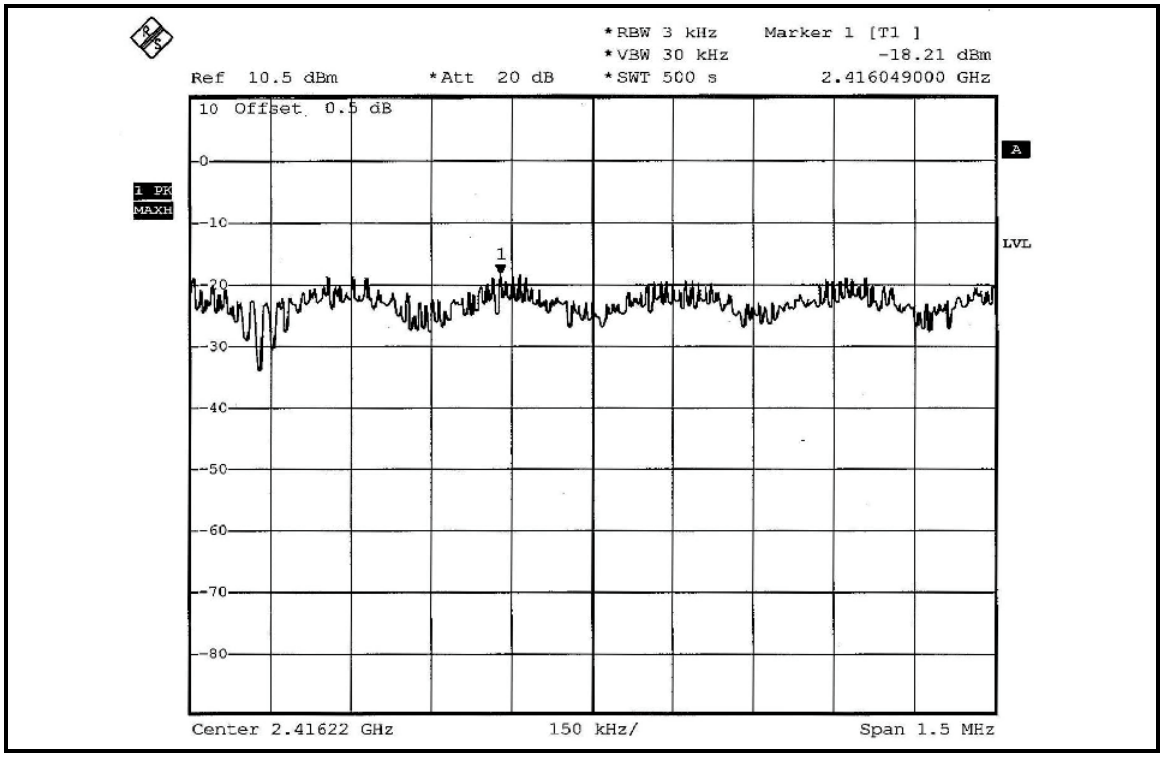
CH 4


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-17.08 dBm
2.429154000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
-0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.42916 GHz
150 kHz/
Span 1.5 MHz

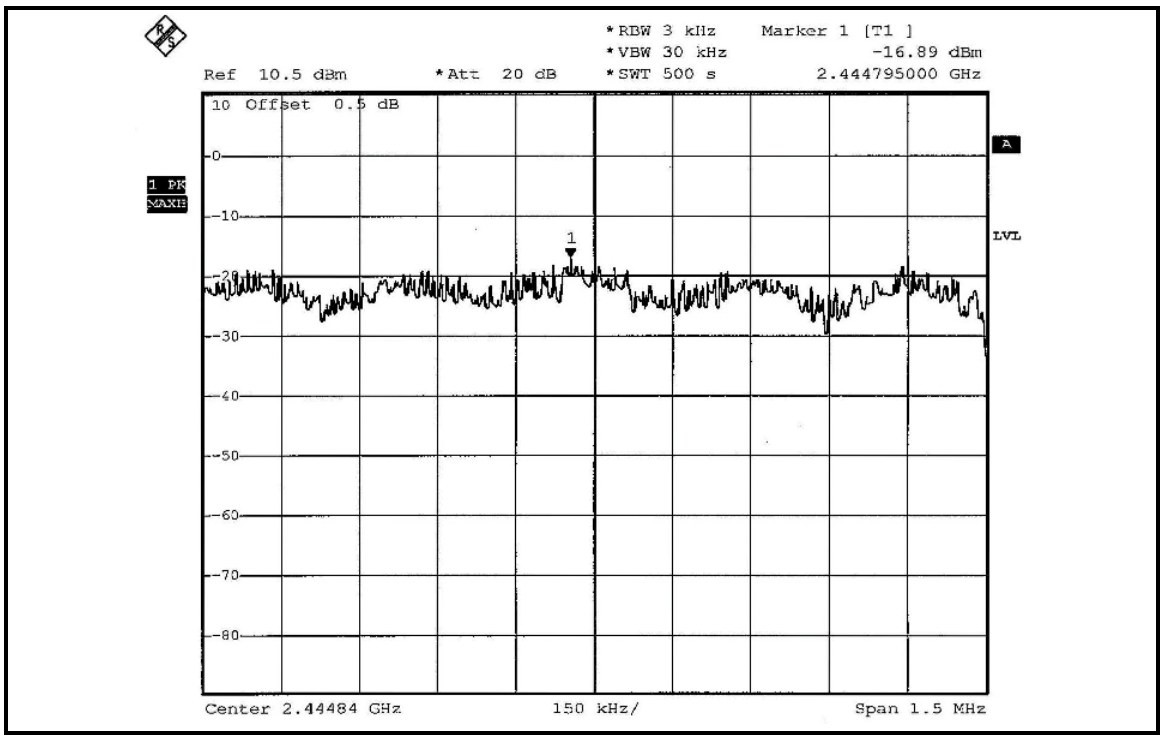
CH 7


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-18.08 dBm
2.448543000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
-0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.448555 GHz
150 kHz/
Span 1.5 MHz

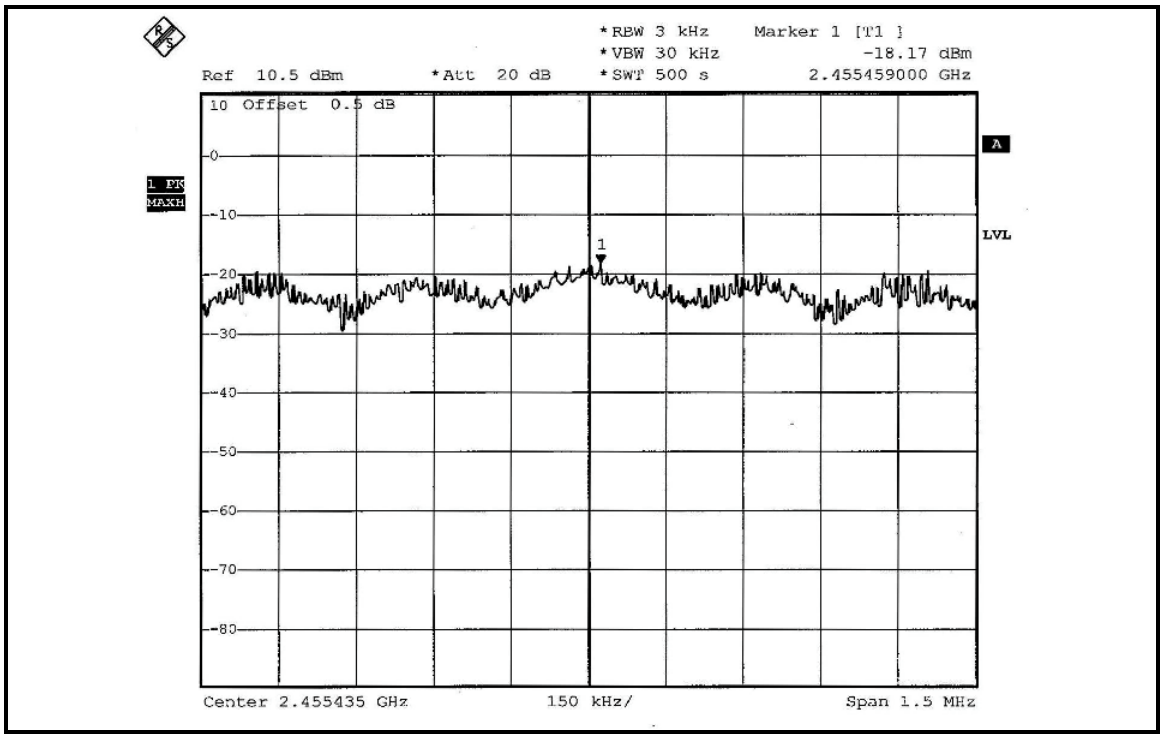
FOR CHAIN 1: CH 1



CH 4



CH 7

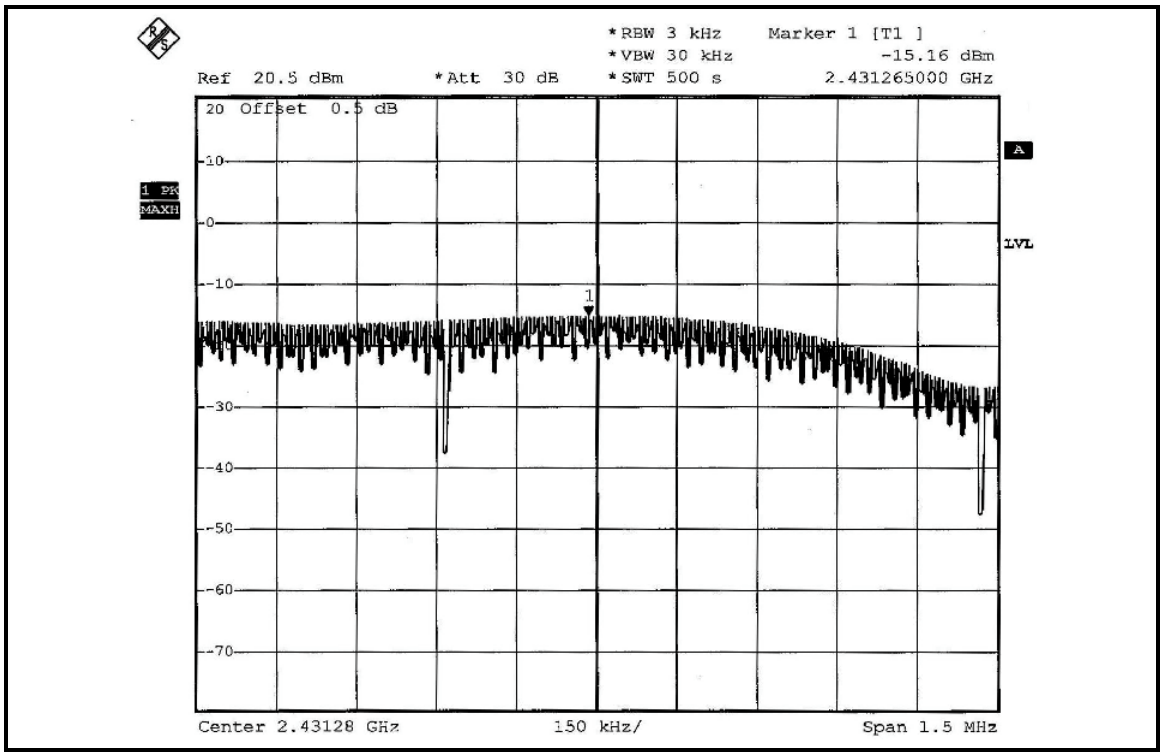

*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-18.17 dBm
2.455459000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
1
-0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.455435 GHz
150 kHz/
Span 1.5 MHz

802.11b (CB mode) OFDM MODULATION: DUAL TX:

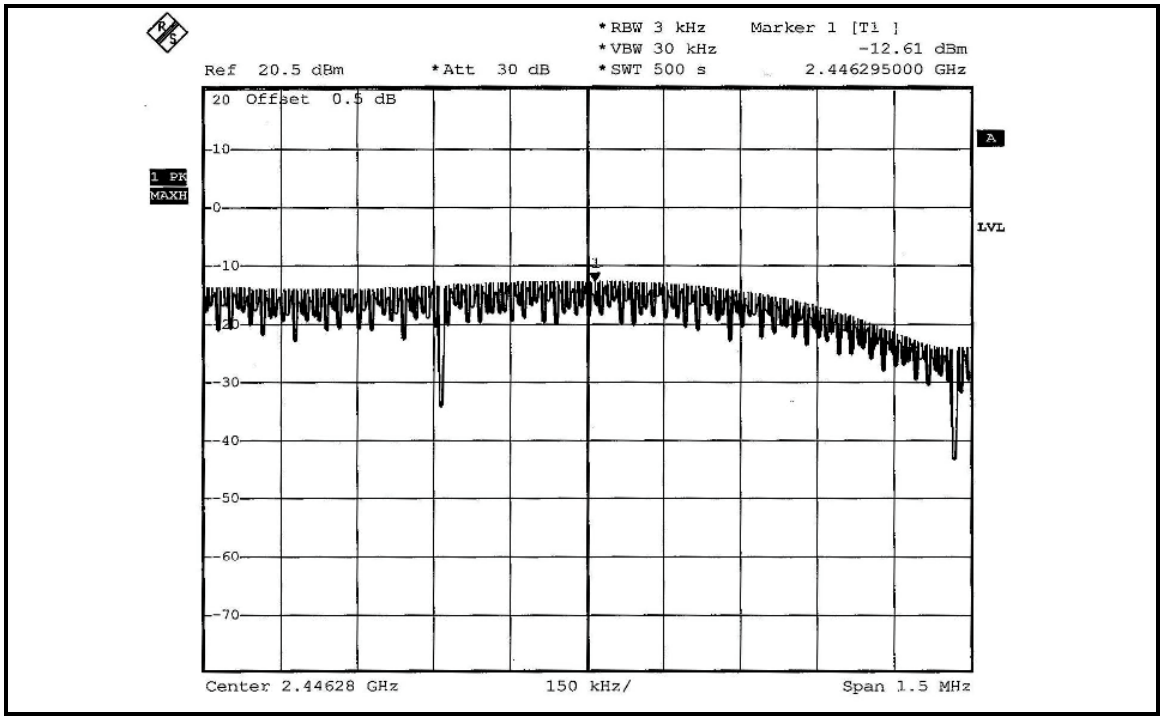
MODULATION TYPE	DBPSK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 70%RH, 991hPa
TESTED BY	Match Tsui		

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)	MAX. LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 0	CHAIN 1				
1	2422	0.030	0.029	-15.16	-15.45	0.059	-12.29	8	PASS
4	2437	0.055	0.051	-12.61	-12.90	0.106	-9.75	8	PASS
7	2452	0.028	0.026	-15.58	-15.91	0.054	-12.68	8	PASS

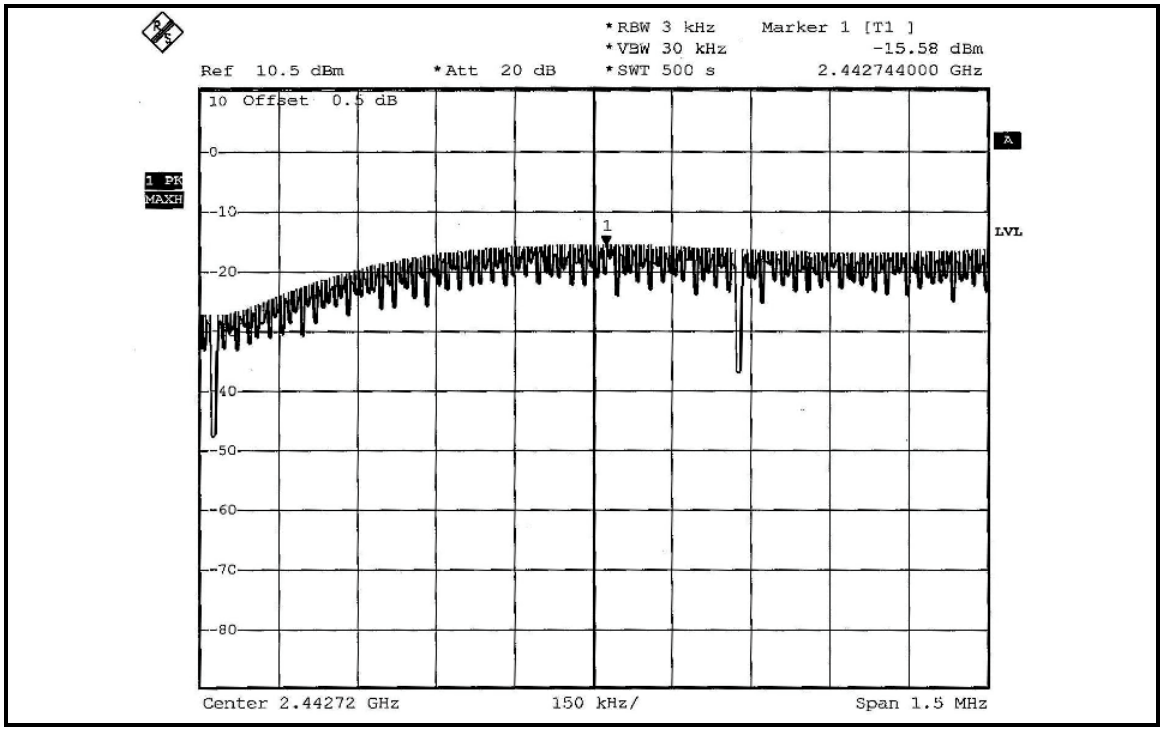
FOR CHAIN 0: CH 1



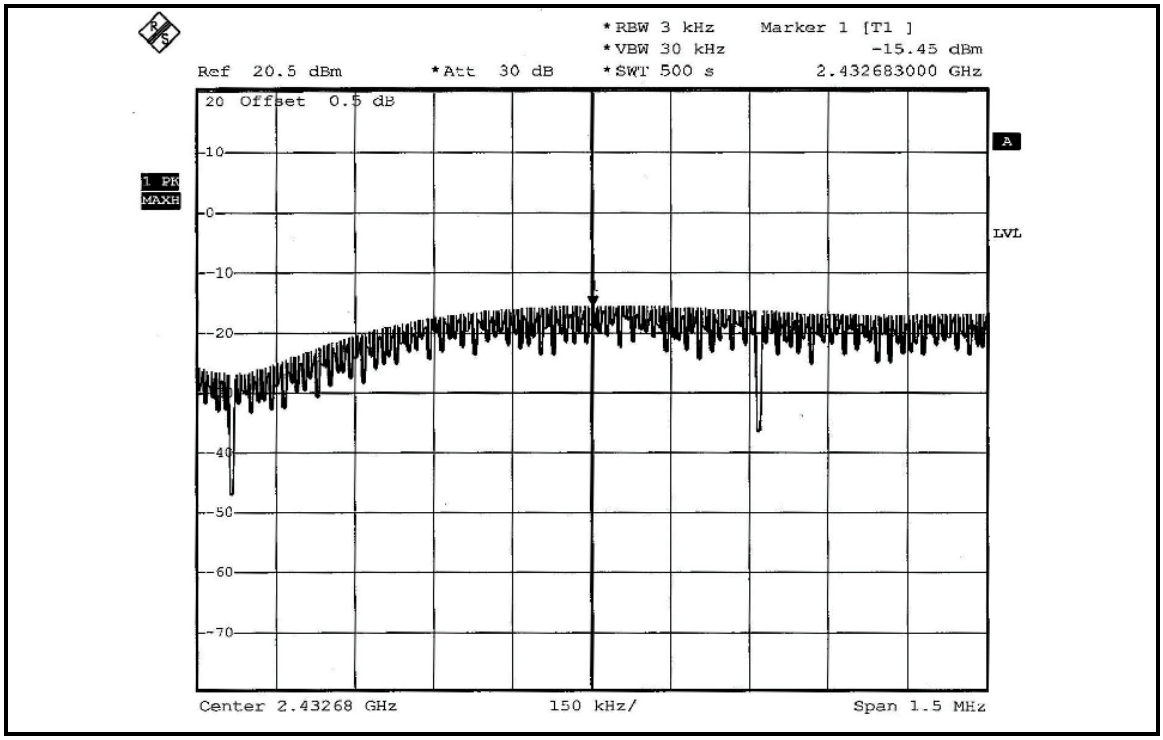
CH 4


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-12.61 dBm
2.446295000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK
MAXH
A
LVL
Center 2.44628 GHz
150 kHz/
Span 1.5 MHz

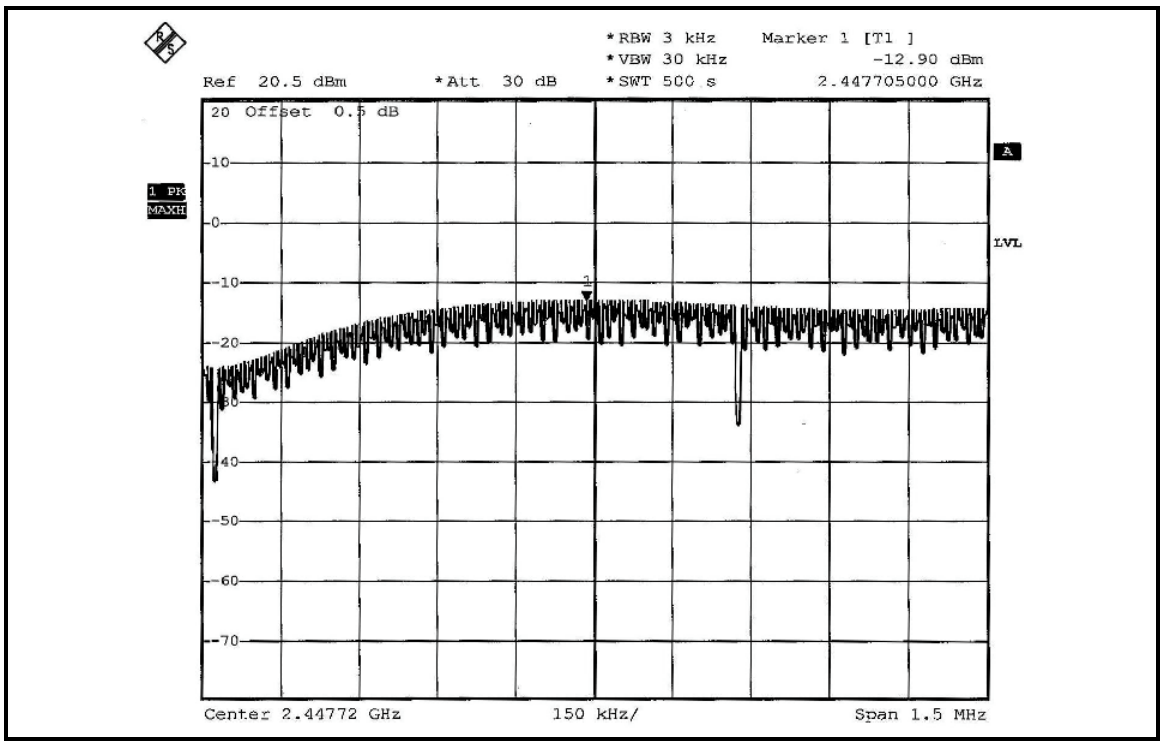
CH 7


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-15.58 dBm
2.442744000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK
MAXH
A
LVL
Center 2.44272 GHz
150 kHz/
Span 1.5 MHz

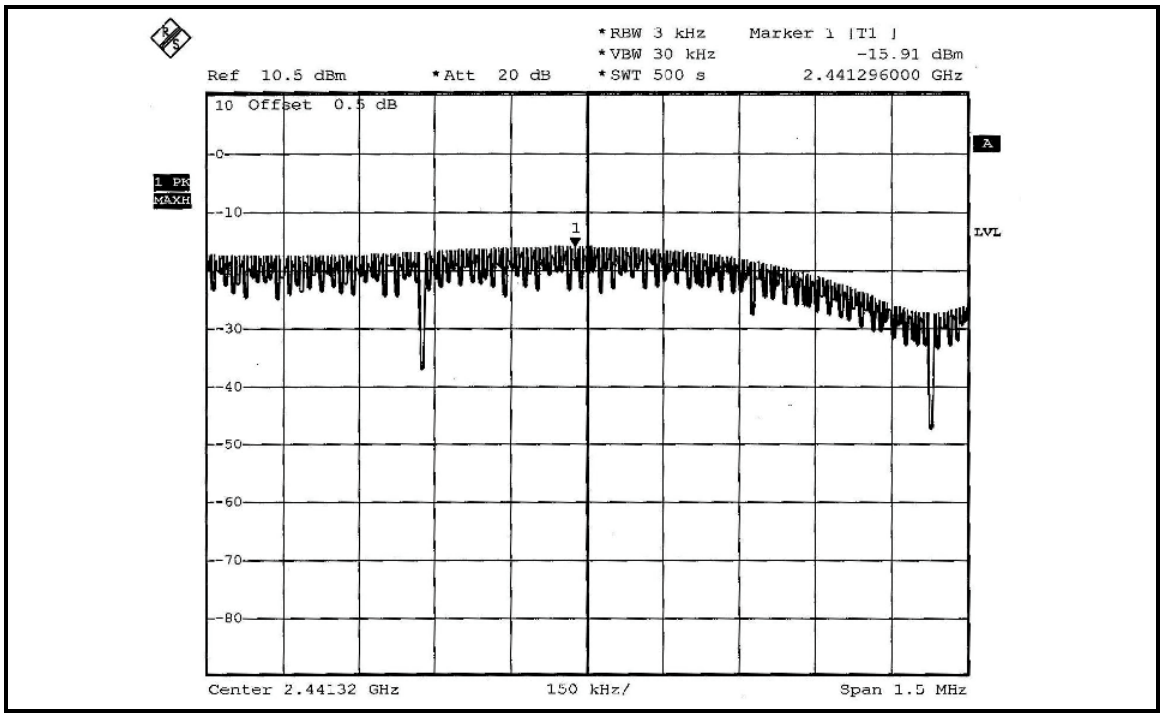
FOR CHAIN 1: CH 1



CH 4



CH 7


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-15.91 dBm
2.441296000 GHz
Ref 10.5 dBm
*Att 20 dB
10 Offset 0.5 dB
1 PK MAXH
A
LVL
-0-
-10-
-30-
-40-
-50-
-60-
-70-
-80-
Center 2.44132 GHz
150 kHz/
Span 1.5 MHz