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	FSP40	100036	Nov. 23, 2006
Agilent SIGNAL GENERATOR	E8257C	MY43320668	Dec. 07, 2006
TEKTRONIX OSCILLOSCOPE	TDS380	B016335	July 14, 2007
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	CCK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	22deg.C, 68%RH, 971hPa
TESTED BY	Wen Yu		

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 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	15.50	15.50	15.50	35.48	35.48	35.48	106.444	20.3	30	PASS
6	2437	18.00	18.00	18.00	63.10	63.10	63.10	189.287	22.8	30	PASS
11	2462	15.50	15.50	15.50	35.48	35.48	35.48	106.444	20.3	30	PASS

802.11g OFDM MODULATION:

MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	22deg.C, 68%RH, 971hPa
TESTED BY	Wen Yu		

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 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	15.00	15.00	15.00	31.62	31.62	31.62	94.868	19.8	30	PASS
6	2437	16.00	16.00	16.00	39.81	39.81	39.81	119.432	20.8	30	PASS
11	2462	15.00	15.00	15.00	31.62	31.62	31.62	94.868	19.8	30	PASS

DRAFT 802.11n (20MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	26deg.C, 68%RH, 971hPa
TESTED BY	Wen Yu		

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 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	2412	14.00	14.00	14.00	25.12	25.12	25.12	75.357	18.8	30	PASS
6	2437	14.00	14.00	14.00	25.12	25.12	25.12	75.357	18.8	30	PASS
11	2462	14.00	14.00	14.00	25.12	25.12	25.12	75.357	18.8	30	PASS

DRAFT 802.11n (40MHz) OFDM MODULATION:

MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	26deg.C, 68%RH, 971hPa
TESTED BY	Wen Yu		

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 2	CHAIN 0	CHAIN 1	CHAIN 2				
1	2422	12.50	12.50	12.50	17.78	17.78	17.78	53.348	17.3	30	PASS
4	2437	14.00	14.00	14.00	25.12	25.12	25.12	75.357	18.8	30	PASS
7	2452	10.50	10.50	10.50	11.22	11.22	11.22	36.661	15.3	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	FSP40	100036	Nov. 23, 2006

NOTE:

1. The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81.
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

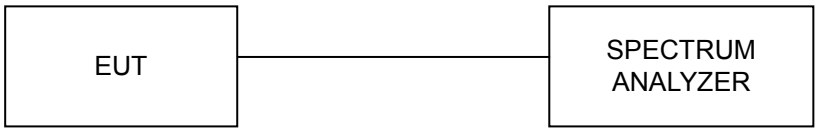
The transmitter output was connected to the spectrum analyzer through an attenuator, the bandwidth of the fundamental frequency was measured with the spectrum analyzer using 3kHz RBW and 30kHz VBW, set sweep time = span/3kHz. The power spectral density was measured and recorded.

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

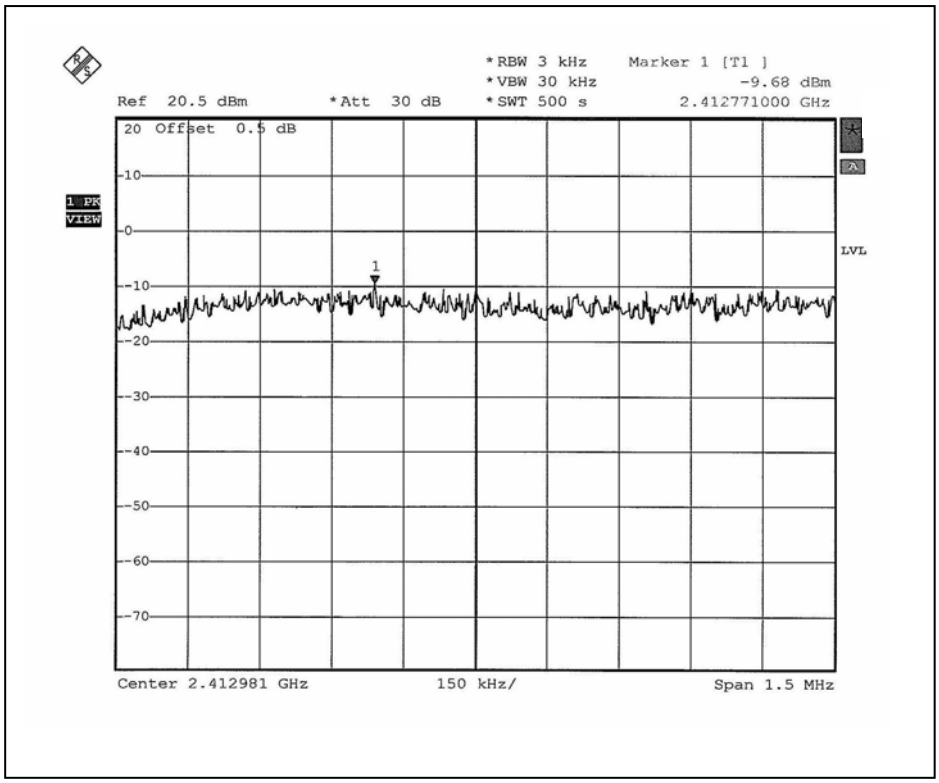
4.5.7 TEST RESULTS

802.11b DSSS MODULATION:

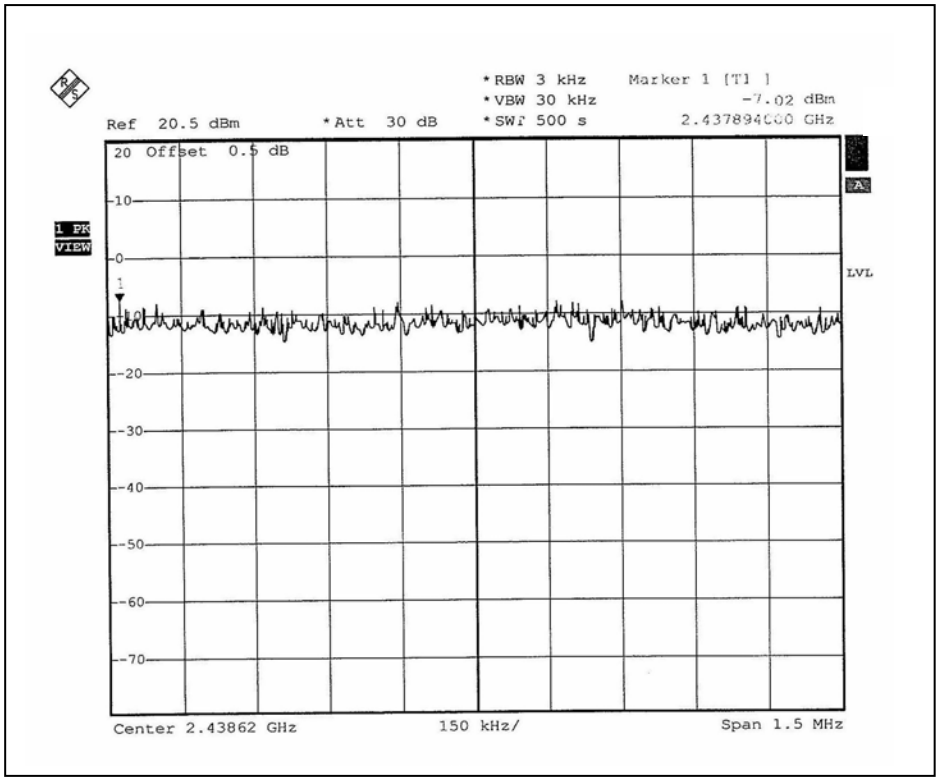
MODULATION TYPE	CCK	TRANSFER RATE	1Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 68%RH, 971hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)			MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	-9.68	-9.50	-9.66	8	PASS
6	2437	-7.02	-7.18	-7.11	8	PASS
11	2462	-9.65	-9.78	-9.85	8	PASS

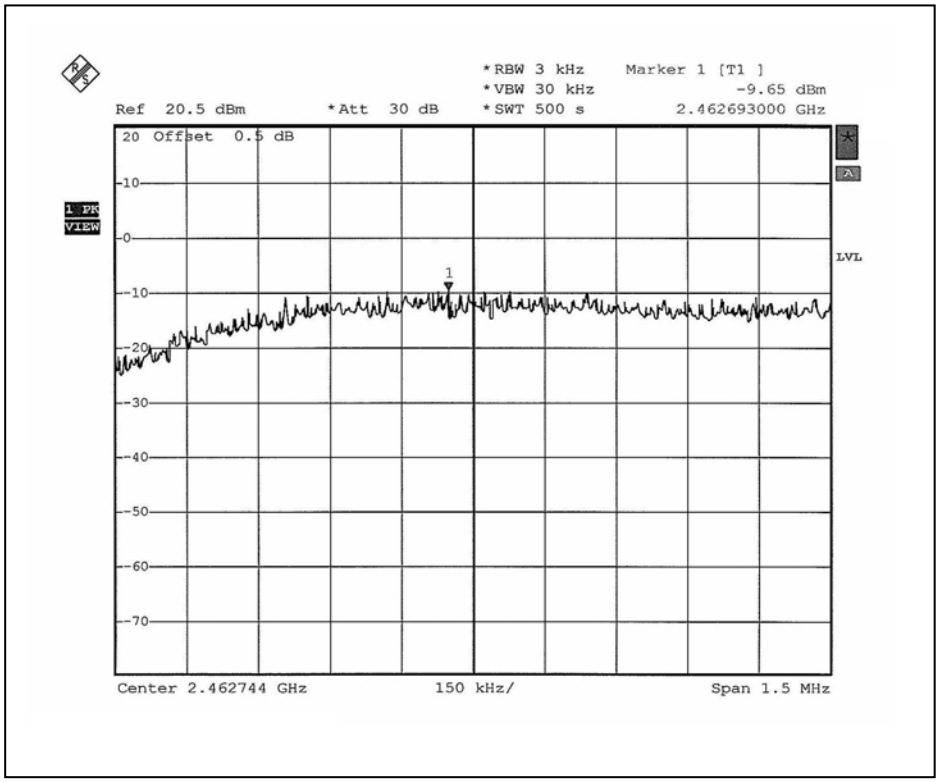
FOR CHAIN 0: CH1



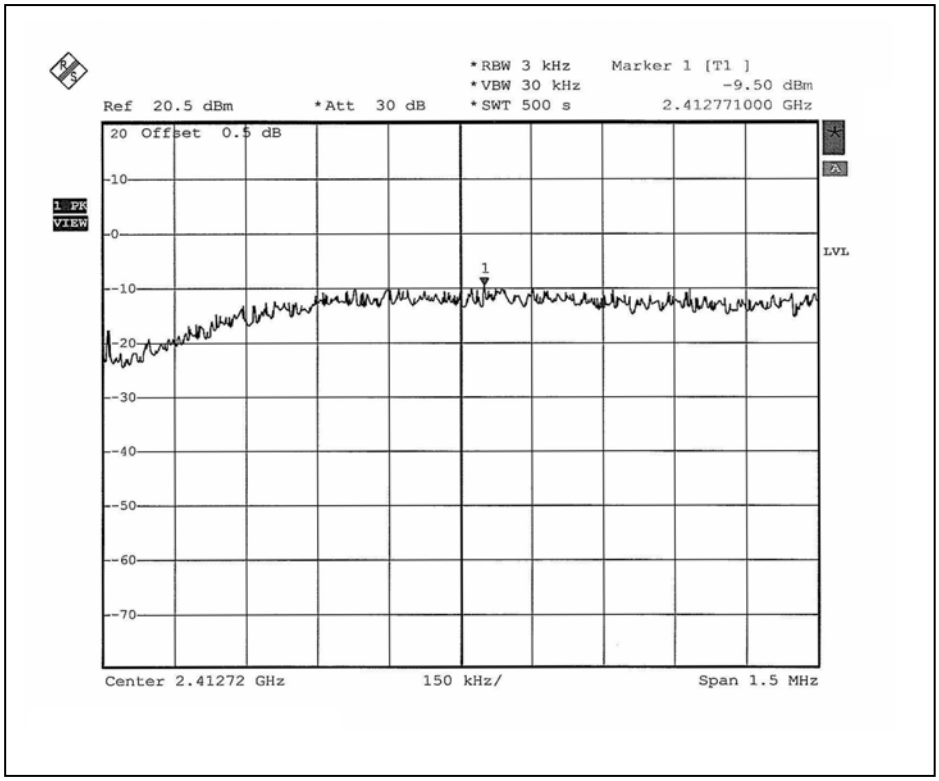
CH6


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-7.02 dBm
2.437894000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK VIEW
LVL
Center 2.43862 GHz
150 kHz/
Span 1.5 MHz

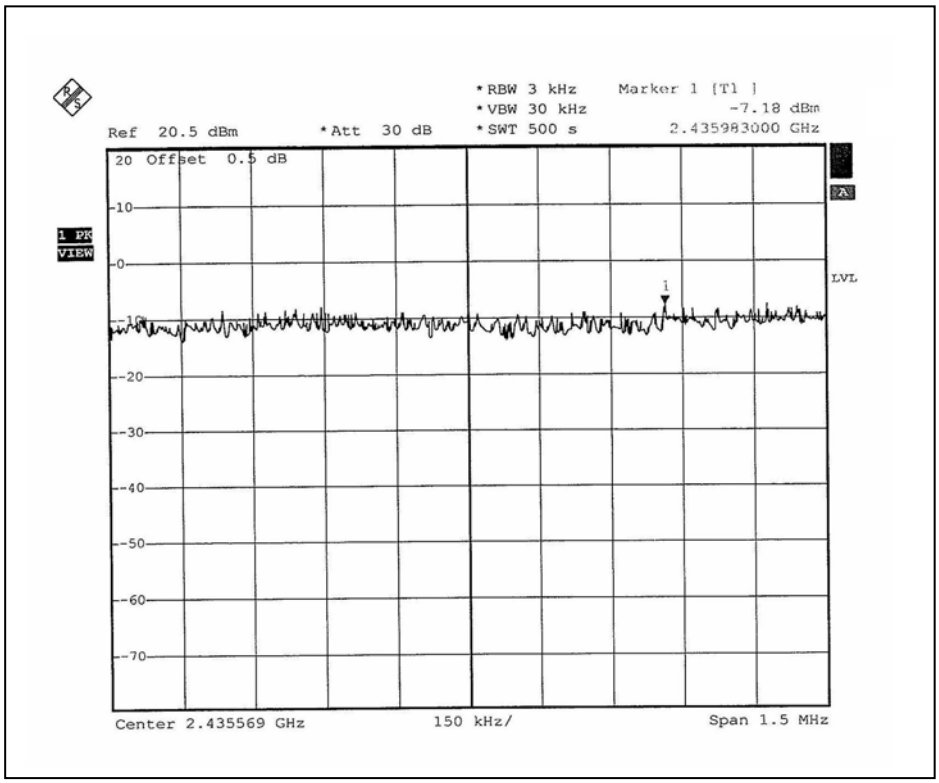
CH11


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-9.65 dBm
2.462693000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK VIEW
LVL
Center 2.462744 GHz
150 kHz/
Span 1.5 MHz

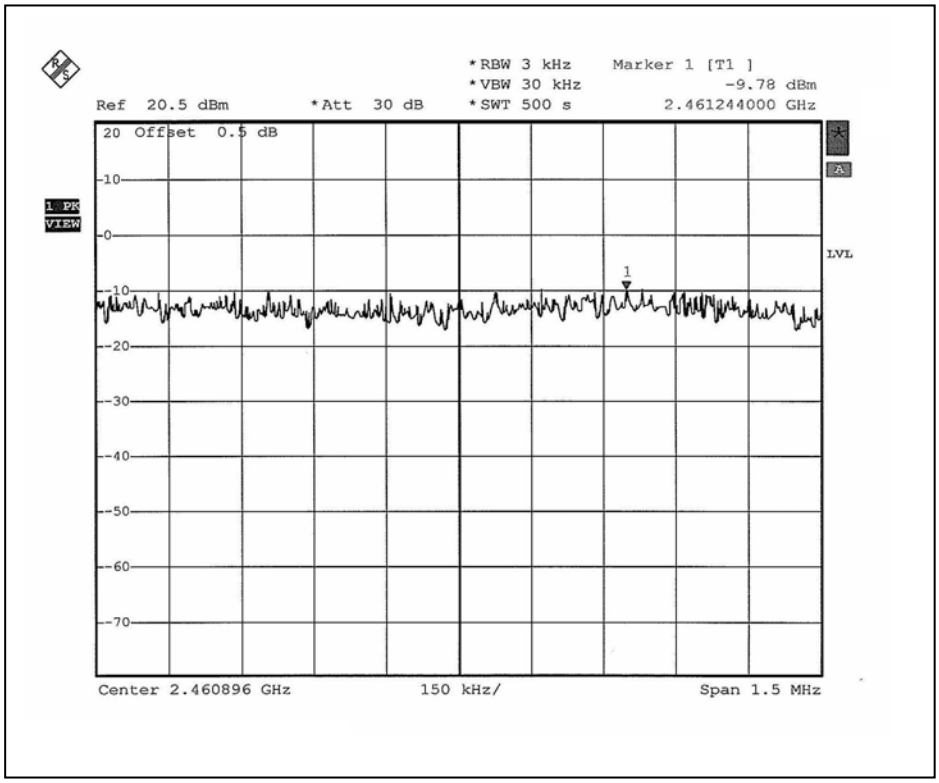
FOR CHAIN 1: CH1



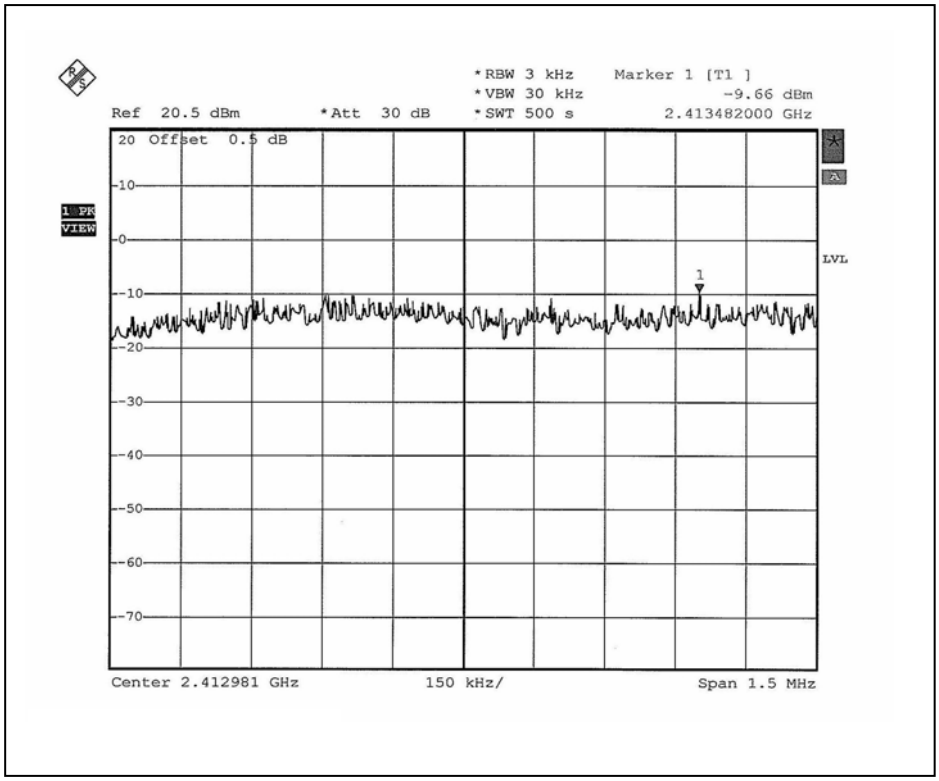
CH6



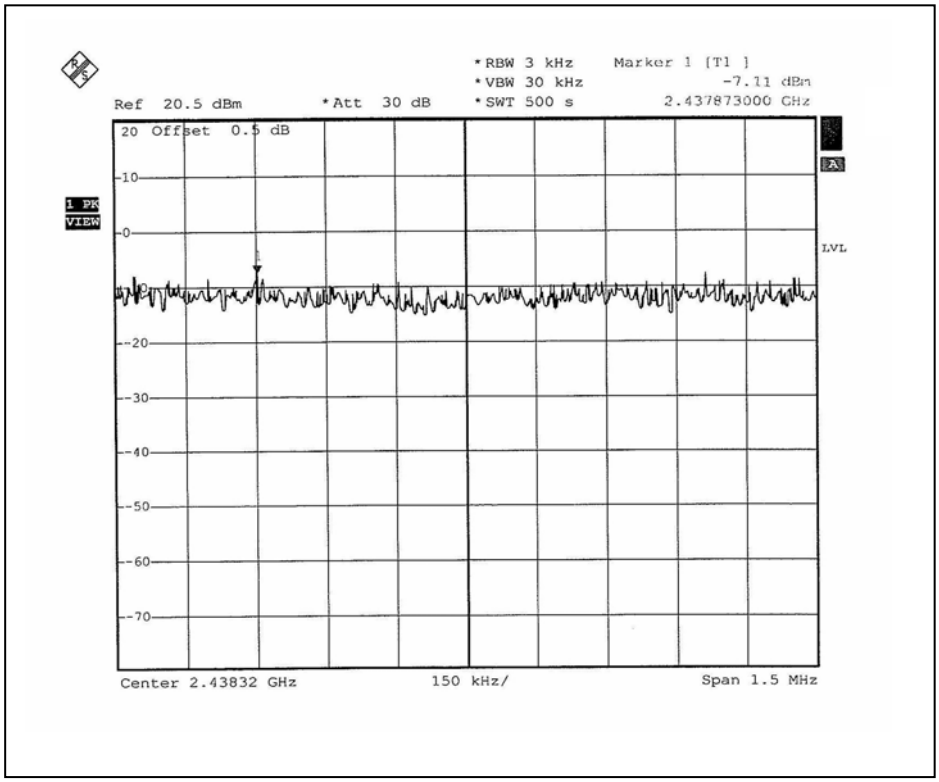
CH11


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-9.78 dBm
2.461244000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK
VIEW
LVL
Center 2.460896 GHz
150 kHz/
Span 1.5 MHz

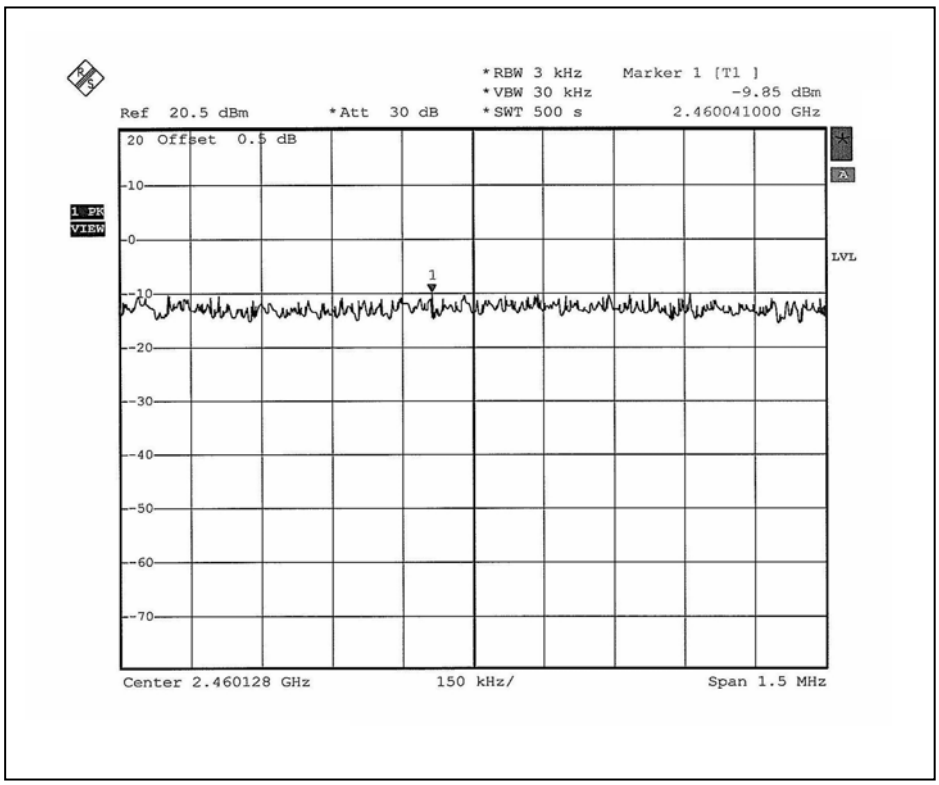
FOR CHAIN 2: CH1



CH6



CH11

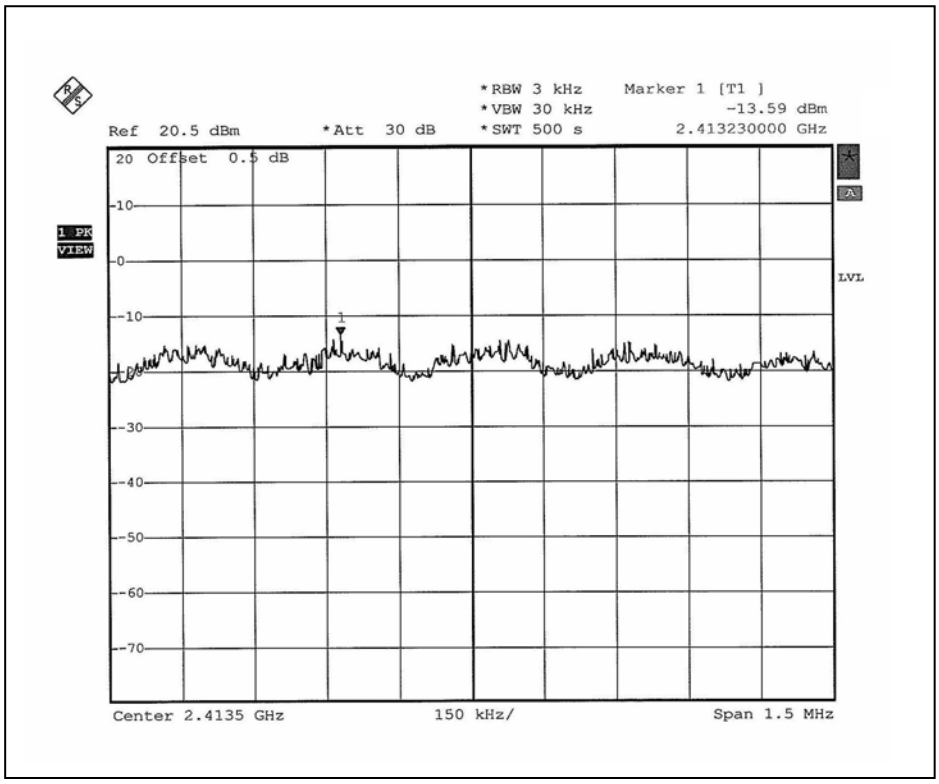

*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-9.85 dBm
2.460041000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK VIEW
LVL
Center 2.460128 GHz
150 kHz/
Span 1.5 MHz

802.11g OFDM MODULATION:

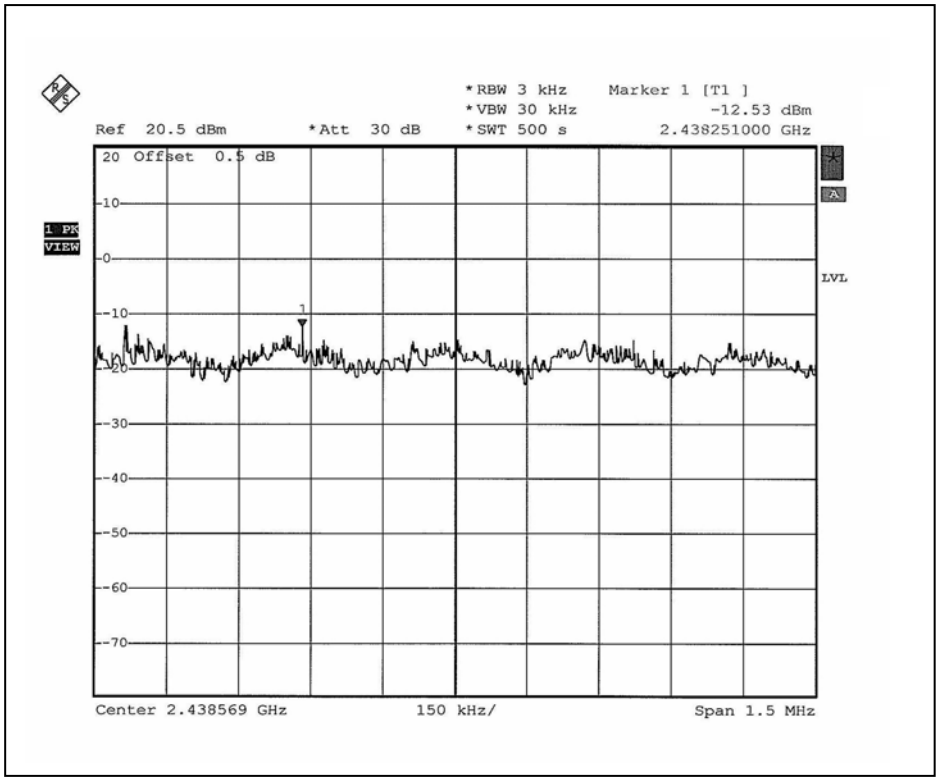
MODULATION TYPE	BPSK	TRANSFER RATE	6Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	20deg.C, 60%RH, 971hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)			MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	-13.59	-13.53	-13.60	8	PASS
6	2437	-12.53	-12.64	-12.72	8	PASS
11	2462	-13.41	-13.60	-13.51	8	PASS

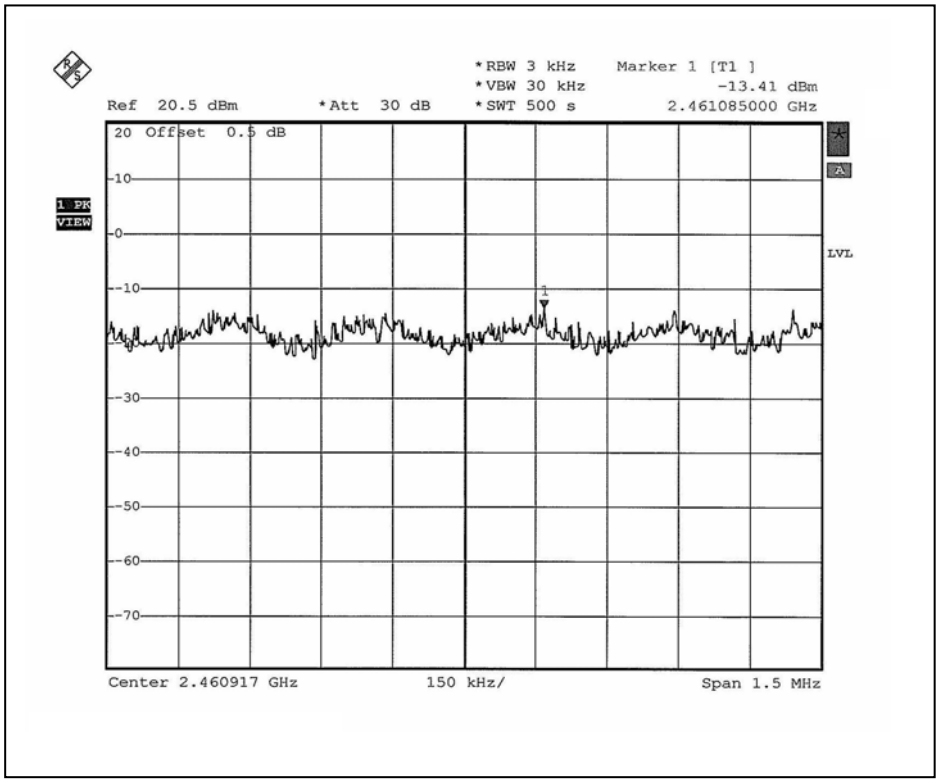
FOR CHAIN 0: CH1



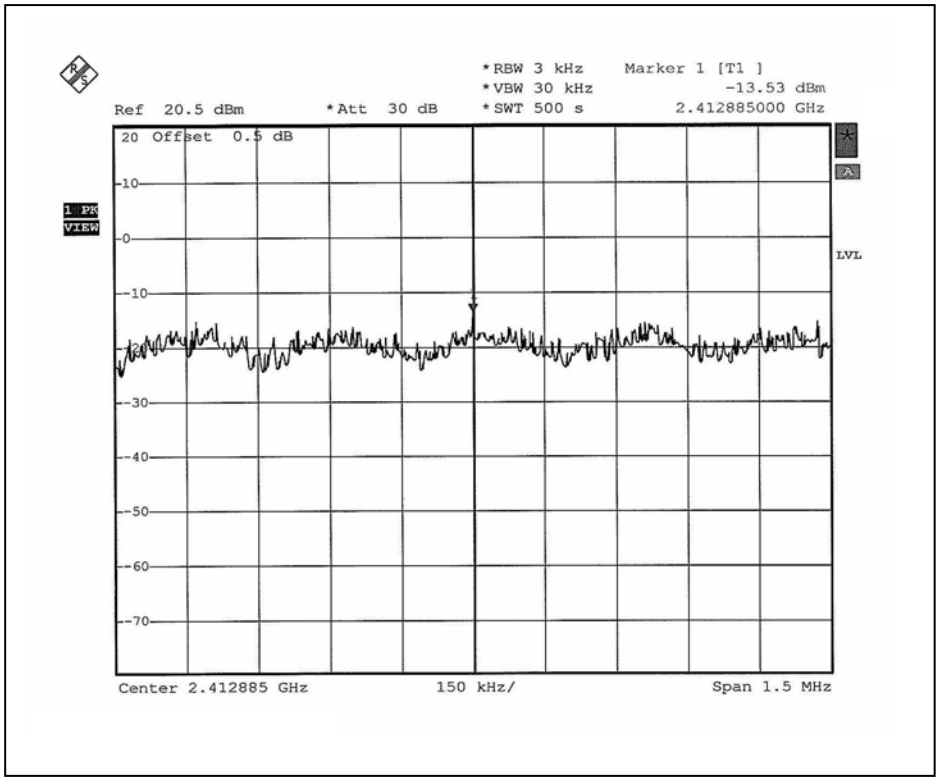
CH6


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-12.53 dBm
Ref 20.5 dBm
*Att 30 dB
*SWT 500 s
2.438251000 GHz
20 Offset 0.5 dB
1 PK
VIEW
LVL
Center 2.438569 GHz
150 kHz/
Span 1.5 MHz

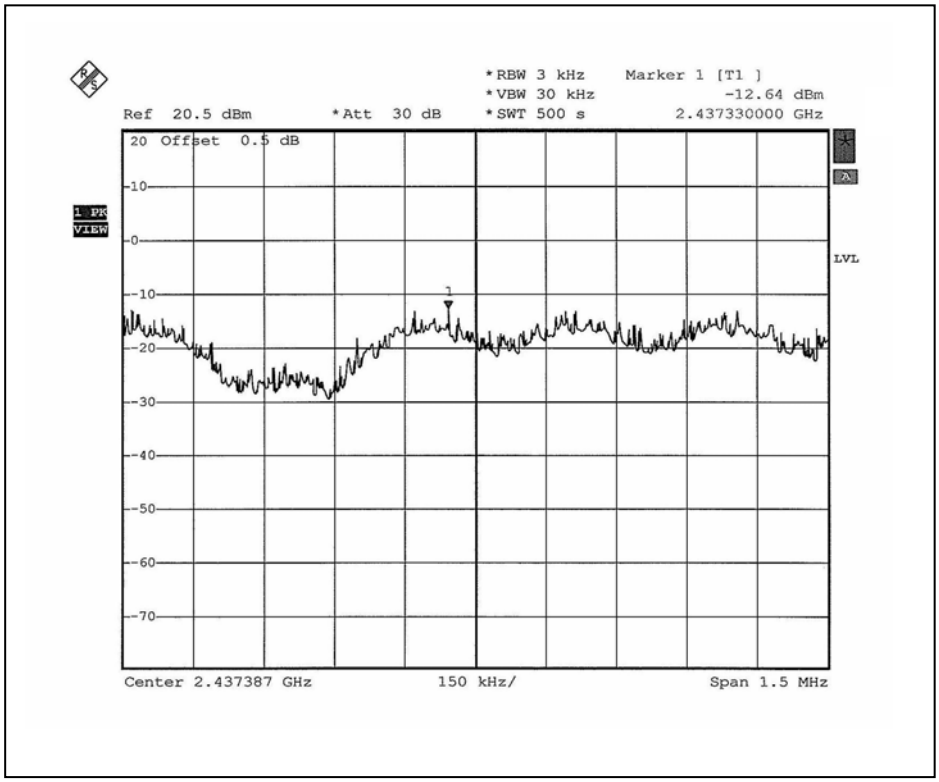
CH11


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-13.41 dBm
Ref 20.5 dBm
*Att 30 dB
*SWT 500 s
2.461085000 GHz
20 Offset 0.5 dB
1 PK
VIEW
LVL
Center 2.460917 GHz
150 kHz/
Span 1.5 MHz

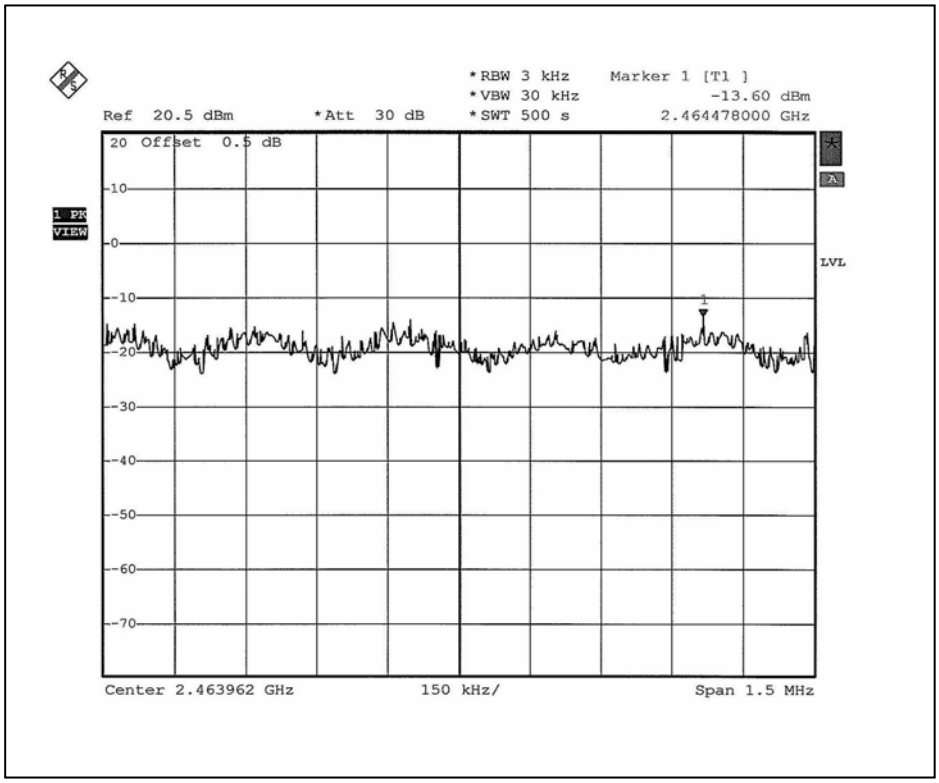
FOR CHAIN 1: CH1



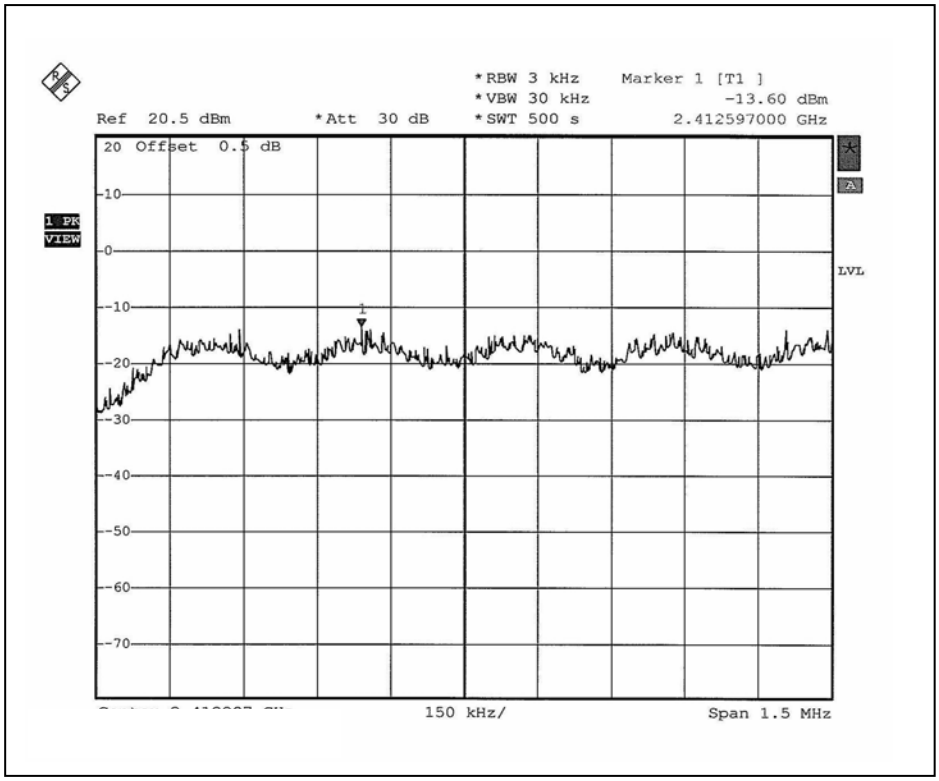
CH6



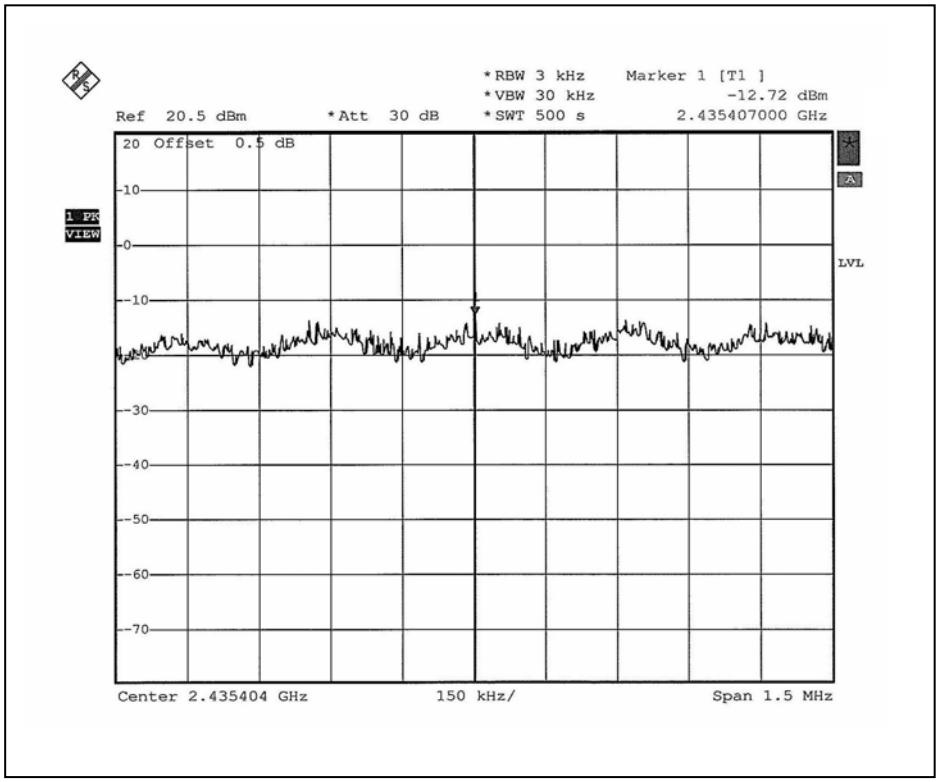
CH11


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-13.60 dBm
2.464478000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK
VIEW
LVL
Center 2.463962 GHz
150 kHz/
Span 1.5 MHz

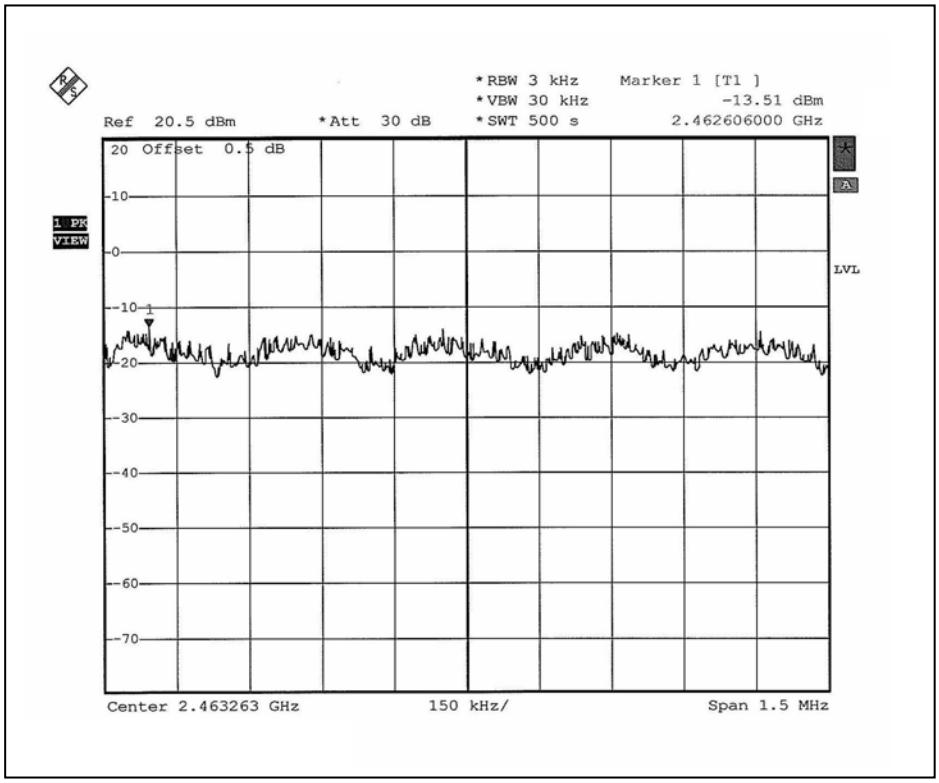
FOR CHAIN 2: CH1



CH6



CH11

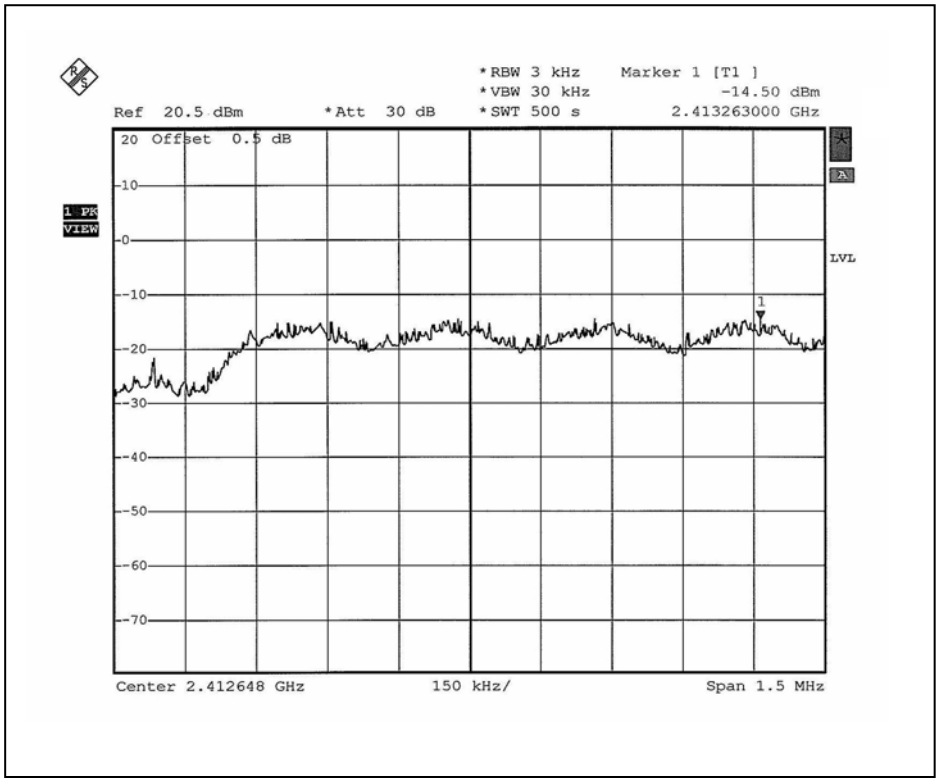

*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-13.51 dBm
2.462606000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK
VIEW
LVL
-10
0
-10
-20
-30
-40
-50
-60
-70
Center 2.463263 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (20MHz) OFDM MODULATION:

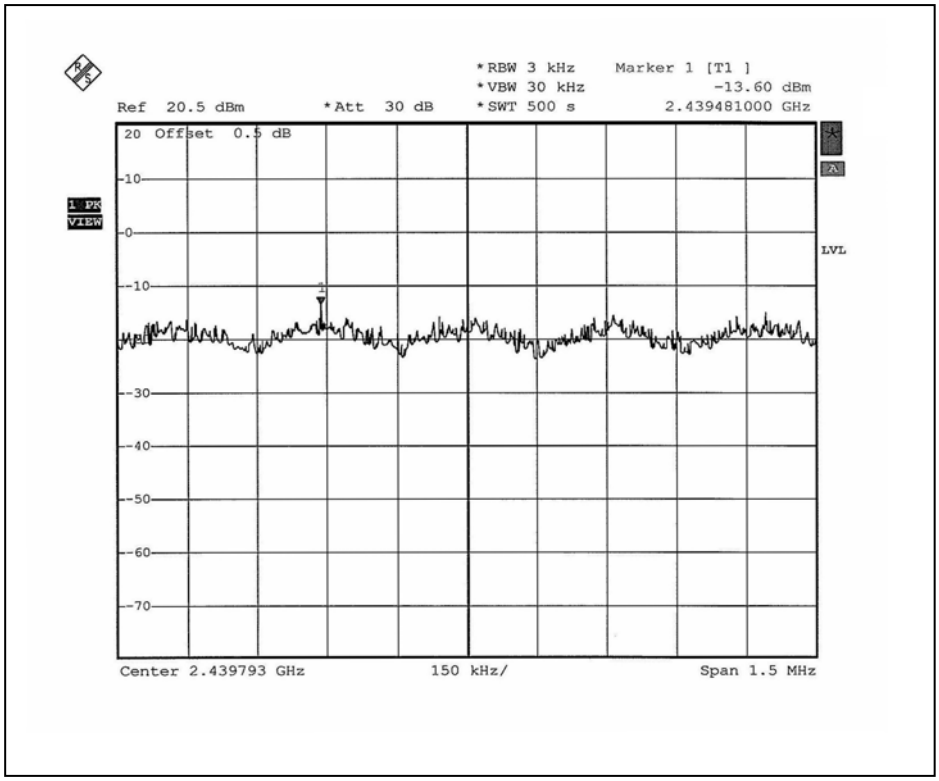
MODULATION TYPE	BPSK	TRANSFER RATE	6.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	ENVIRONMENTAL CONDITIONS	26deg.C, 68%RH, 971hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)			MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2412	-14.50	-14.60	-14.44	8	PASS
6	2437	-13.60	-13.55	-13.77	8	PASS
11	2462	-13.76	-13.77	-13.67	8	PASS

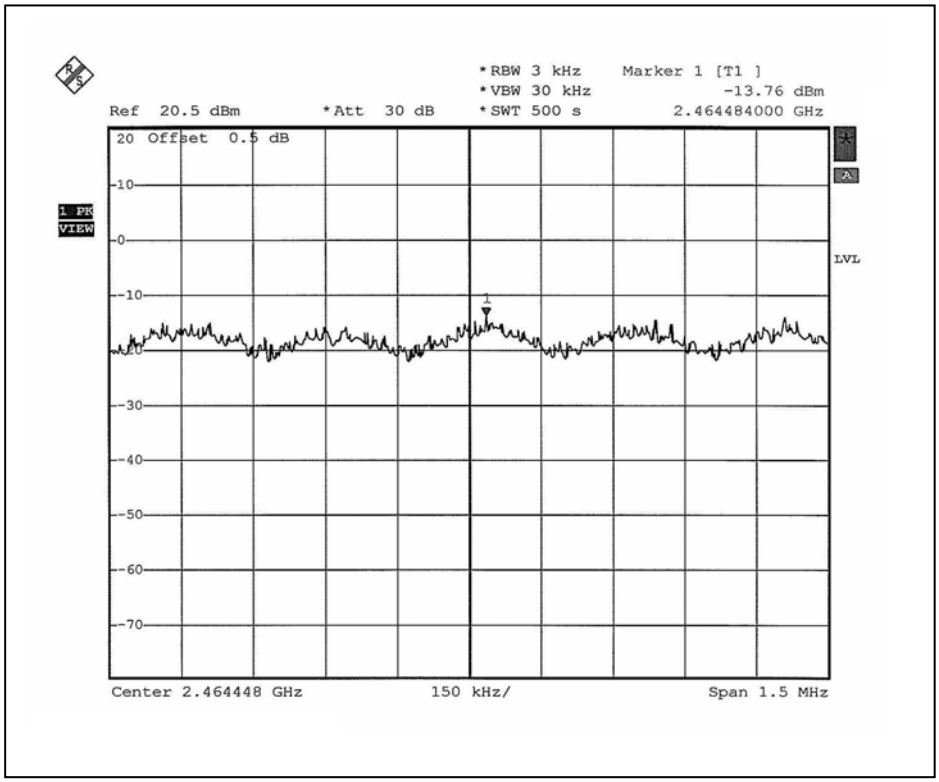
FOR CHAIN 0: CH1



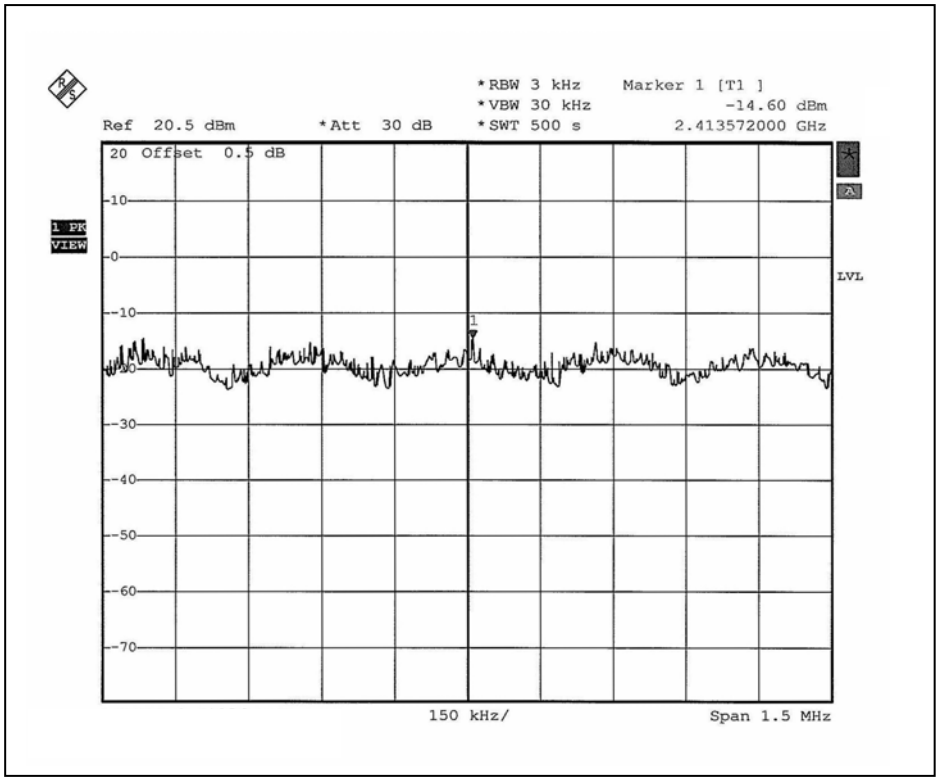
CH6


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-13.60 dBm
Ref 20.5 dBm
*Att 30 dB
*SWT 500 s
2.439481000 GHz
20 Offset 0.5 dB
1 PK VIEW
LVL
Center 2.439793 GHz
150 kHz/
Span 1.5 MHz

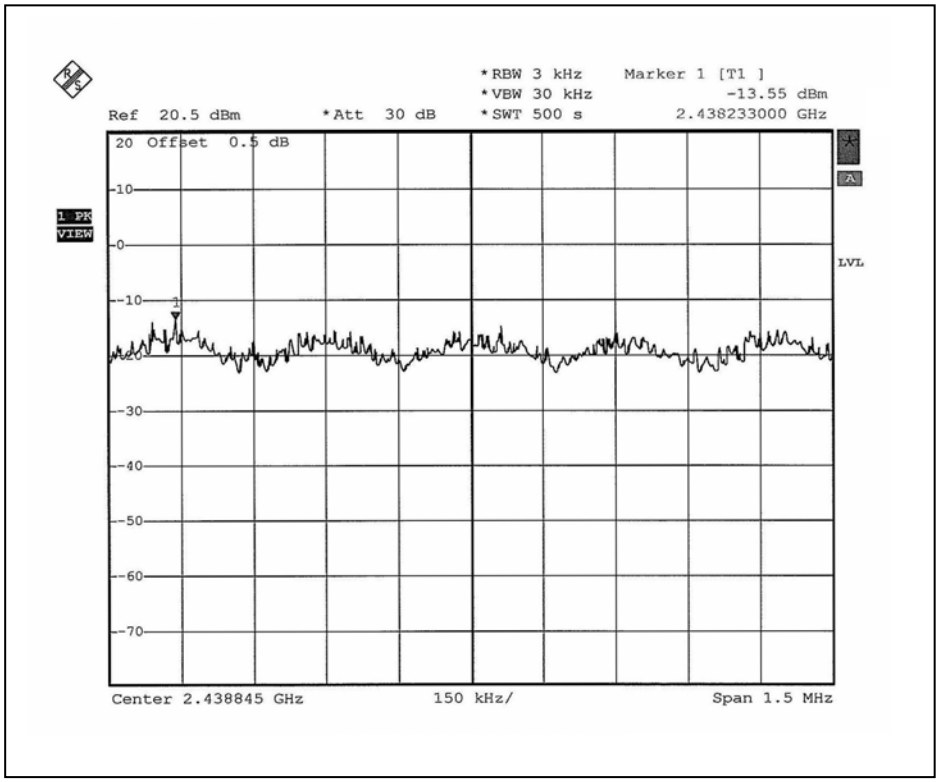
CH11


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-13.76 dBm
Ref 20.5 dBm
*Att 30 dB
*SWT 500 s
2.464484000 GHz
20 Offset 0.5 dB
1 PK VIEW
LVL
Center 2.464448 GHz
150 kHz/
Span 1.5 MHz

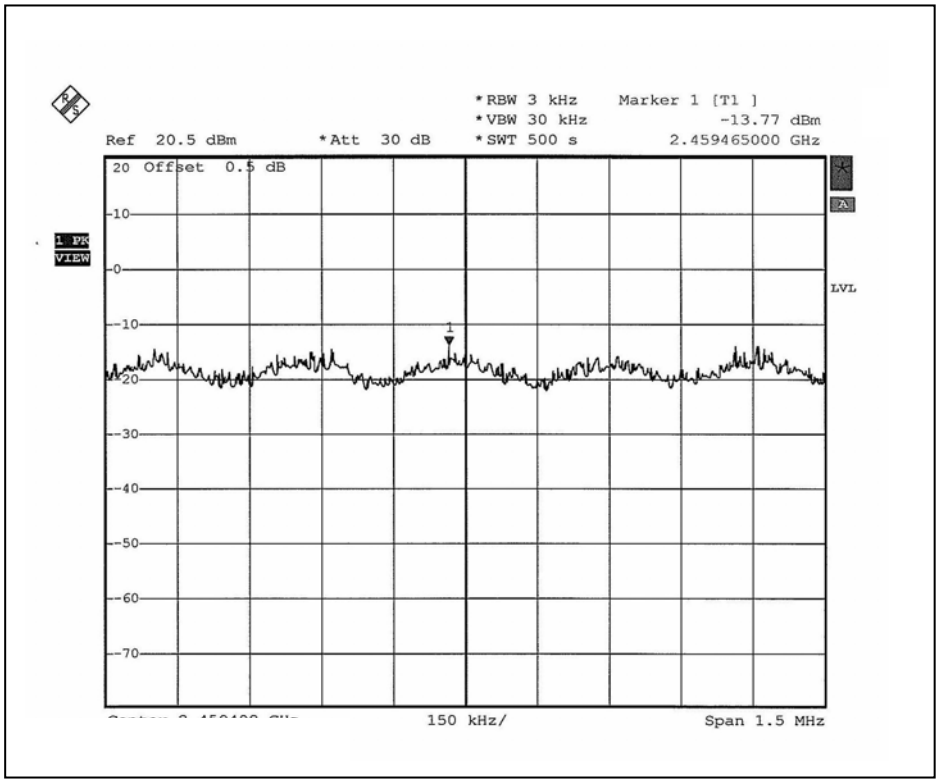
FOR CHAIN 1: CH1



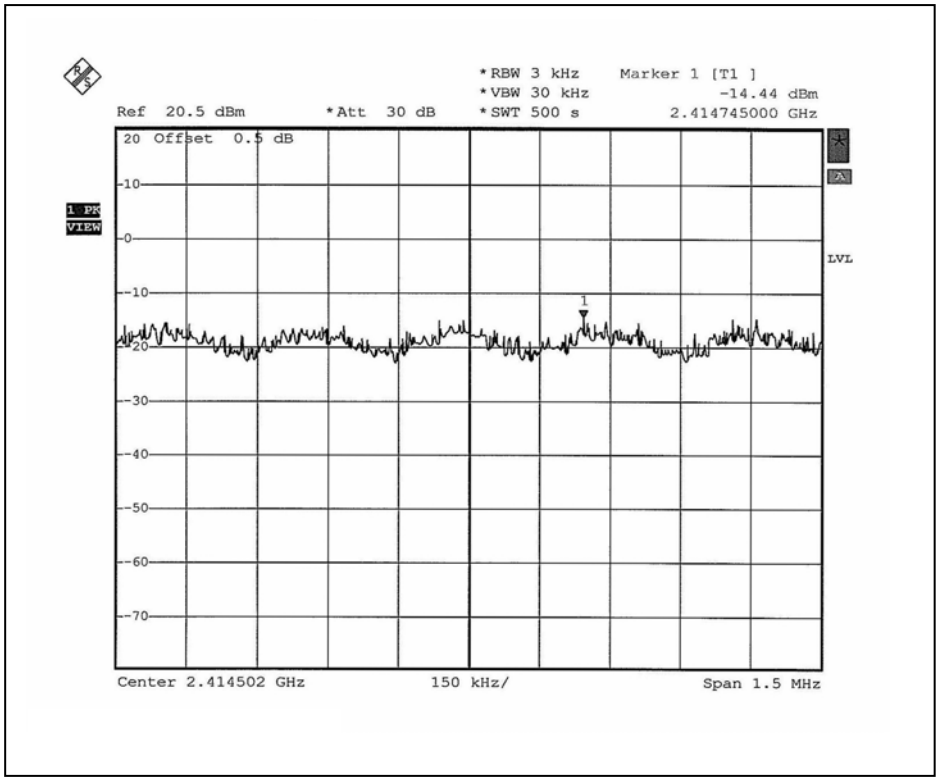
CH6



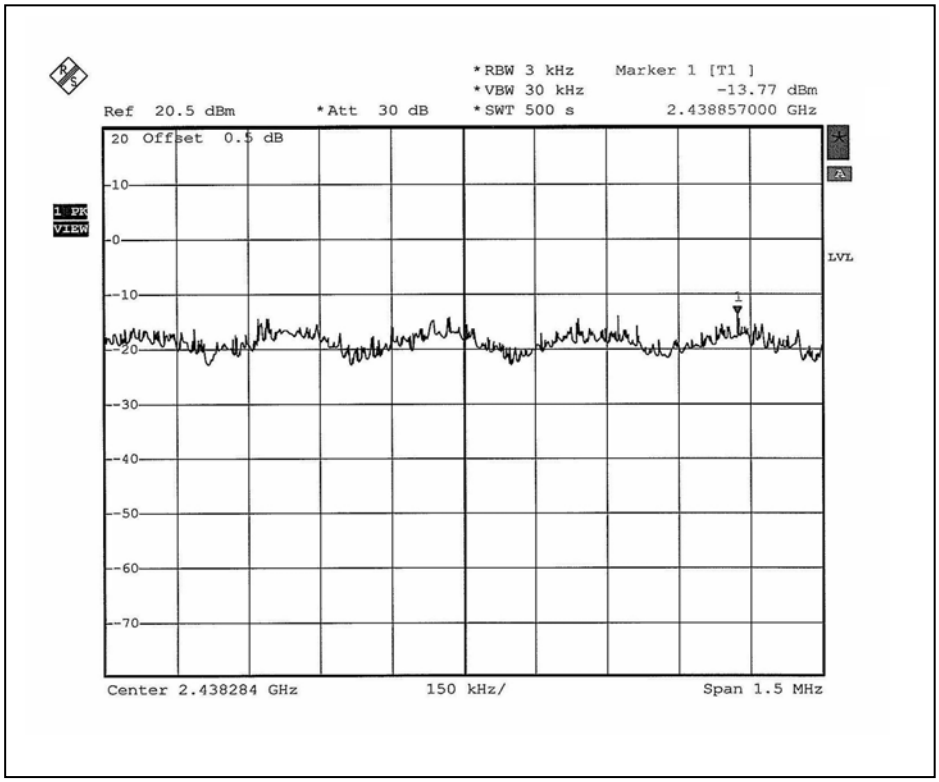
CH11


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-13.77 dBm
Ref 20.5 dBm
*Att 30 dB
*SWT 500 s
2.459465000 GHz
20 Offset 0.5 dB
10
0
-10
-20
-30
-40
-50
-60
-70
1 PK
VIEW
LVL
150 kHz/
Span 1.5 MHz

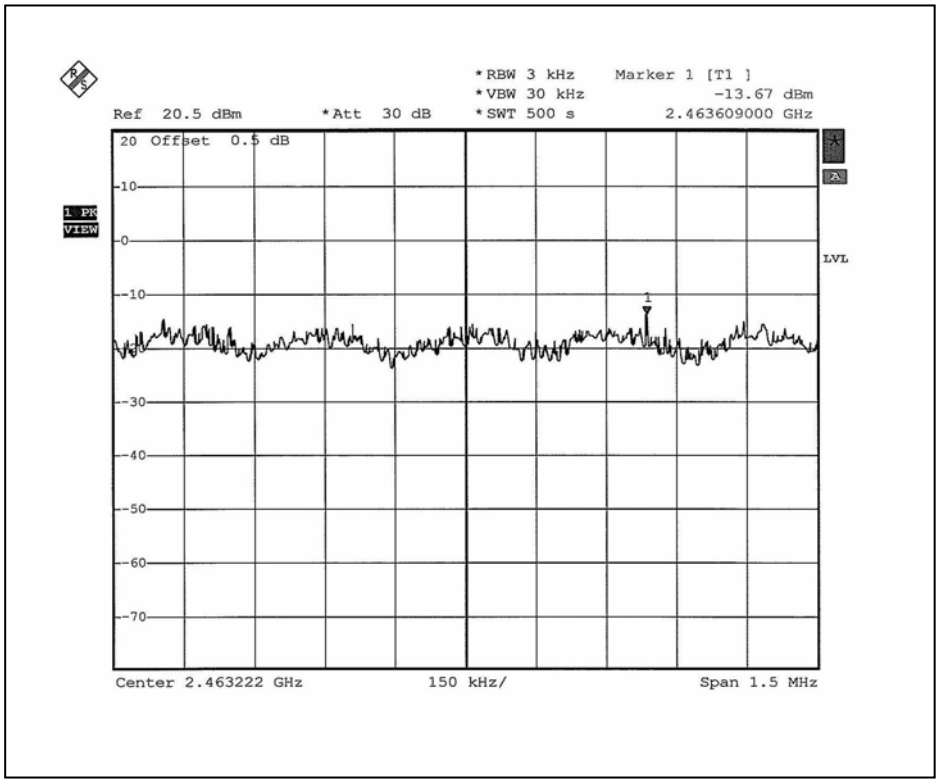
FOR CHAIN 2: CH1



CH6



CH11

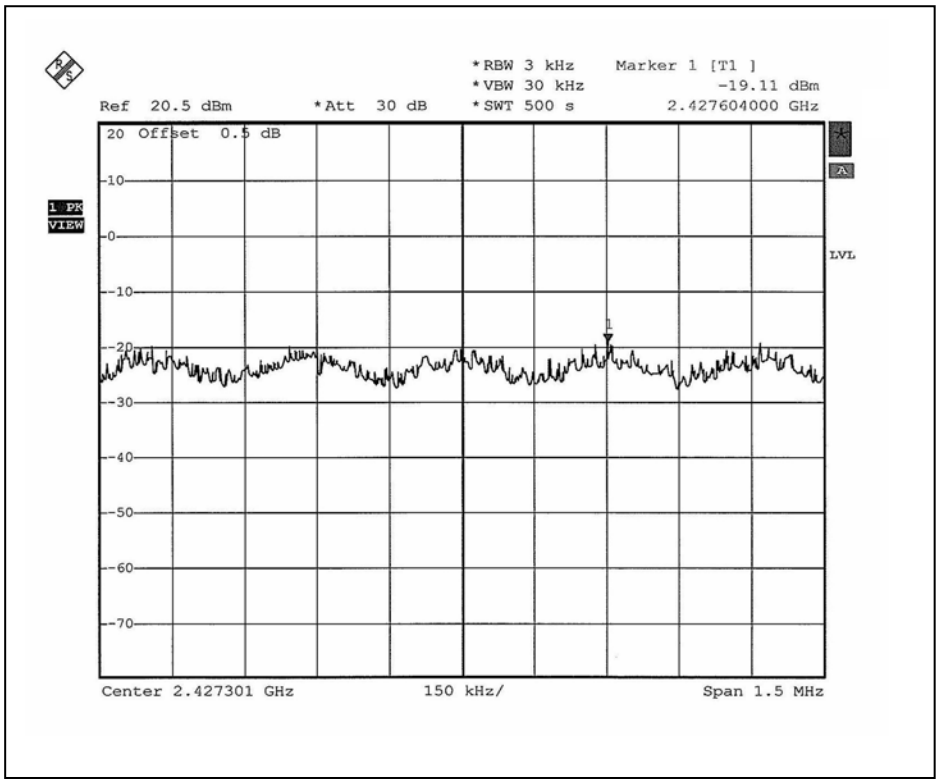

*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-13.67 dBm
2.463609000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK VIEW
LVL
10
0
-10
-30
-40
-50
-60
-70
Center 2.463222 GHz
150 kHz/
Span 1.5 MHz

DRAFT 802.11n (40MHz) OFDM MODULATION:

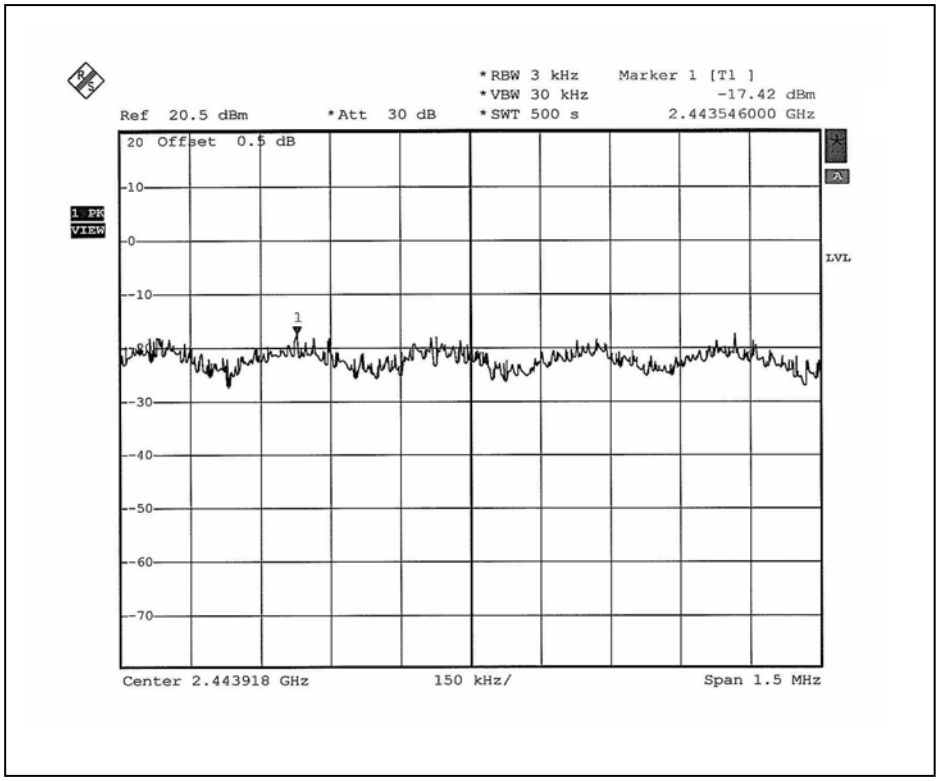
MODULATION TYPE	BPSK	**TRANSFER RATE**	13.5Mbps
INPUT POWER (SYSTEM)	120Vac, 60 Hz	**ENVIRONMENTAL CONDITIONS**	26deg.C, 68%RH, 971hPa
TESTED BY	Wen Yu		

CHANNEL	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3kHz BW (dBm)			MAXIMUM LIMIT (dBm)	PASS / FAIL
		CHAIN 0	CHAIN 1	CHAIN 2		
1	2422	-19.11	-19.21	-19.08	8	PASS
4	2437	-17.42	-17.58	-17.43	8	PASS
7	2452	-21.03	-21.14	-21.20	8	PASS

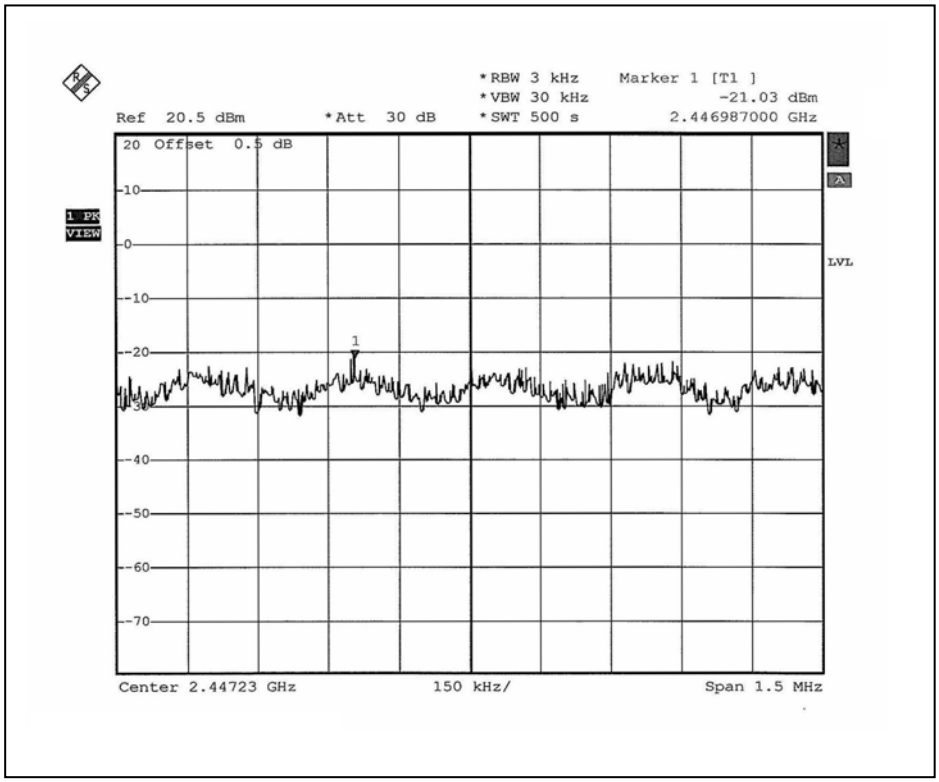
FOR CHAIN 0: CH1



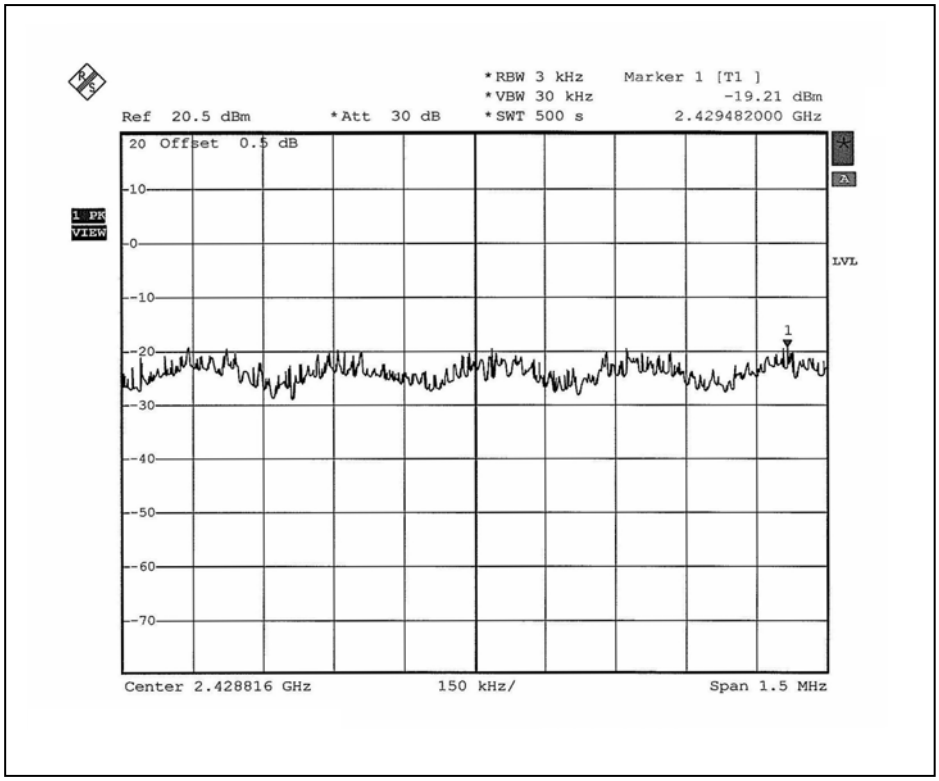
CH4


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-17.42 dBm
2.443546000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK VIEW
LVL
Center 2.443918 GHz
150 kHz/
Span 1.5 MHz

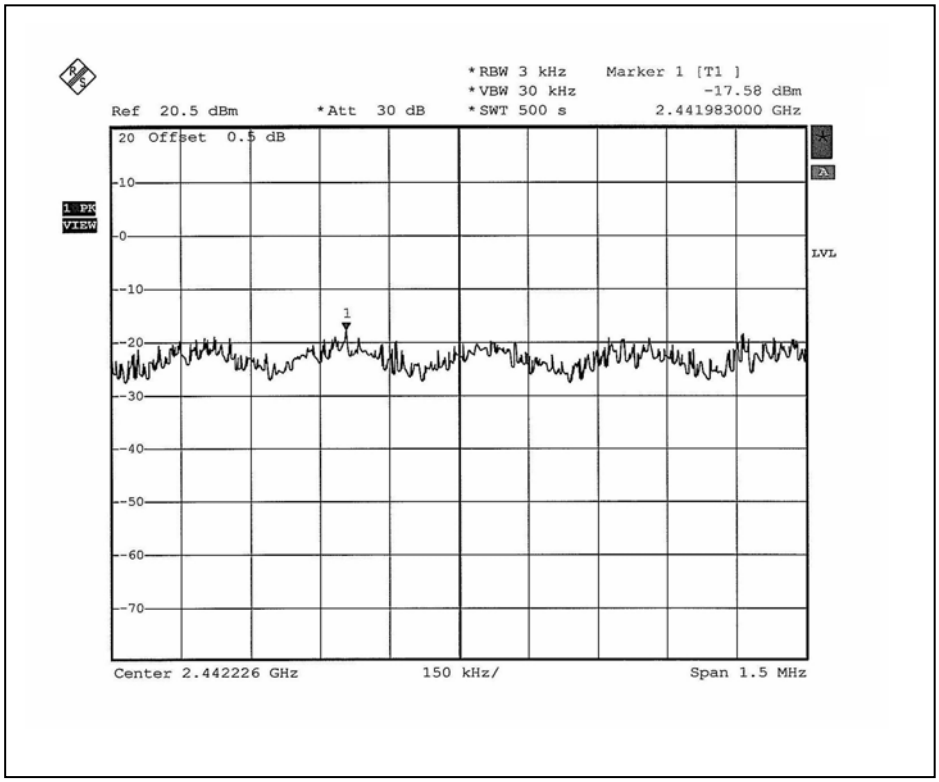
CH7


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-21.03 dBm
2.446987000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK VIEW
LVL
Center 2.44723 GHz
150 kHz/
Span 1.5 MHz

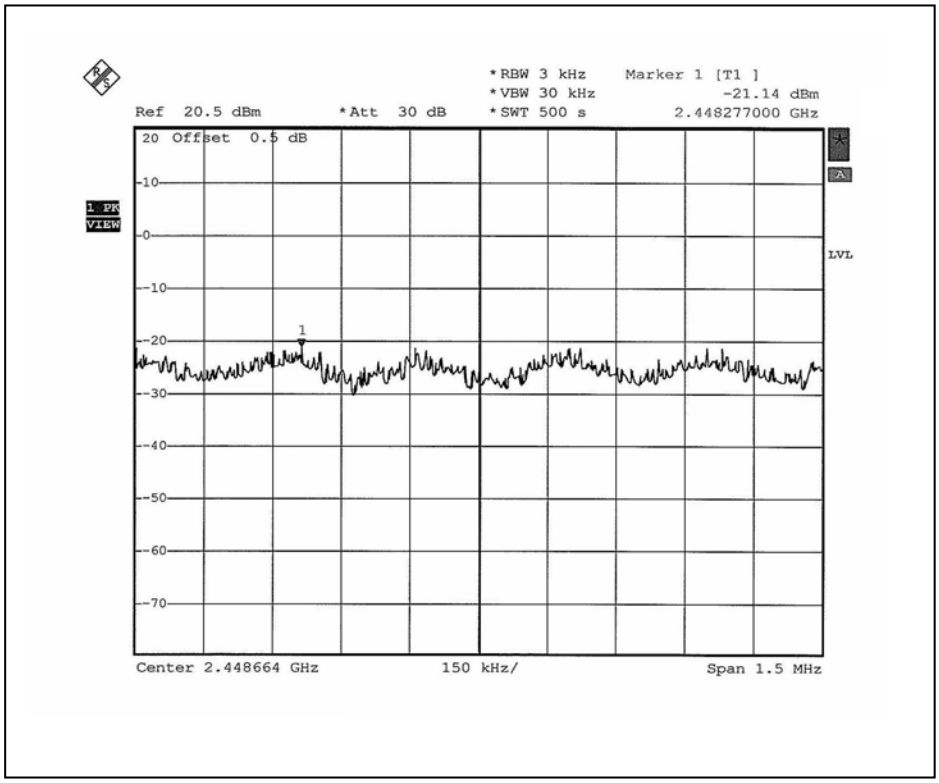
FOR CHAIN 1: CH1



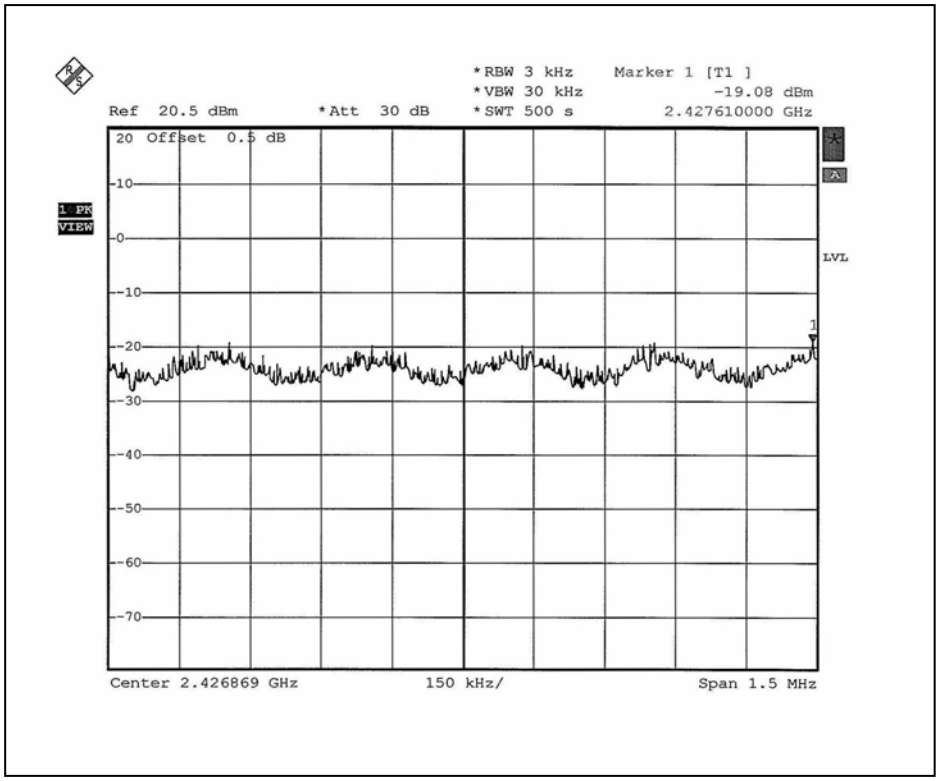
CH4



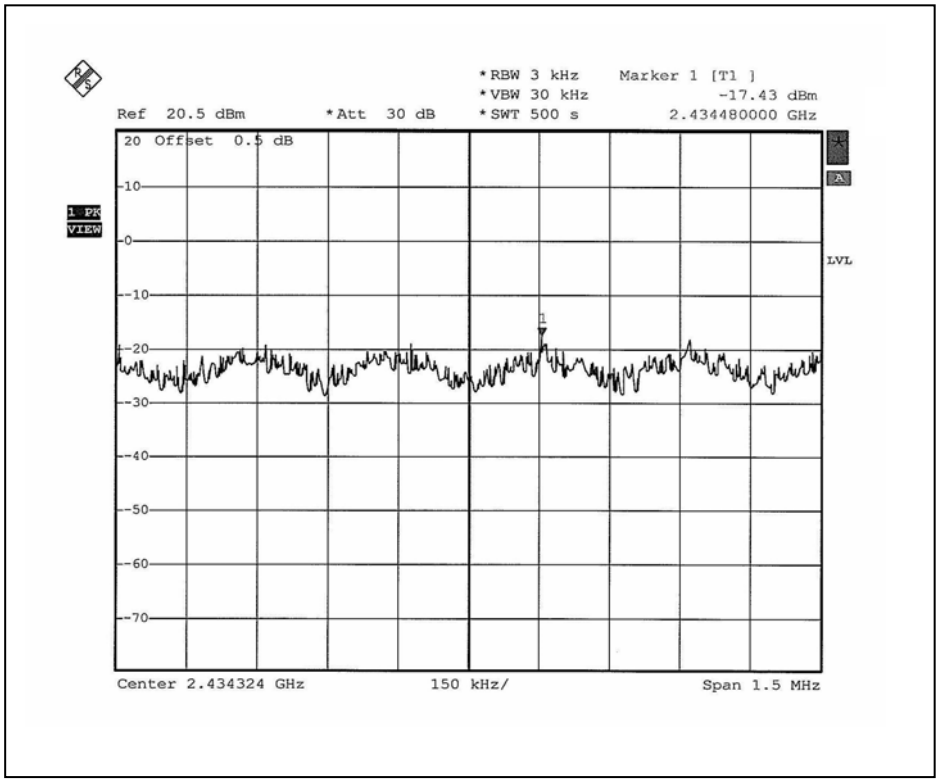
CH7


*RBW 3 kHz
*VBW 30 kHz
*SWT 500 s
Marker 1 [T1]
-21.14 dBm
2.448277000 GHz
Ref 20.5 dBm
*Att 30 dB
20 Offset 0.5 dB
1 PK VIEW
LVL
Center 2.448664 GHz
150 kHz/
Span 1.5 MHz

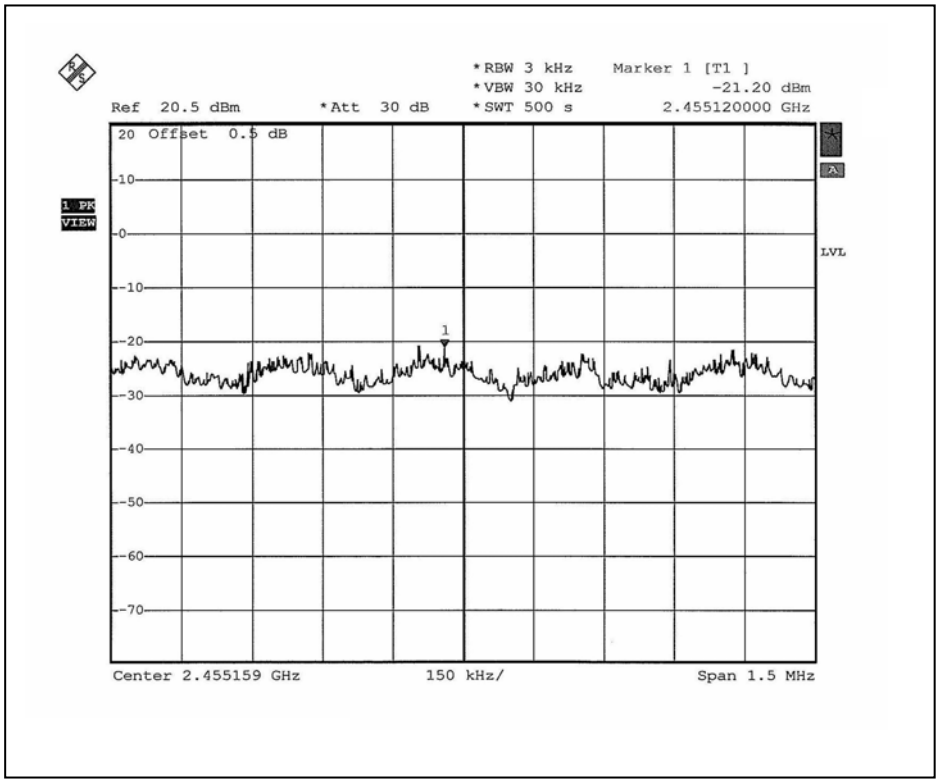
FOR CHAIN 2: CH1



CH4



CH7


*RBW 3 kHz
Marker 1 [T1]
*VBW 30 kHz
-21.20 dBm
Ref 20.5 dBm
*Att 30 dB
*SWT 500 s
2.455120000 GHz
20 Offset 0.5 dB
1 PK VIEW
LVL
Center 2.455159 GHz
150 kHz/
Span 1.5 MHz