

7. DTS Bandwidth

7.1. Test Equipment

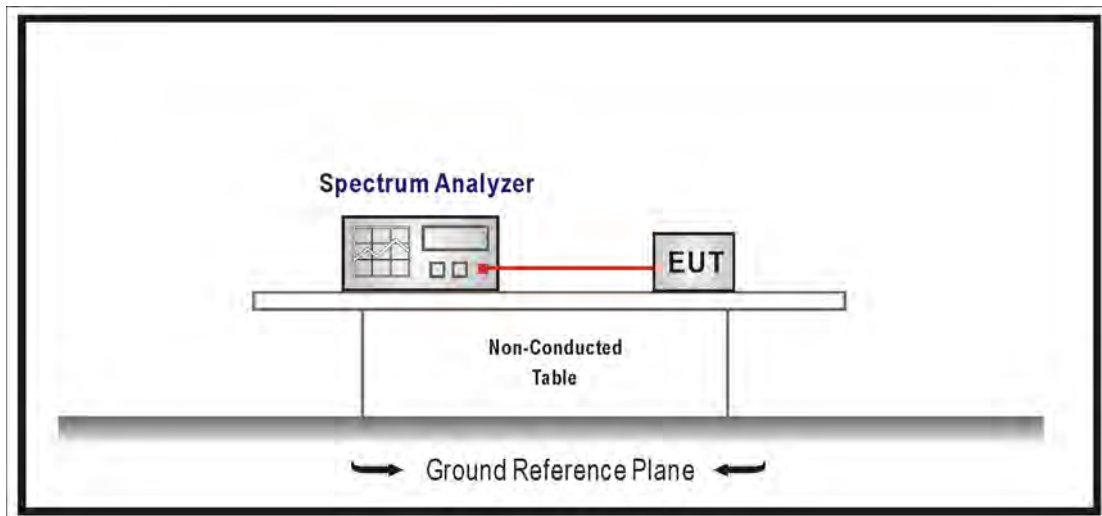
The following test equipments are used during the test:

DTS Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/12

Note: All equipments that need to calibrate are with calibration period of 1 year.

7.2. Test Setup



7.3. Test Procedures

The EUT was setup according to ANSI C63.10:2013; tested procedure section 8.1 of KDB558074 v03r05 for compliance to FCC 47CFR 15.247 requirements. Set RBW = 100KHz, Set the VBW $\geq 3 \times$ RBW, Sweep Time=Auto, Set Peak Detector.

7.4. Limits

The 6 dB bandwidth must be greater than 500 kHz.

7.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2015

7.6. Uncertainty

The measurement uncertainty is defined as $\pm 150\text{Hz}$

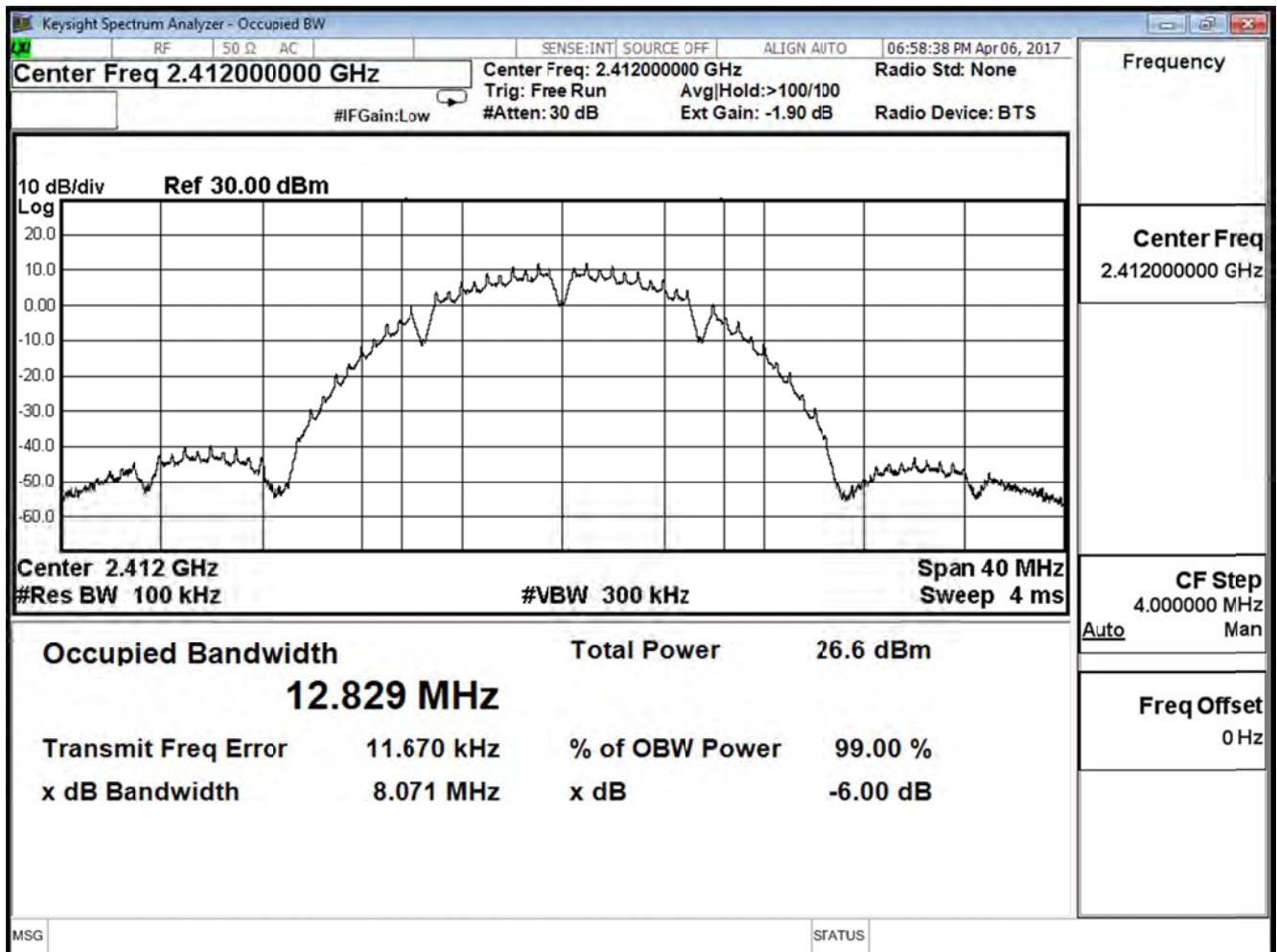
7.7. Test Result

Product	Lyra		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/14	Test Site	SR10-H

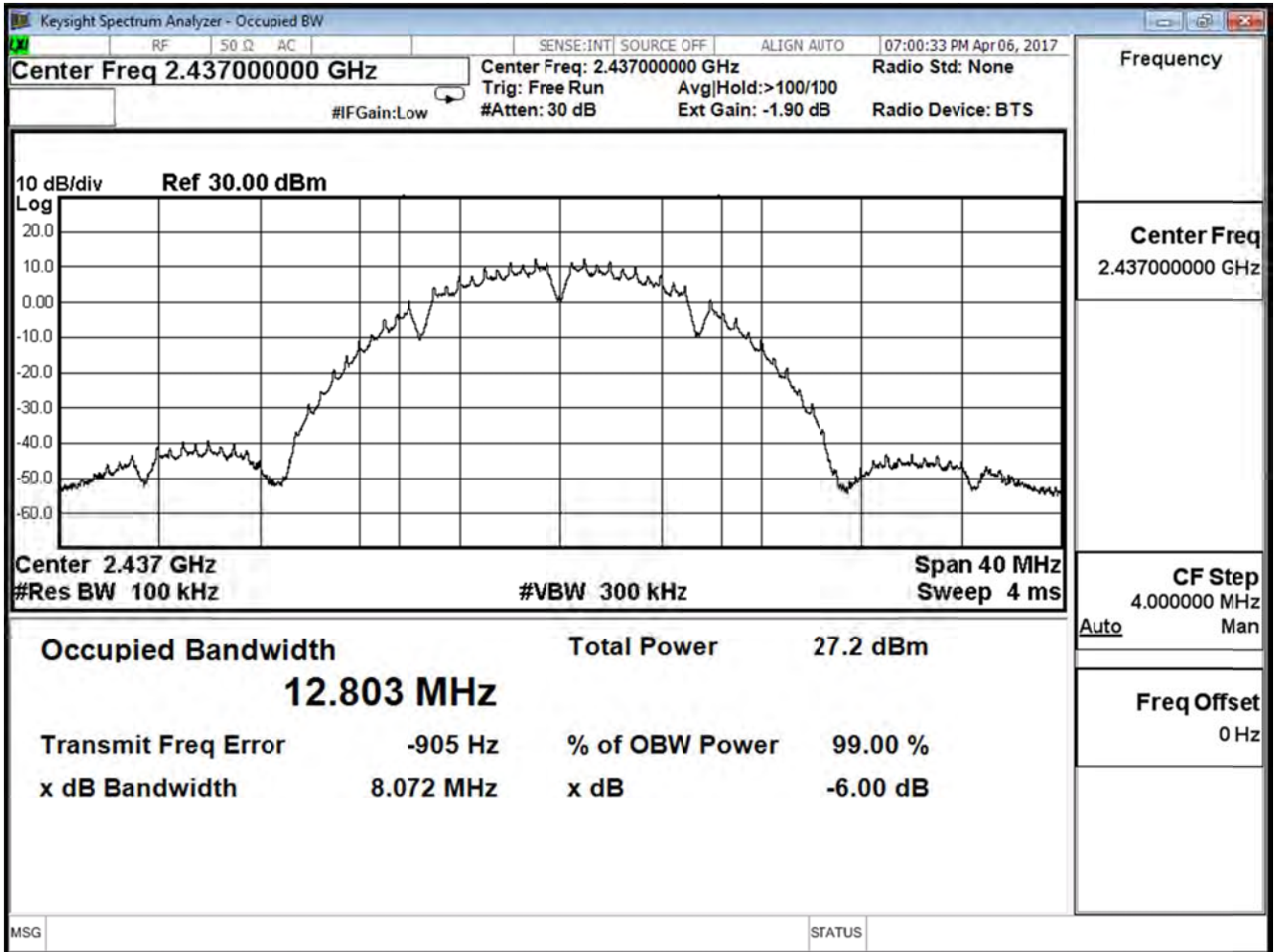
802.11 b (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	8.07	≥ 0.5	Pass
6	2437	8.07	≥ 0.5	Pass
11	2462	8.08	≥ 0.5	Pass

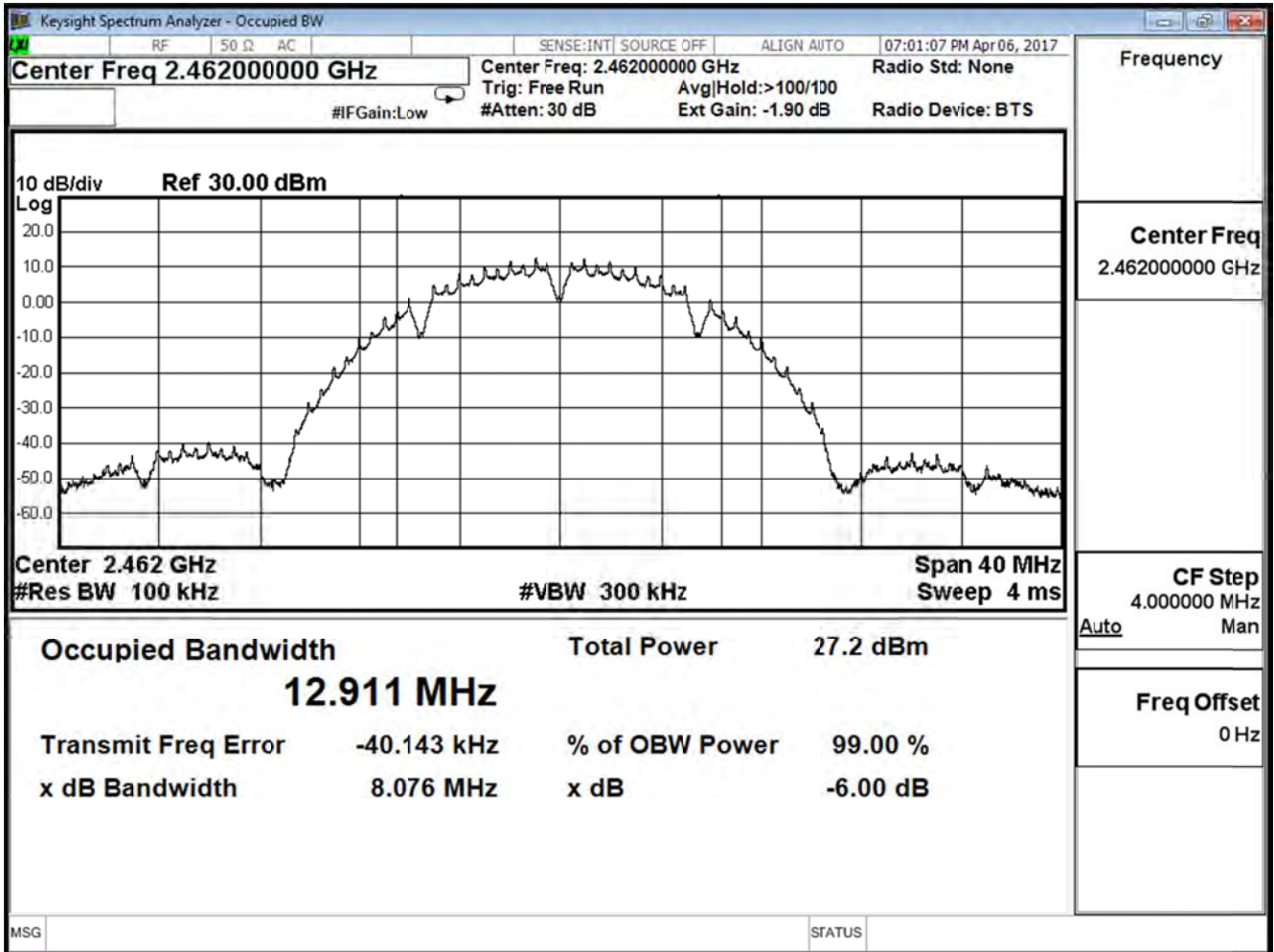
Channel 1



Channel 6



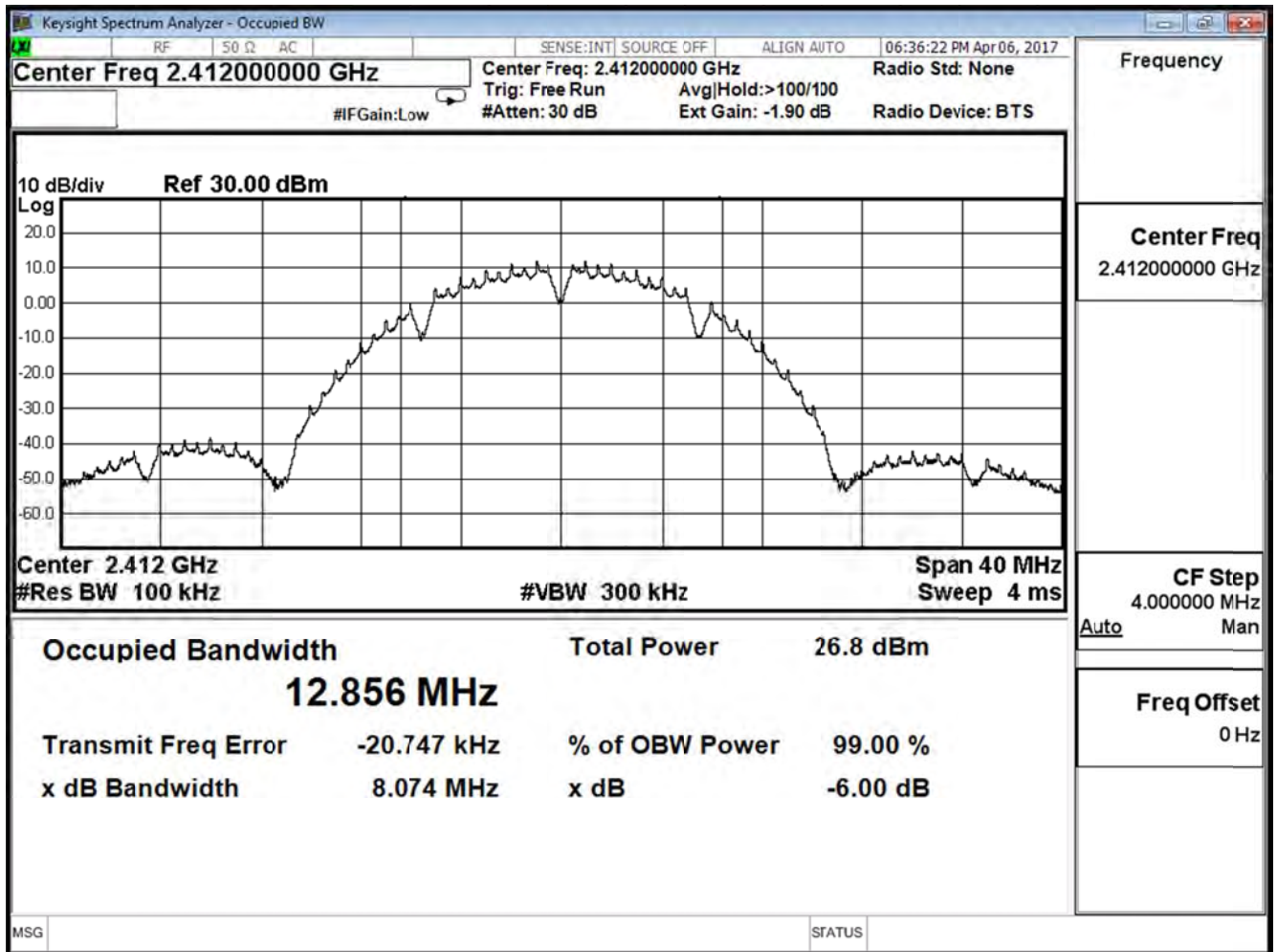
Channel 11



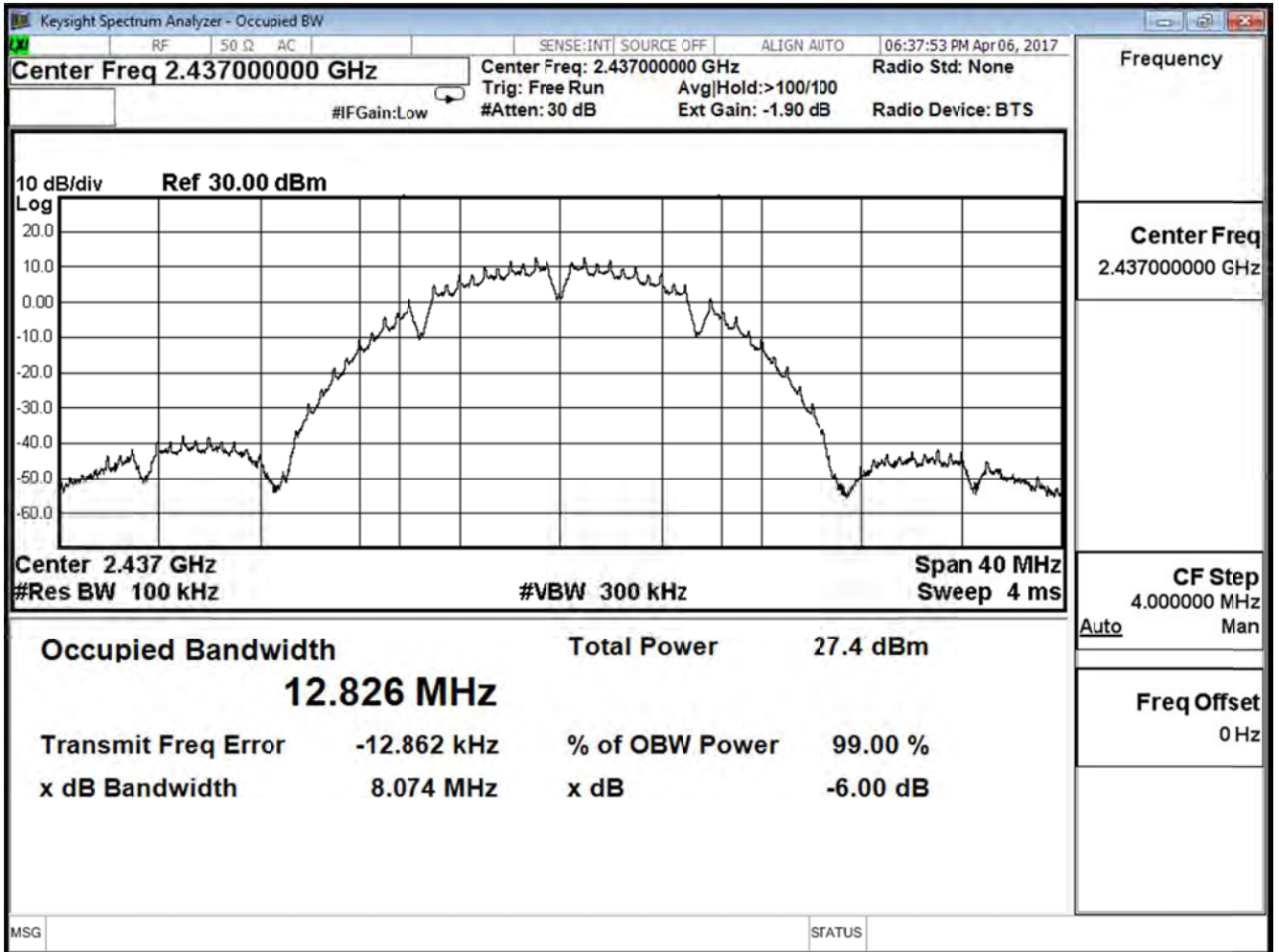
Product	Lyra		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/14	Test Site	SR10-H

802.11 b (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	8.07	≥ 0.5	Pass
6	2437	8.07	≥ 0.5	Pass
11	2462	8.08	≥ 0.5	Pass

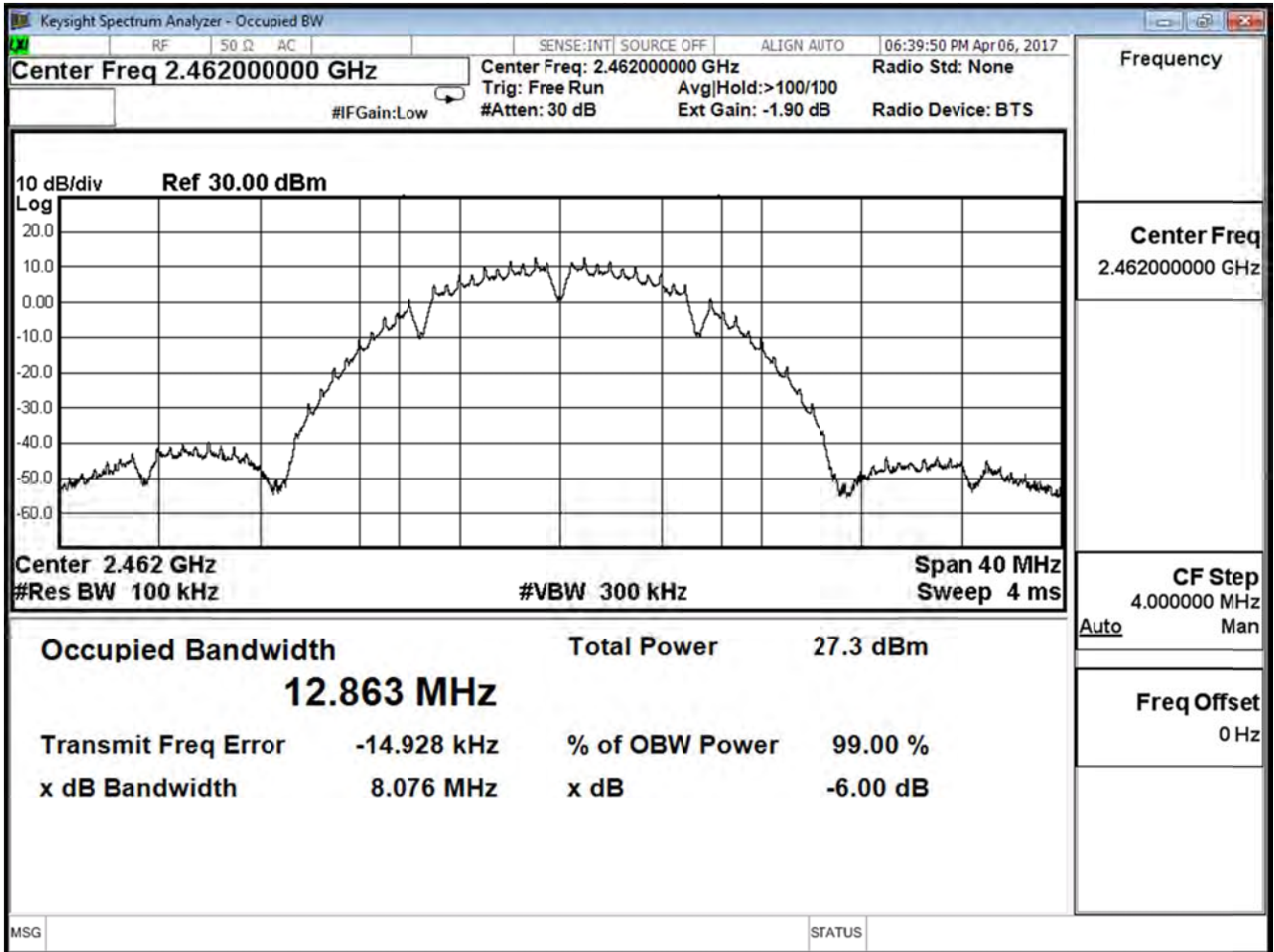
Channel 1



Channel 6



Channel 11

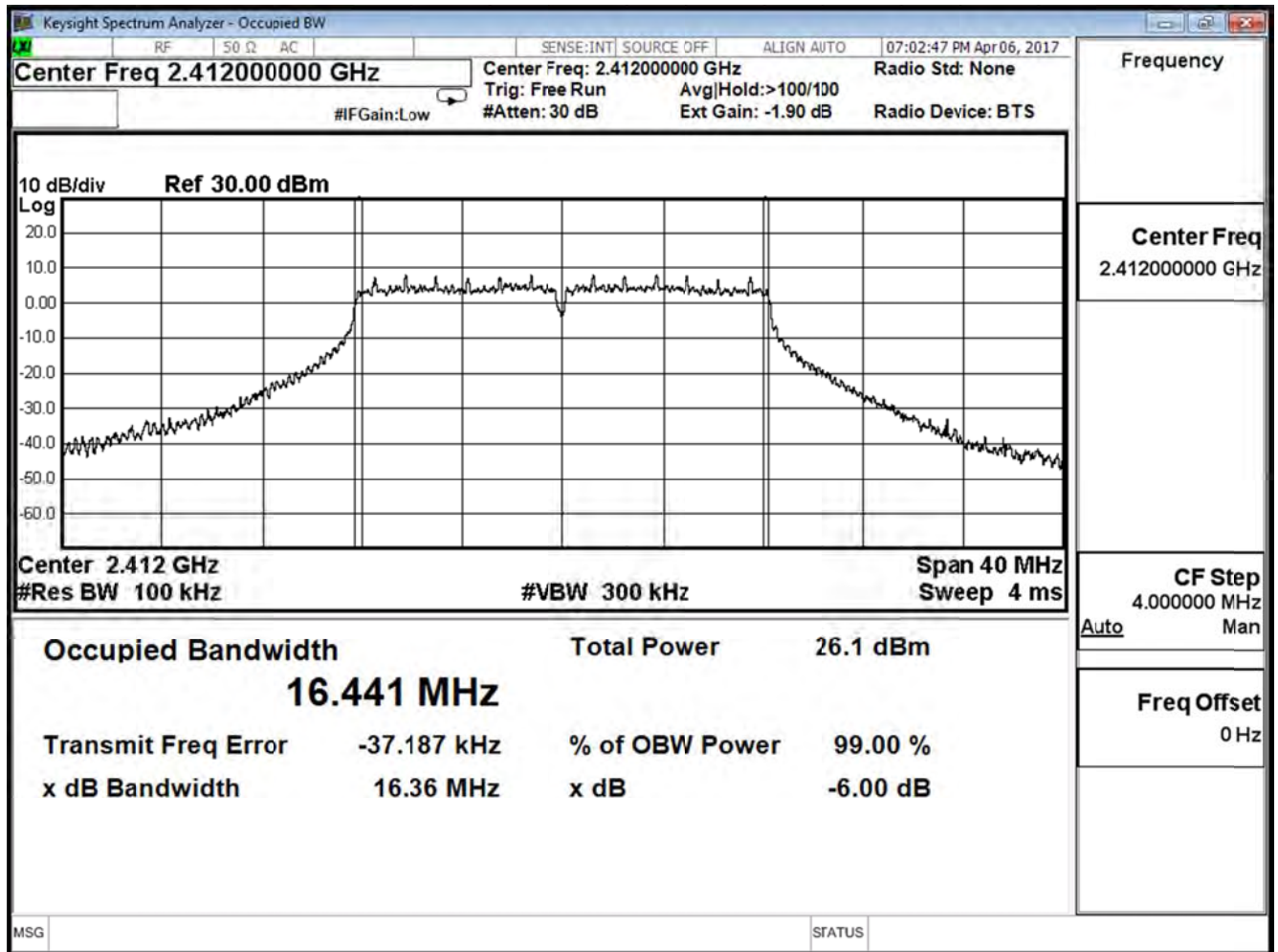


Product	Lyra		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/06	Test Site	SR10-H

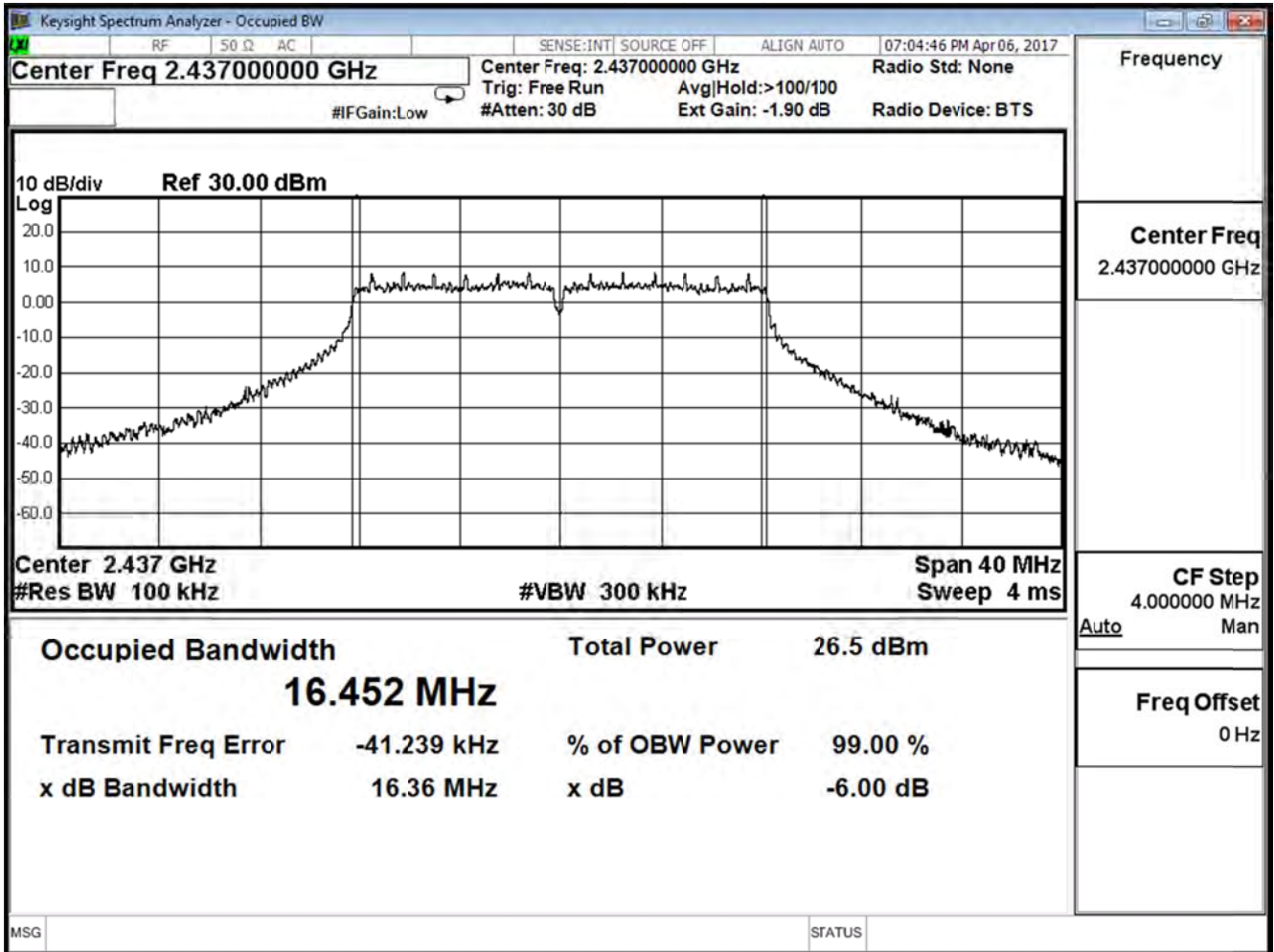
802.11 g (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	16.36	≥ 0.5	Pass
6	2437	16.36	≥ 0.5	Pass
11	2462	16.36	≥ 0.5	Pass

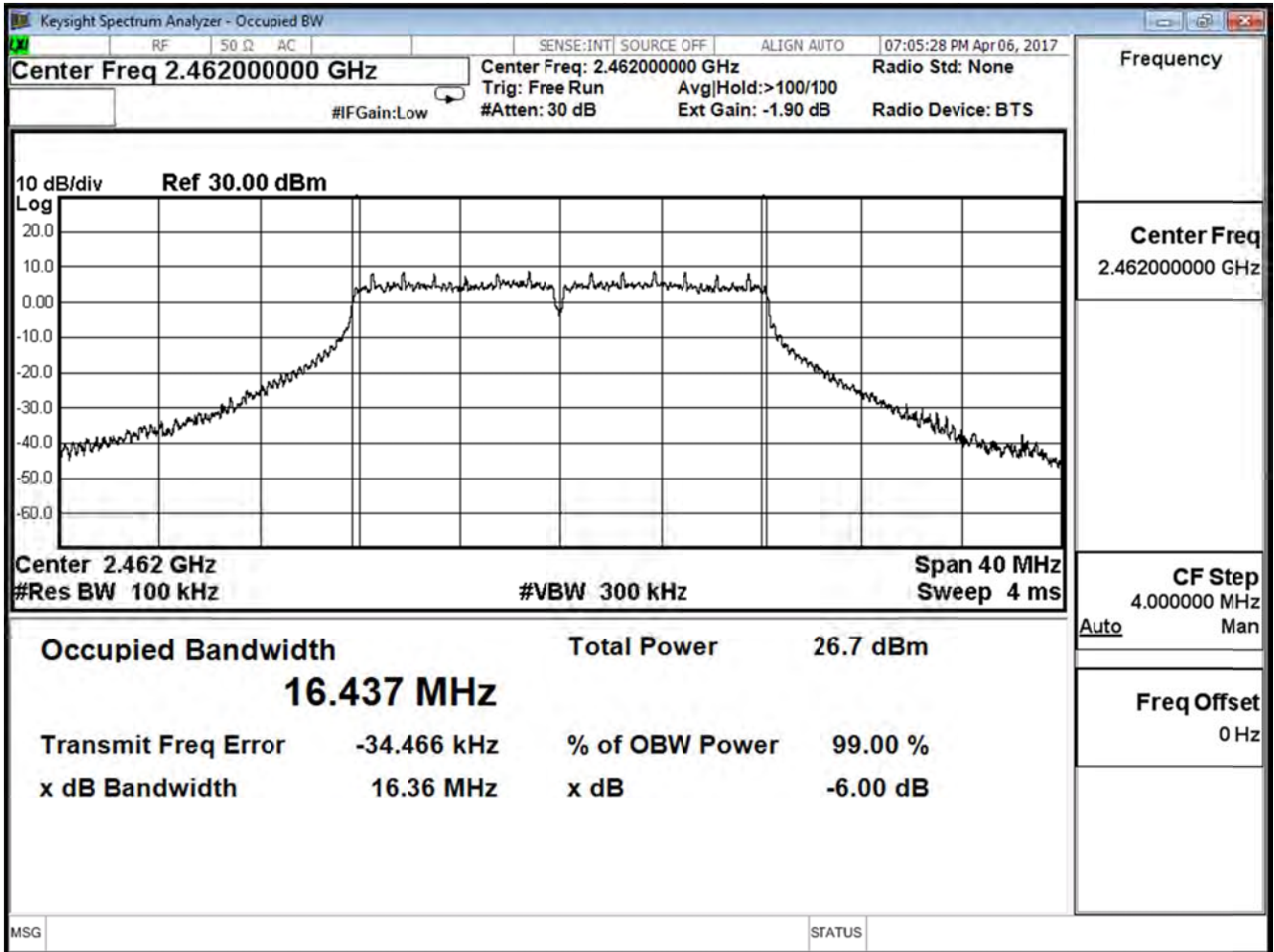
Channel 1



Channel 6



Channel 11

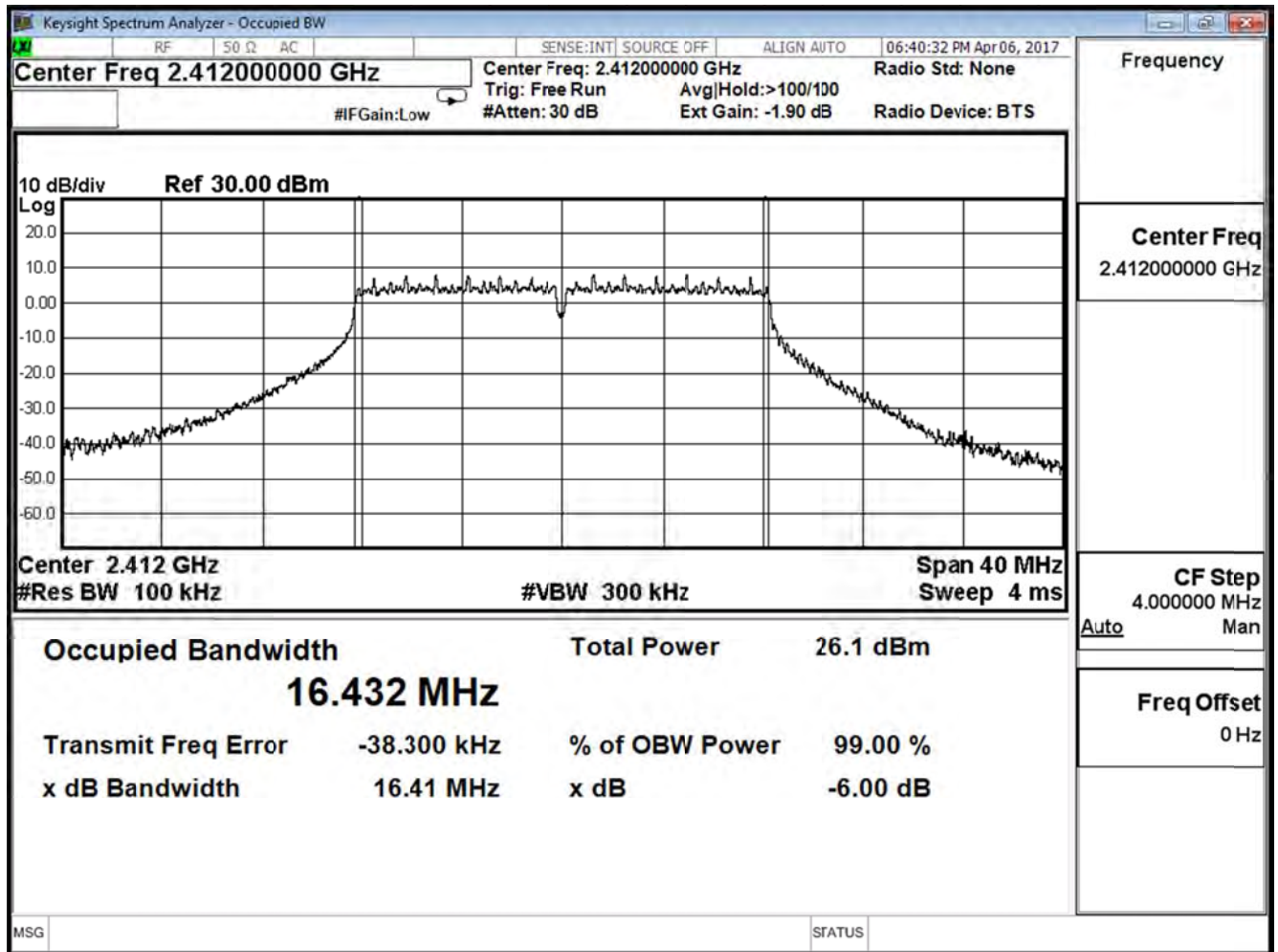


Product	Lyra		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/14	Test Site	SR10-H

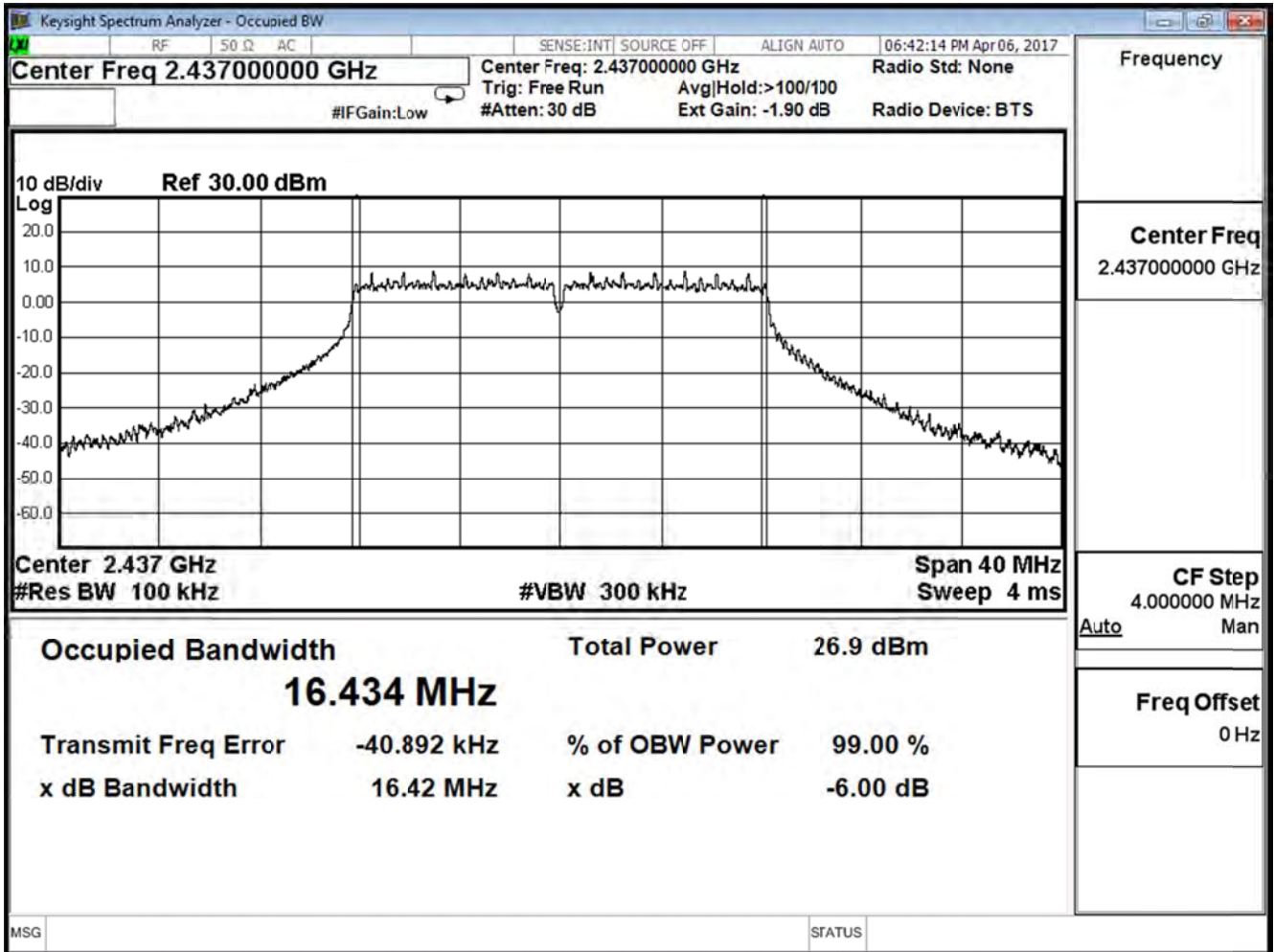
802.11 g (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	16.41	≥ 0.5	Pass
6	2437	16.42	≥ 0.5	Pass
11	2462	16.40	≥ 0.5	Pass

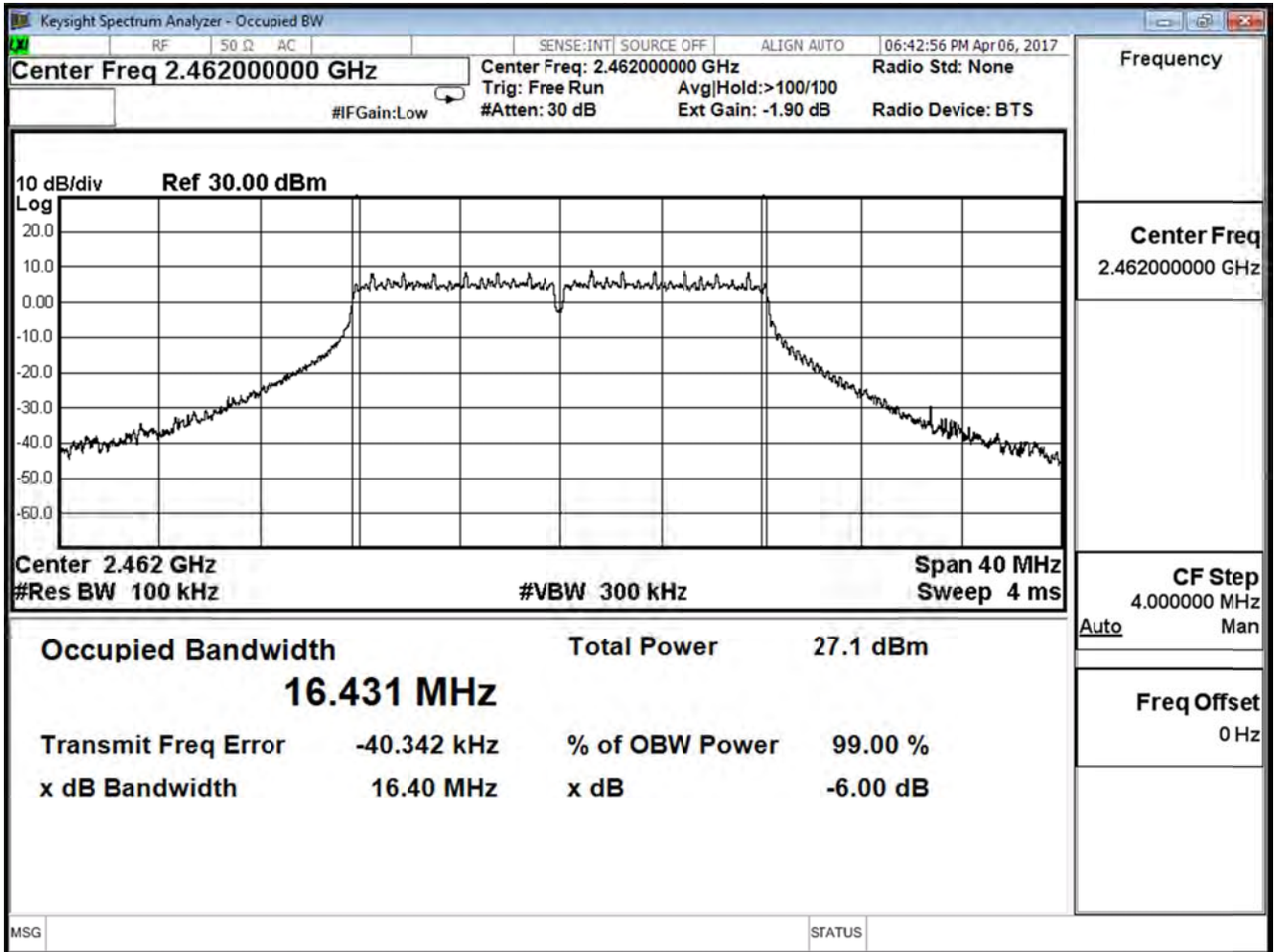
Channel 1



Channel 6



Channel 11

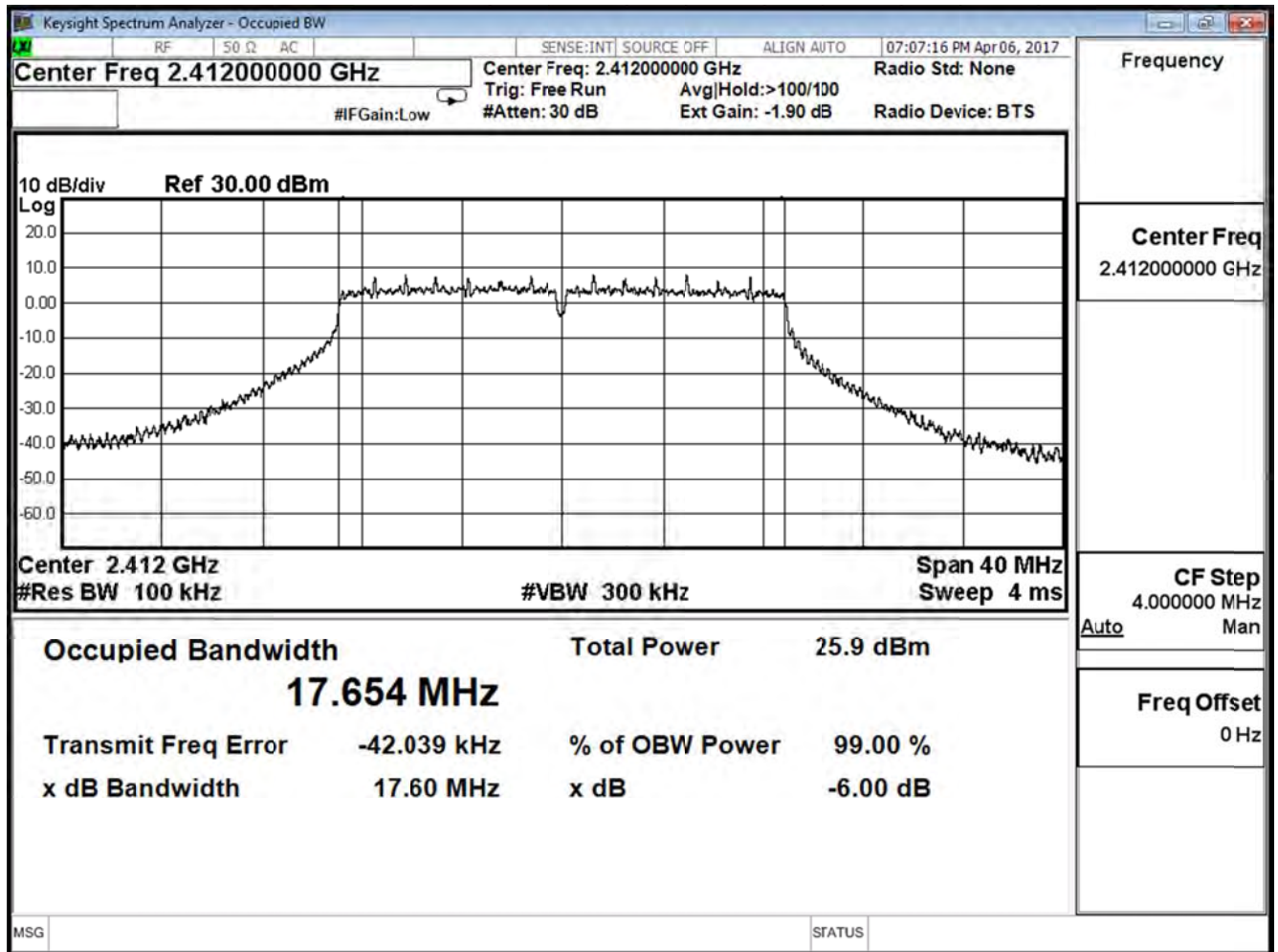


Product	Lyra		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/14	Test Site	SR10-H

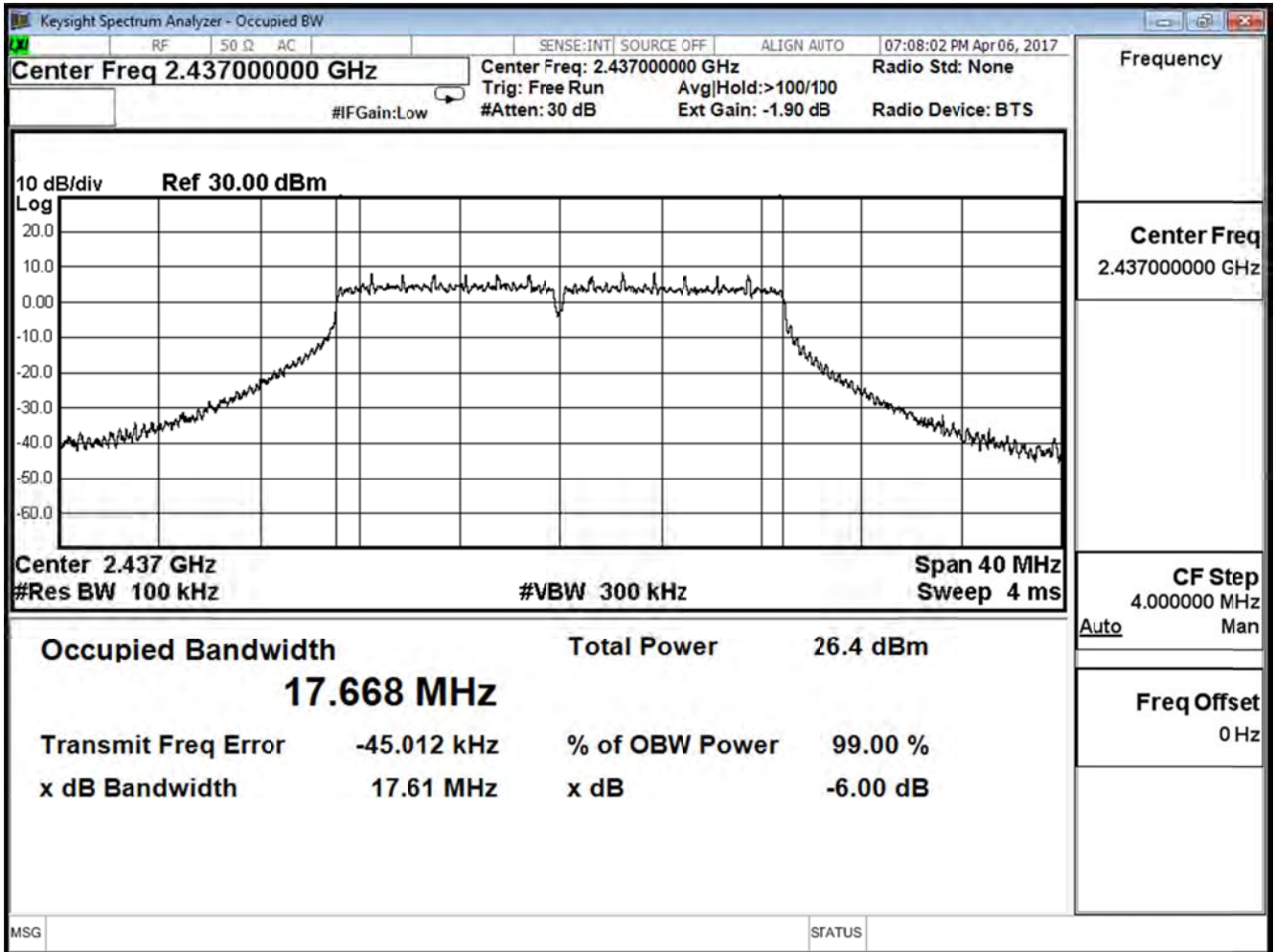
IEEE 802.11n_20M (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	17.60	≥ 0.5	Pass
6	2437	17.61	≥ 0.5	Pass
11	2462	17.60	≥ 0.5	Pass

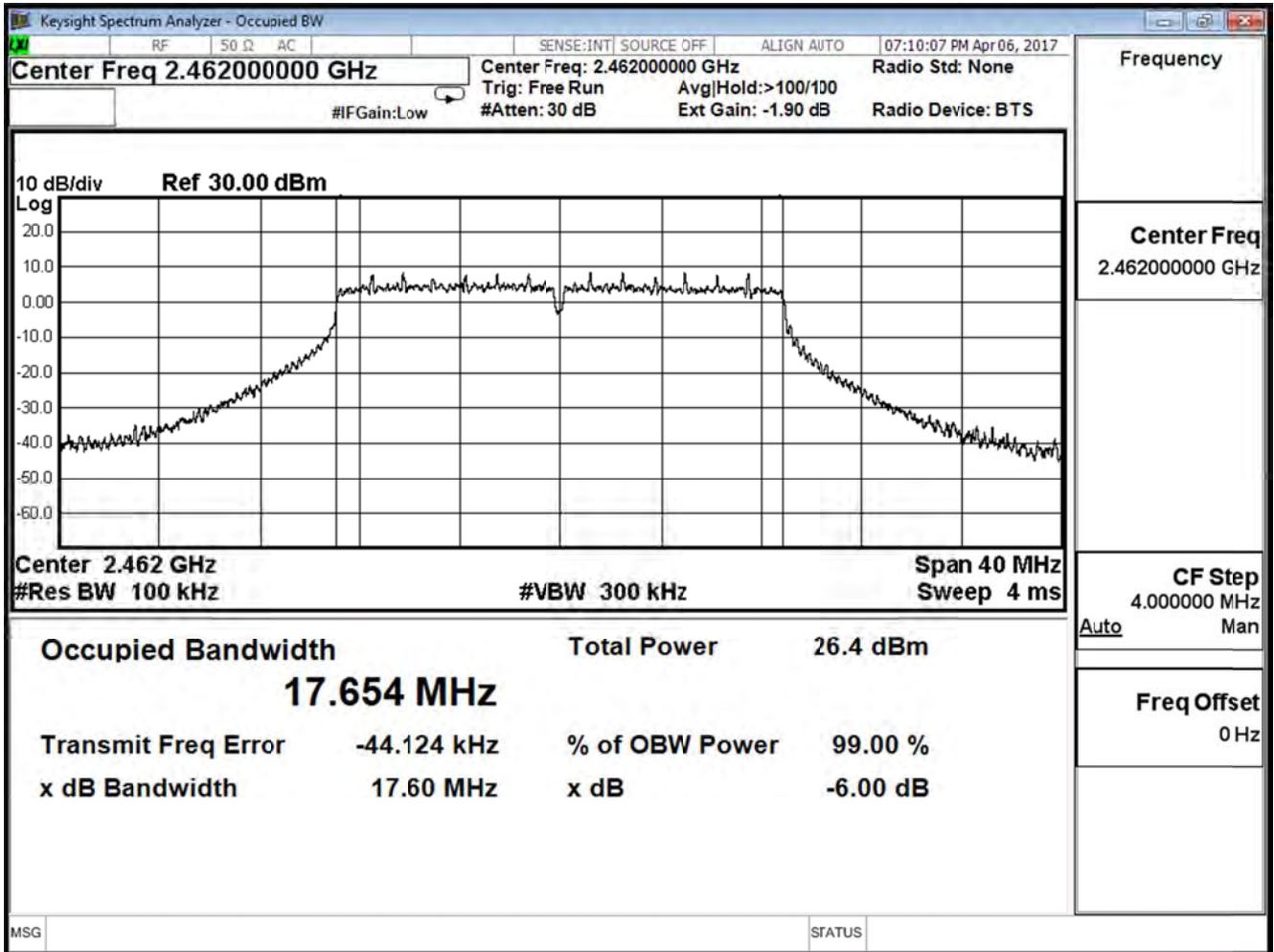
Channel 1



Channel 6



Channel 11

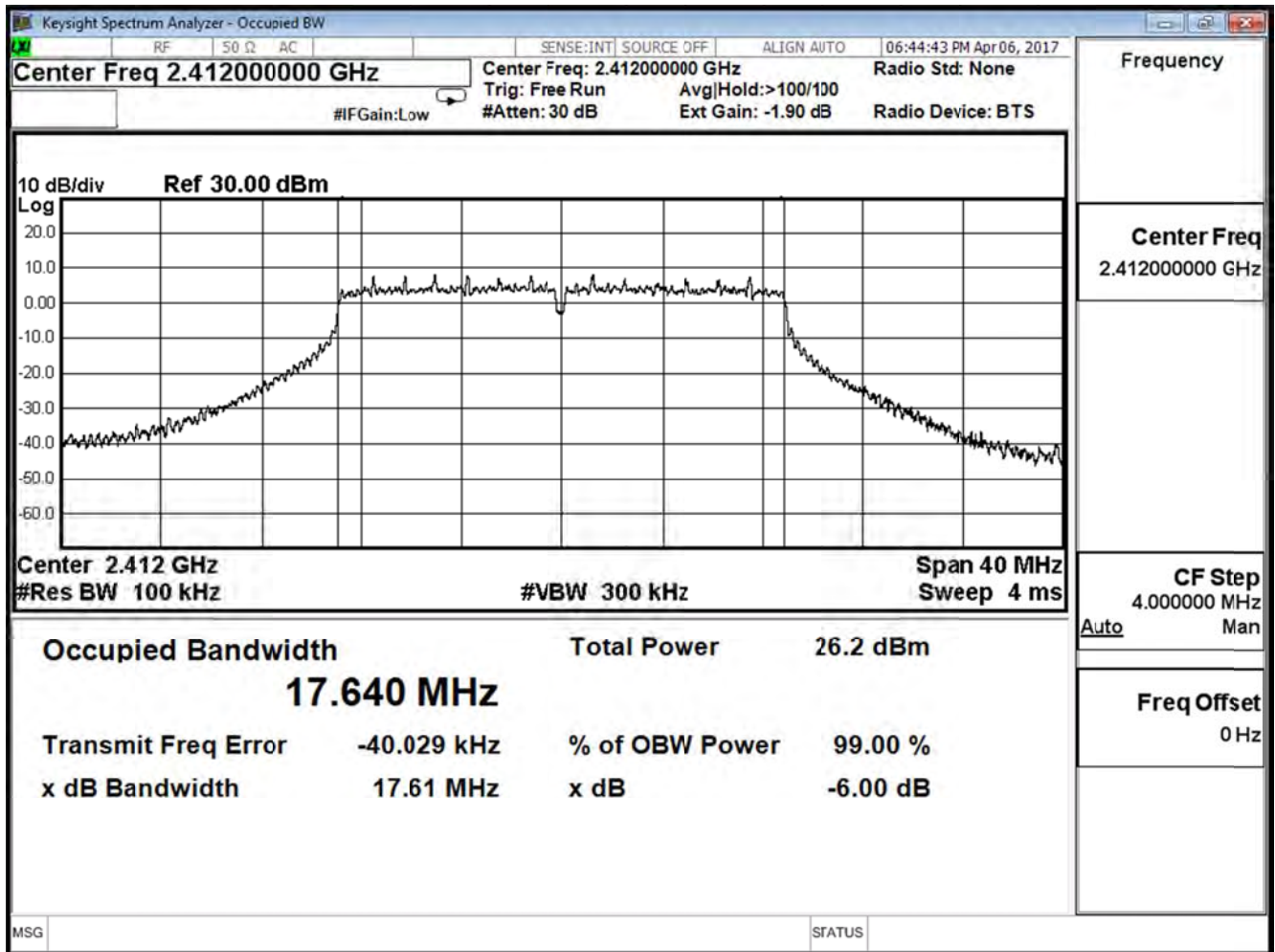


Product	Lyra		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/06	Test Site	SR10-H

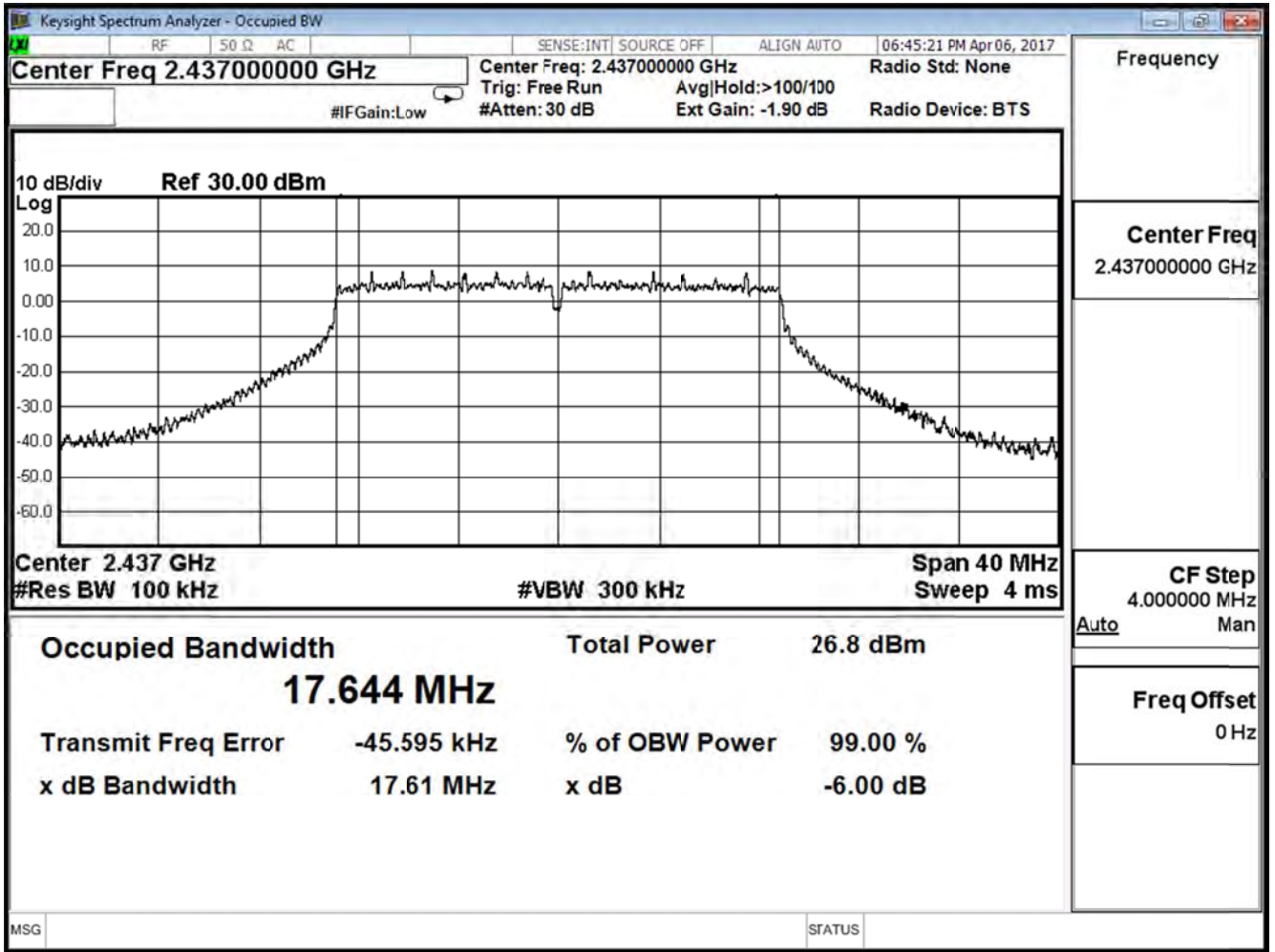
IEEE 802.11n_20M (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	17.61	≥ 0.5	Pass
6	2437	17.61	≥ 0.5	Pass
11	2462	17.60	≥ 0.5	Pass

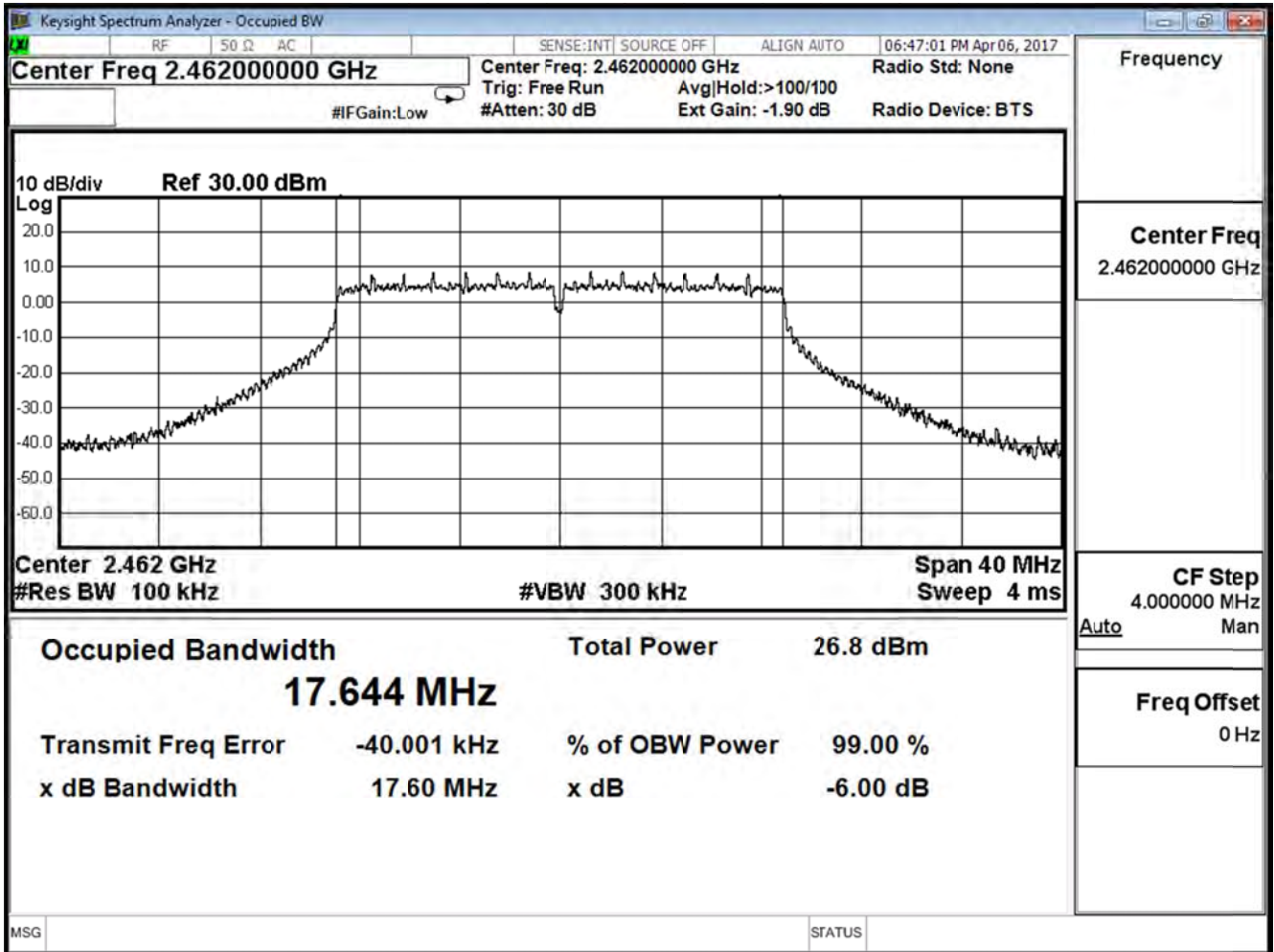
Channel 1



Channel 6



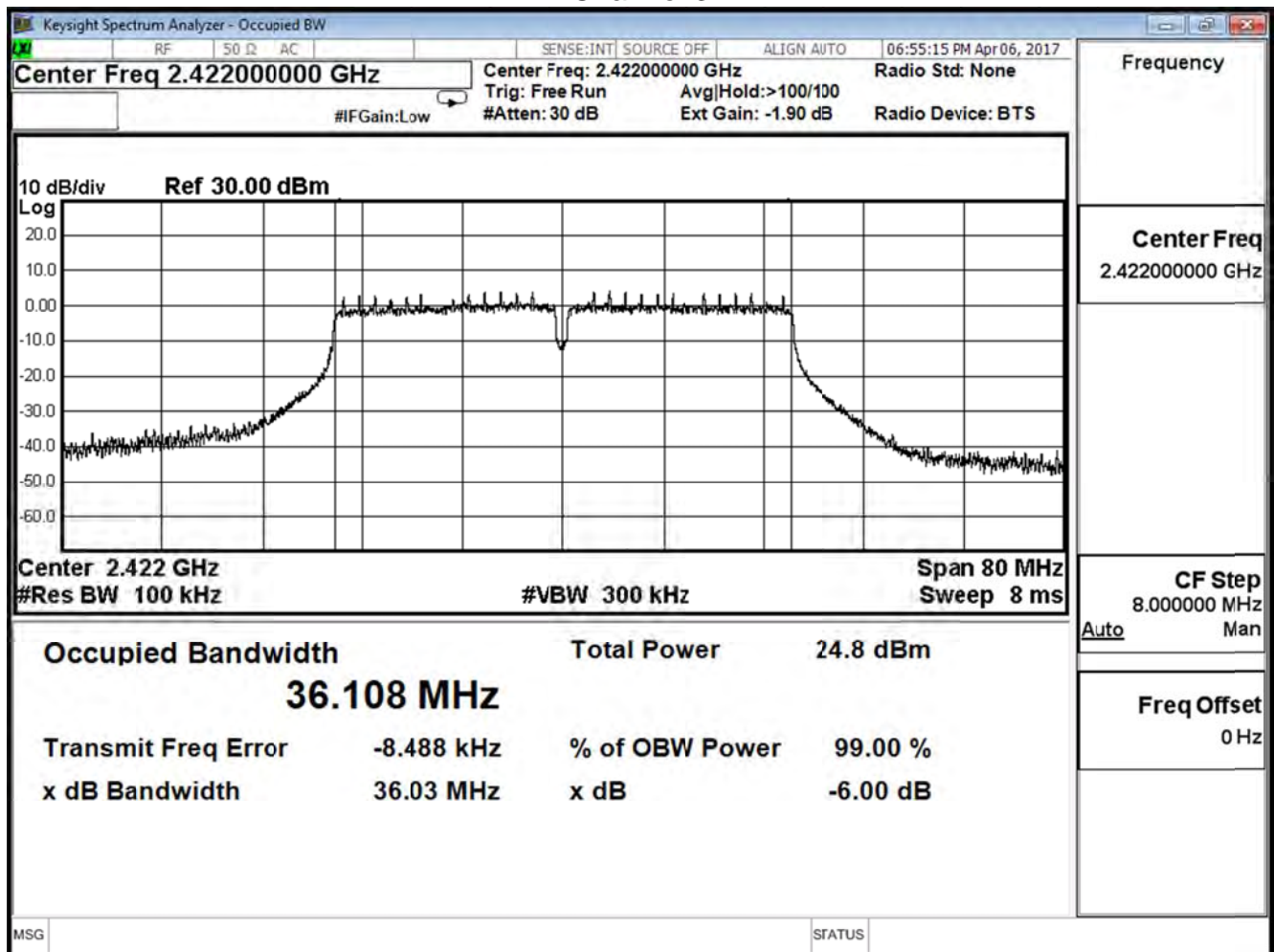
Channel 11



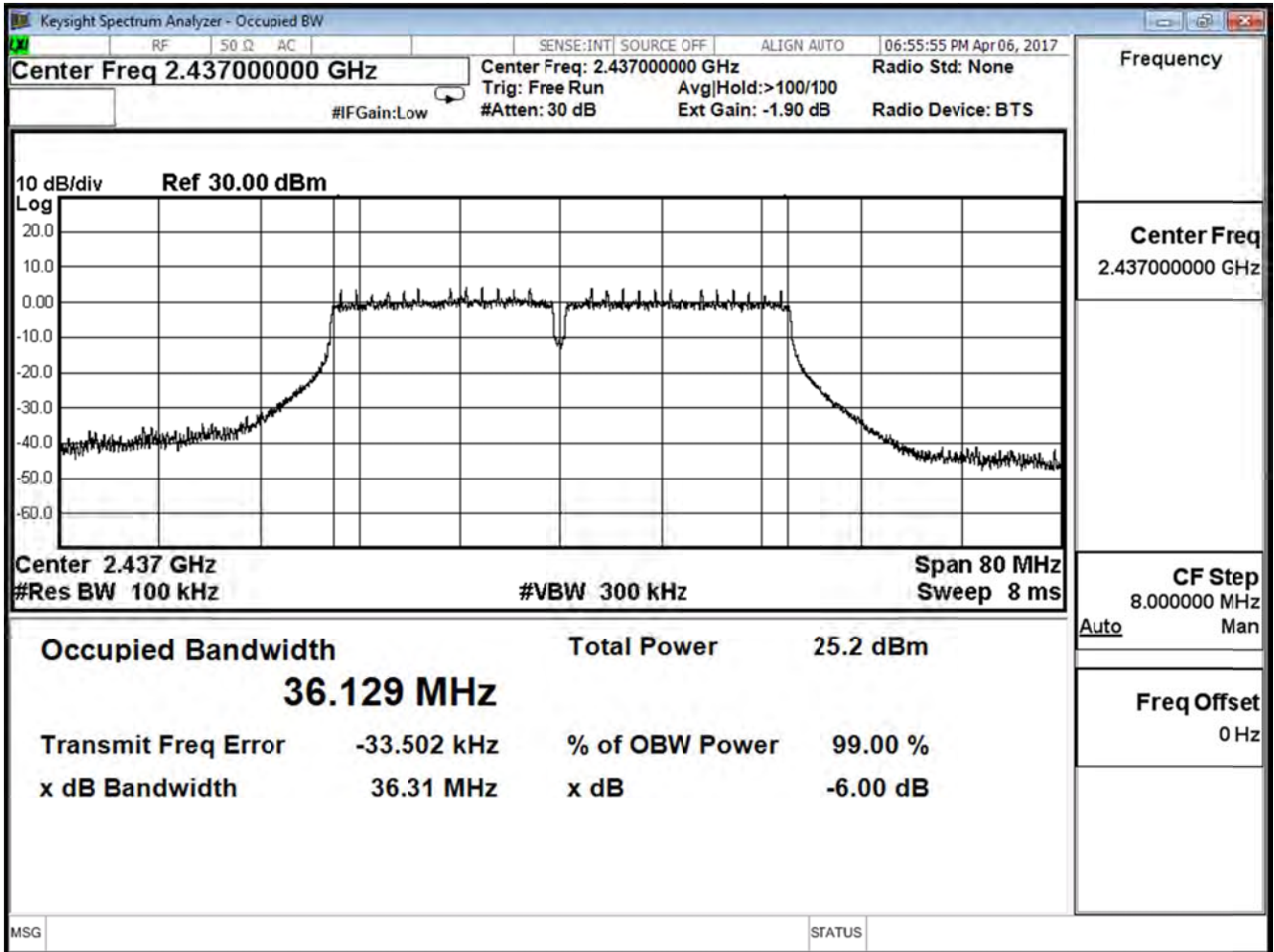
Product	Lyra		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/06	Test Site	SR10-H

IEEE 802.11n_40M (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
3	2422	36.03	≥ 0.5	Pass
6	2437	36.31	≥ 0.5	Pass
9	2452	36.30	≥ 0.5	Pass

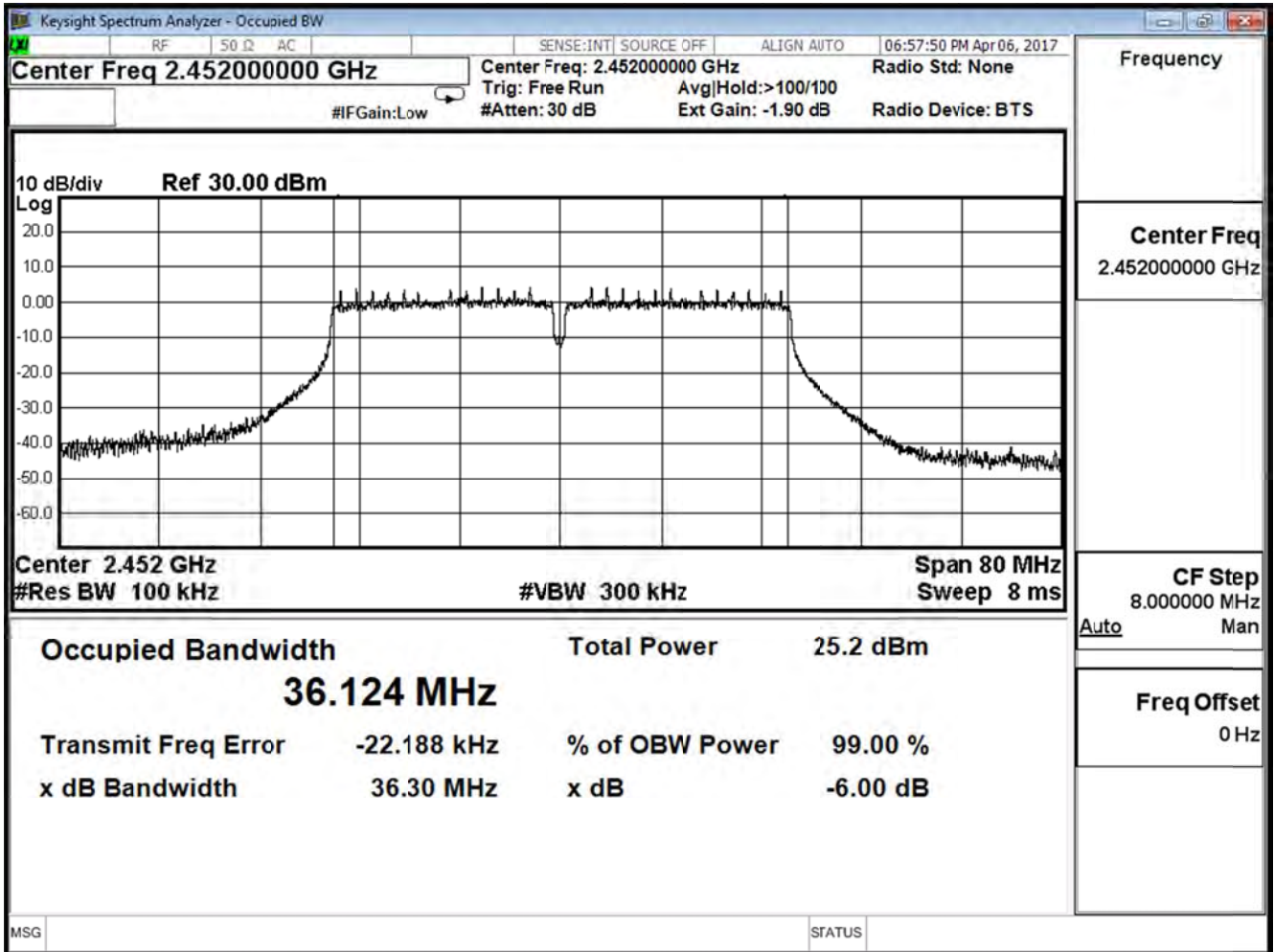
Channel 3



Channel 6



Channel 9

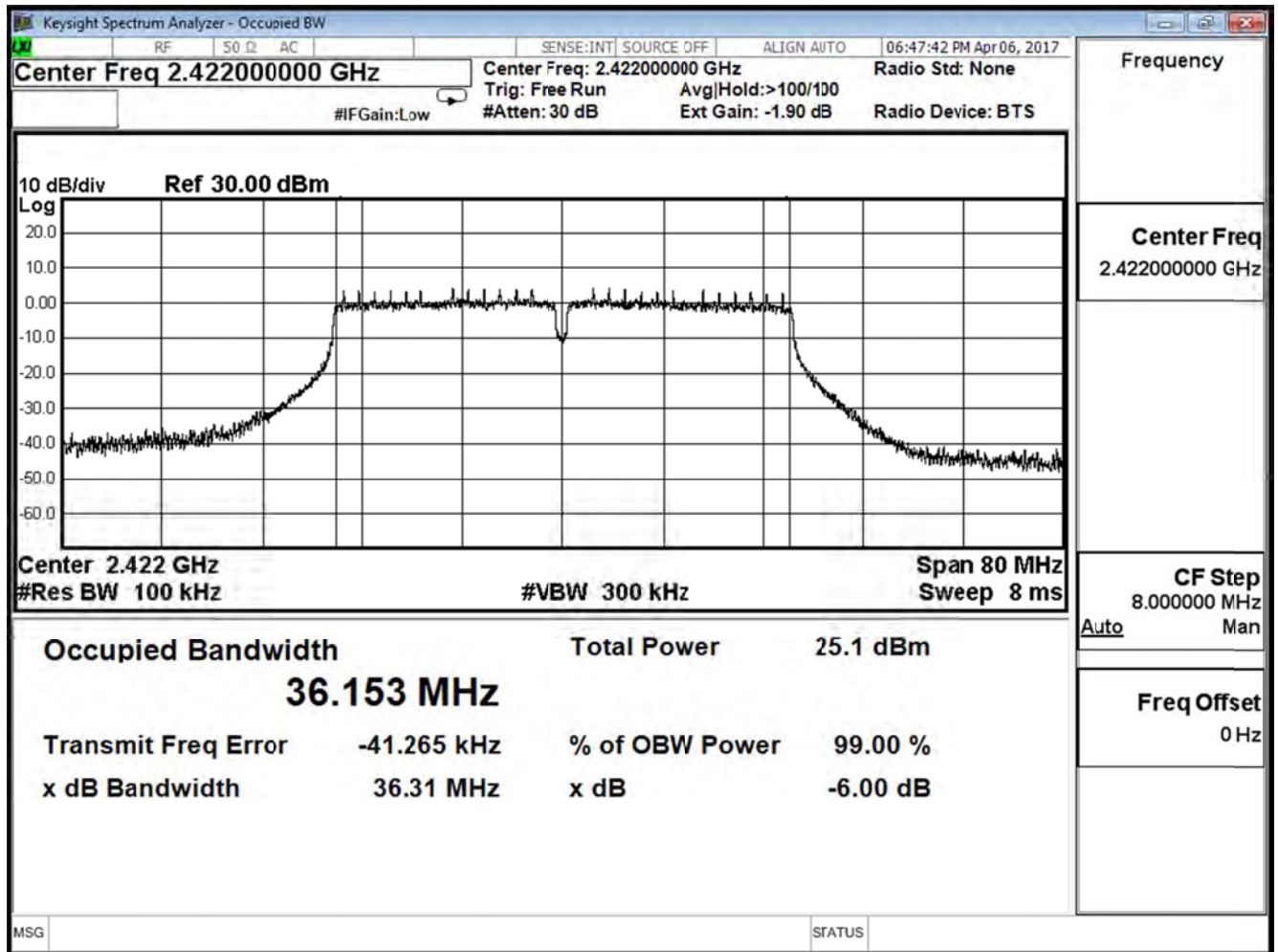


Product	Lyra		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/06	Test Site	SR10-H

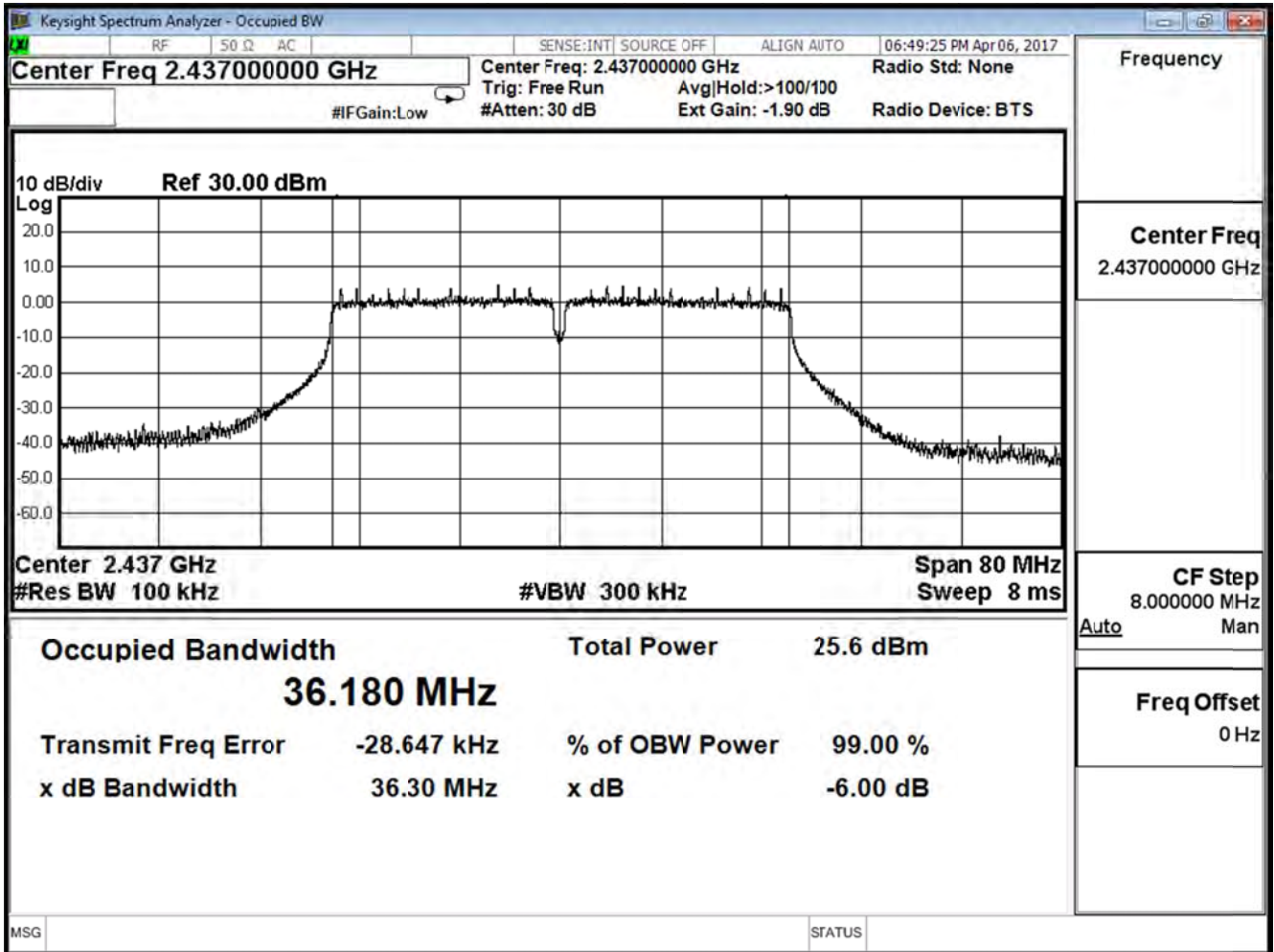
IEEE 802.11n_40M (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
3	2422	36.31	≥ 0.5	Pass
6	2437	36.30	≥ 0.5	Pass
9	2452	36.31	≥ 0.5	Pass

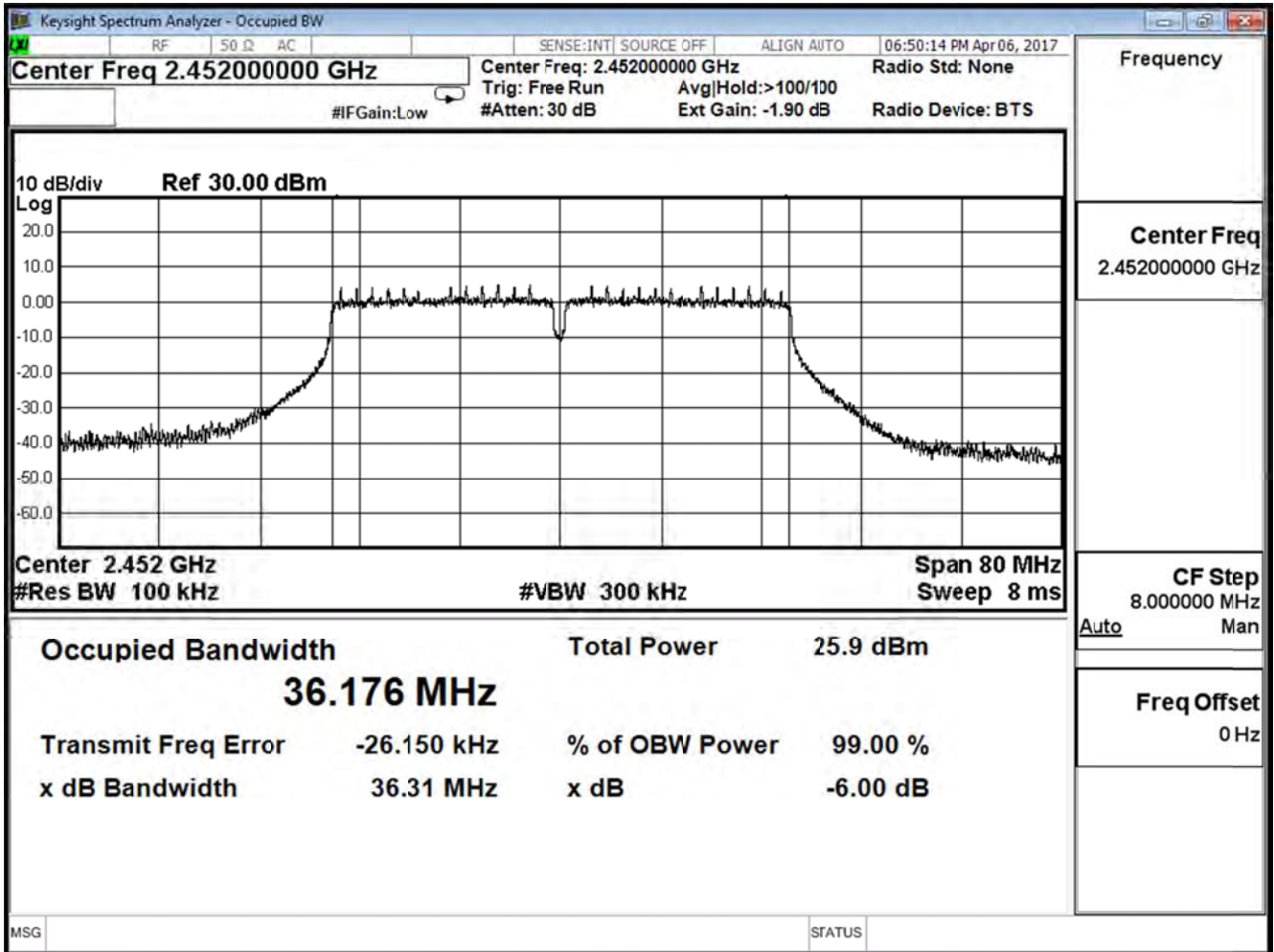
Channel 3



Channel 6



Channel 9



8. Occupied Bandwidth

8.1. Test Equipment

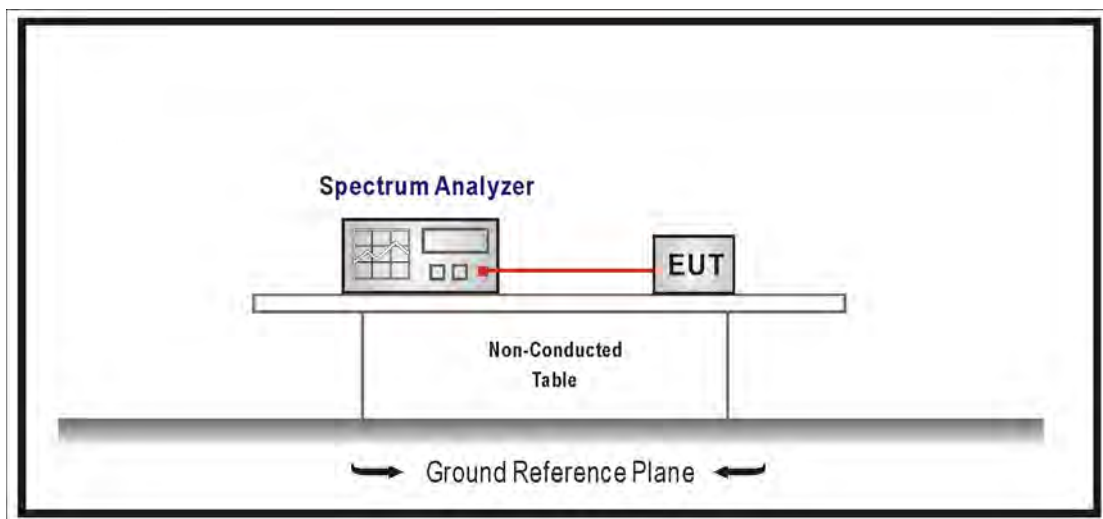
The following test equipments are used during the test:

Occupied Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/12

Note: All equipments that need to calibrate are with calibration period of 1 year.

8.2. Test Setup



8.3. Test Procedures

The EUT was setup according to ANSI C63.10:2013; tested according to DTS test procedure of KDB558074 v03r05 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 1-5% of the OBW, Set the VBW \geq 3xRBW, Sweep Time=Auto.

8.4. Limits

NA

8.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2015

8.6. Uncertainty

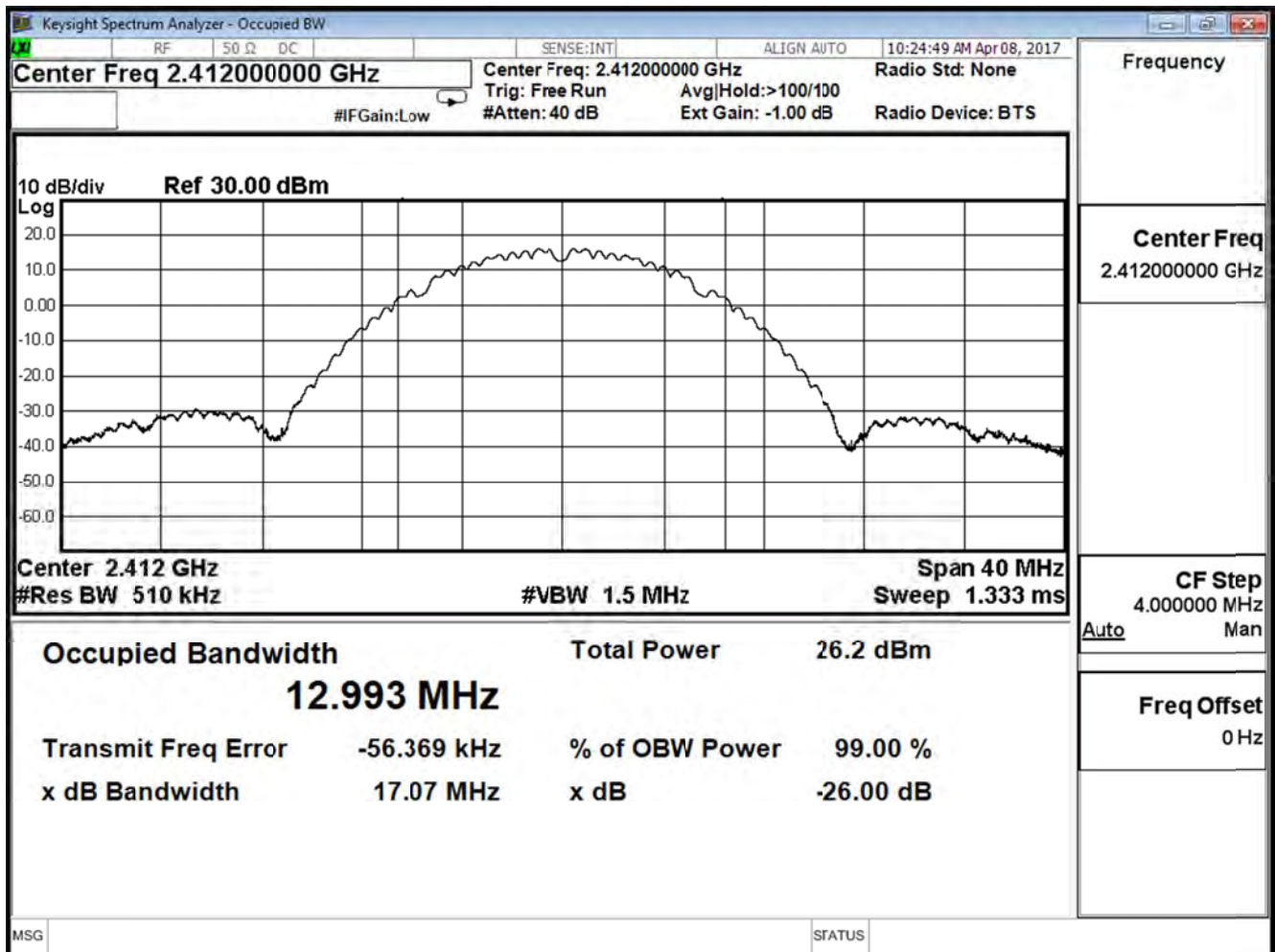
The measurement uncertainty is defined as $\pm 150\text{Hz}$

8.7. Test Result

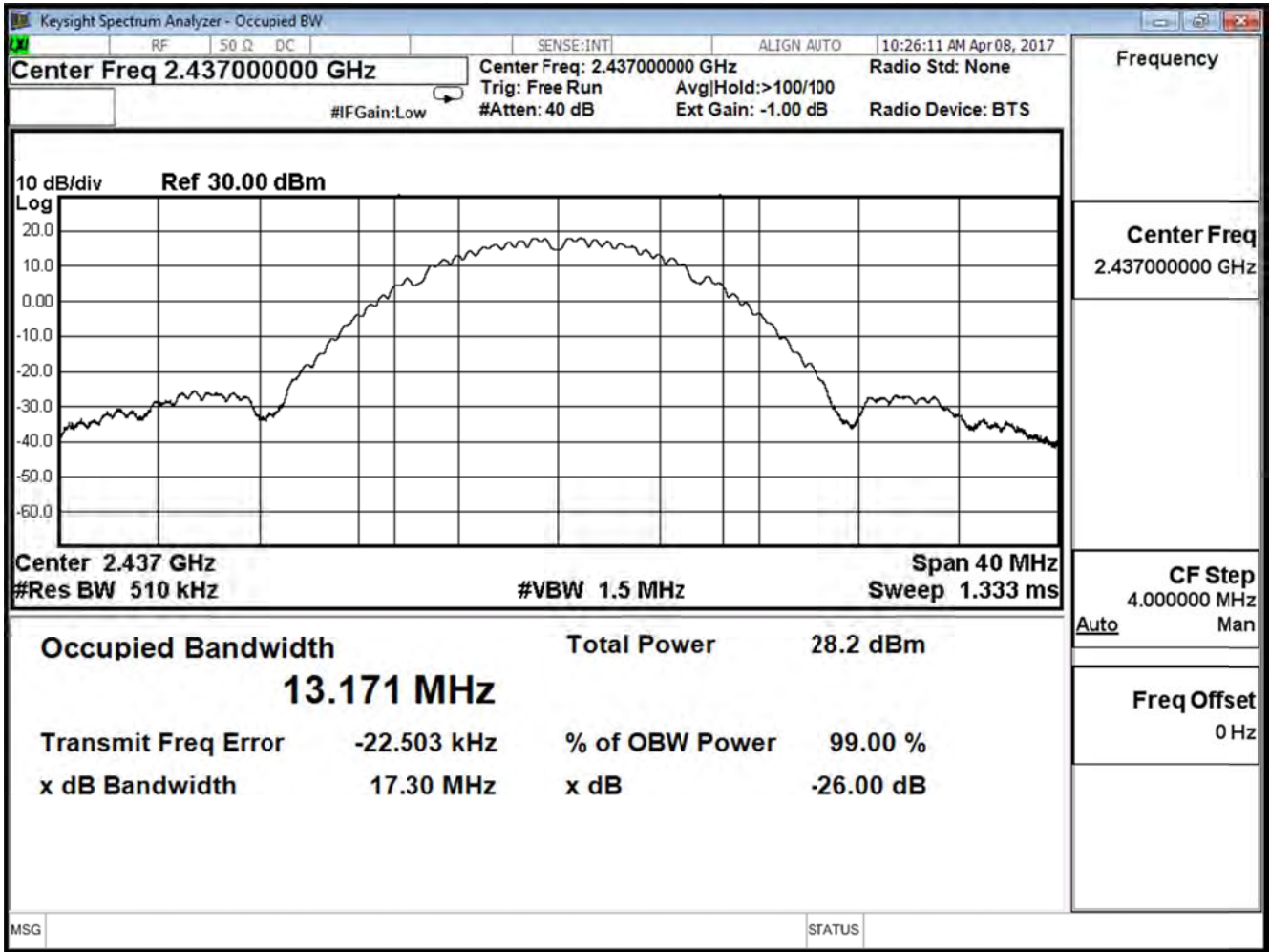
Product	Lyra		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

802.11 b (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	12.993	--	Pass
6	2437	13.171	--	Pass
11	2462	13.099	--	Pass

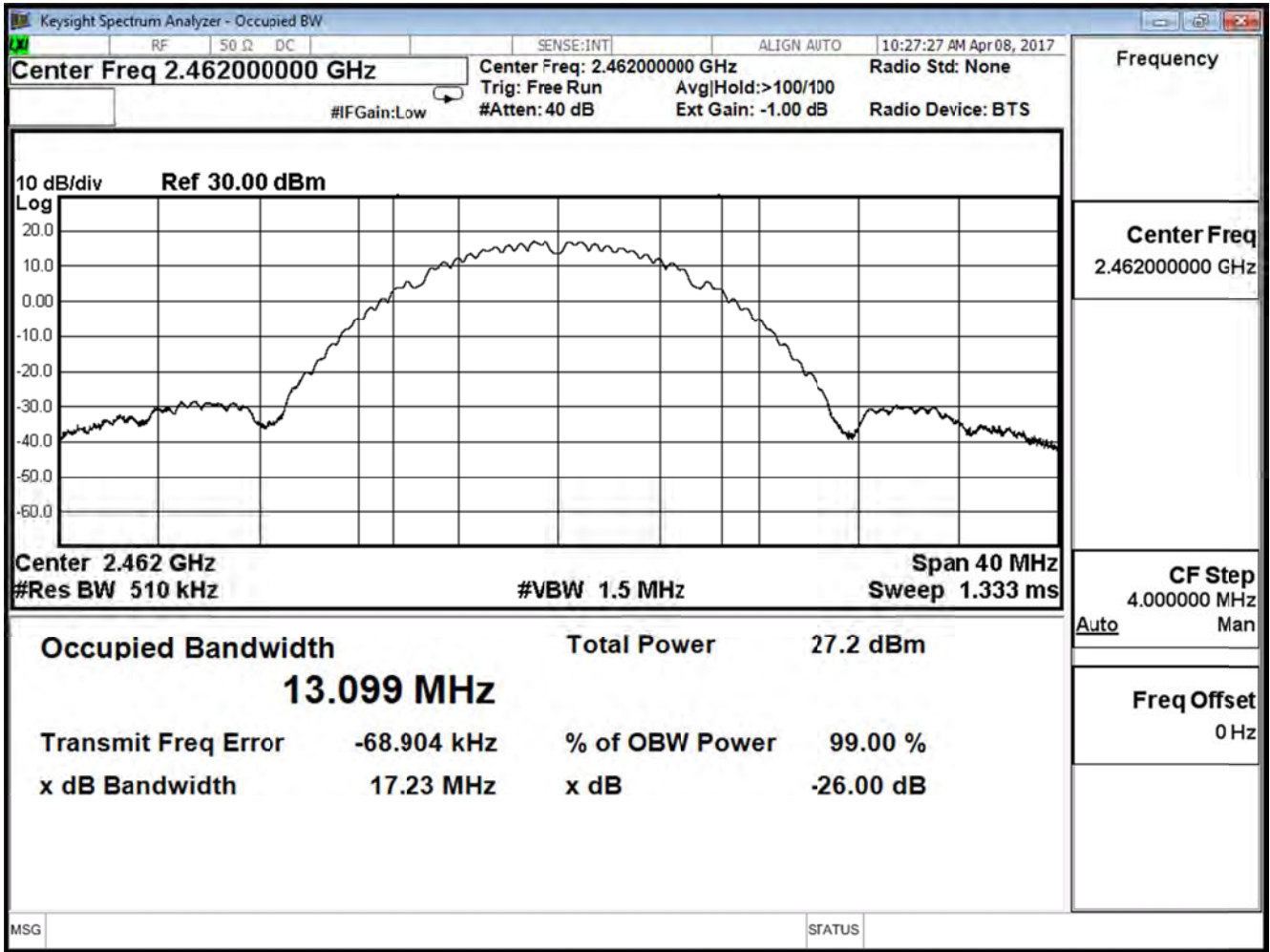
Channel 1



Channel 6



Channel 11

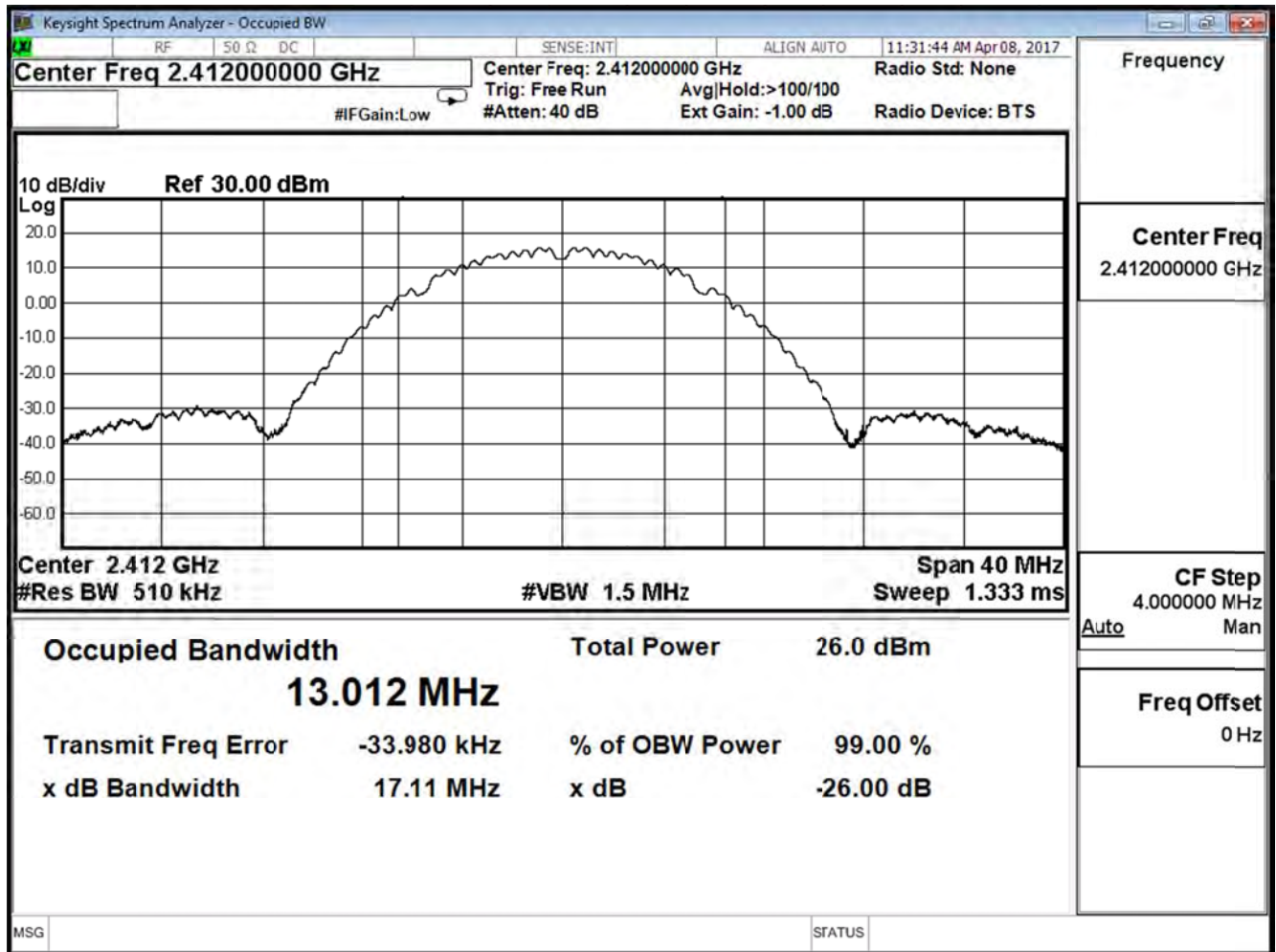


Product	Lyra		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

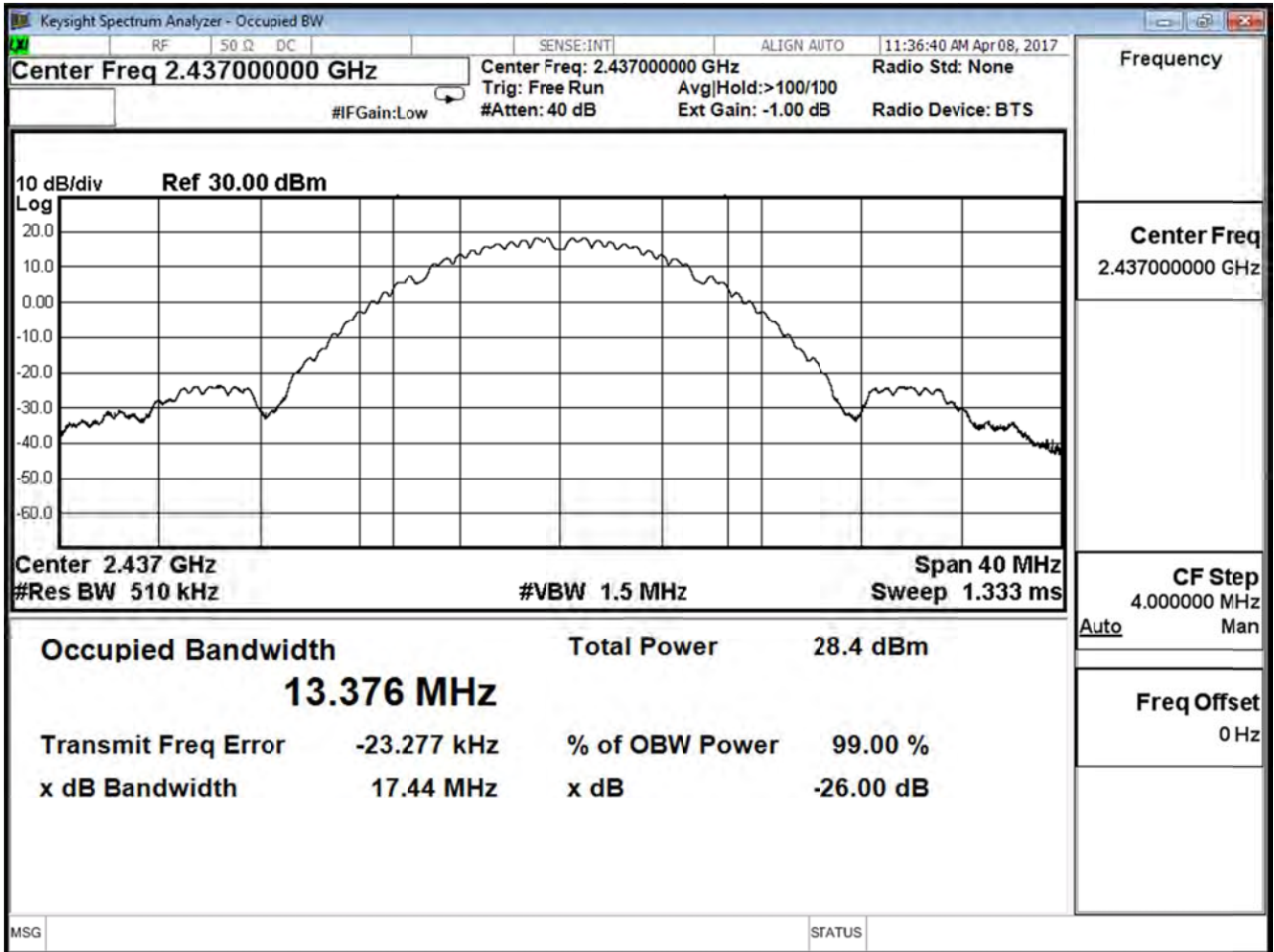
802.11 b (ANT 1)

Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	13.012	--	Pass
6	2437	13.376	--	Pass
11	2462	13.140	--	Pass

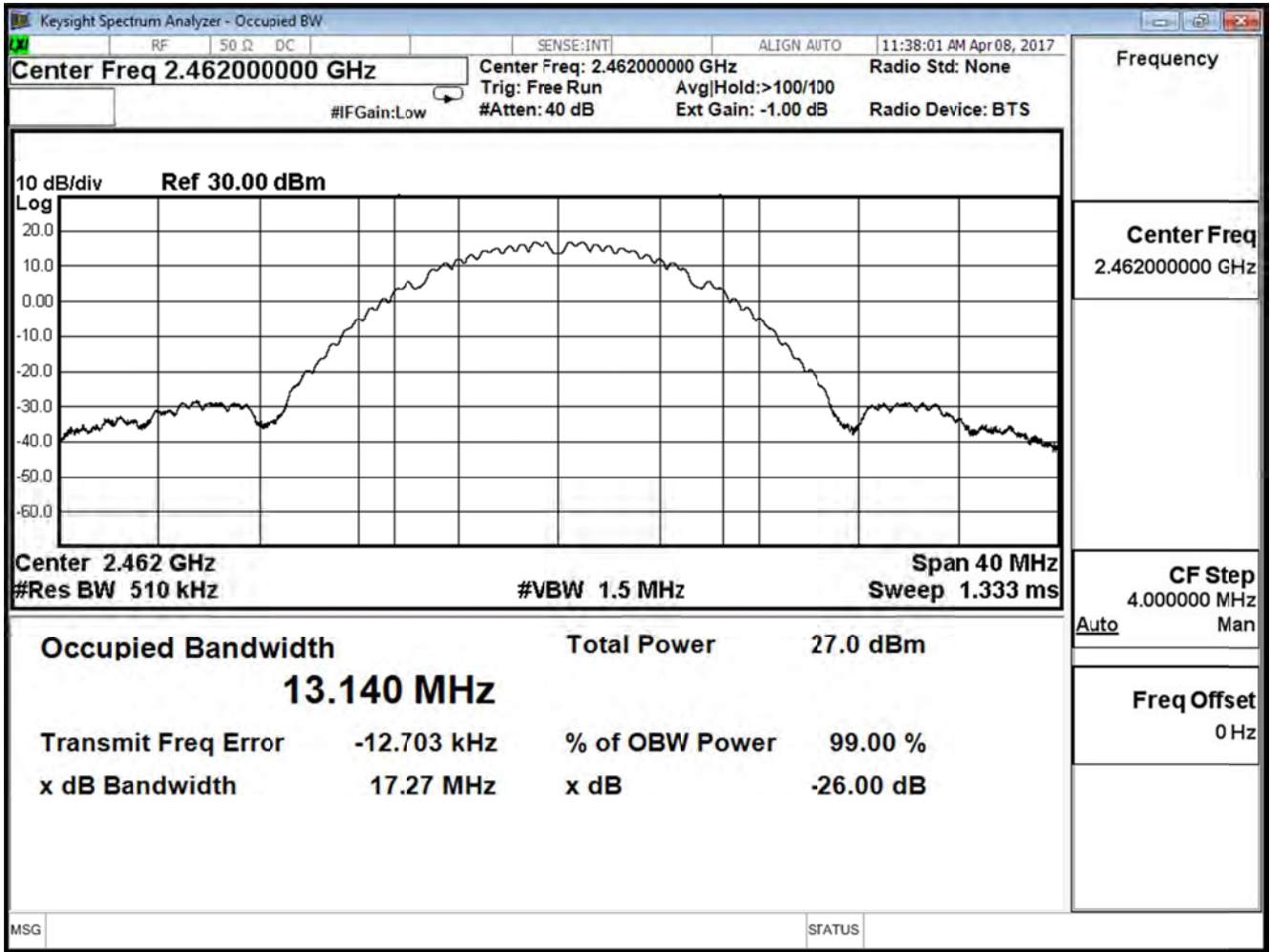
Channel 1



Channel 6



Channel 11

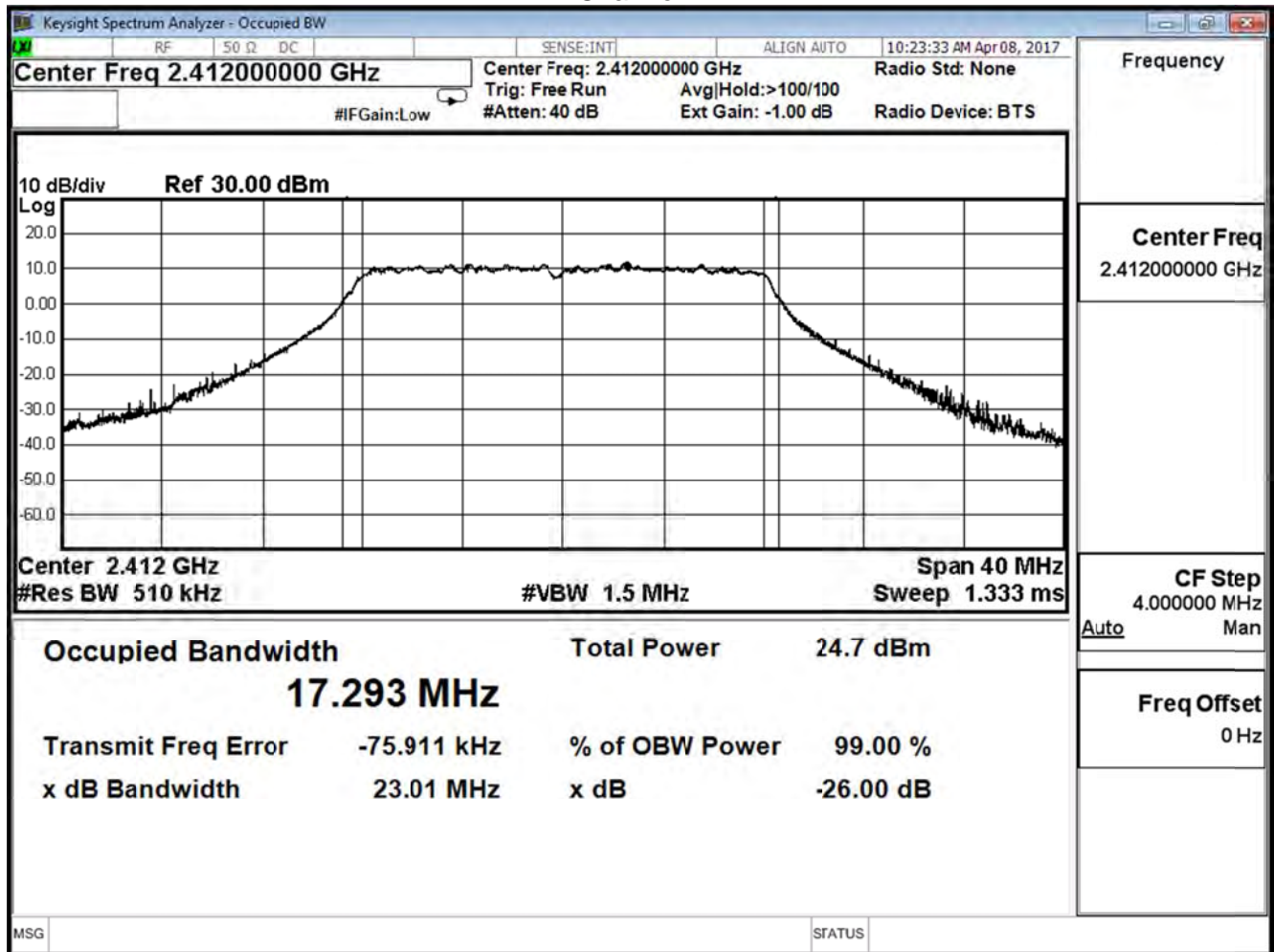


Product	Lyra		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

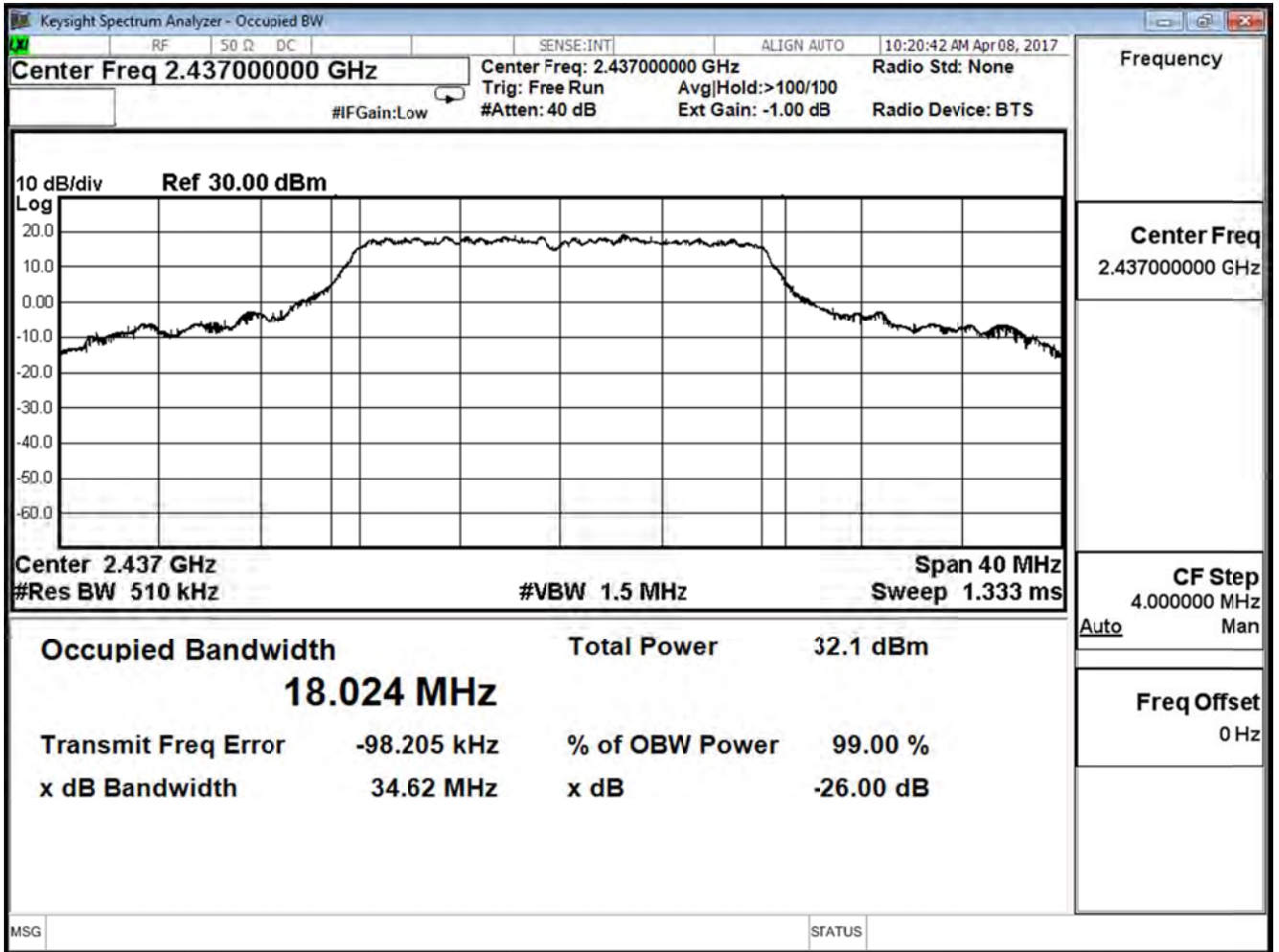
802.11 g (ANT 0)

Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	17.293	--	Pass
6	2437	18.024	--	Pass
11	2462	17.307	--	Pass

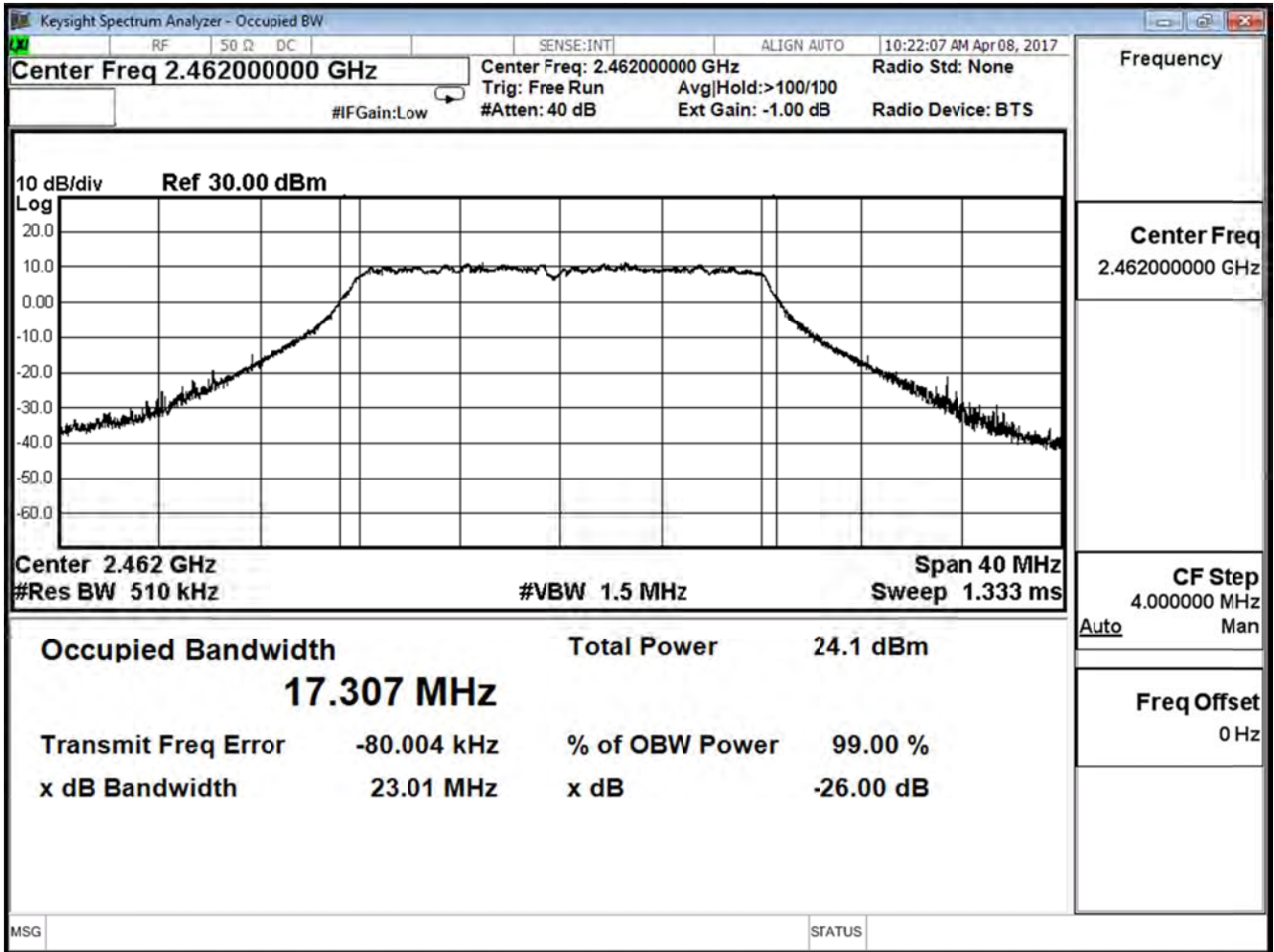
Channel 1



Channel 6



Channel 11

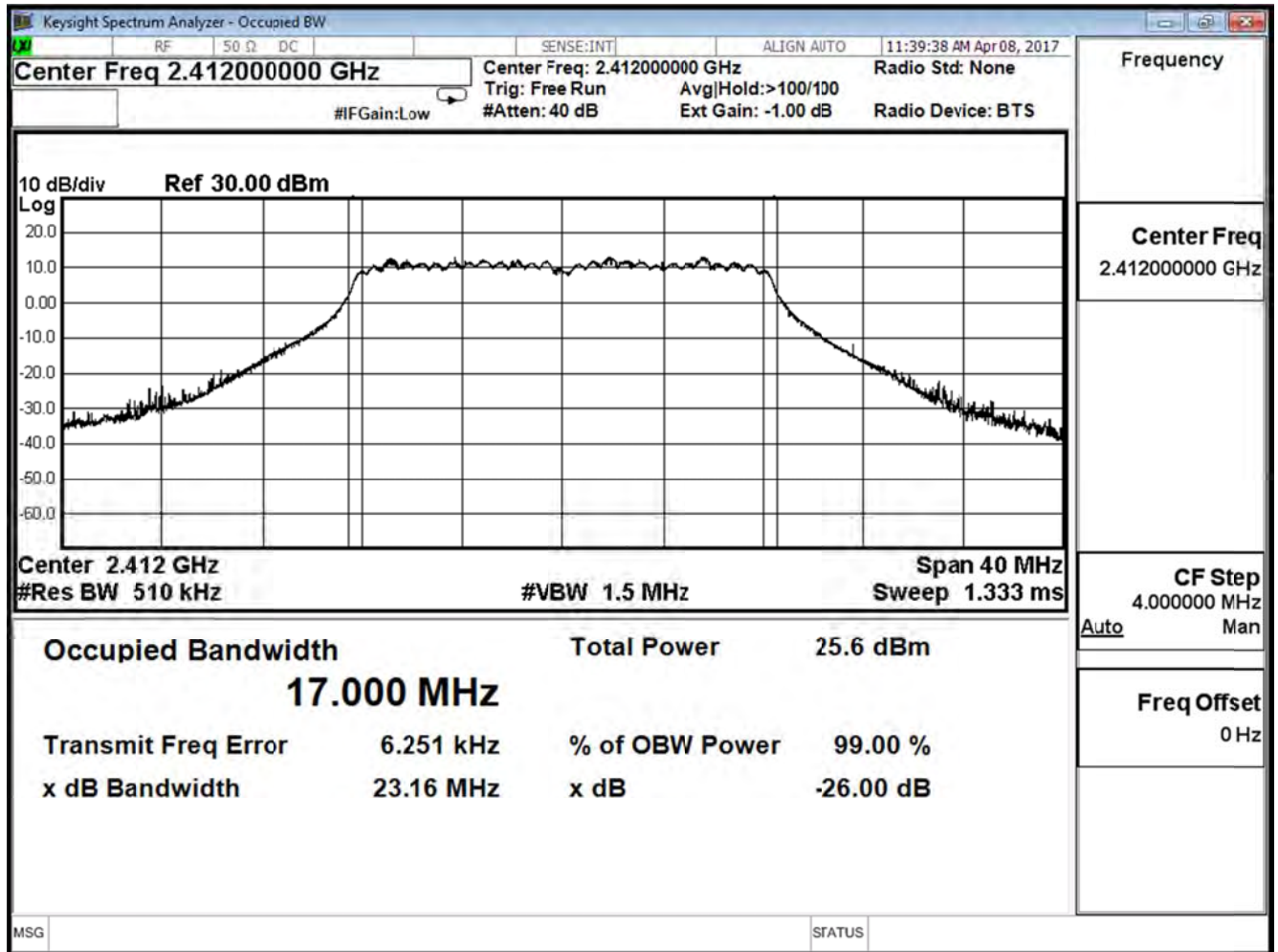


Product	Lyra		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

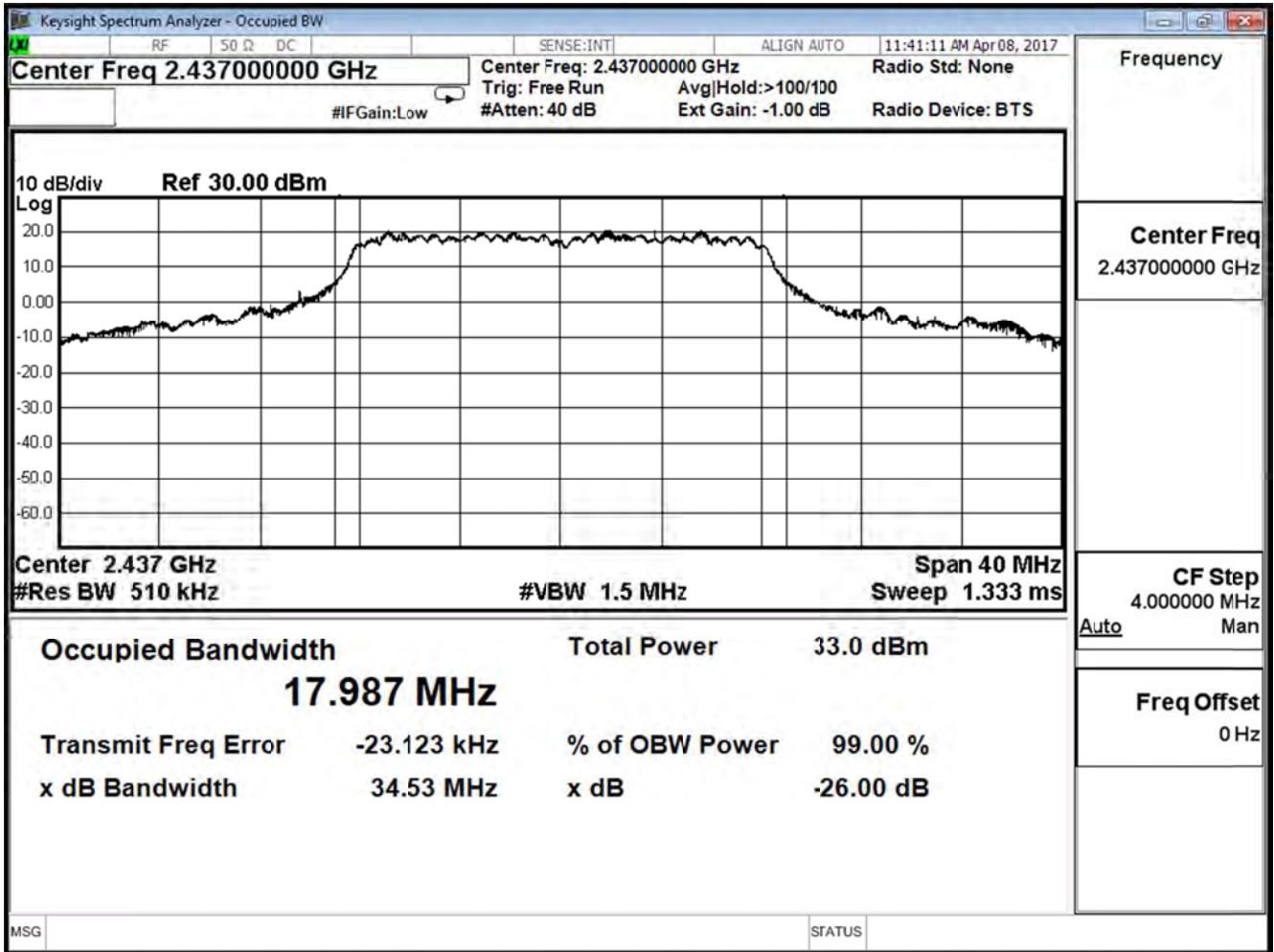
802.11 g (ANT 1)

Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	17.000	--	Pass
6	2437	17.987	--	Pass
11	2462	17.012	--	Pass

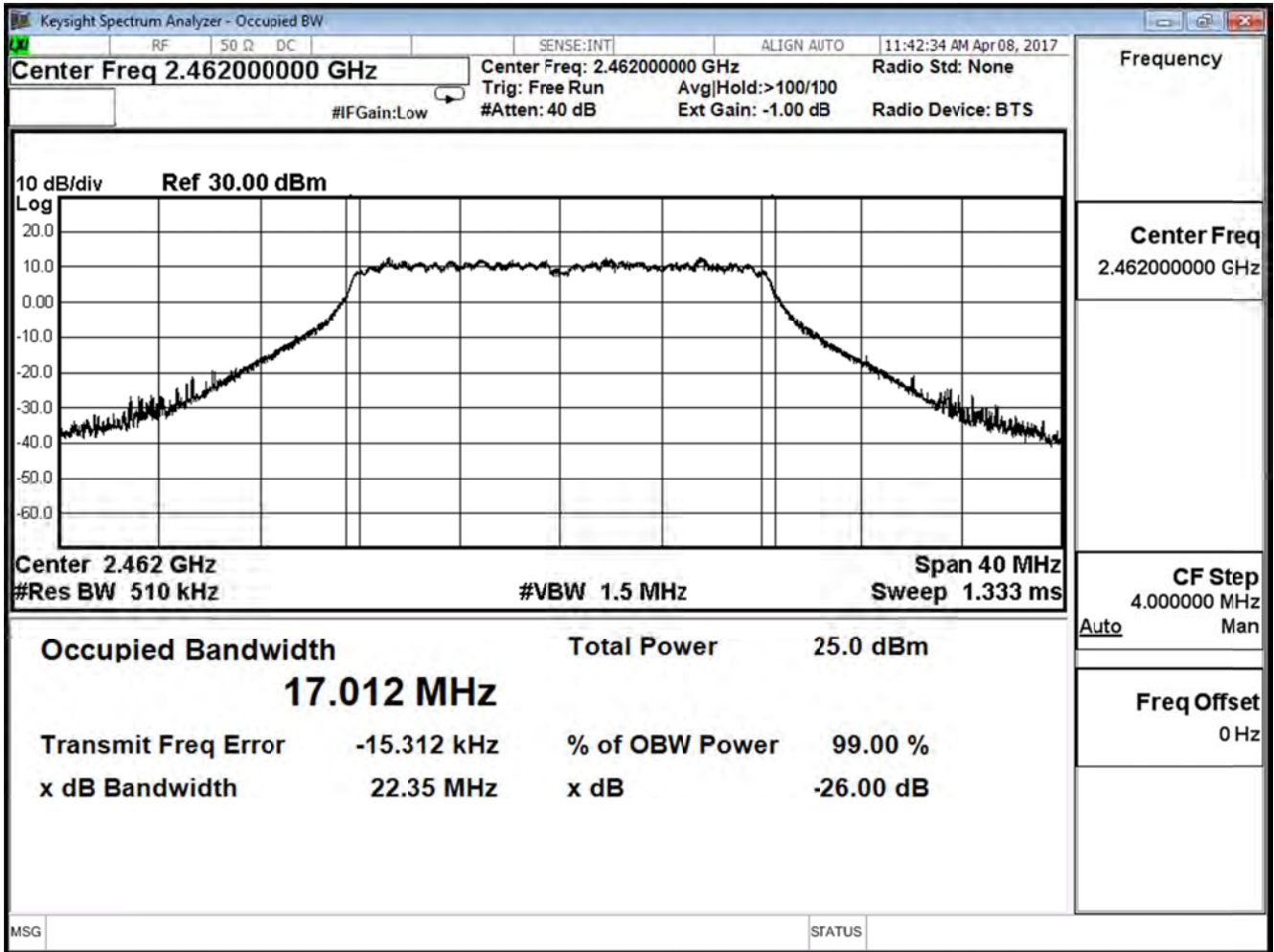
Channel 1



Channel 6



Channel 11

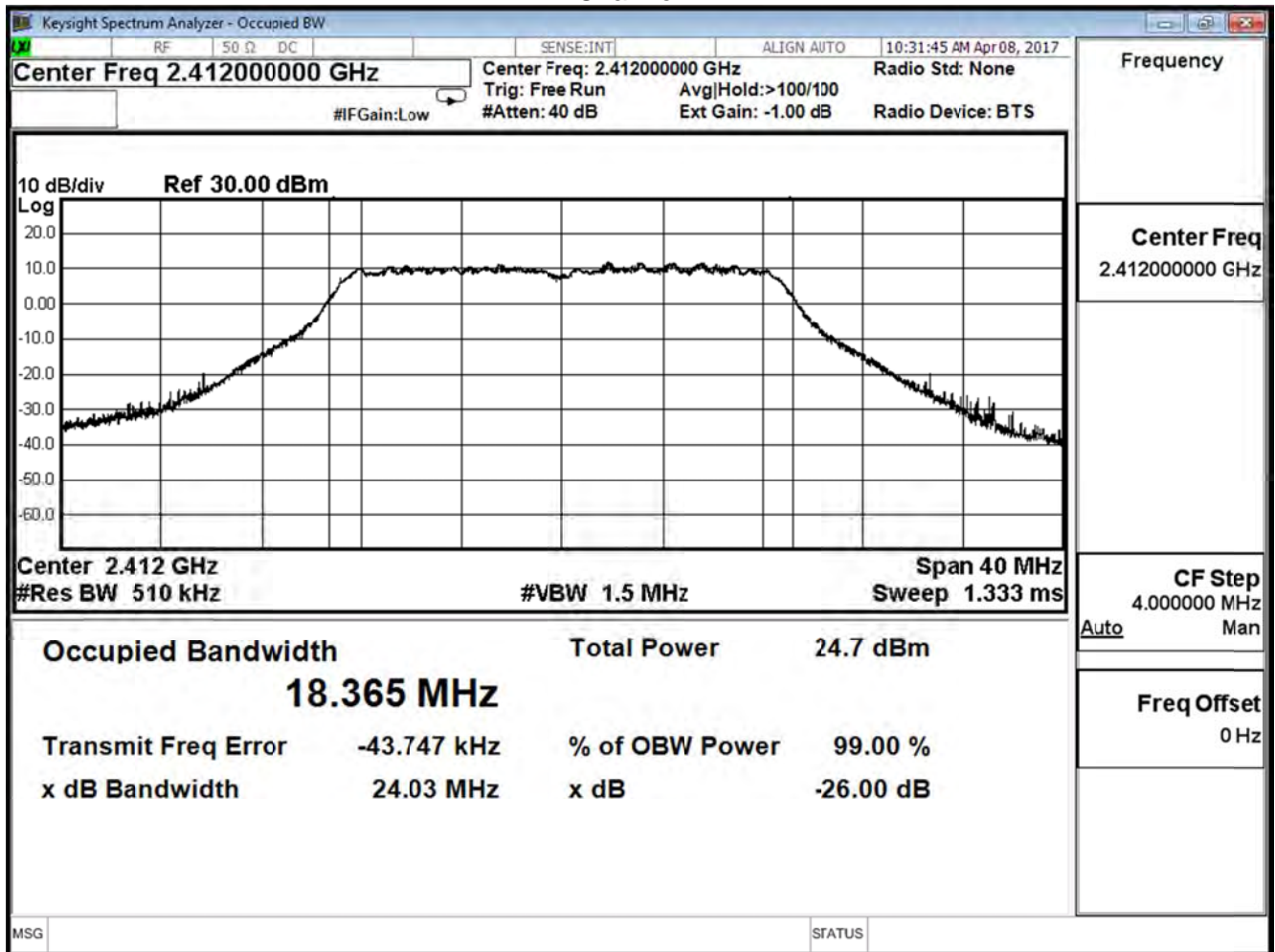


Product	Lyra		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

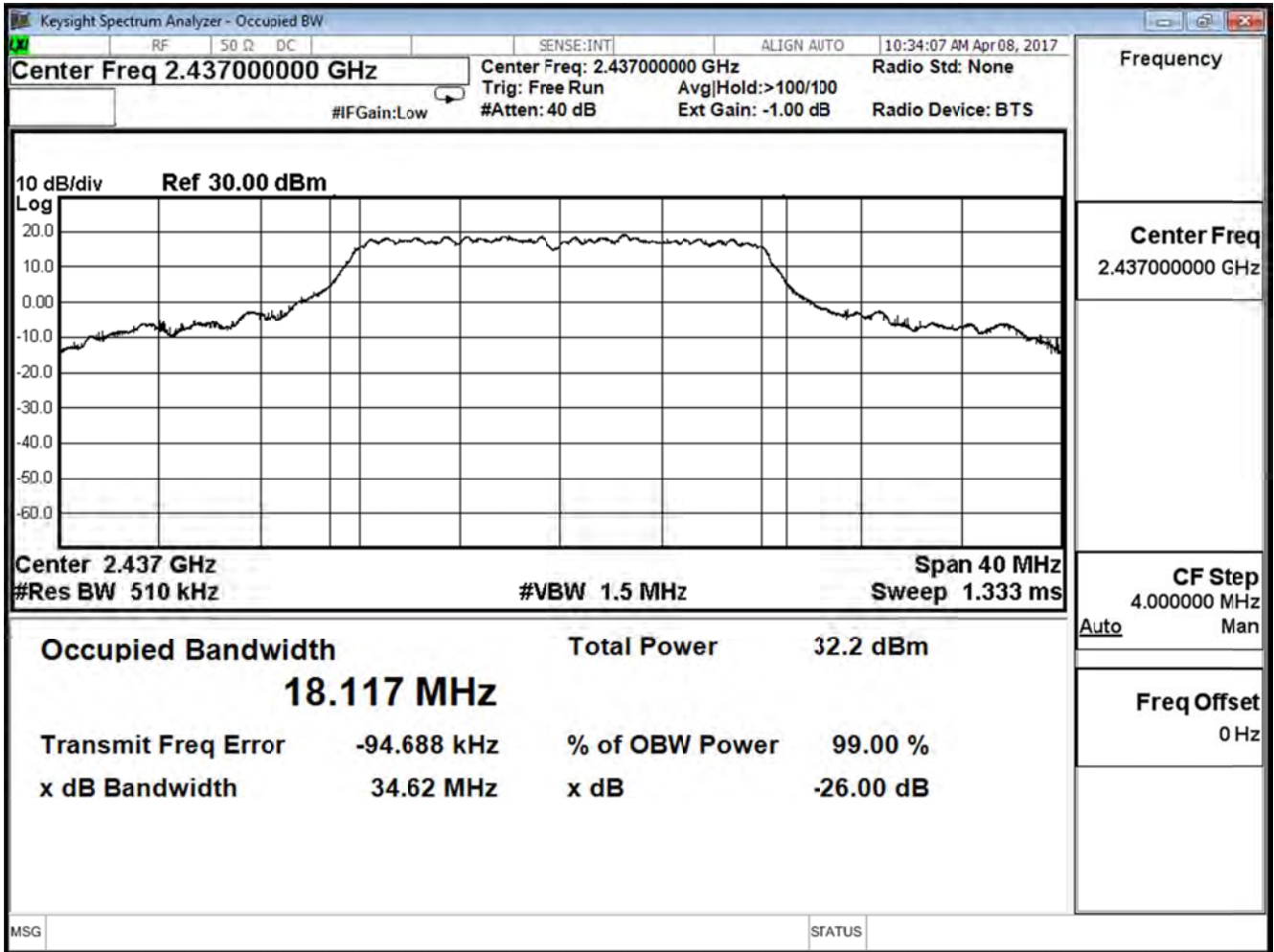
IEEE802.11n 20MHz (ANT 0)

Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	18.365	--	Pass
6	2437	18.117	--	Pass
11	2462	18.374	--	Pass

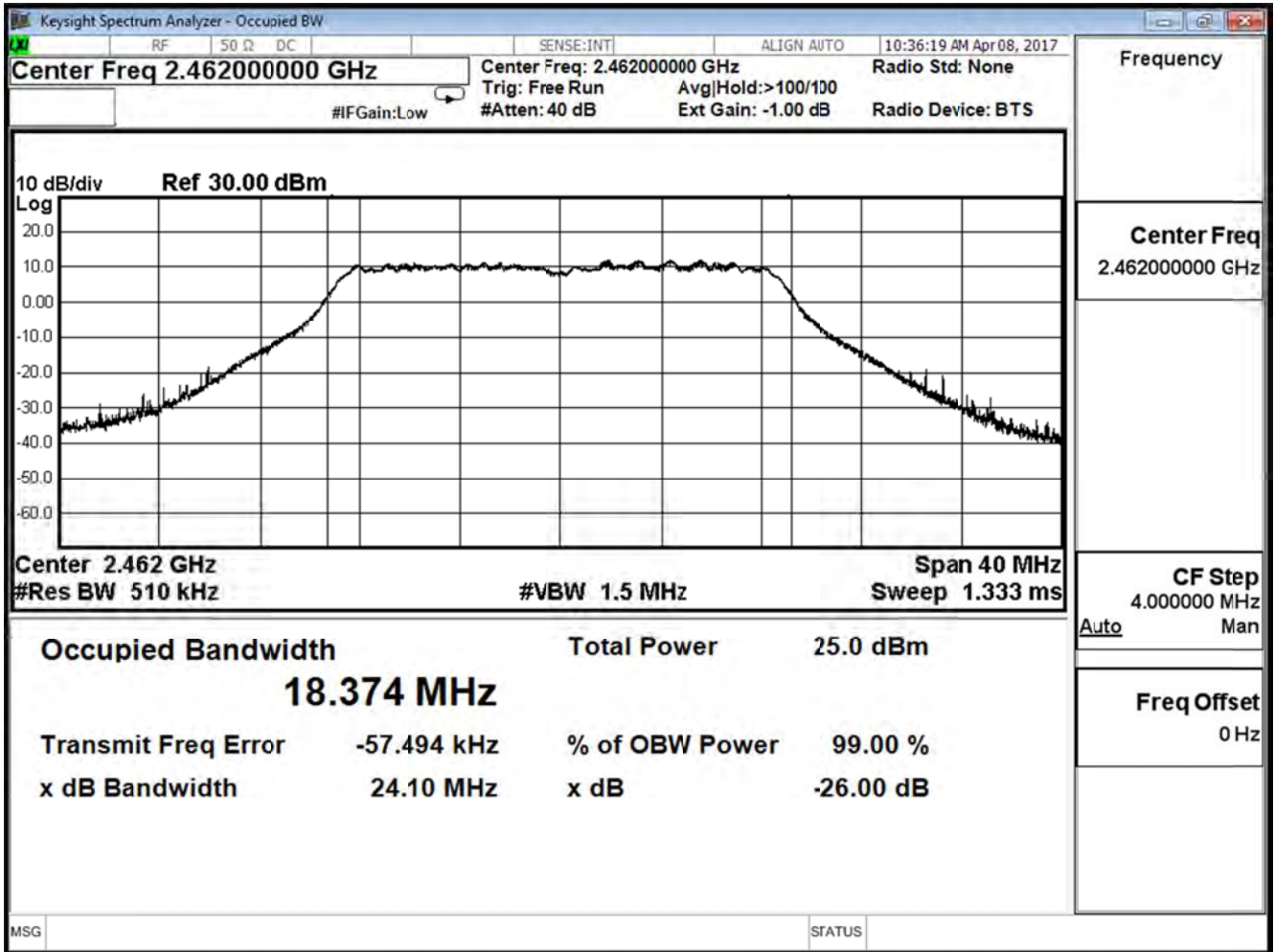
Channel 1



Channel 6



Channel 11

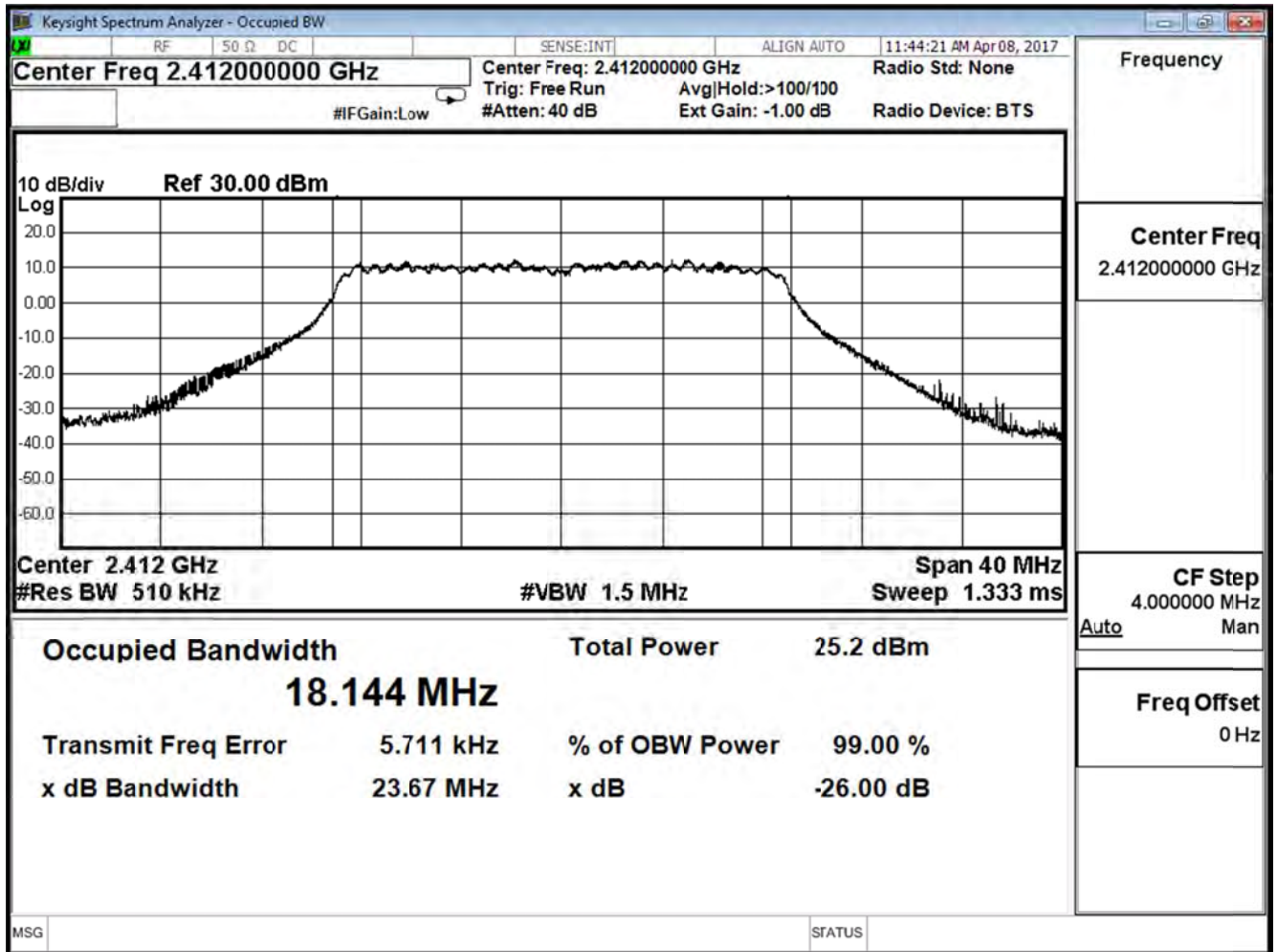


Product	Lyra		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

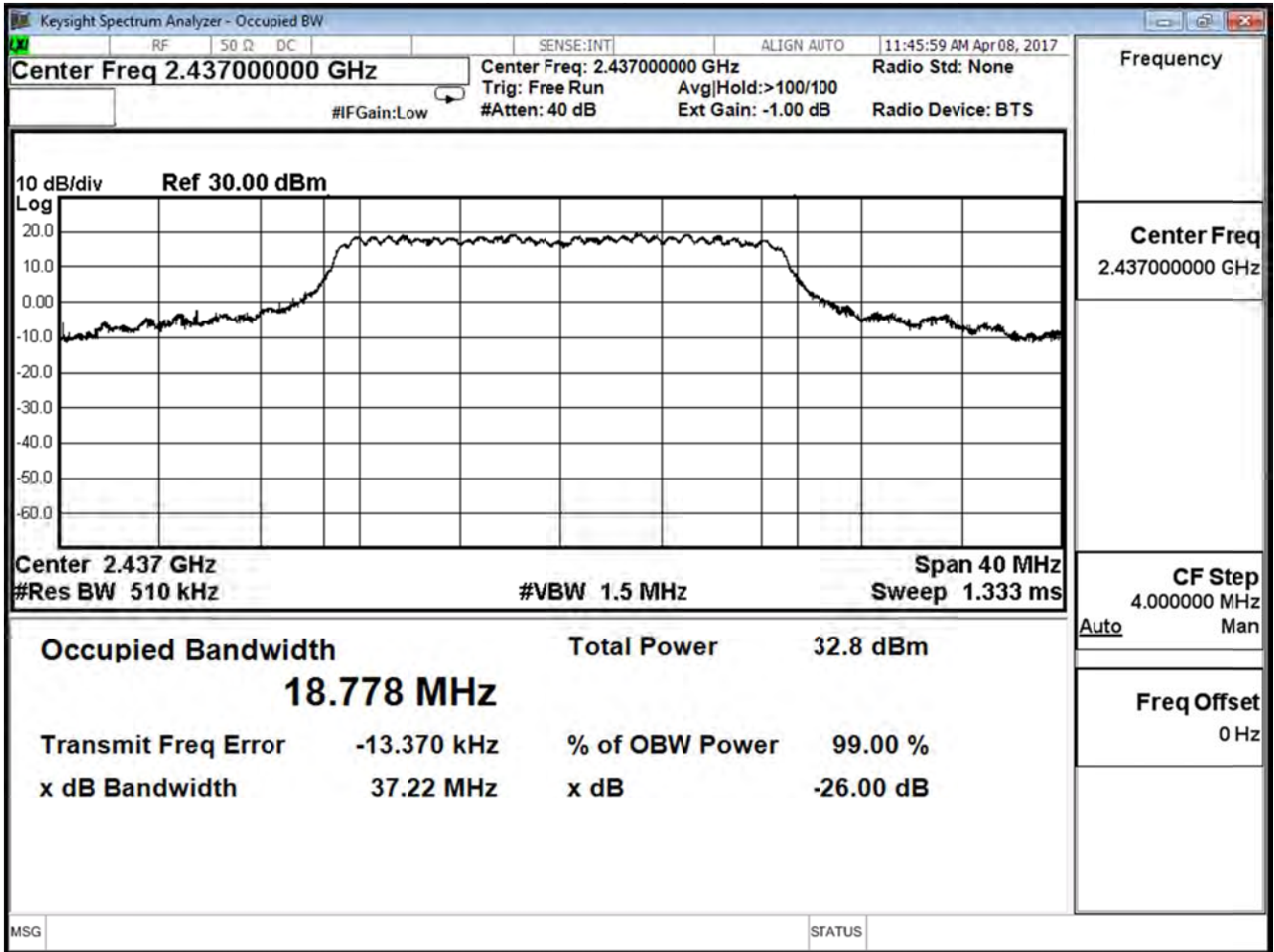
IEEE802.11n 20MHz (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	18.144	--	Pass
6	2437	18.778	--	Pass
11	2462	18.318	--	Pass

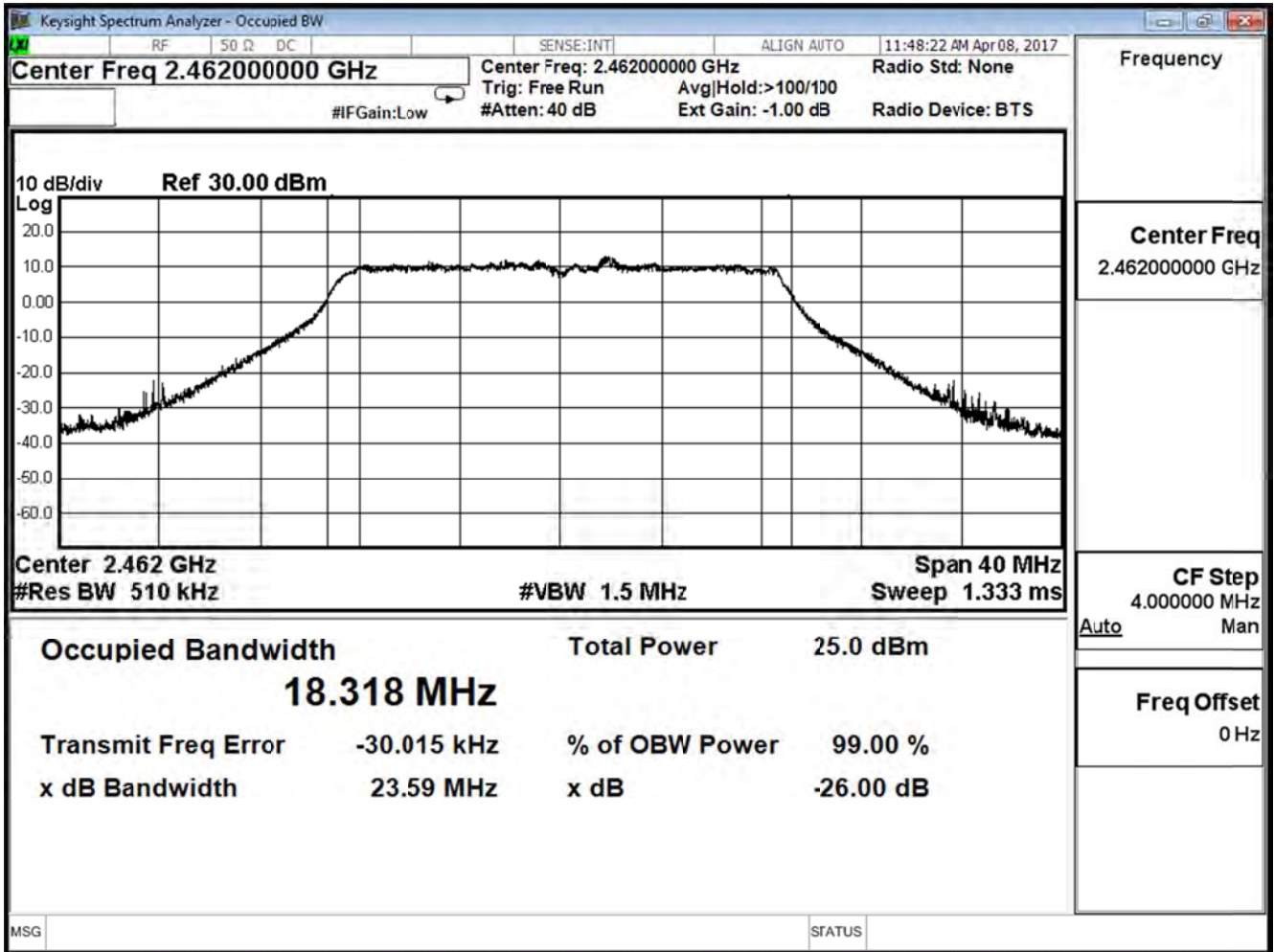
Channel 1



Channel 6



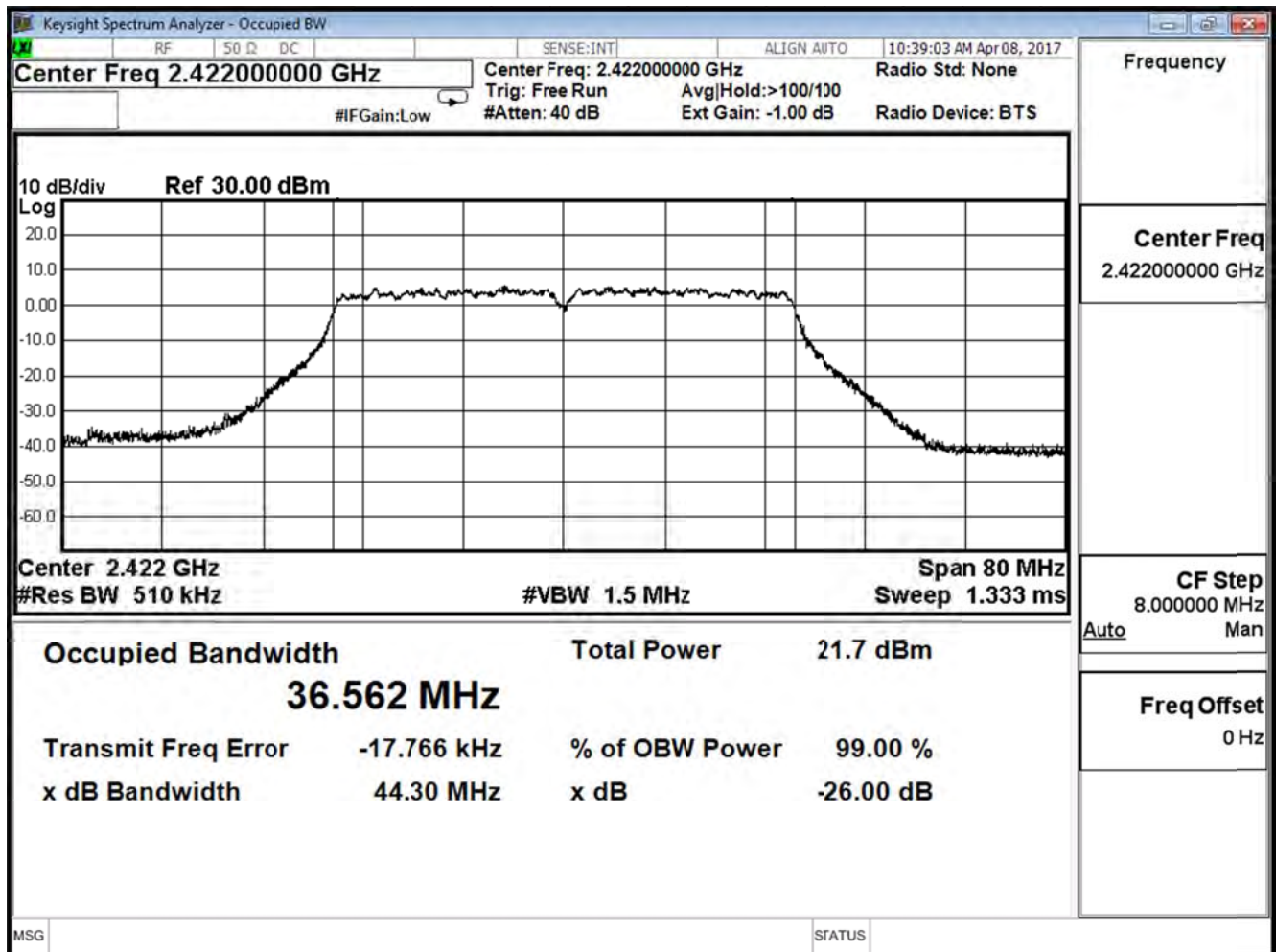
Channel 11



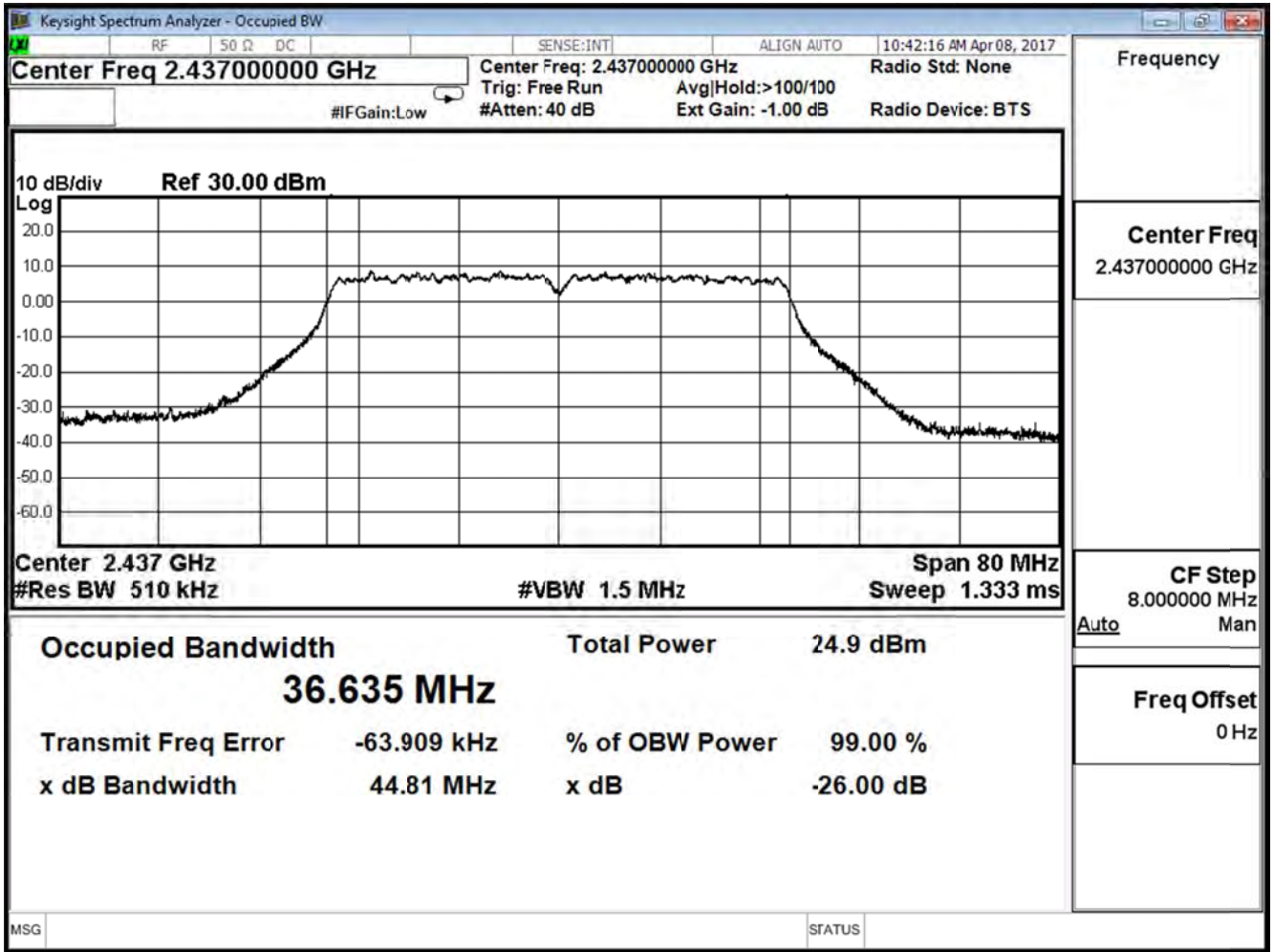
Product	Lyra		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE802.11n 40MHz (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
3	2422	36.562	--	Pass
6	2437	36.635	--	Pass
9	2452	36.556	--	Pass

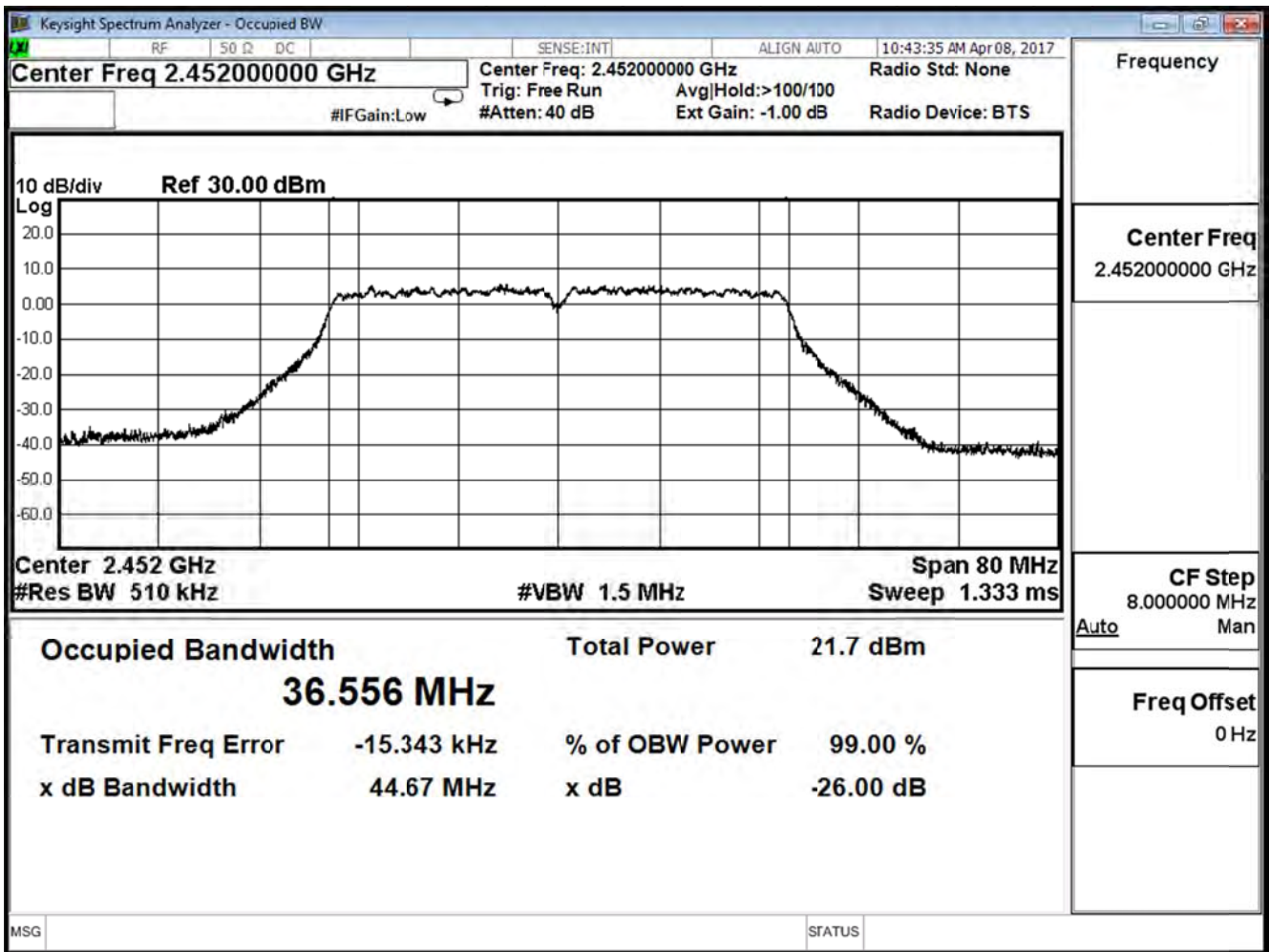
Channel 3



Channel 6



Channel 9

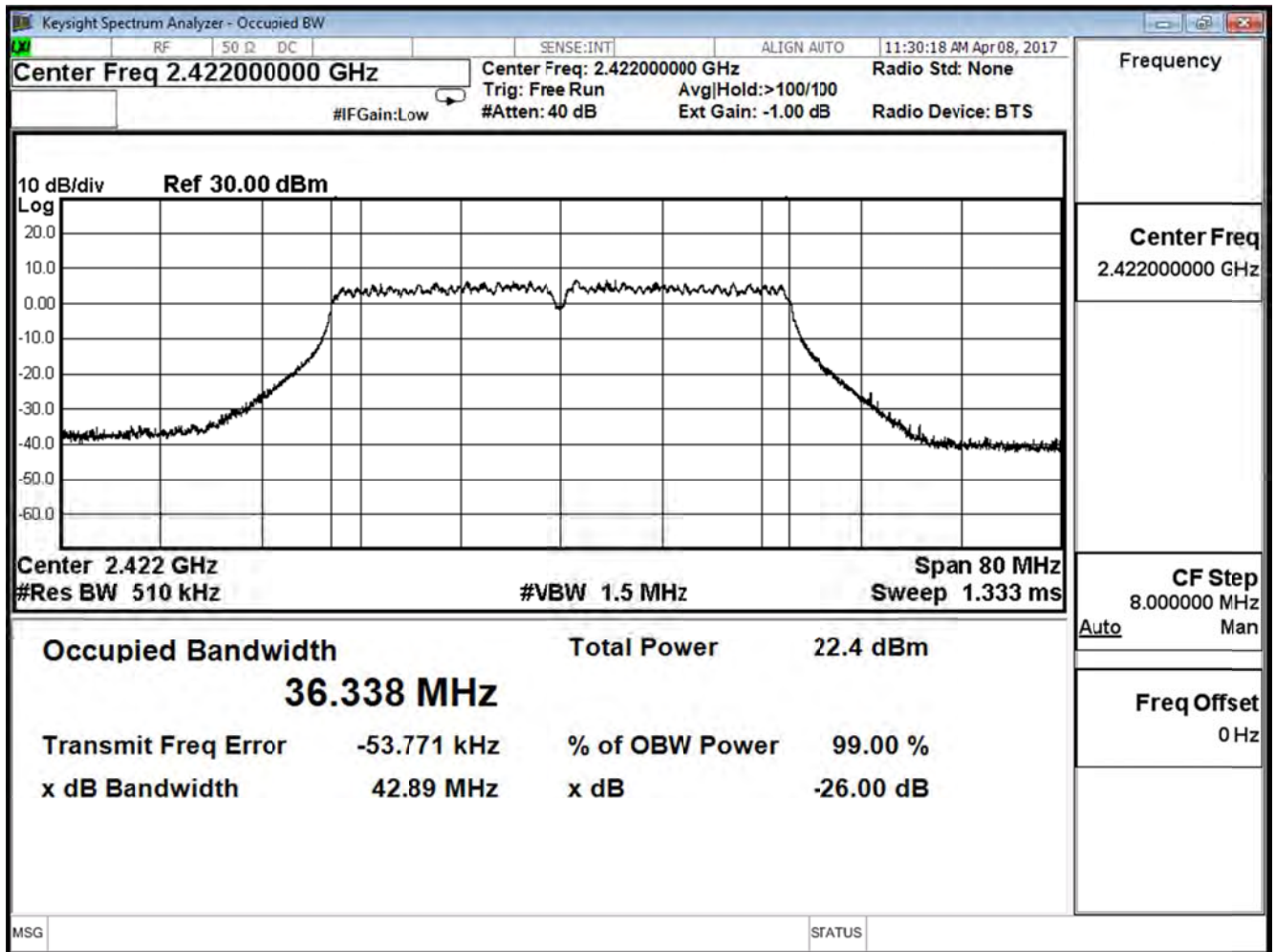


Product	Lyra		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

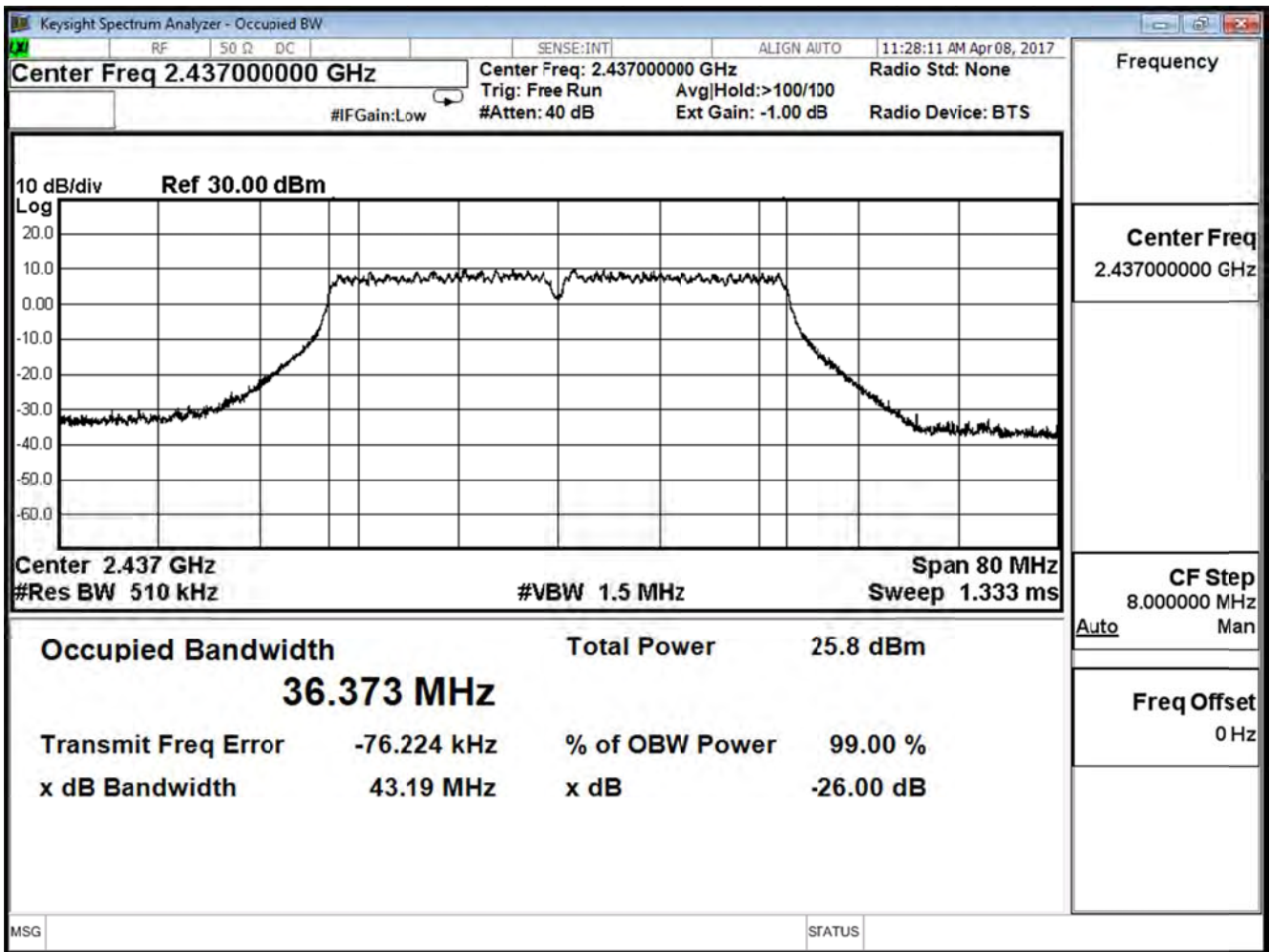
IEEE802.11n 40MHz (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
3	2422	36.338	--	Pass
6	2437	36.373	--	Pass
9	2452	36.354	--	Pass

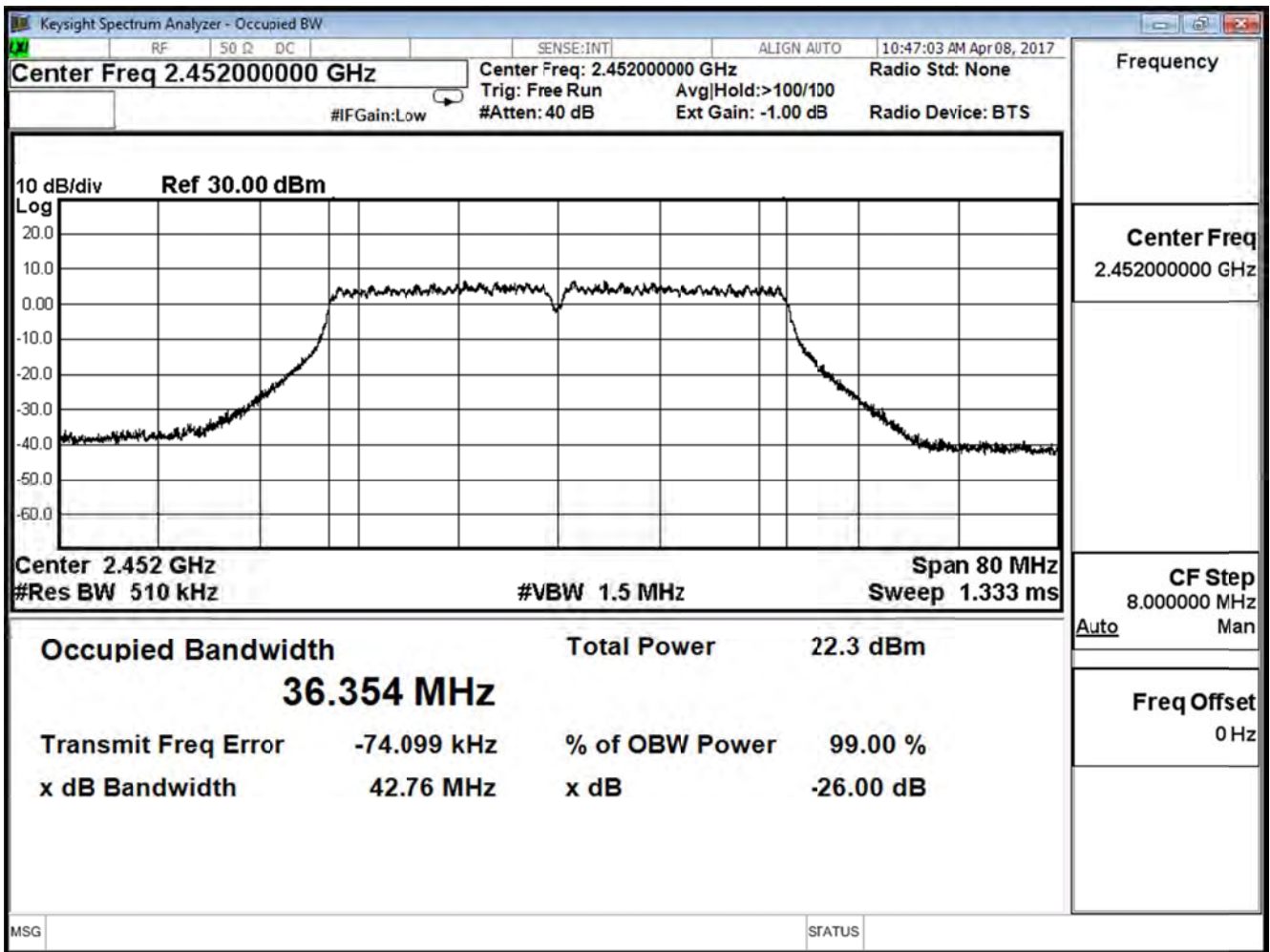
Channel 3



Channel 6



Channel 9



9. Power Density

9.1. Test Equipment

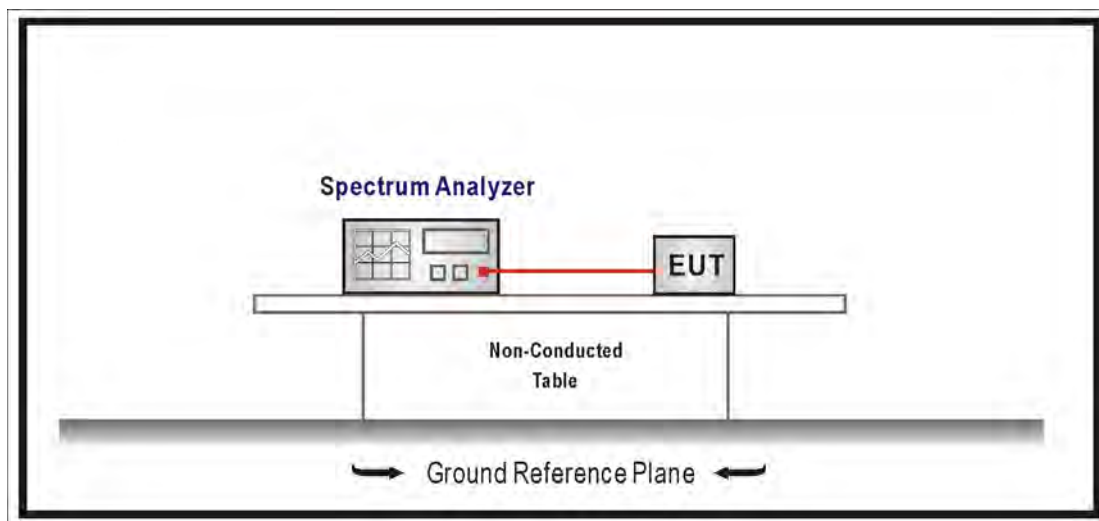
The following test equipment is used during the test:

Power Density / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Spectrum Analyzer	Agilent	N9010A	US47140172	2017/08/08
EXA Signal Analyzer	Keysight	N9010A	MY51440132	2018/03/12

Note: All equipments that need to calibrate are with calibration period of 1 year.

9.2. Test Setup



9.3. Limits

The peak power spectral density conducted from the intentional radiated to the antenna shall not be greater than +8dBm in any 3kHz band during any time interval of continuous transmission.

9.4. Test Procedures

The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure section 10.2 of KDB558074v03r05 for compliance to FCC 47CFR 15.247 requirements. Set $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$, Set $\text{VBW} \geq 3 \times \text{RBW}$, Sweep time=Auto, Set Peak detector.

9.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.247: 2015

9.6. Uncertainty

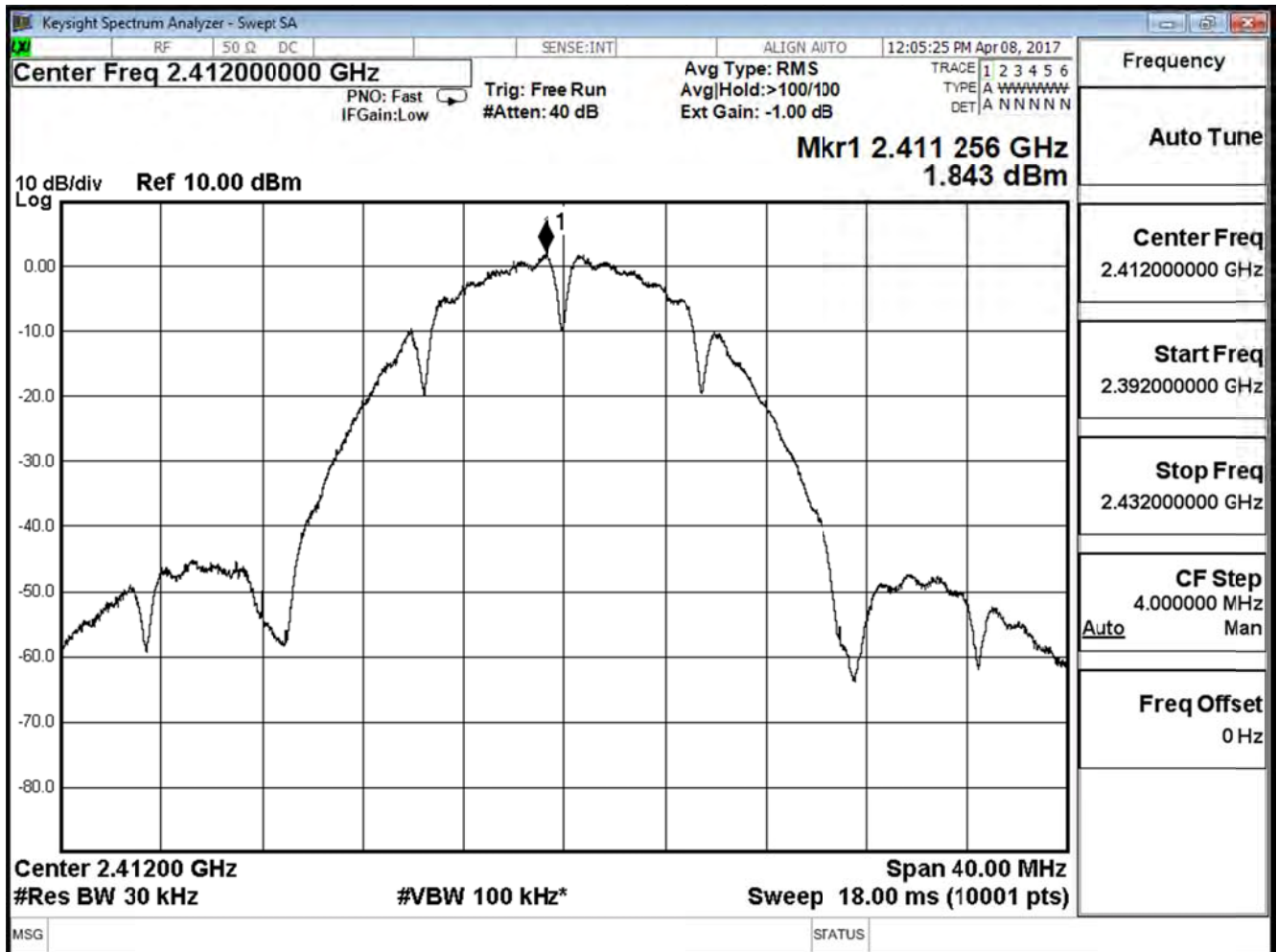
The measurement uncertainty is defined as $\pm 1.27\text{dB}$.

9.7. Test Result

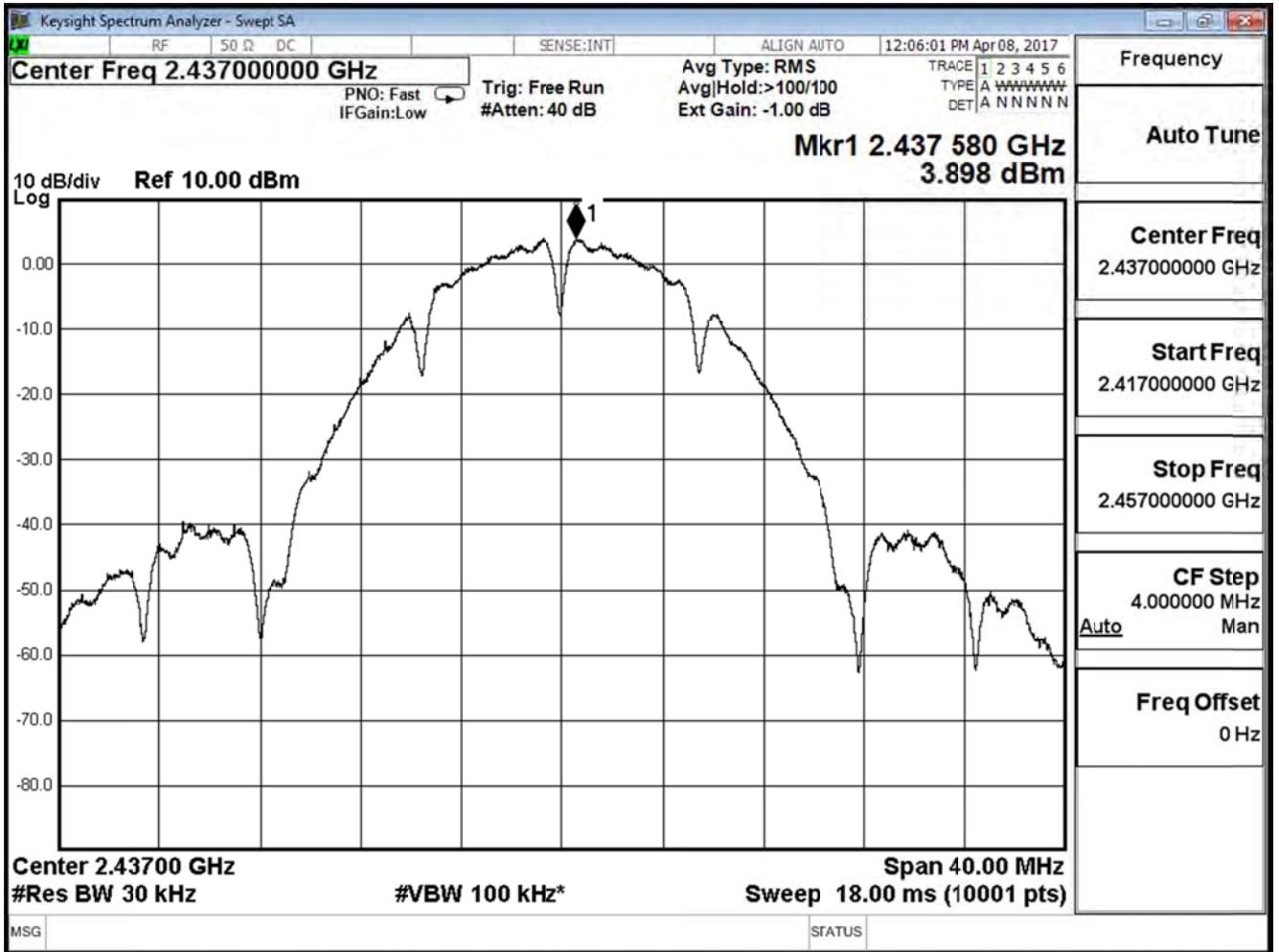
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE 802.11b (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	1.843	8.00	Pass
6	2437	3.898	8.00	Pass
11	2462	3.366	8.00	Pass

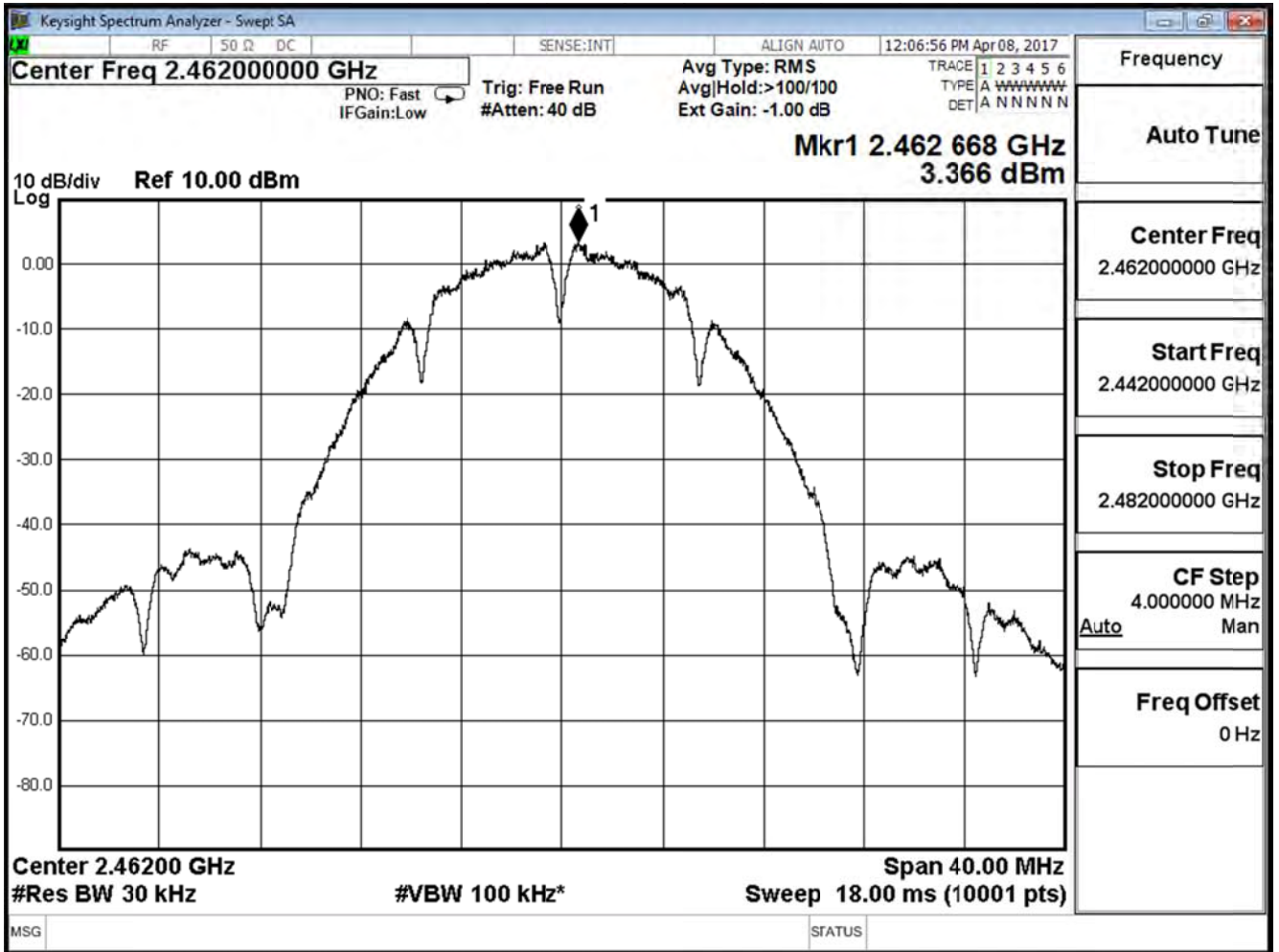
Channel 1



Channel 6



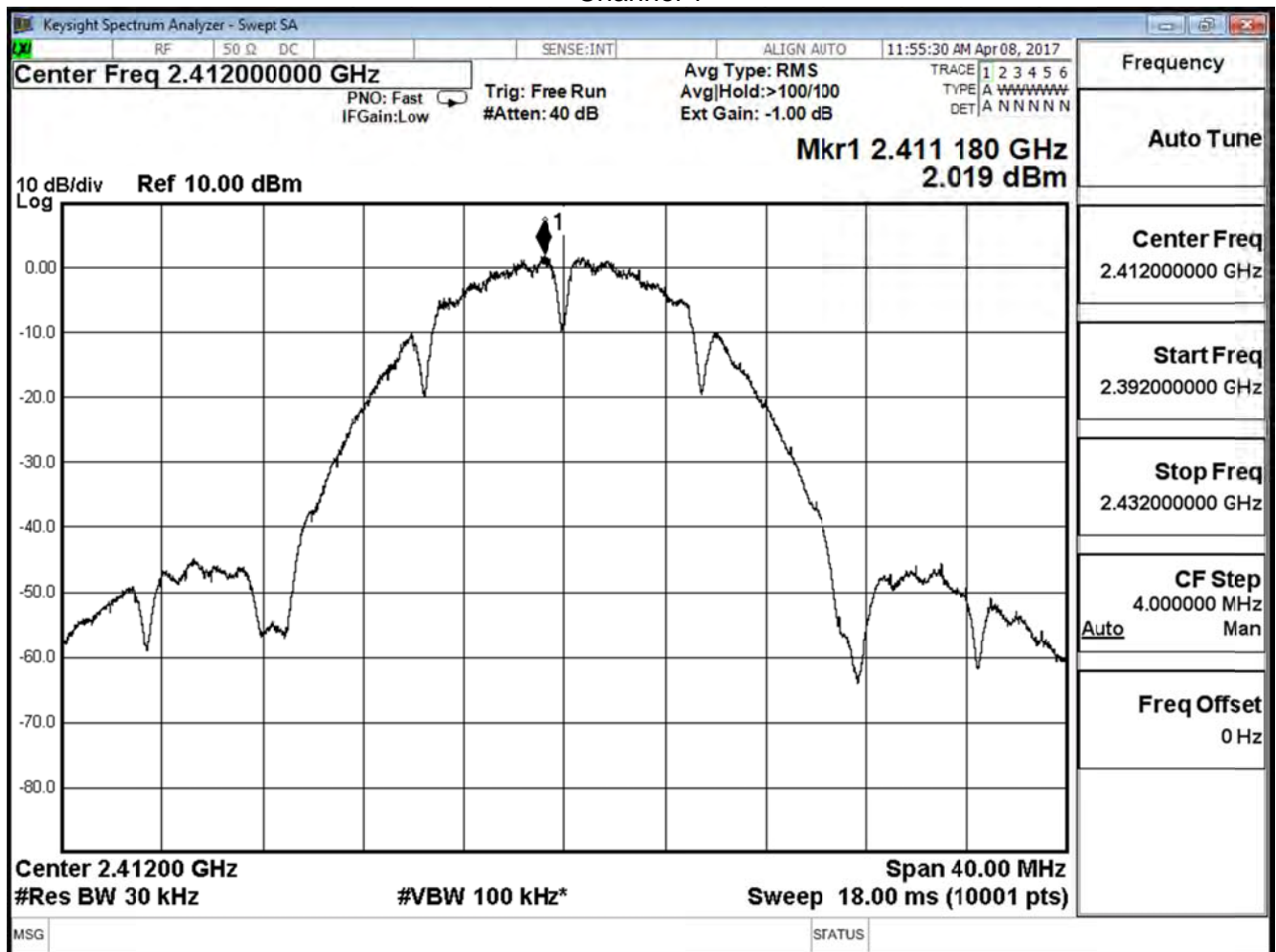
Channel 11



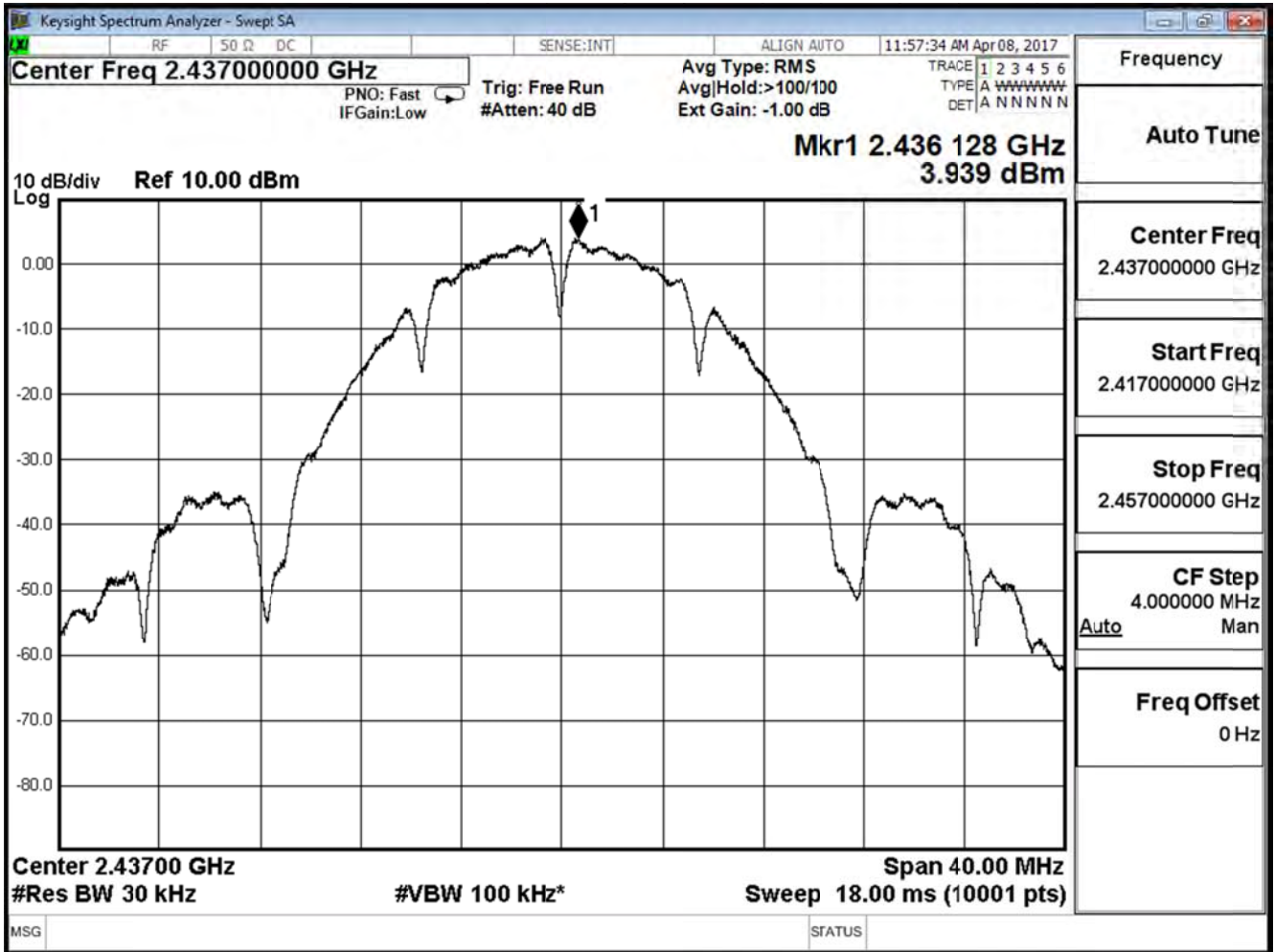
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE 802.11b (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	2.019	8.00	Pass
6	2437	3.939	8.00	Pass
11	2462	2.874	8.00	Pass

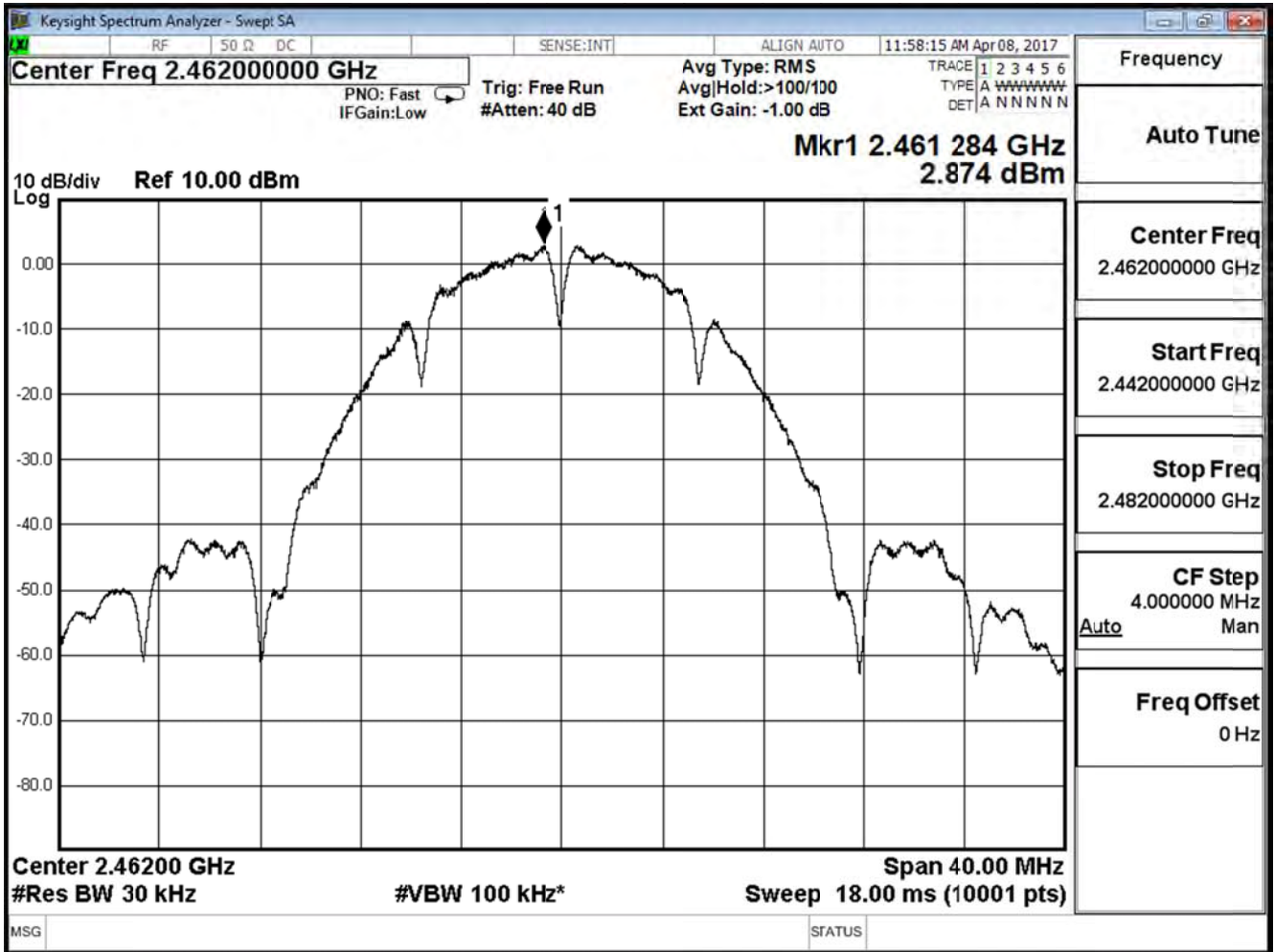
Channel 1



Channel 6



Channel 11



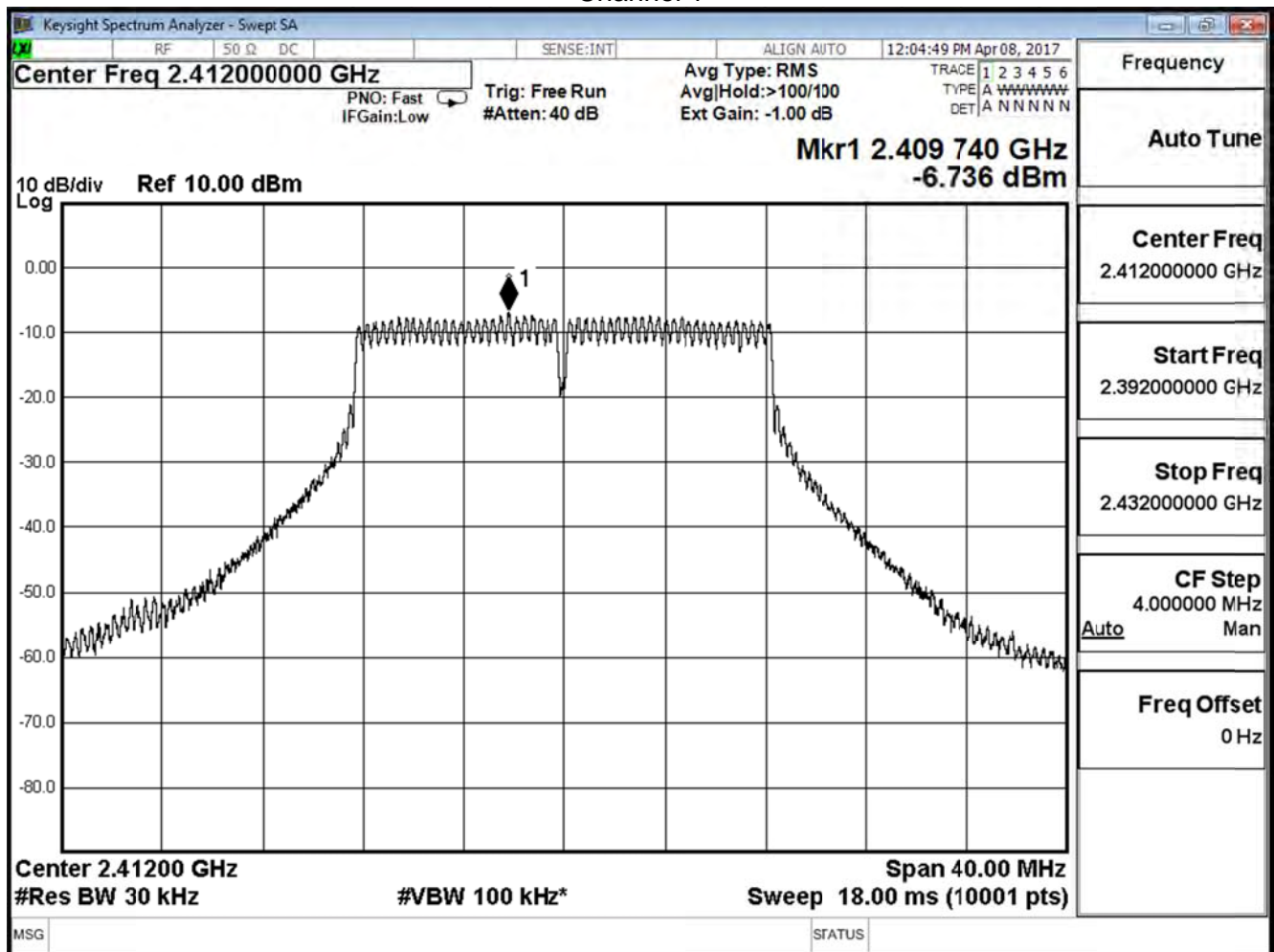
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE 802.11b (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	4.94	8.00	Pass
6	2437	6.93	8.00	Pass
11	2462	6.14	8.00	Pass

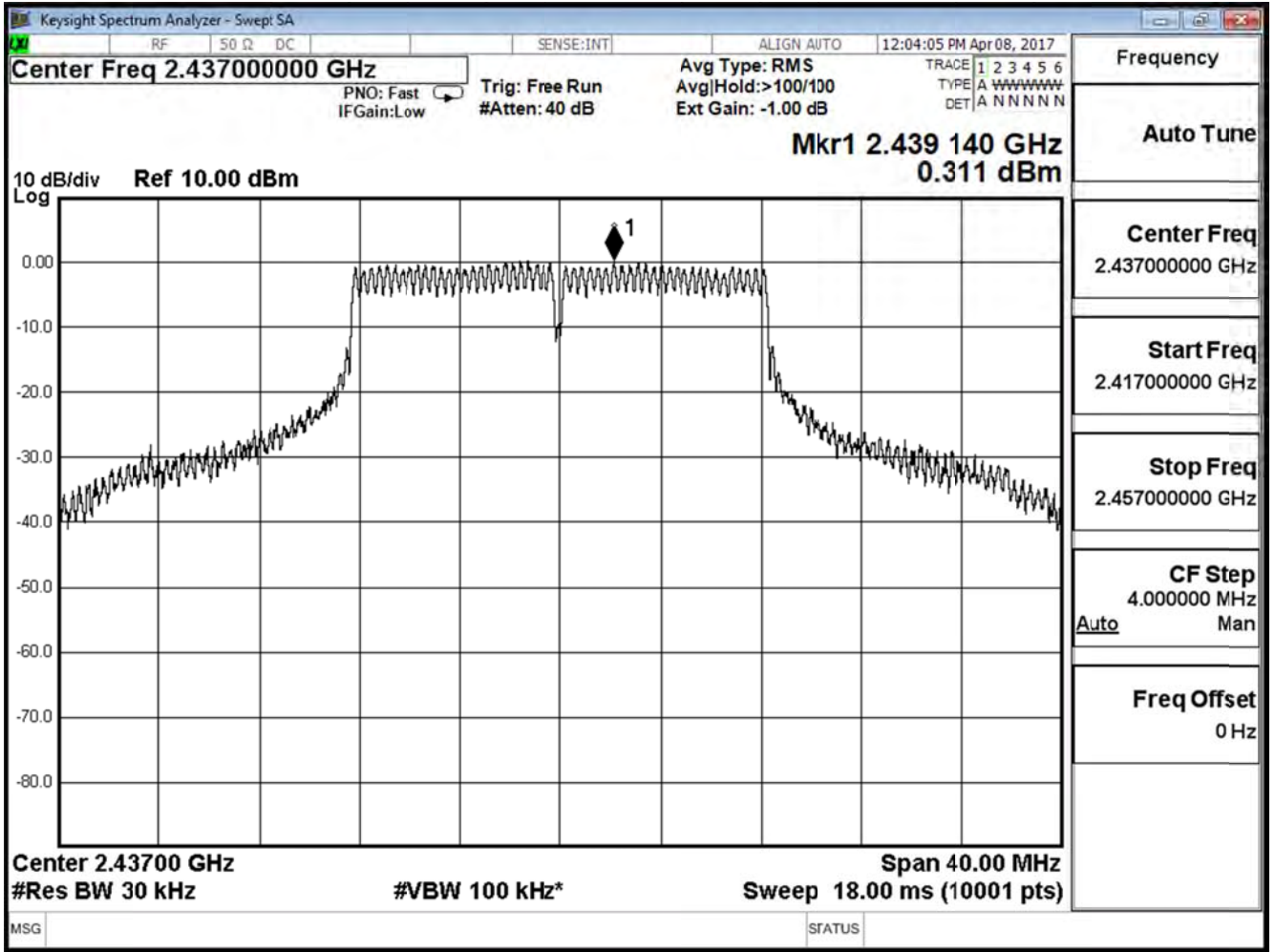
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE 802.11g (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-6.736	8.00	Pass
6	2437	0.311	8.00	Pass
11	2462	-7.721	8.00	Pass

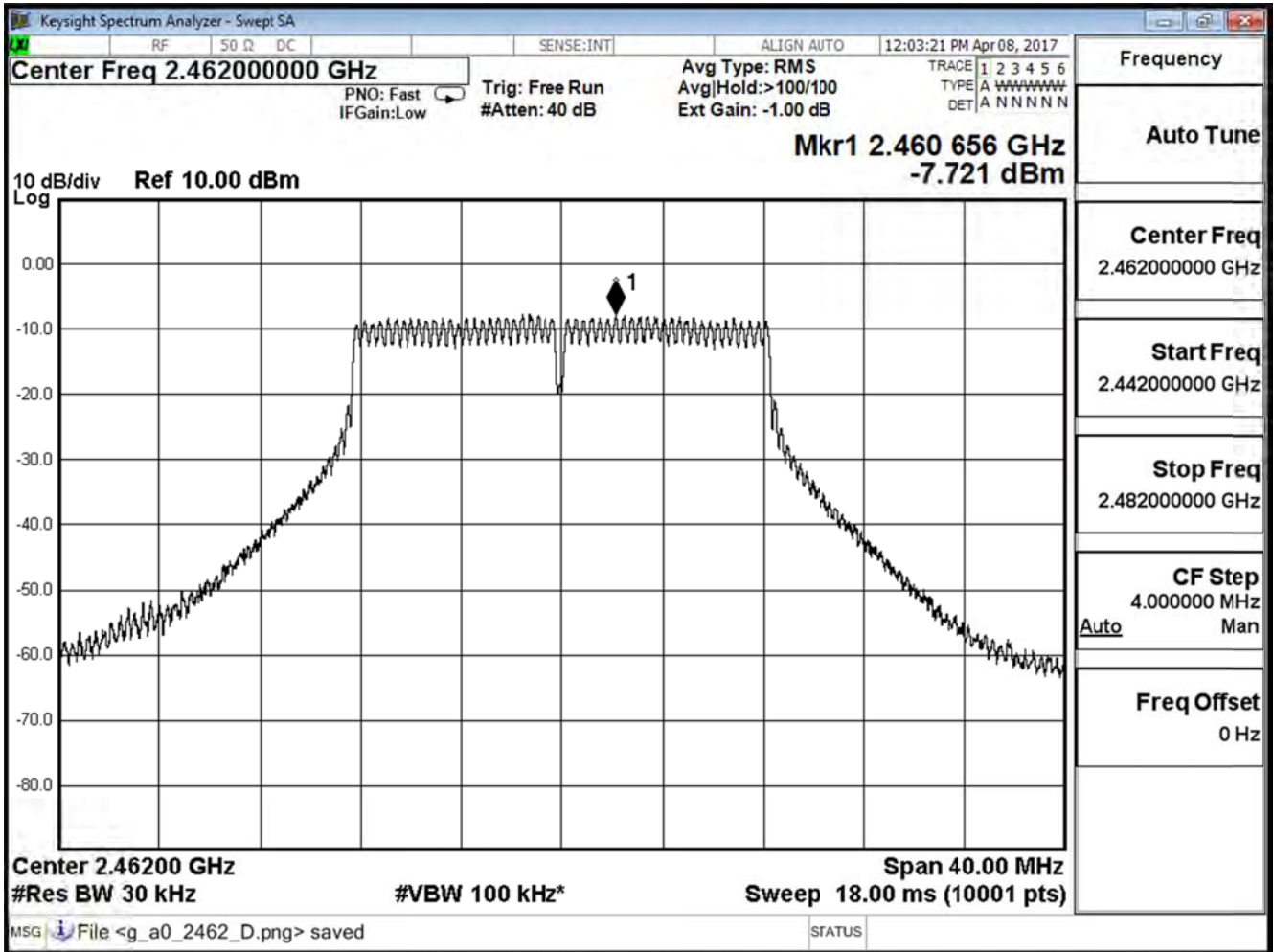
Channel 1



Channel 6



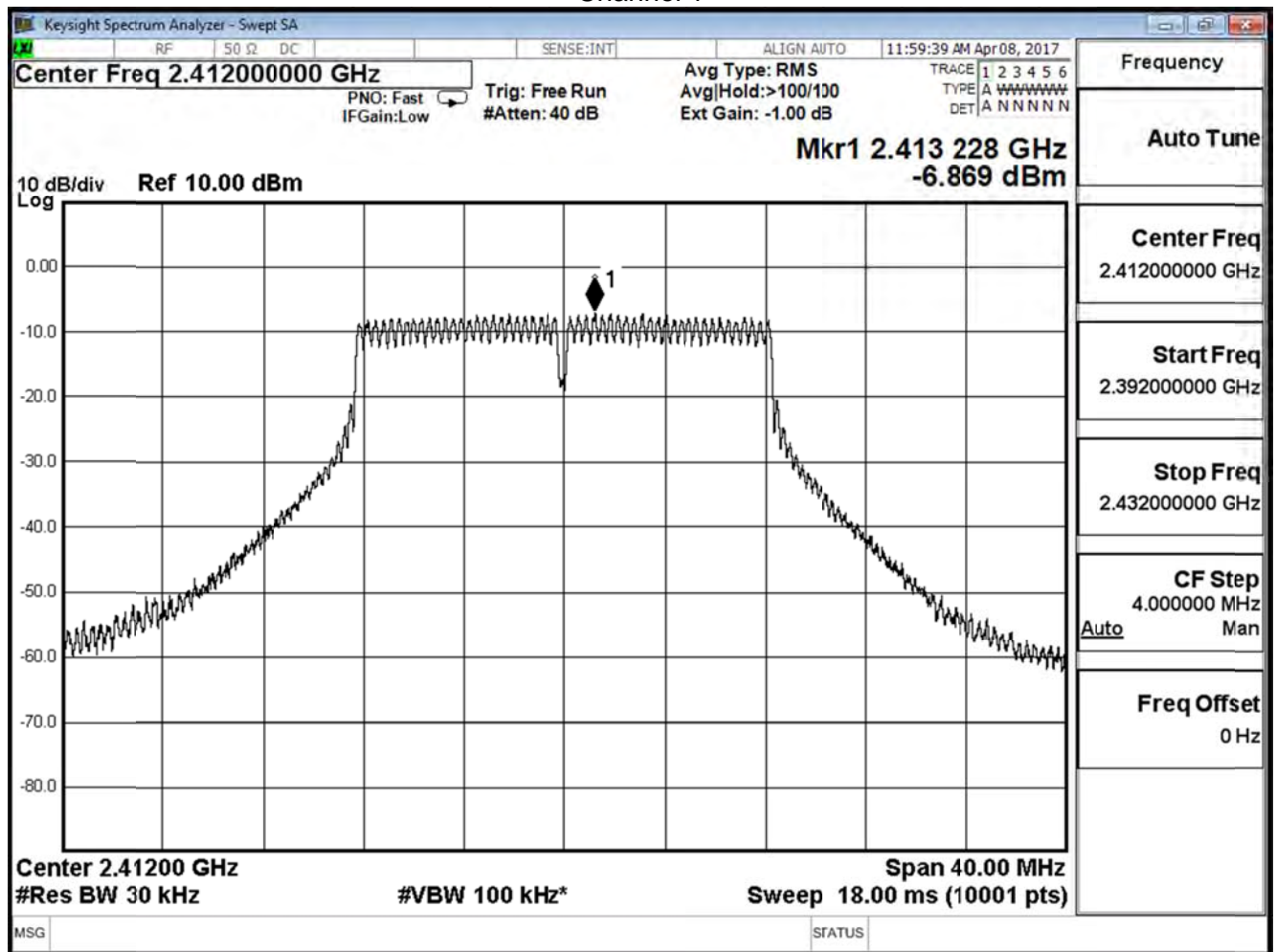
Channel 11



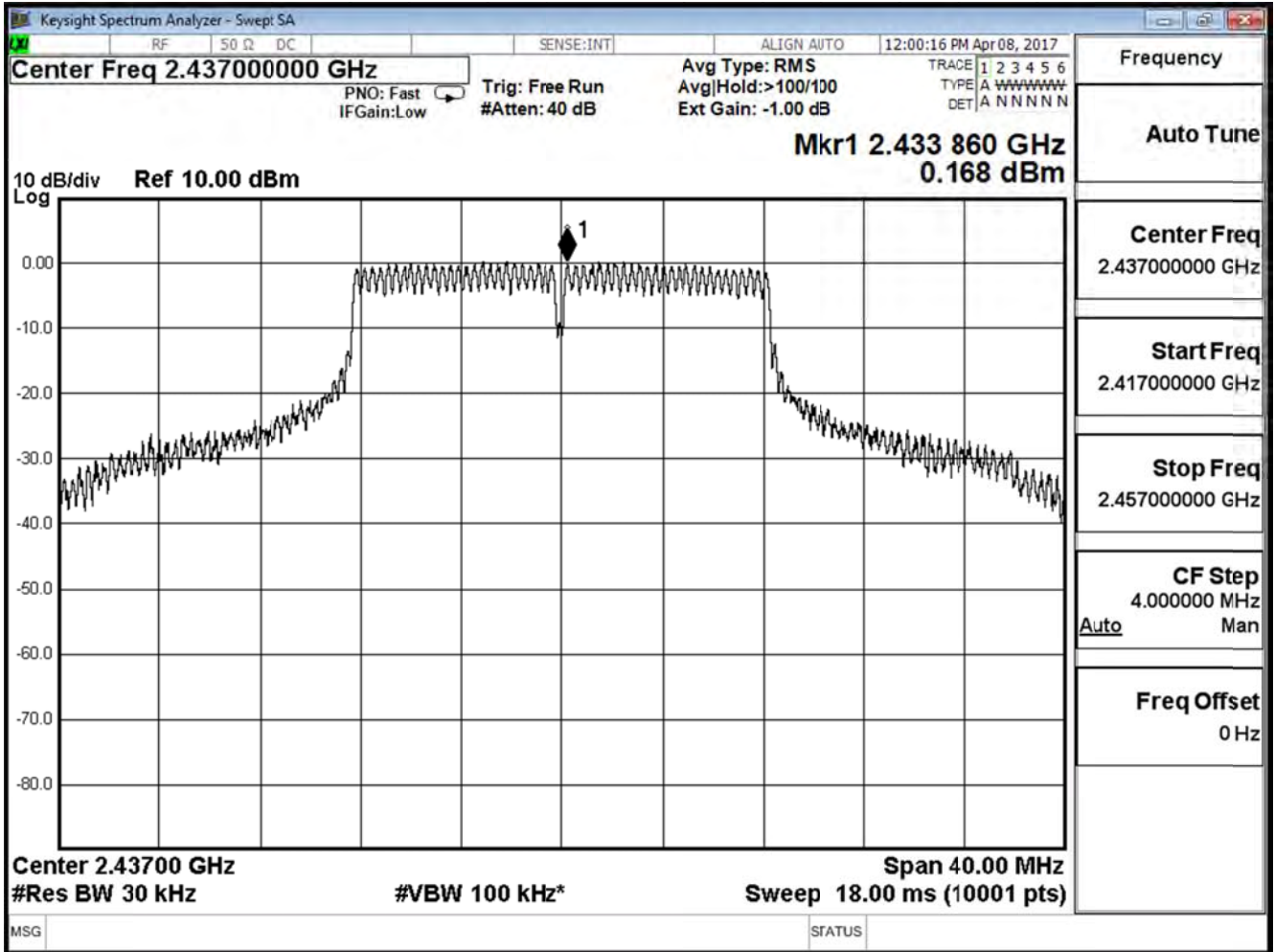
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE 802.11g (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-6.869	8.00	Pass
6	2437	0.168	8.00	Pass
11	2462	-7.582	8.00	Pass

Channel 1



Channel 6



Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

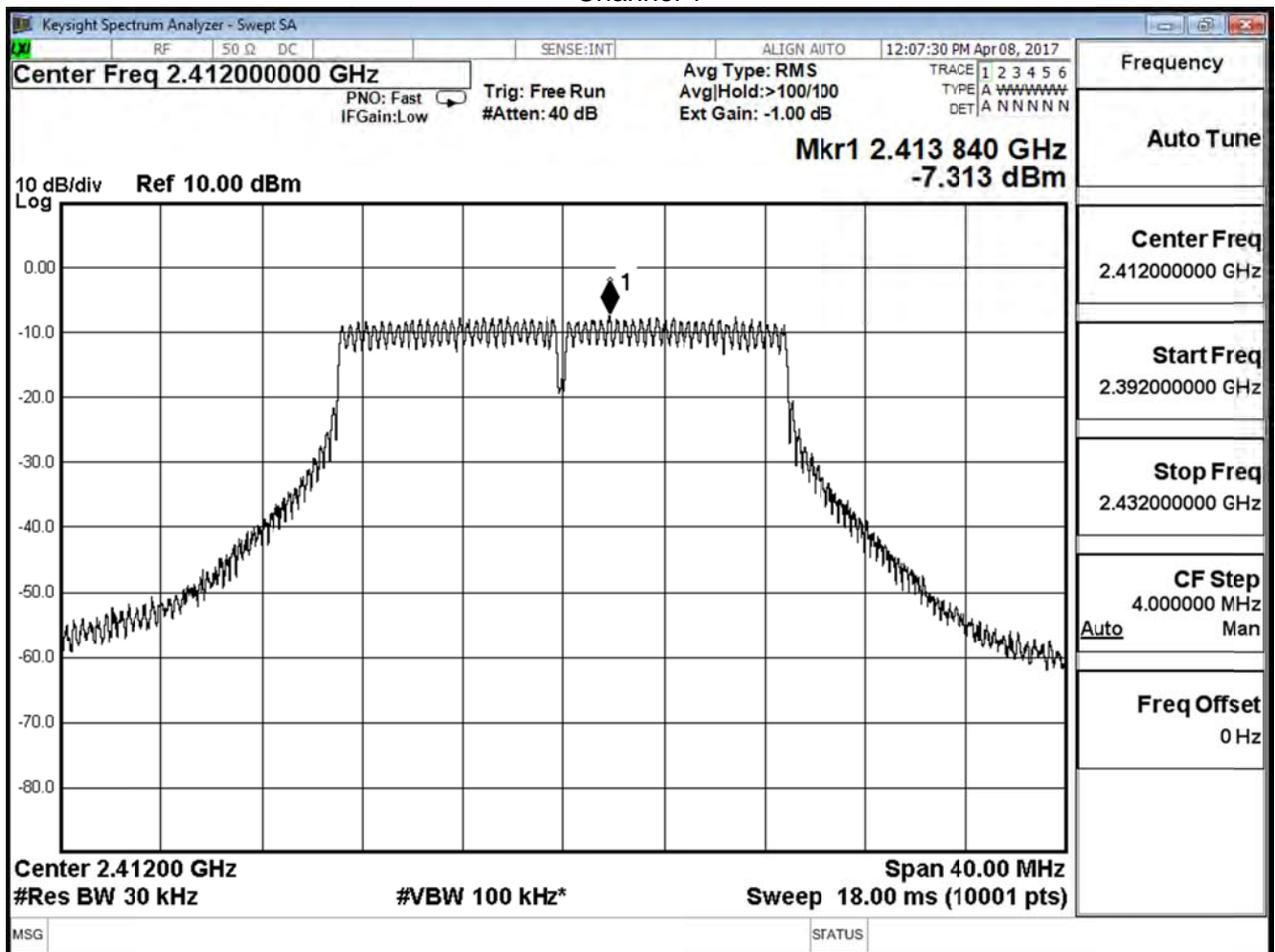
IEEE 802.11g (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-3.792	8.00	Pass
6	2437	3.250	8.00	Pass
11	2462	-4.641	8.00	Pass

Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

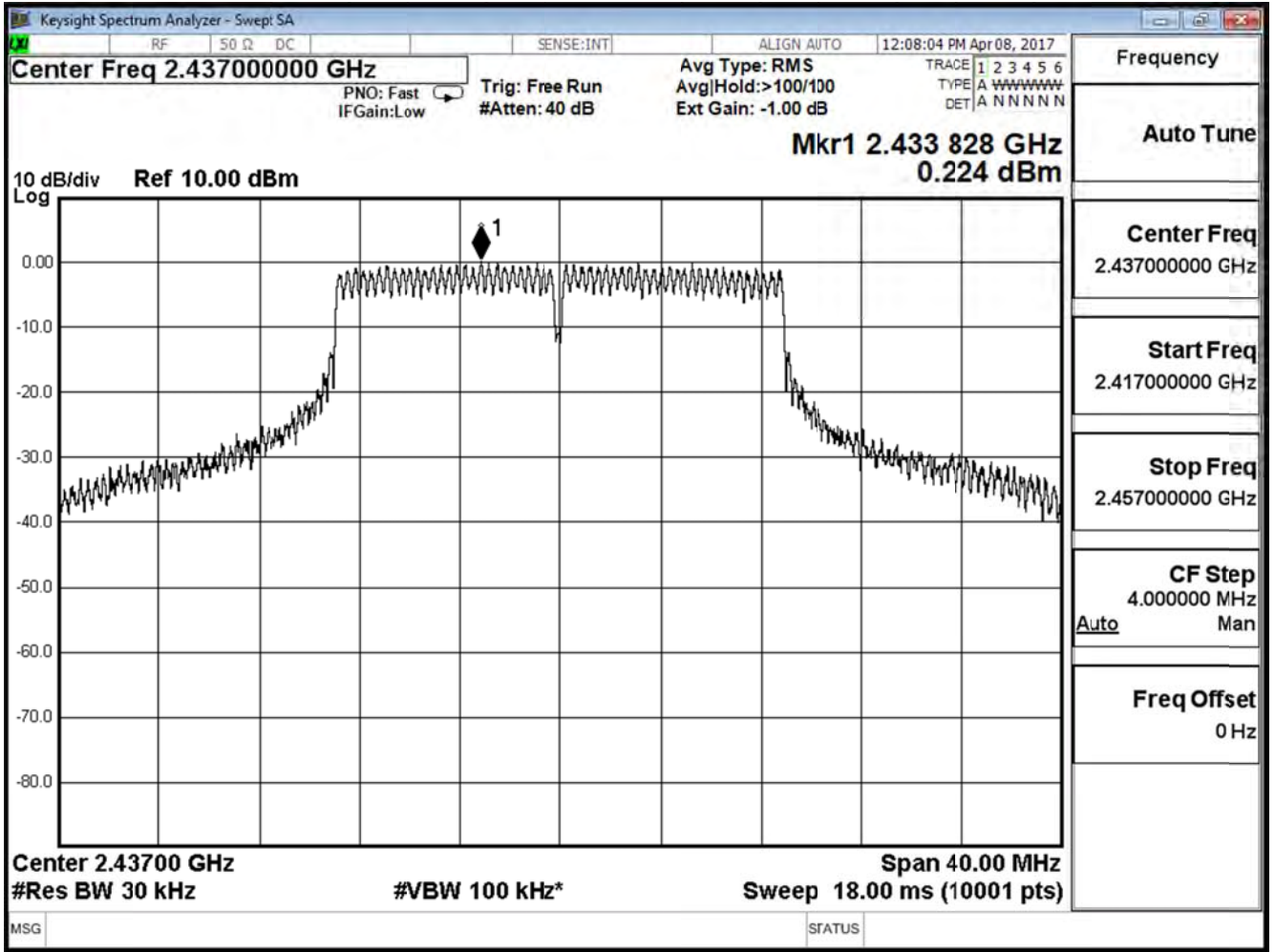
IEEE802.11n 20MHz (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-7.313	8.00	Pass
6	2437	0.224	8.00	Pass
11	2462	-7.092	8.00	Pass

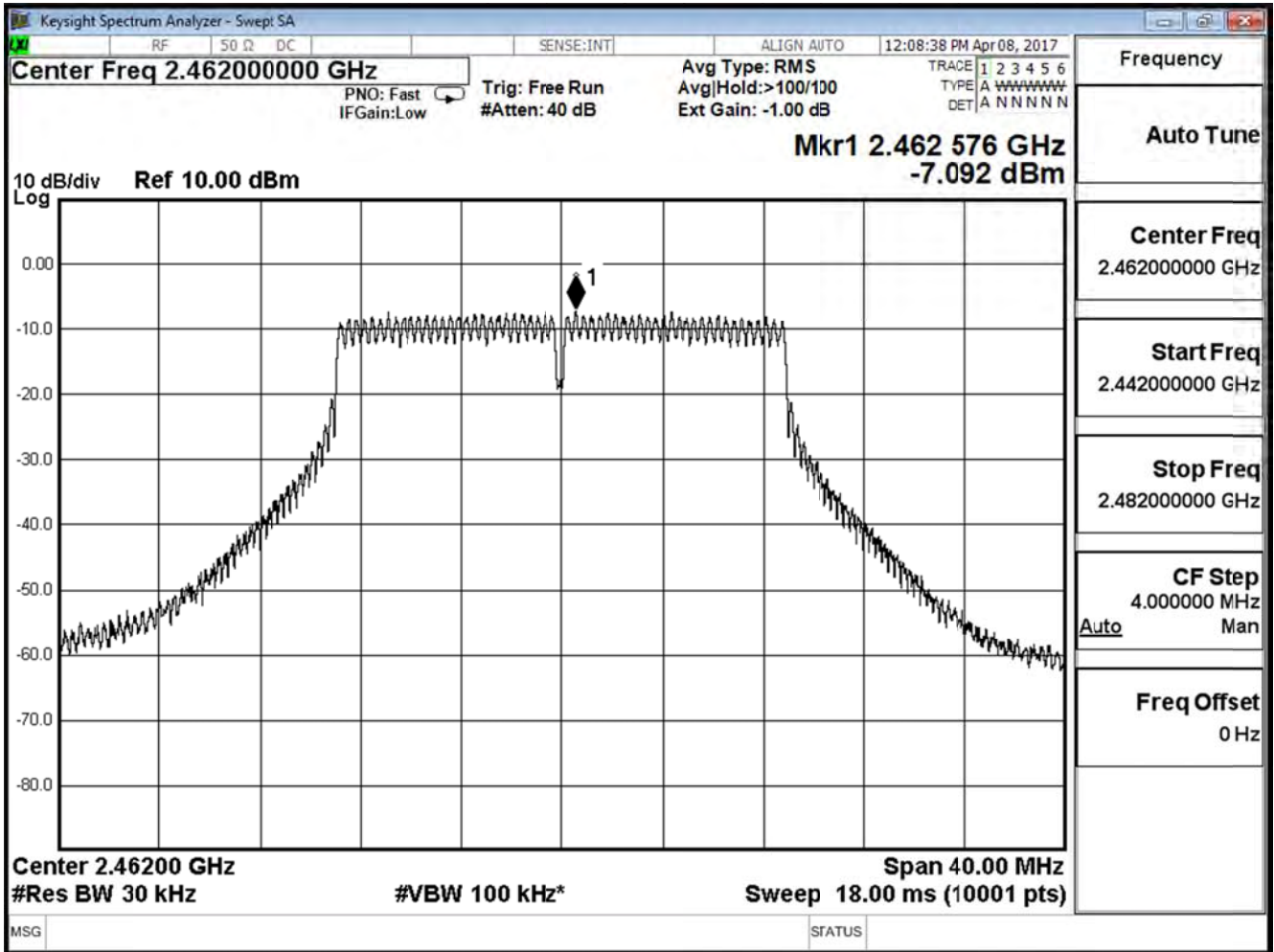
Channel 1



Channel 6



Channel 11

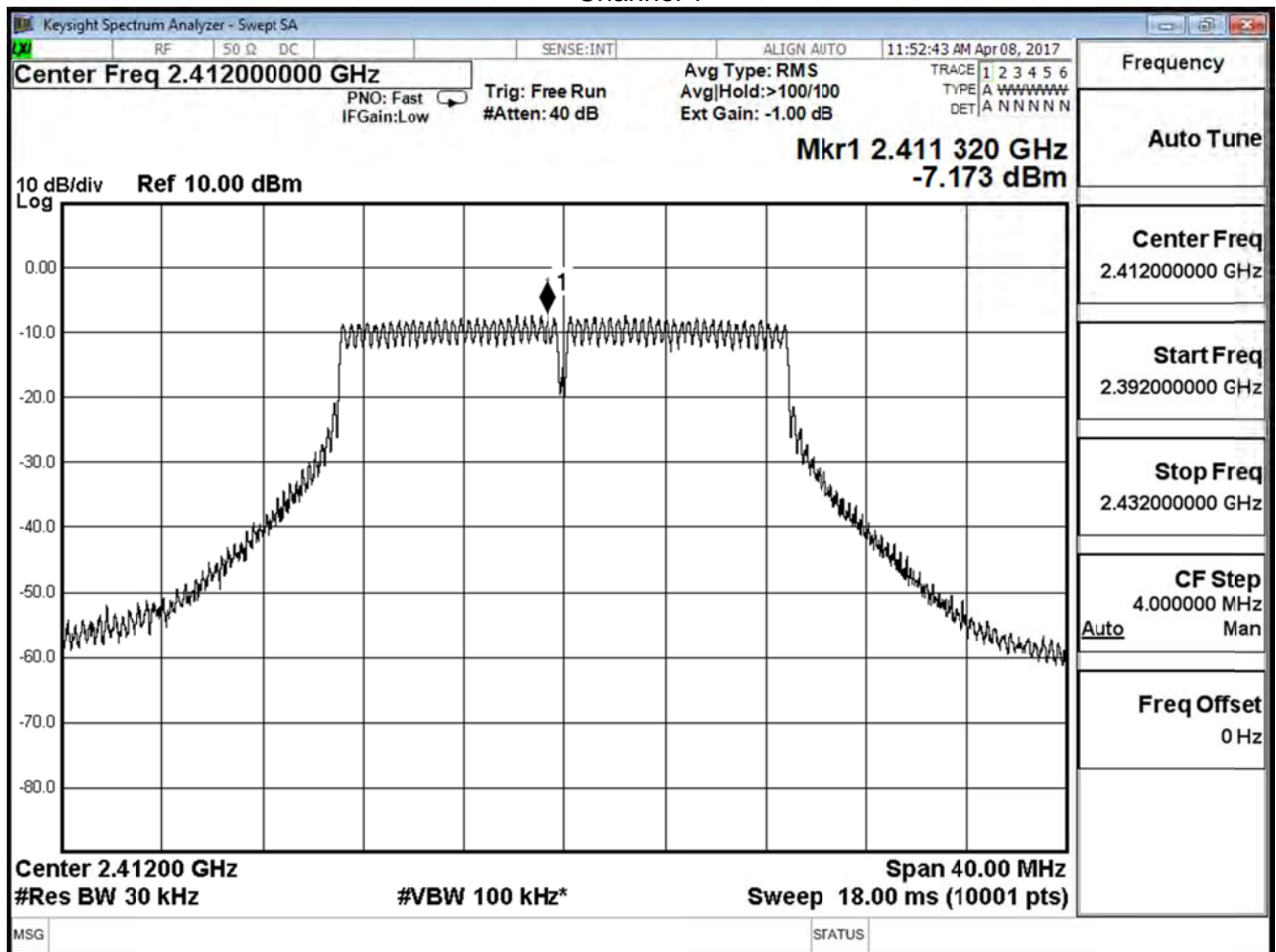


Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

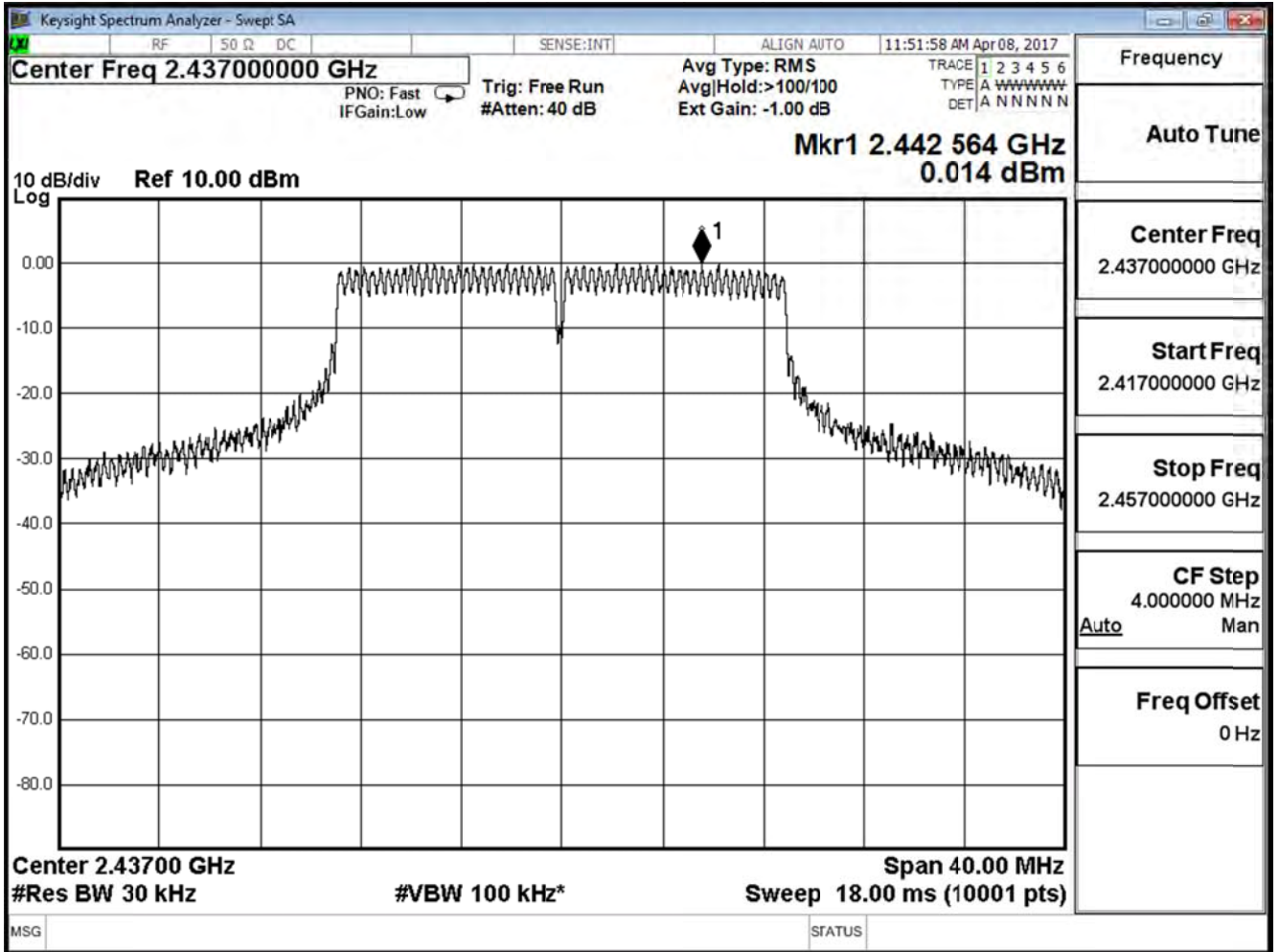
IEEE802.11n 20MHz (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-7.173	8.00	Pass
6	2437	0.014	8.00	Pass
11	2462	-7.268	8.00	Pass

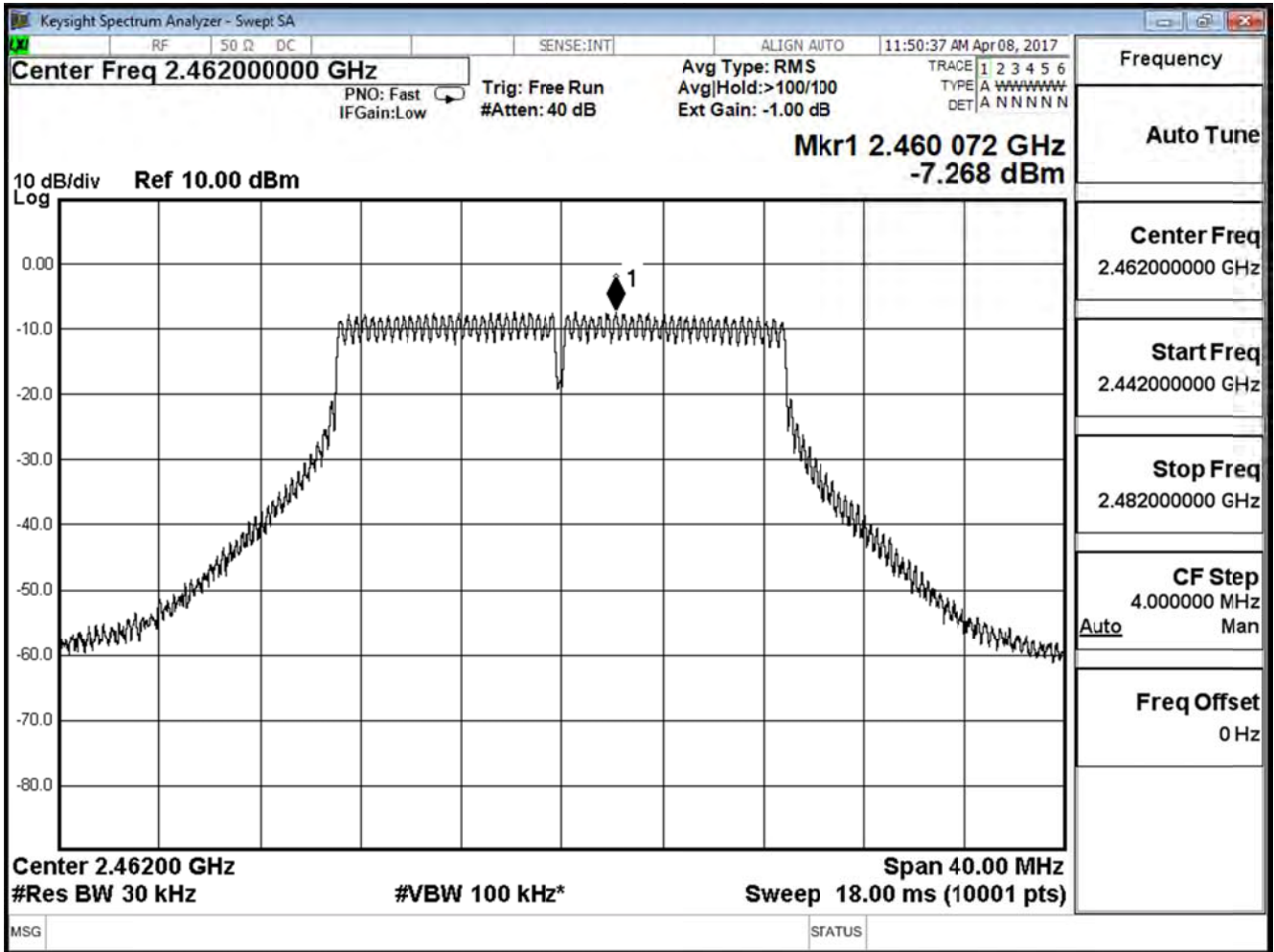
Channel 1



Channel 6



Channel 11



Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

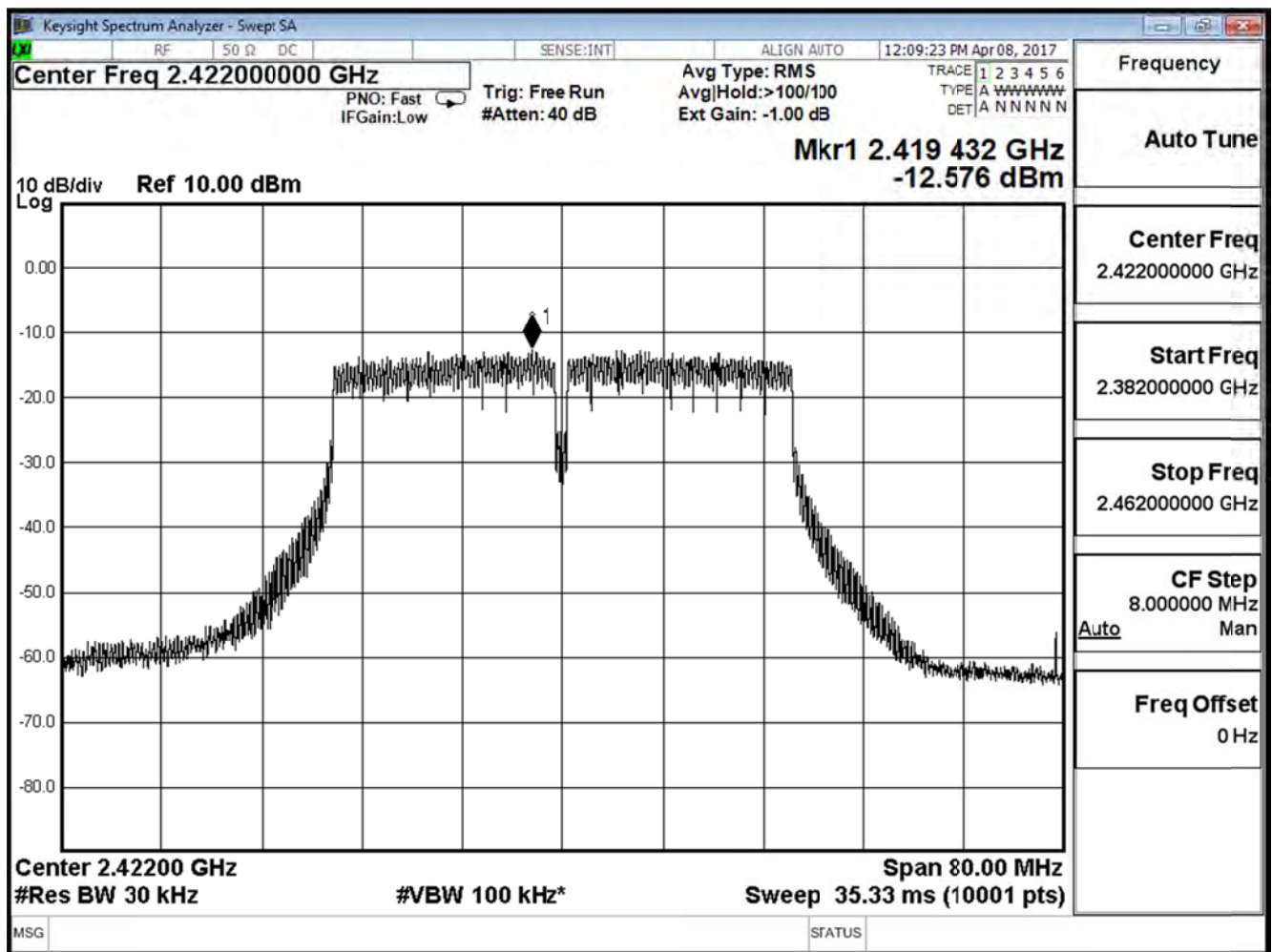
IEEE802.11n 20MHz (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-4.232	8.00	Pass
6	2437	3.13 1	8.00	Pass
11	2462	-4.169	8.00	Pass

Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

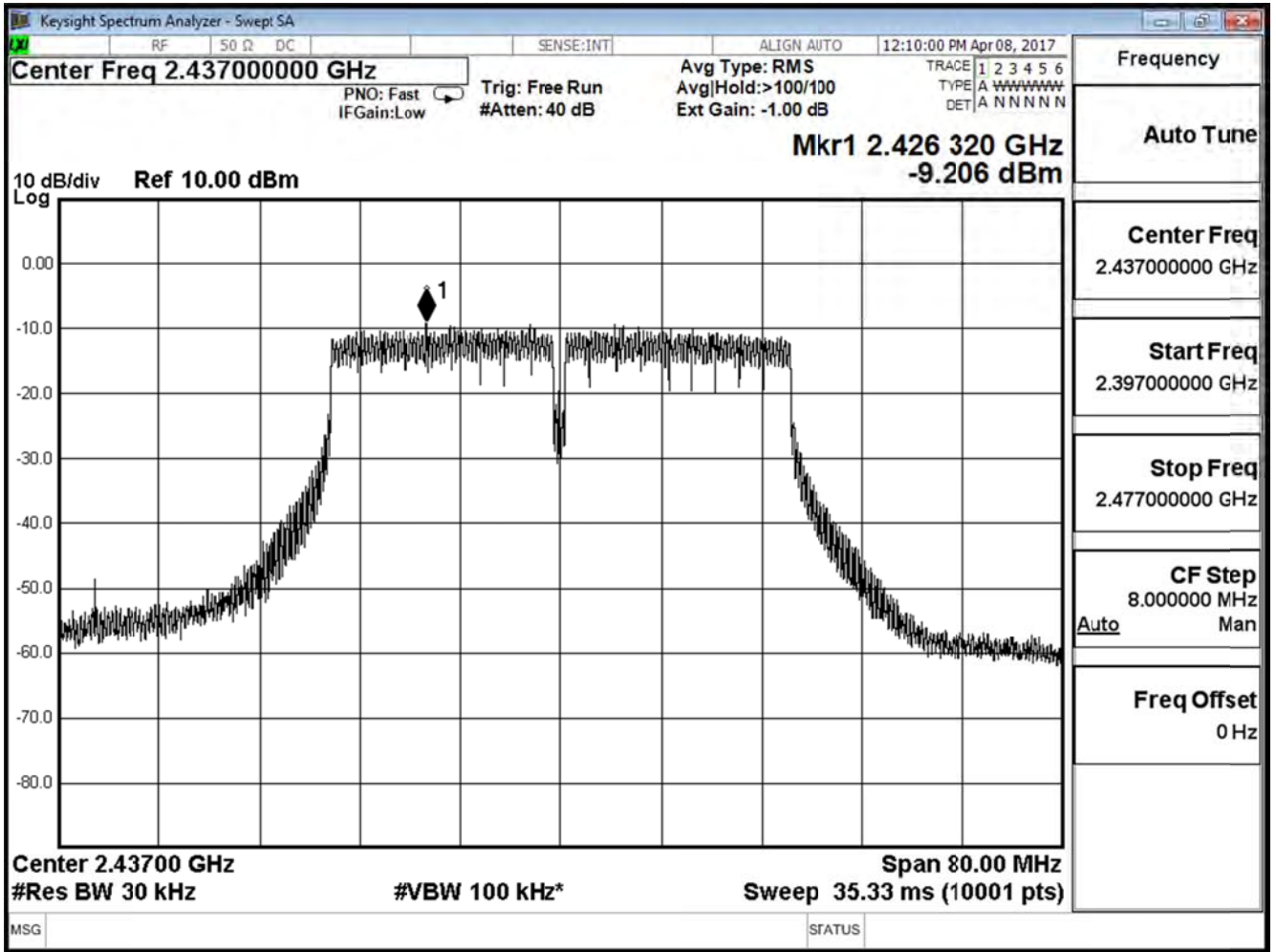
IEEE802.11n 40MHz (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
3	2422	-12.576	8.00	Pass
6	2437	-9.206	8.00	Pass
9	2452	-12.086	8.00	Pass

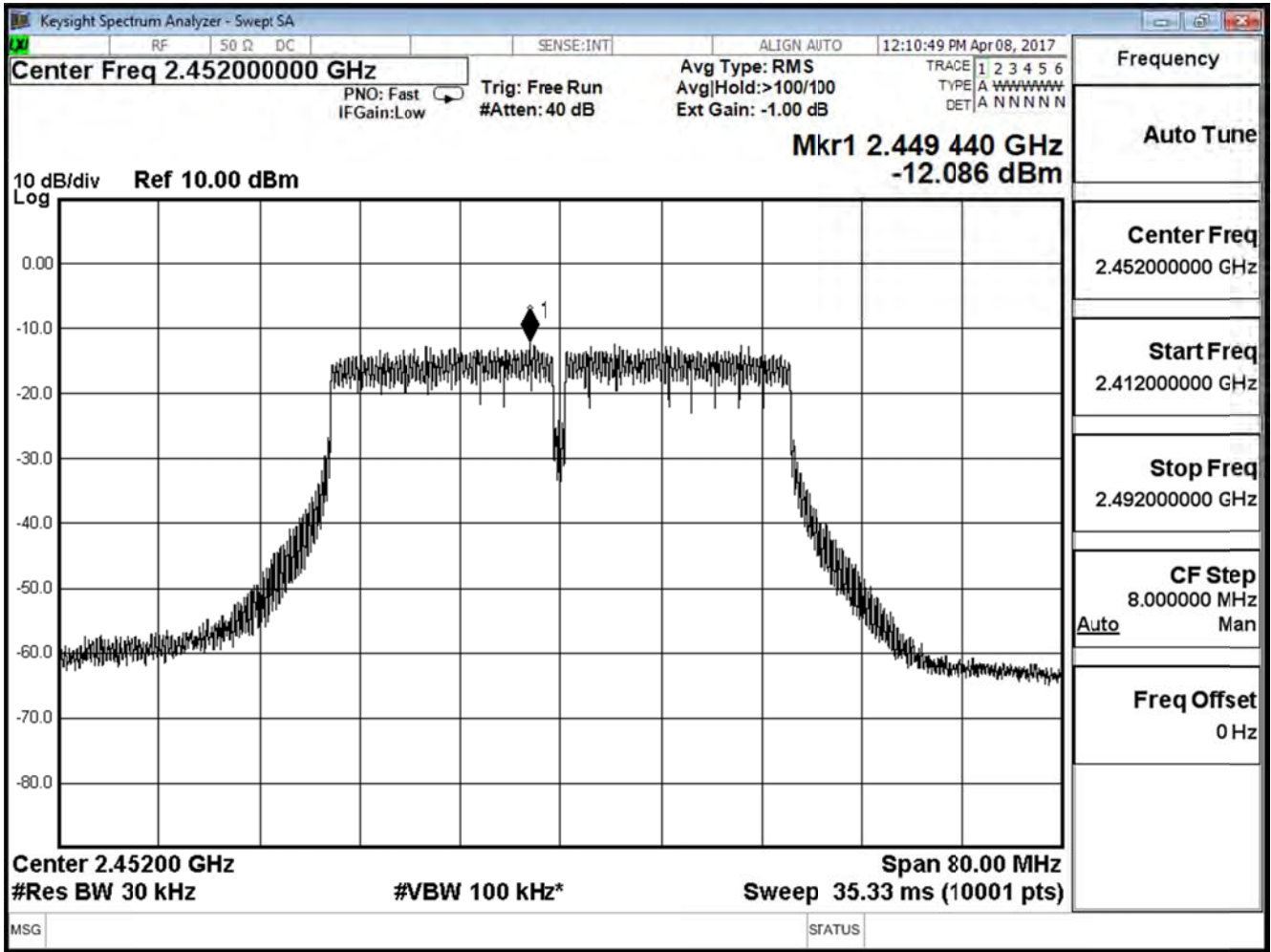
Channel 3



Channel 6



Channel 9

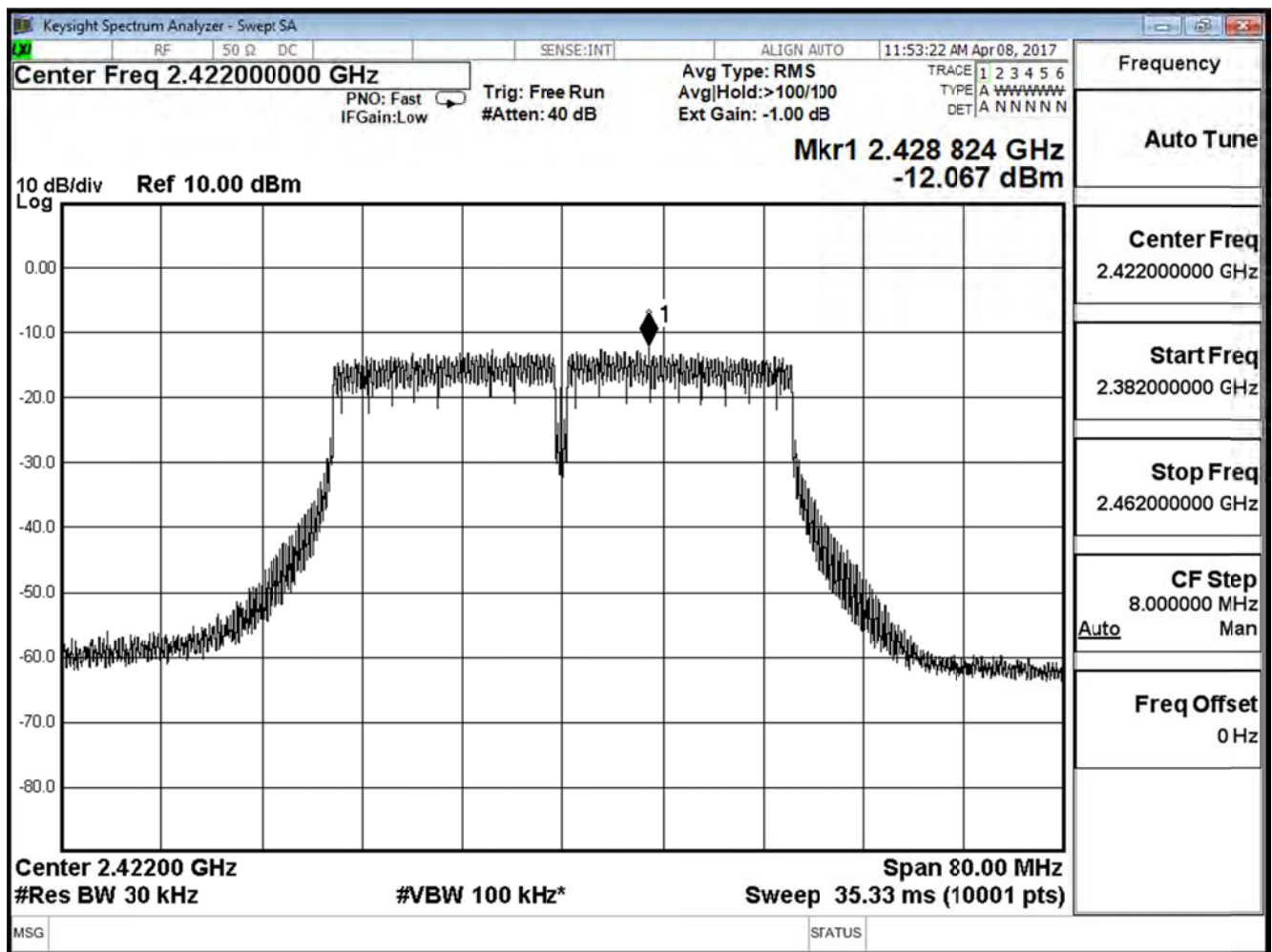


Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

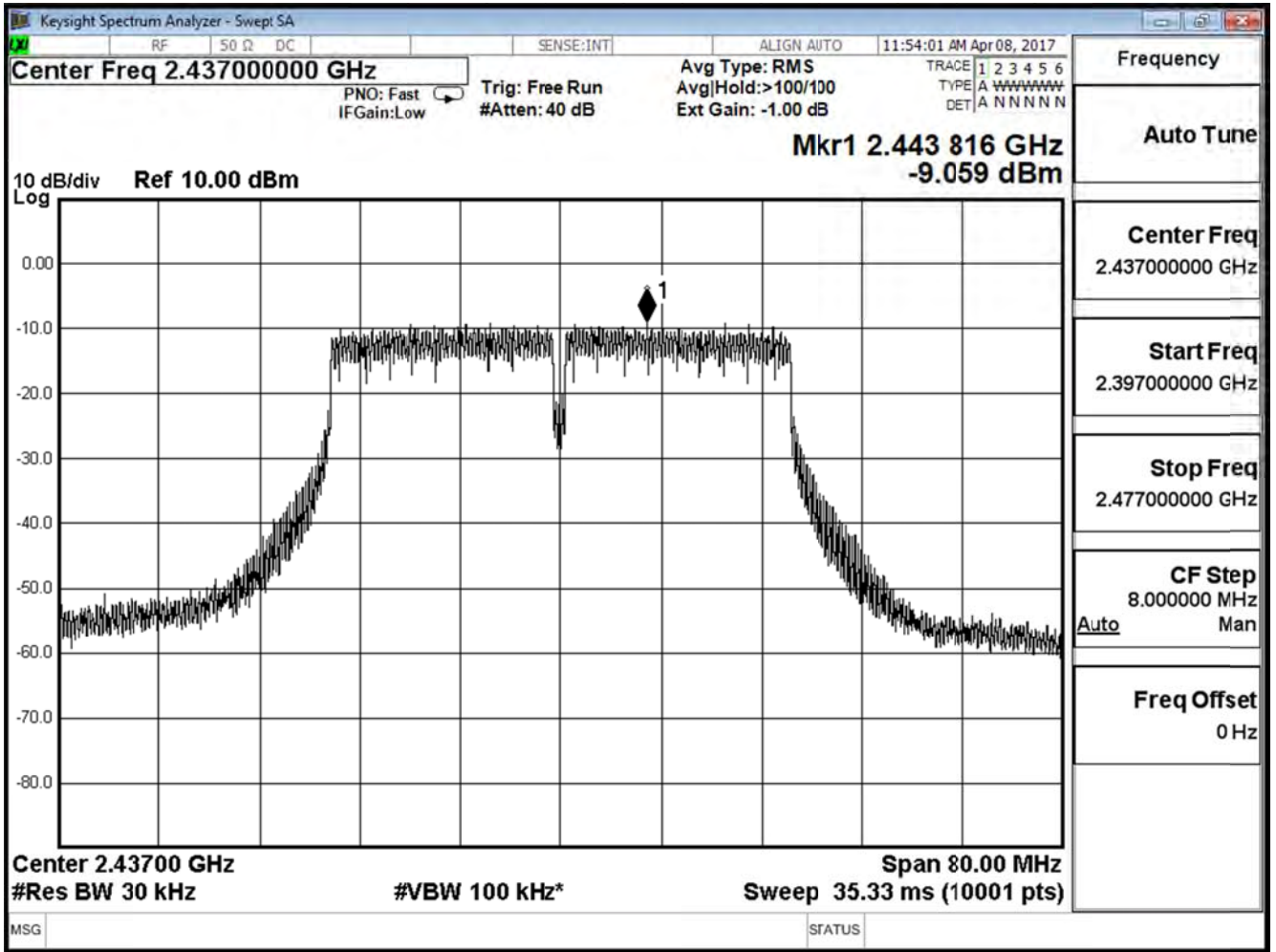
IEEE802.11n 40MHz (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
3	2422	-12.067	8.00	Pass
6	2437	-9.059	8.00	Pass
9	2452	-12.875	8.00	Pass

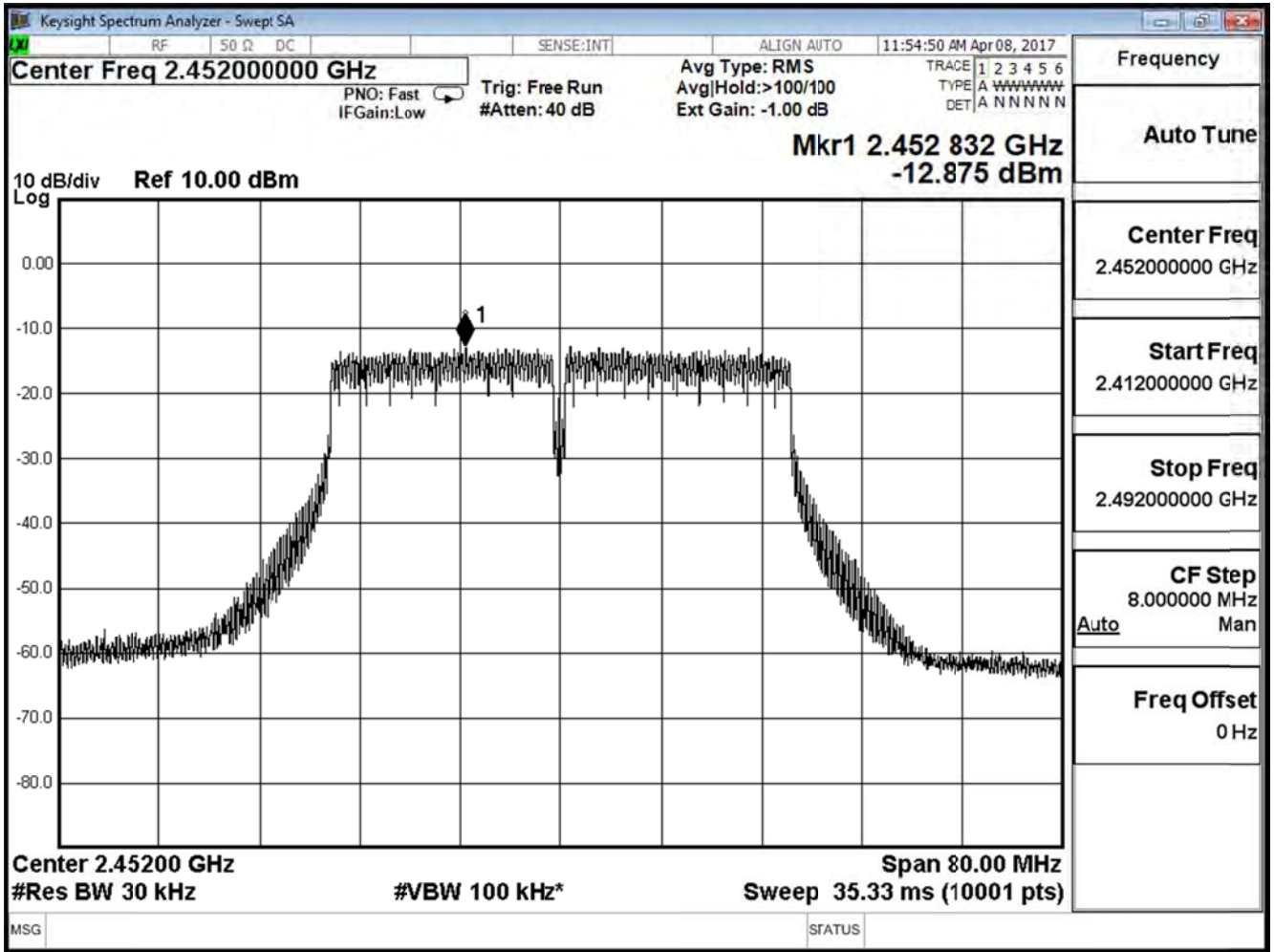
Channel 3



Channel 6



Channel 9



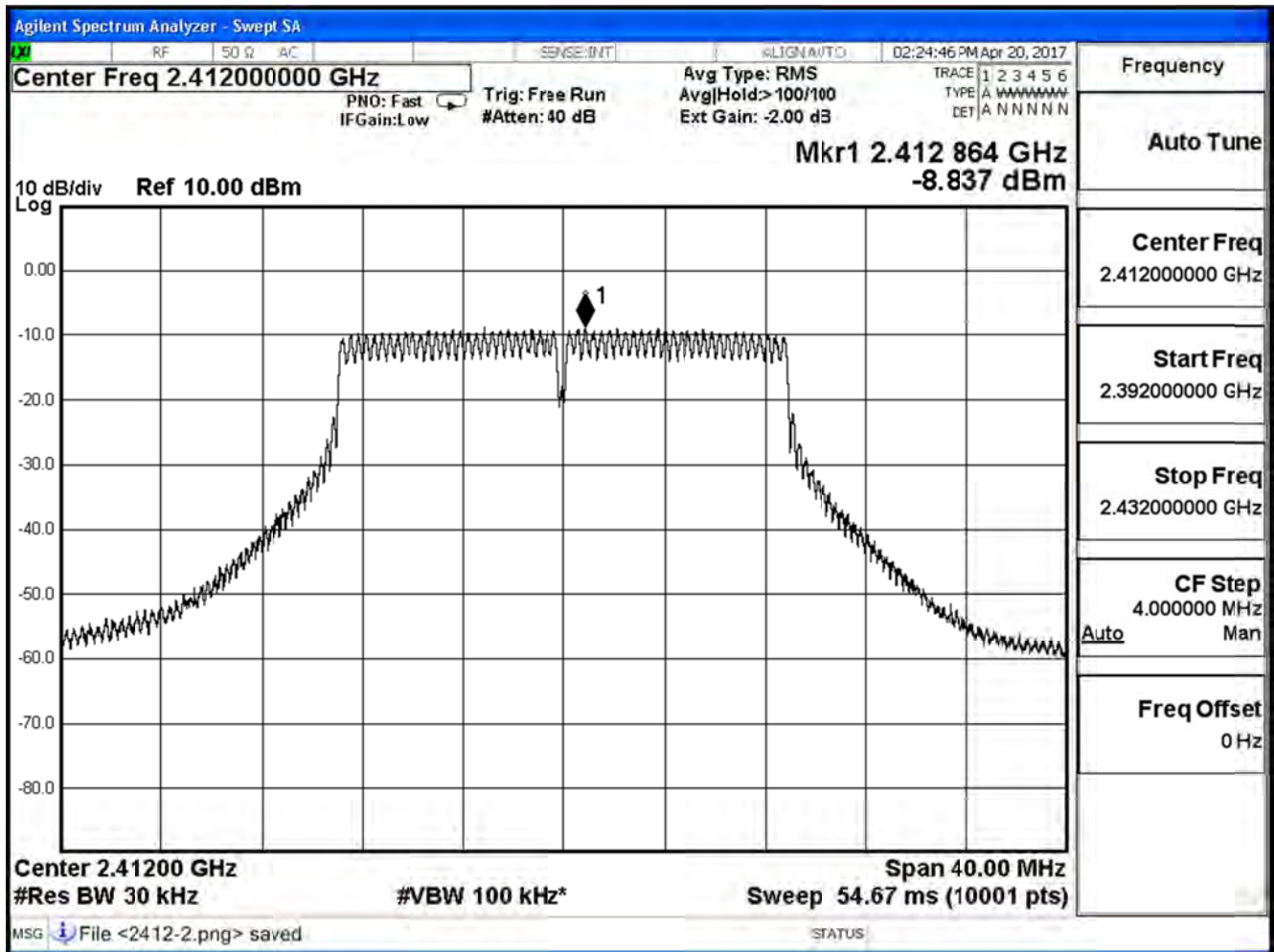
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2055320 Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE802.11n 40MHz (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
3	2422	-9.304	8.00	Pass
6	2437	-6.122	8.00	Pass
9	2452	-9.452	8.00	Pass

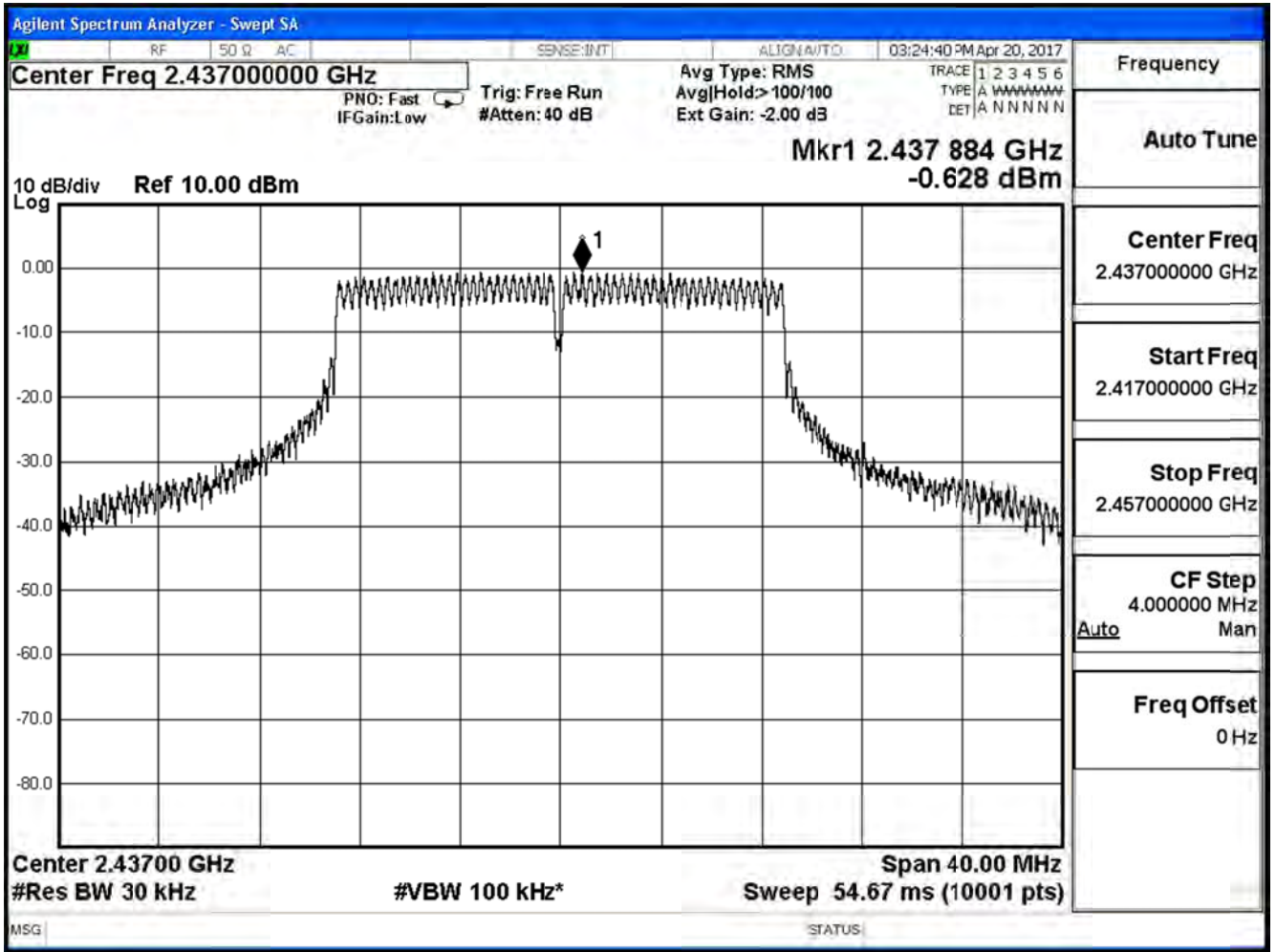
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 2: Tx-AD2055320 BF Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE802.11n 20MHz (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-8.837	8	Pass
6	2437	-0.628	8	Pass
11	2462	-8.287	8	Pass

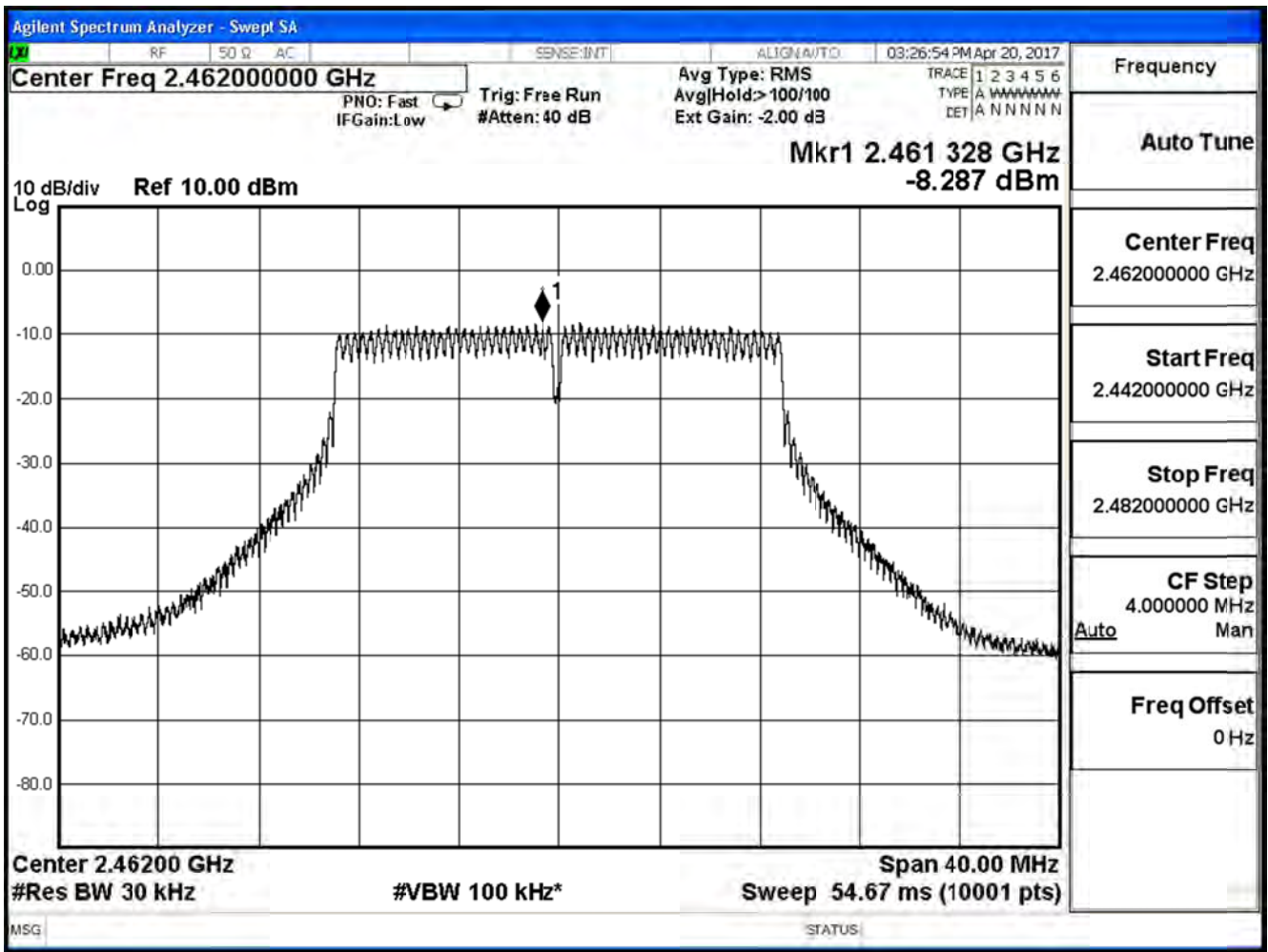
Channel 1



Channel 6



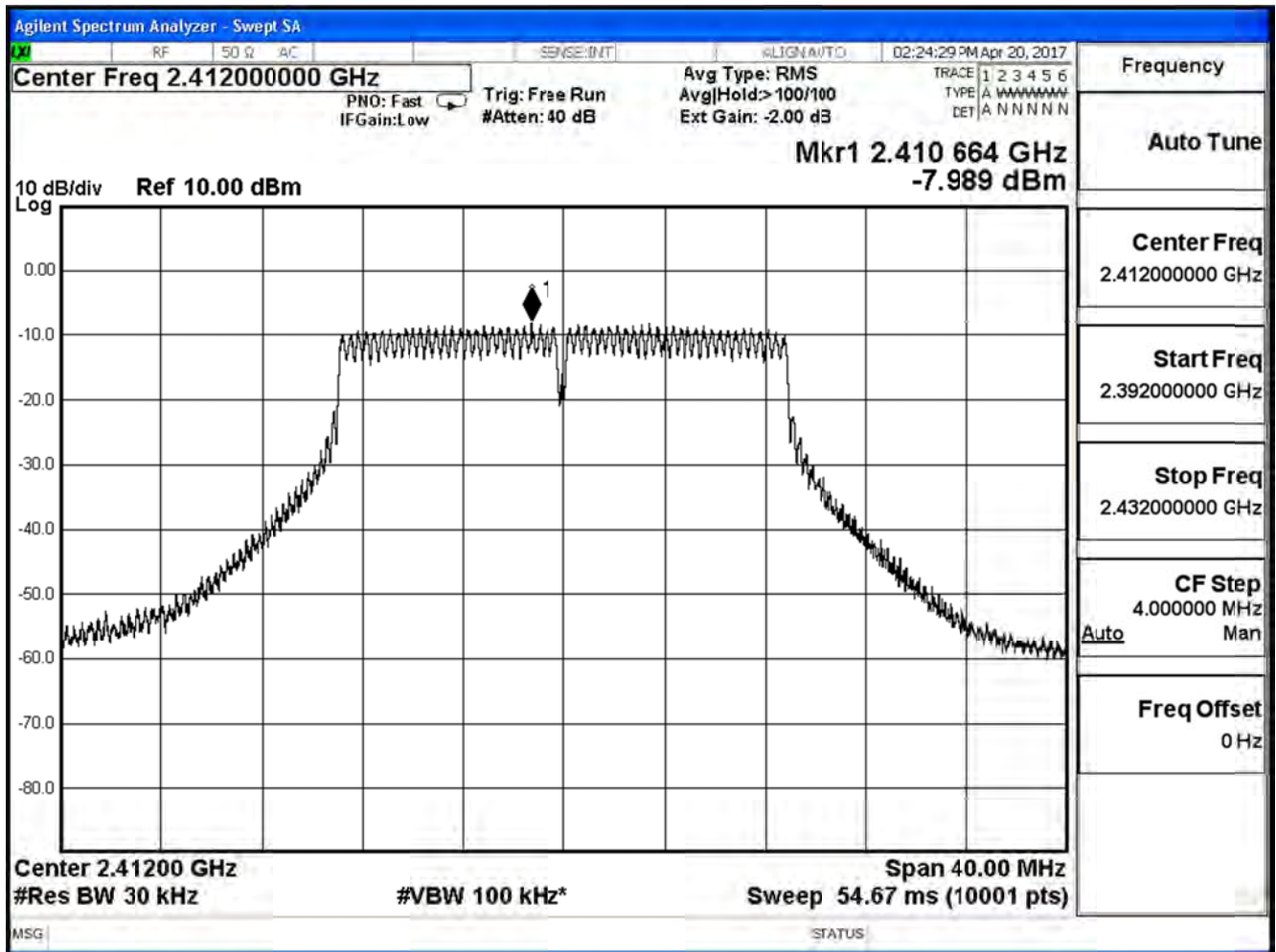
Channel 11



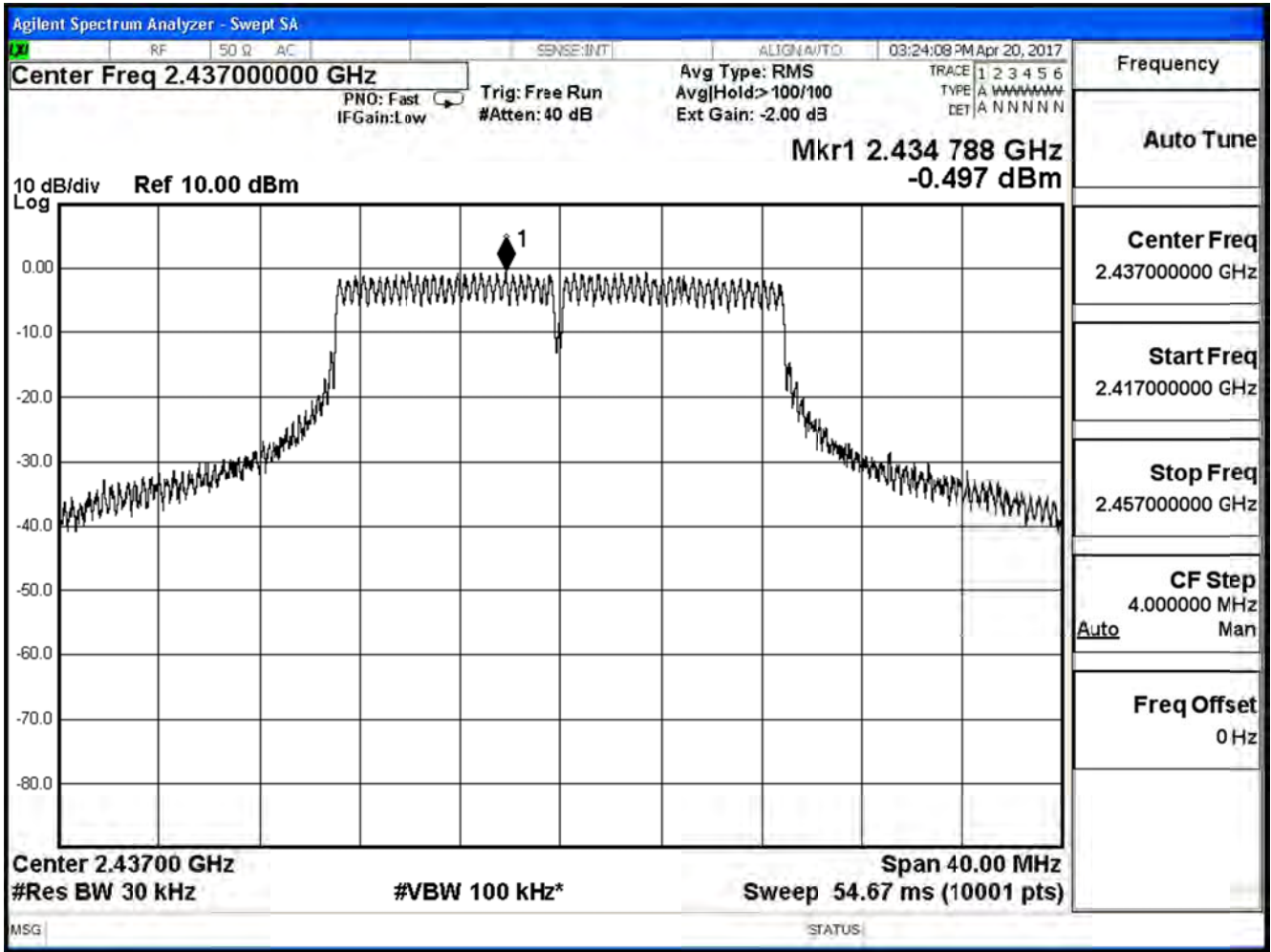
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 2: Tx-AD2055320 BF Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE802.11n 20MHz (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-7.989	8	Pass
6	2437	-0.497	8	Pass
11	2462	-8.319	8	Pass

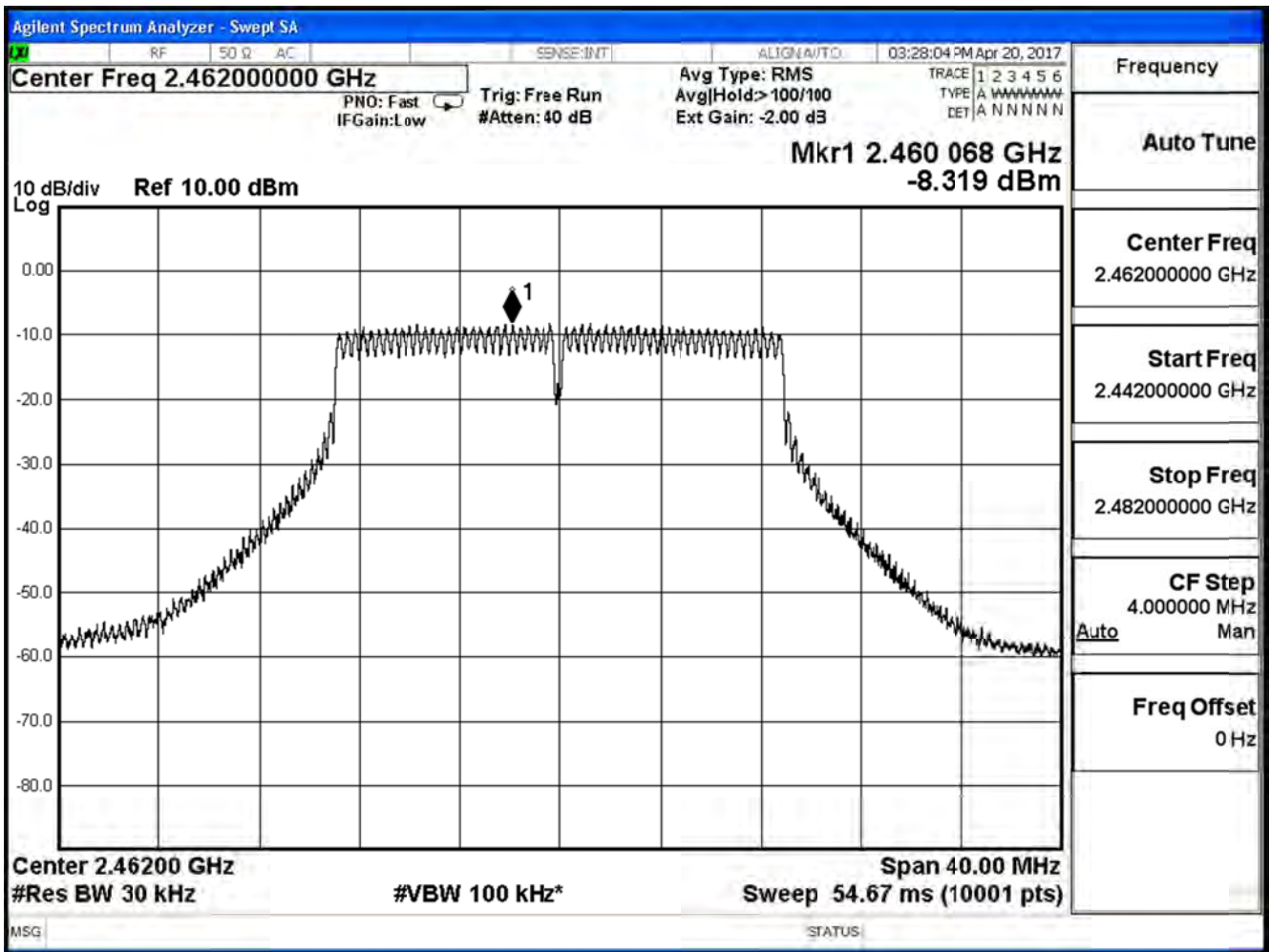
Channel 1



Channel 6



Channel 11



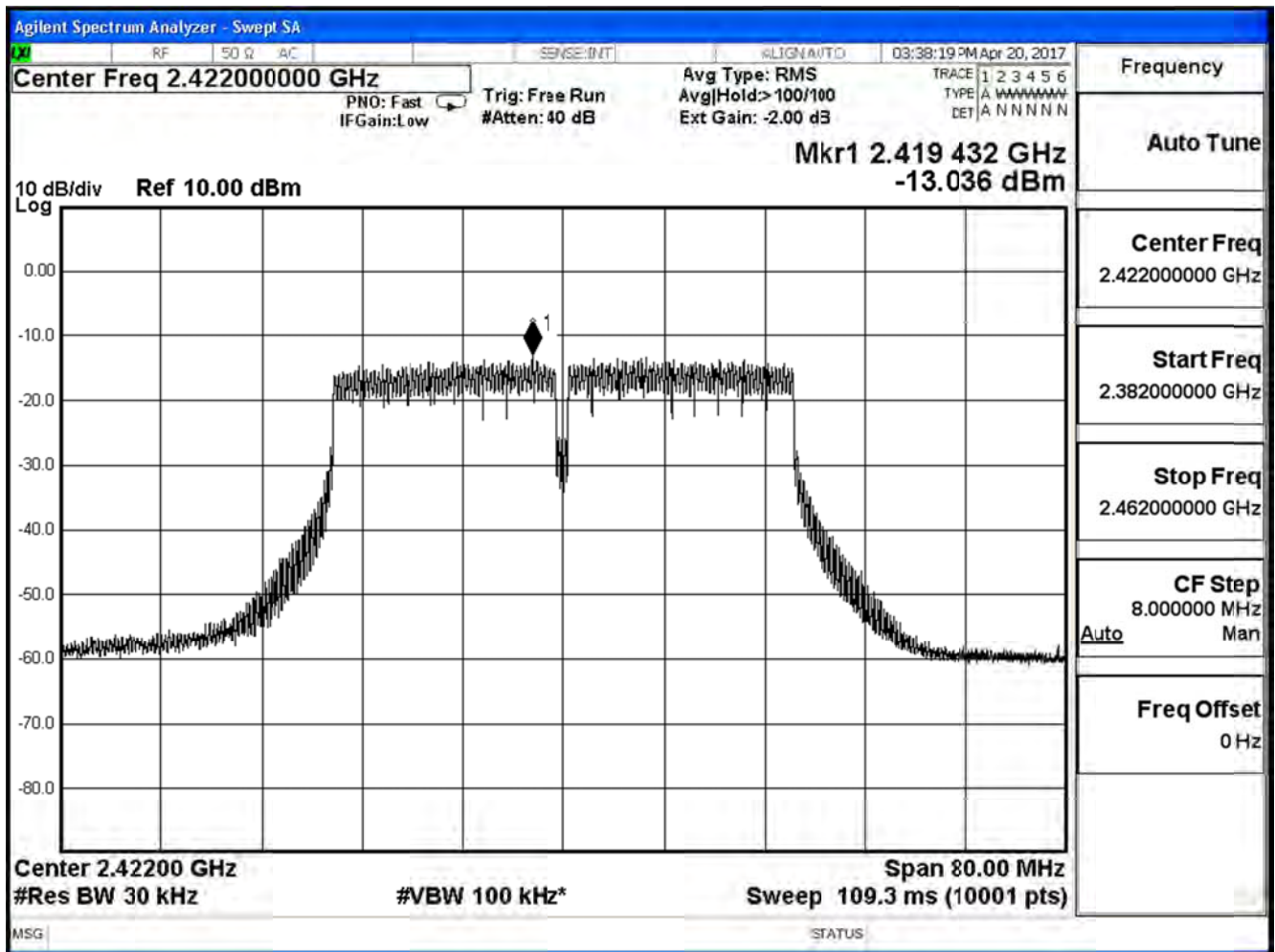
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 2: Tx-AD2055320 BF Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE802.11n 20MHz (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
1	2412	-5.38	8	Pass
6	2437	2.45	8	Pass
11	2462	-5.29	8	Pass

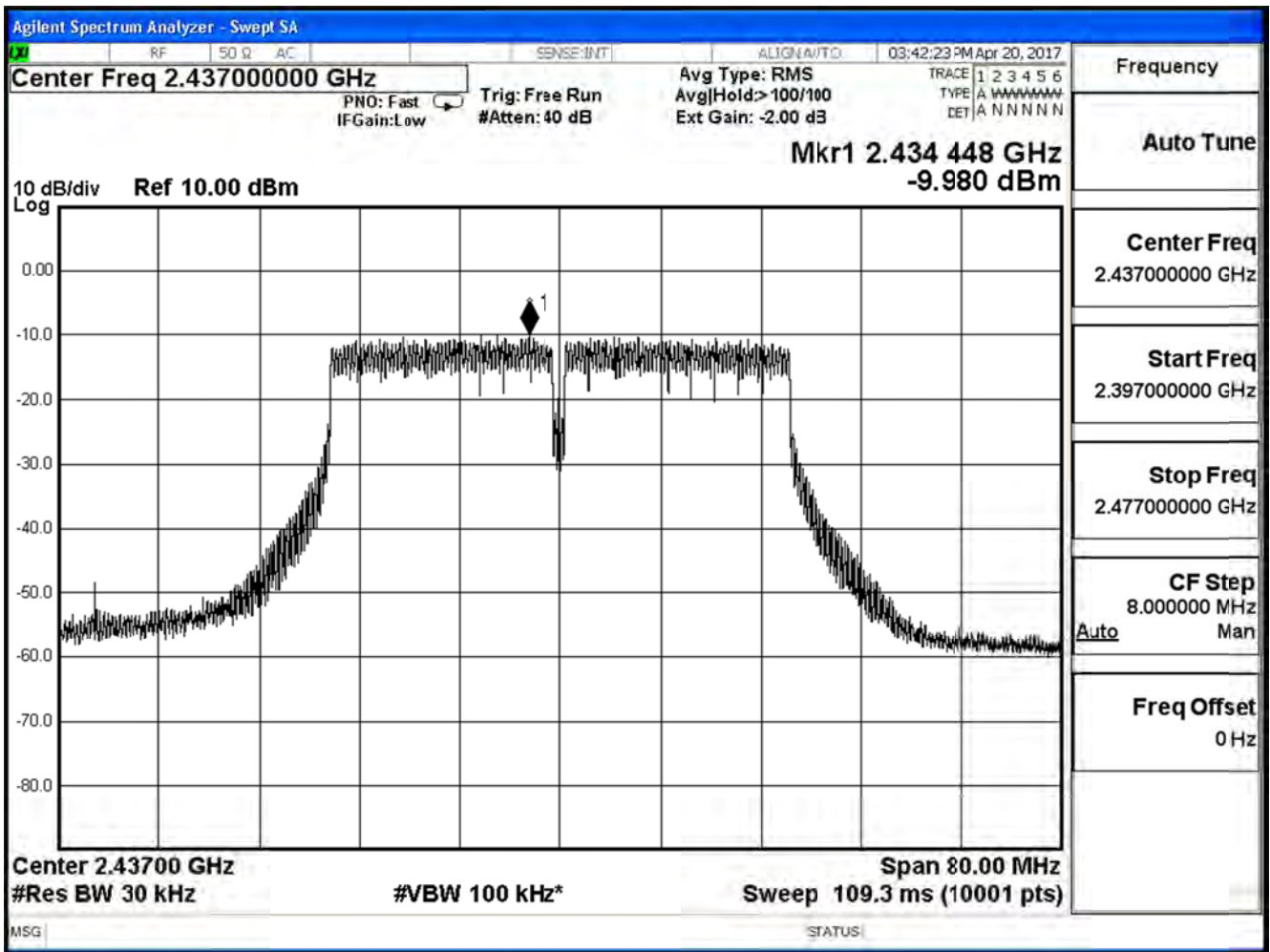
Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 2: Tx-AD2055320 BF Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE802.11n 40MHz (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
3	2422	-13.036	8	Pass
6	2437	-9.980	8	Pass
9	2452	-13.087	8	Pass

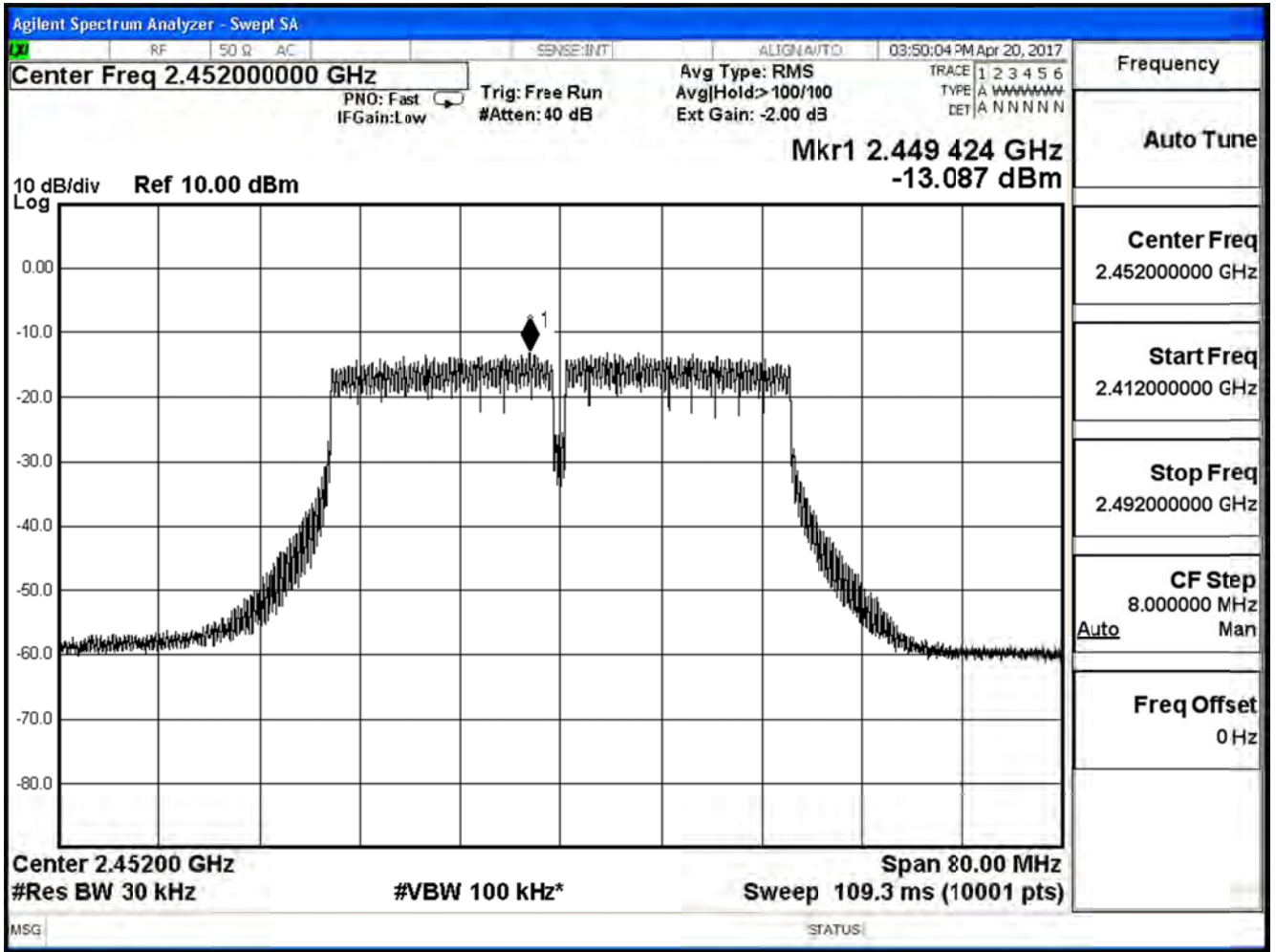
Channel 3



Channel 6



Channel 9

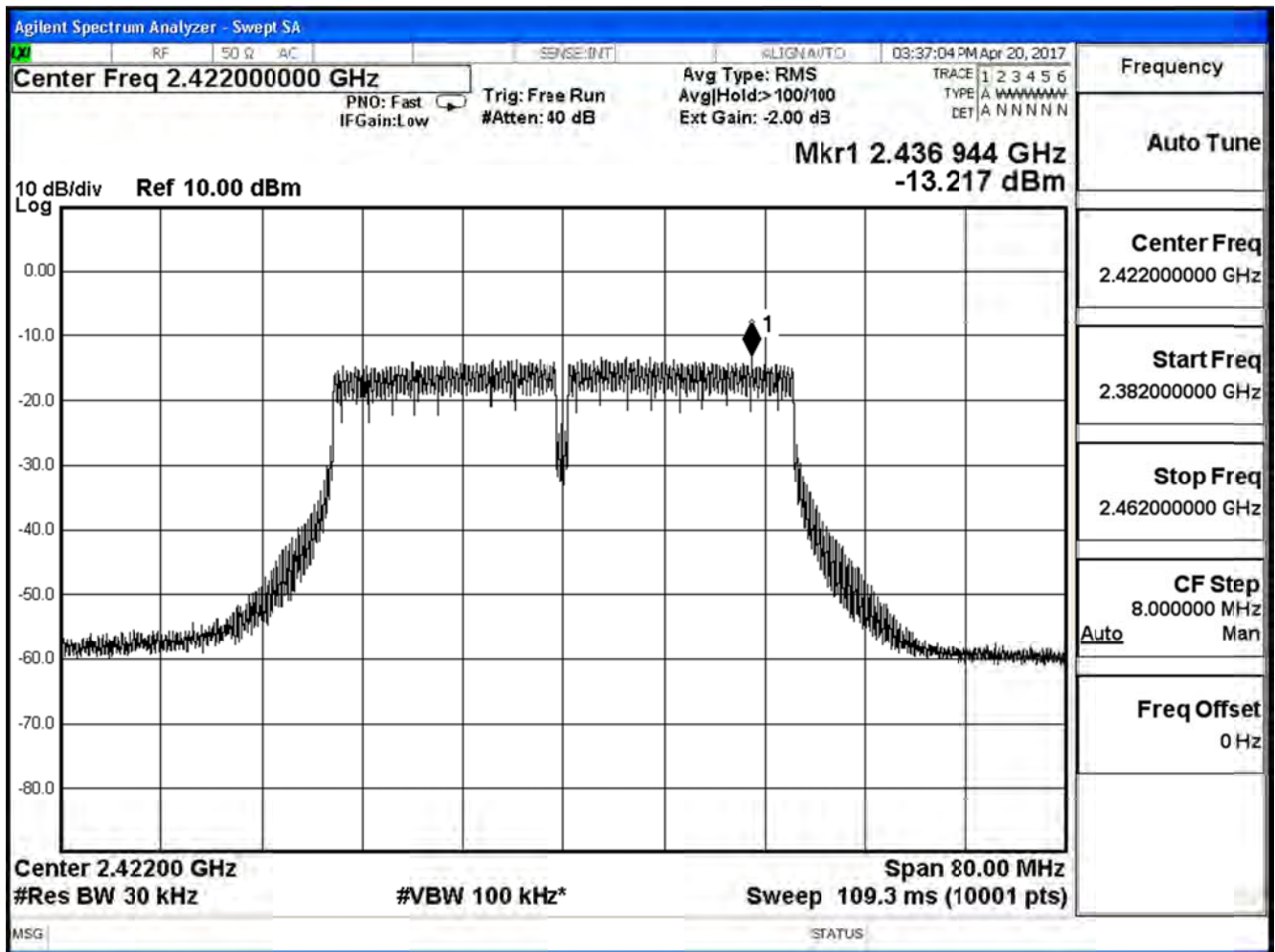


Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 2: Tx-AD2055320 BF Mode		
Date of Test	2017/04/08	Test Site	SR10-H

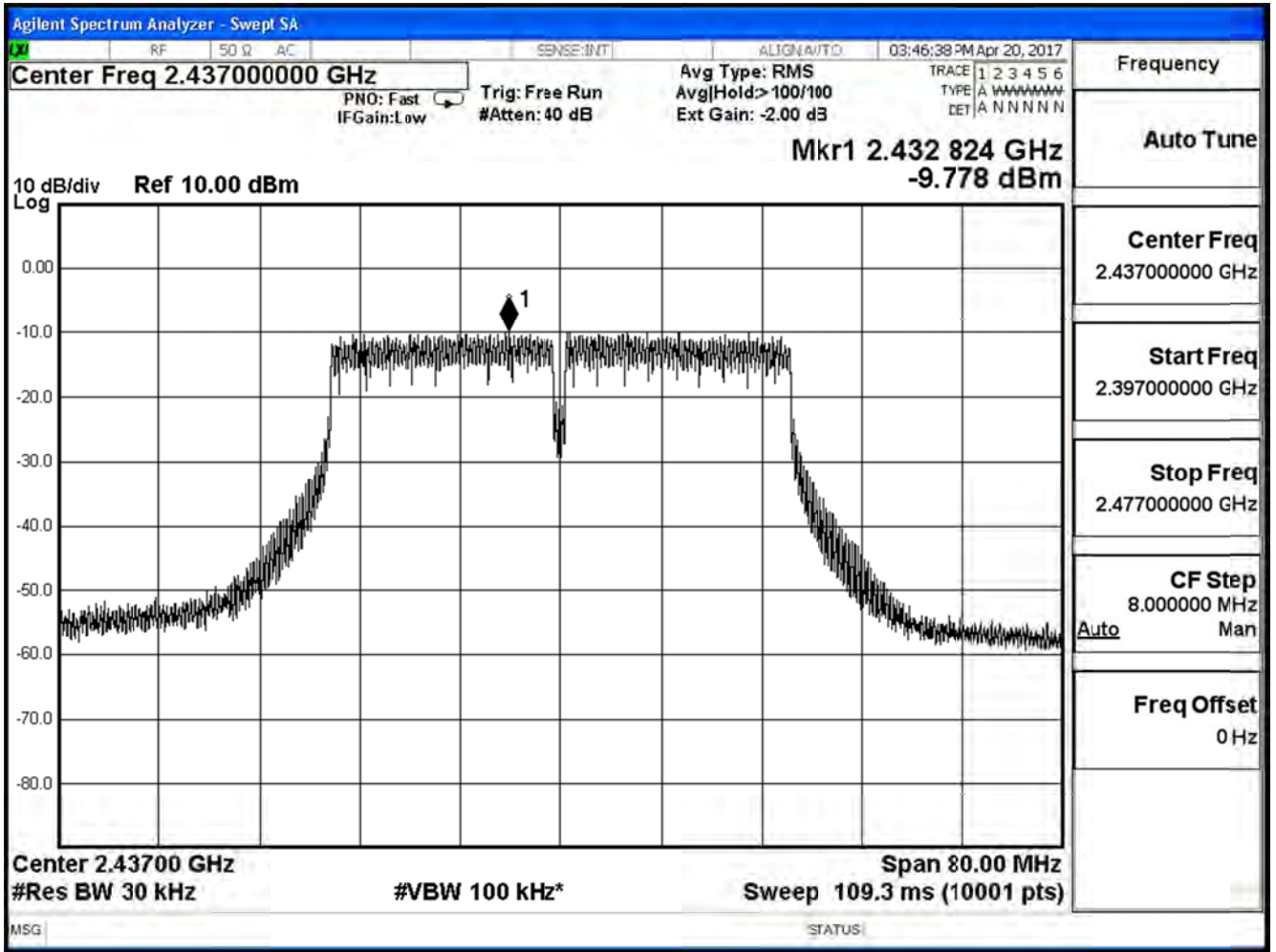
IEEE802.11n 40MHz (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
3	2422	-13.217	8	Pass
6	2437	-9.778	8	Pass
9	2452	-13.352	8	Pass

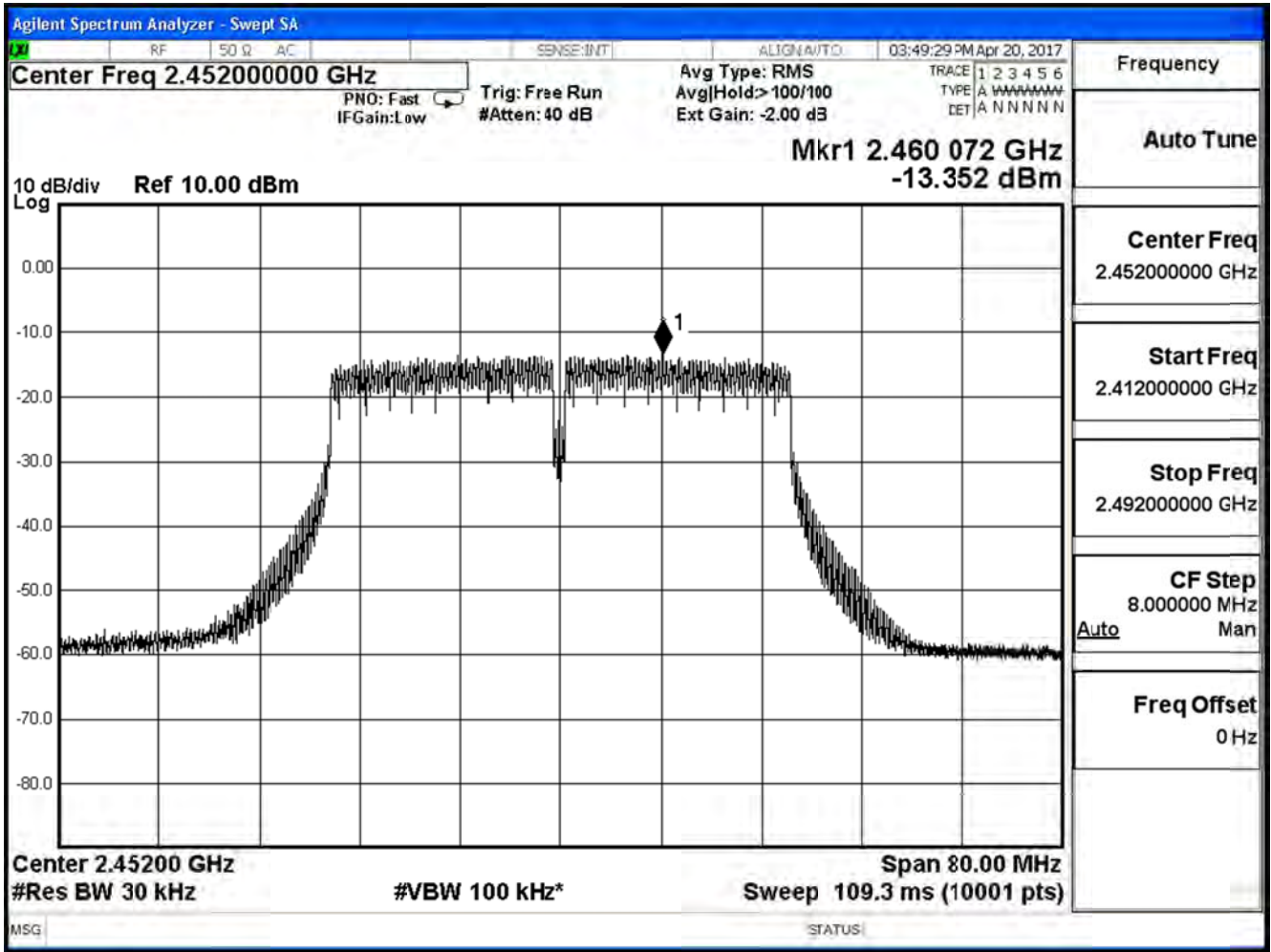
Channel 3



Channel 6



Channel 9



Product	Lyra		
Test Item	Power Density		
Test Mode	Mode 2: Tx-AD2055320 BF Mode		
Date of Test	2017/04/08	Test Site	SR10-H

IEEE802.11n 40MHz (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm/3kHz)	Limit (dBm/3kHz)	Result
3	2422	-10.115	8	Pass
6	2437	-6.868	8	Pass
9	2452	-10.207	8	Pass