

7. DTS Bandwidth

7.1. Test Equipment

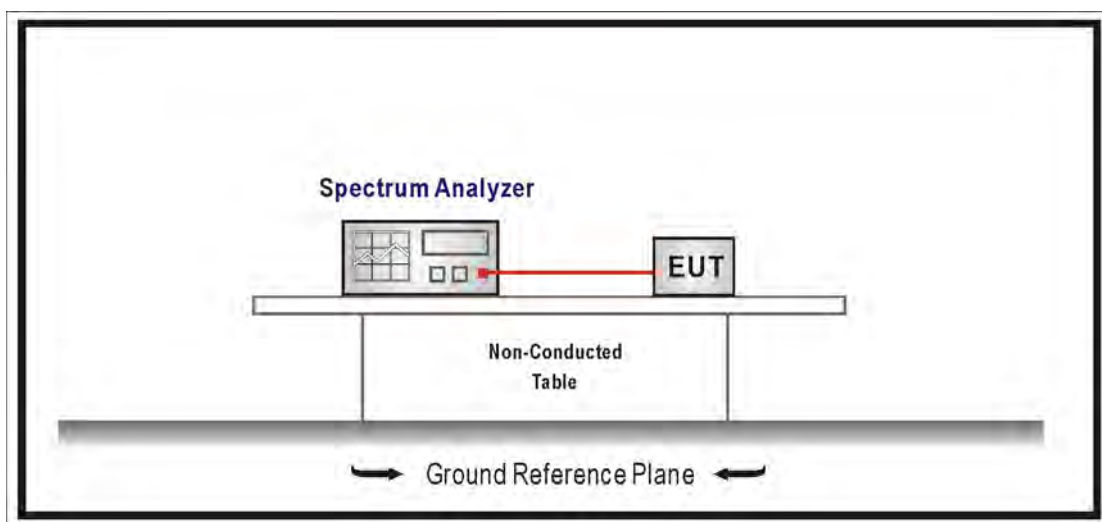
The following test equipments are used during the test:

DTS Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/22

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 $\pm 150\text{Hz}$

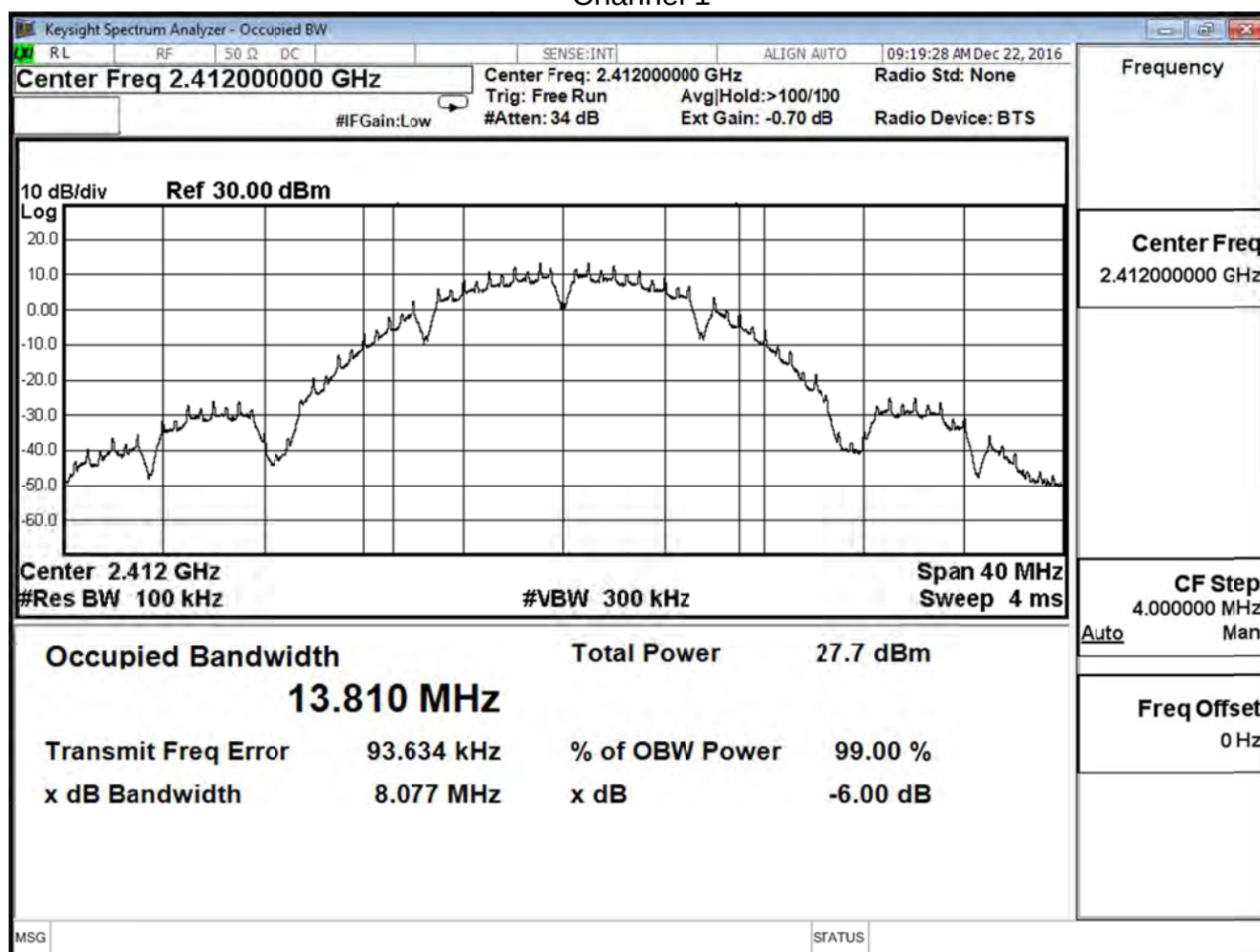
7.7. Test Result

Product	Lyra mini		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

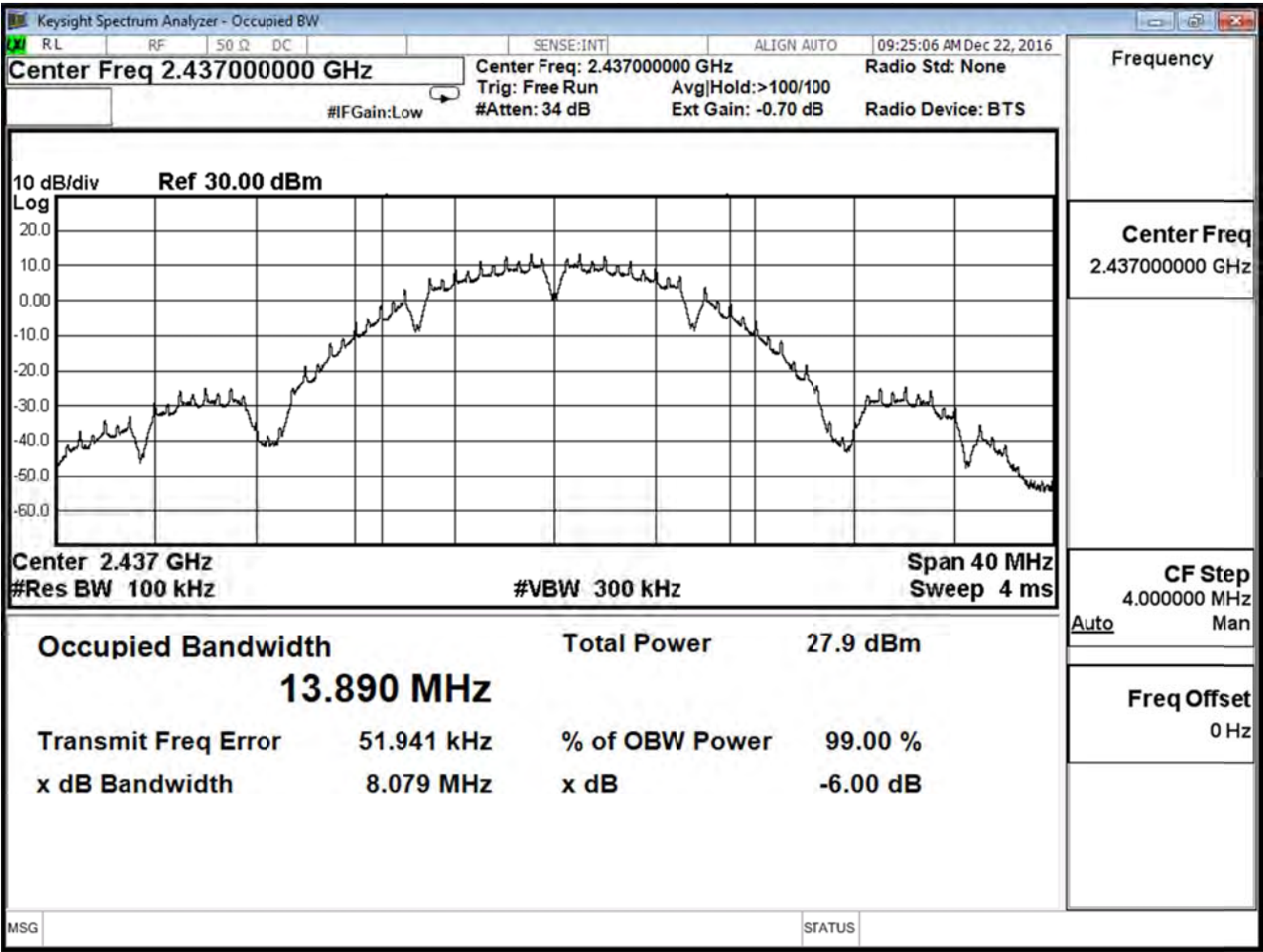
802.11 b (ANT 0)

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

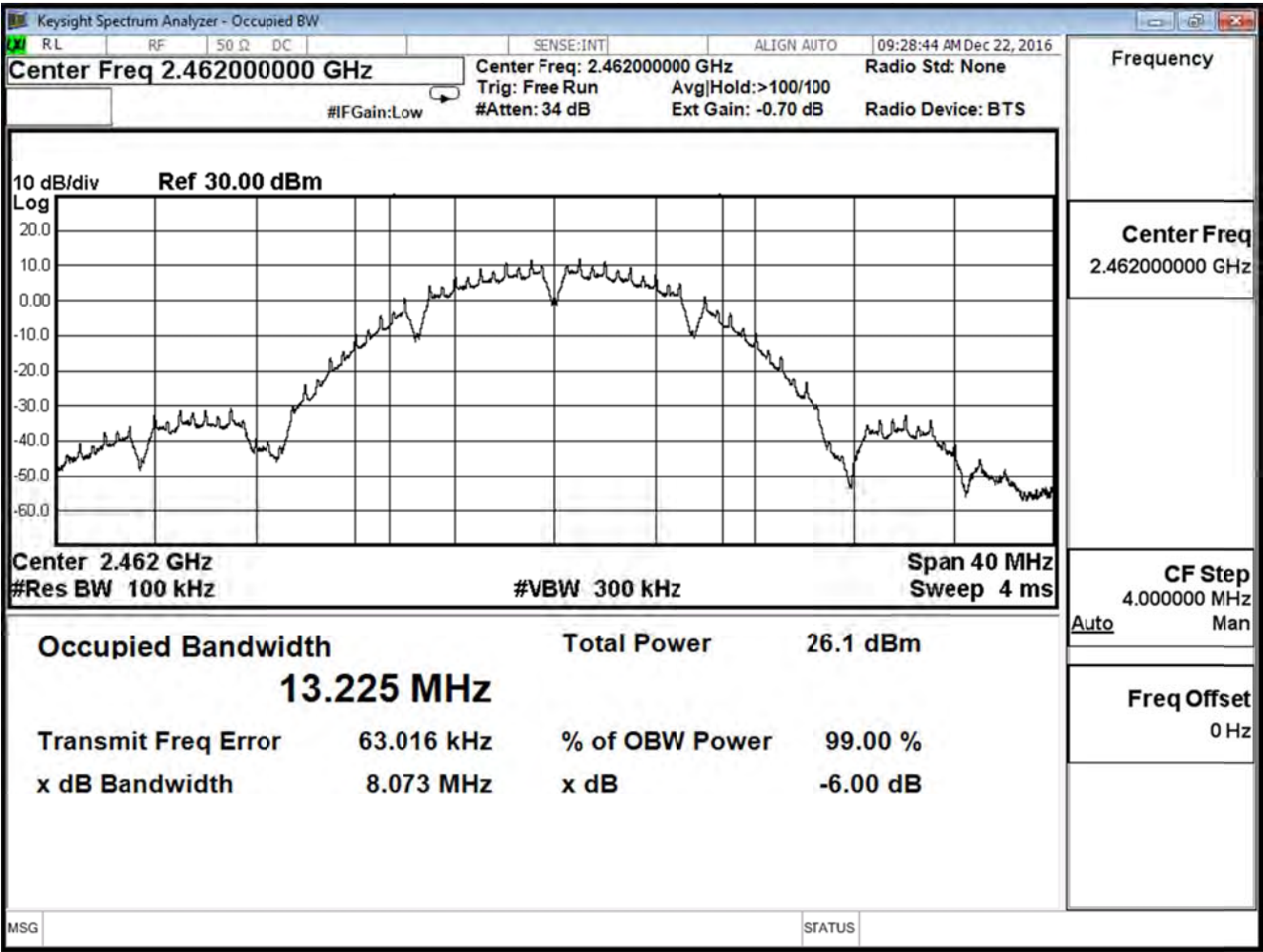
Channel 1



Channel 6



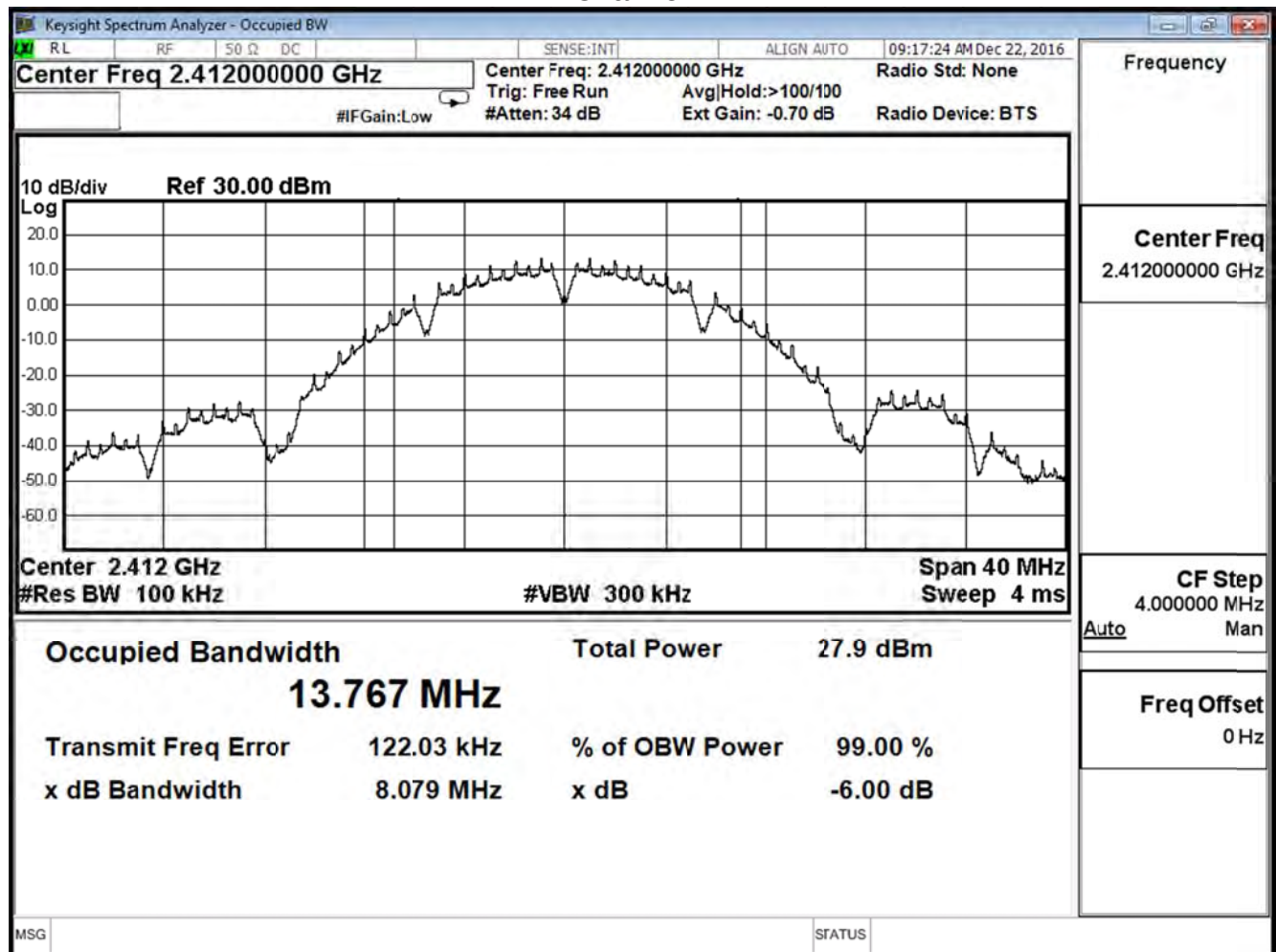
Channel 11



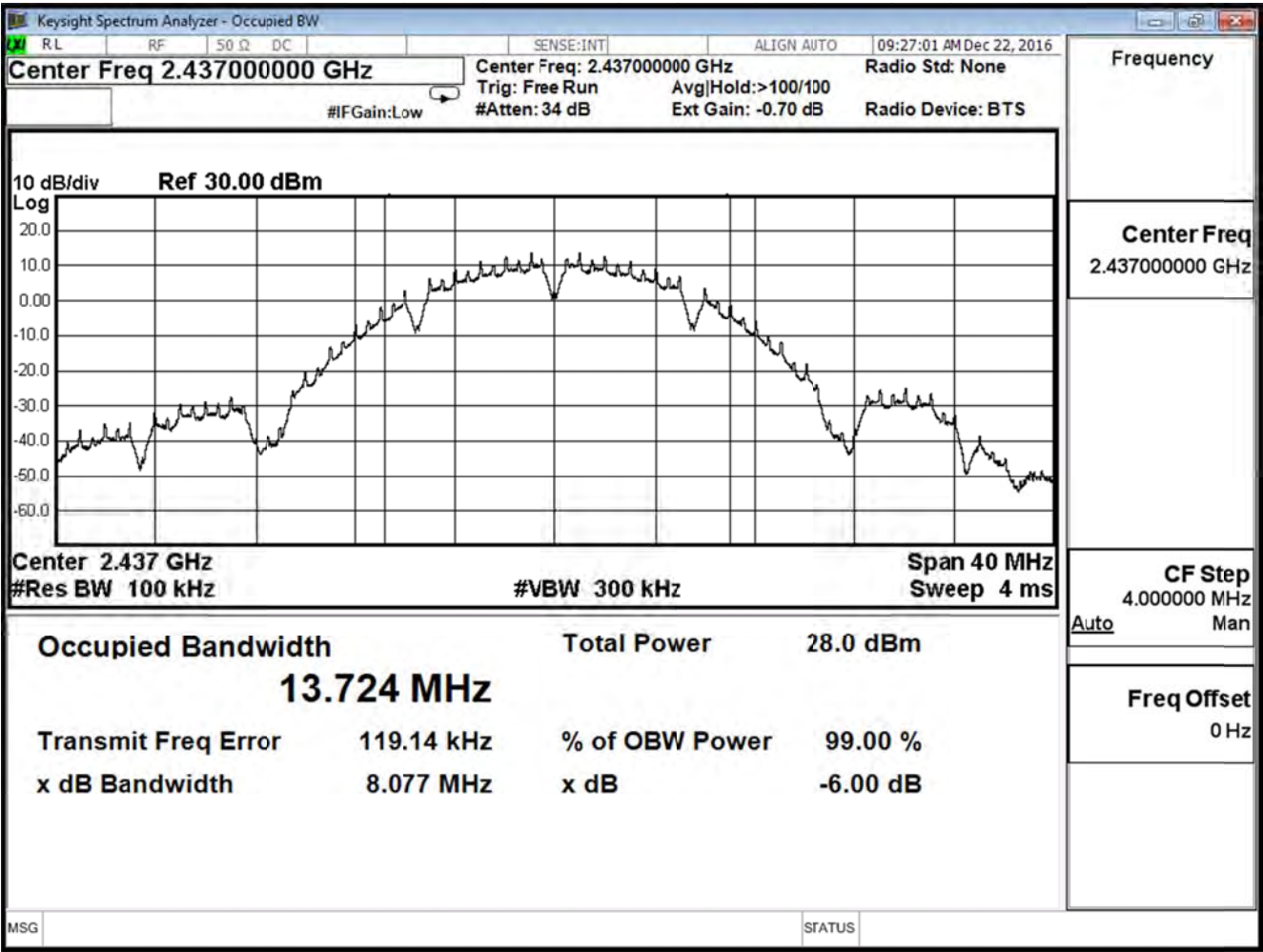
Product	Lyra mini		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

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

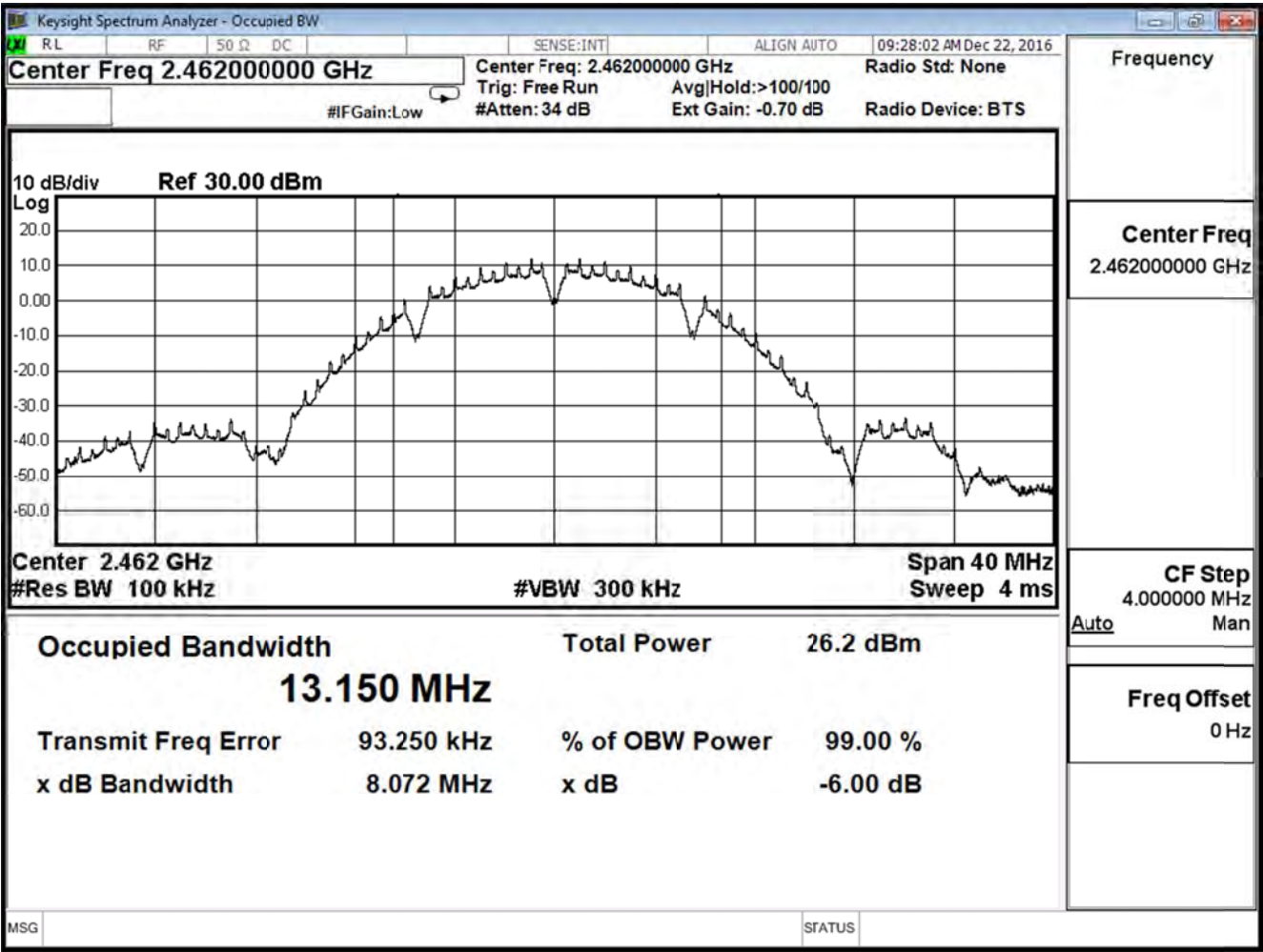
Channel 1



Channel 6



Channel 11

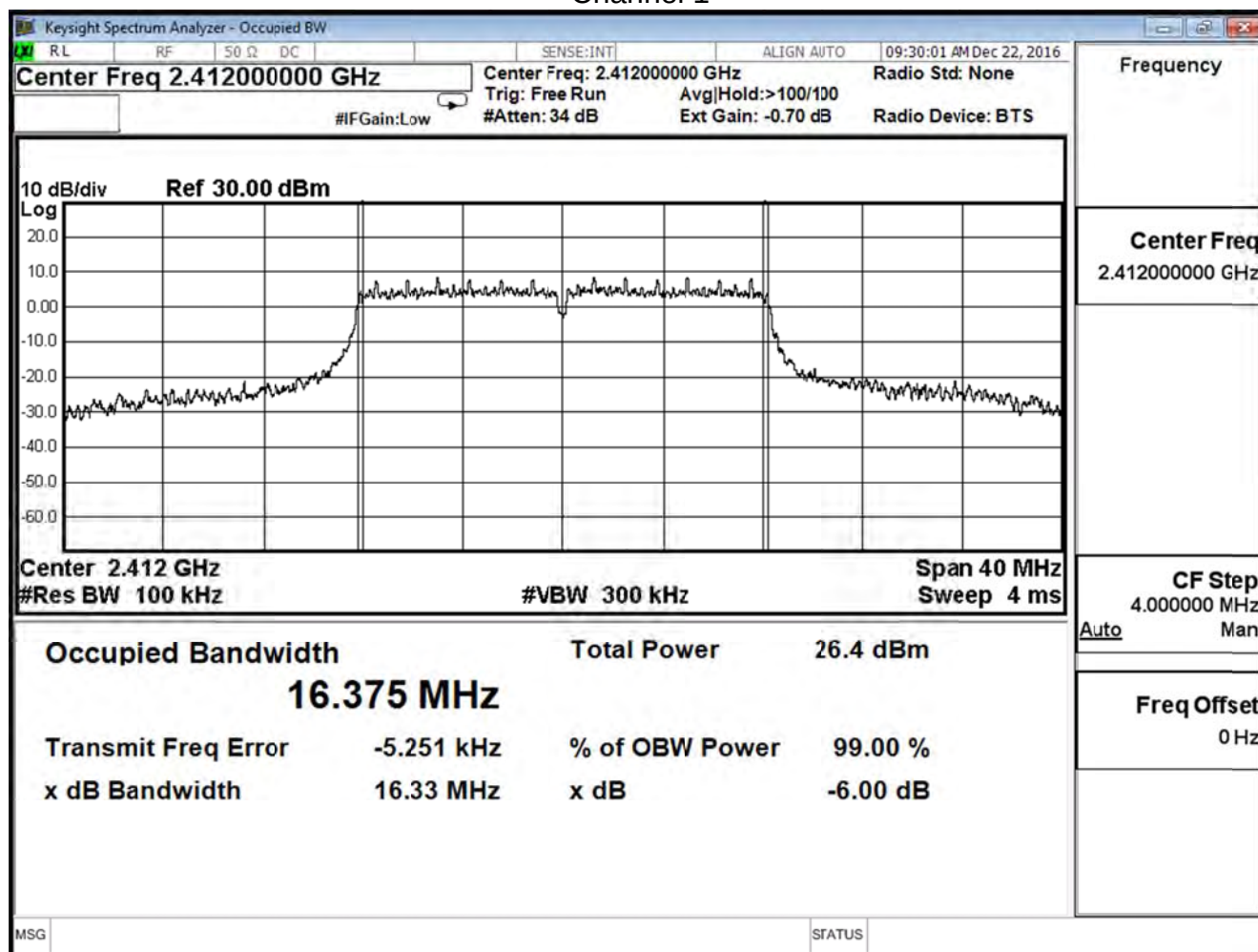


Product	Lyra mini		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

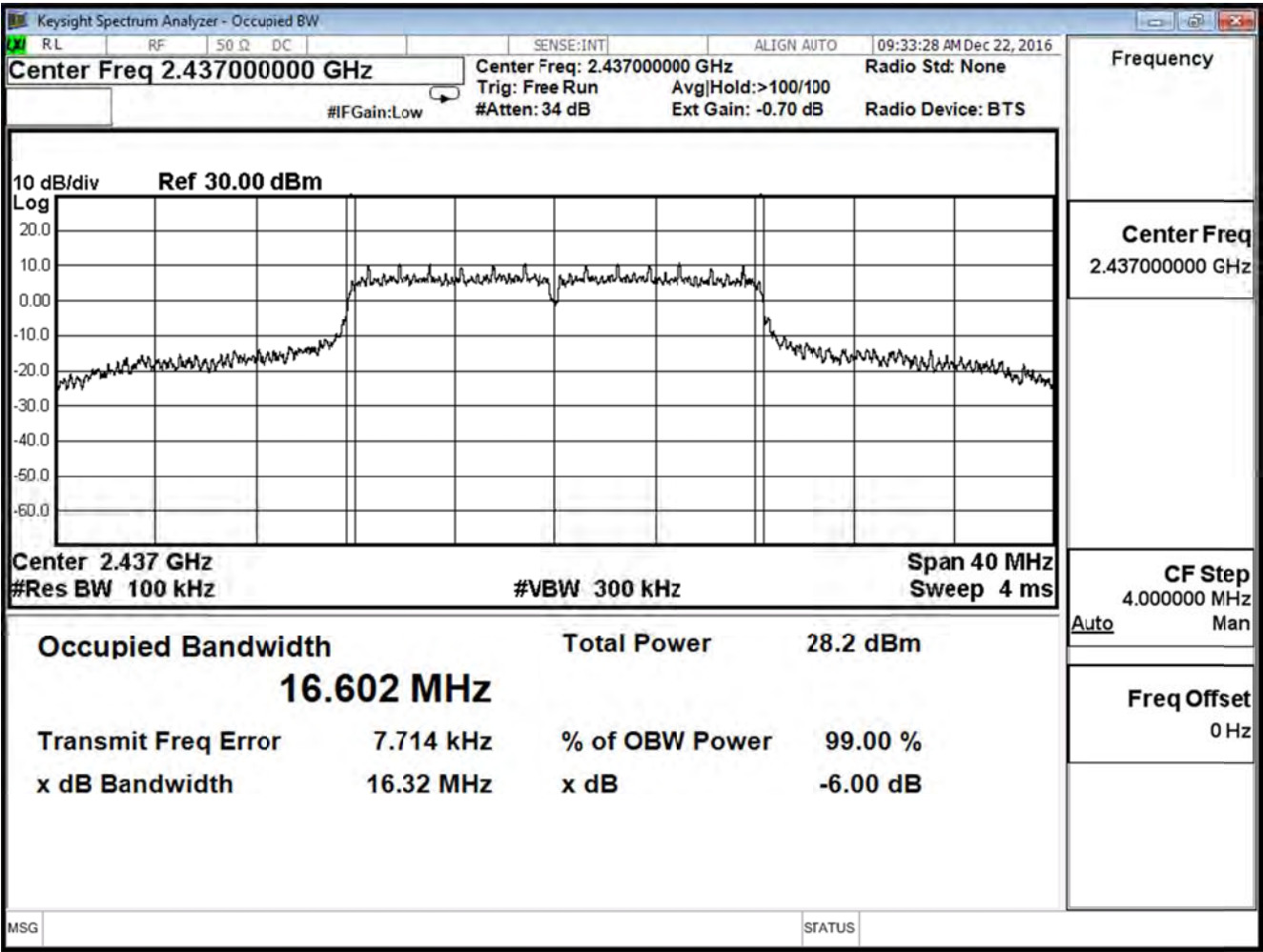
802.11 g (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	16.33	≥ 0.5	Pass
6	2437	16.32	≥ 0.5	Pass
11	2462	16.34	≥ 0.5	Pass

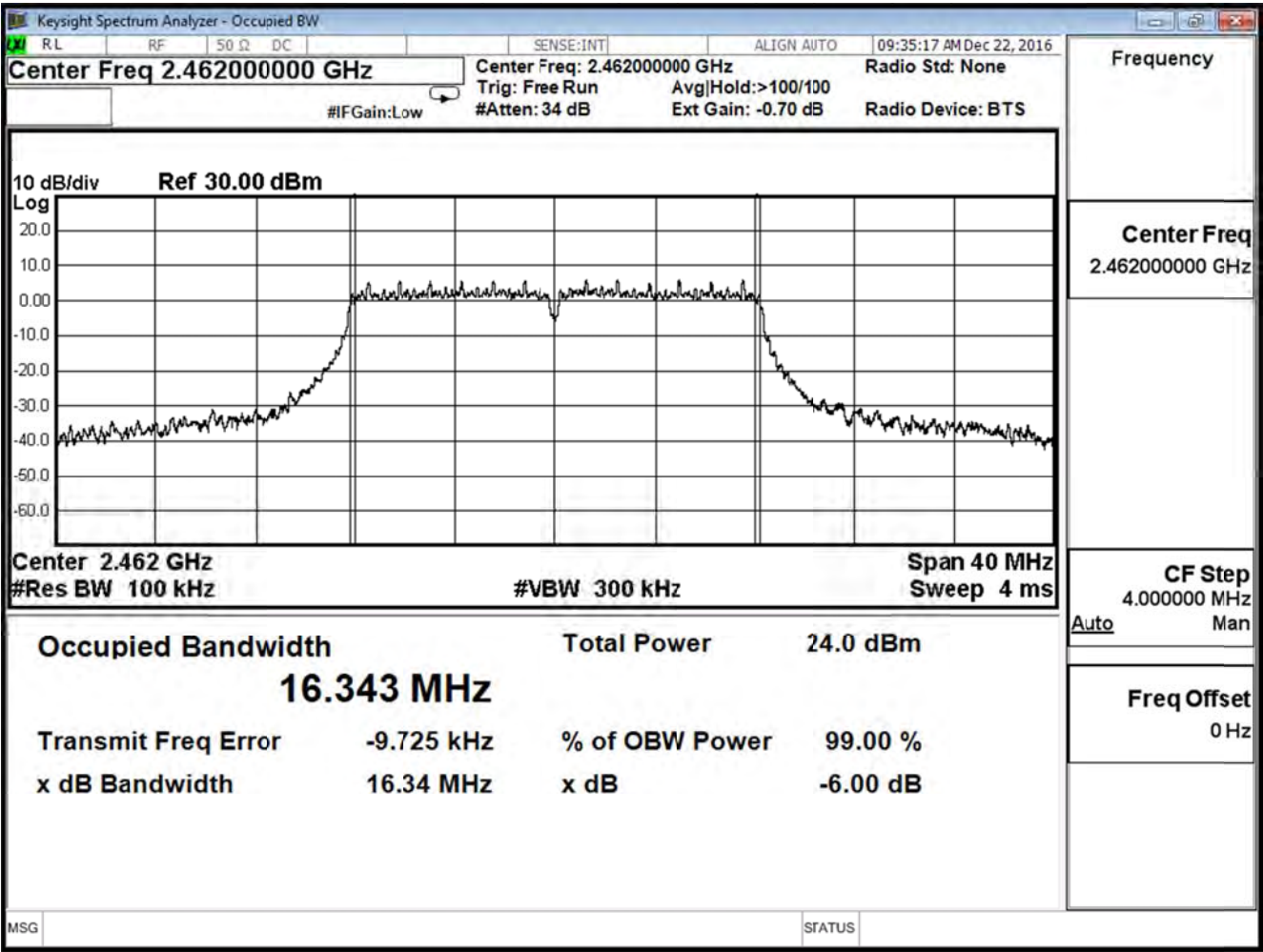
Channel 1



Channel 6



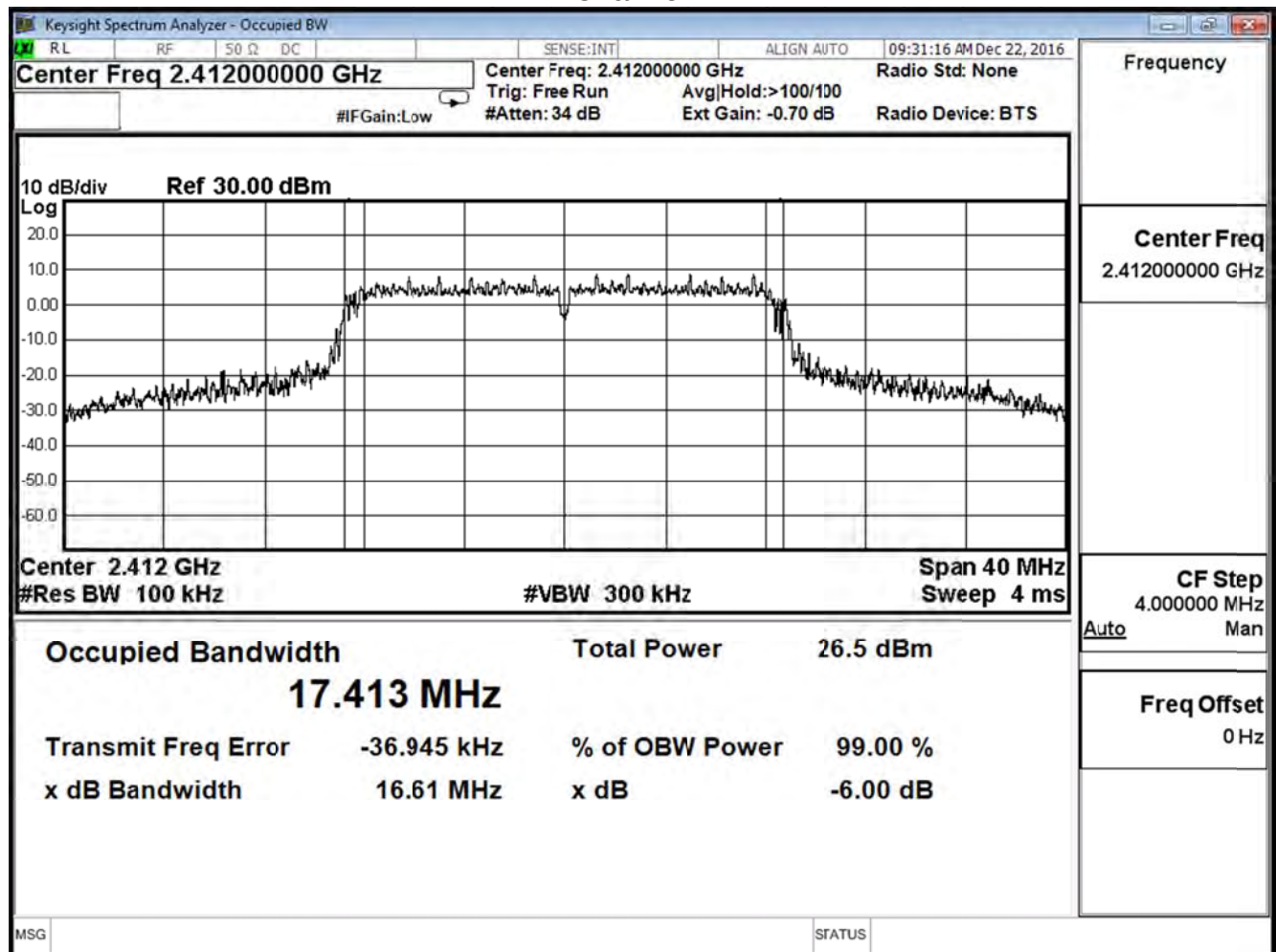
Channel 11



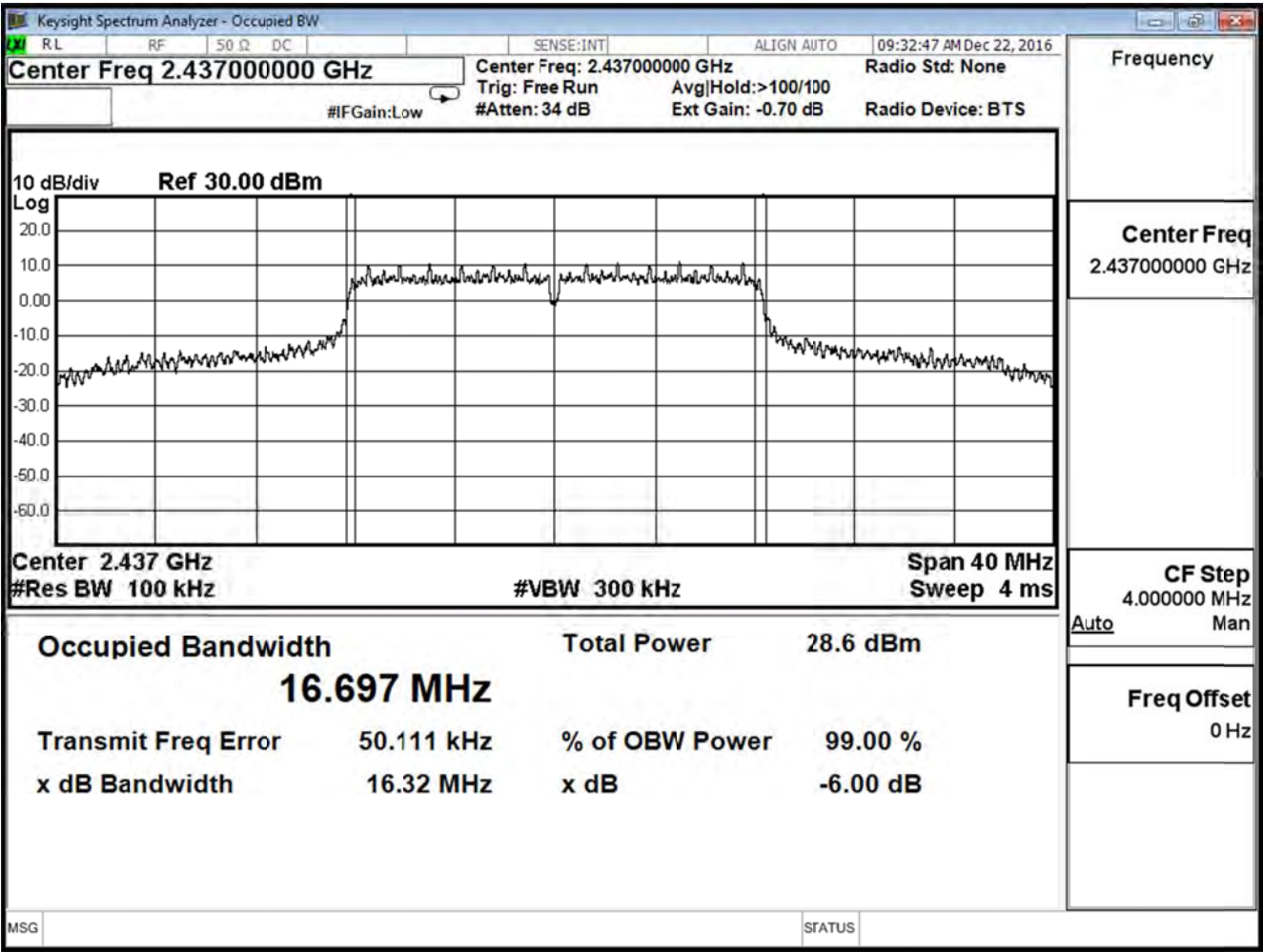
Product	Lyra mini		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

802.11 g (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	16.61	≥ 0.5	Pass
6	2437	16.32	≥ 0.5	Pass
11	2462	16.36	≥ 0.5	Pass

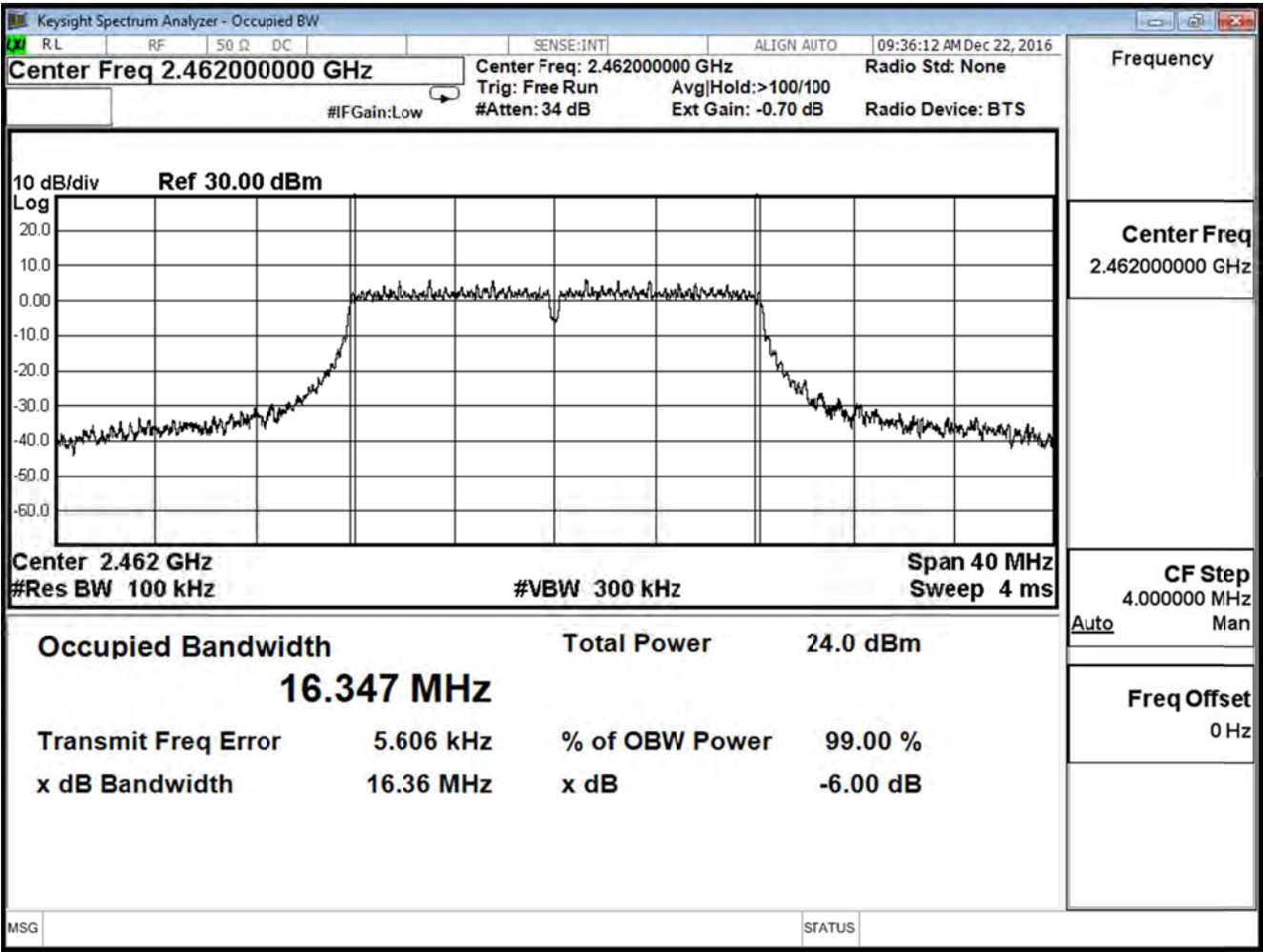
Channel 1



Channel 6



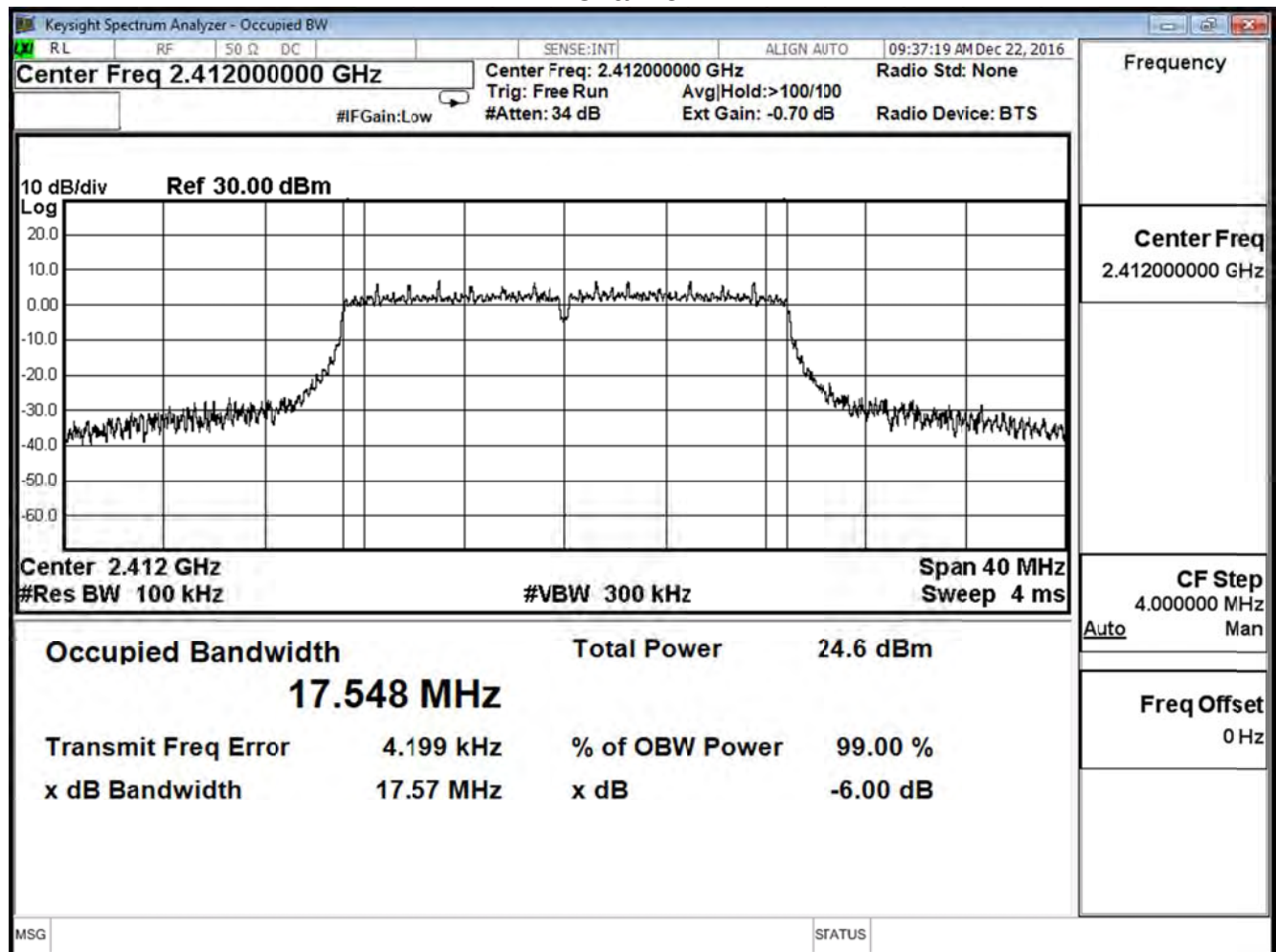
Channel 11



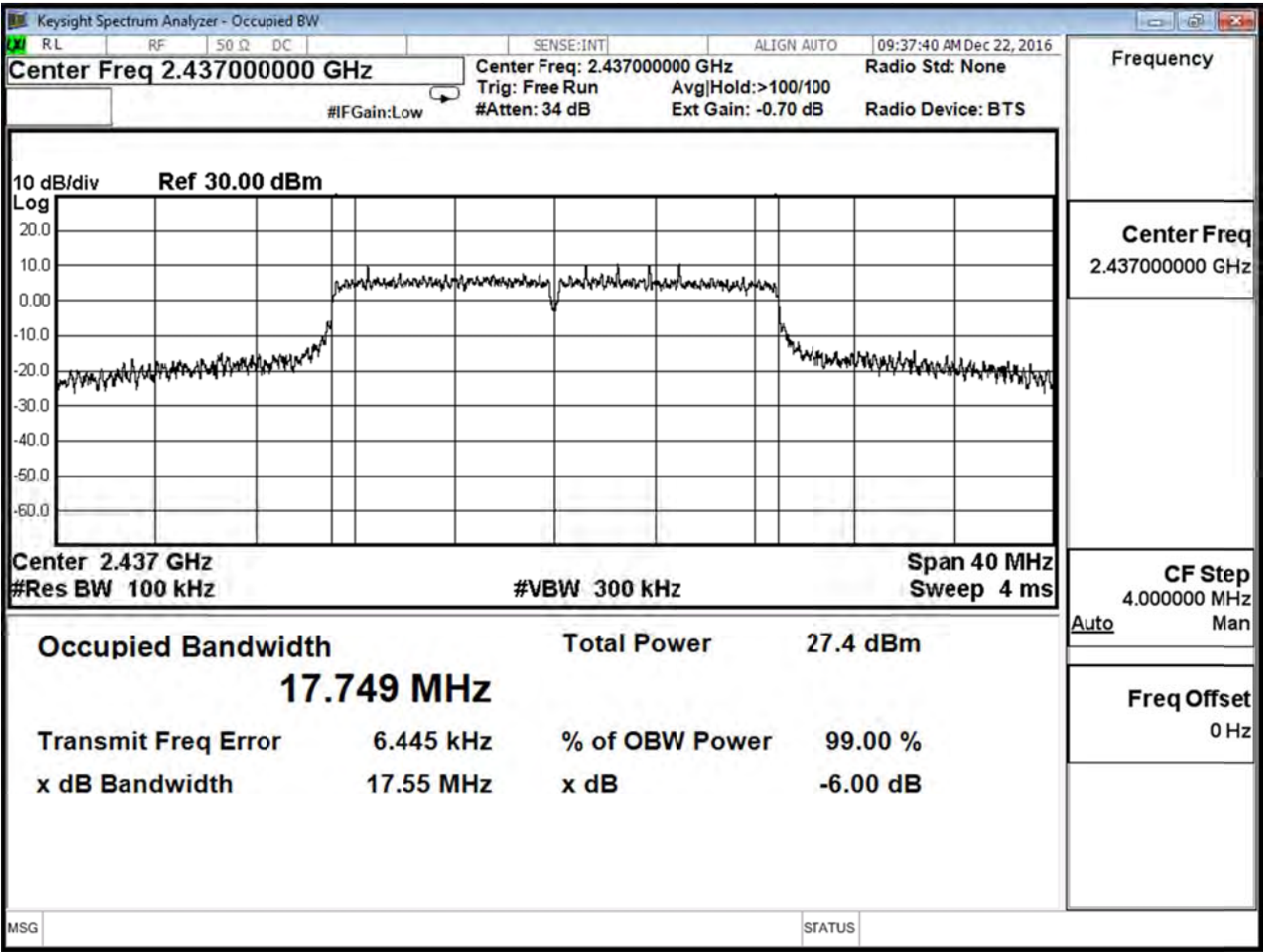
Product	Lyra mini		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

IEEE 802.11n_20M (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	17.57	≥ 0.5	Pass
6	2437	17.55	≥ 0.5	Pass
11	2462	17.57	≥ 0.5	Pass

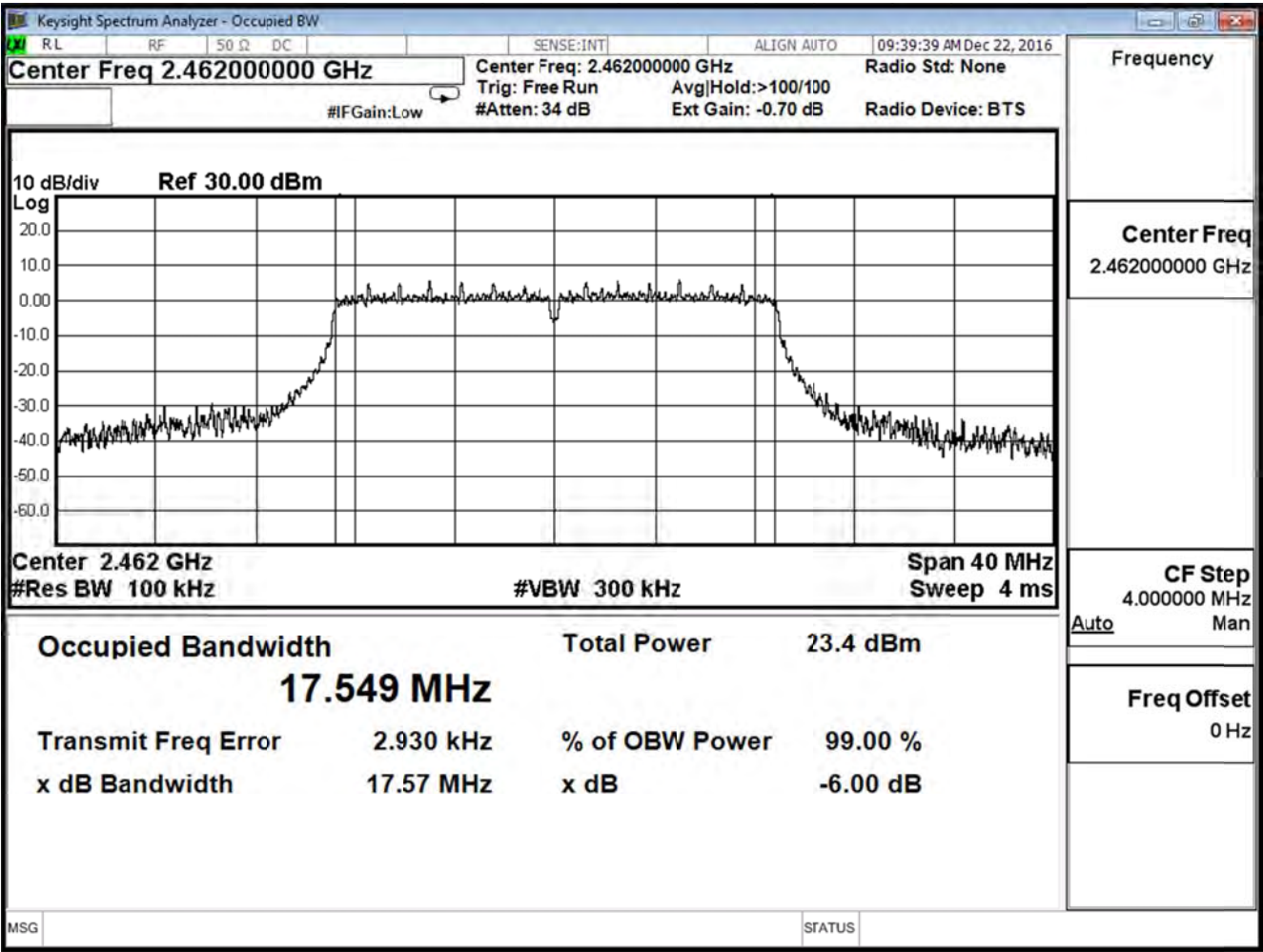
Channel 1



Channel 6



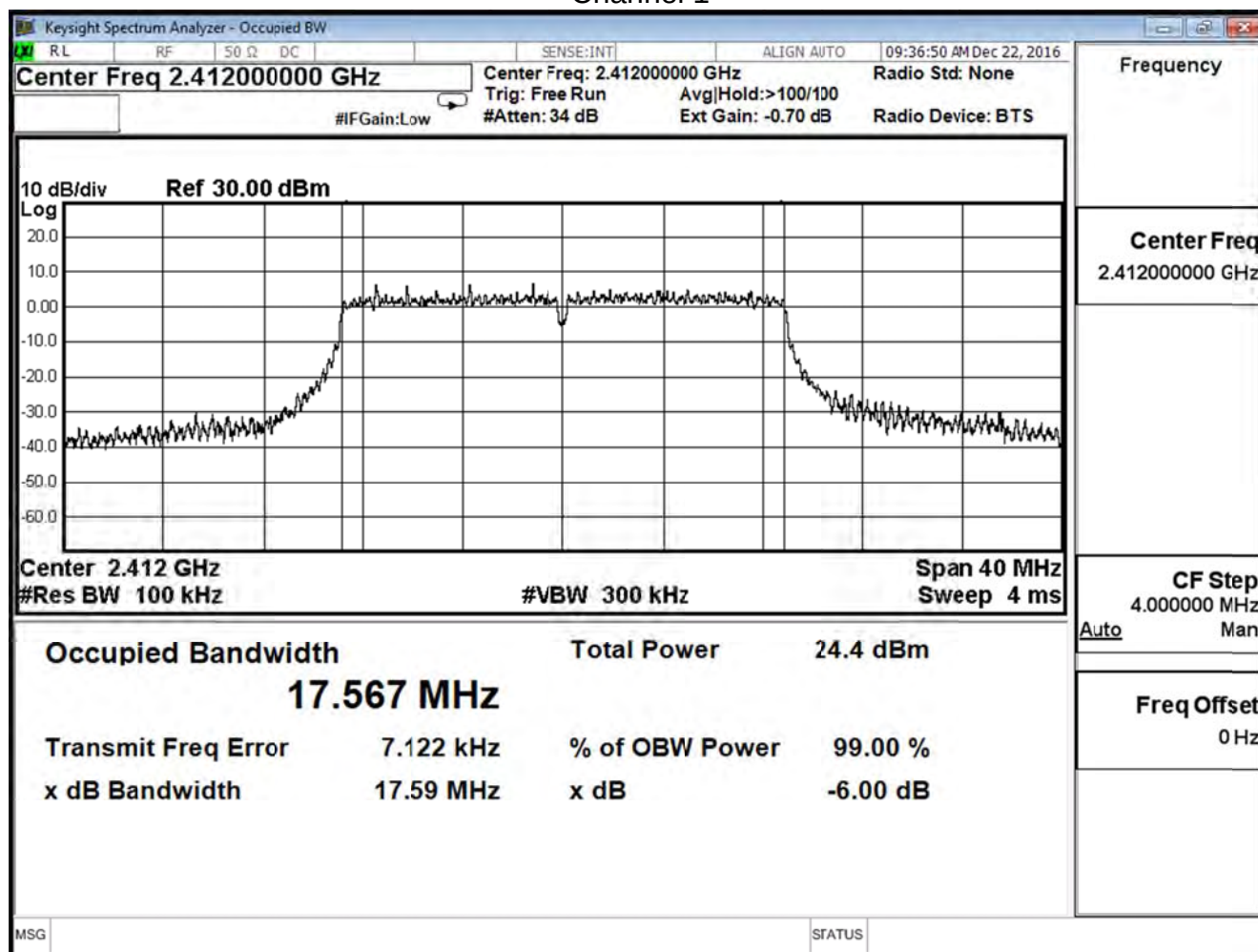
Channel 11



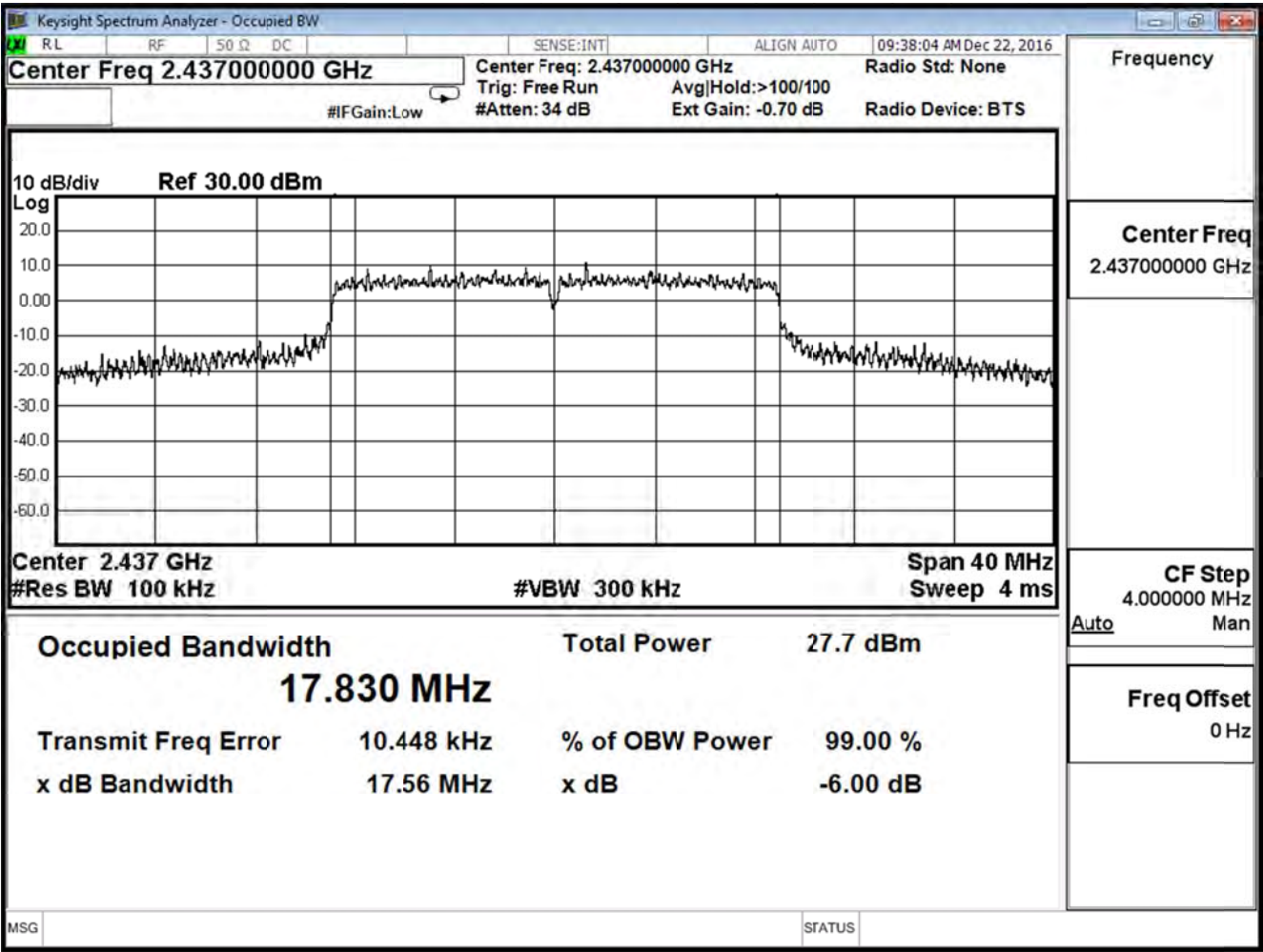
Product	Lyra mini		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

IEEE 802.11n_20M (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	17.59	≥ 0.5	Pass
6	2437	17.56	≥ 0.5	Pass
11	2462	17.58	≥ 0.5	Pass

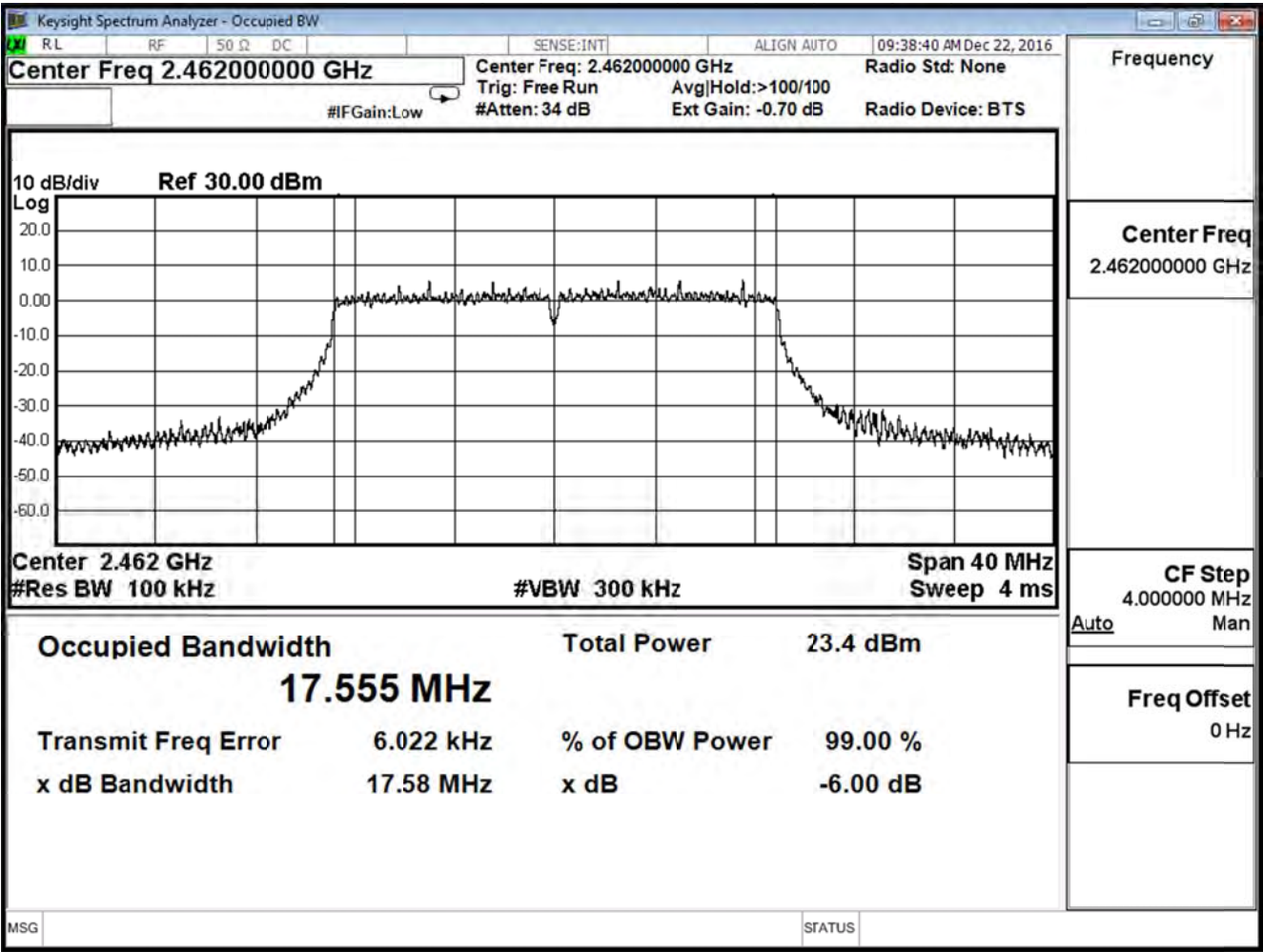
Channel 1



Channel 6



Channel 11

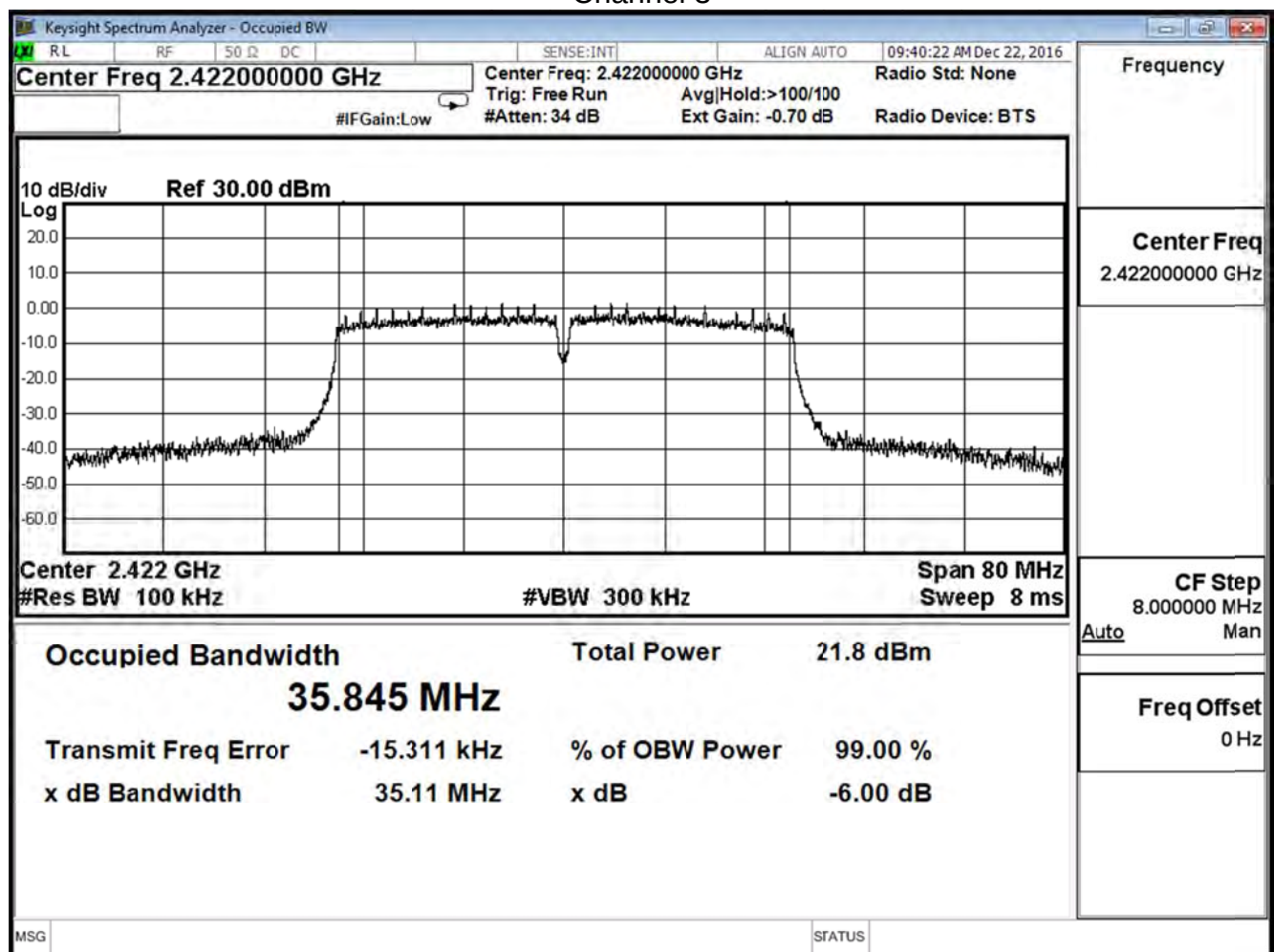


Product	Lyra mini		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

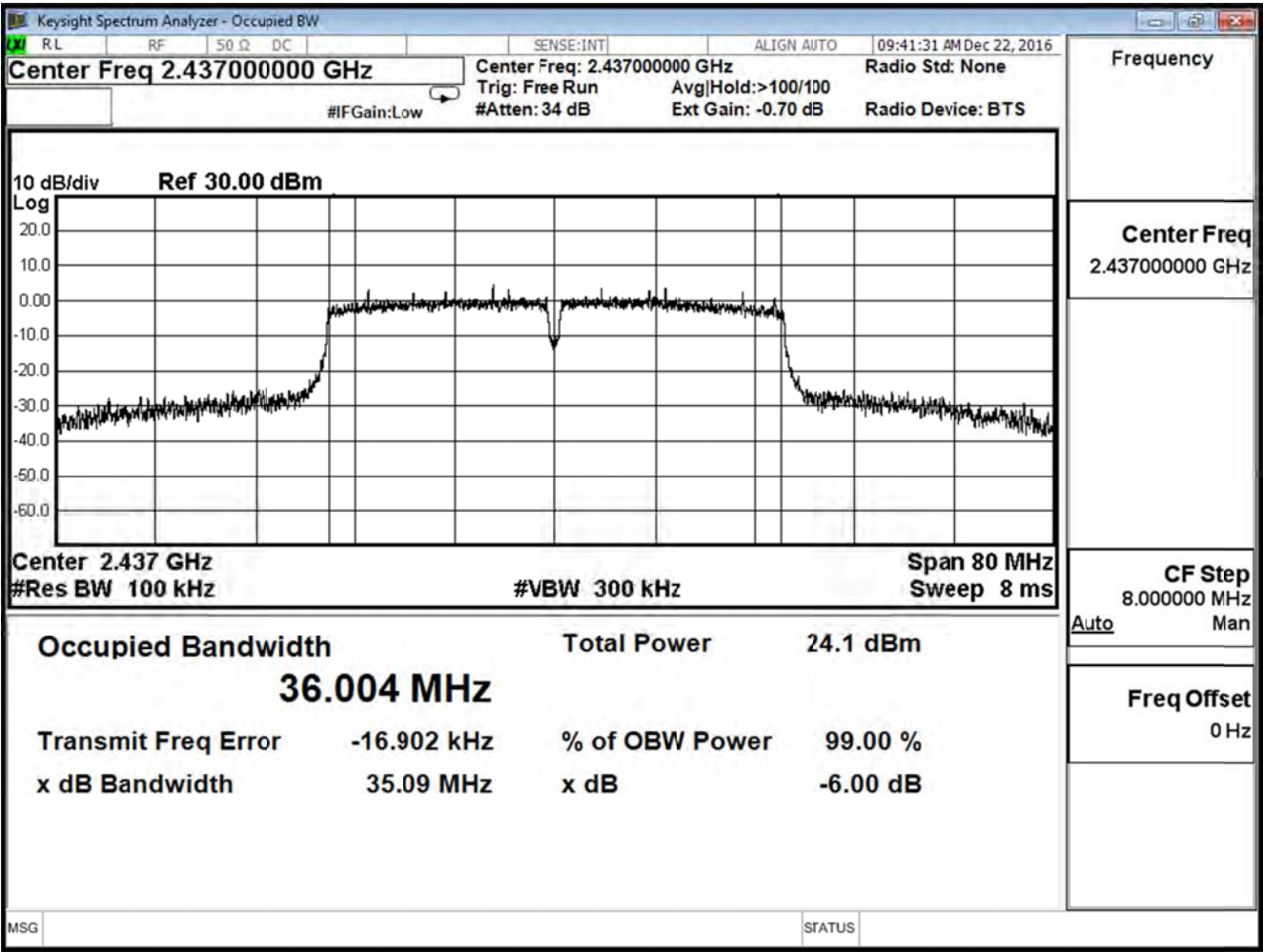
IEEE 802.11n_40M (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
3	2422	35.11	≥ 0.5	Pass
6	2437	35.09	≥ 0.5	Pass
9	2452	35.33	≥ 0.5	Pass

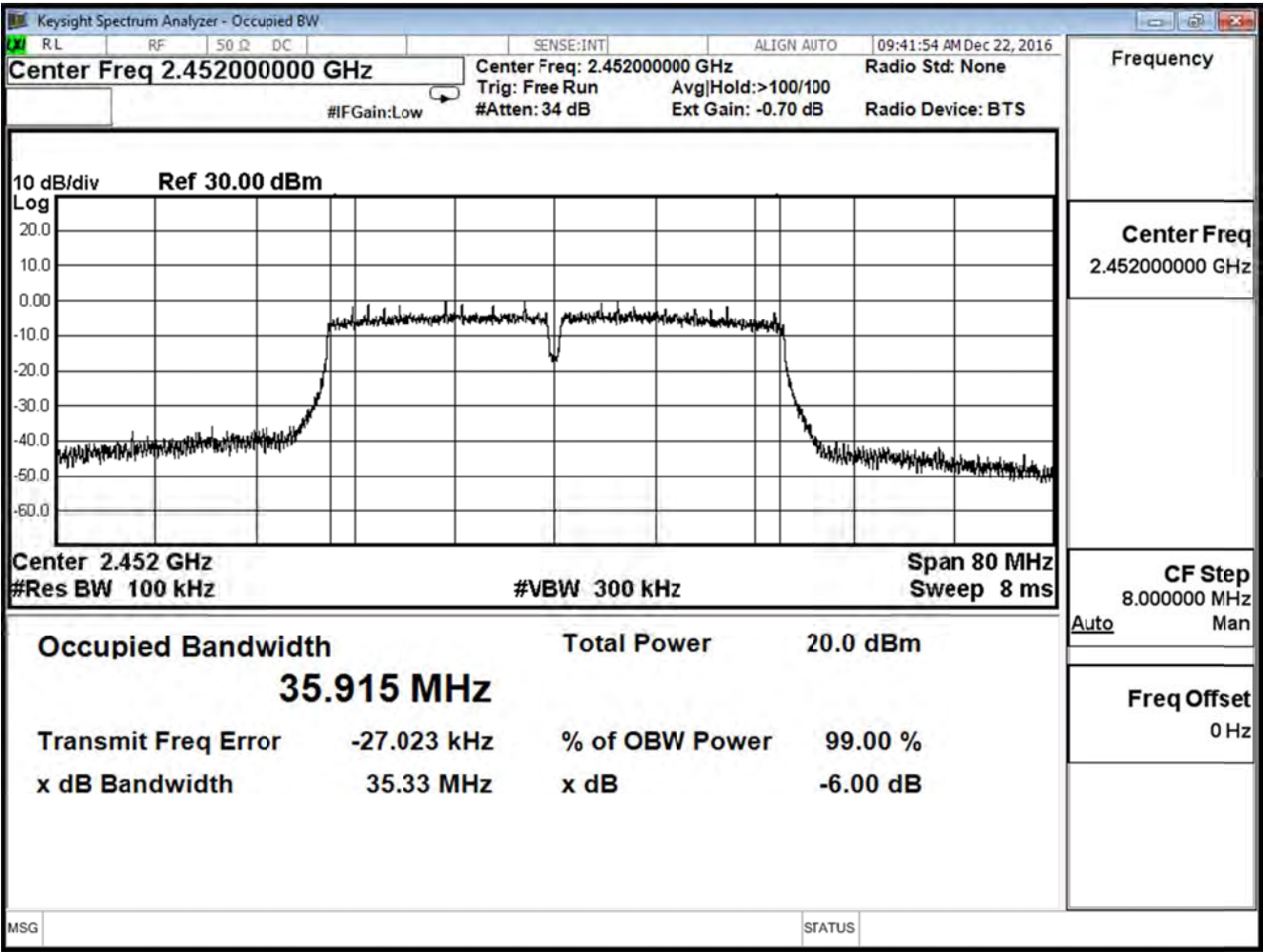
Channel 3



Channel 6



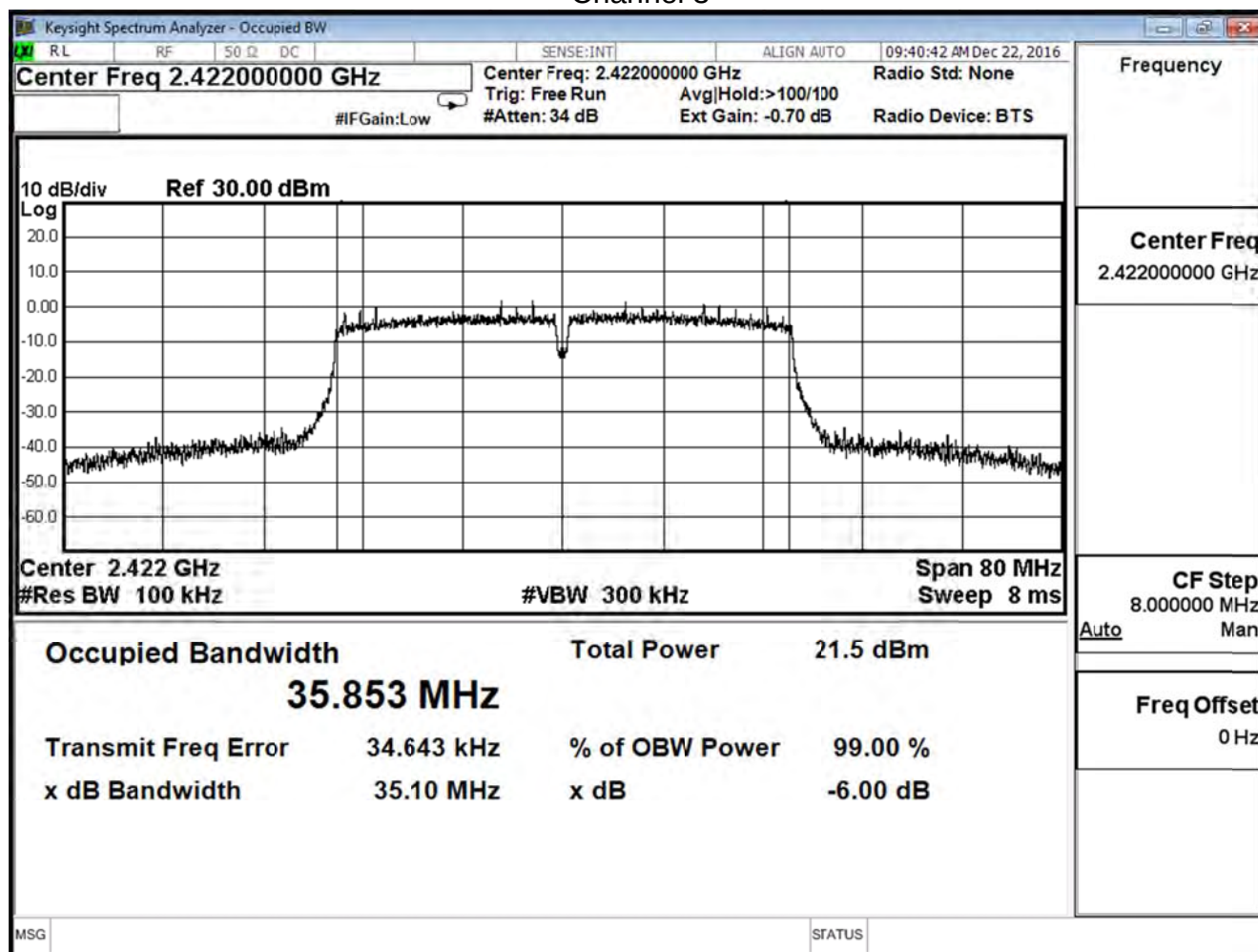
Channel 9



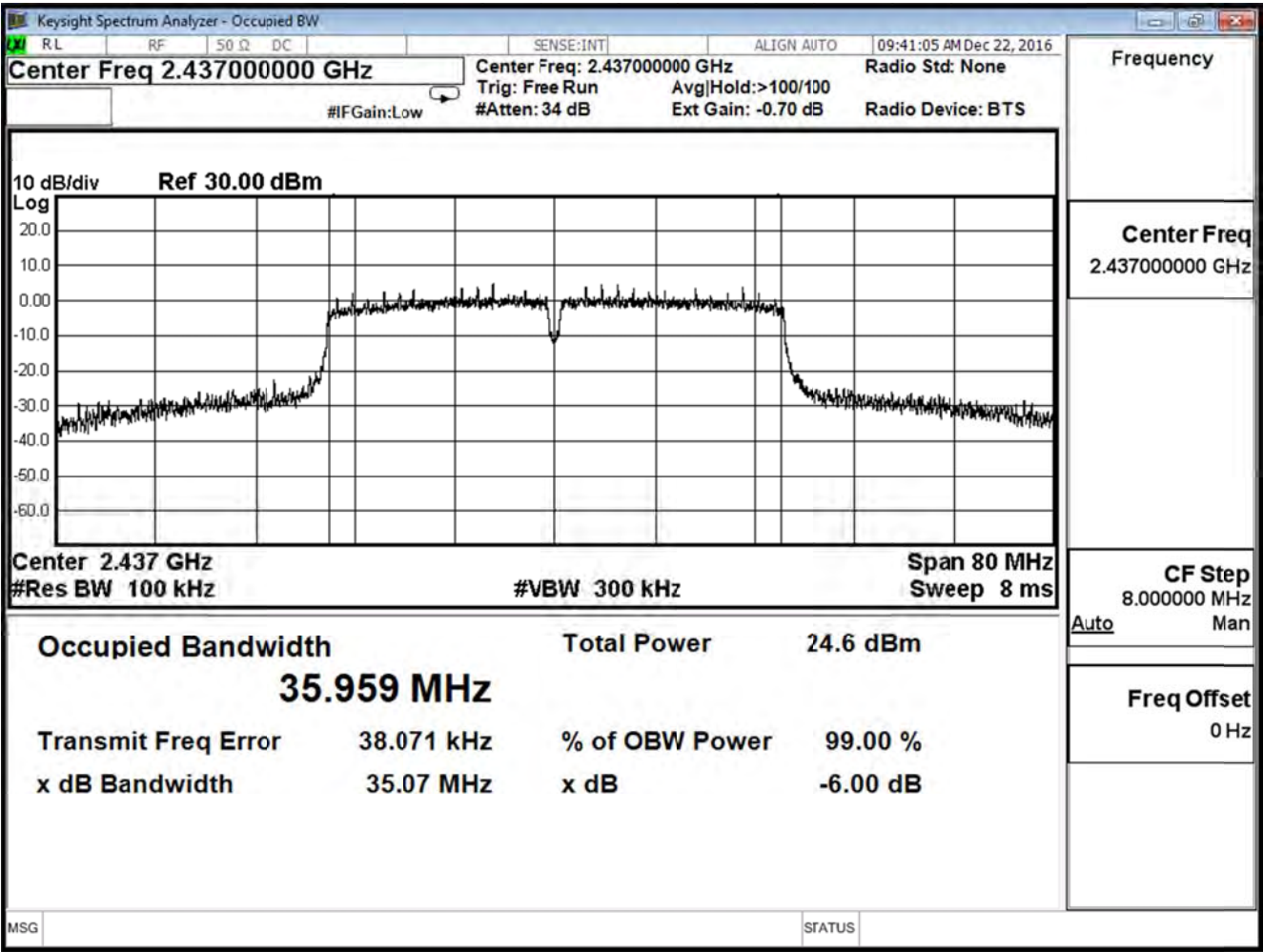
Product	Lyra mini		
Test Item	DTS Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

IEEE 802.11n_40M (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
3	2422	35.10	≥ 0.5	Pass
6	2437	35.07	≥ 0.5	Pass
9	2452	35.12	≥ 0.5	Pass

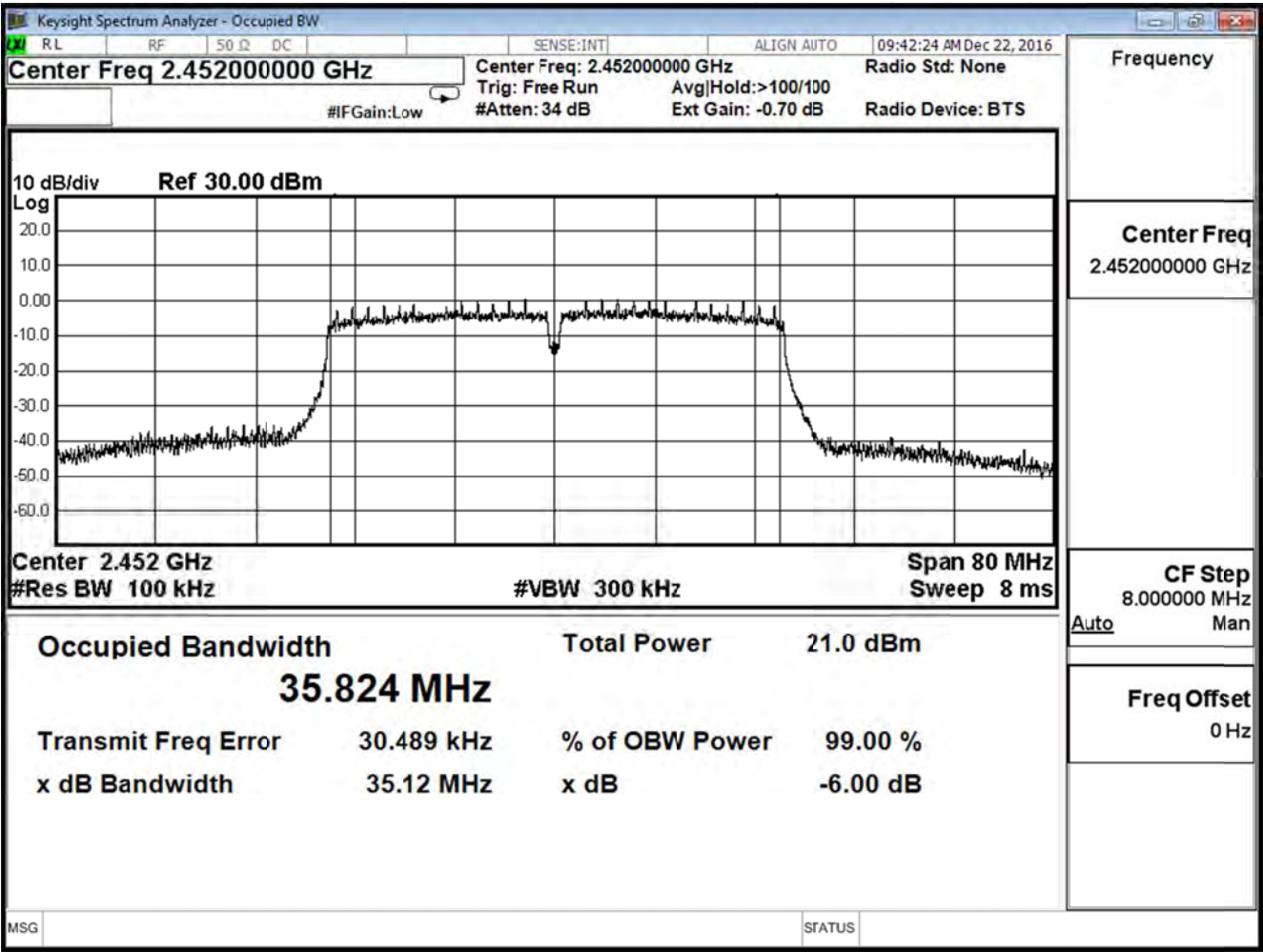
Channel 3



Channel 6



Channel 9



8. Occupied Bandwidth

8.1. Test Equipment

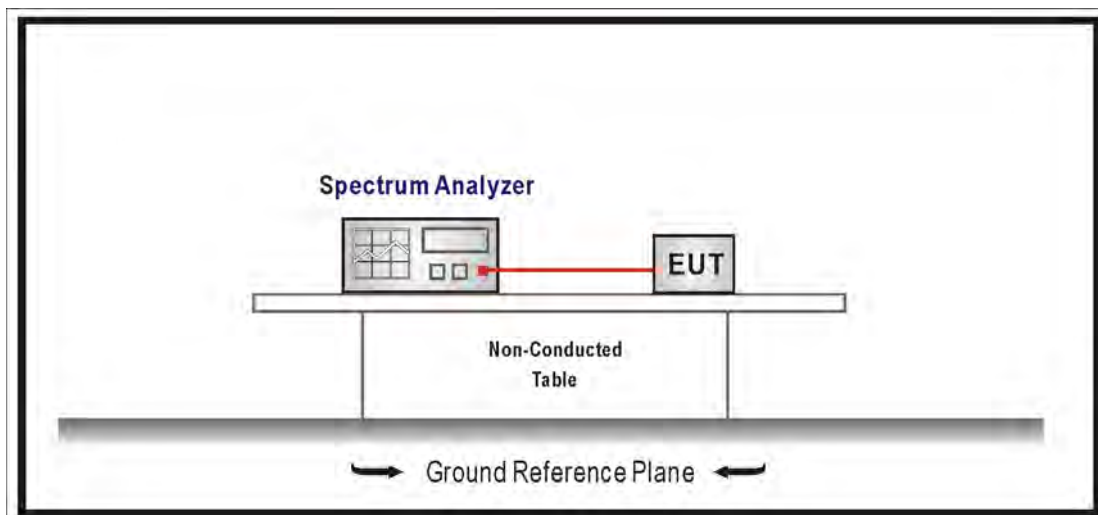
The following test equipments are used during the test:

Occupied Bandwidth / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/22

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 $\geq 3 \times$ RBW, 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 $\pm 150\text{Hz}$

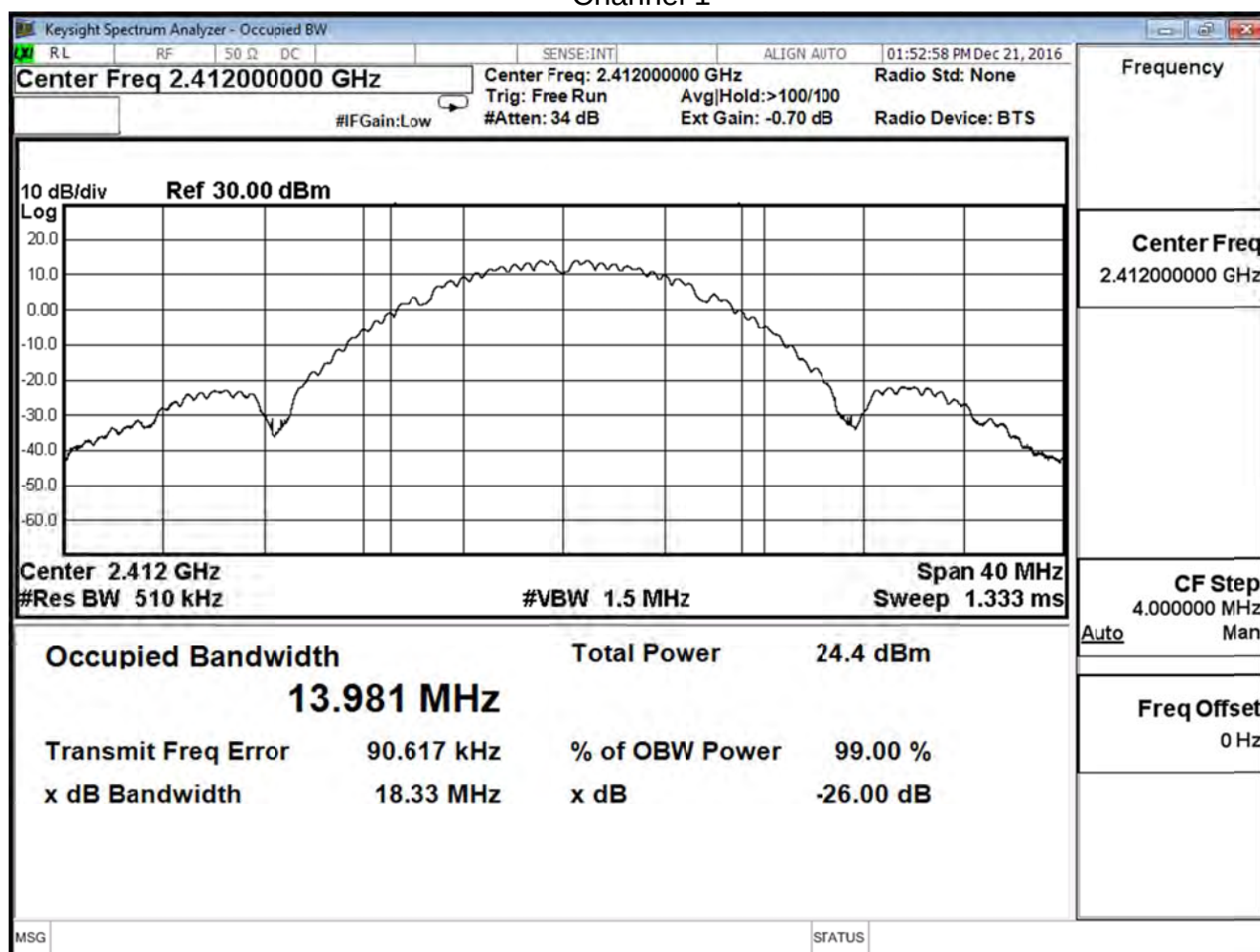
8.7. Test Result

Product	Lyra mini		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/21	Test Site	SR10-H

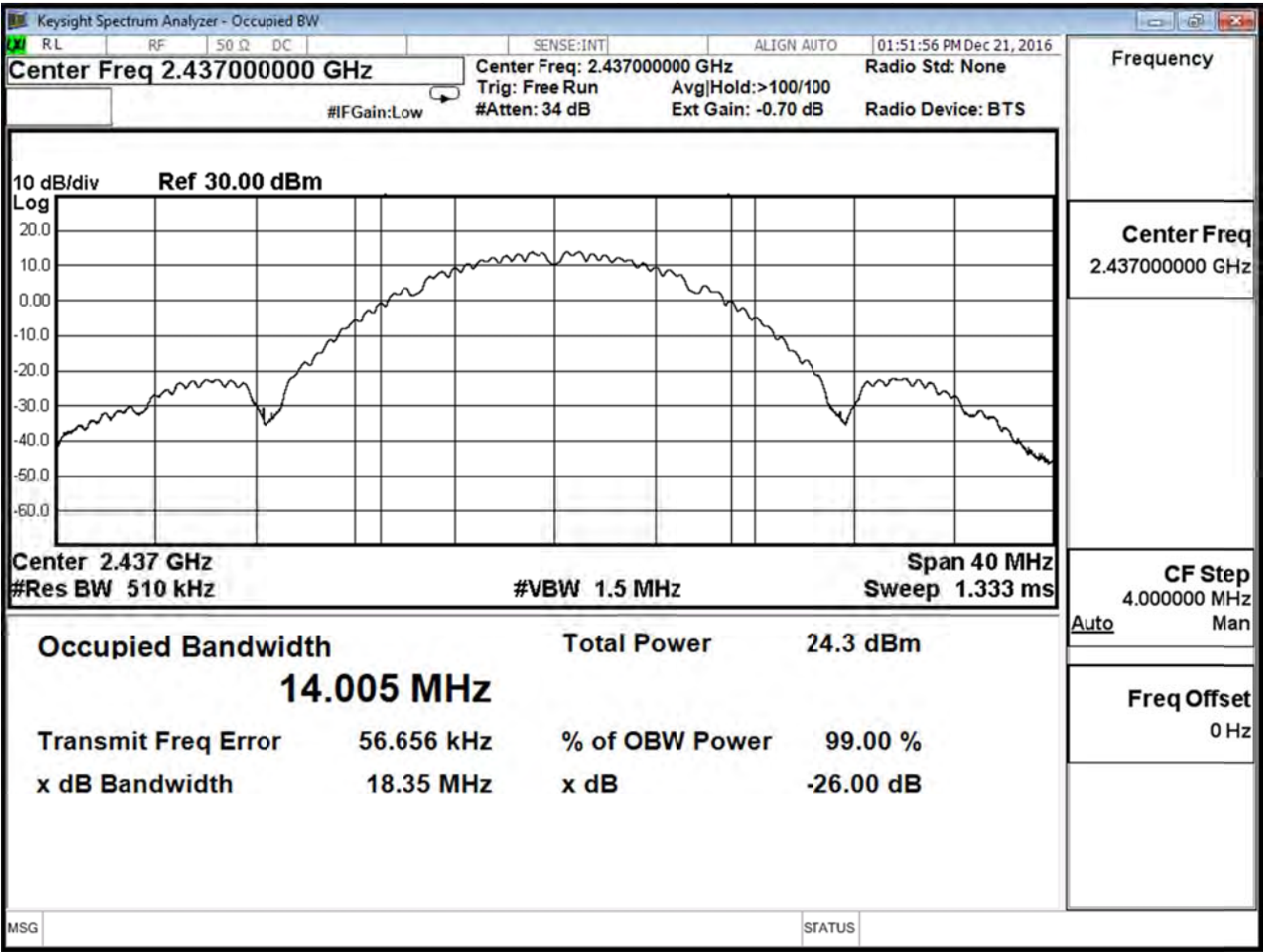
802.11 b (ANT 0)

Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	13.98	--	Pass
6	2437	14.01	--	Pass
11	2462	13.03	--	Pass

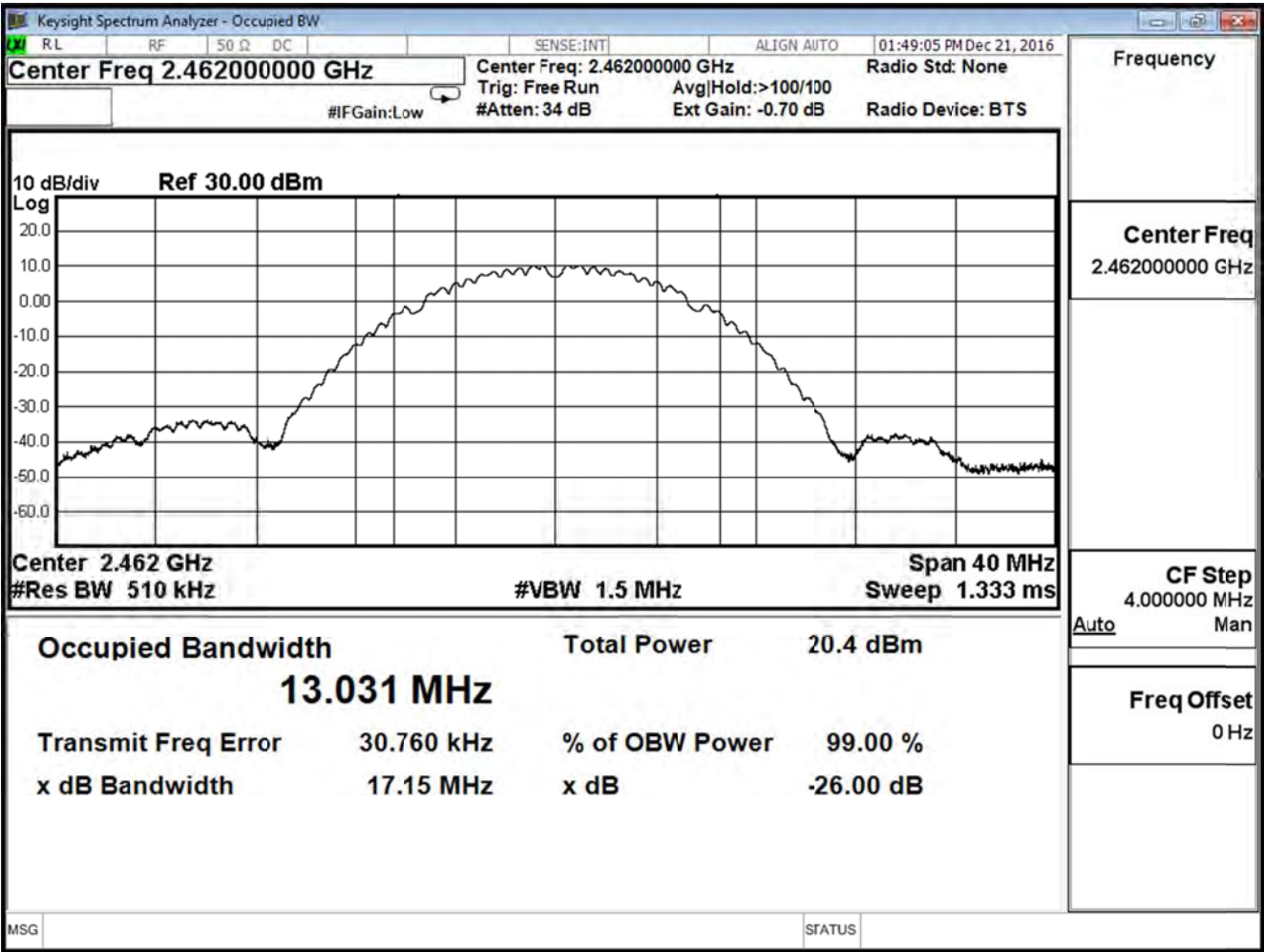
Channel 1



Channel 6



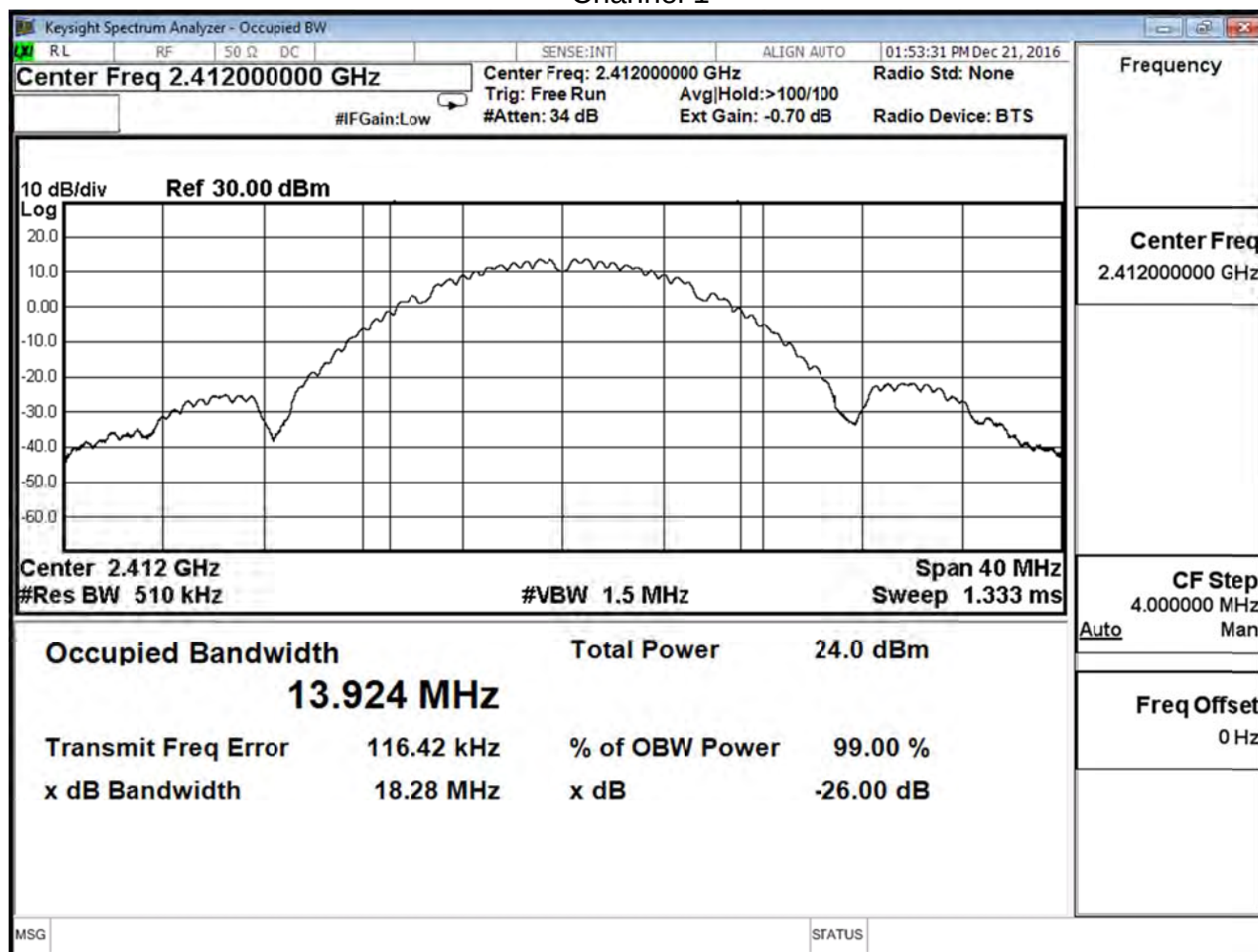
Channel 11



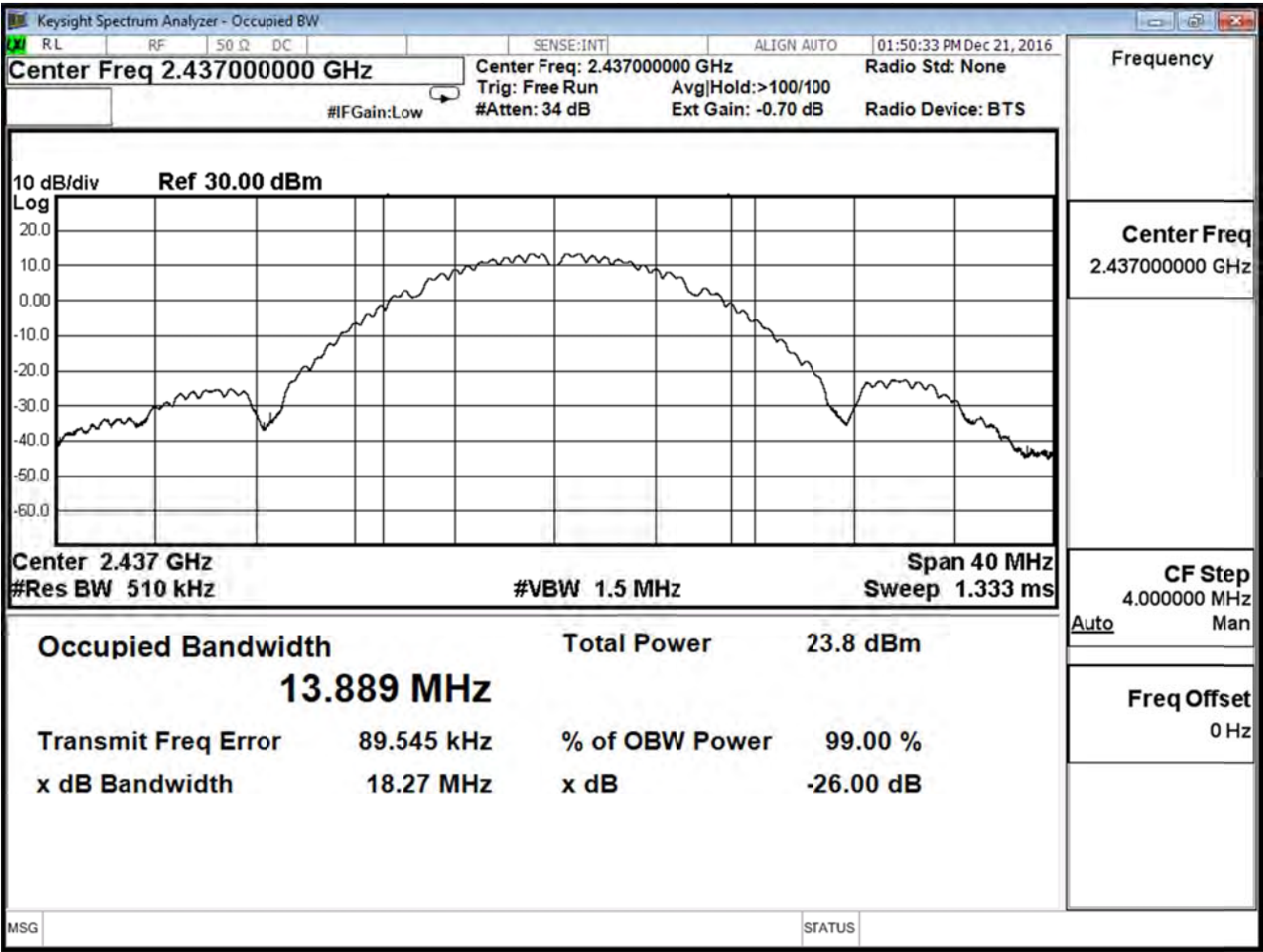
Product	Lyra mini		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/21	Test Site	SR10-H

802.11 b (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	13.92	--	Pass
6	2437	13.89	--	Pass
11	2462	12.97	--	Pass

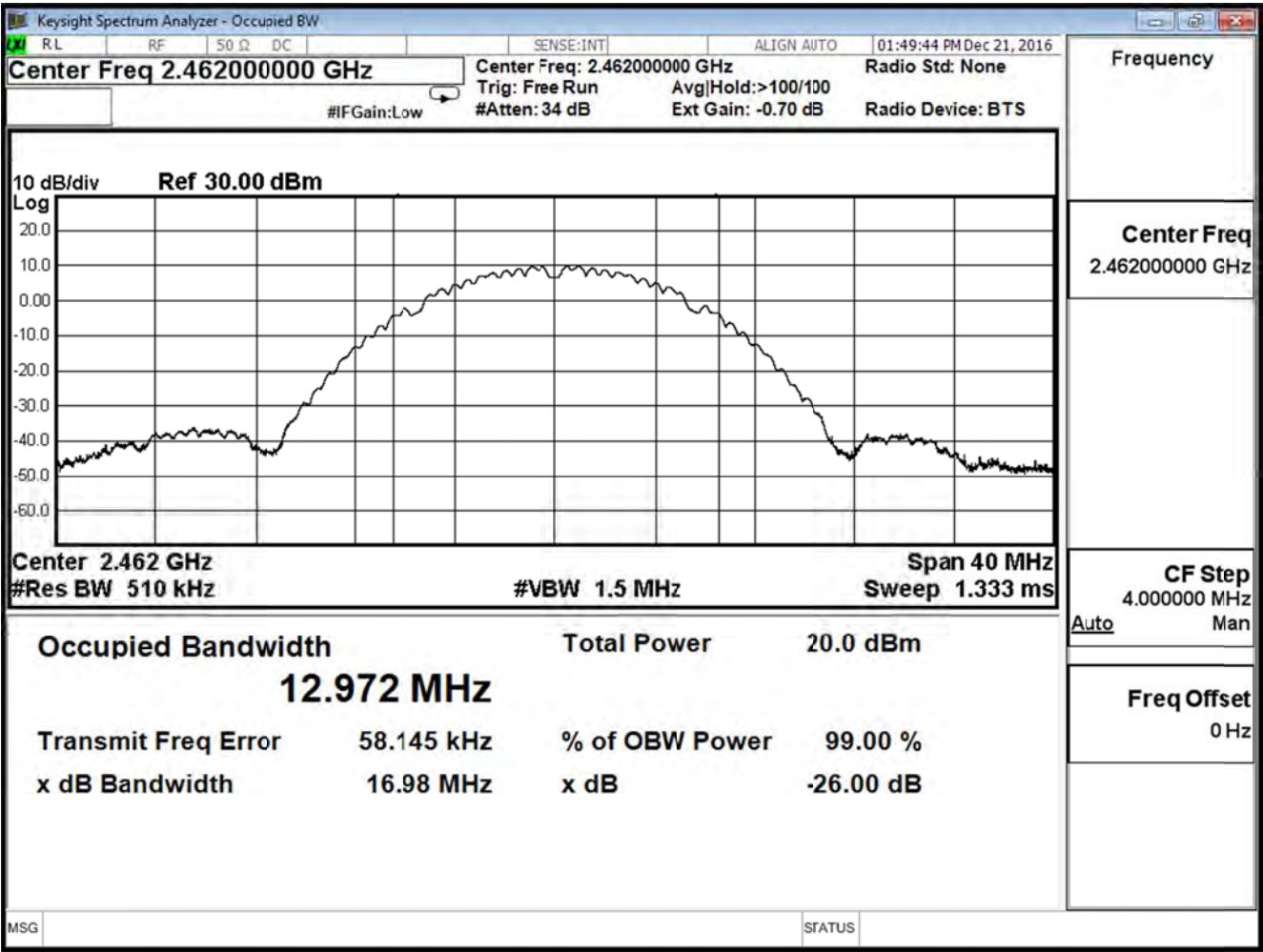
Channel 1



Channel 6



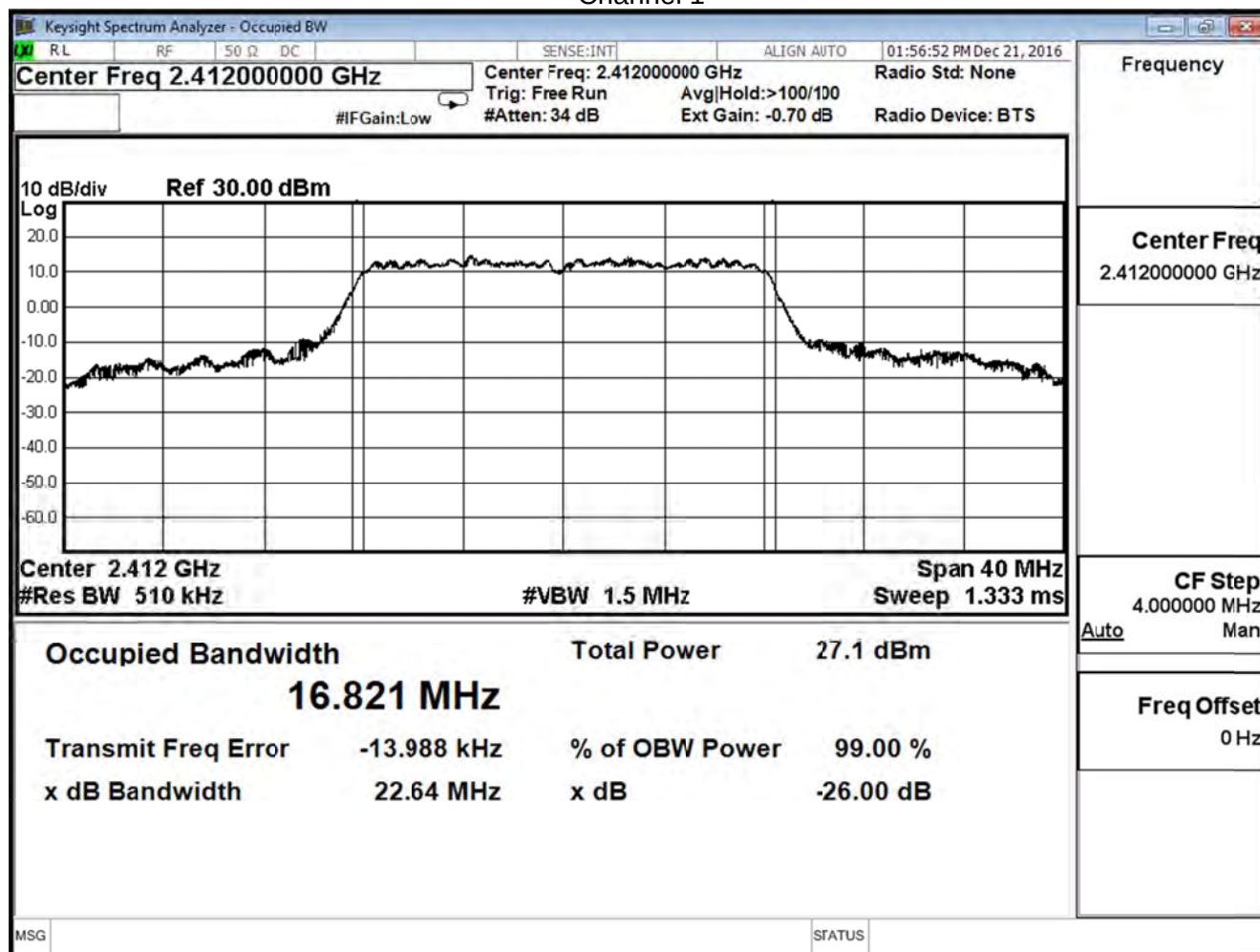
Channel 11



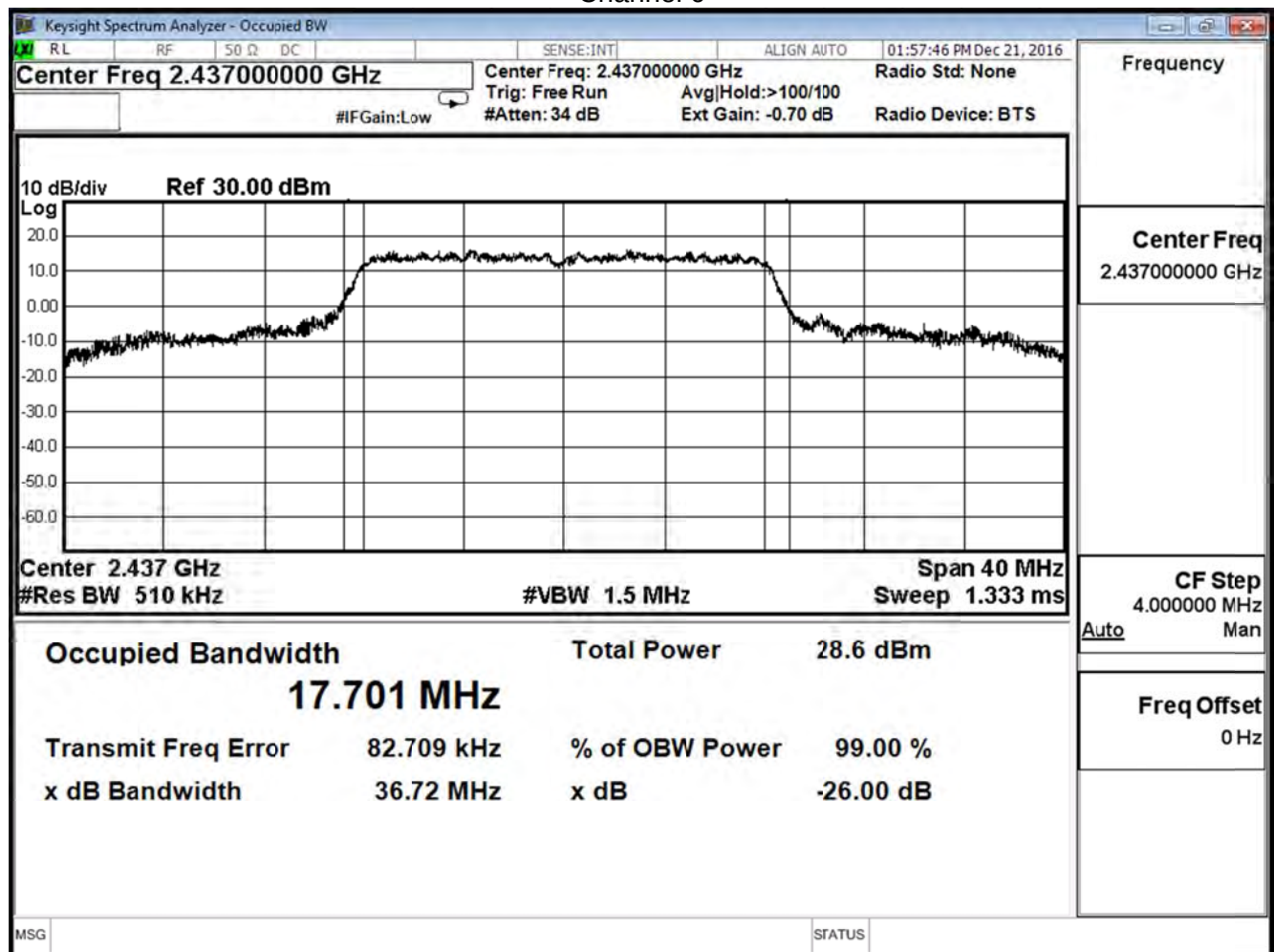
Product	Lyra mini		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/21	Test Site	SR10-H

802.11 g (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	16.82	--	Pass
6	2437	17.70	--	Pass
11	2462	16.68	--	Pass

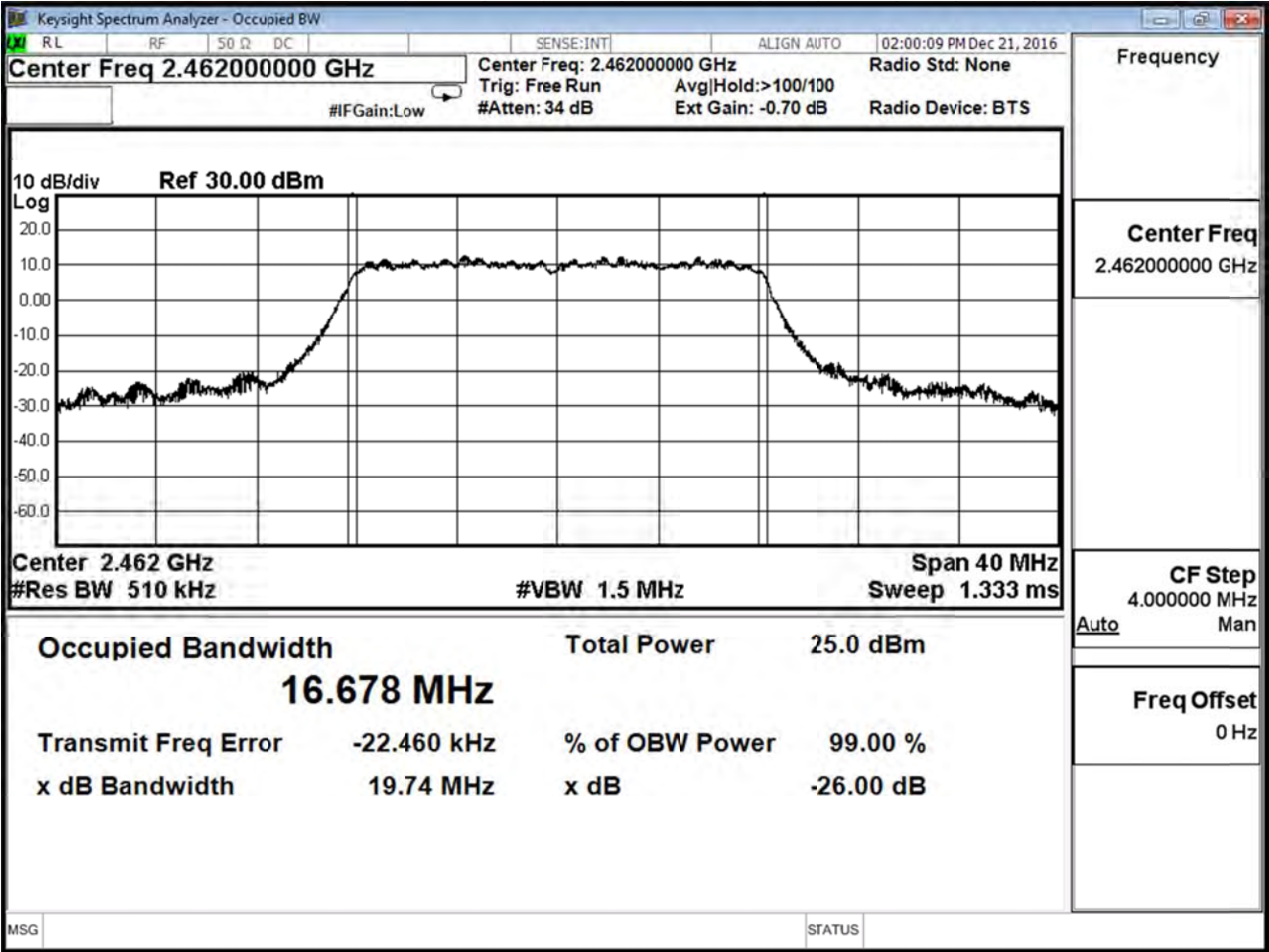
Channel 1



Channel 6



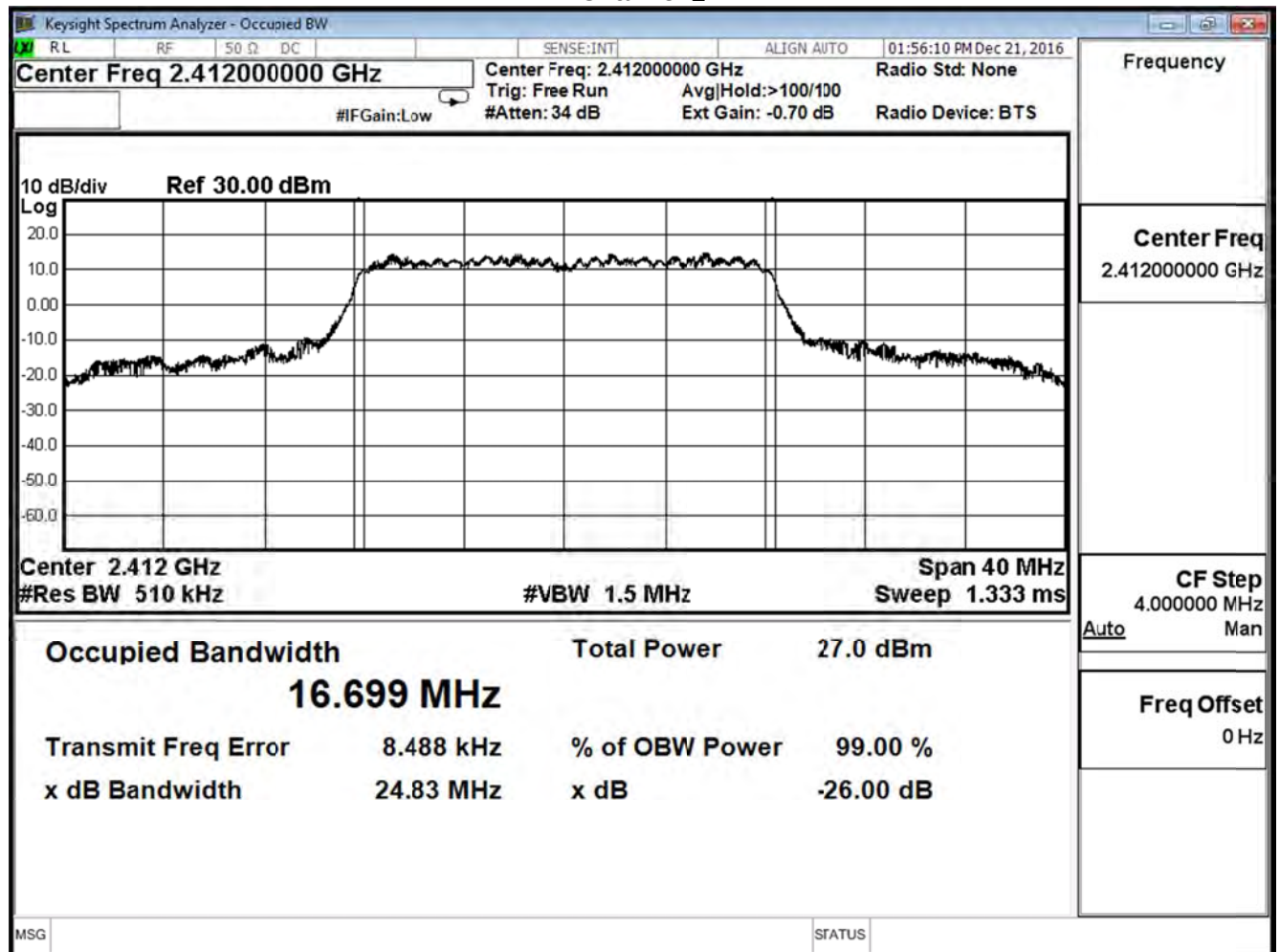
Channel 11



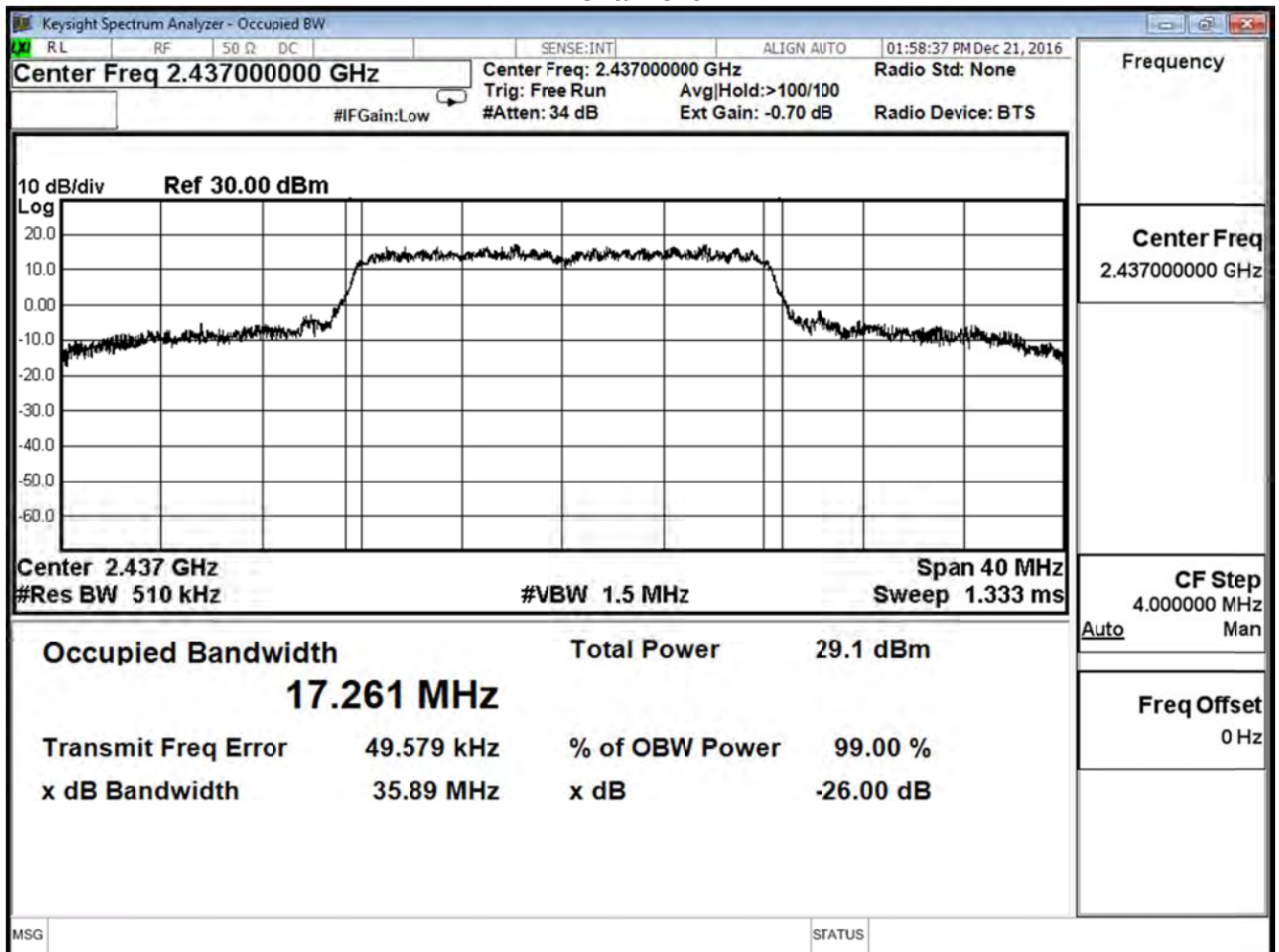
Product	Lyra mini		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/21	Test Site	SR10-H

802.11 g (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	16.70	--	Pass
6	2437	17.26	--	Pass
11	2462	16.59	--	Pass

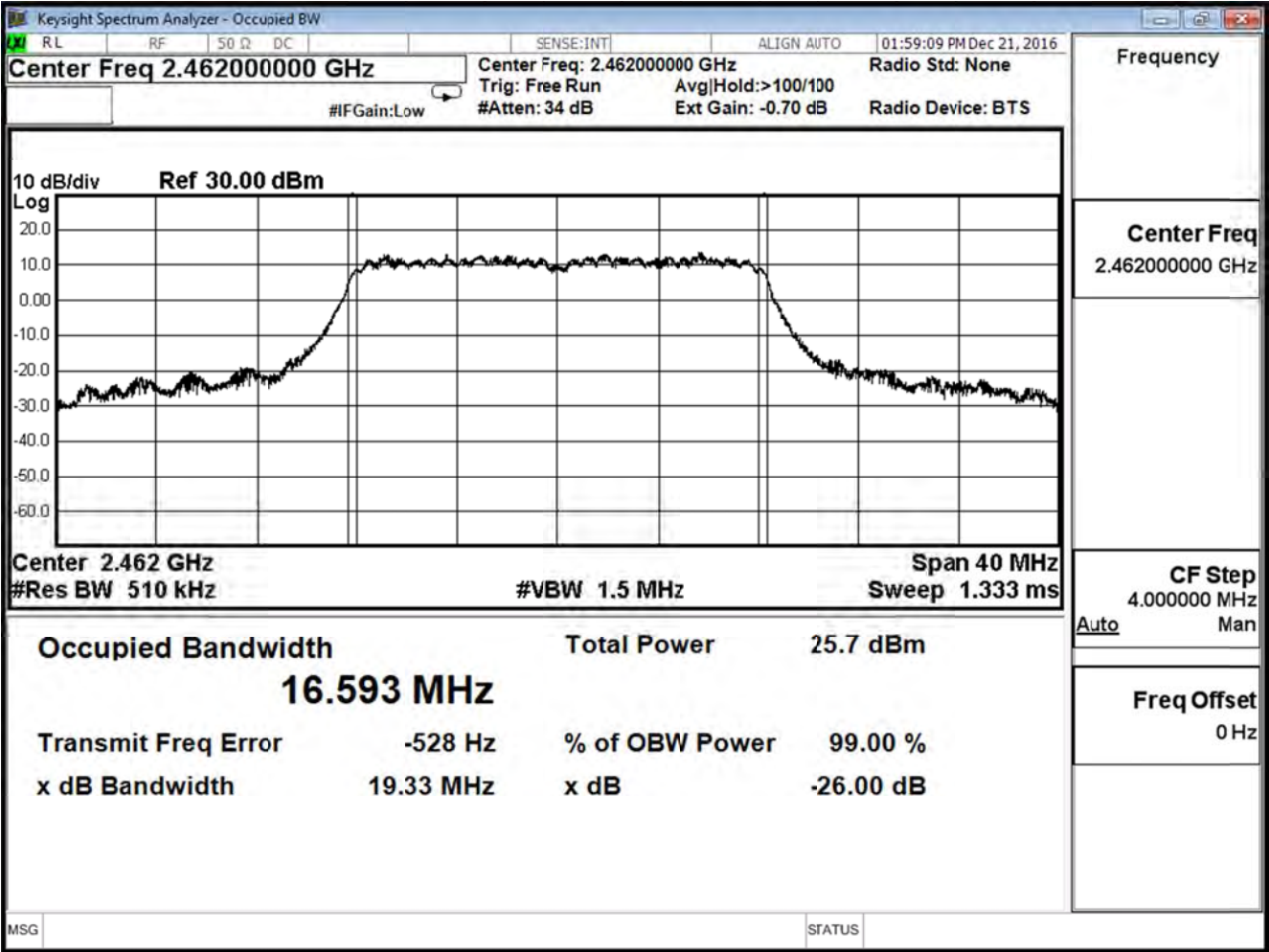
Channel 1



Channel 6



Channel 11

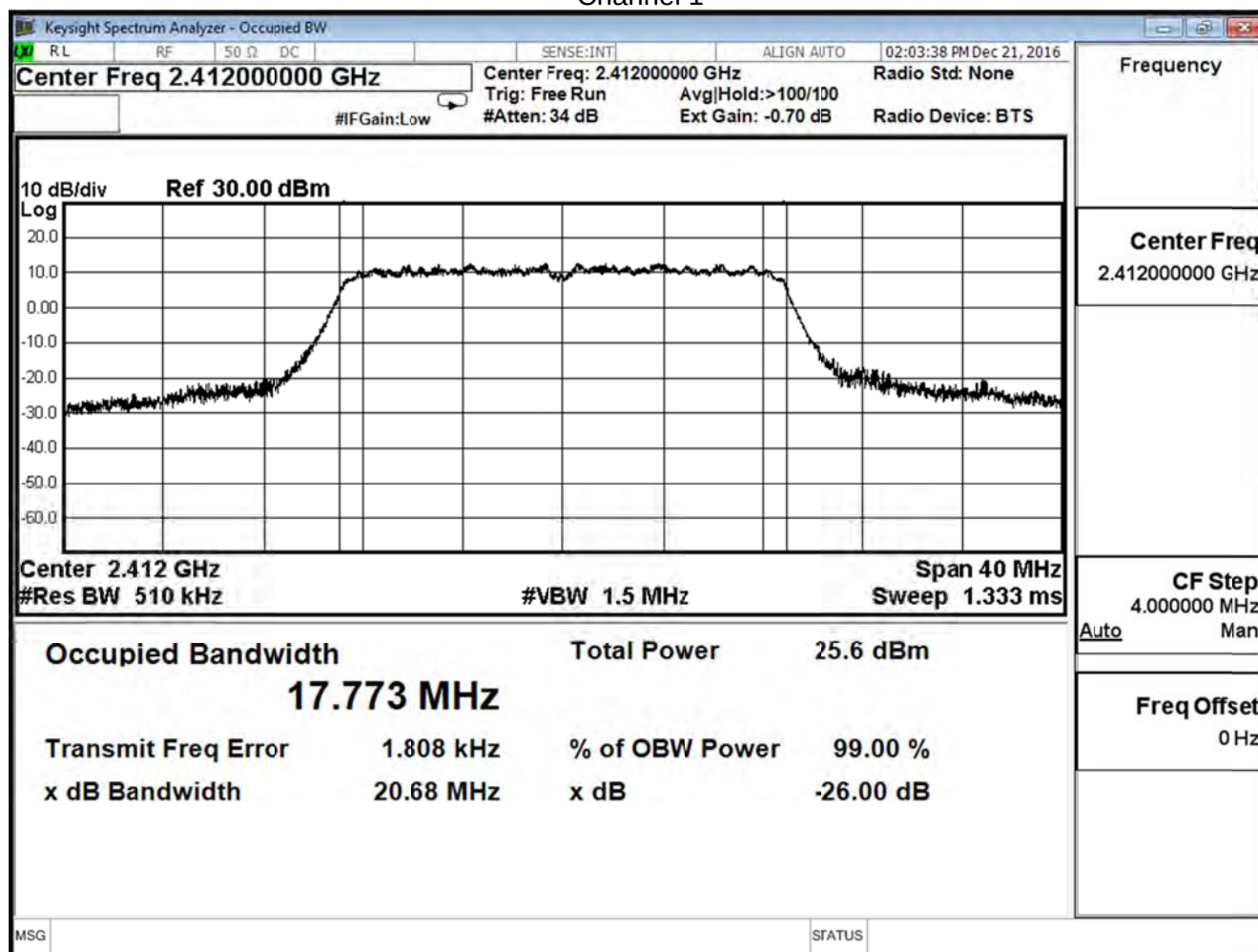


Product	Lyra mini		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/21	Test Site	SR10-H

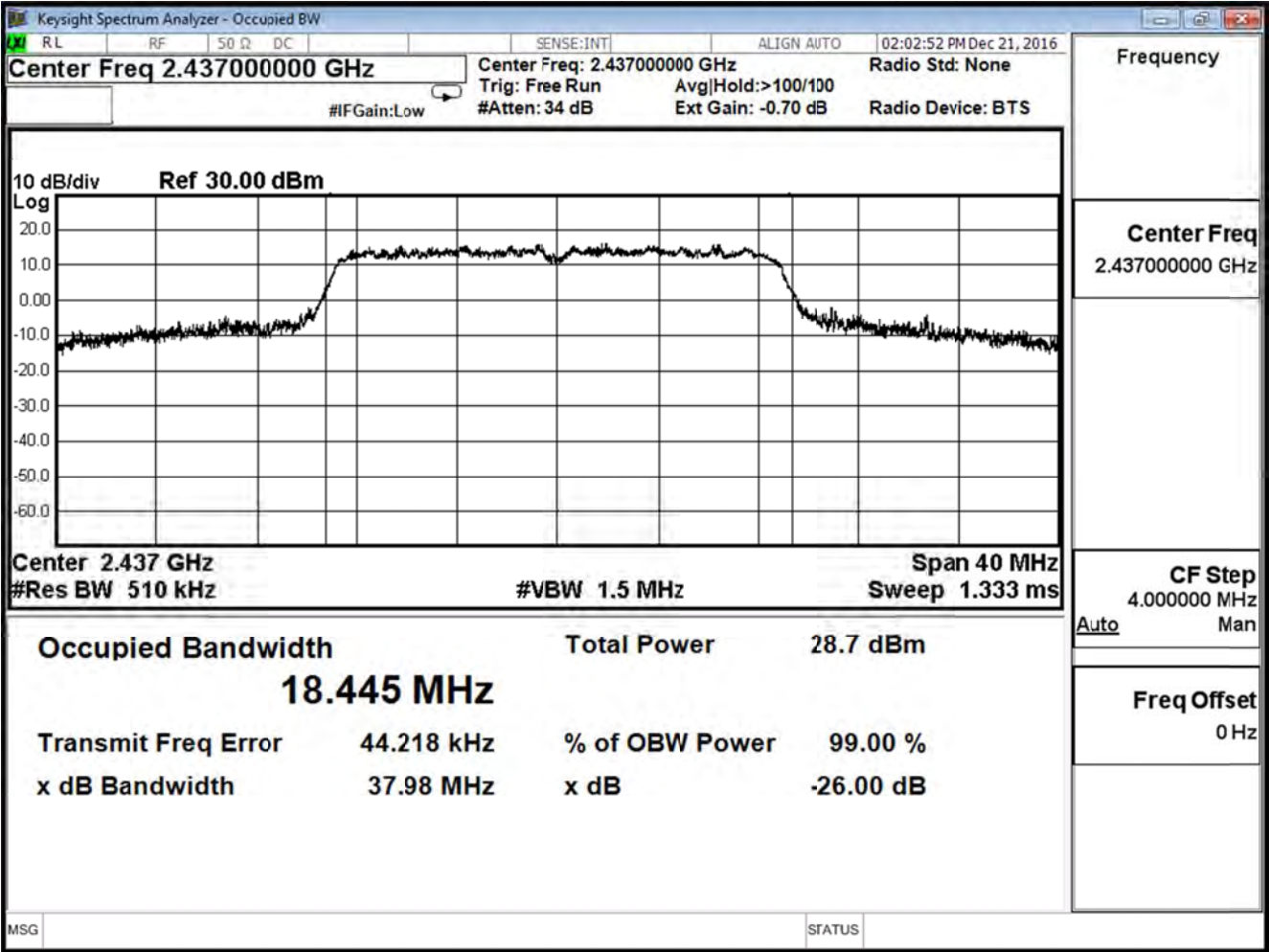
IEEE802.11n 20MHz (ANT 0)

Channel No.	Frequency (MHz)	Measure Level(MHz)	Limit (MHz)	Result
1	2412	17.77	--	Pass
6	2437	18.45	--	Pass
11	2462	17.78	--	Pass

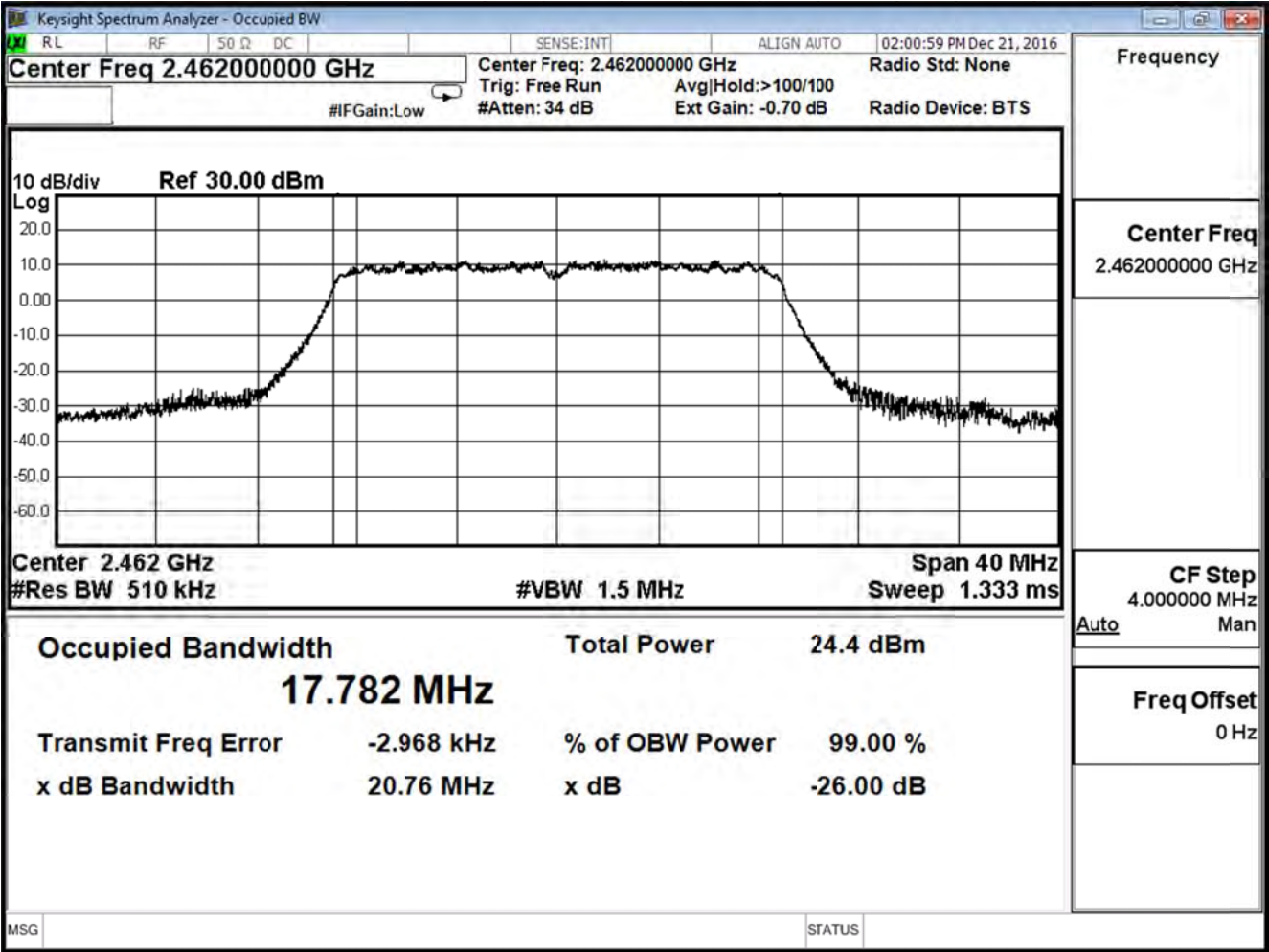
Channel 1



Channel 6



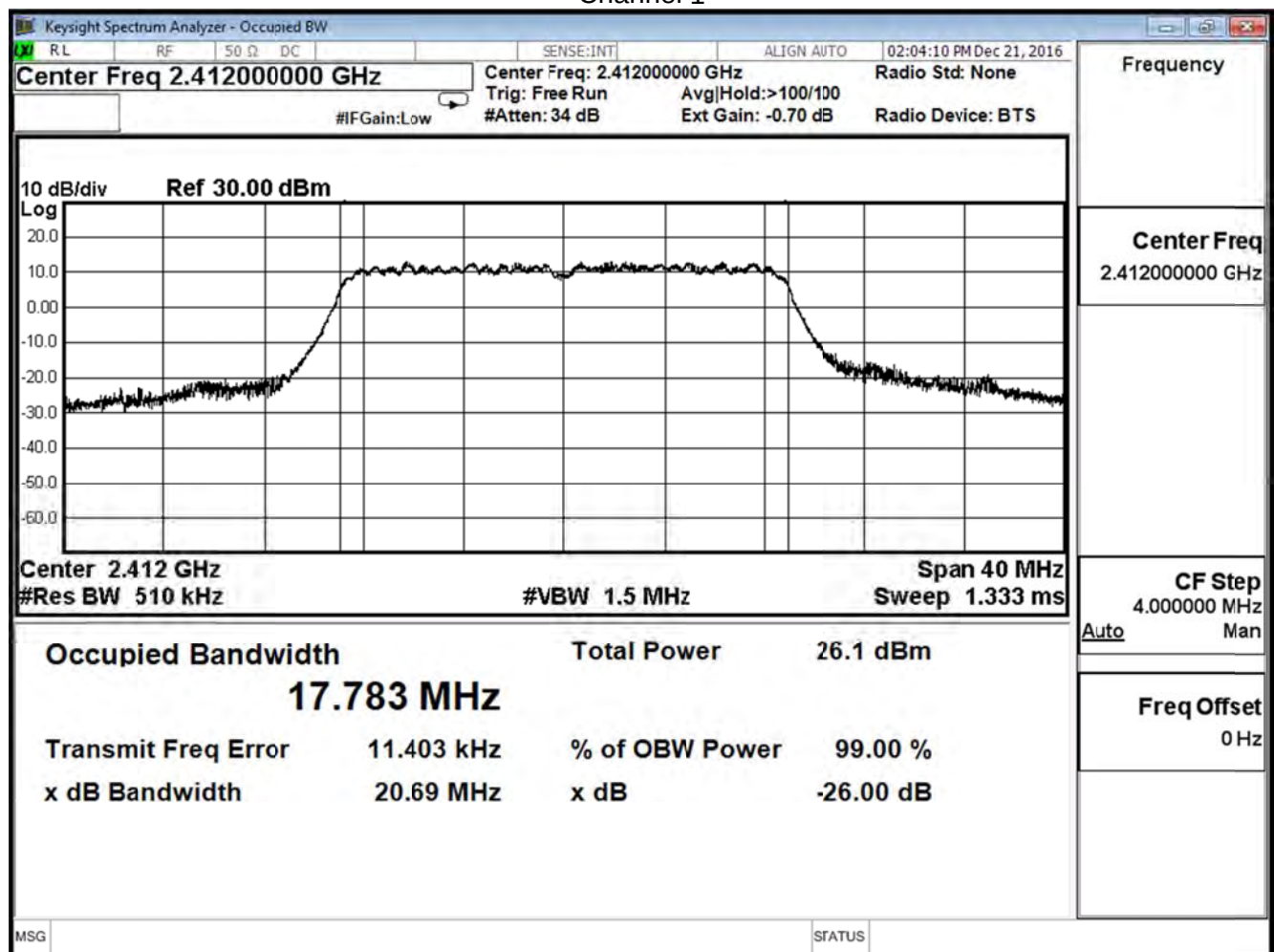
Channel 11



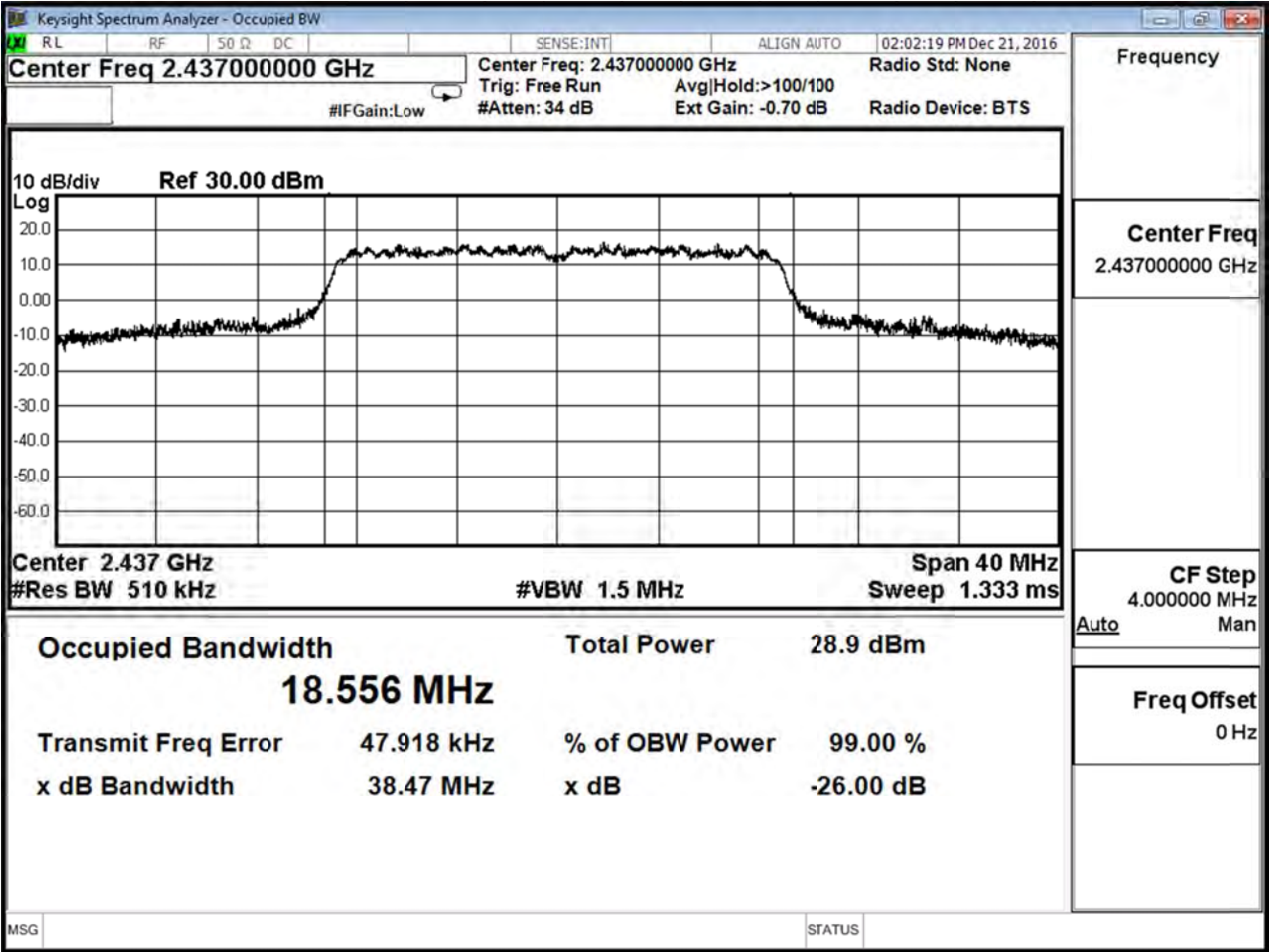
Product	Lyra mini		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/21	Test Site	SR10-H

IEEE802.11n 20MHz (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
1	2412	17.78	--	Pass
6	2437	18.56	--	Pass
11	2462	17.75	--	Pass

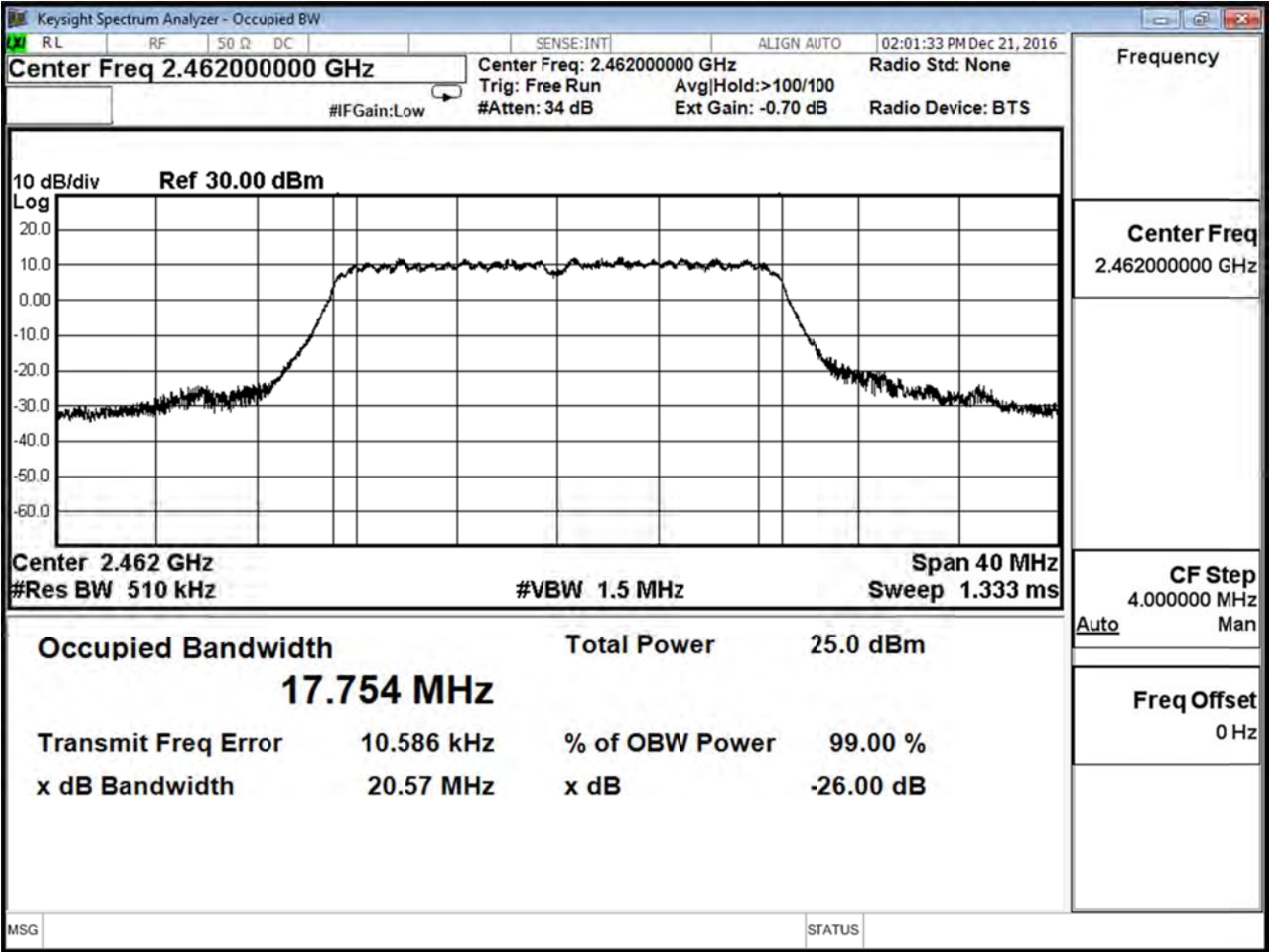
Channel 1



Channel 6



Channel 11

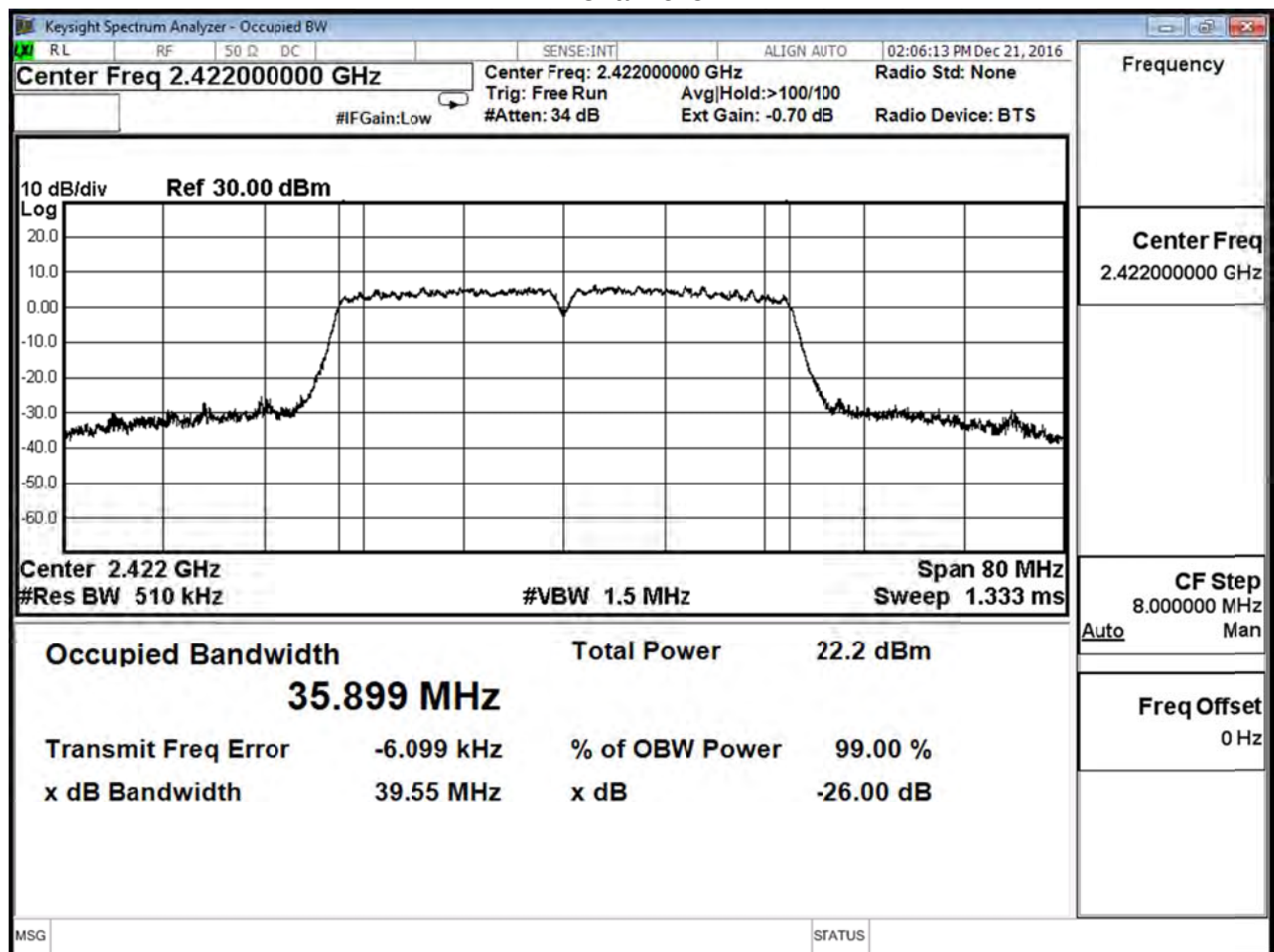


Product	Lyra mini		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/21	Test Site	SR10-H

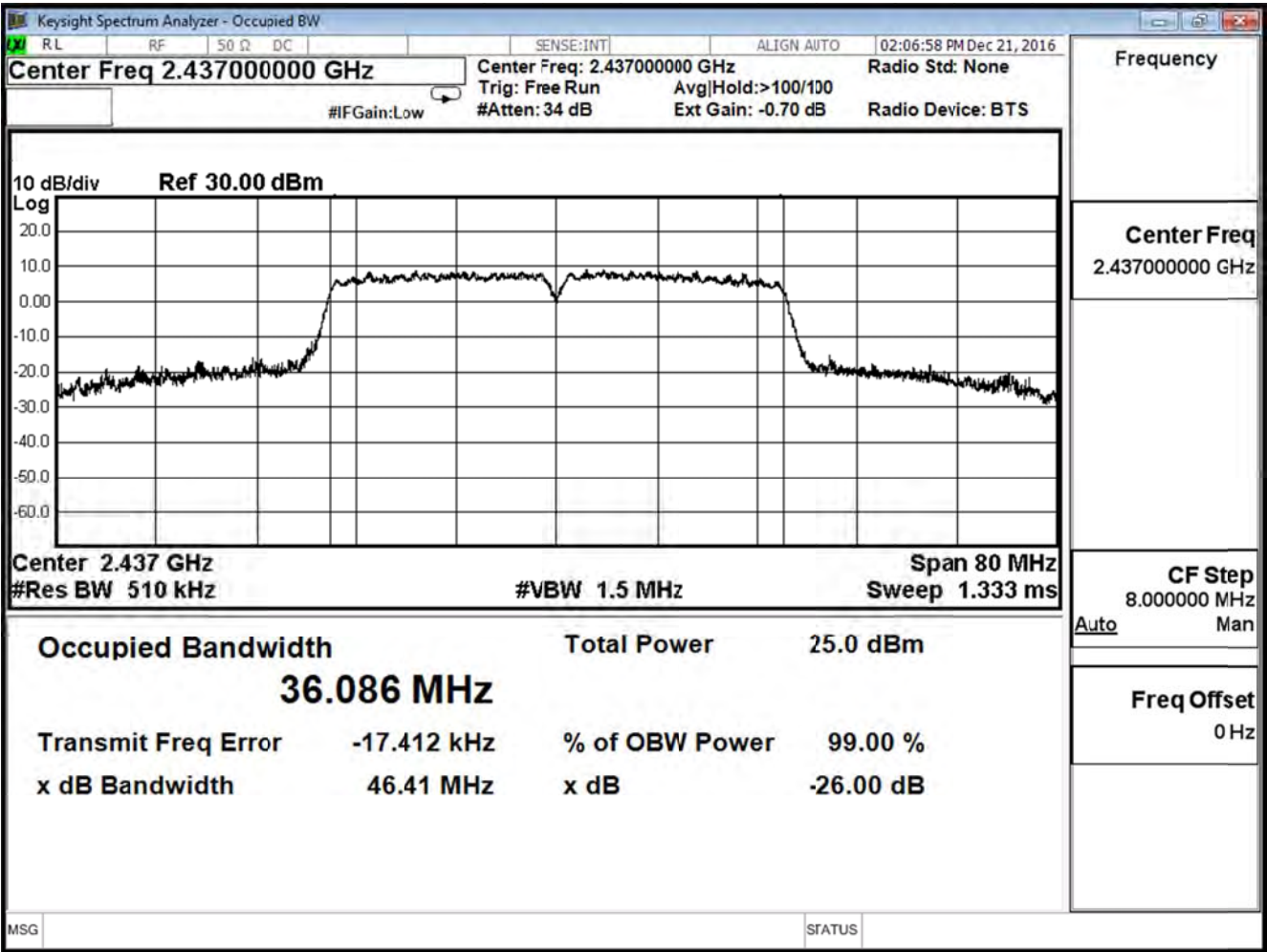
IEEE802.11n 40MHz (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
3	2422	35.90	--	Pass
6	2437	36.09	--	Pass
9	2452	35.95	--	Pass

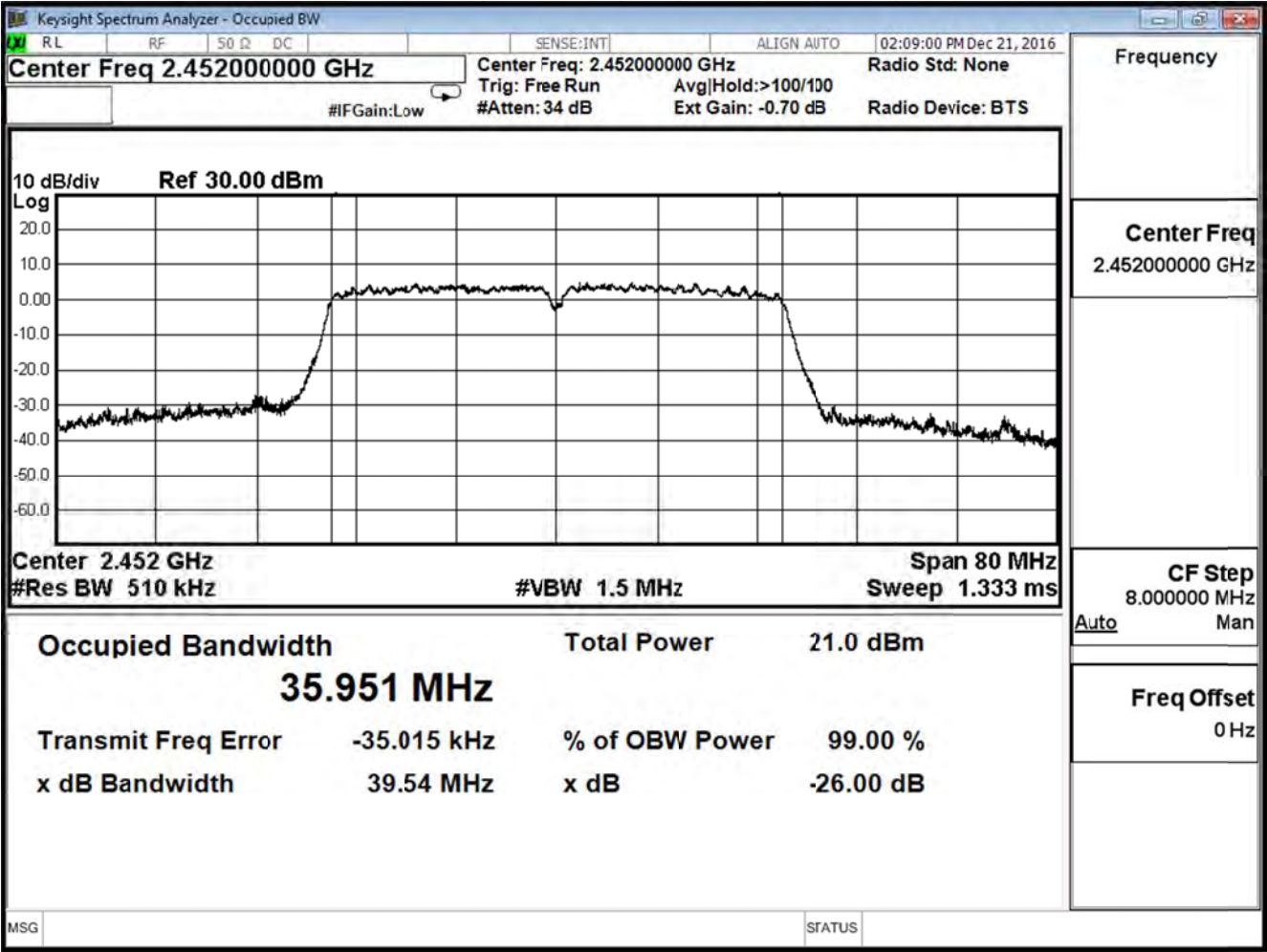
Channel 3



Channel 6



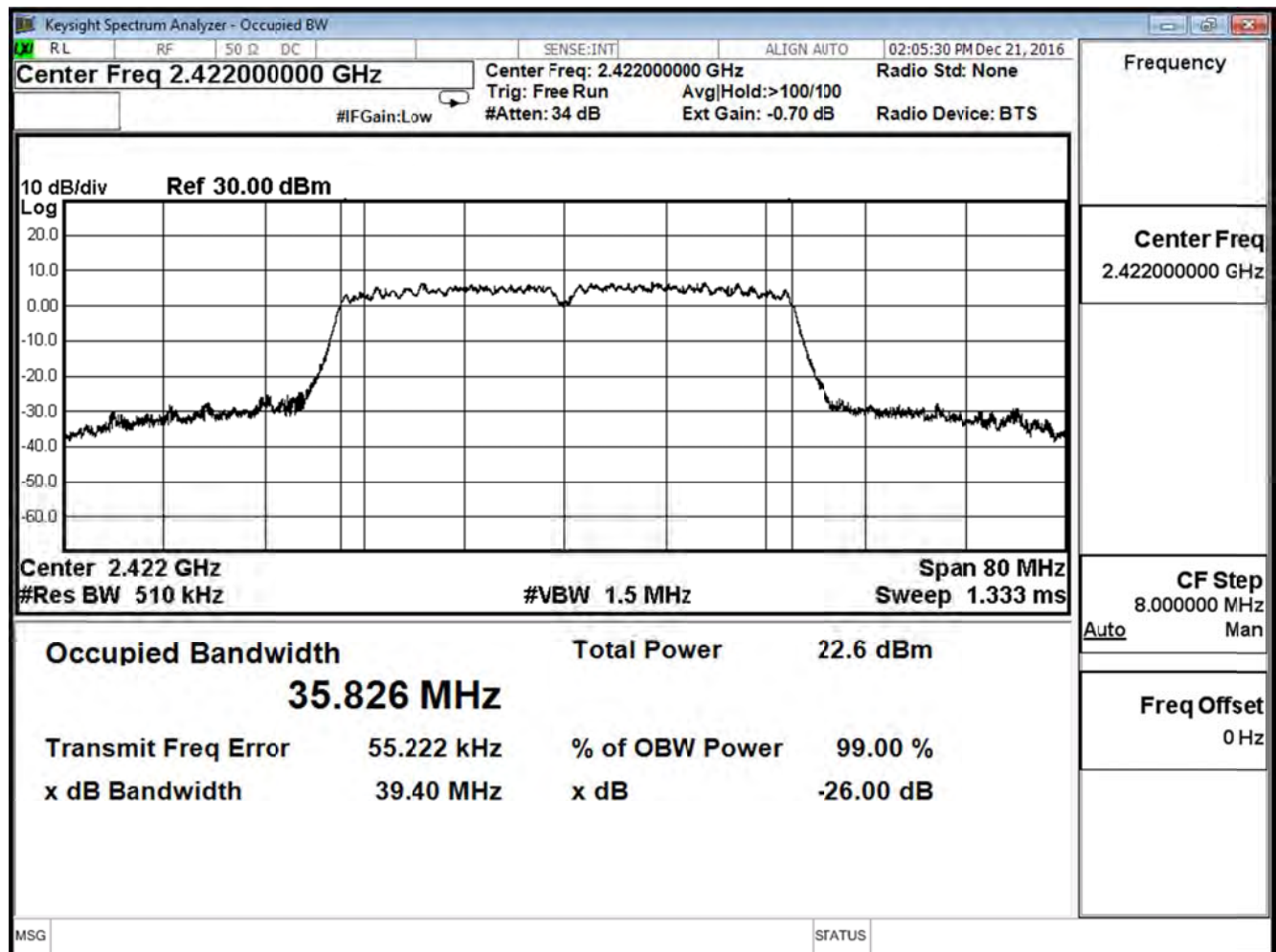
Channel 9



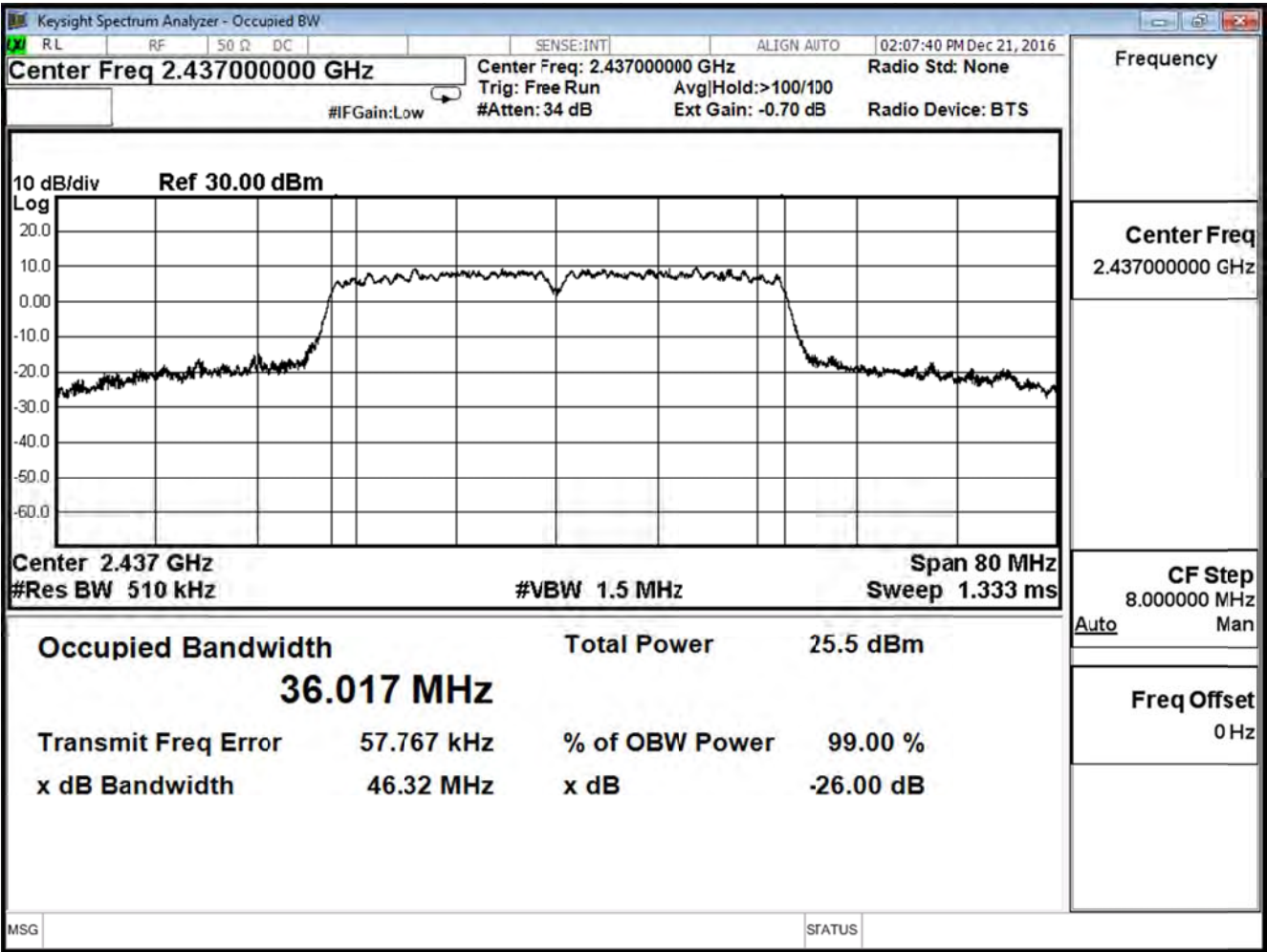
Product	Lyra mini		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/21	Test Site	SR10-H

IEEE802.11n 40MHz (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (MHz)	Limit (MHz)	Result
3	2422	35.83	--	Pass
6	2437	36.02	--	Pass
9	2452	35.86	--	Pass

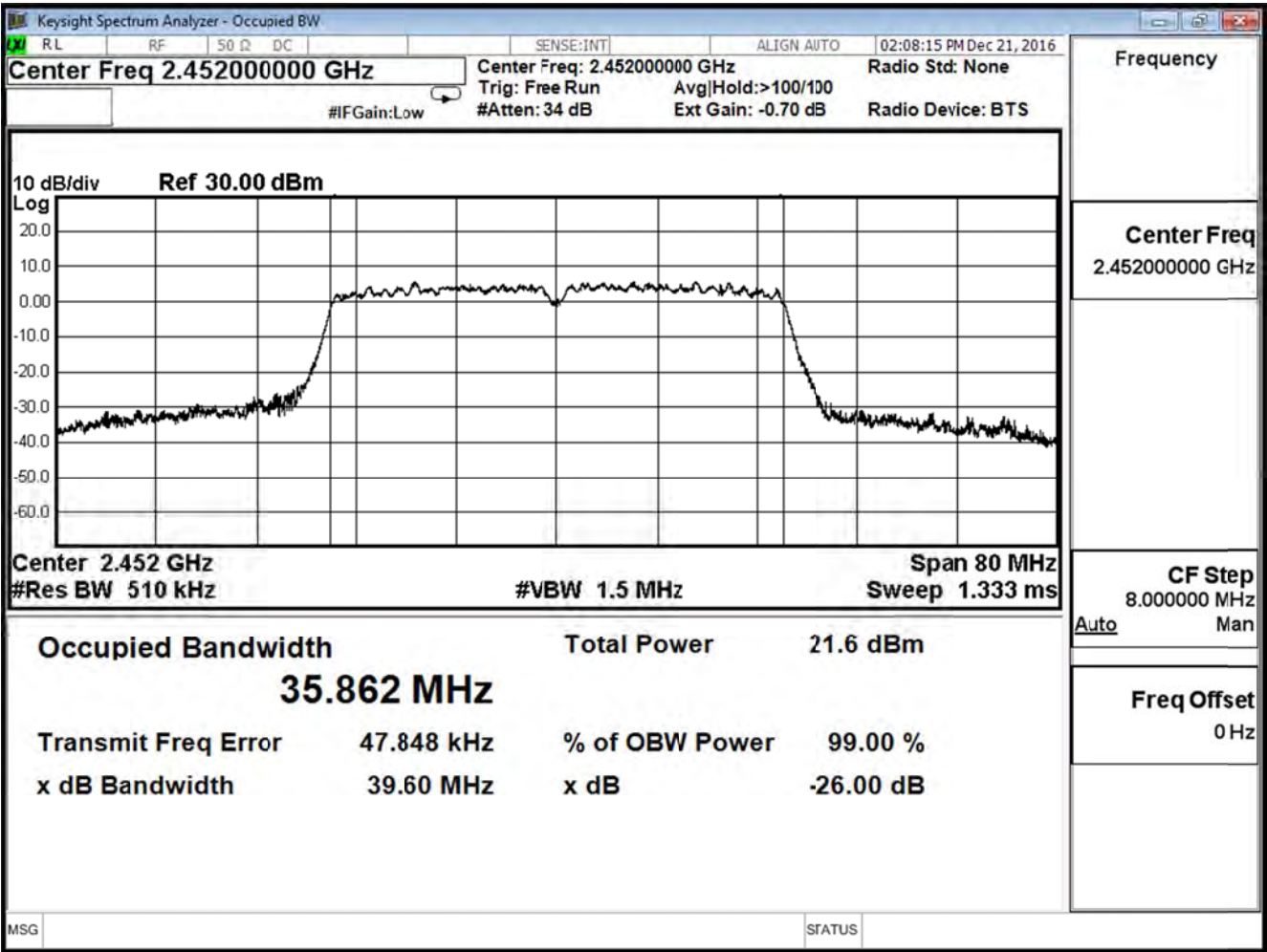
Channel 3



Channel 6



Channel 9



9. Power Density

9.1. Test Equipment

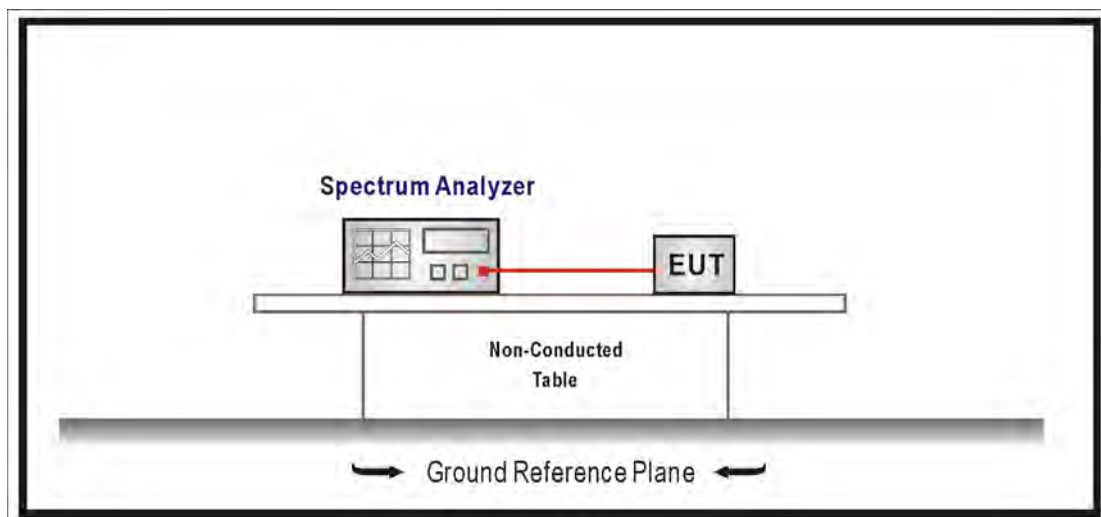
The following test equipment is used during the test:

Power Density / SR10-H

Instrument	Manufacturer	Model No.	Serial No	Next Cal. Date
Signal & Spectrum Analyzer	R&S	FSV40	101049	2018/01/22

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 3KHz $\leq$ RBW $\leq$ 100 kHz, Set VBW $\geq$ 3xRBW, 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 ± 1.27 dB.

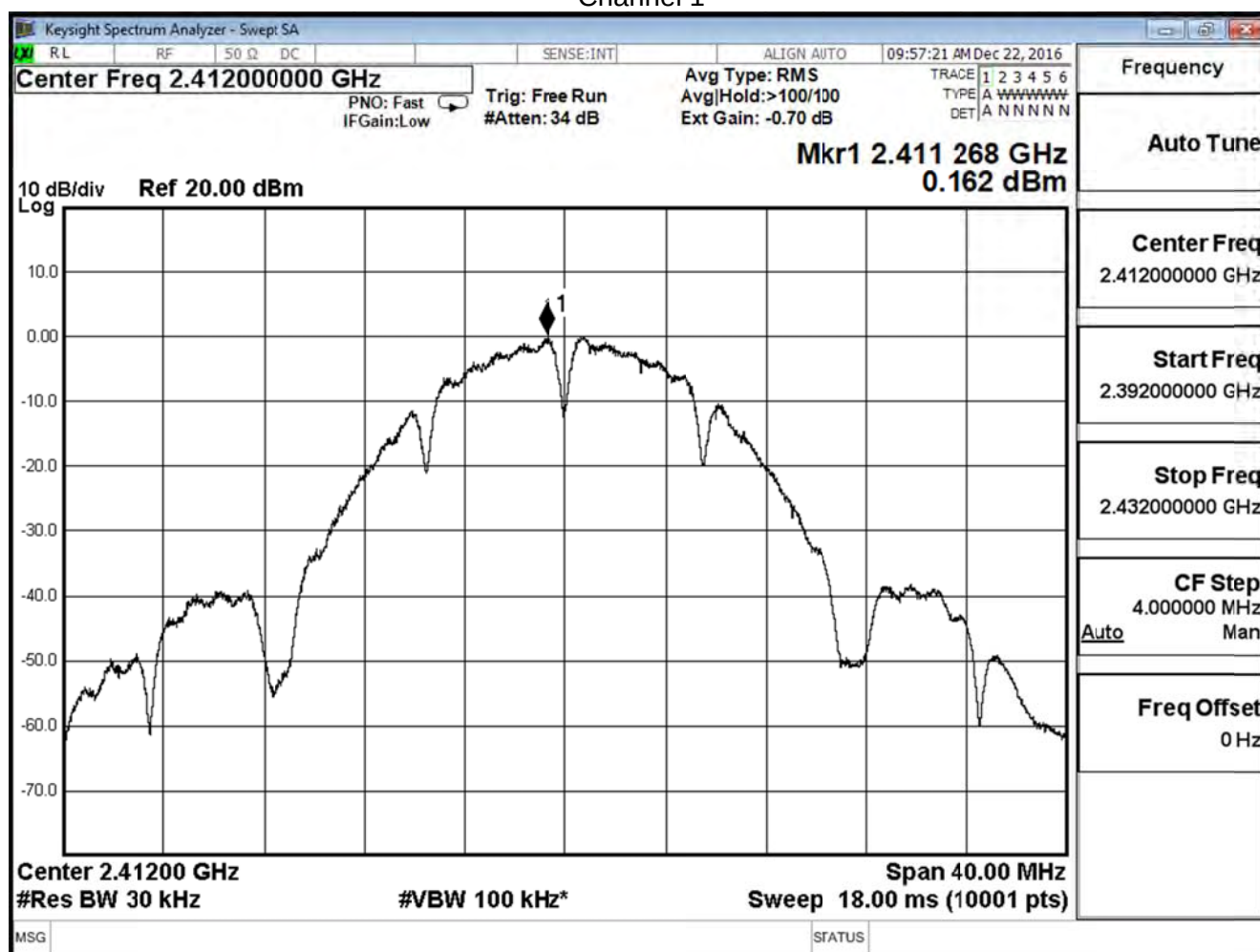
9.7. Test Result

Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

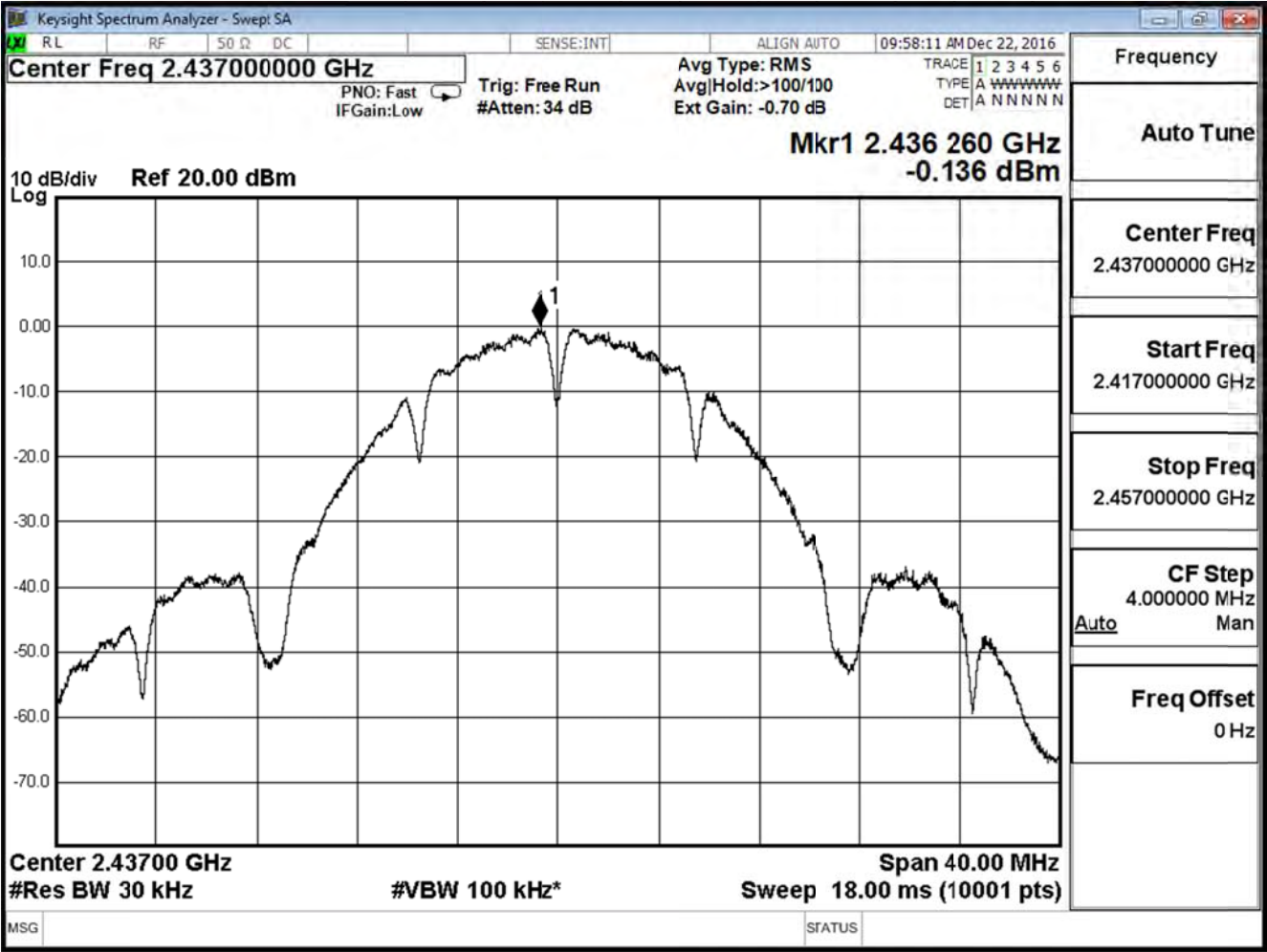
IEEE 802.11b (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	0.162	≤ 8	Pass
6	2437	-0.136	≤ 8	Pass
11	2462	-1.819	≤ 8	Pass

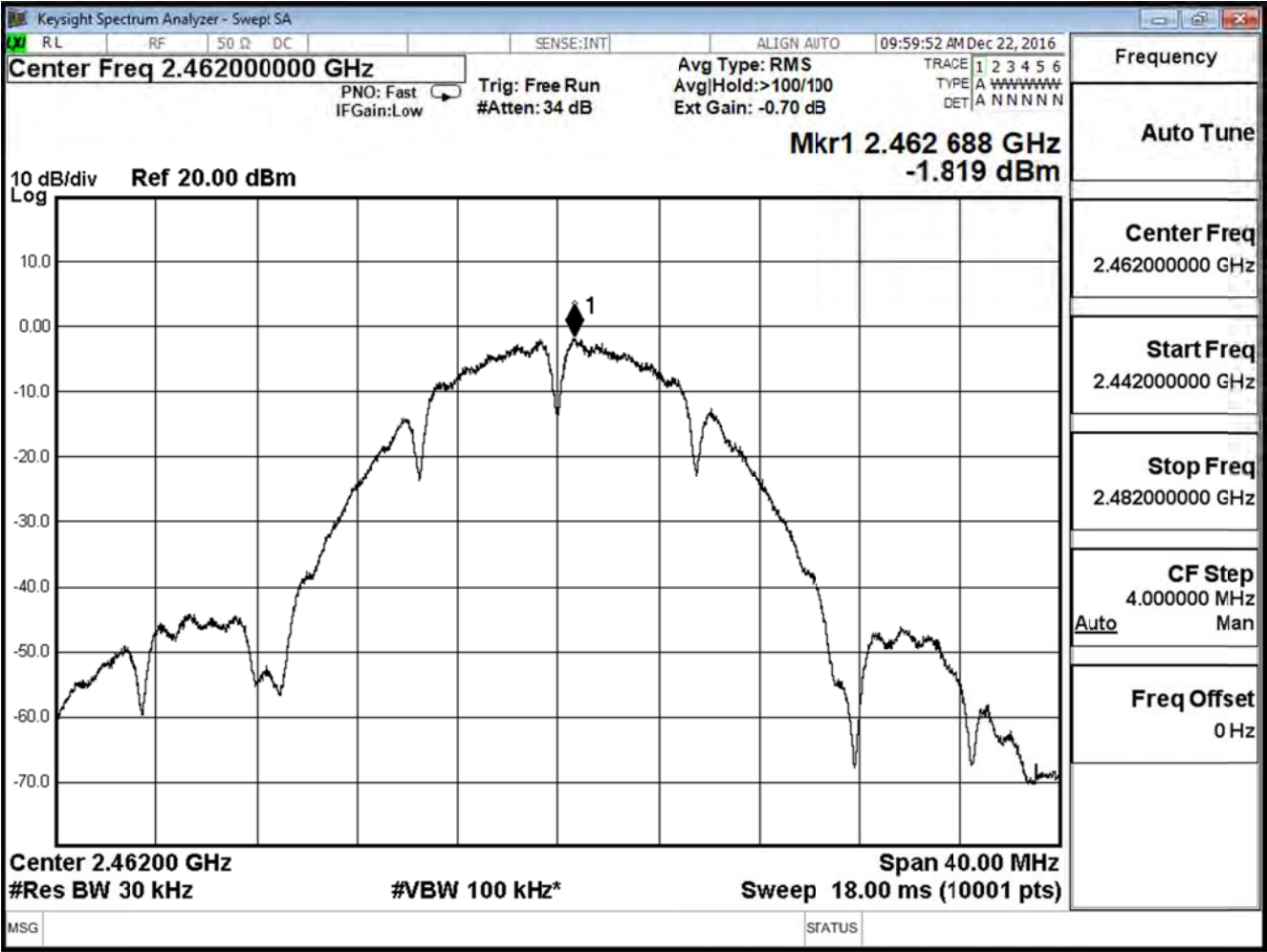
Channel 1



Channel 6



Channel 11

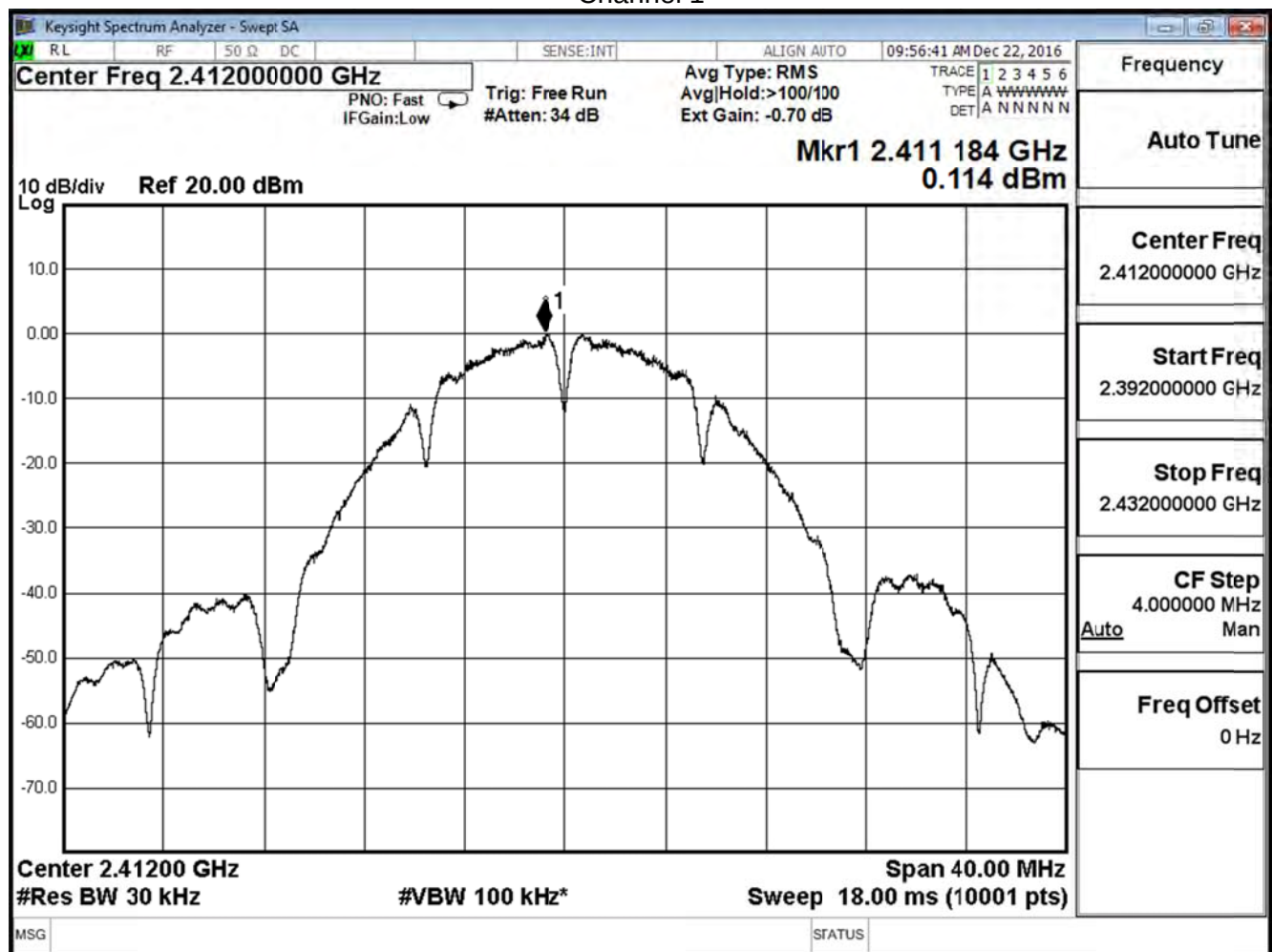


Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

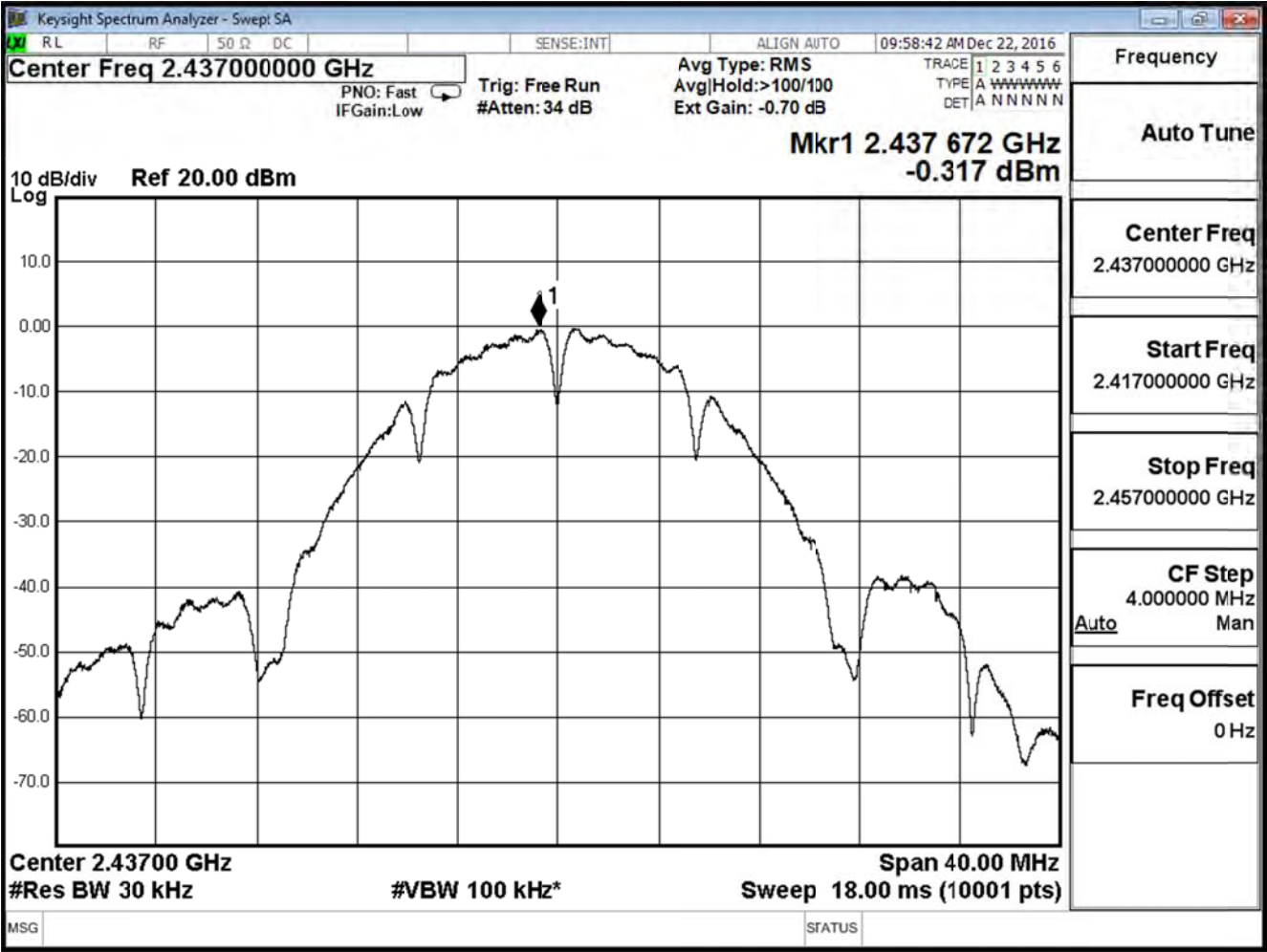
IEEE 802.11b (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	0.114	≤ 8	Pass
6	2437	-0.317	≤ 8	Pass
11	2462	-1.807	≤ 8	Pass

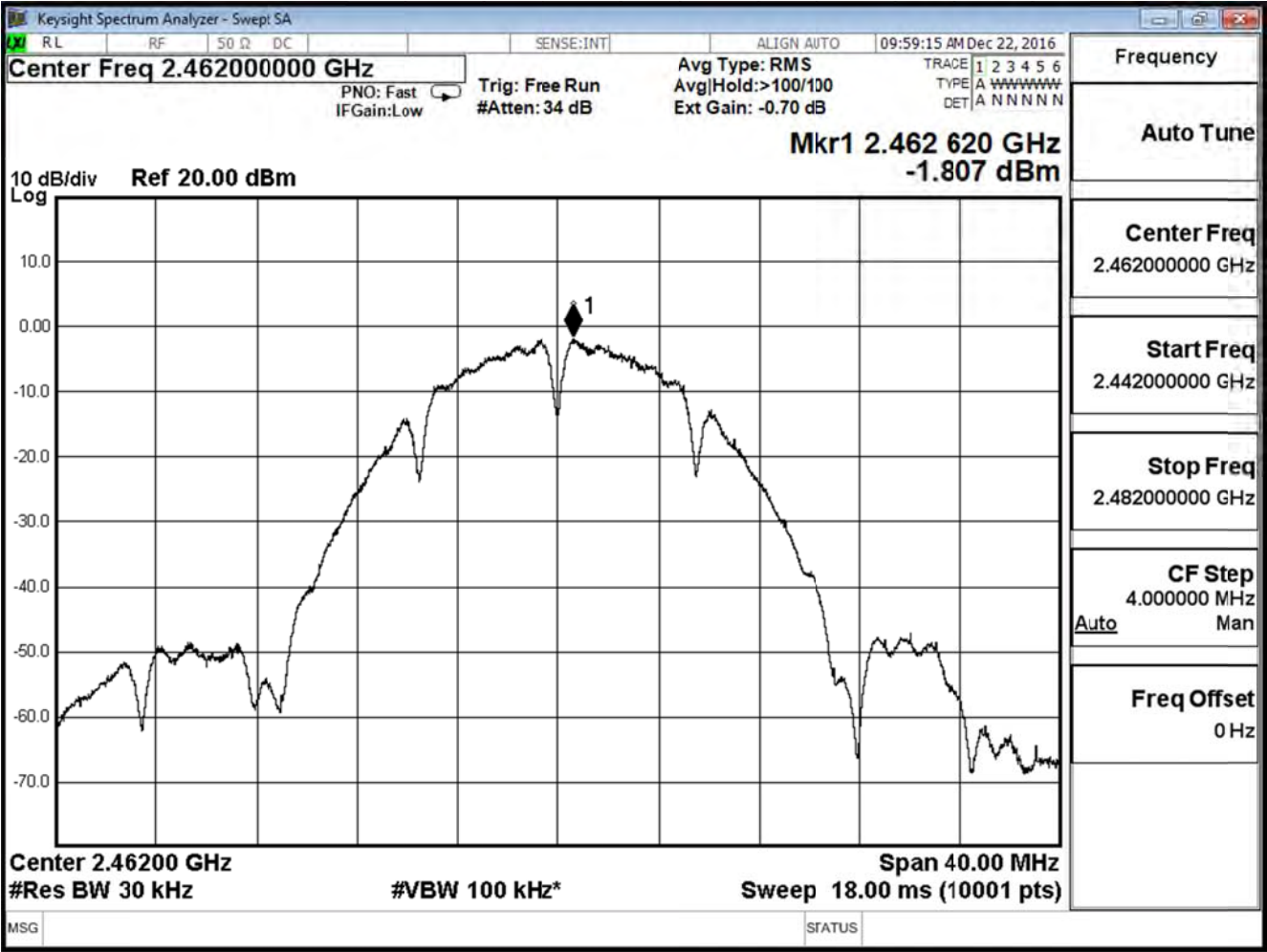
Channel 1



Channel 6



Channel 11



Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

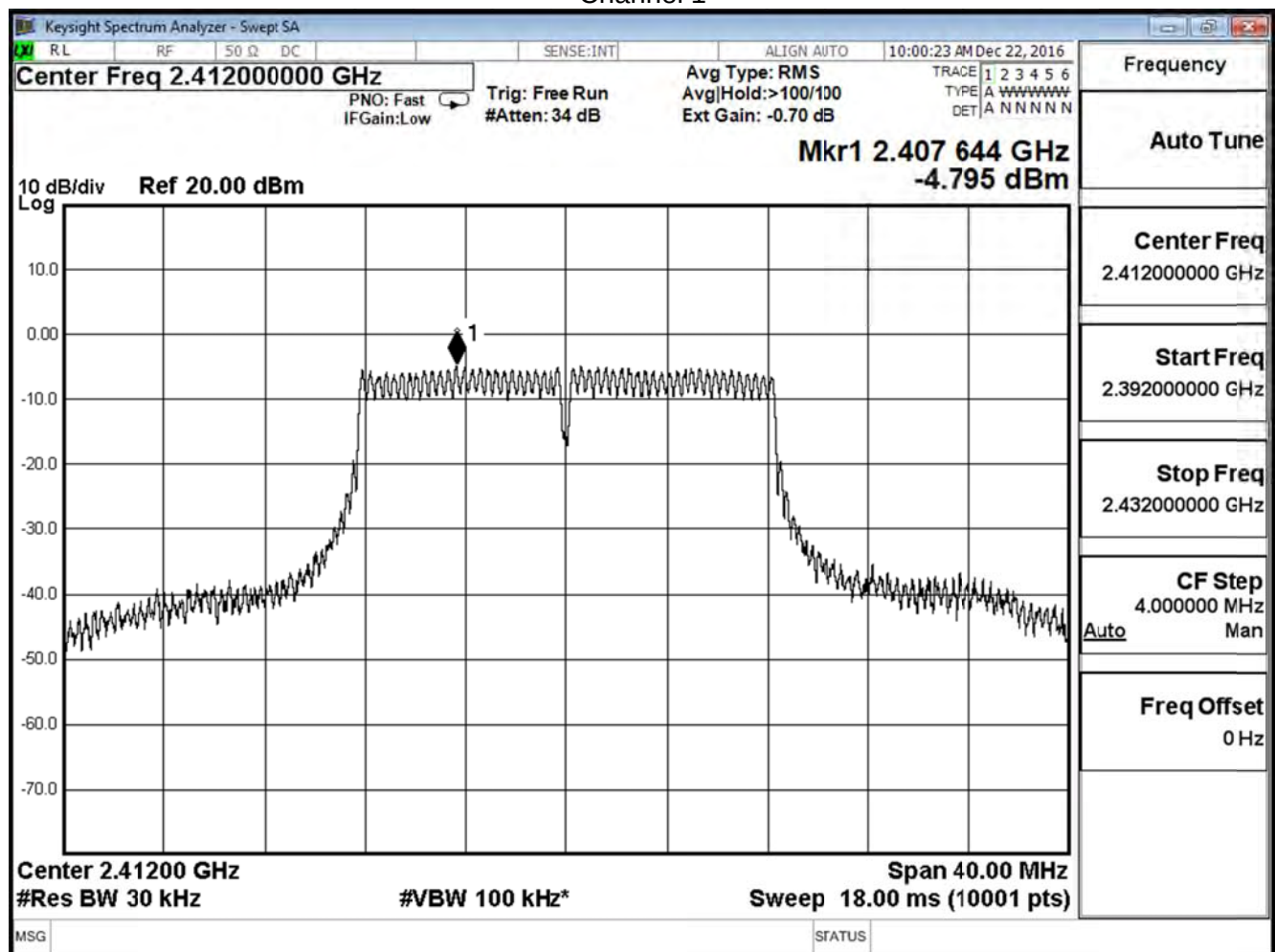
IEEE 802.11b (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	3.148	≤ 8	Pass
6	2437	2.785	≤ 8	Pass
11	2462	1.197	≤ 8	Pass

Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

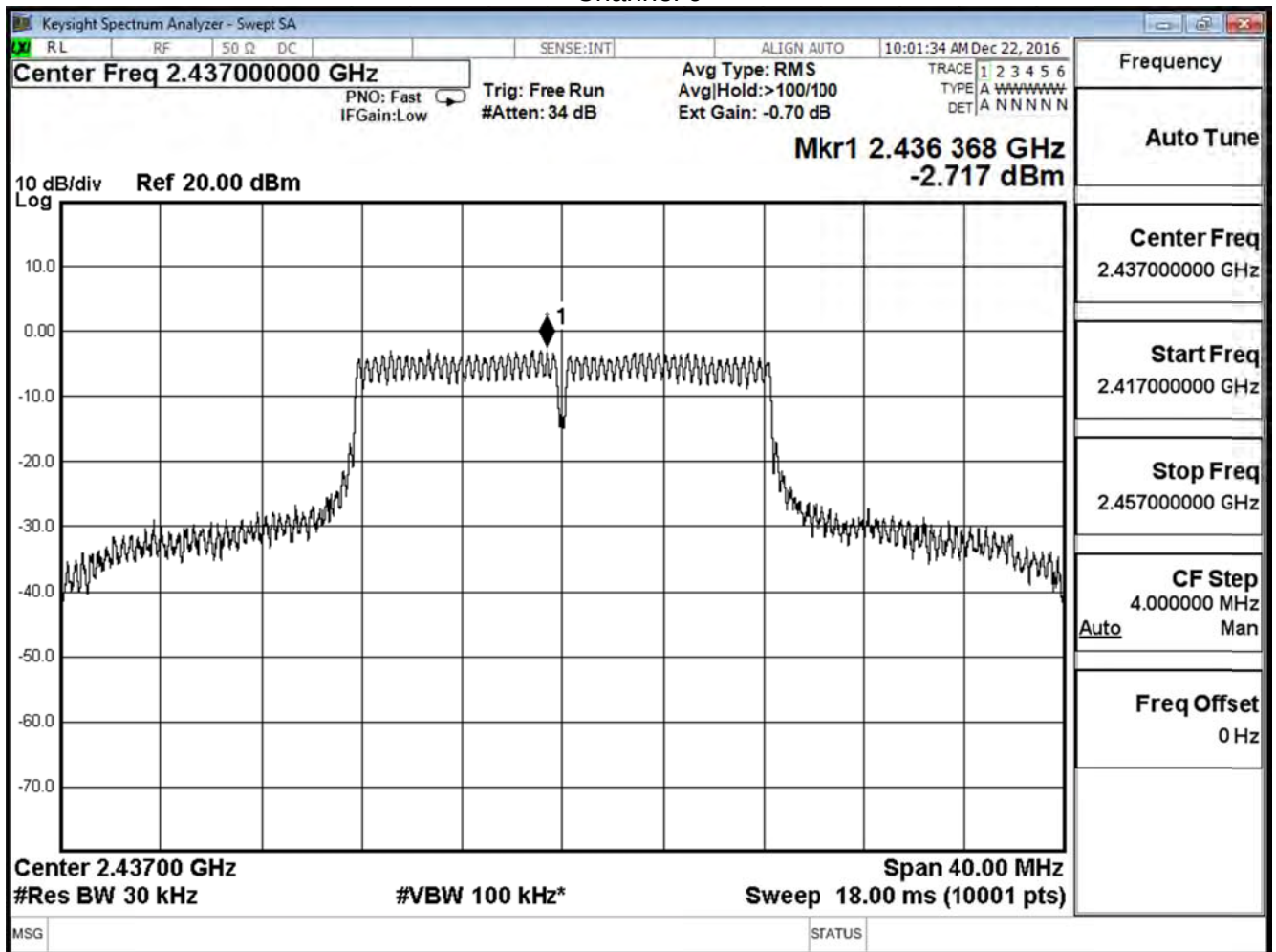
IEEE 802.11g (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-4.795	≤ 8	Pass
6	2437	-2.717	≤ 8	Pass
11	2462	-6.306	≤ 8	Pass

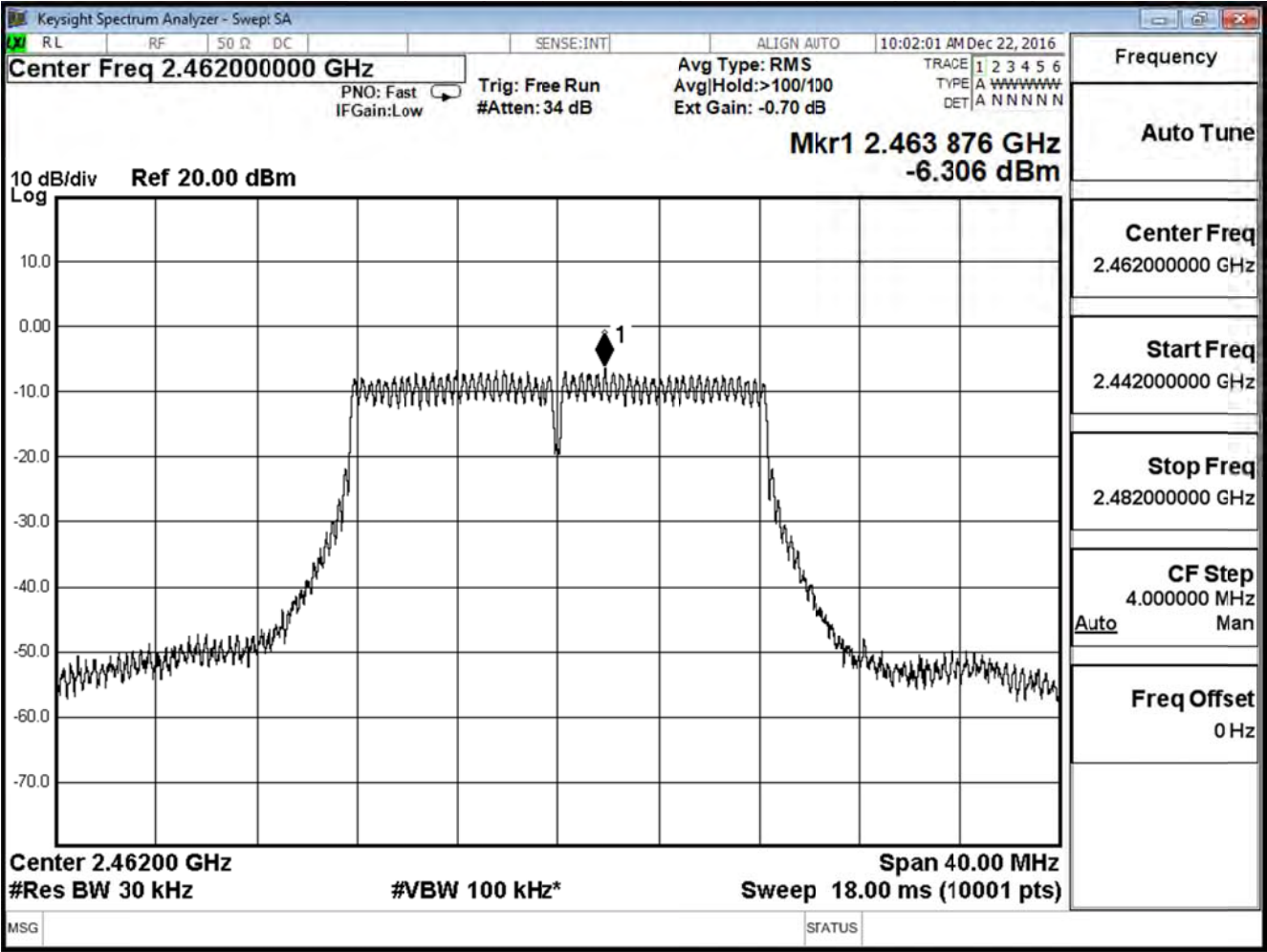
Channel 1



Channel 6



Channel 11

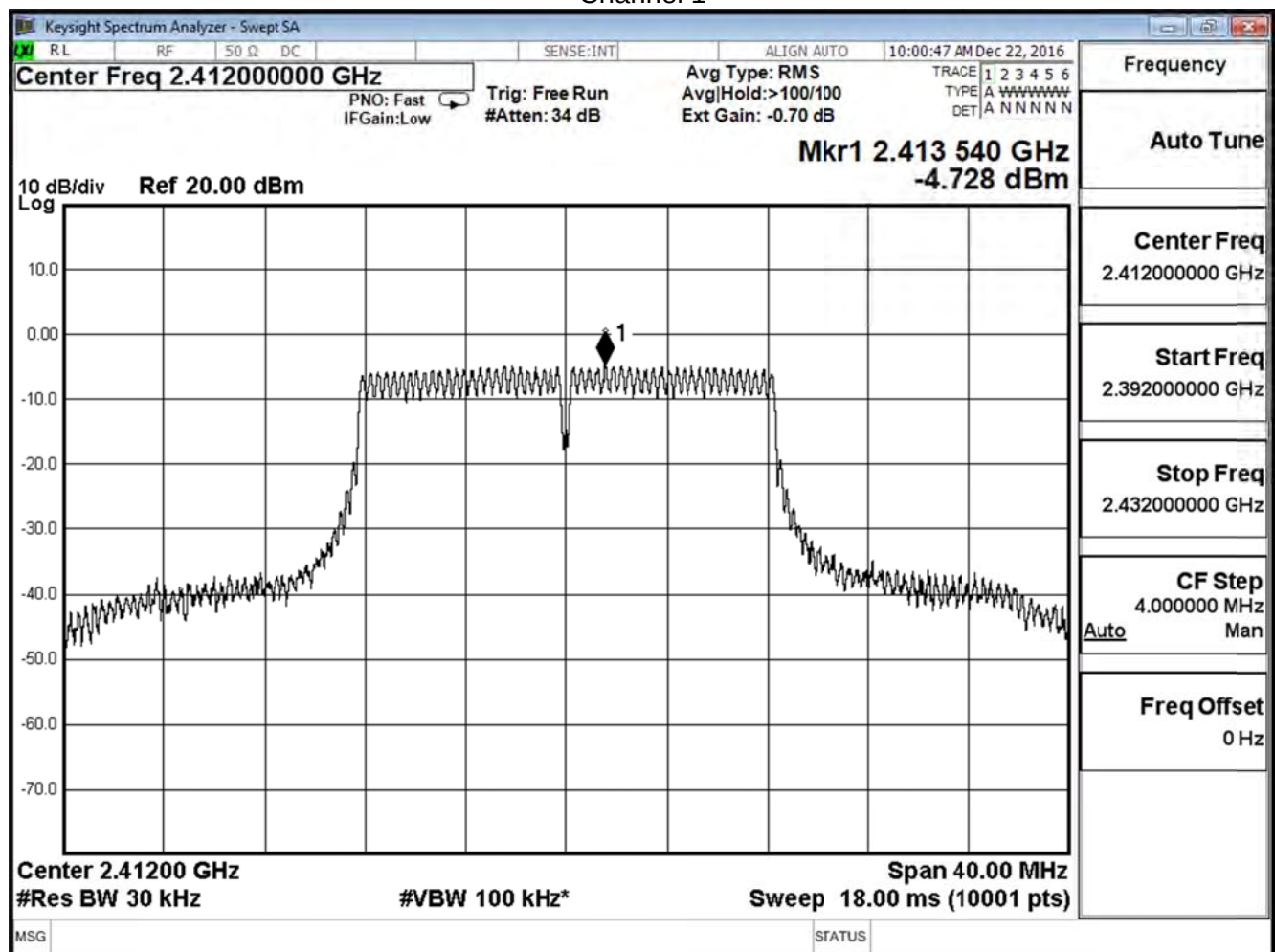


Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

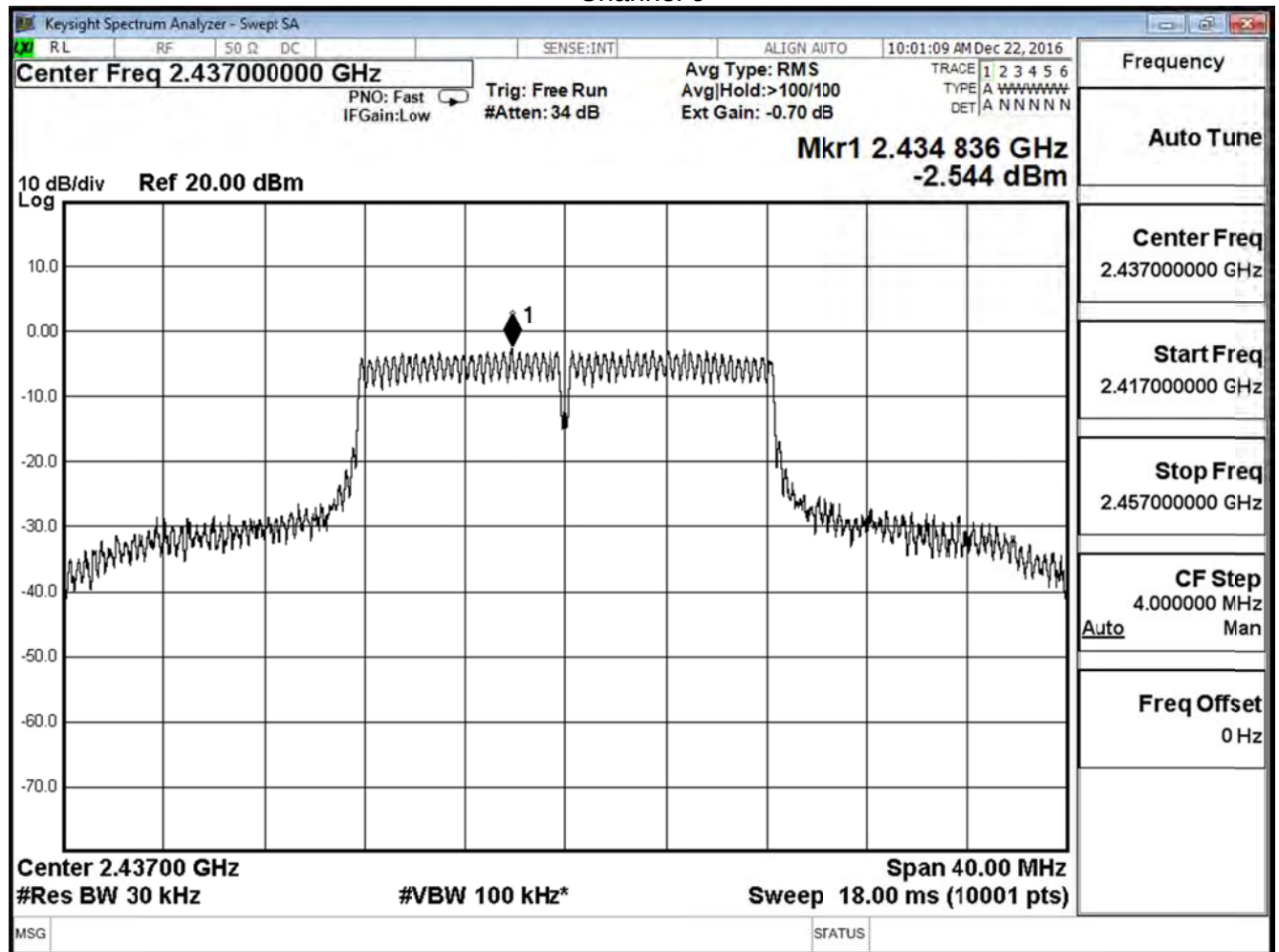
IEEE 802.11g (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-4.728	≤ 8	Pass
6	2437	-2.544	≤ 8	Pass
11	2462	-6.856	≤ 8	Pass

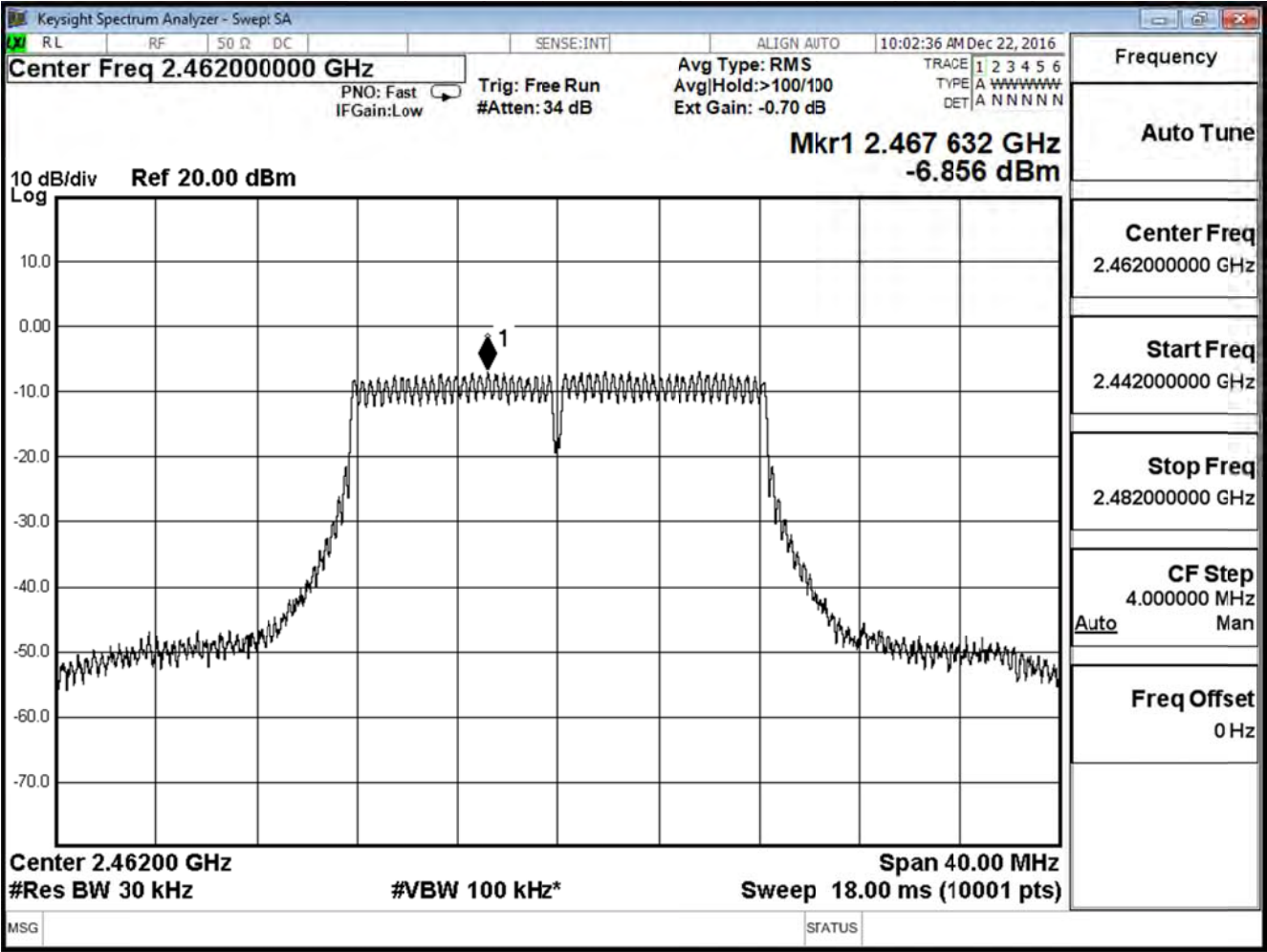
Channel 1



Channel 6



Channel 11



Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

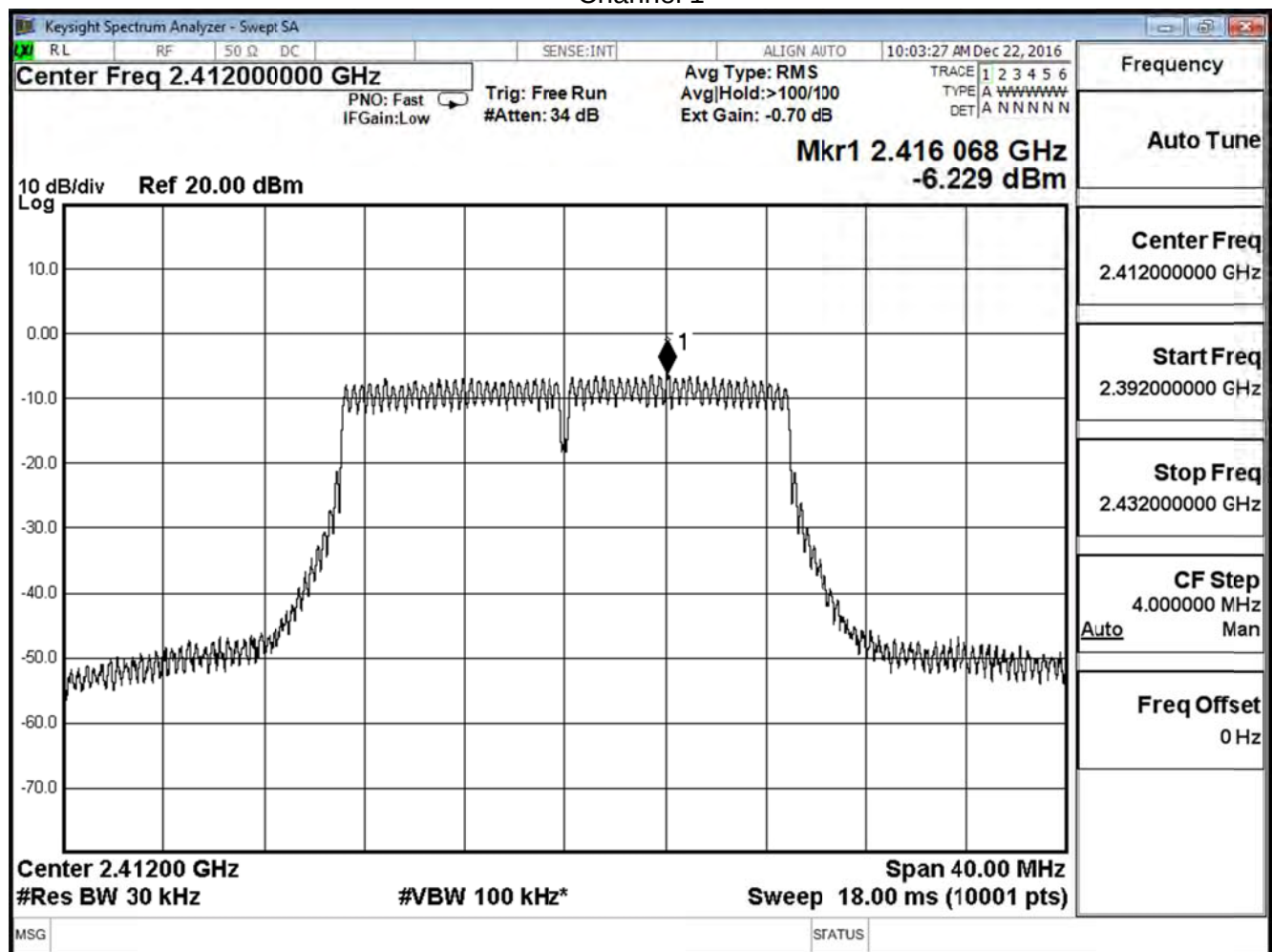
IEEE 802.11g (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-1.751	≤ 8	Pass
6	2437	0.381	≤ 8	Pass
11	2462	-3.562	≤ 8	Pass

Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

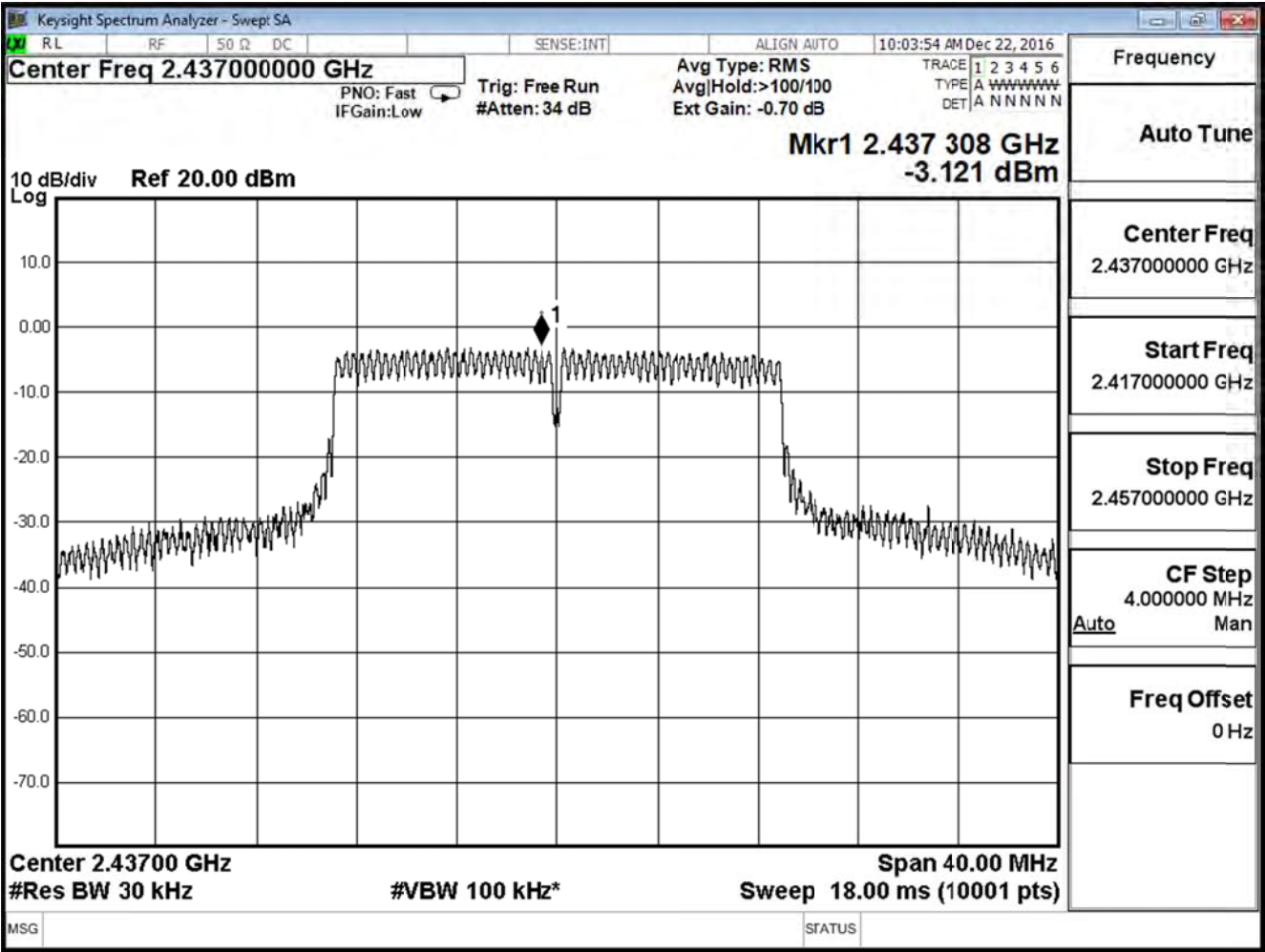
IEEE802.11n 20MHz (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-6.229	≤ 8	Pass
6	2437	-3.121	≤ 8	Pass
11	2462	-7.340	≤ 8	Pass

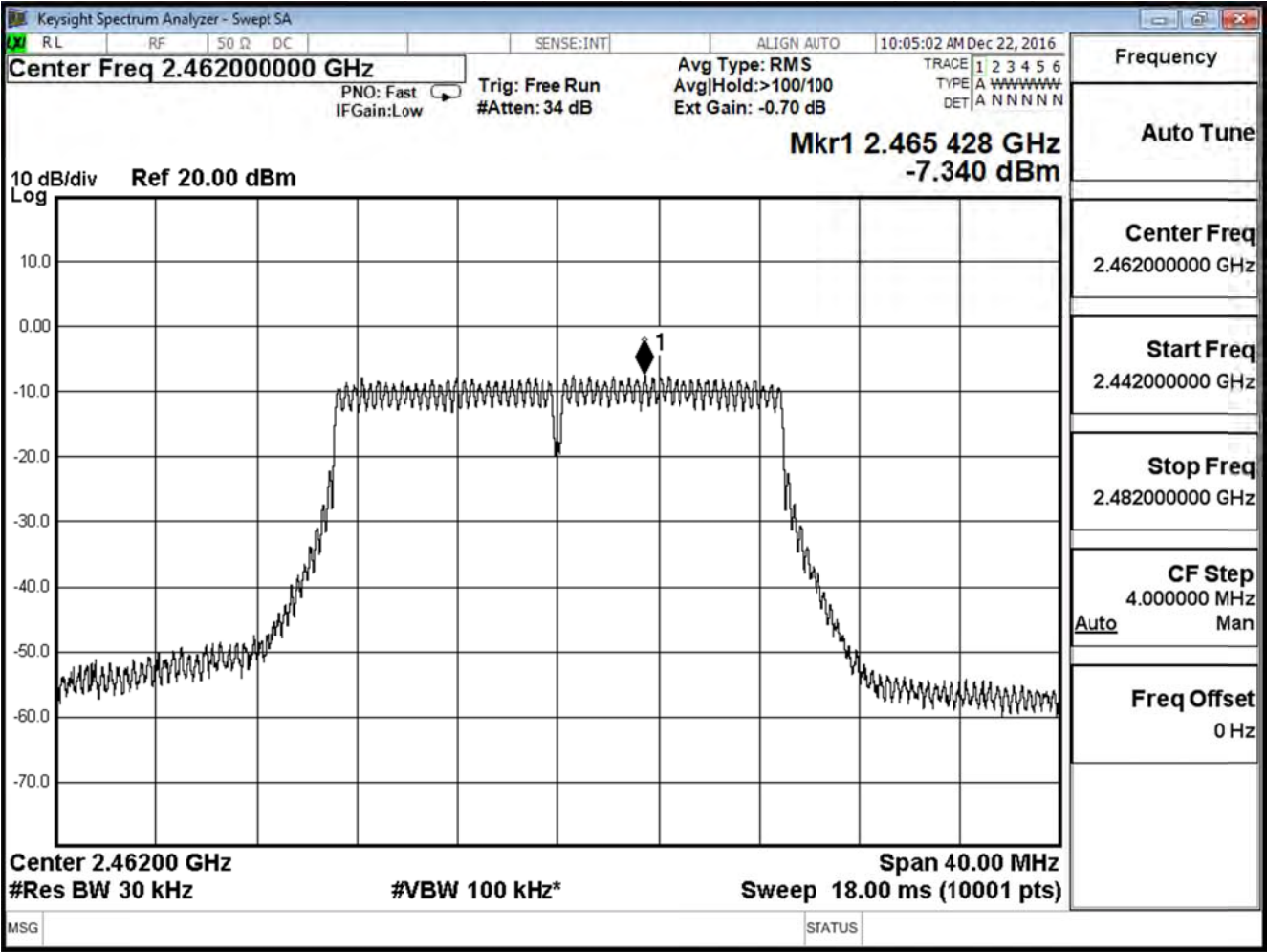
Channel 1



Channel 6



Channel 11

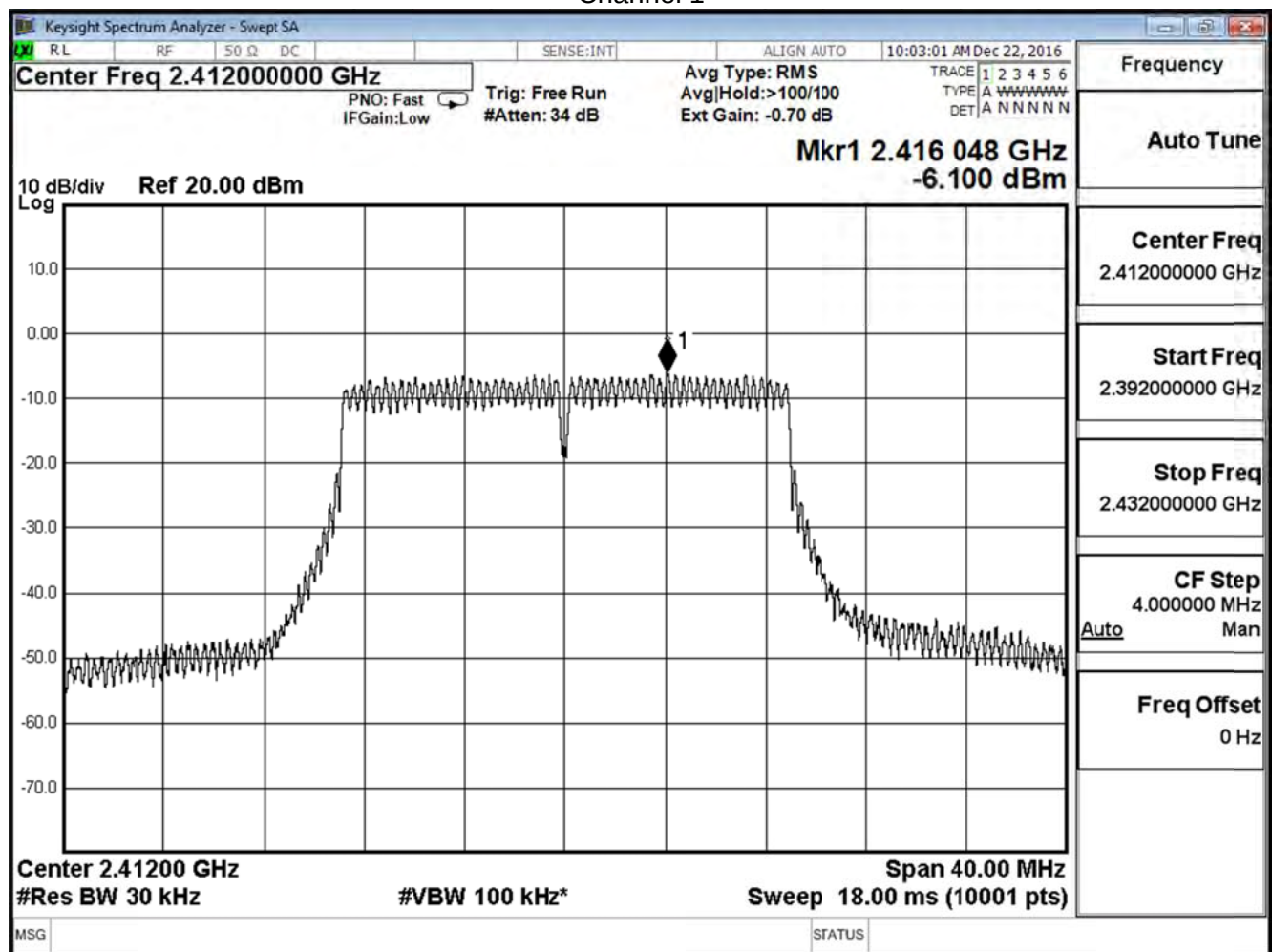


Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

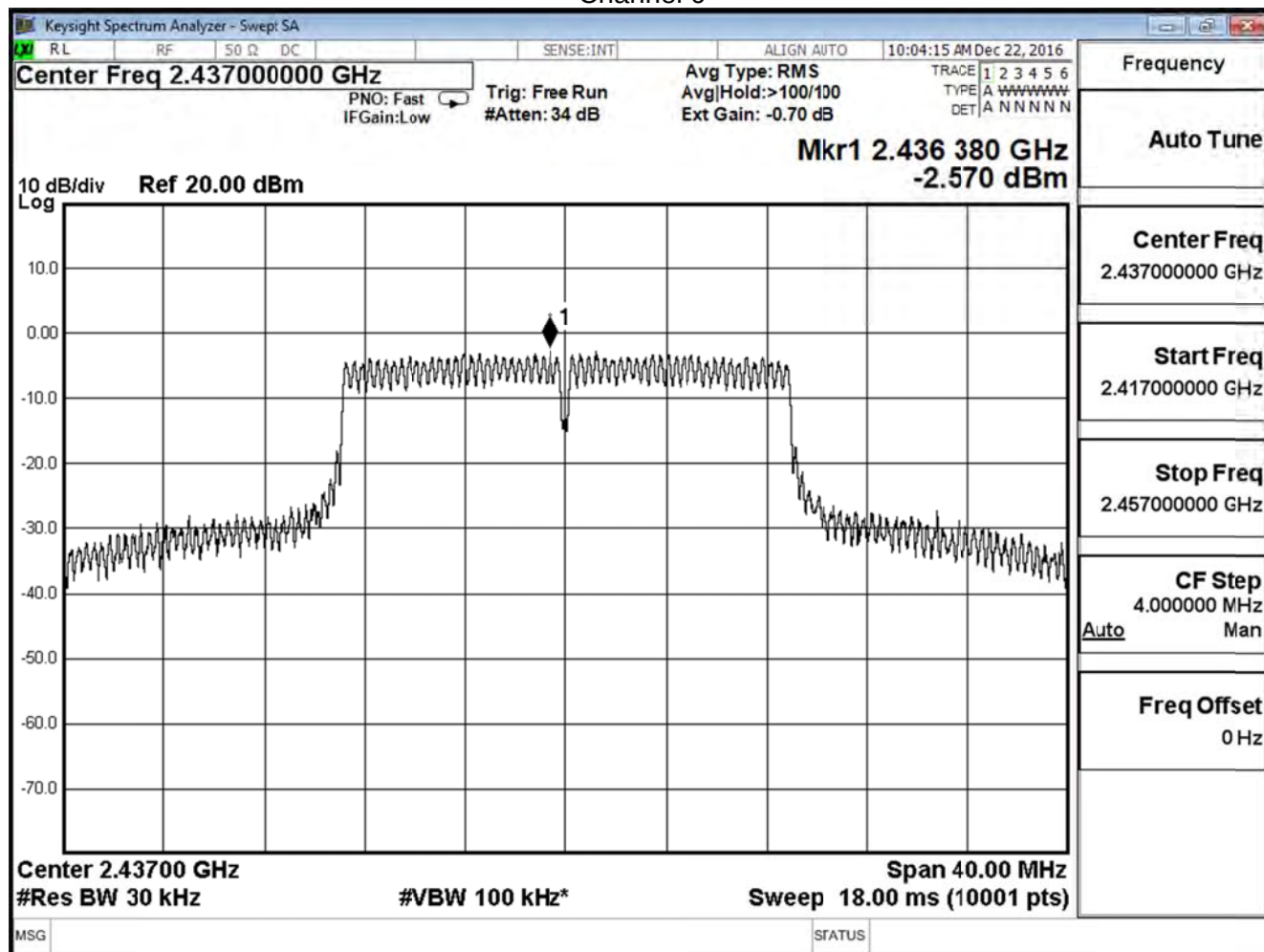
IEEE802.11n 20MHz (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-6.100	≤ 8	Pass
6	2437	-2.570	≤ 8	Pass
11	2462	-7.059	≤ 8	Pass

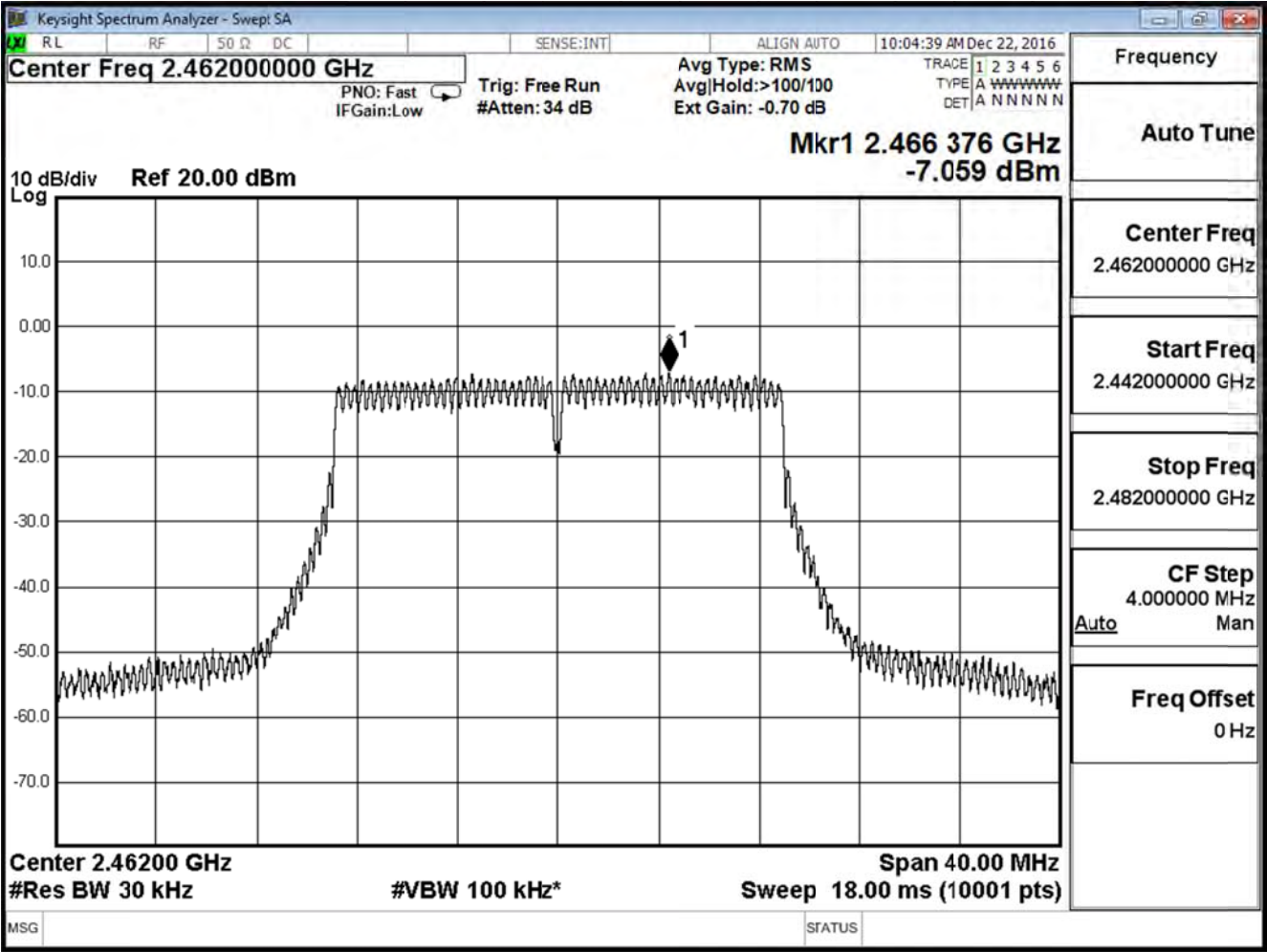
Channel 1



Channel 6



Channel 11



Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

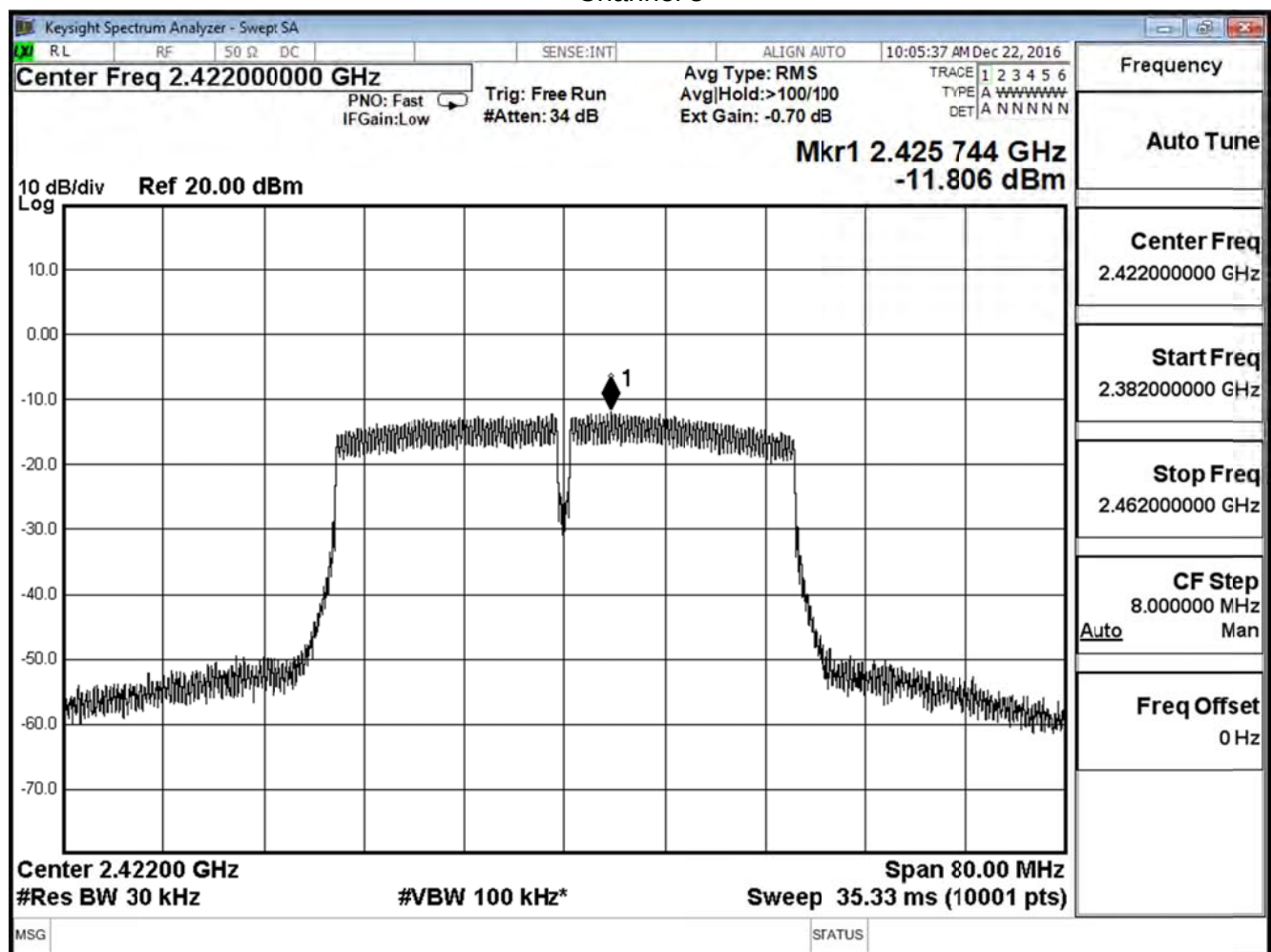
IEEE802.11n 20MHz (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-3.154	≤ 8	Pass
6	2437	0.174	≤ 8	Pass
11	2462	-4.187	≤ 8	Pass

Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

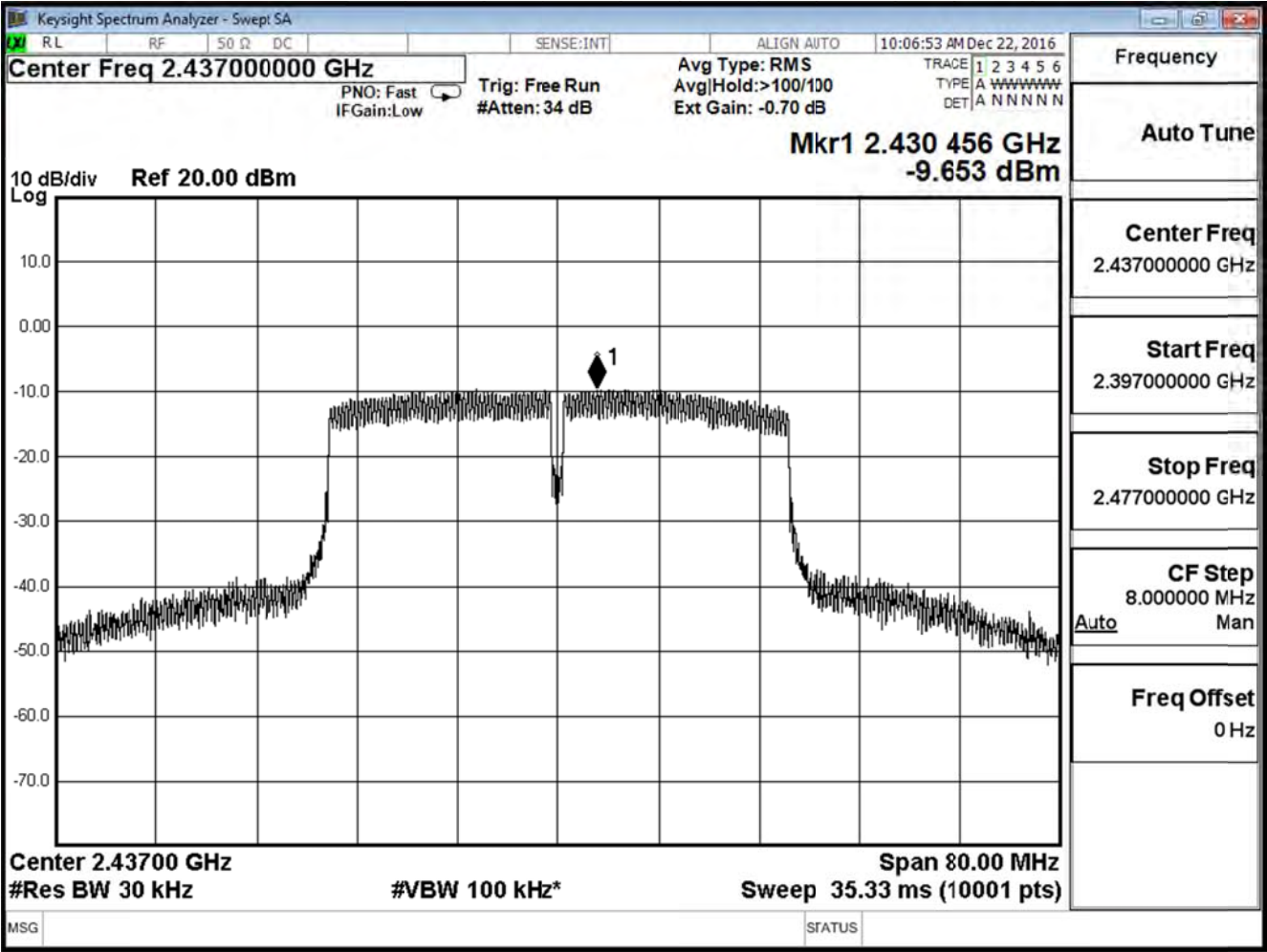
IEEE802.11n 40MHz (ANT 0)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	-11.806	≤ 8	Pass
6	2437	-9.653	≤ 8	Pass
9	2452	-13.322	≤ 8	Pass

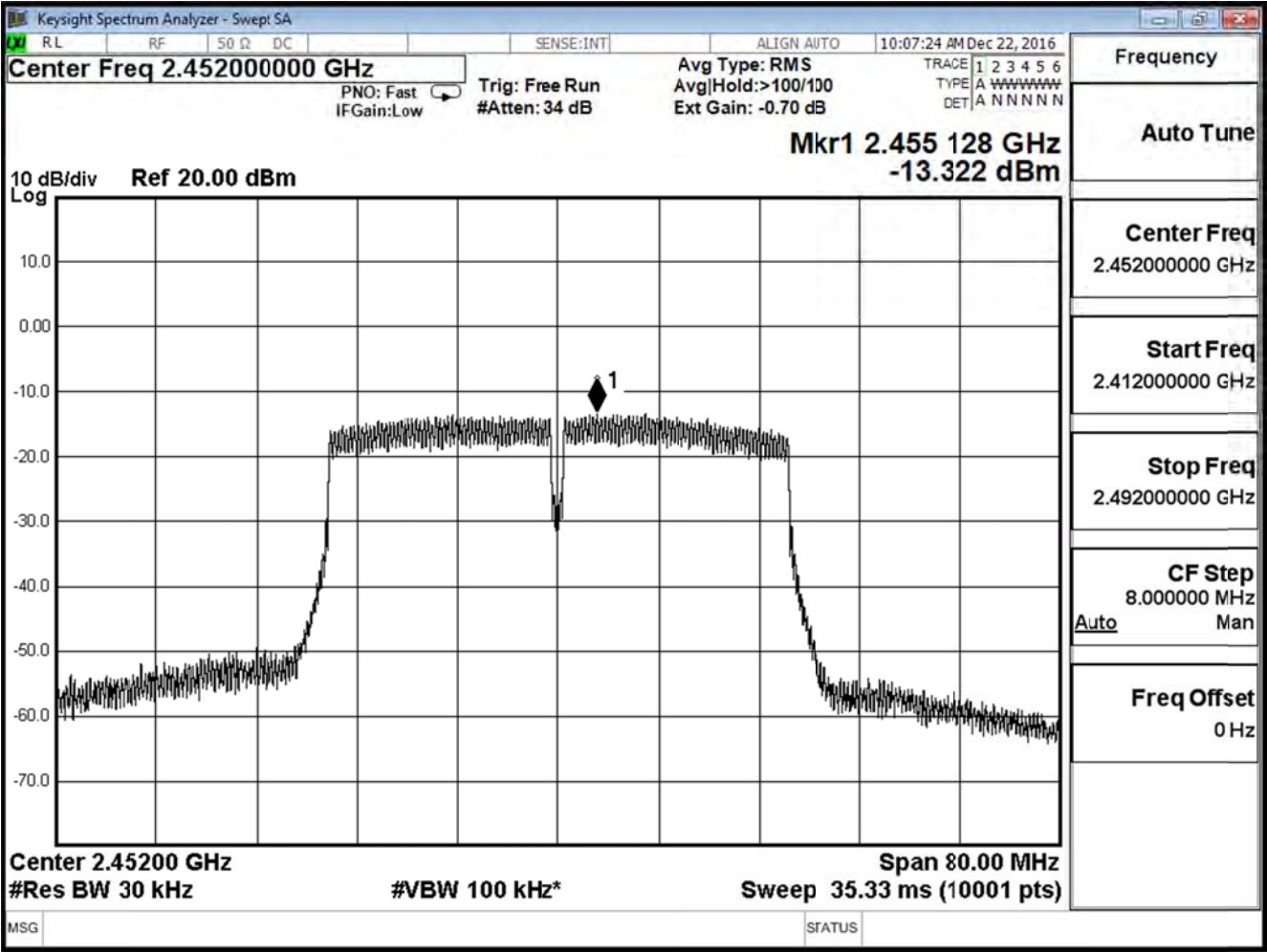
Channel 3



Channel 6



Channel 9

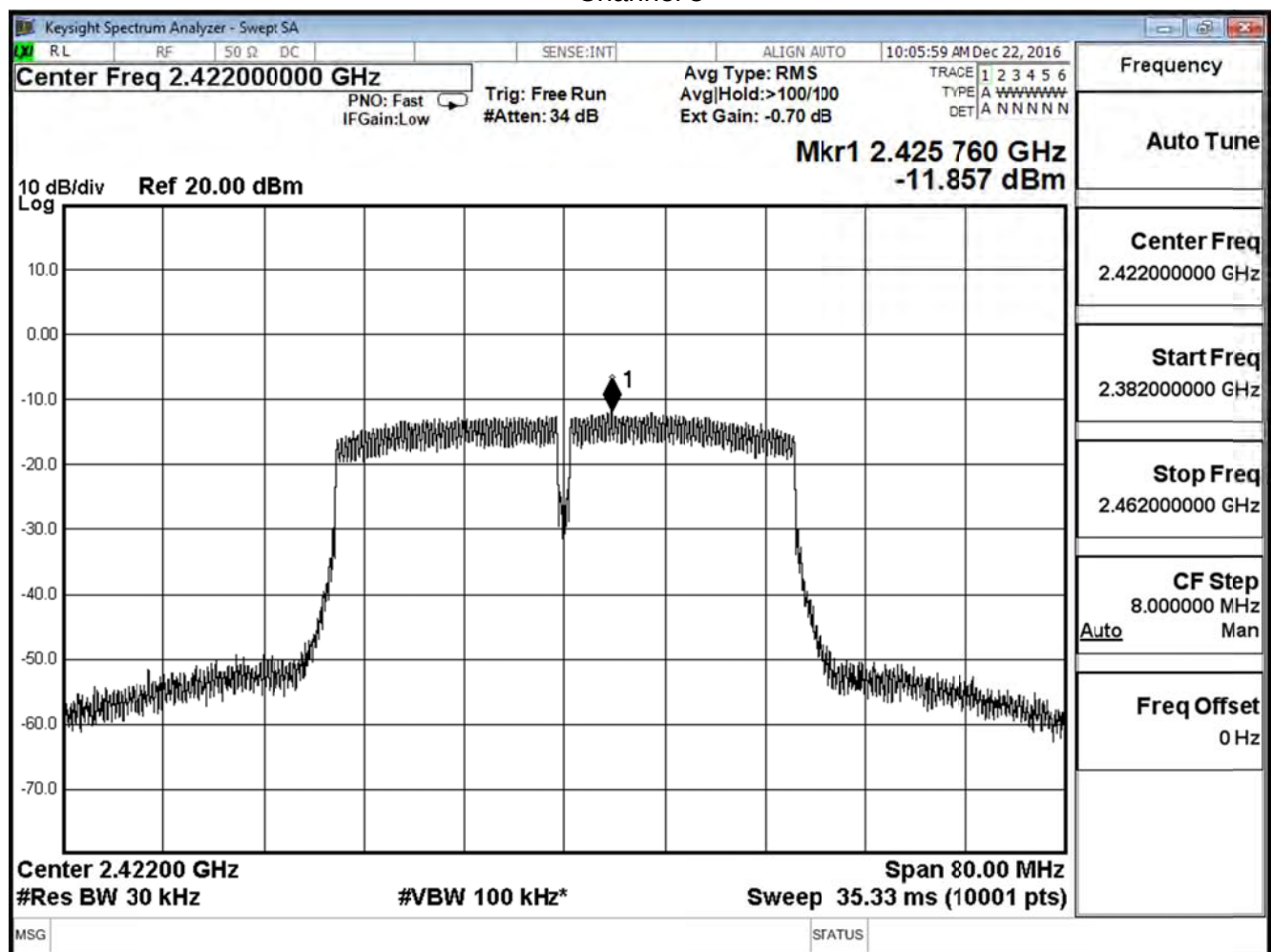


Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

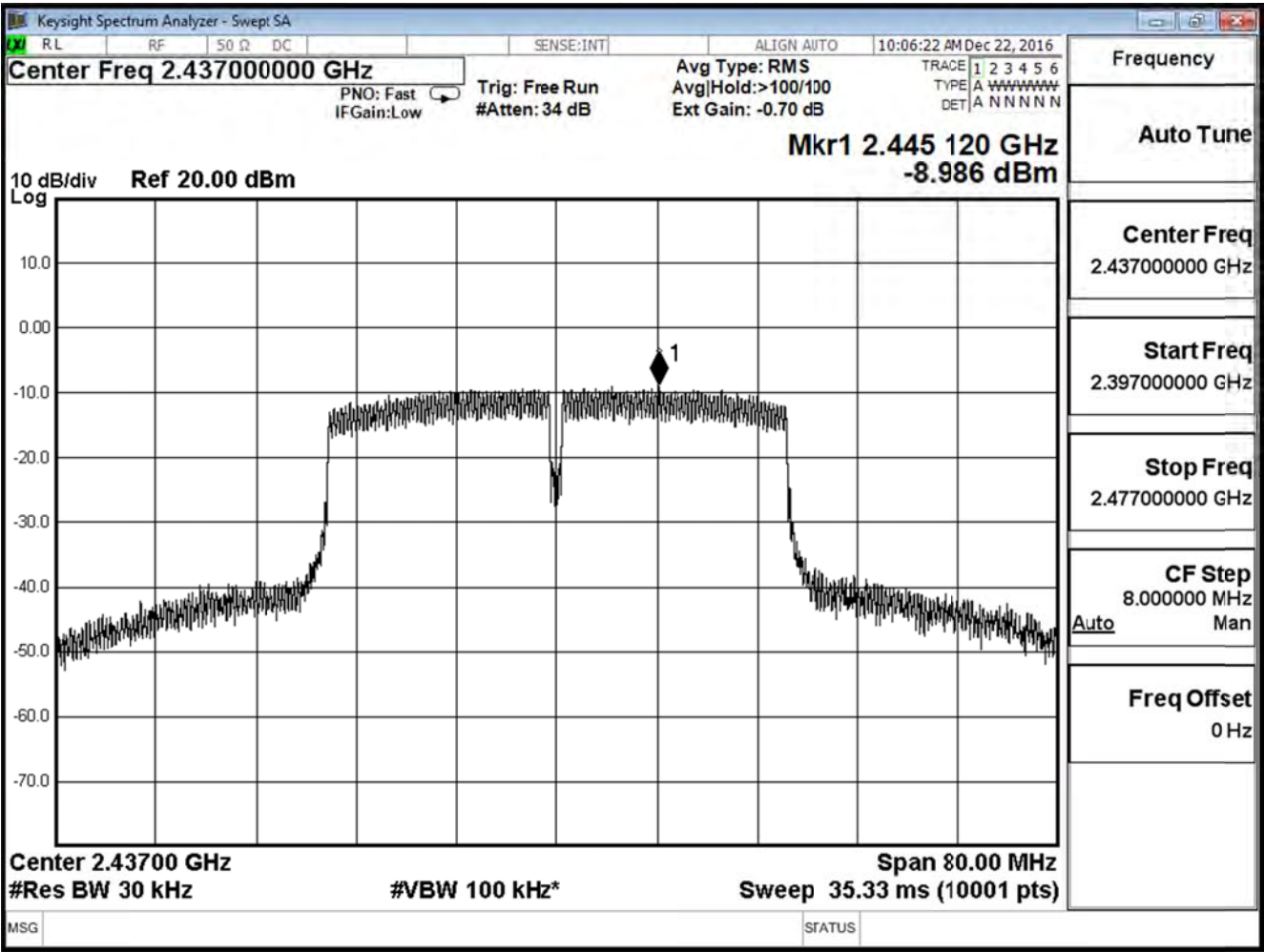
IEEE802.11n 40MHz (ANT 1)

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	-11.857	≤ 8	Pass
6	2437	-8.986	≤ 8	Pass
9	2452	-13.136	≤ 8	Pass

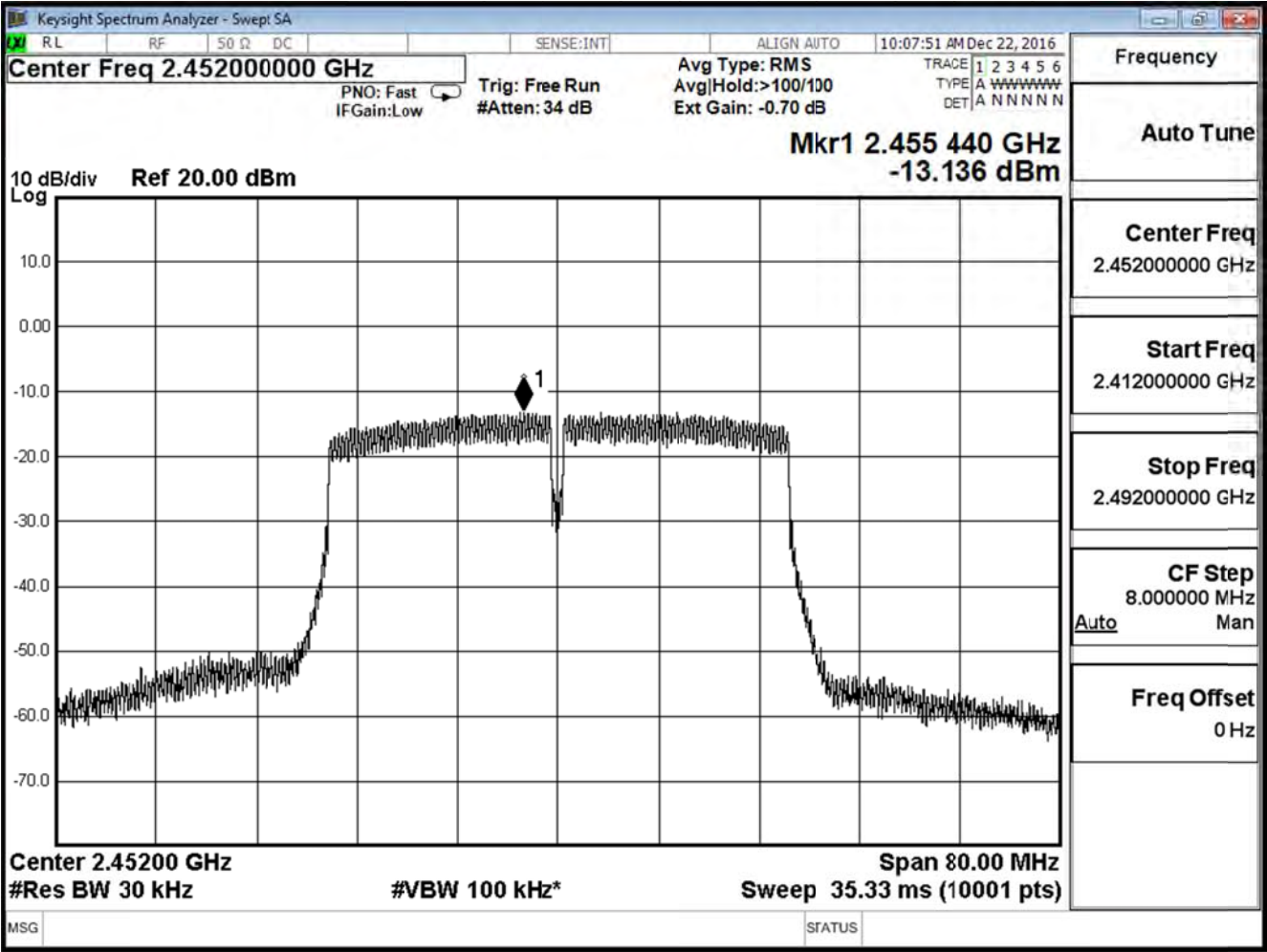
Channel 3



Channel 6



Channel 9



Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 1: Tx-AD2037320910LF-CDD Mode		
Date of Test	2016/12/22	Test Site	SR10-H

IEEE802.11n 40MHz (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	-8.821	≤ 8	Pass
6	2437	-6.296	≤ 8	Pass
9	2452	-10.218	≤ 8	Pass

Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 3: Tx-AD2037320910LF-BF Mode		
Date of Test	2017/01/15	Test Site	SR10-H

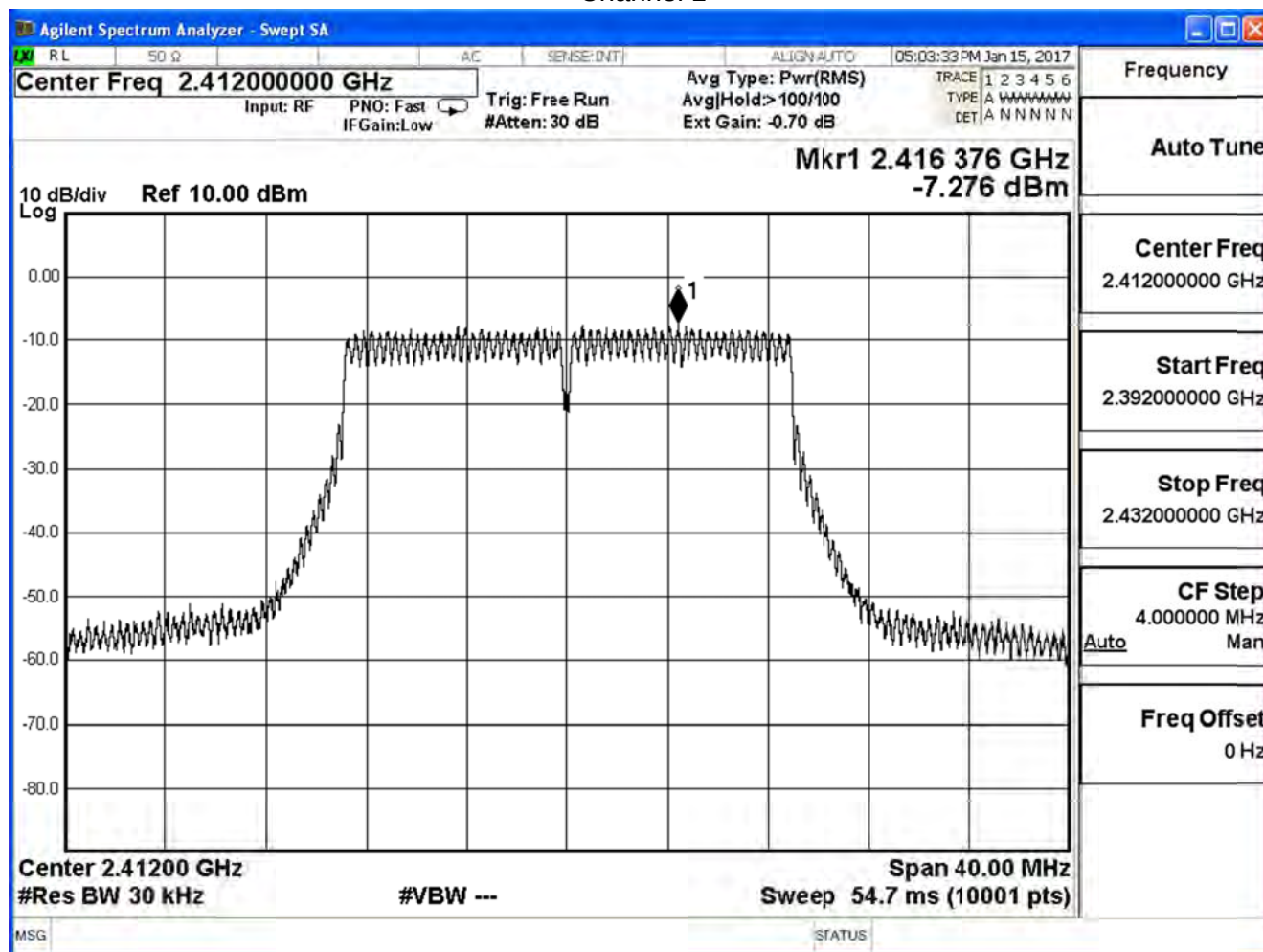
IEEE802.11n 20MHz (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-7.276	≤ 6.8	Pass
6	2437	-2.619	≤ 6.8	Pass
11	2462	-8.879	≤ 6.8	Pass

Note:

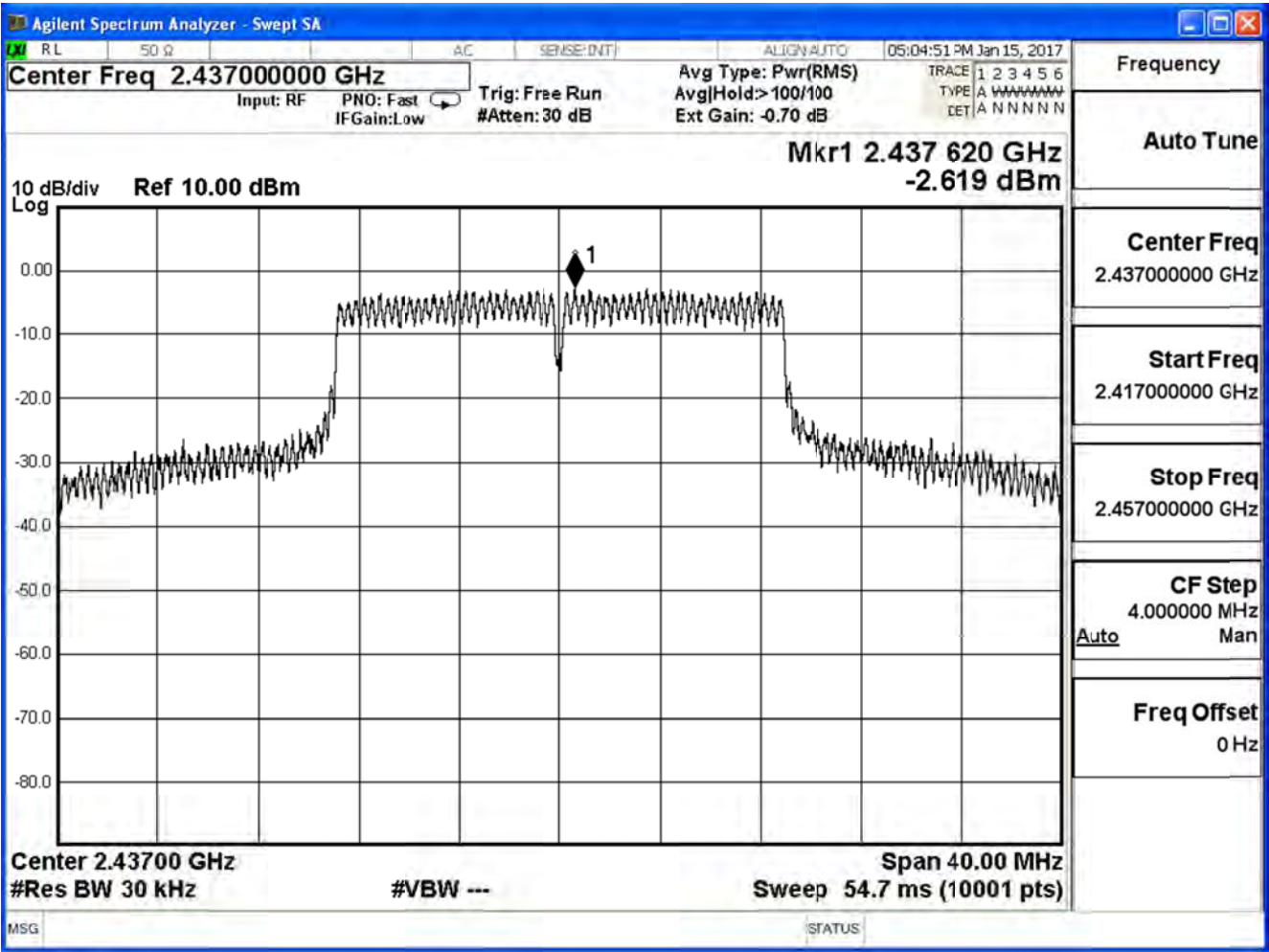
Directional Antenna=10log(N)+Max Gain+ Beamforming Gain=7.2dBi

Required Limit=8Bm-(7.2dBi-6dB)=6.8 dBm

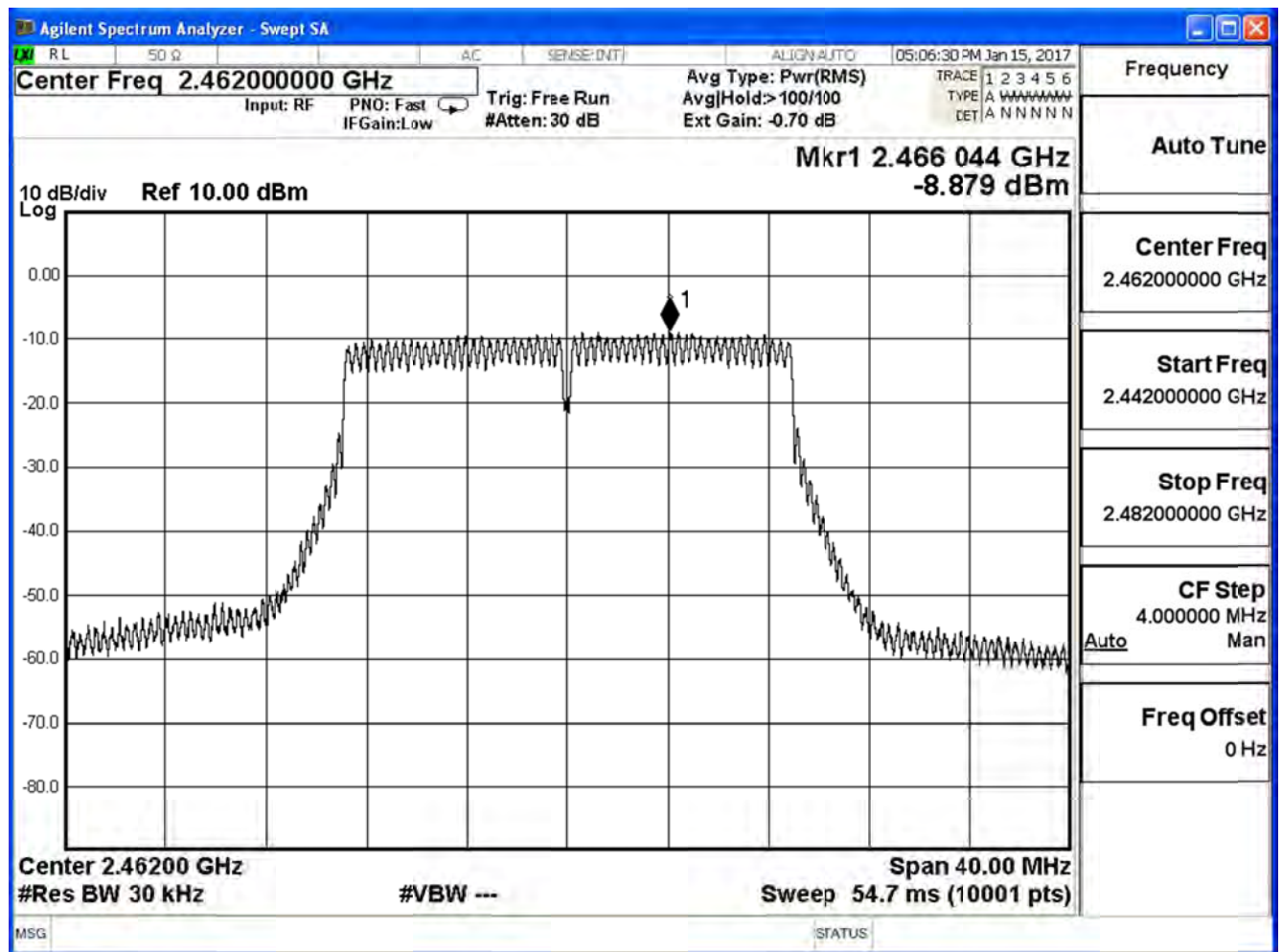
Channel 1



Channel 6



Channel 11



Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 3: Tx-AD2037320910LF-BF Mode		
Date of Test	2017/01/15	Test Site	SR10-H

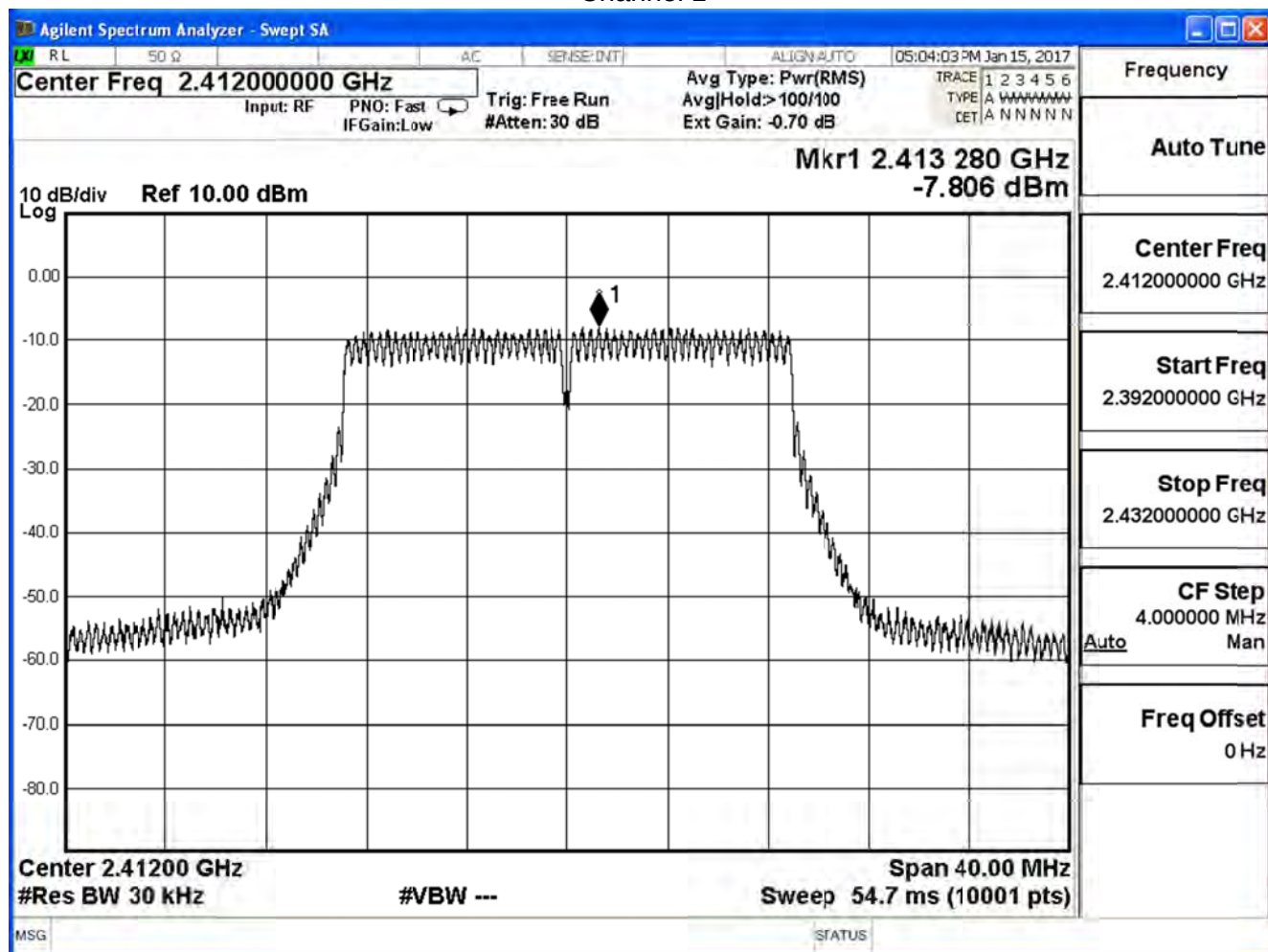
IEEE802.11n 20MHz (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-7.806	≤ 6.8	Pass
6	2437	-2.913	≤ 6.8	Pass
11	2462	-8.678	≤ 6.8	Pass

Note:

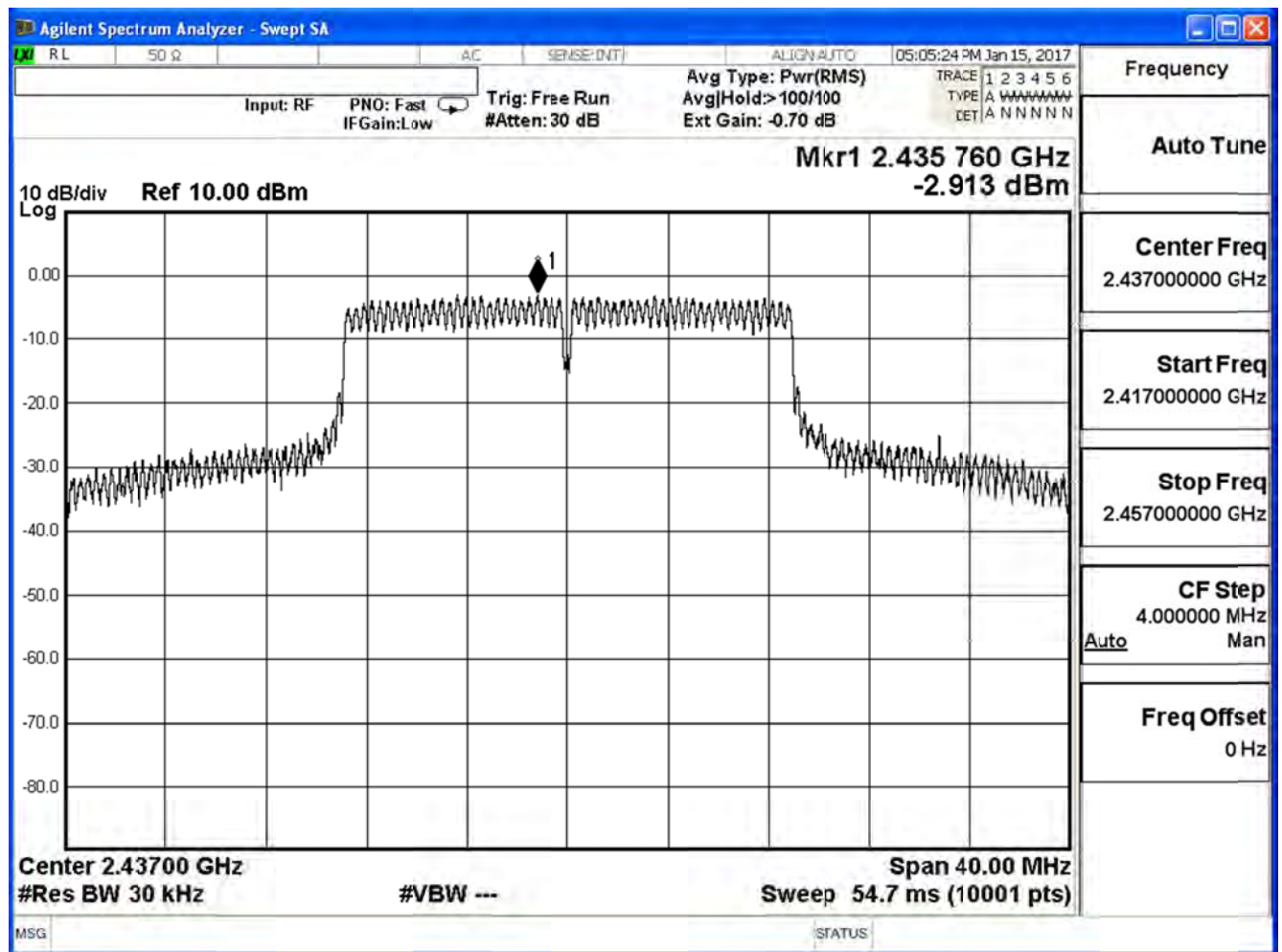
Directional Antenna=10log(N)+Max Gain+ Beamforming Gain=7.2dBi

Required Limit=8Bm-(7.2dBi-6dB)=6.8 dBm

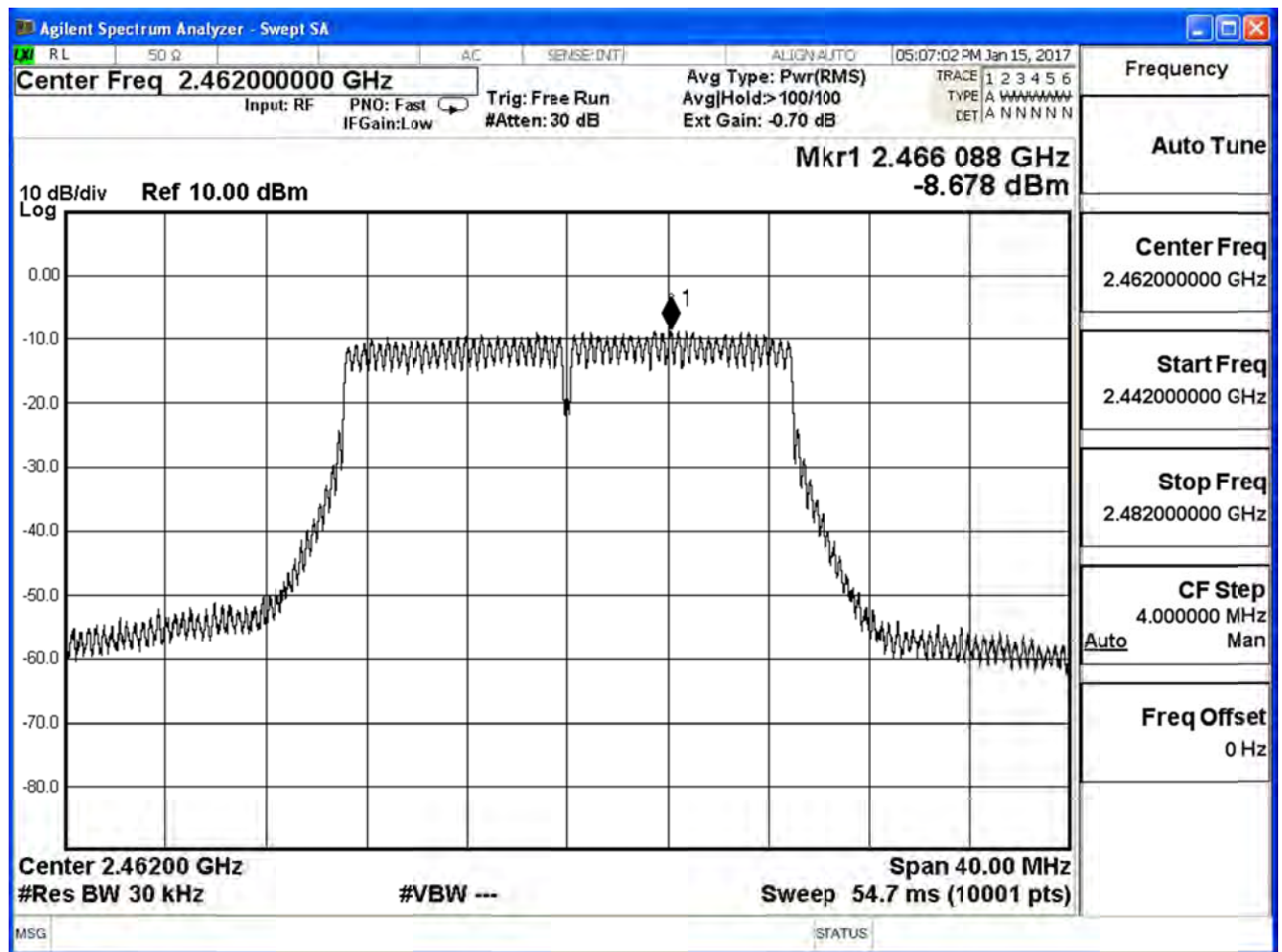
Channel 1



Channel 6



Channel 11



Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 3: Tx-AD2037320910LF-BF Mode		
Date of Test	2017/01/15	Test Site	SR10-H

IEEE802.11n 20MHz (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
1	2412	-4.523	≤ 6.8	Pass
6	2437	0.247	≤ 6.8	Pass
11	2462	-5.768	≤ 6.8	Pass

Note:

Directional Antenna=10log(N)+Max Gain+ Beamforming Gain=7.2dBi

Required Limit=8Bm-(7.2dBi-6dB)=6.8 dBm

Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 3: Tx-AD2037320910LF-BF Mode		
Date of Test	2017/01/15	Test Site	SR10-H

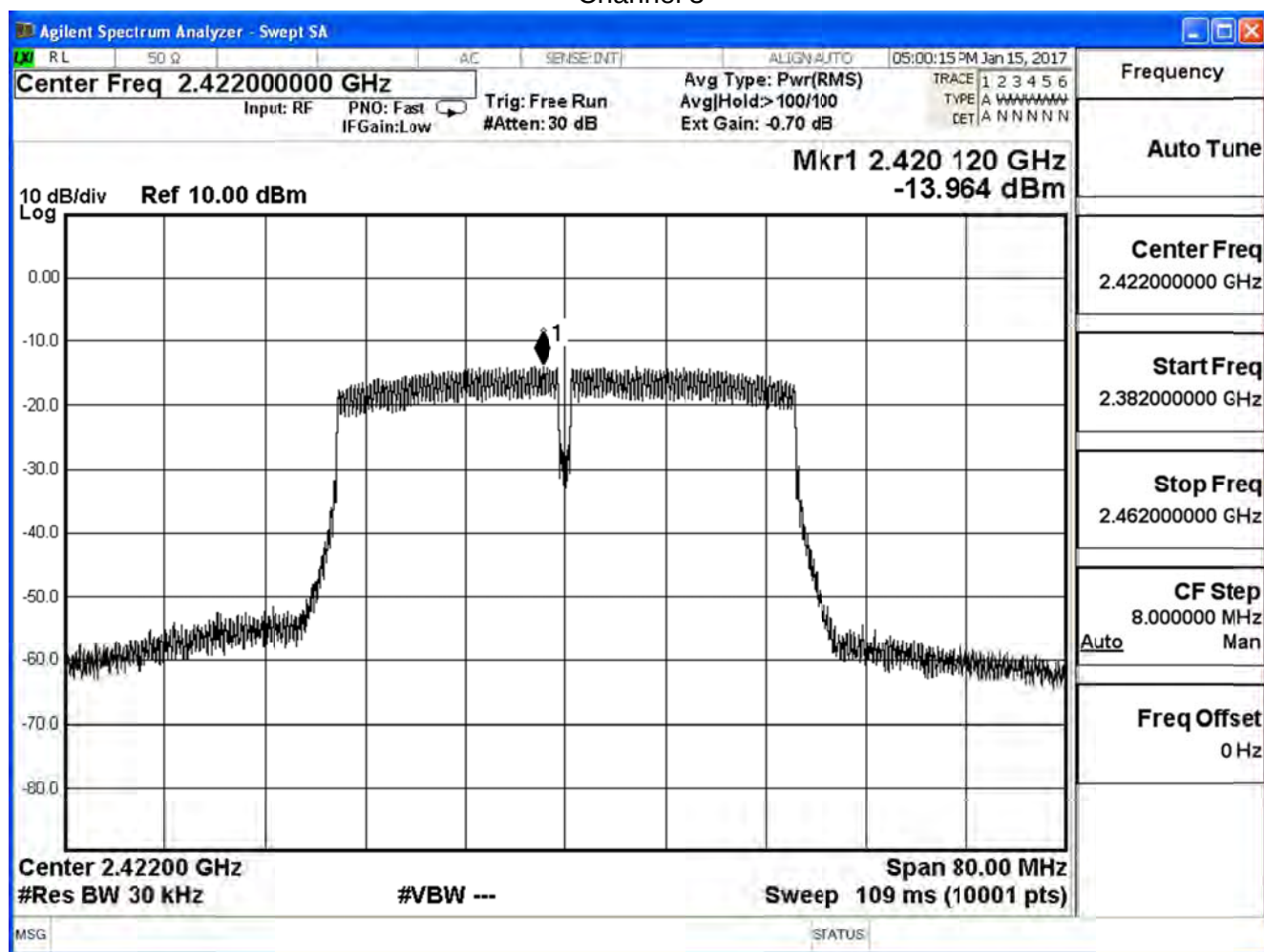
IEEE802.11n 40MHz (ANT 0)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	-13.964	≤ 6.8	Pass
6	2437	-10.884	≤ 6.8	Pass
9	2452	-13.773	≤ 6.8	Pass

Note:

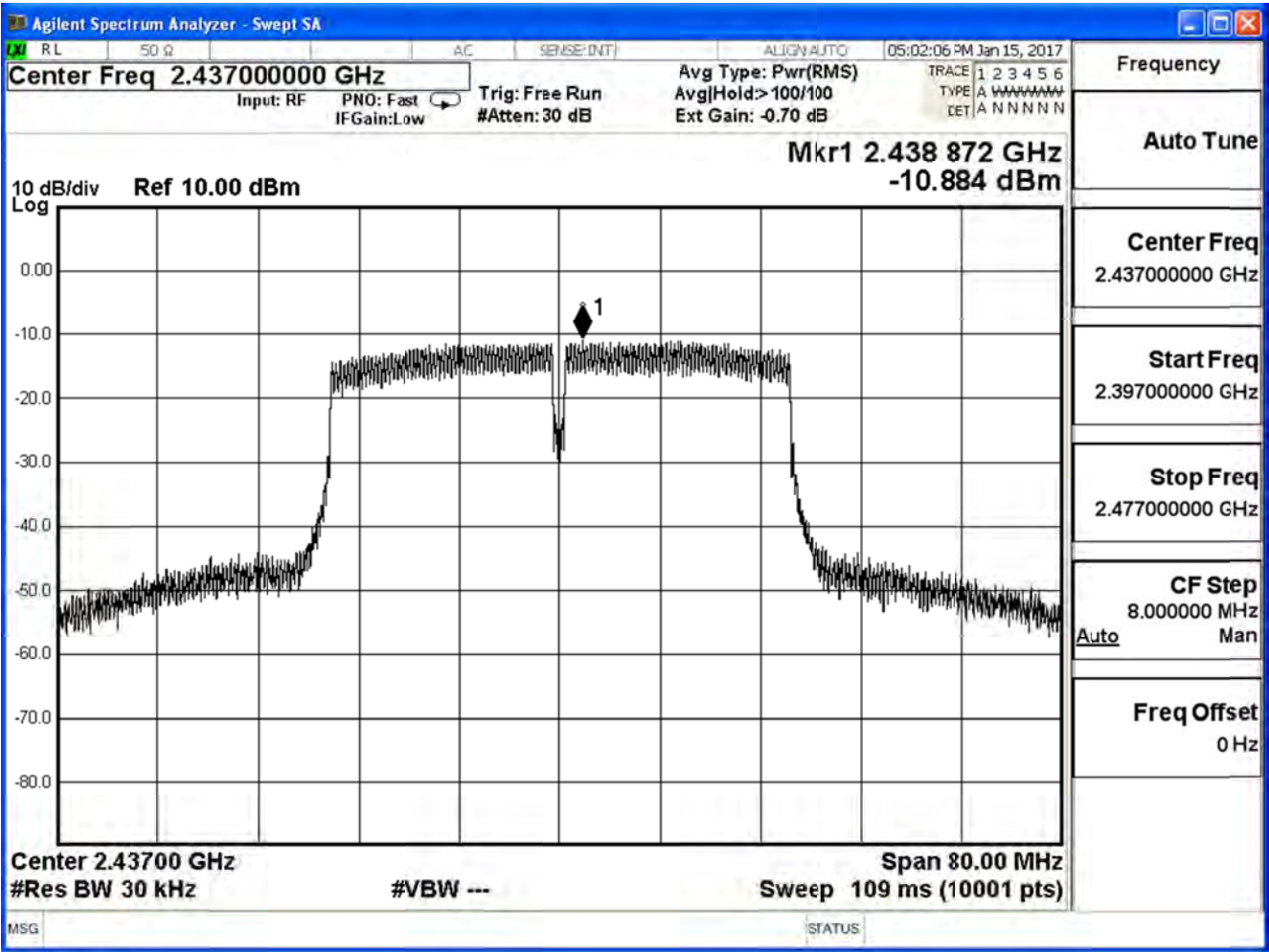
Directional Antenna=10log(N)+Max Gain+ Beamforming Gain=7.2dBi

Required Limit=8Bm-(7.2dBi-6dB)=6.8 dBm

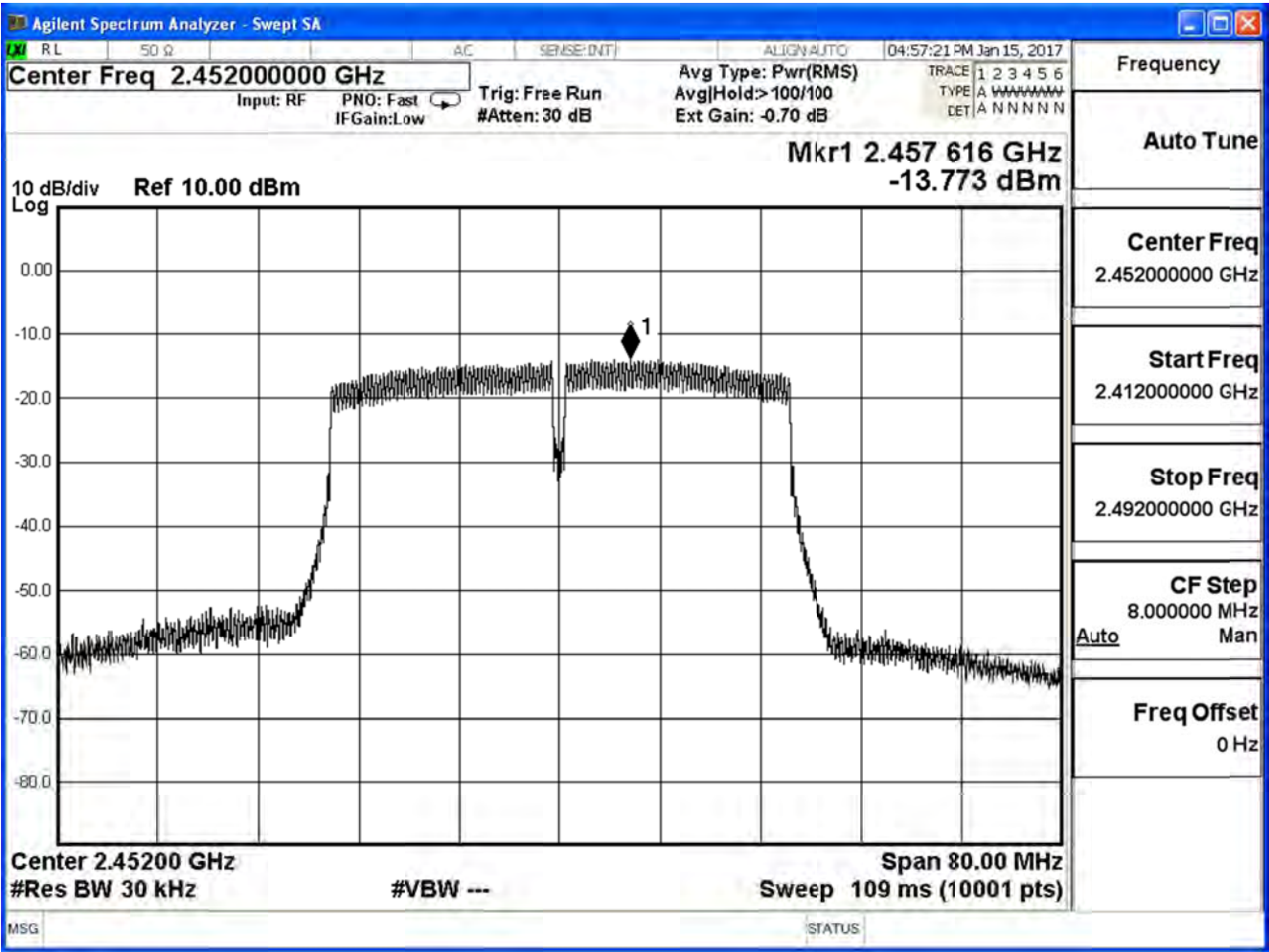
Channel 3



Channel 6



Channel 9



Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 3: Tx-AD2037320910LF-BF Mode		
Date of Test	2017/01/15	Test Site	SR10-H

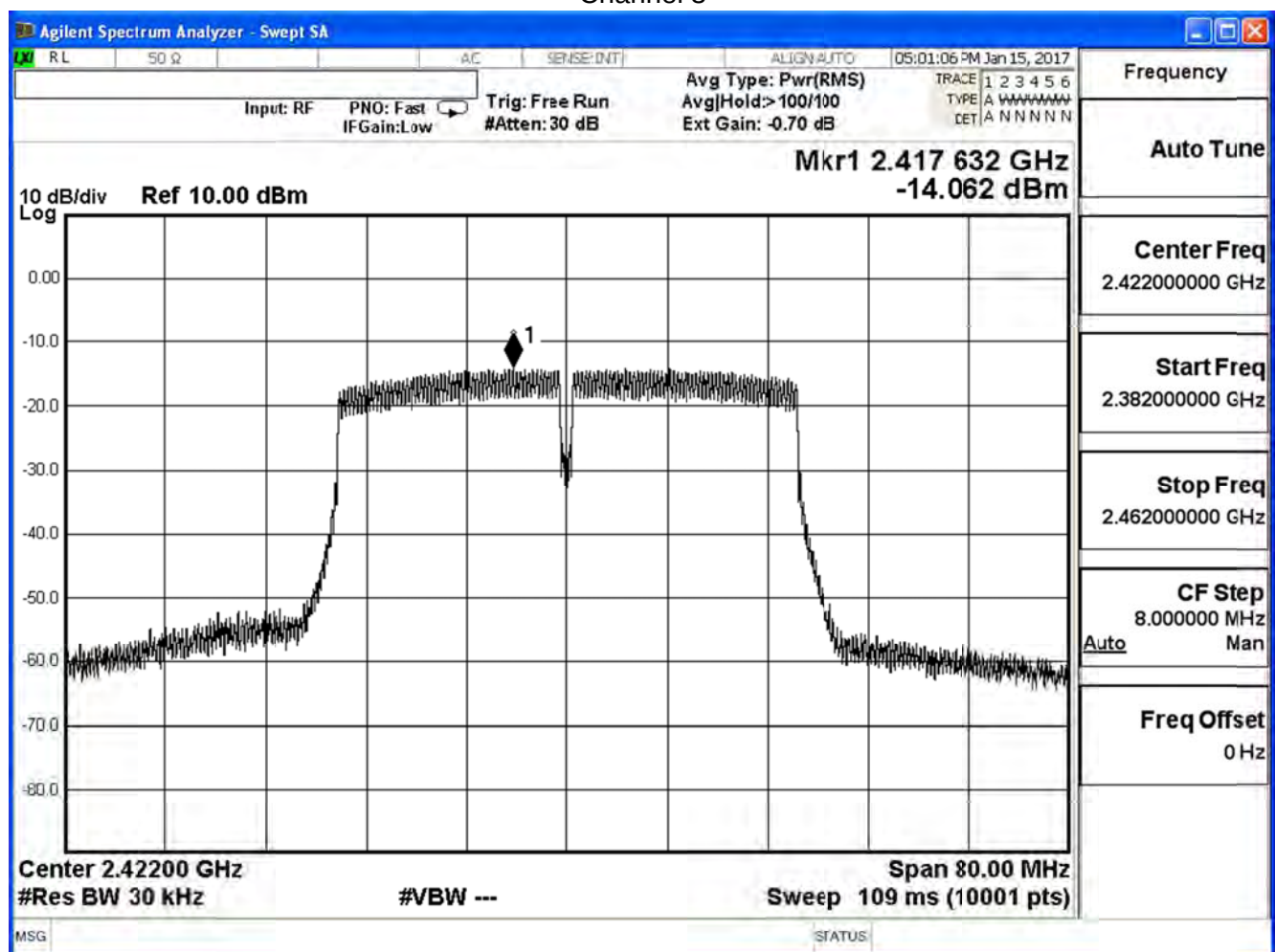
IEEE802.11n 40MHz (ANT 1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	-14.062	≤ 6.8	Pass
6	2437	-10.682	≤ 6.8	Pass
9	2452	-13.692	≤ 6.8	Pass

Note:

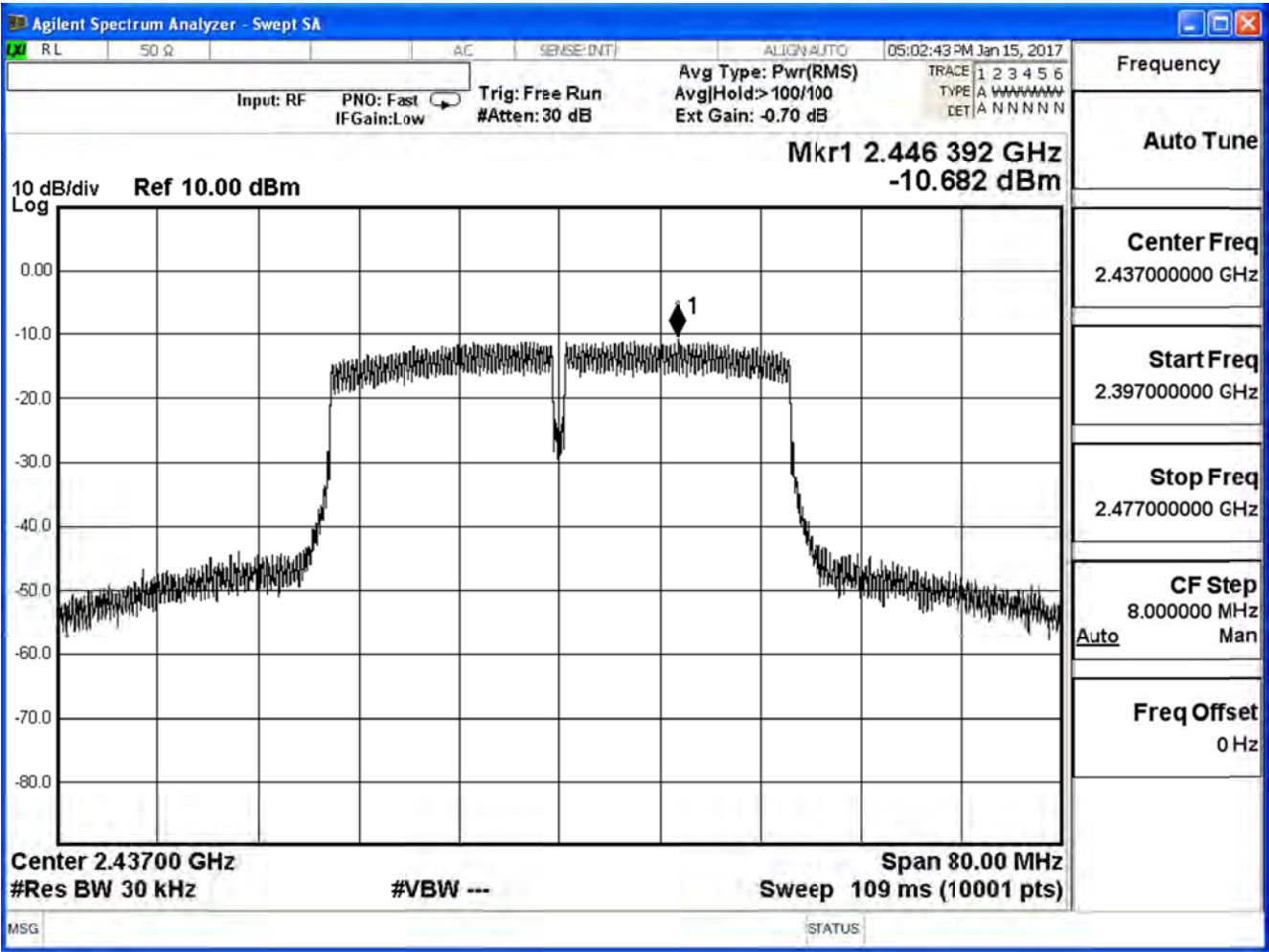
Directional Antenna=10log(N)+Max Gain+ Beamforming Gain=7.2dBi

Required Limit=8Bm-(7.2dBi-6dB)=6.8 dBm

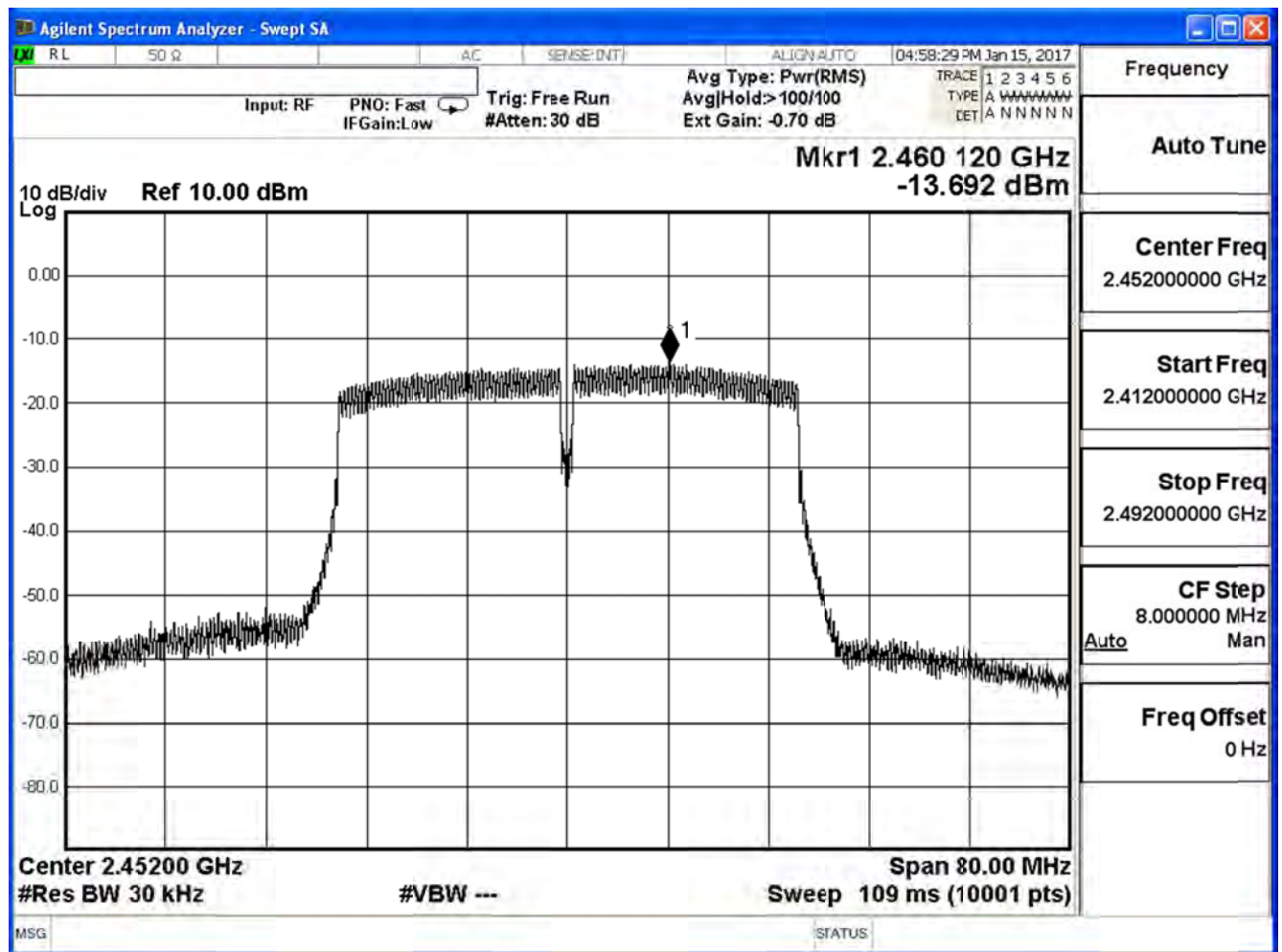
Channel 3



Channel 6



Channel 9



Product	Lyra mini		
Test Item	Power Density		
Test Mode	Mode 3: Tx-AD2037320910LF-BF Mode		
Date of Test	2017/01/15	Test Site	SR10-H

IEEE802.11n 40MHz (ANT 0+1)				
Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
3	2422	-11.002	≤ 6.8	Pass
6	2437	-7.772	≤ 6.8	Pass
9	2452	-10.722	≤ 6.8	Pass

Note:

Directional Antenna= $10\log(N)$ +Max Gain+ Beamforming Gain=7.2dBi

Required Limit=8Bm-(7.2dBi-6dB)=6.8 dBm