

## 12.9 Spurious emissions conducted

### Description:

Measurement of the conducted spurious emissions in transmit mode. The measurement is performed at channel 1, 6 and 11. The measurement is repeated for all modulations.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	100 kHz
Video bandwidth:	500 kHz
Span:	9 kHz to 25 GHz
Trace mode:	Max Hold
Test setup:	See sub clause 7.4 – B
Measurement uncertainty	See sub clause 9

### Limits:

FCC	IC
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB (AVG) or 20 dB (peak) below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required	

**Note:** The included spurious emission plots with -30 dBc limit show the compliant for both limits the -20 dBc and the -30 dBc limits.

**Results:** DSSS / b – mode, antenna port 1

TX Spurious Emissions Conducted				
f [MHz]	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412	-0.84	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2422	3.22	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2437	3.22	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2452	3.58	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2462	-1.49	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant

**Results:** OFDM / g – mode, antenna port 1

TX Spurious Emissions Conducted				
f [MHz]	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412	-7.48	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2422	-0.60	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2437	2.27	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2452	-2.31	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2462	-7.56	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant

**Results:** OFDM / n HT20 – mode, antenna port 1

TX Spurious Emissions Conducted				
f [MHz]	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2417	-3.23	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2422	-2.22	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2437	-0.48	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2447	-0.39	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2457	-3.06	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant

**Results:** DSSS / b – mode, antenna port 2

TX Spurious Emissions Conducted				
f [MHz]	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412	-0.63	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2422	3.33	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2437	3.50	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2452	2.40	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2462	-0.38	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant

**Results:** OFDM / g – mode, antenna port 2

TX Spurious Emissions Conducted				
f [MHz]	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412	-6.19	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2422	-2.61	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2437	0.46	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2452	-3.06	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2462	-6.50	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant

**Results:** OFDM / n HT20 – mode, antenna port 2

TX Spurious Emissions Conducted				
f [MHz]	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2417	-3.02	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2422	-0.77	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2437	-0.68	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2447	-0.53	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2457	-4.46	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant

**Results:** DSSS / b – mode, antenna port 3

TX Spurious Emissions Conducted				
f [MHz]	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412	-1.41	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2422	3.13	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2437	3.41	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2452	3.34	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2462	-0.59	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant

**Results:** OFDM / g – mode, antenna port 3

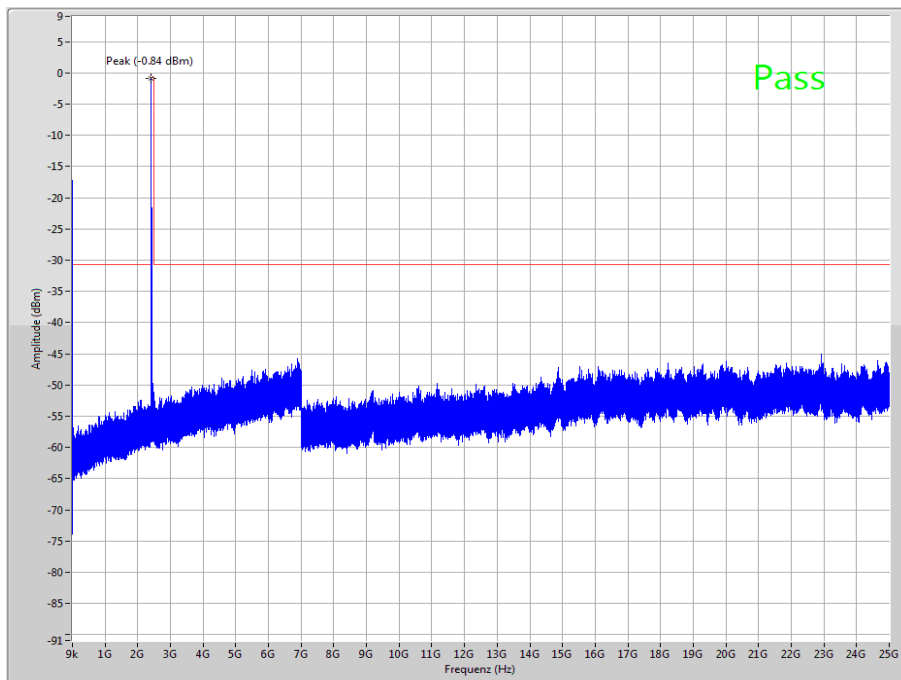
TX Spurious Emissions Conducted				
f [MHz]	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412	-6.93	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2422	-1.04	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2437	-0.13	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2452	-3.61	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2462	-5.92	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant

**Results:** OFDM / n HT20 – mode, antenna port 3

TX Spurious Emissions Conducted				
f [MHz]	amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2417	-2.40	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2422	-0.43	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2437	-0.72	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2447	-1.46	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant
2457	-3.03	30 dBm	> 30	Operating frequency
No peaks detected. All detected emissions are below the -20 dBc & -30 dBc criteria.		-20 dBc (peak) -30 dBc (average)	-/-	compliant

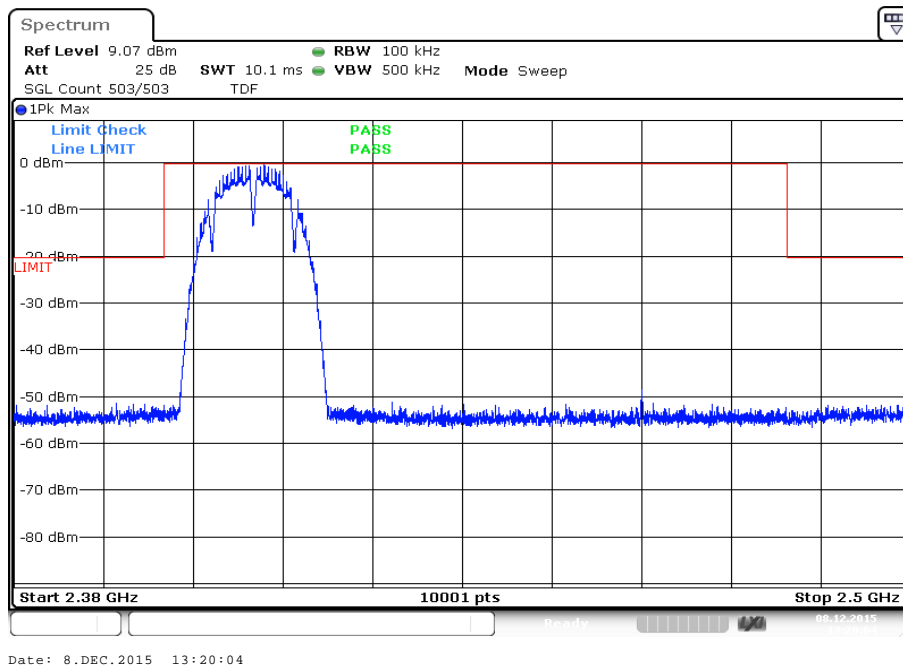
**Plots:** DSSS / b – mode, antenna port 1

**Plot 1:** 2412 MHz, up to 25 GHz

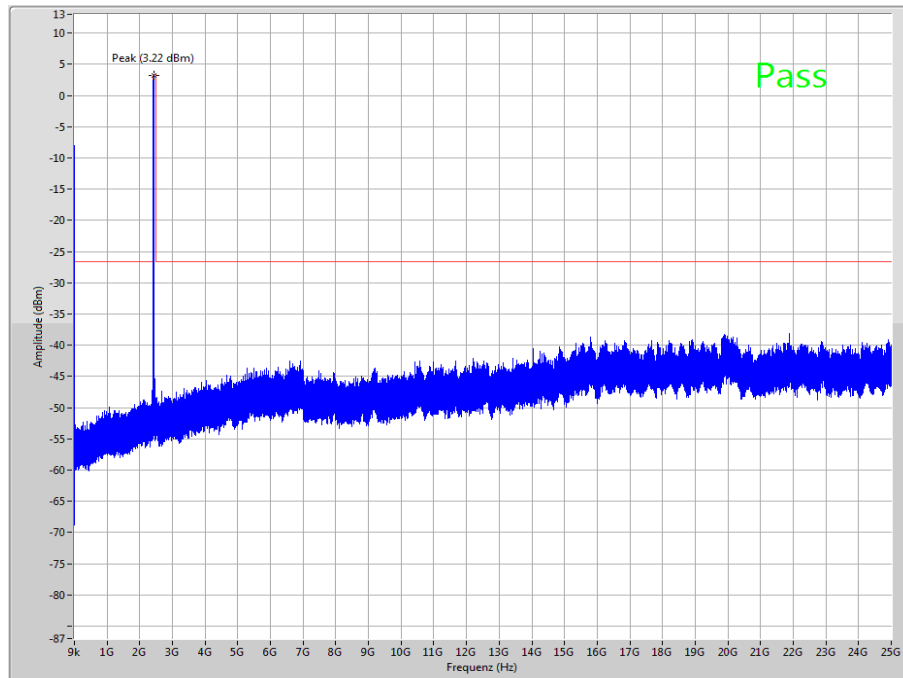


The peak at the beginning of the plot is the LO from the SA.

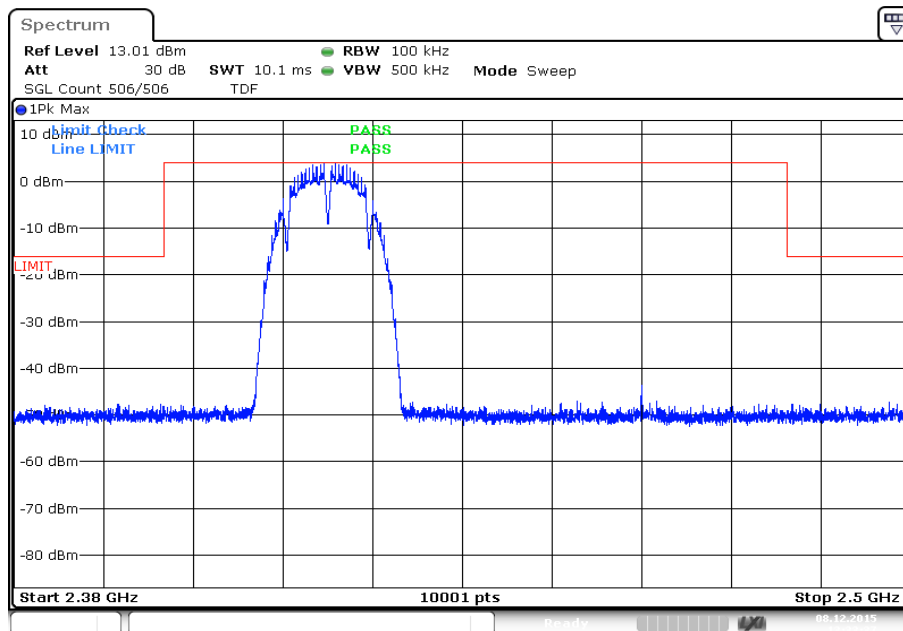
**Plot 2:** 2412 MHz, zoomed carrier



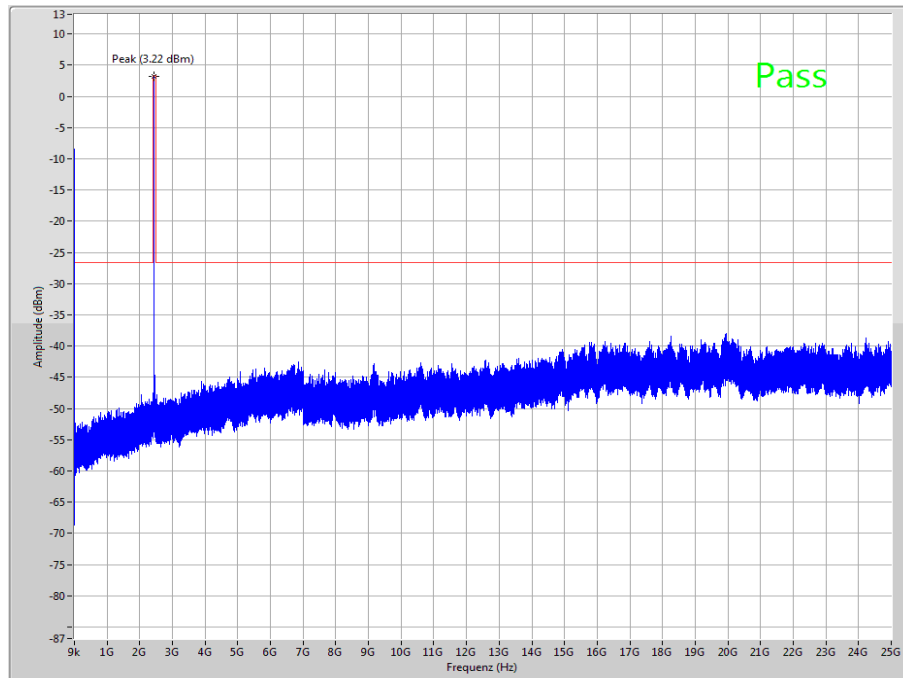


**Plot 3: 2422 MHz, up to 25 GHz**

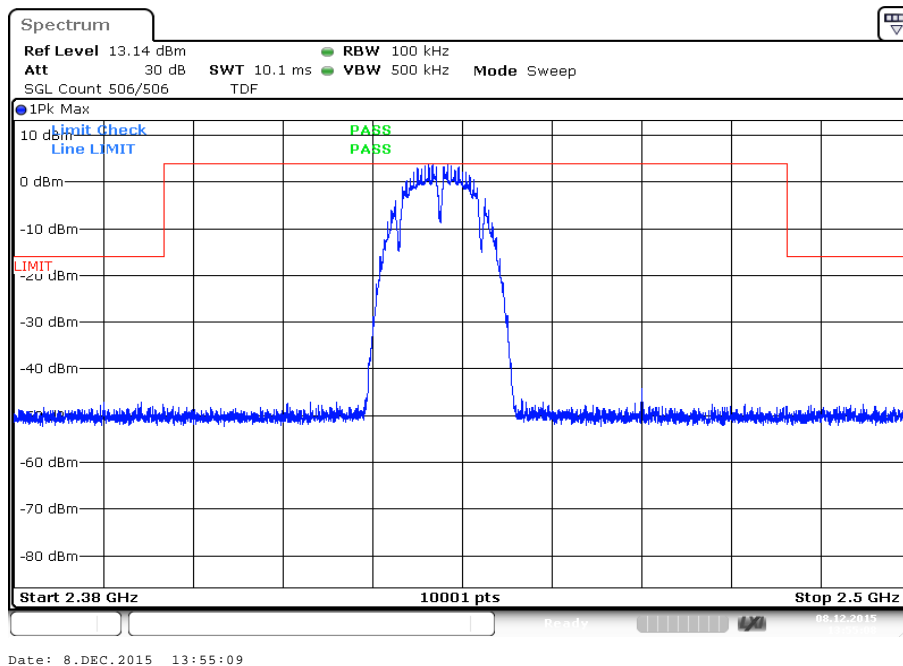
The peak at the beginning of the plot is the LO from the SA.

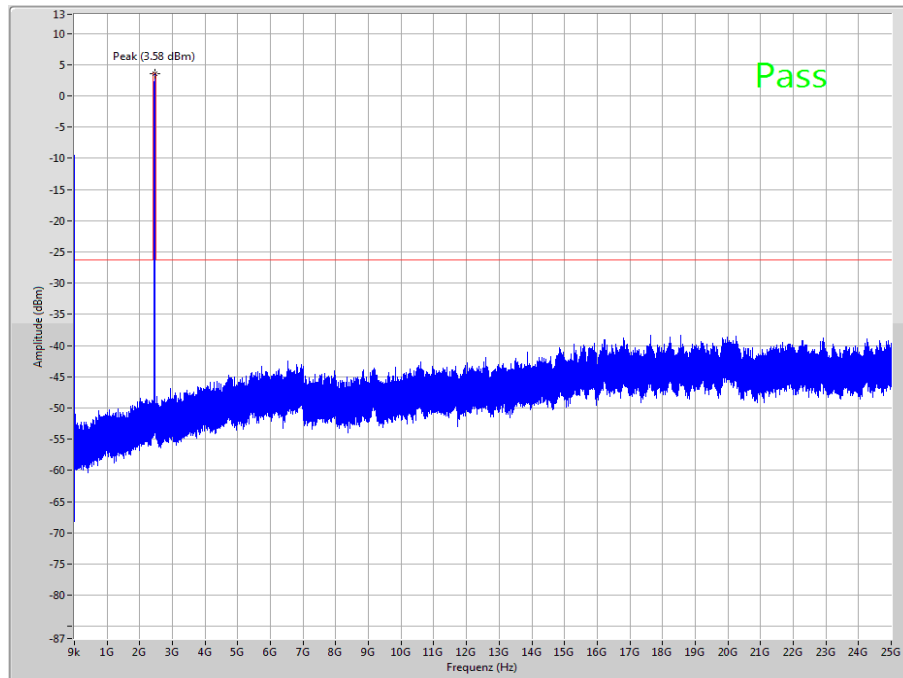
**Plot 4: 2422 MHz, zoomed carrier**

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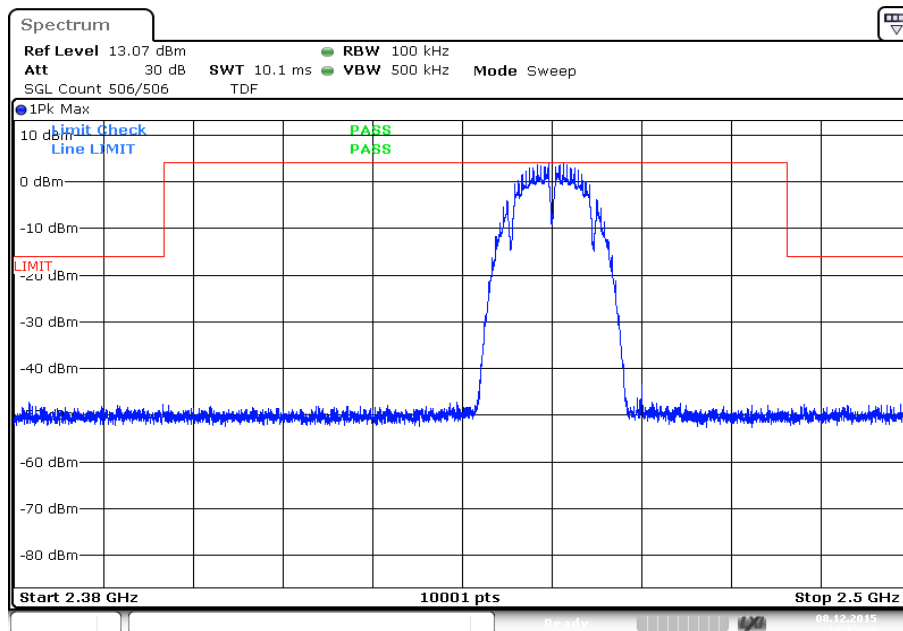
**Plot 5: 2437 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

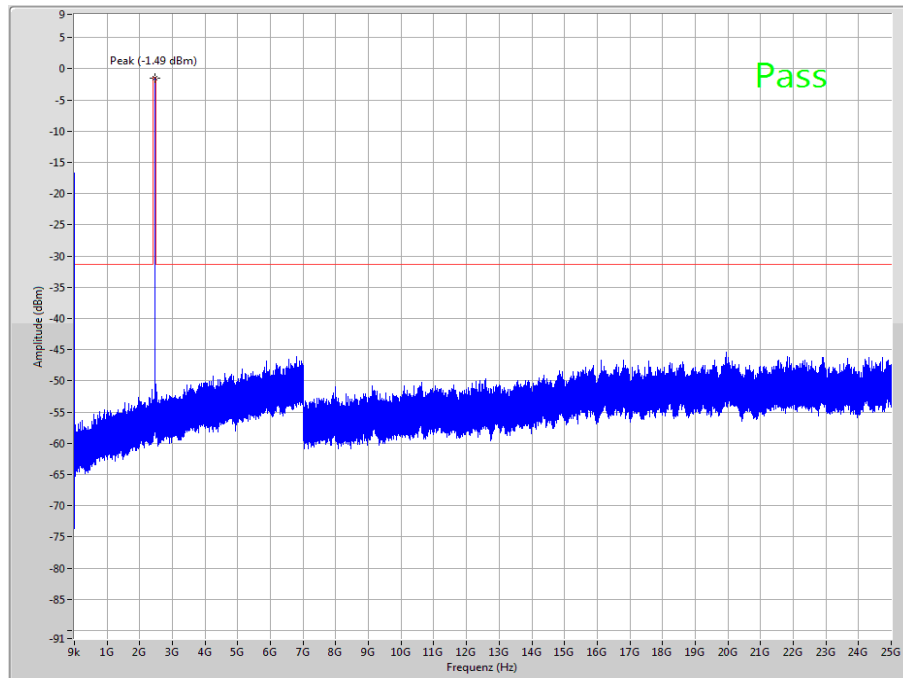
**Plot 6: 2437 MHz, zoomed carrier**

**Plot 7: 2452 MHz, up to 25 GHz**

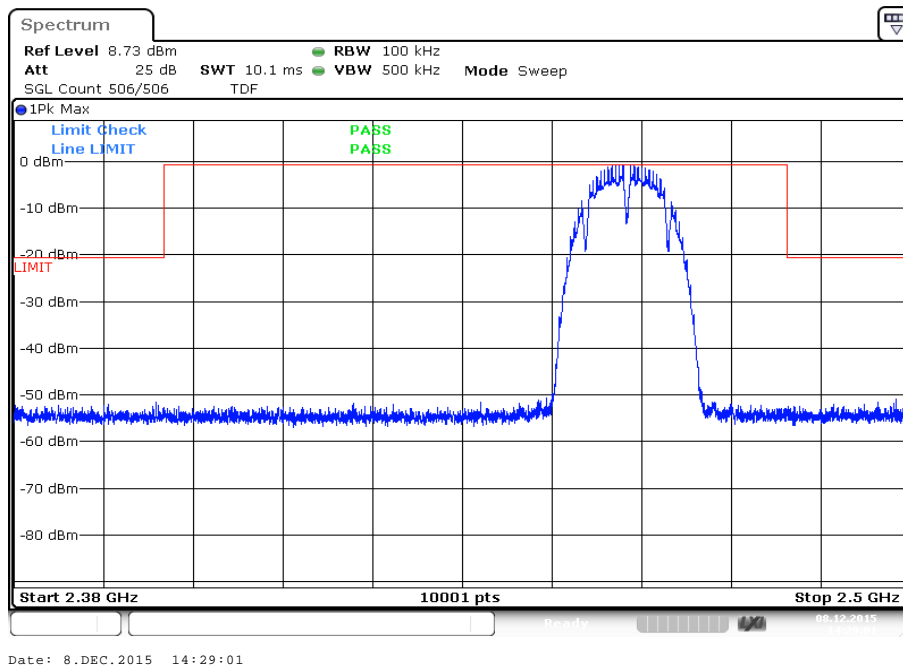
The peak at the beginning of the plot is the LO from the SA.

**Plot 8: 2452 MHz, zoomed carrier**

Date: 8.DEC.2015 14:15:27

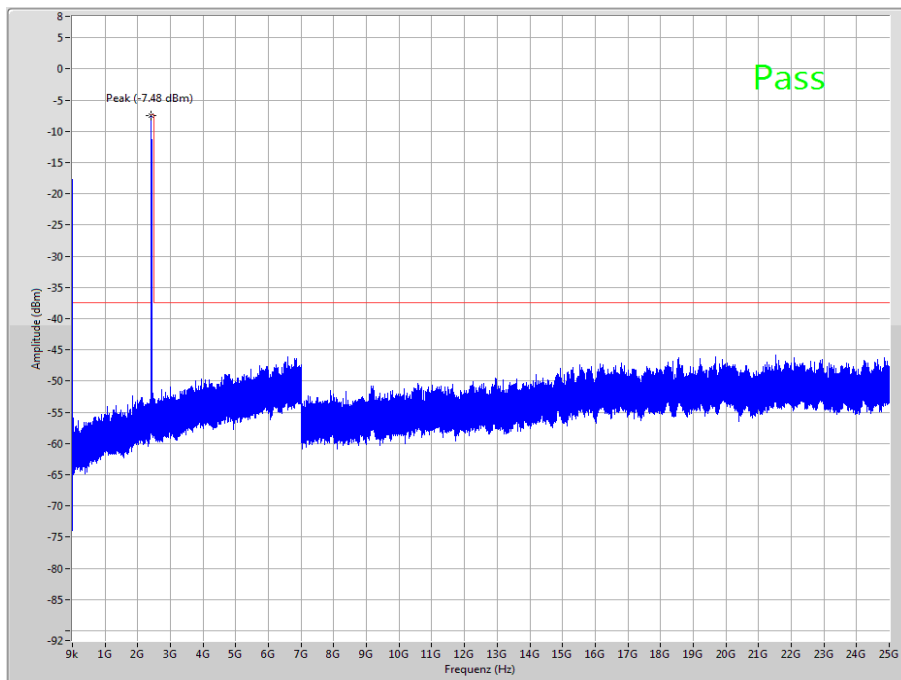
**Plot 9:** 2462 MHz, up to 25 GHz

The peak at the beginning of the plot is the LO from the SA.

**Plot 10:** 2462 MHz, zoomed carrier

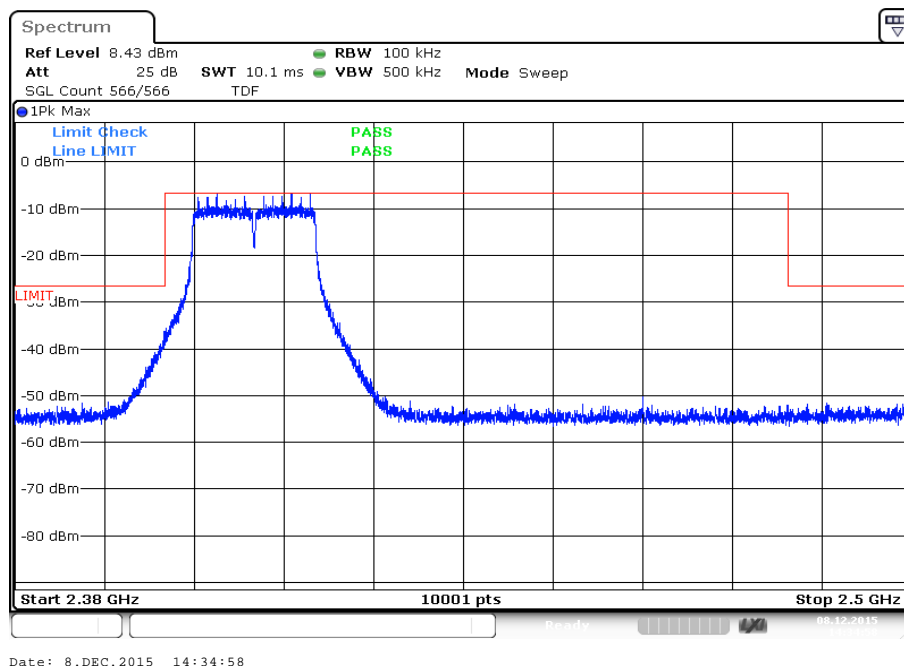
**Plots:** OFDM / g – mode, antenna port 1

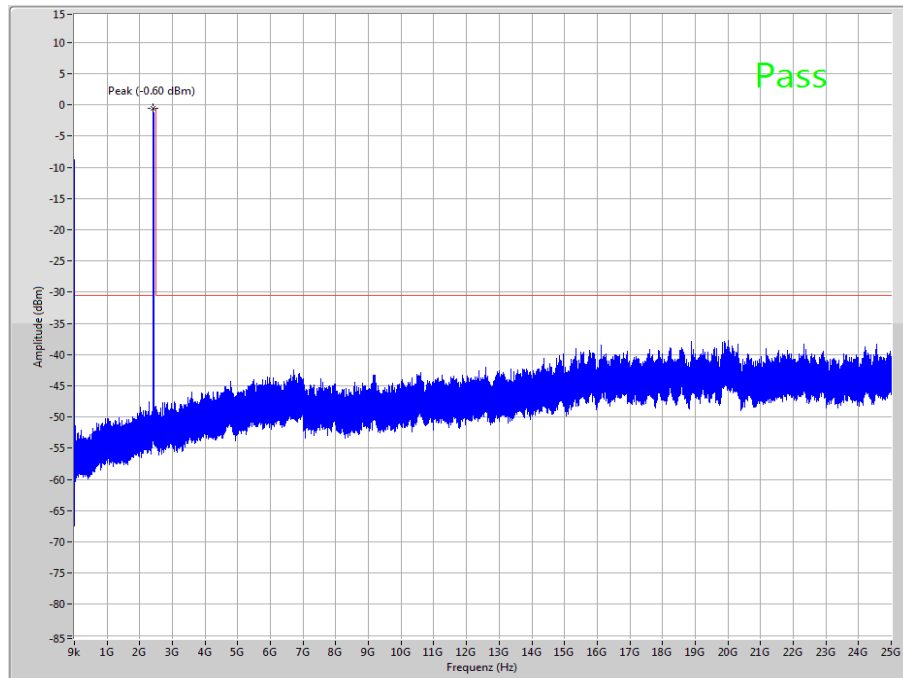
**Plot 1:** 2412 MHz, up to 25 GHz



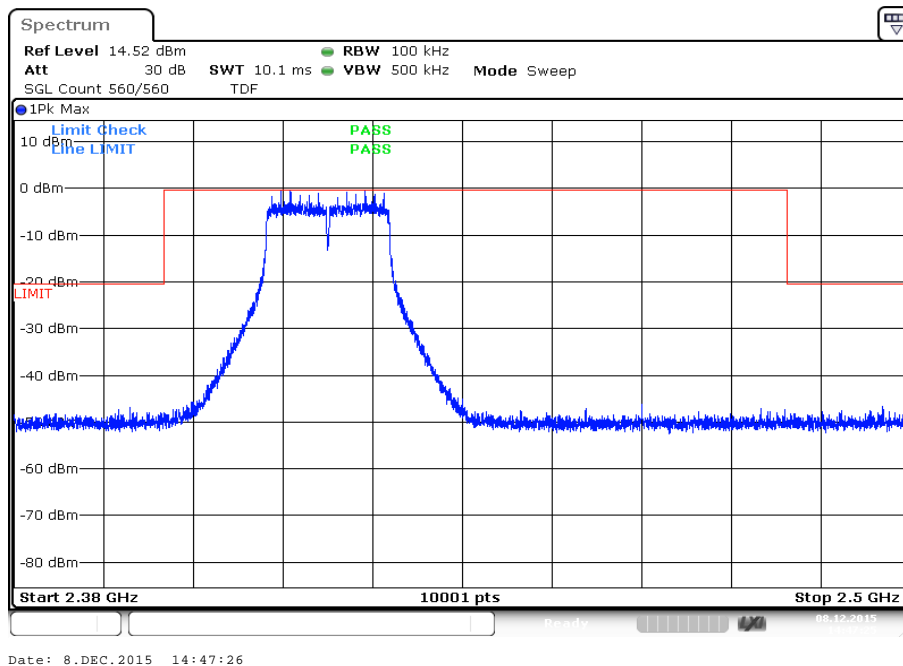
The peak at the beginning of the plot is the LO from the SA.

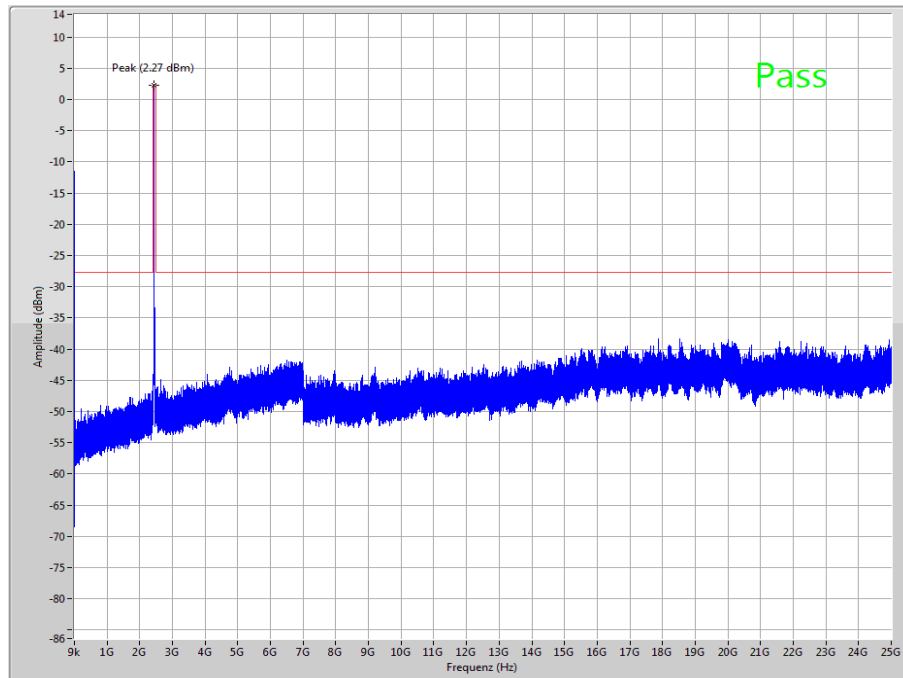
**Plot 2:** 2412 MHz, zoomed carrier



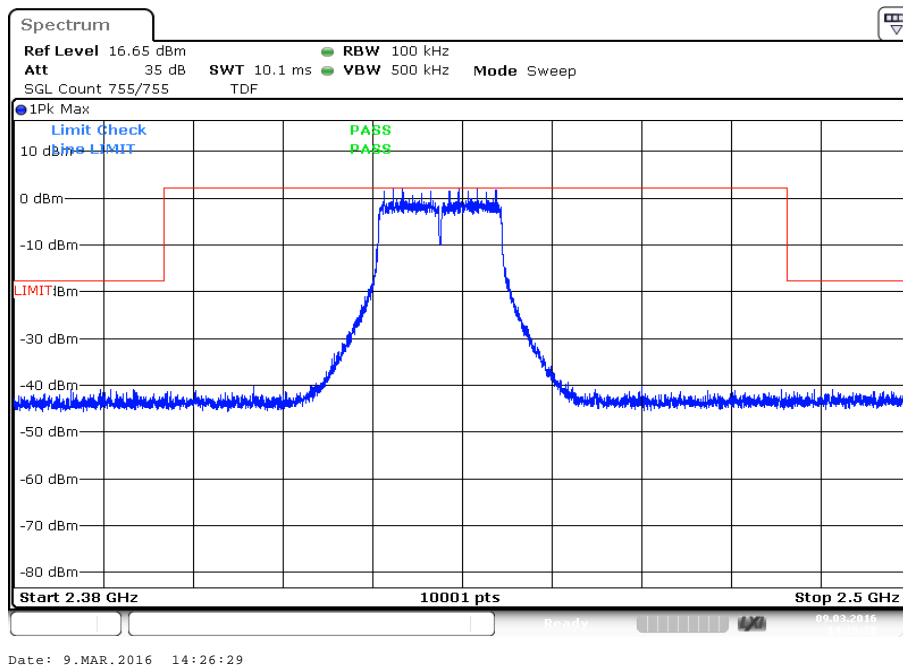
**Plot 3: 2422 MHz, up to 25 GHz**

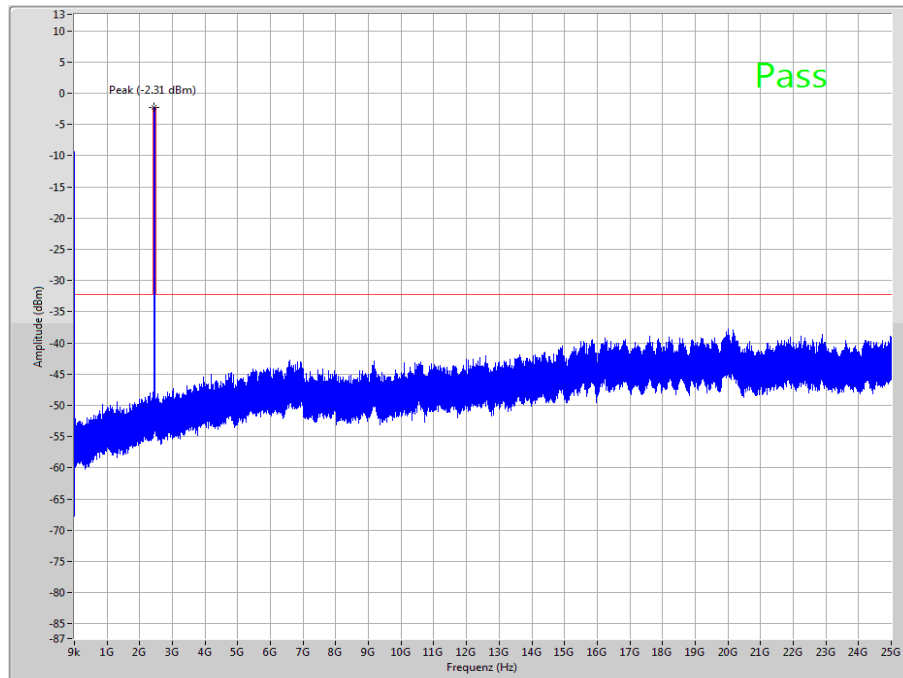
The peak at the beginning of the plot is the LO from the SA.

**Plot 4: 2422 MHz, zoomed carrier**

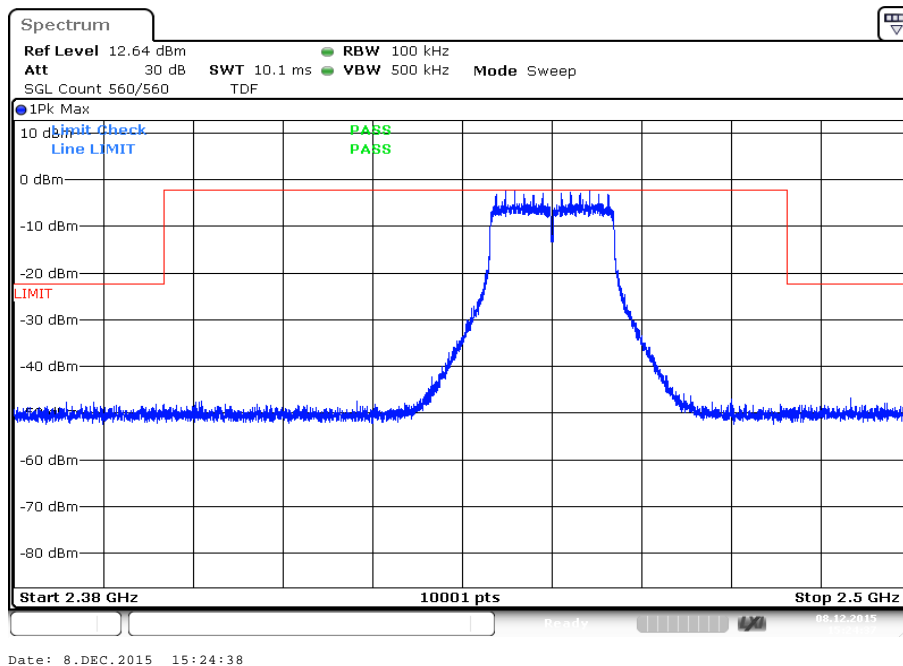
**Plot 5: 2437 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

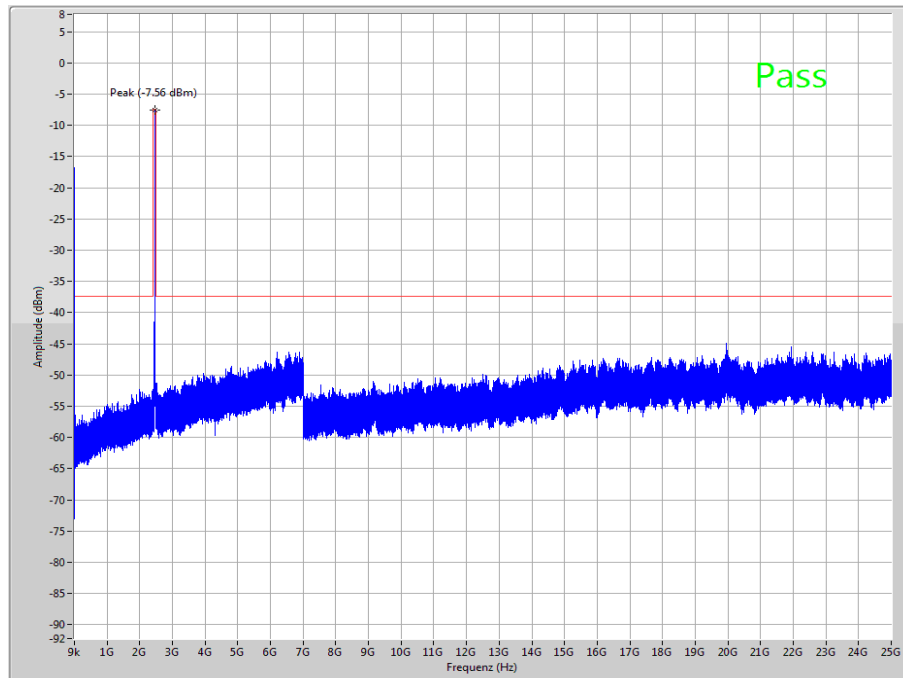
**Plot 6: 2437 MHz, zoomed carrier**

**Plot 7: 2452 MHz, up to 25 GHz**

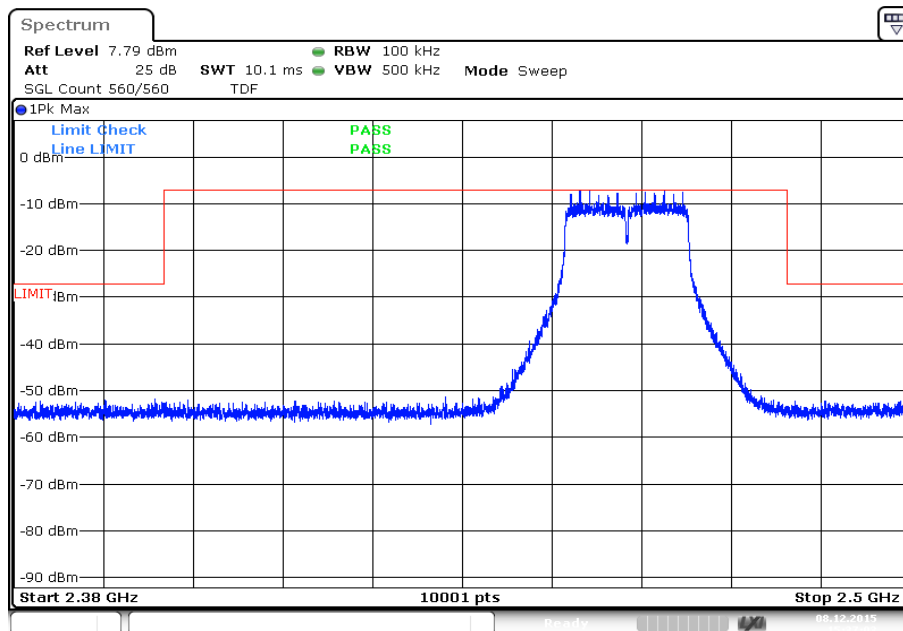
The peak at the beginning of the plot is the LO from the SA.

**Plot 8: 2452 MHz, zoomed carrier**



**Plot 9:** 2462 MHz, up to 25 GHz

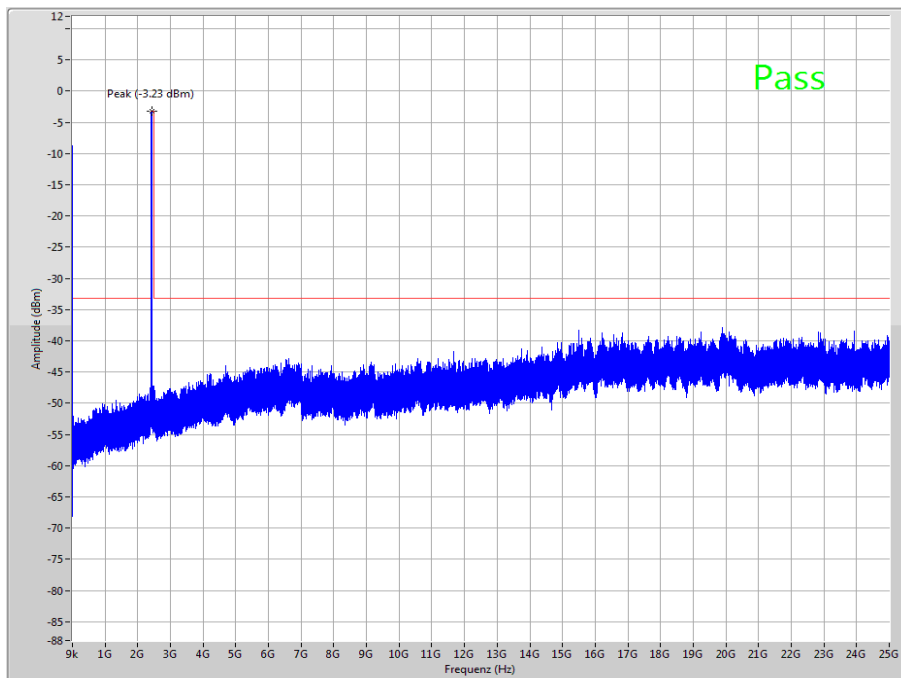
The peak at the beginning of the plot is the LO from the SA.

**Plot 10:** 2462 MHz, zoomed carrier

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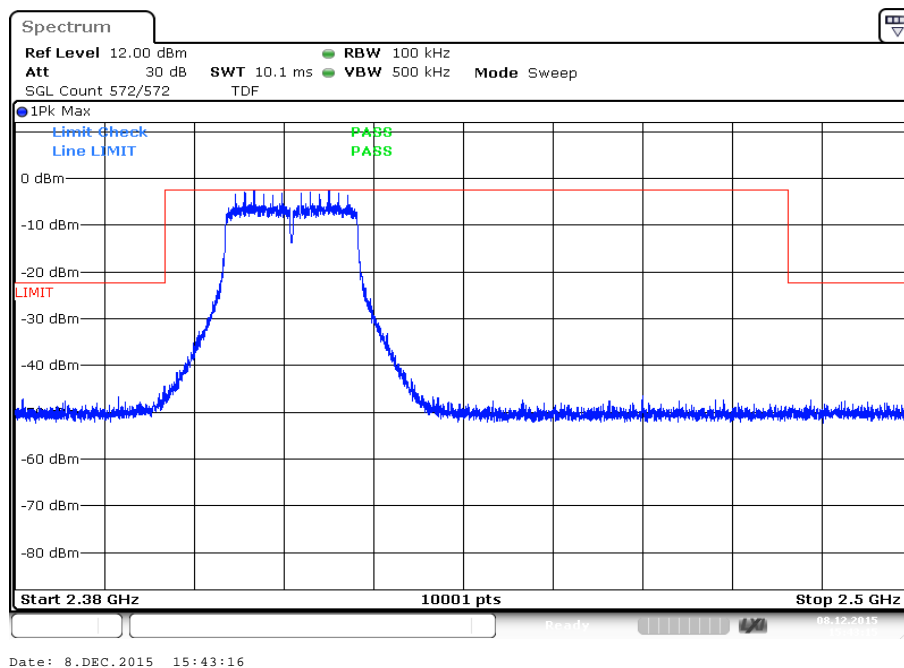
**Plots:** OFDM / n HT20 – mode, antenna port 1

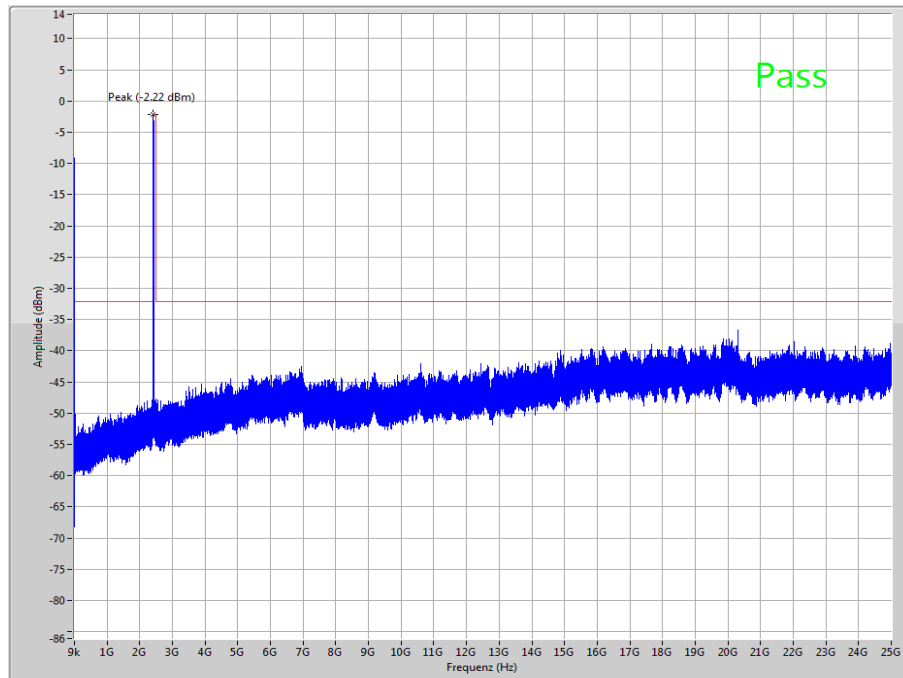
**Plot 1:** 2417 MHz, up to 25 GHz



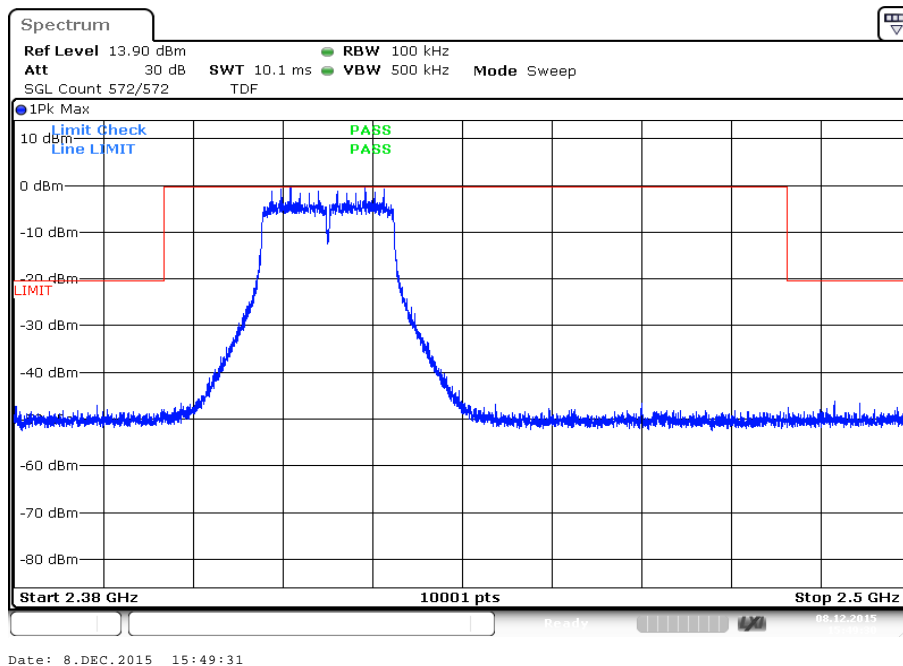
The peak at the beginning of the plot is the LO from the SA.

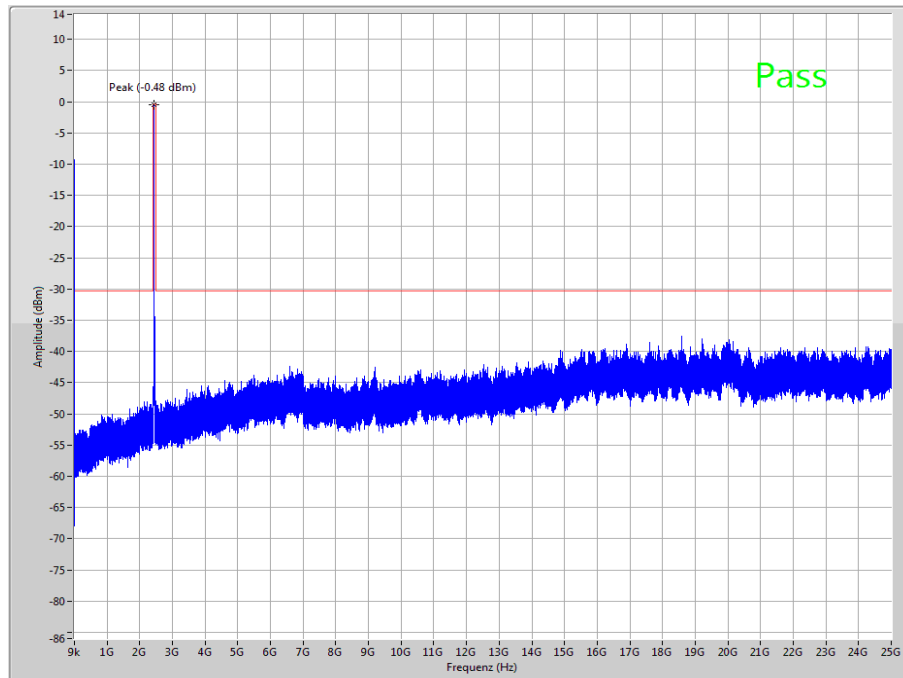
**Plot 2:** 2417 MHz, zoomed carrier



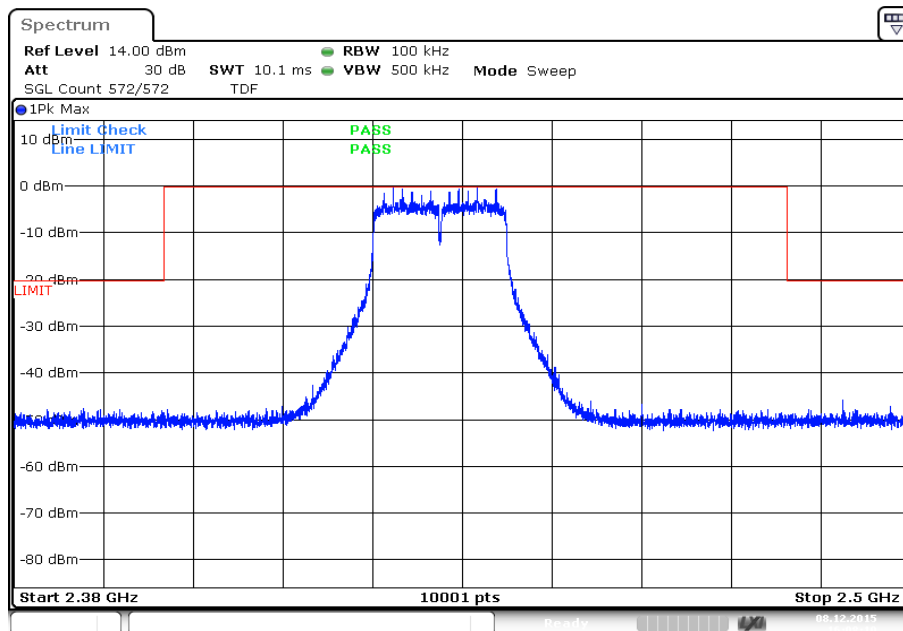
**Plot 3: 2422 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

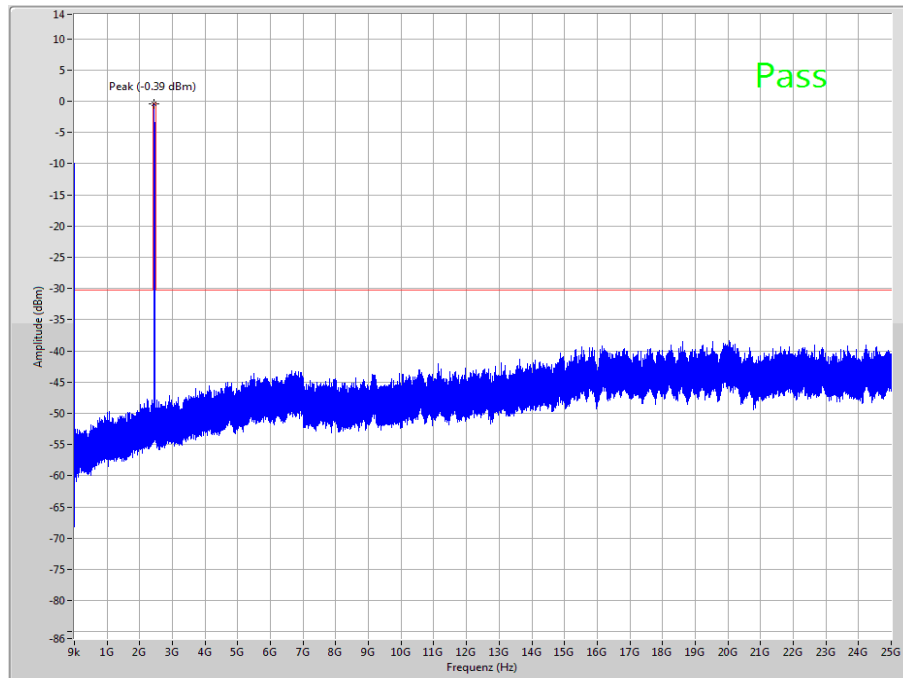
**Plot 4: 2422 MHz, zoomed carrier**

**Plot 5: 2437 MHz, up to 25 GHz**

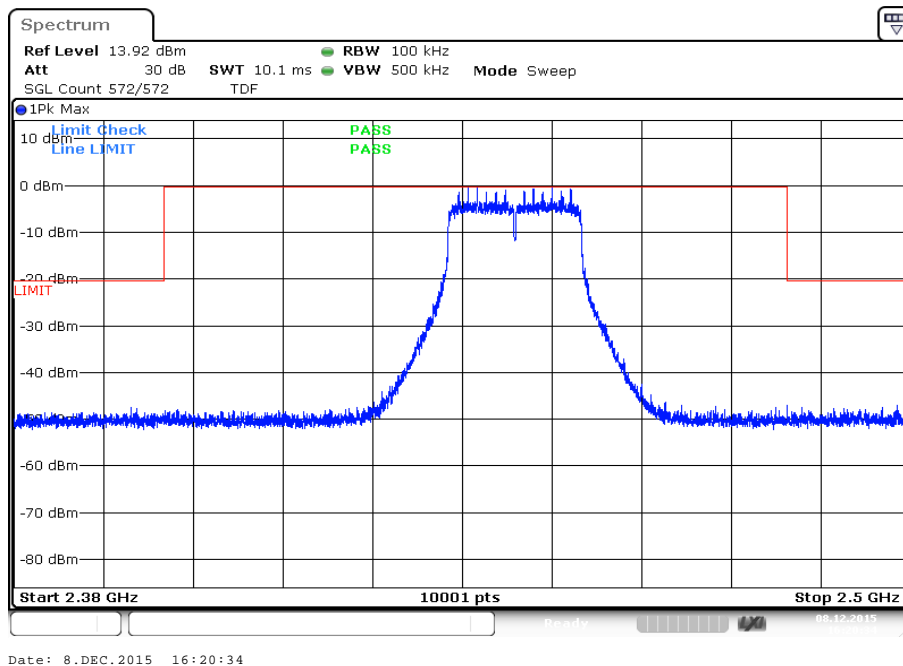
The peak at the beginning of the plot is the LO from the SA.

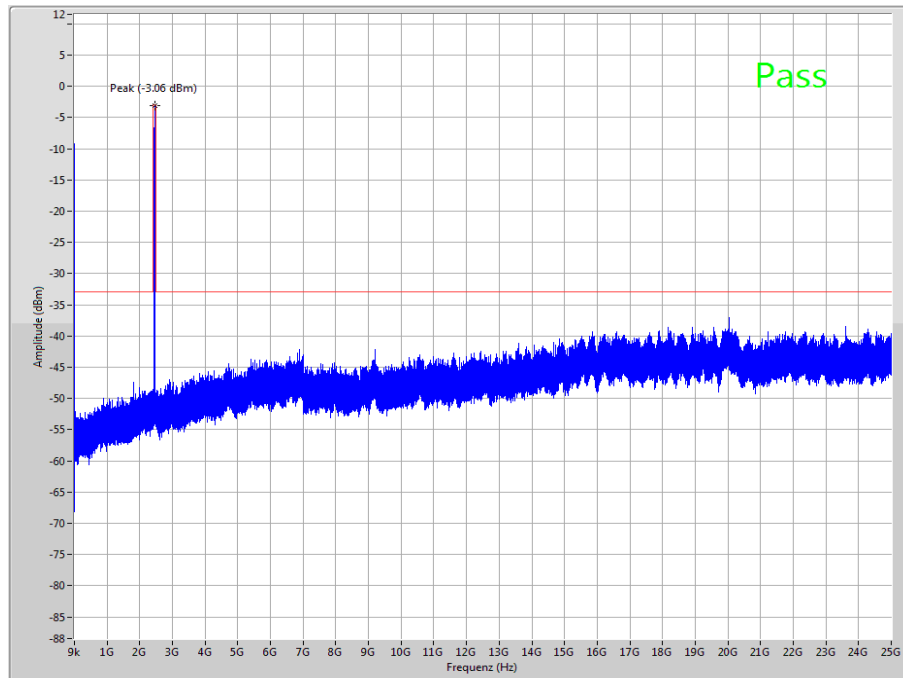
**Plot 6: 2437 MHz, zoomed carrier**

Date: 8.DEC.2015 16:08:11

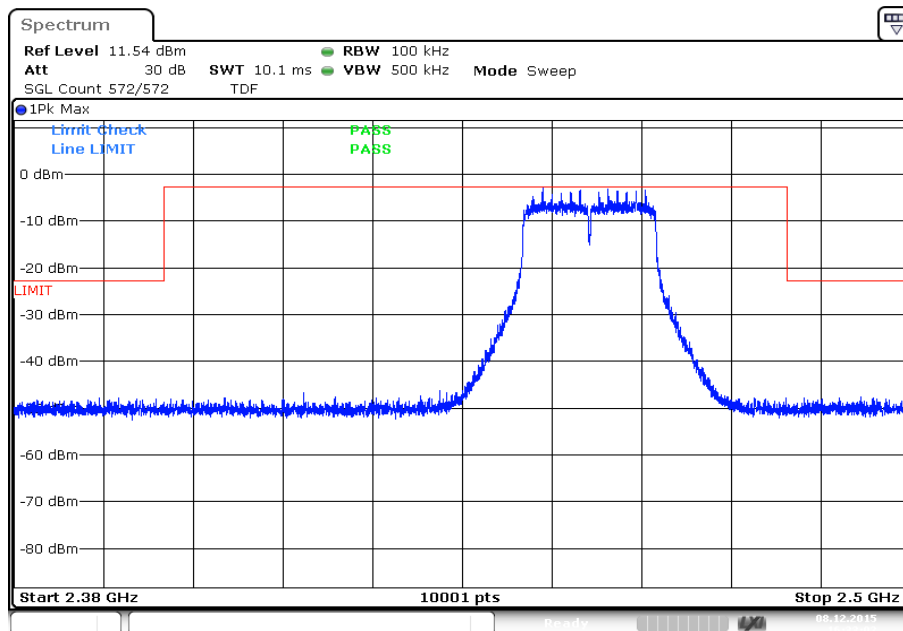
**Plot 7: 2447 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

**Plot 8: 2447 MHz, zoomed carrier**

**Plot 9:** 2457 MHz, up to 25 GHz

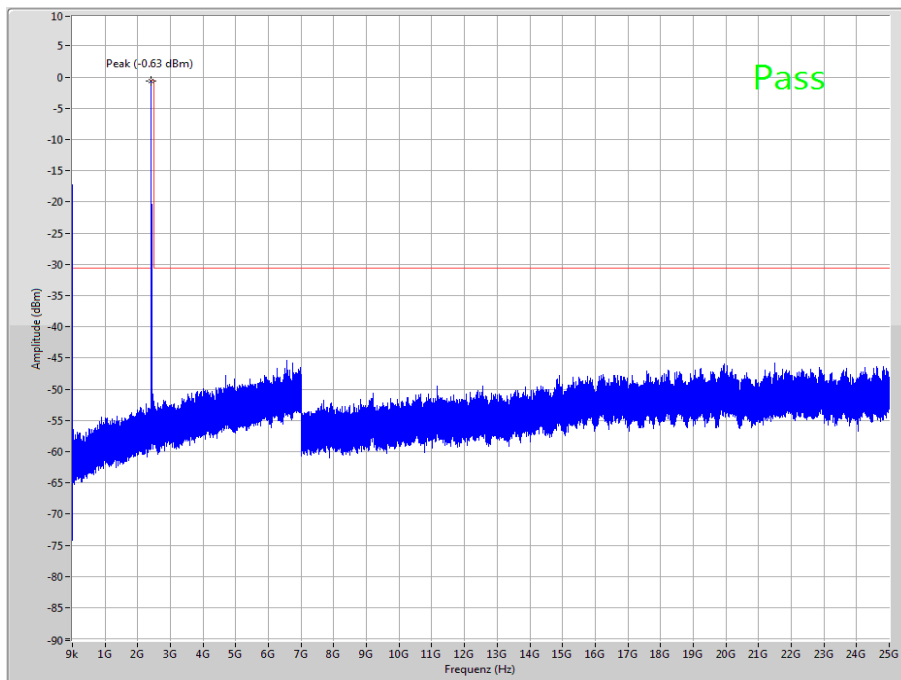
The peak at the beginning of the plot is the LO from the SA.

**Plot 10:** 2457 MHz, zoomed carrier

Date: 8.DEC.2015 16:33:03

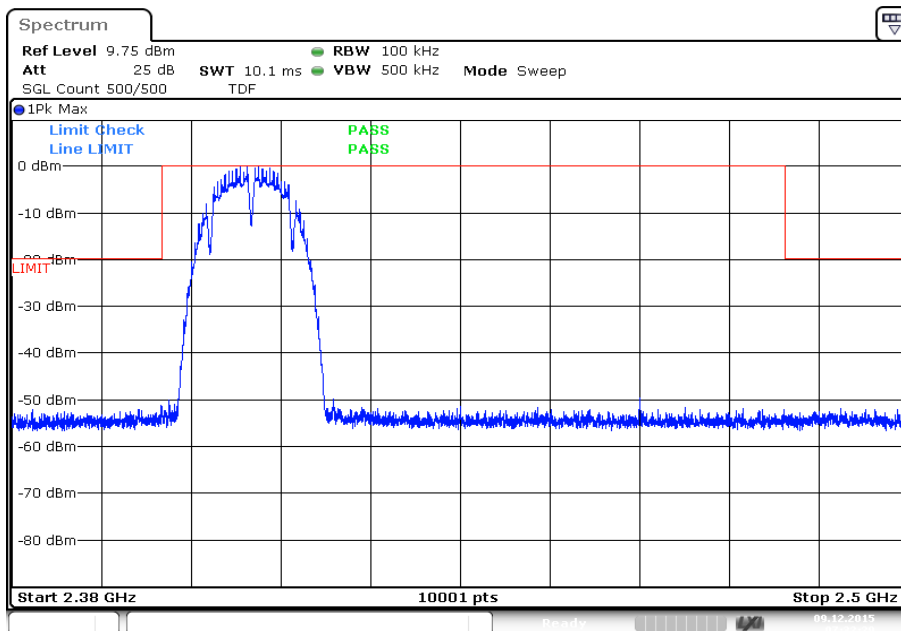
**Plots:** DSSS / b – mode, antenna port 2

**Plot 1:** 2412 MHz, up to 25 GHz

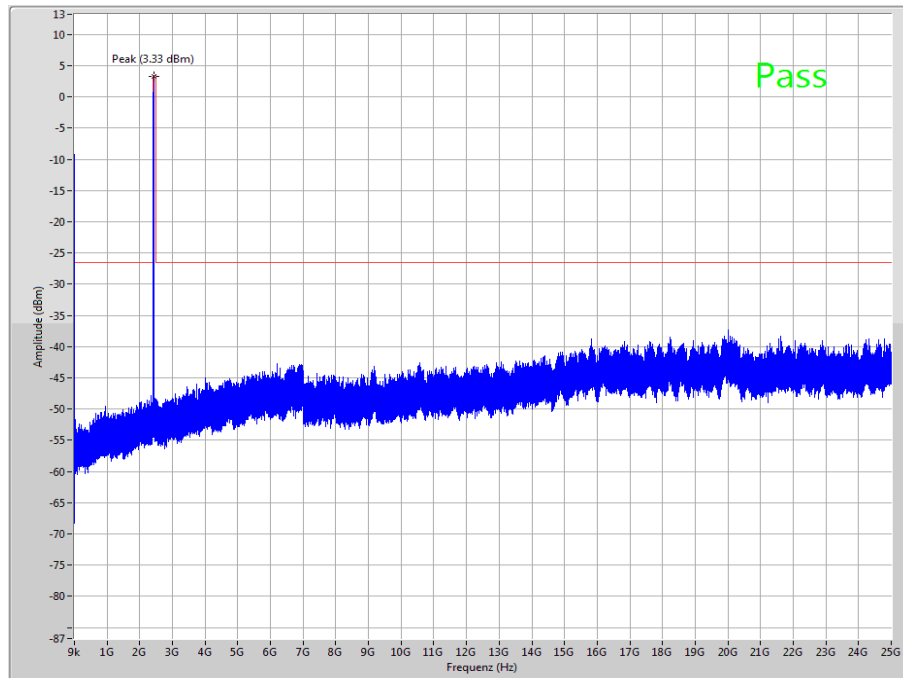


The peak at the beginning of the plot is the LO from the SA.

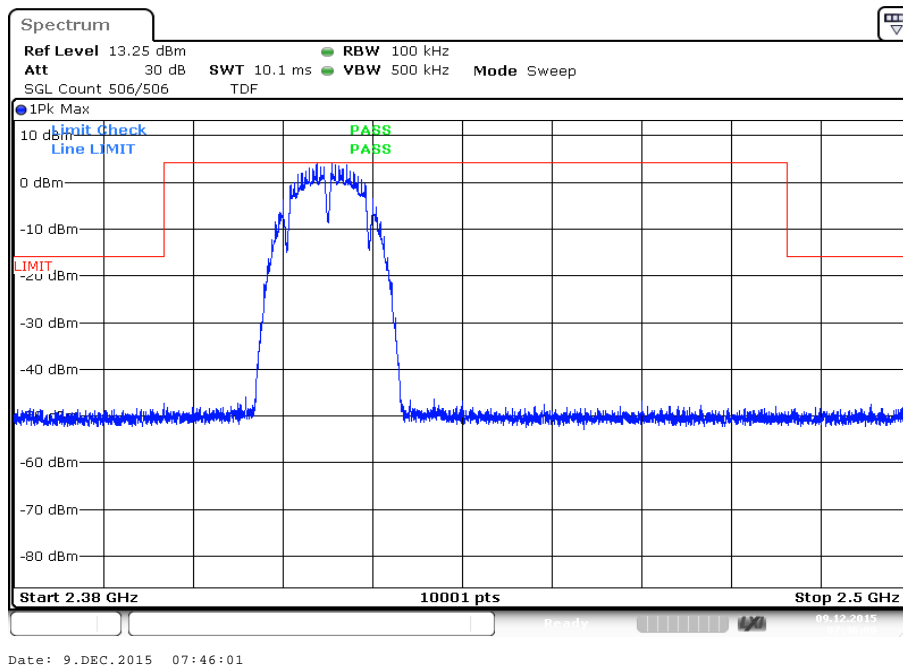
**Plot 2:** 2412 MHz, zoomed carrier



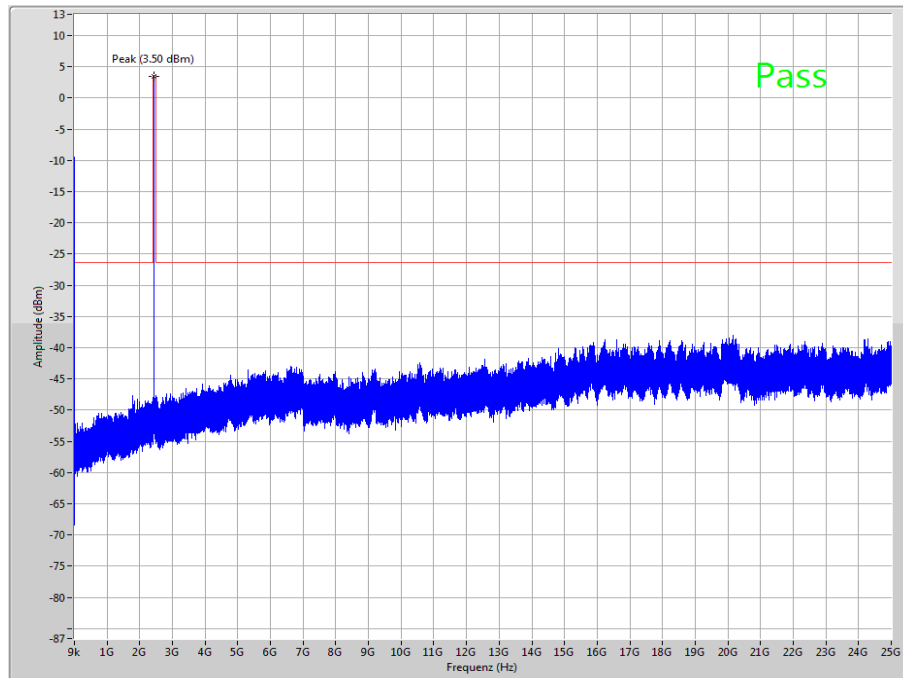
Date: 9.DEC.2015 07:32:29

**Plot 3: 2422 MHz, up to 25 GHz**

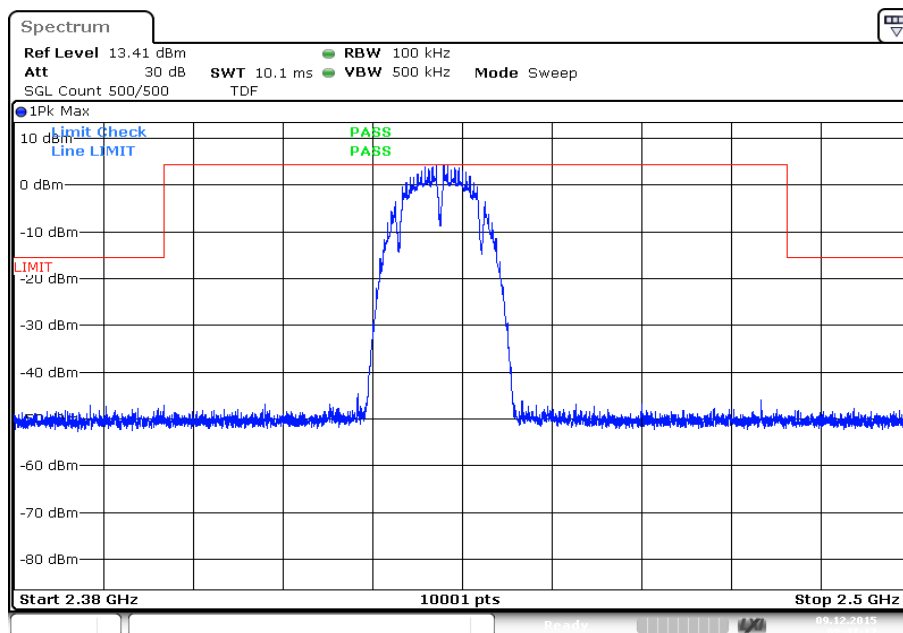
The peak at the beginning of the plot is the LO from the SA.

**Plot 4: 2422 MHz, zoomed carrier**

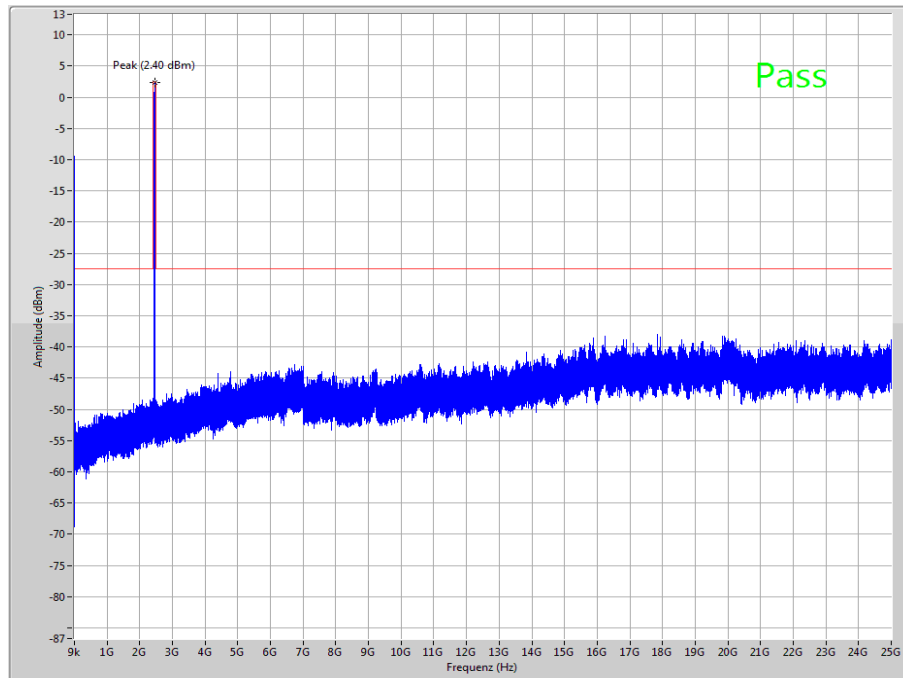


**Plot 5: 2437 MHz, up to 25 GHz**

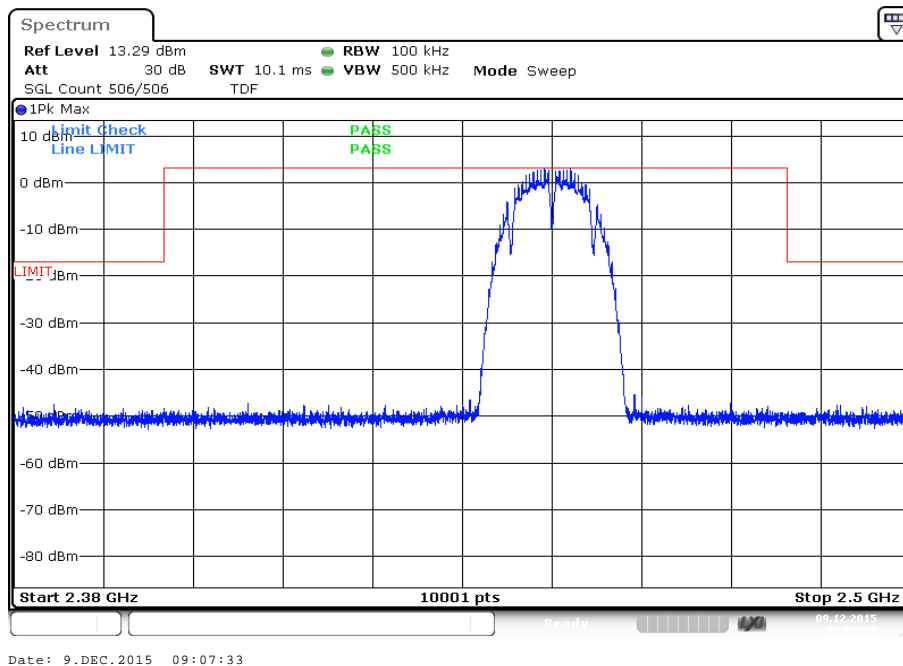
The peak at the beginning of the plot is the LO from the SA.

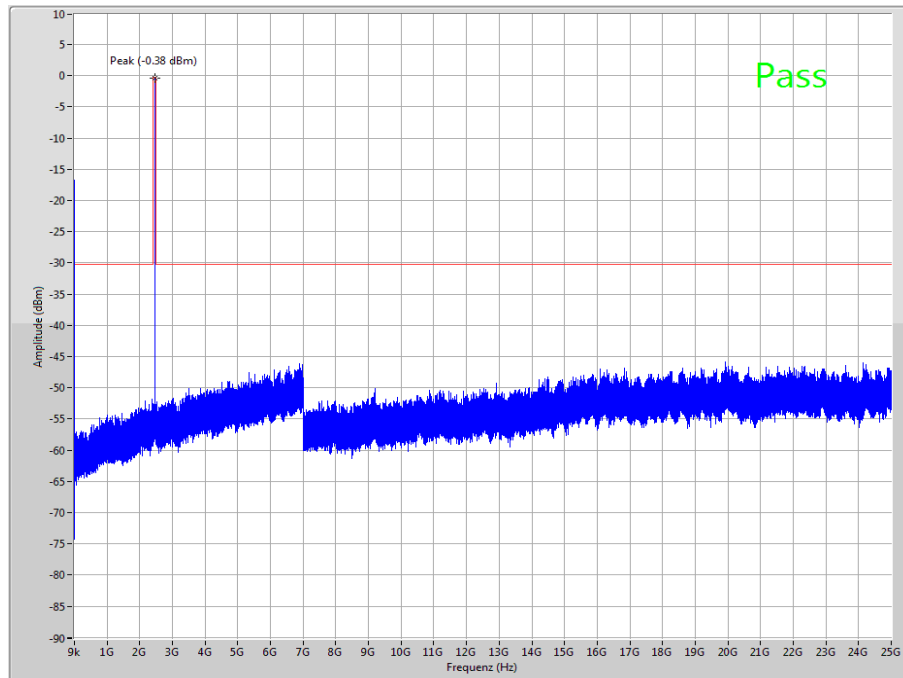
**Plot 6: 2437 MHz, zoomed carrier**

Date: 9.DEC.2015 08:47:17

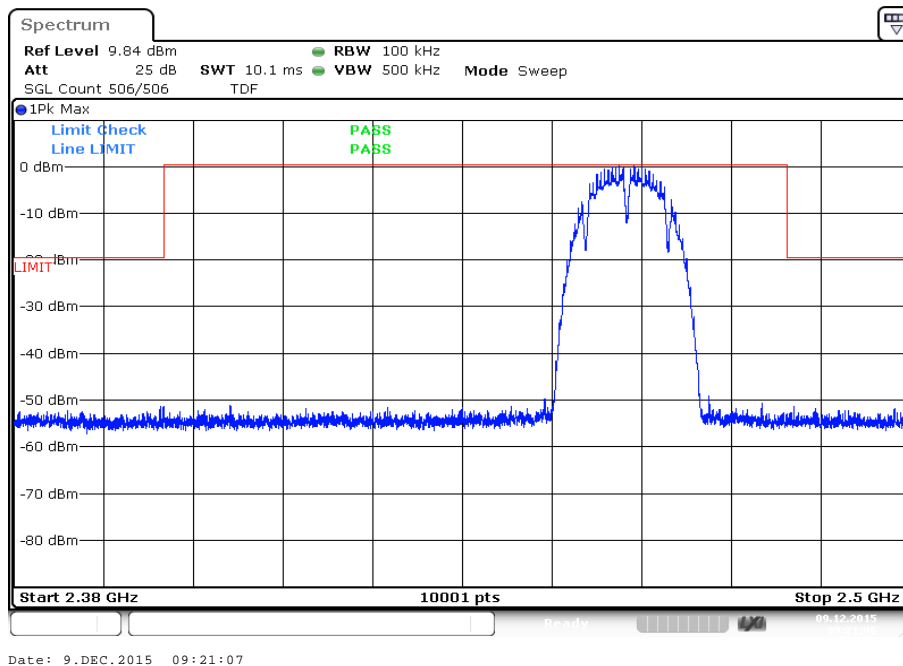
**Plot 7: 2452 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

**Plot 8: 2452 MHz, zoomed carrier**

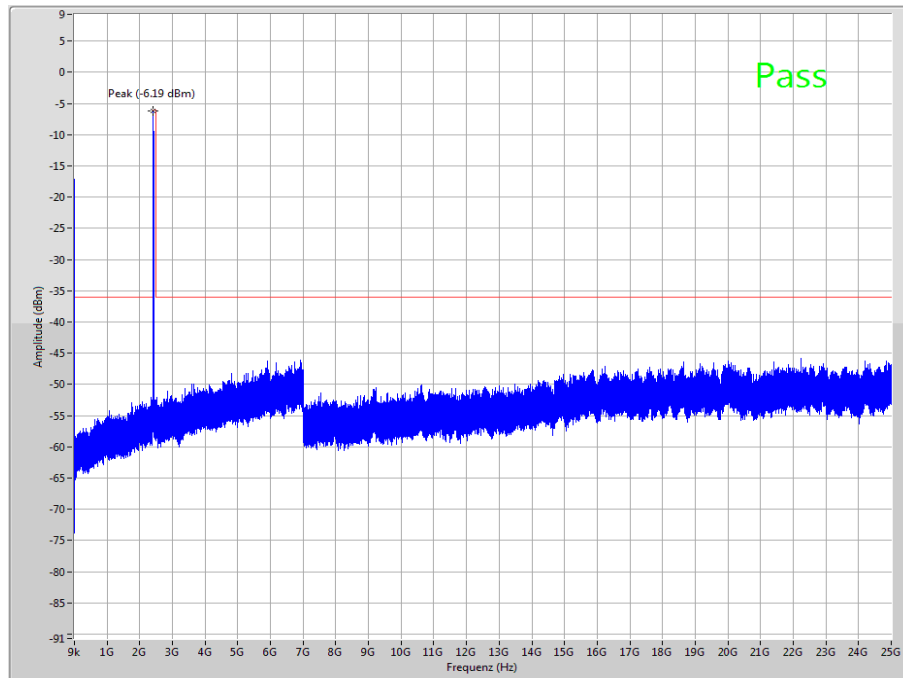
**Plot 9: 2462 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

**Plot 10: 2462 MHz, zoomed carrier**

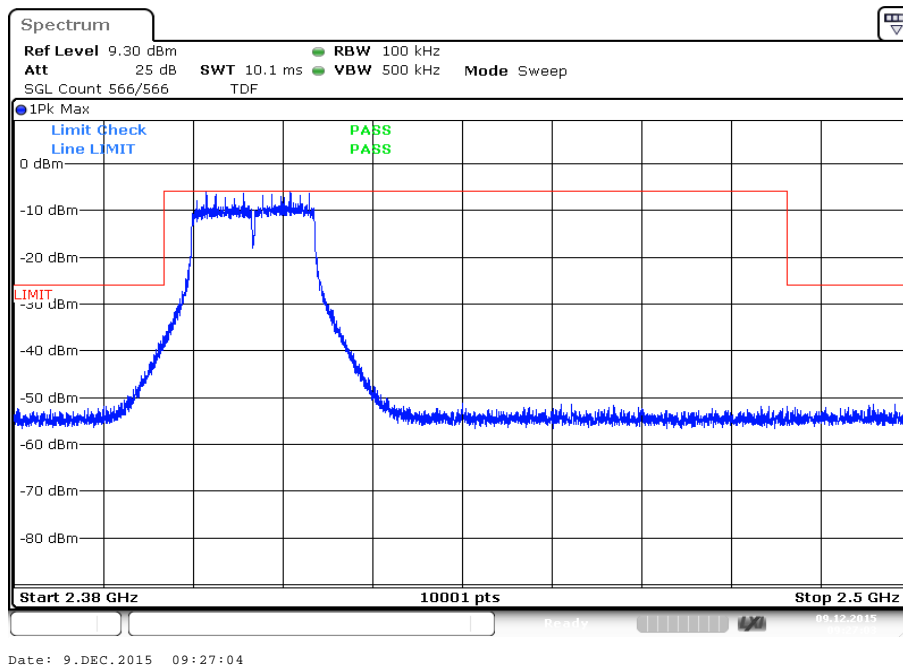
**Plots:** OFDM / g – mode, antenna port 2

**Plot 1:** 2412 MHz, up to 25 GHz

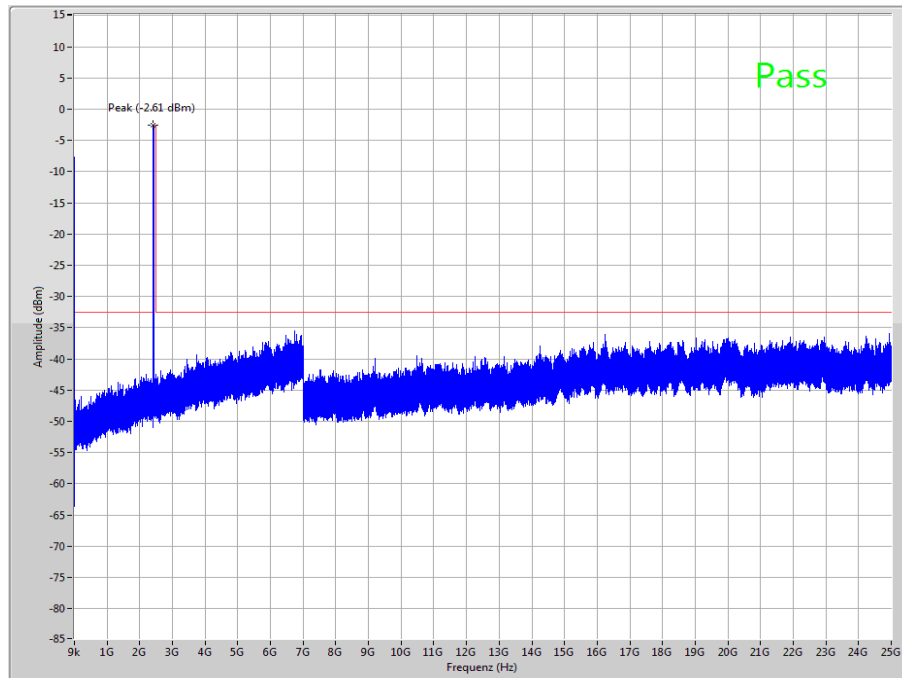


The peak at the beginning of the plot is the LO from the SA.

**Plot 2:** 2412 MHz, zoomed carrier

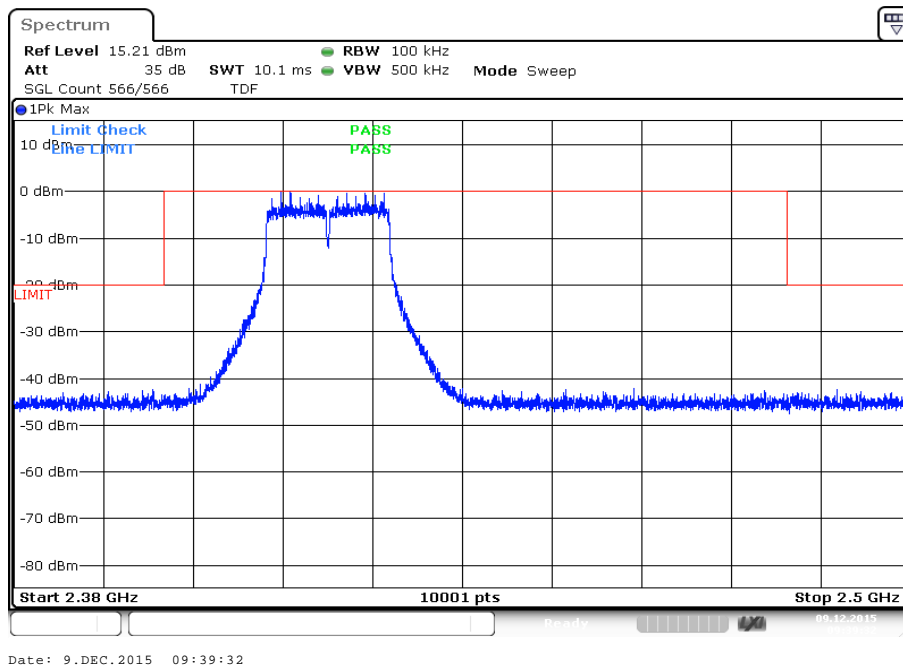


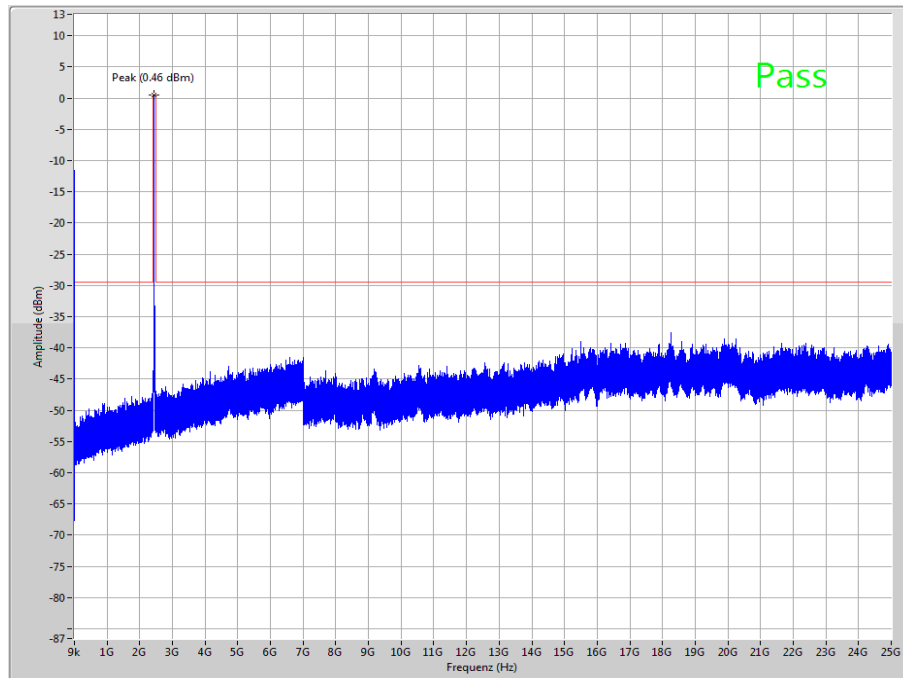
### Plot 3: 2422 MHz, up to 25 GHz



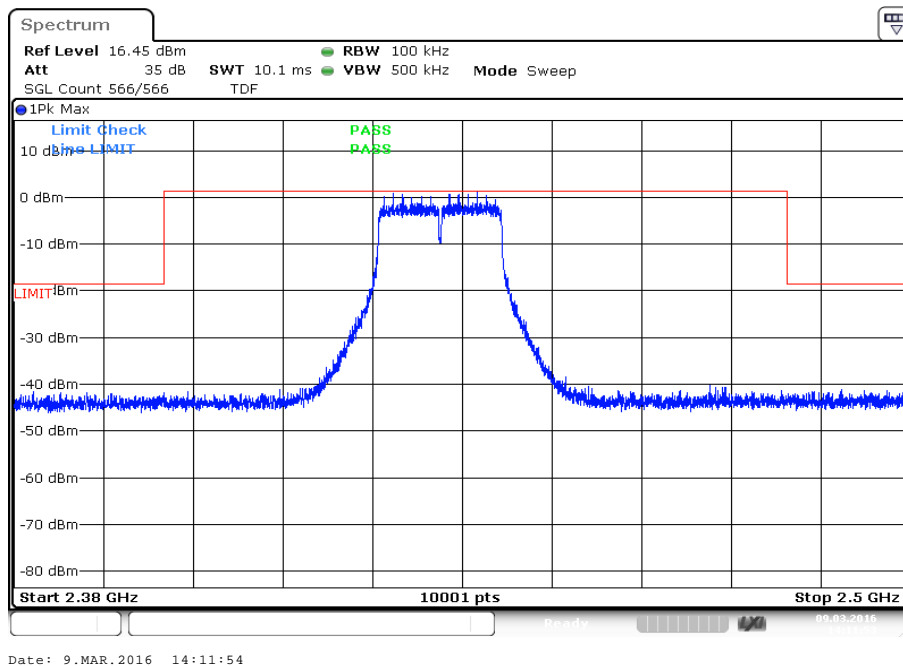
The peak at the beginning of the plot is the LO from the SA.

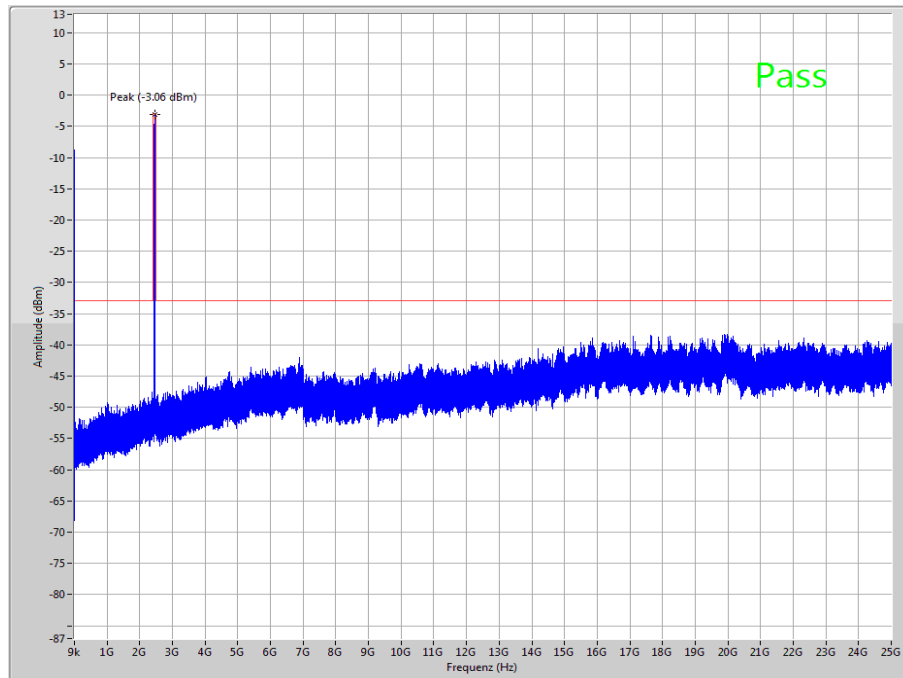
#### Plot 4: 2422 MHz, zoomed carrier



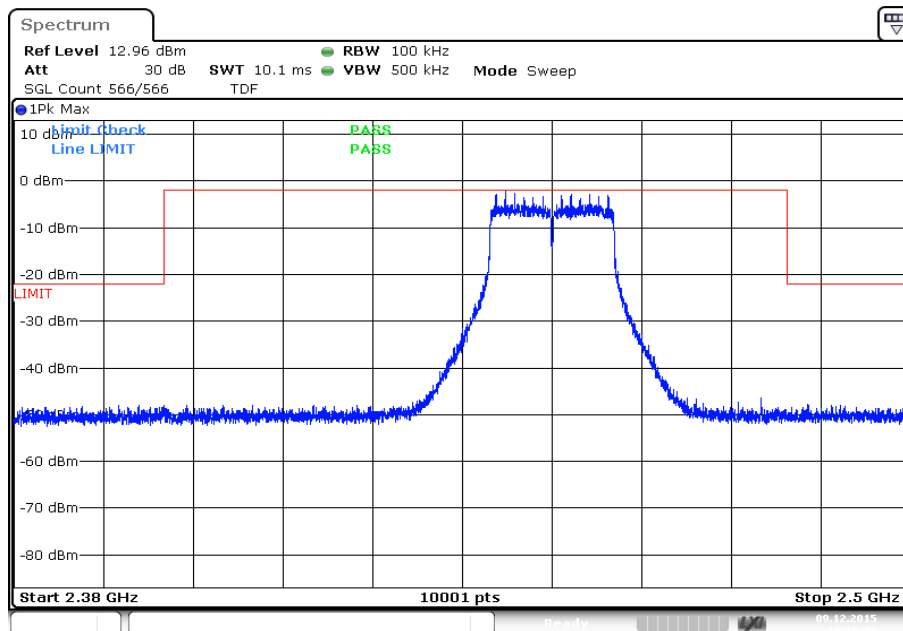
**Plot 5: 2437 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

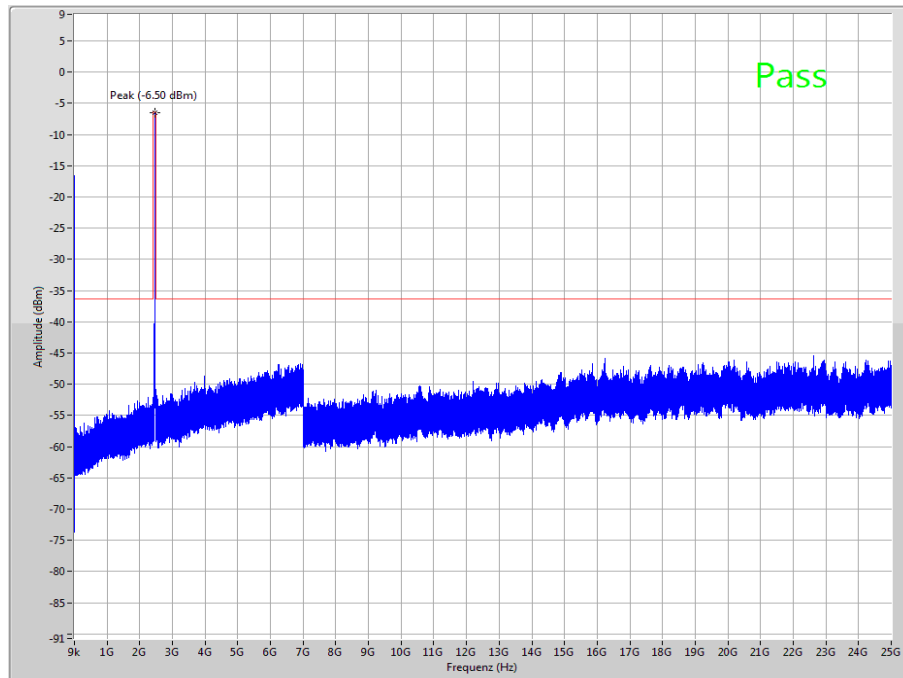
**Plot 6: 2437 MHz, zoomed carrier**

**Plot 7: 2452 MHz, up to 25 GHz**

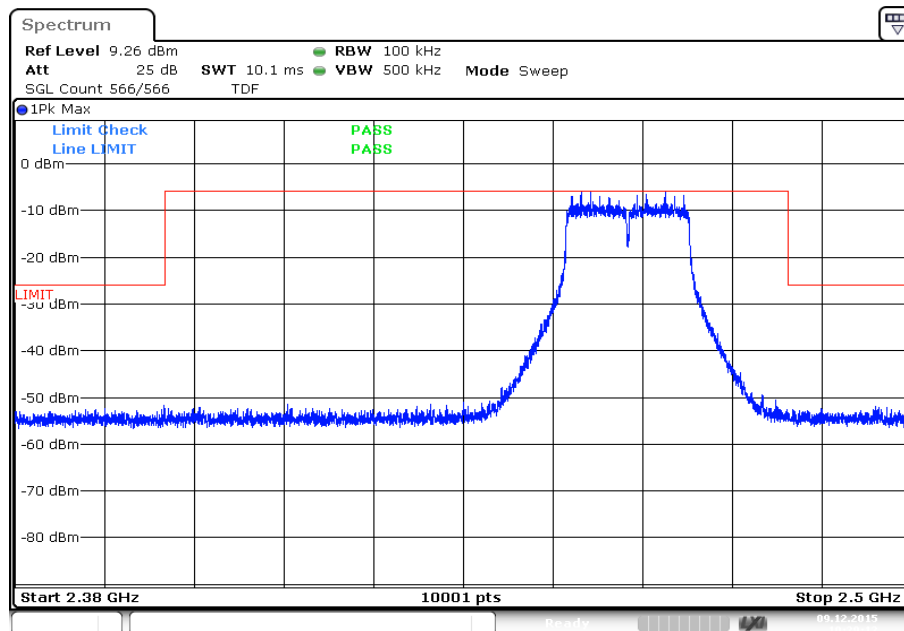
The peak at the beginning of the plot is the LO from the SA.

**Plot 8: 2452 MHz, zoomed carrier**

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**Plot 9: 2462 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

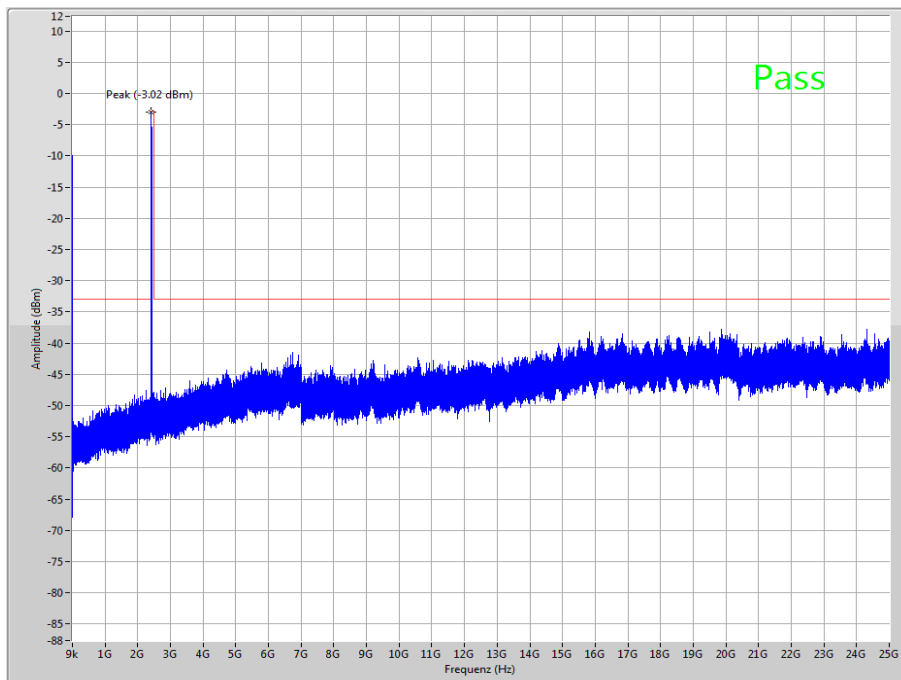
**Plot 10: 2462 MHz, zoomed carrier**

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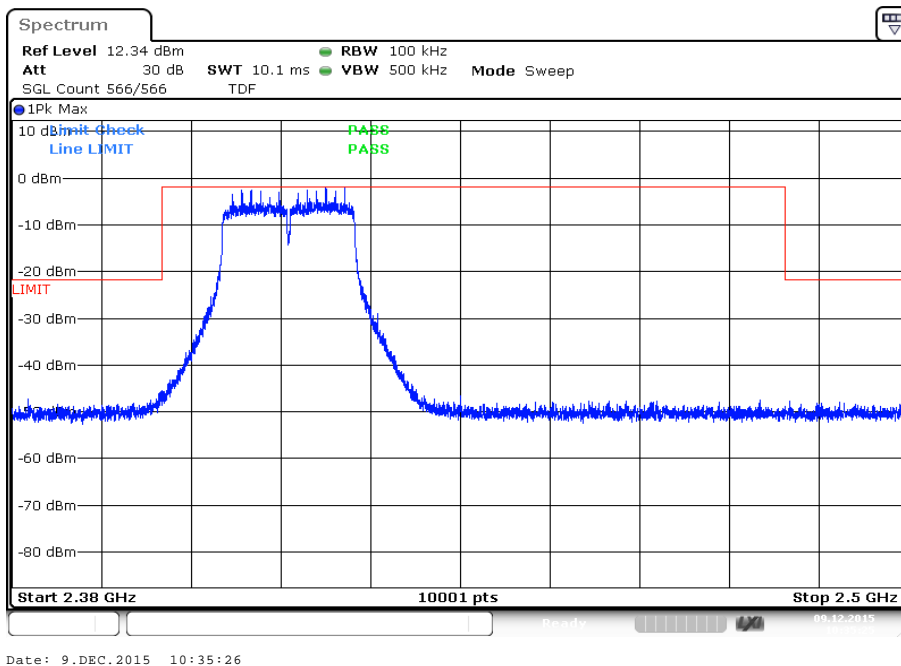
**Plots:** OFDM / n HT20 – mode, antenna port 2

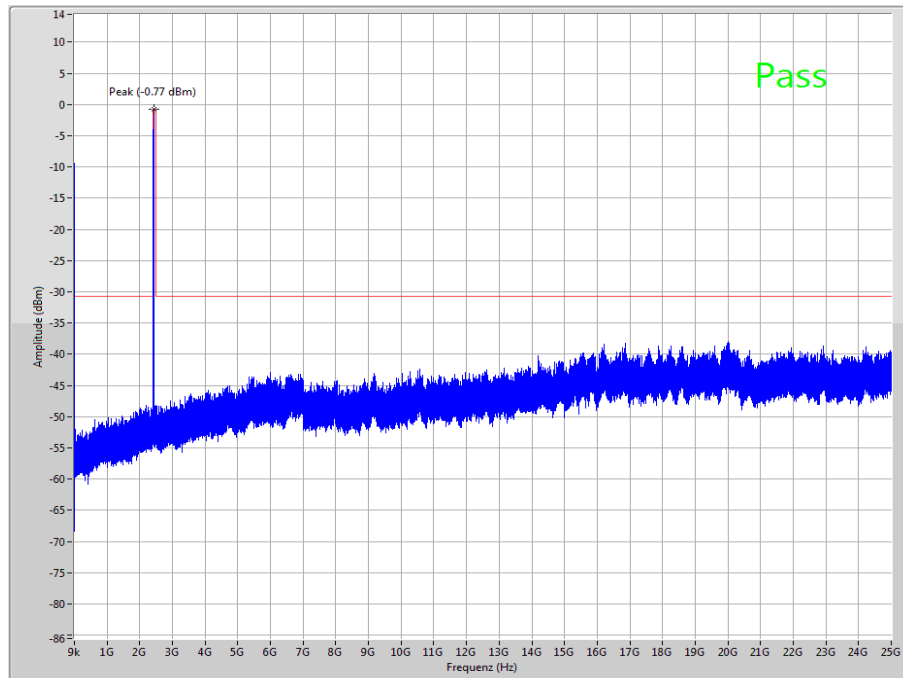
**Plot 1:** 2417 MHz, up to 25 GHz



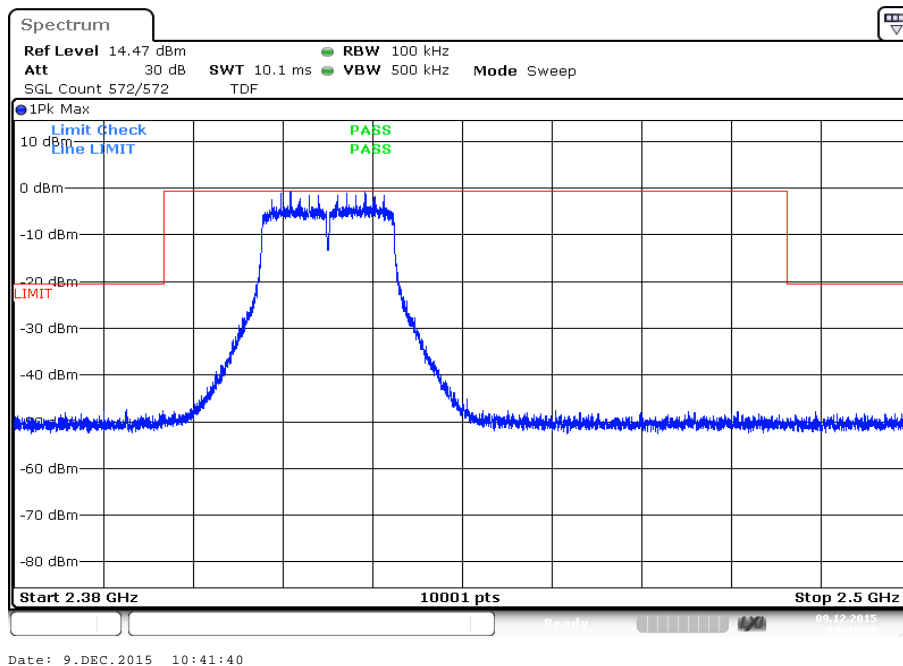
The peak at the beginning of the plot is the LO from the SA.

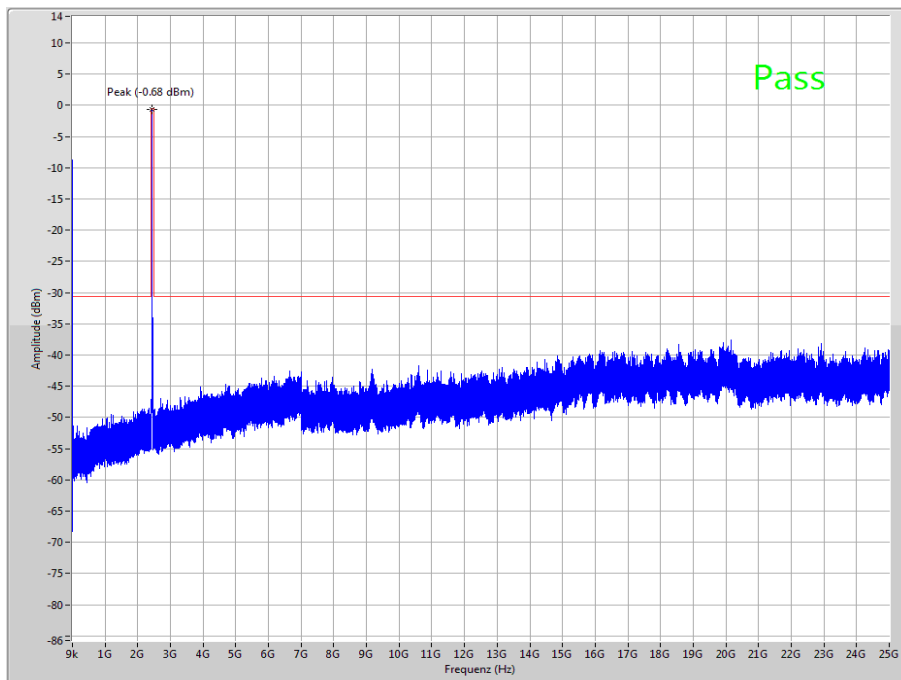
**Plot 2:** 2417 MHz, zoomed carrier



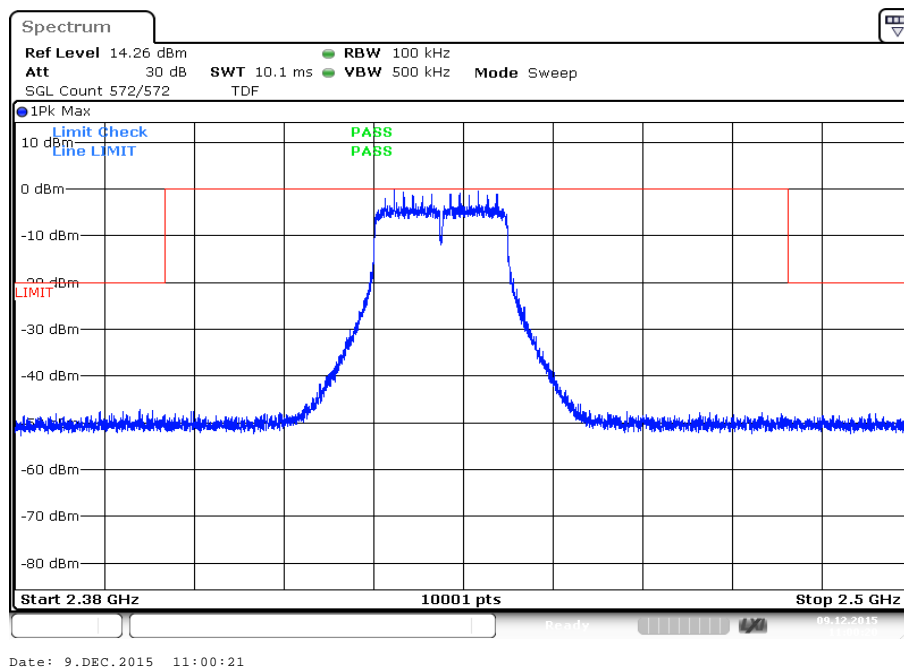
**Plot 3: 2422 MHz, up to 25 GHz**

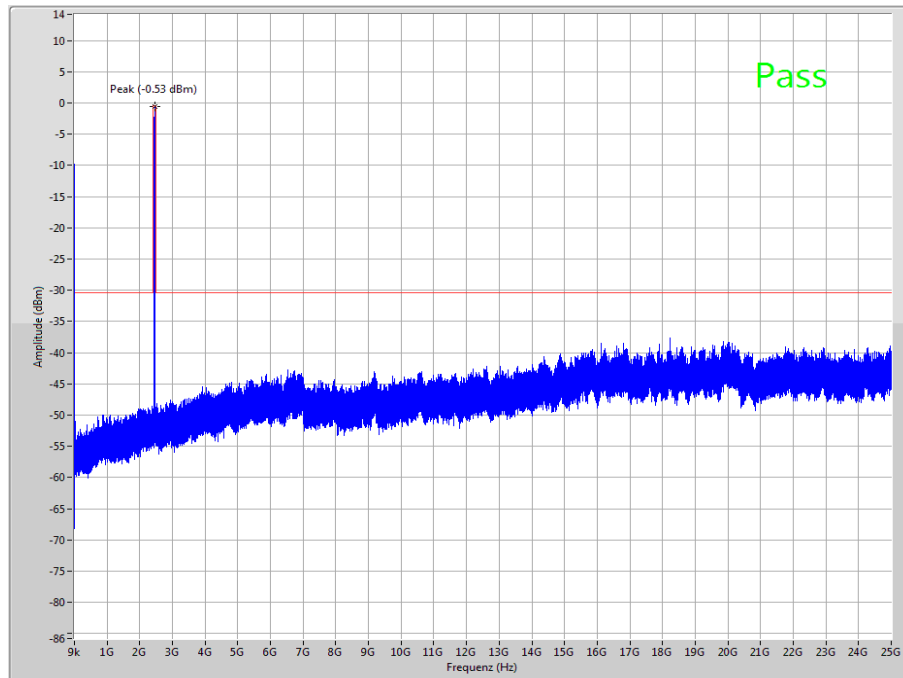
The peak at the beginning of the plot is the LO from the SA.

**Plot 4: 2422 MHz, zoomed carrier**

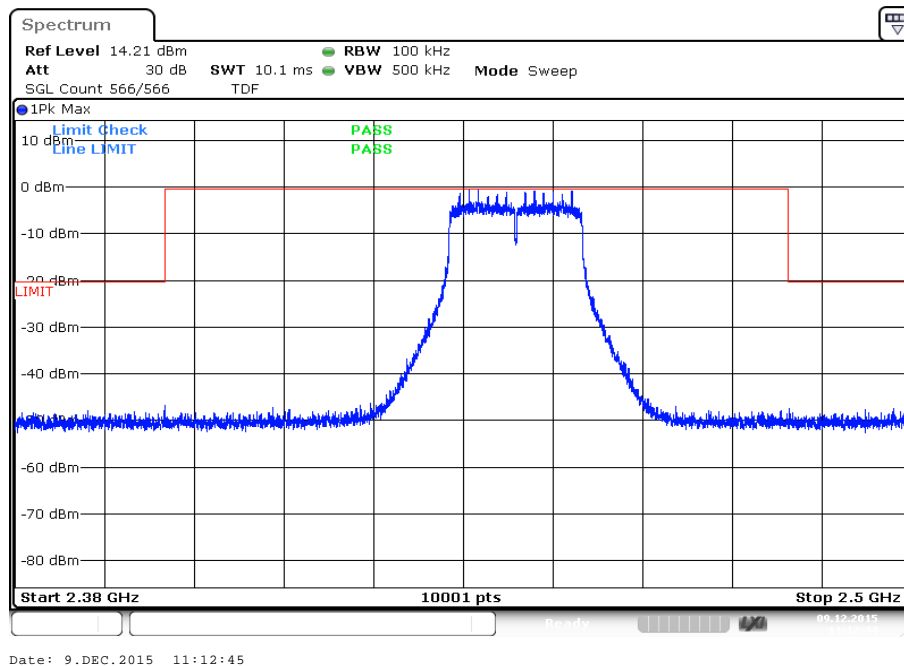
**Plot 5: 2437 MHz, up to 25 GHz**

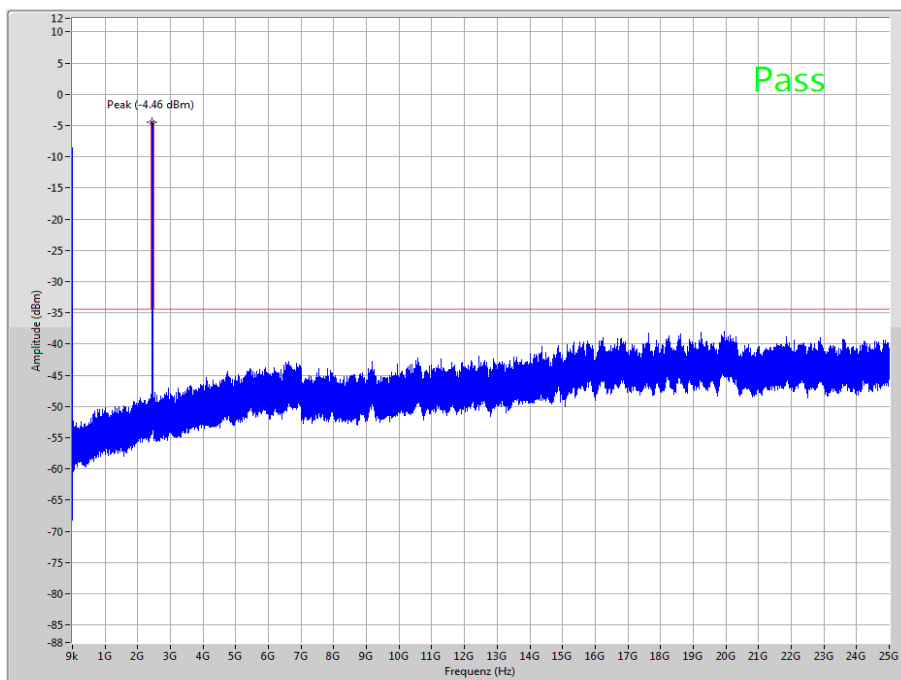
The peak at the beginning of the plot is the LO from the SA.

**Plot 6: 2437 MHz, zoomed carrier**

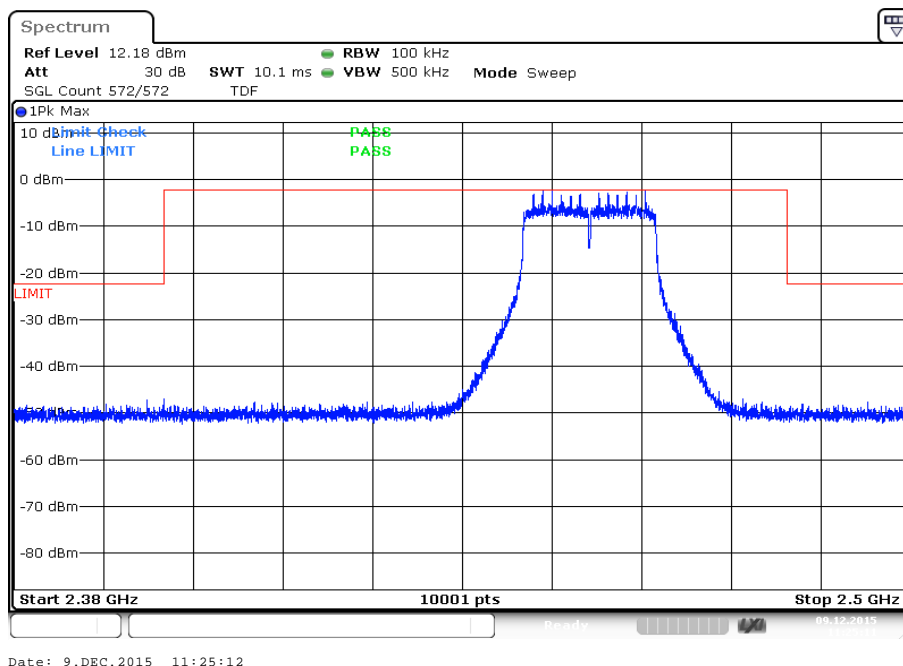
**Plot 7: 2447 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

**Plot 8: 2447 MHz, zoomed carrier**

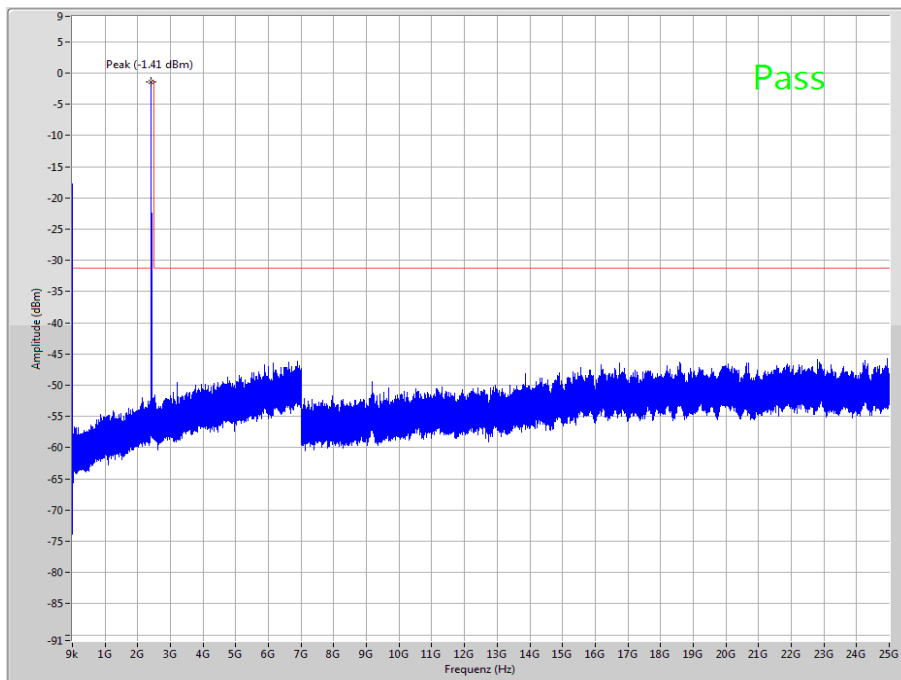
**Plot 9:** 2457 MHz, up to 25 GHz

The peak at the beginning of the plot is the LO from the SA.

**Plot 10:** 2457 MHz, zoomed carrier

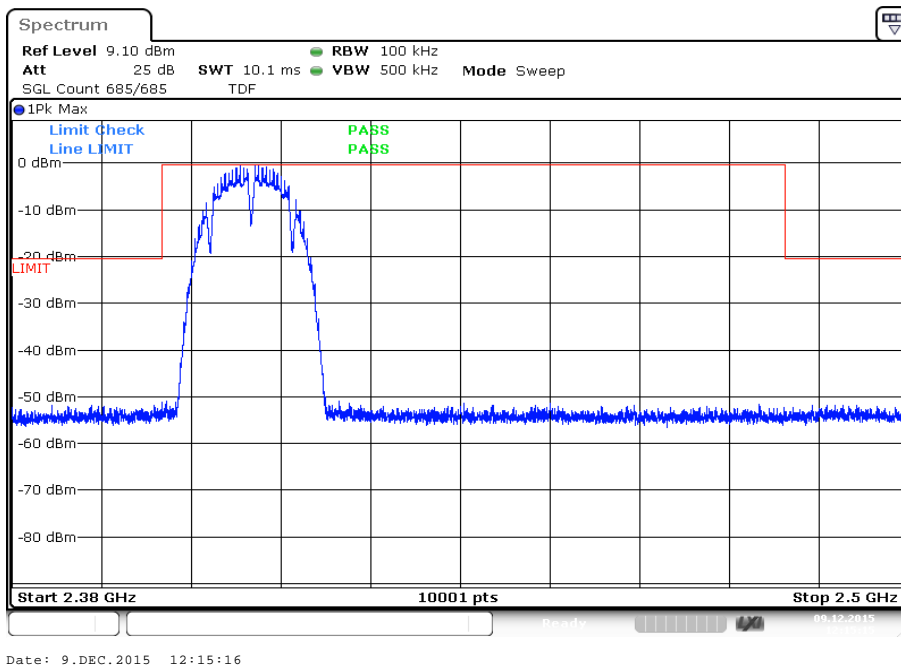
**Plots:** DSSS / b – mode, antenna port 3

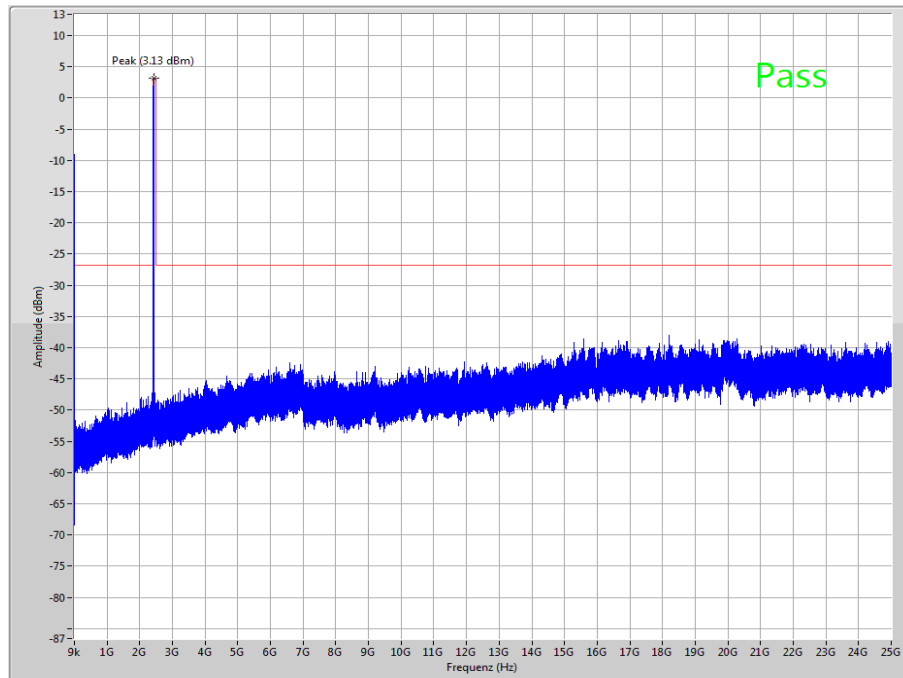
**Plot 1:** 2412 MHz, up to 25 GHz



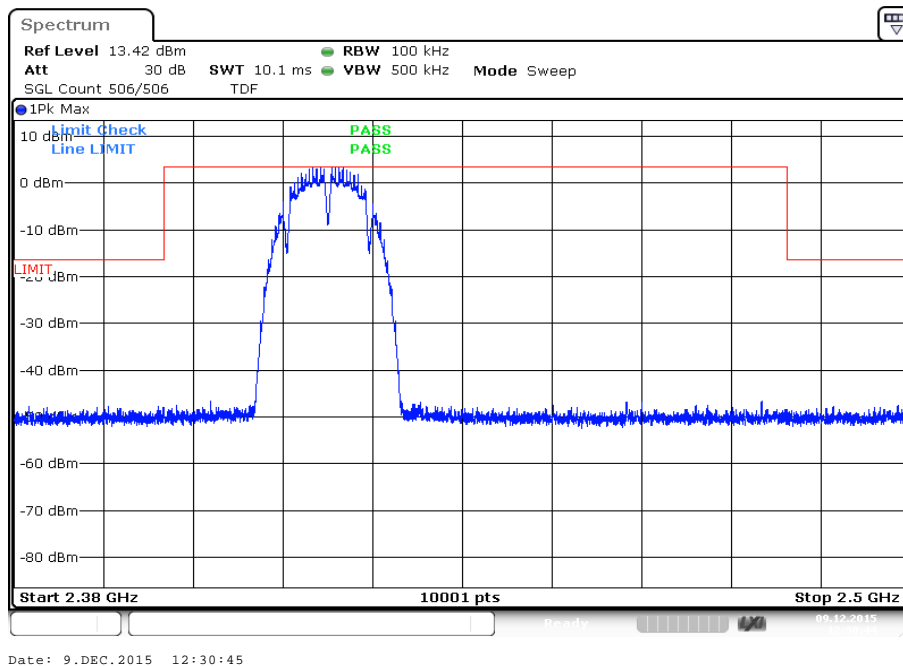
The peak at the beginning of the plot is the LO from the SA.

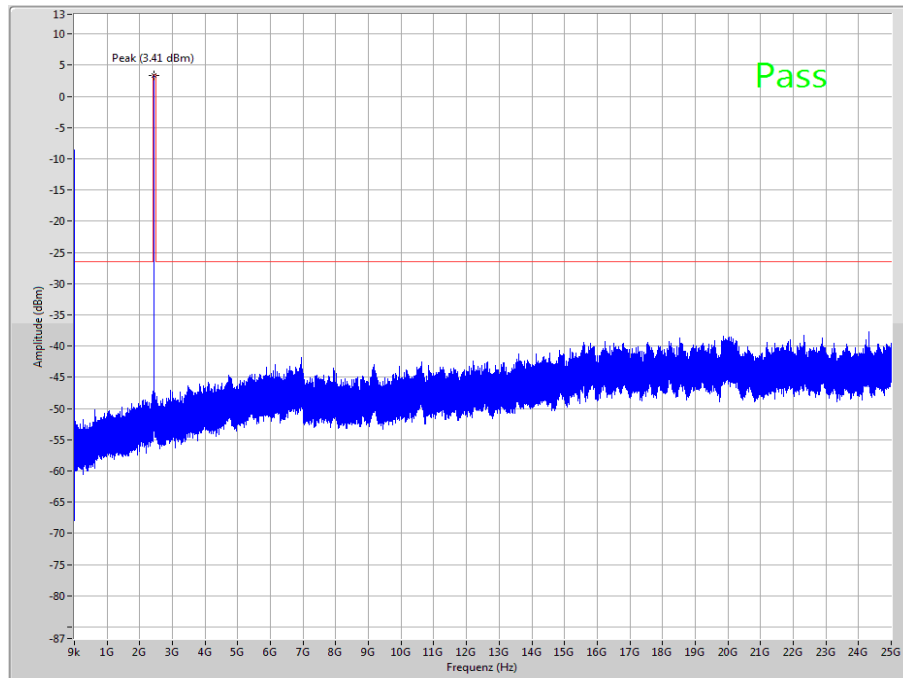
**Plot 2:** 2412 MHz, zoomed carrier



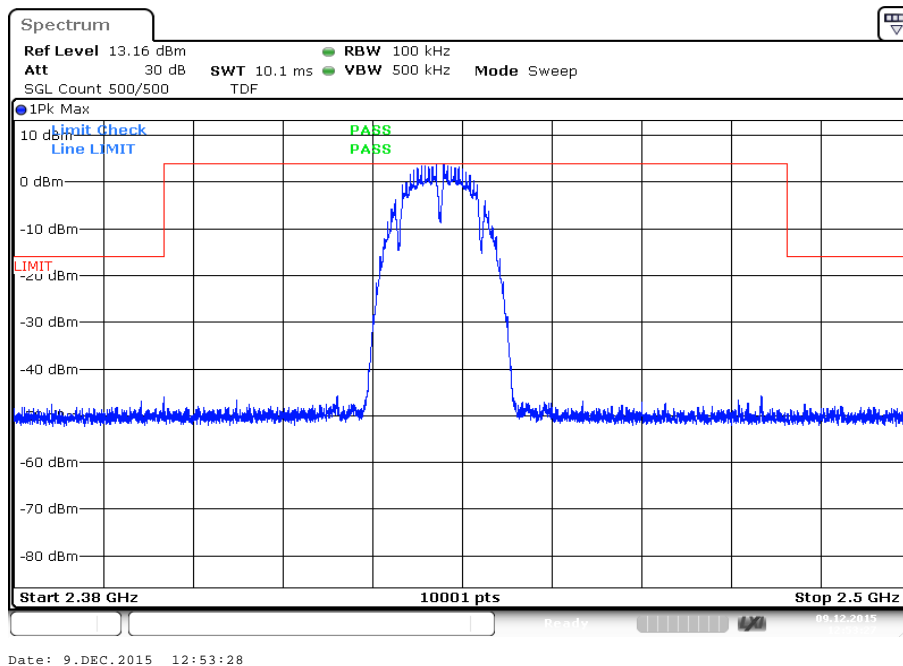
**Plot 3: 2422 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

**Plot 4: 2422 MHz, zoomed carrier**

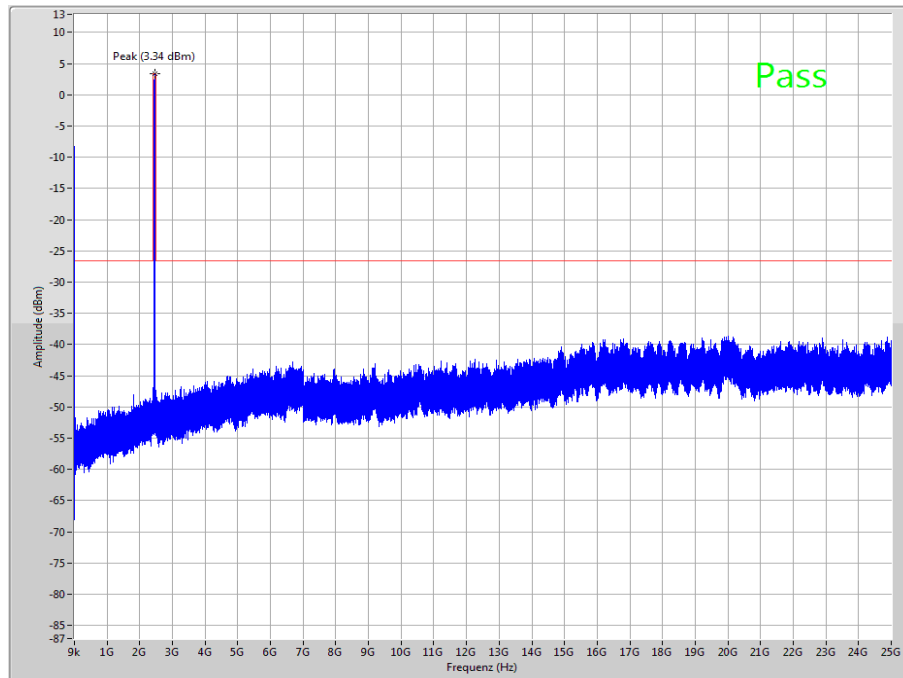
**Plot 5: 2437 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

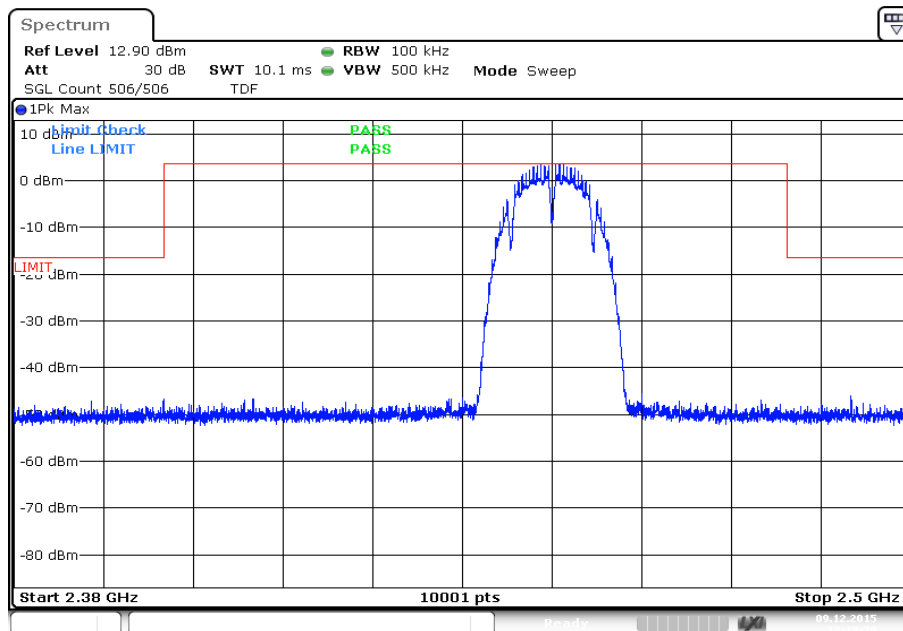
**Plot 6: 2437 MHz, zoomed carrier**

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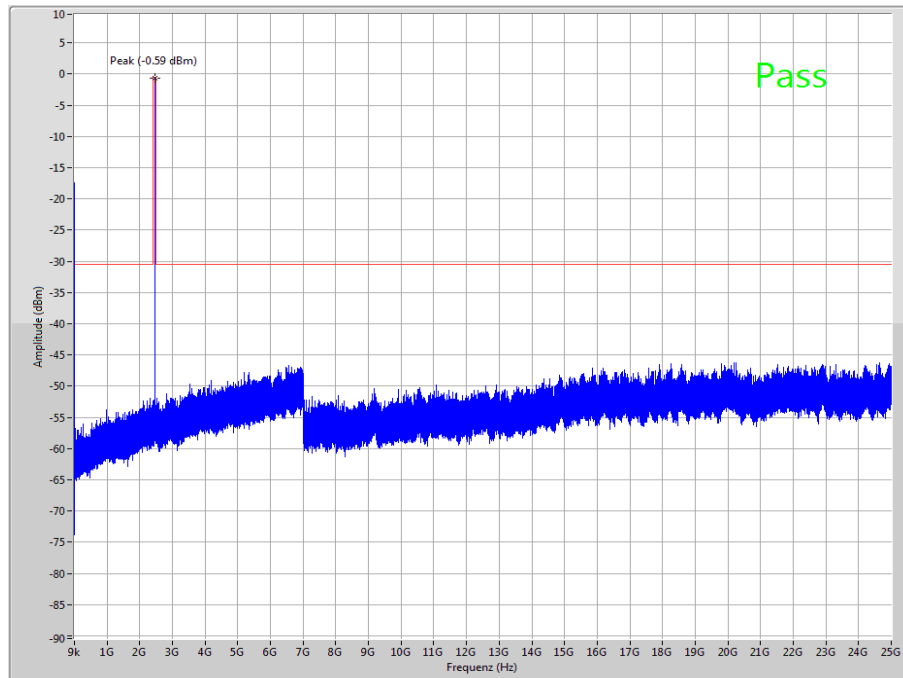


**Plot 7: 2452 MHz, up to 25 GHz**

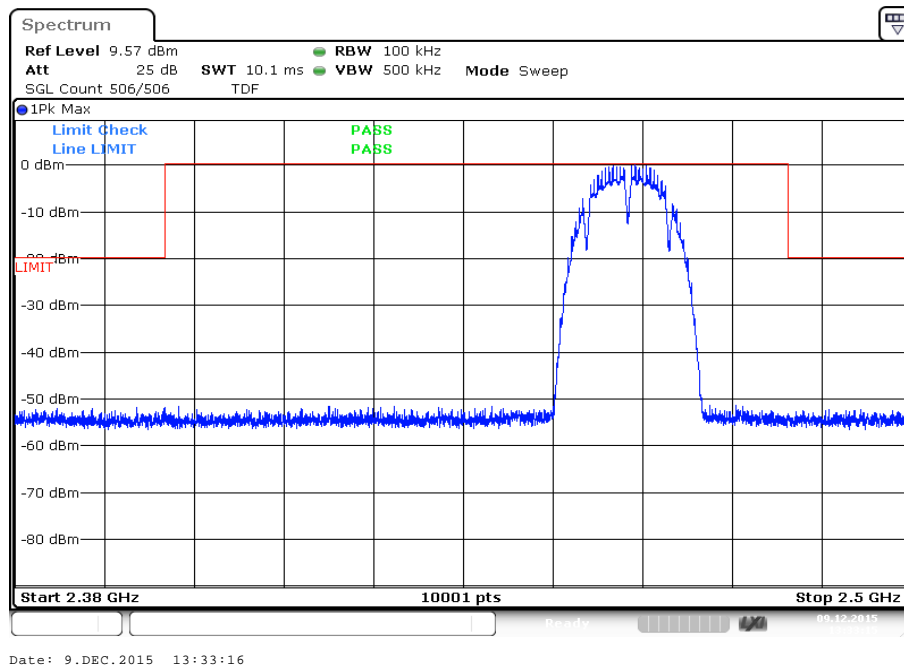
The peak at the beginning of the plot is the LO from the SA.

**Plot 8: 2452 MHz, zoomed carrier**

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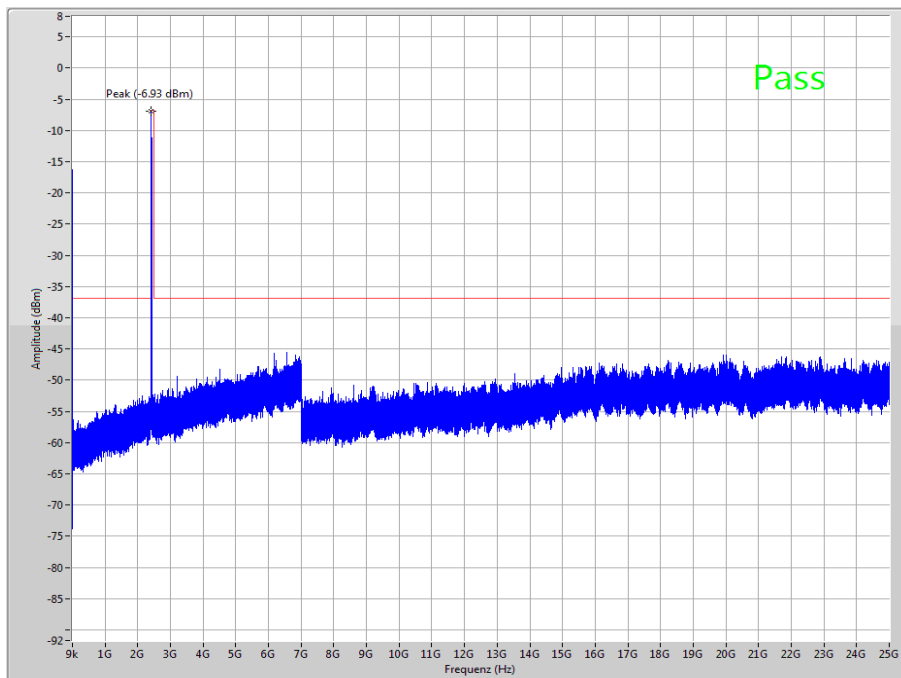
**Plot 9: 2462 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

**Plot 10: 2462 MHz, zoomed carrier**

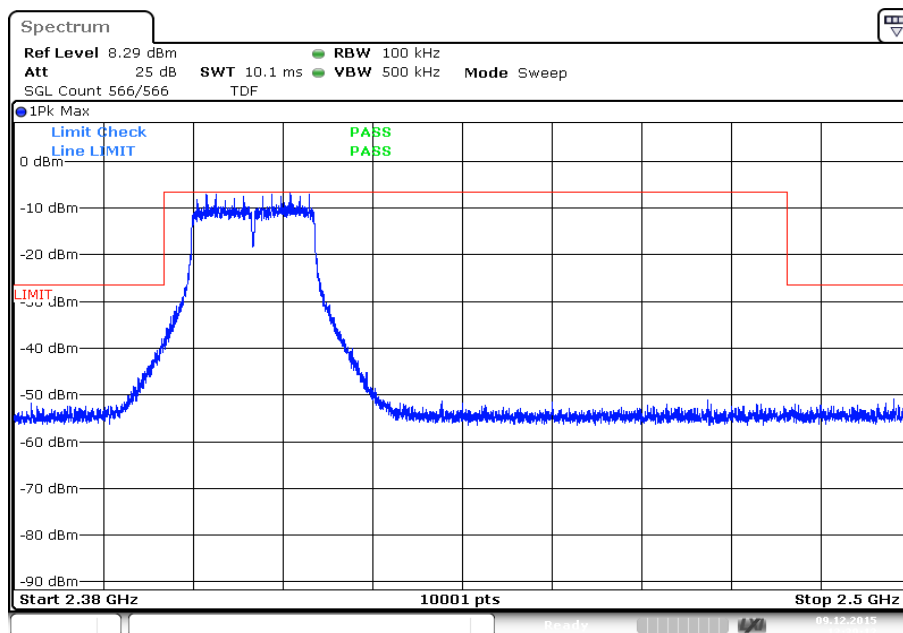
**Plots:** OFDM / g – mode, antenna port 3

**Plot 1:** 2412 MHz, up to 25 GHz

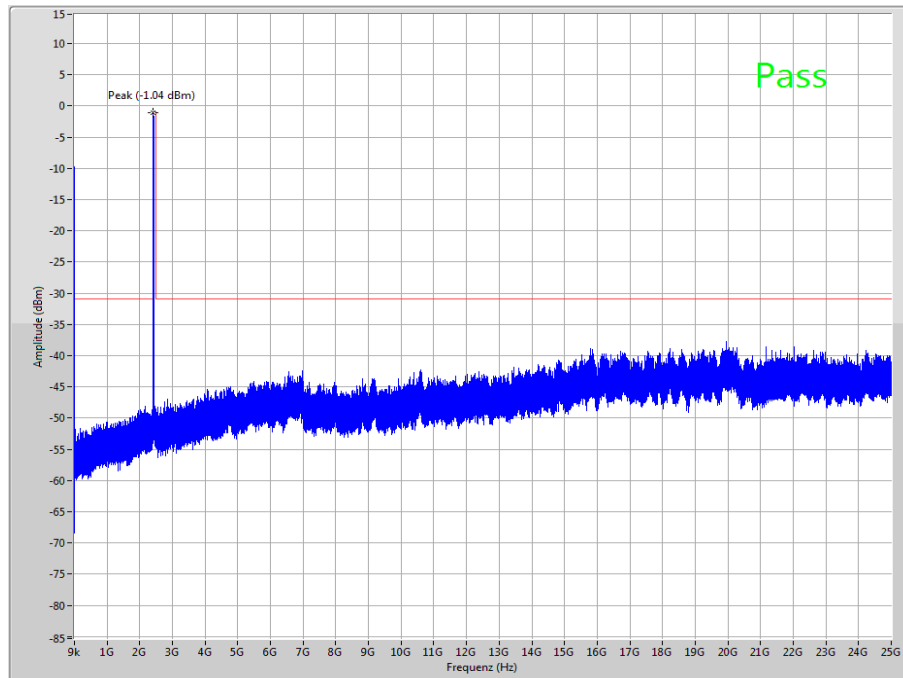


The peak at the beginning of the plot is the LO from the SA.

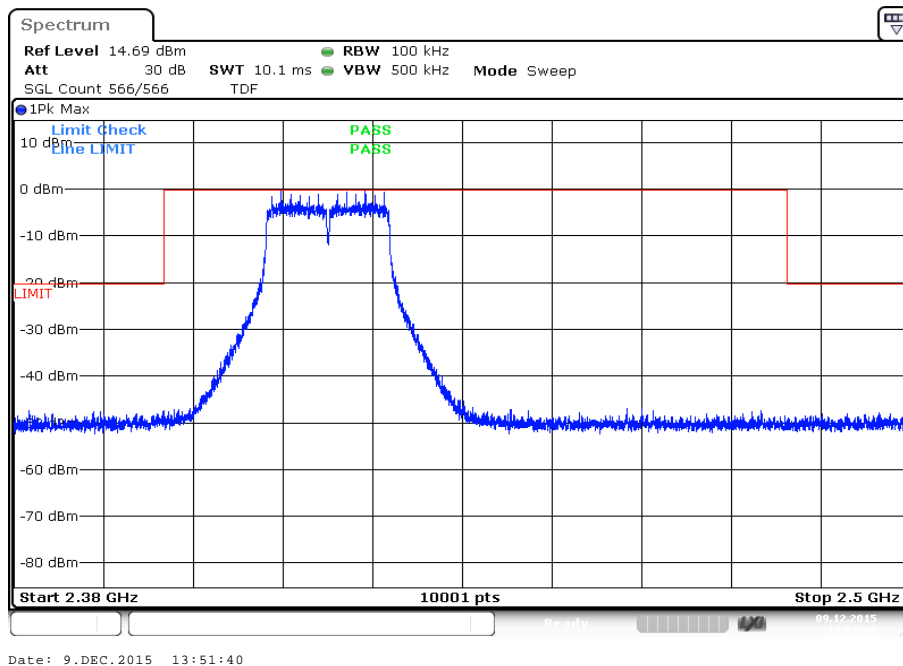
**Plot 2:** 2412 MHz, zoomed carrier

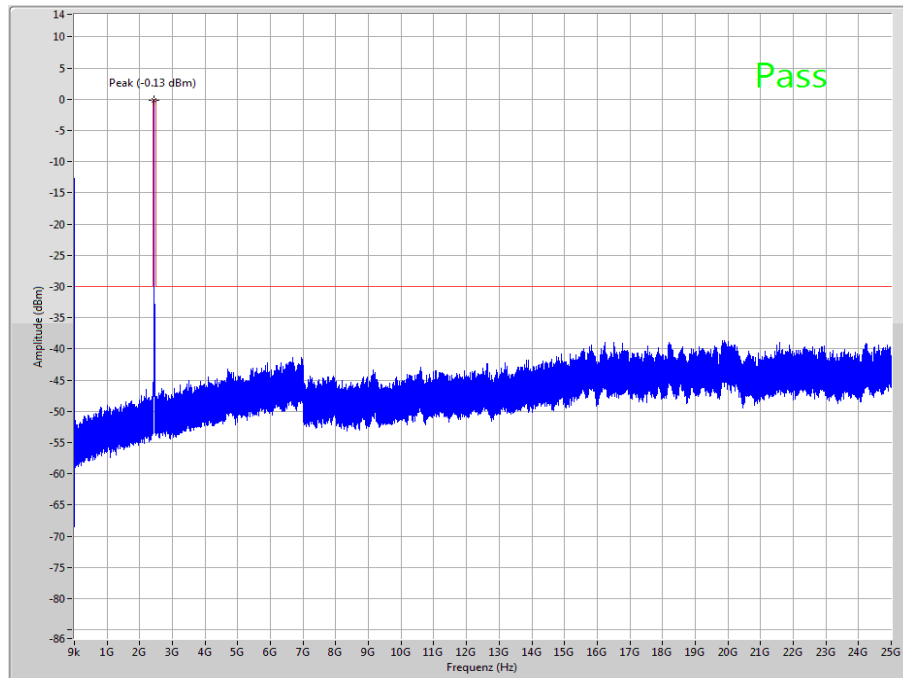


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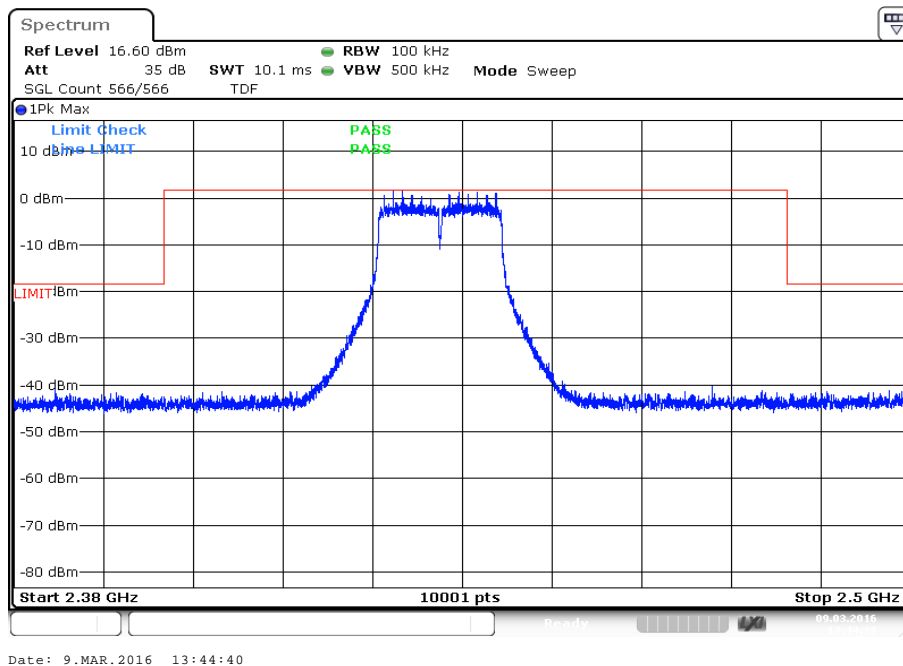
**Plot 3: 2422 MHz, up to 25 GHz**

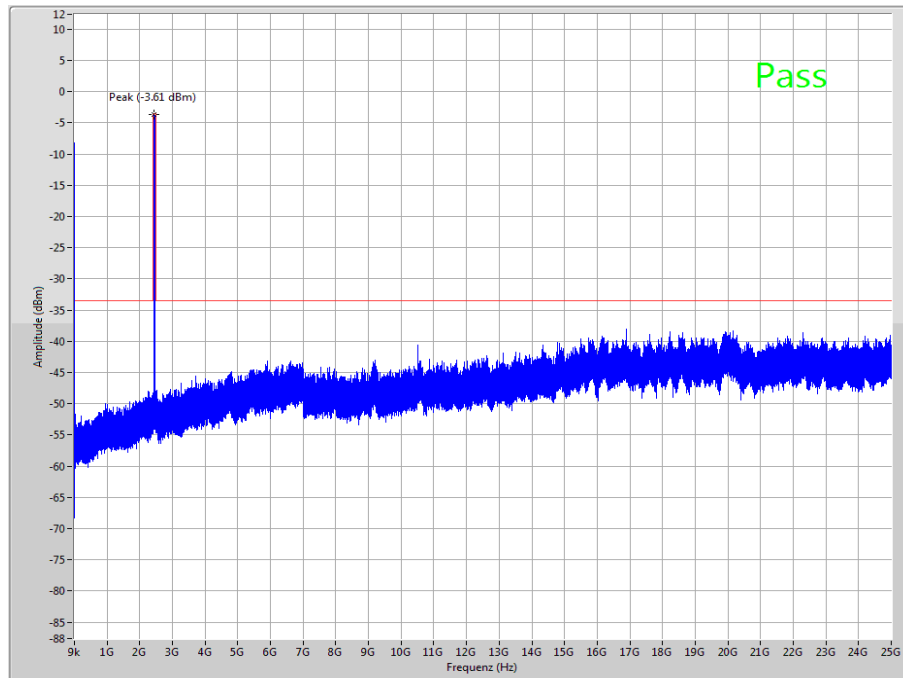
The peak at the beginning of the plot is the LO from the SA.

**Plot 4: 2422 MHz, zoomed carrier**

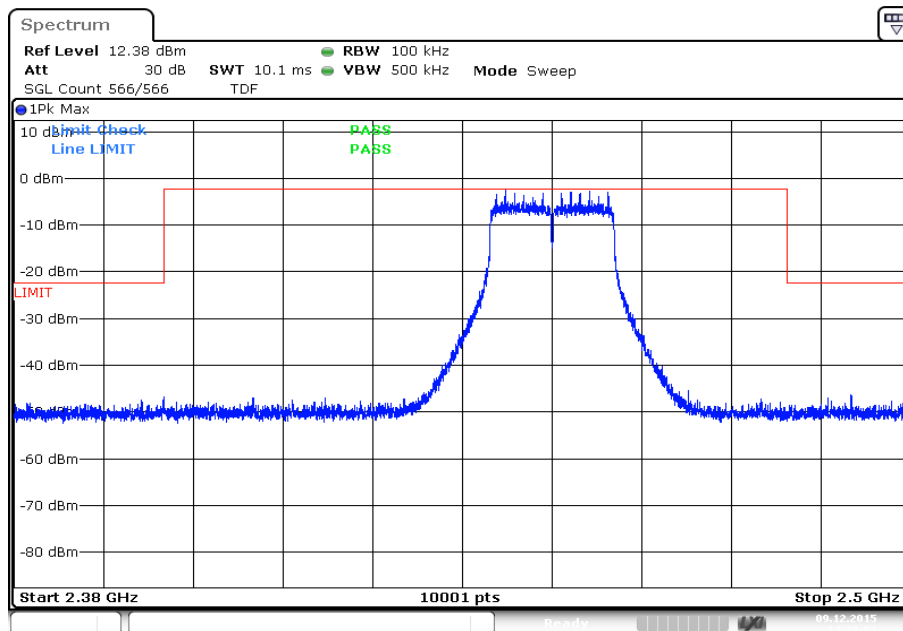
**Plot 5: 2437 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

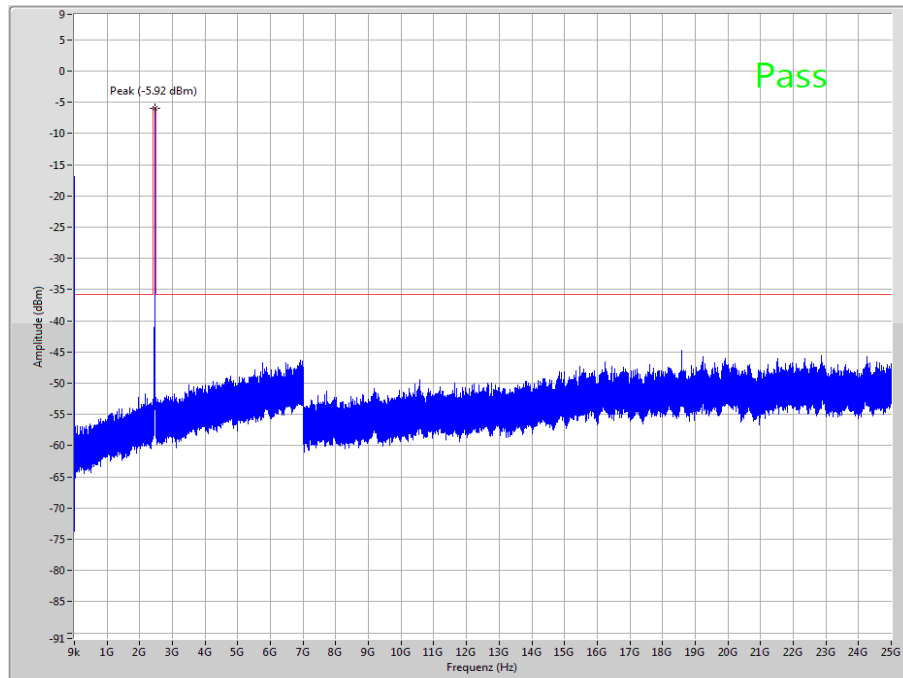
**Plot 6: 2437 MHz, zoomed carrier**

**Plot 7: 2452 MHz, up to 25 GHz**

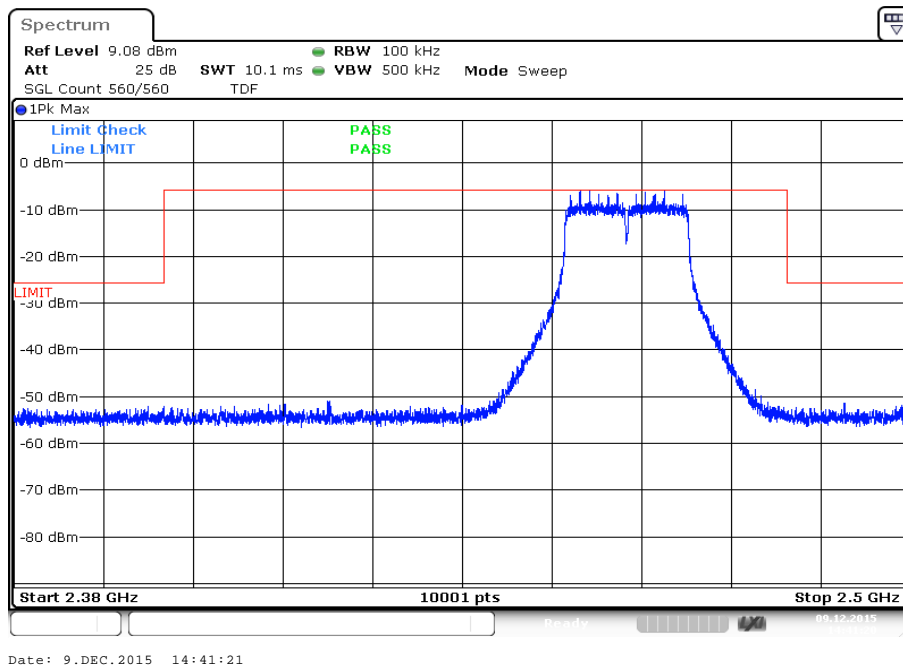
The peak at the beginning of the plot is the LO from the SA.

**Plot 8: 2452 MHz, zoomed carrier**

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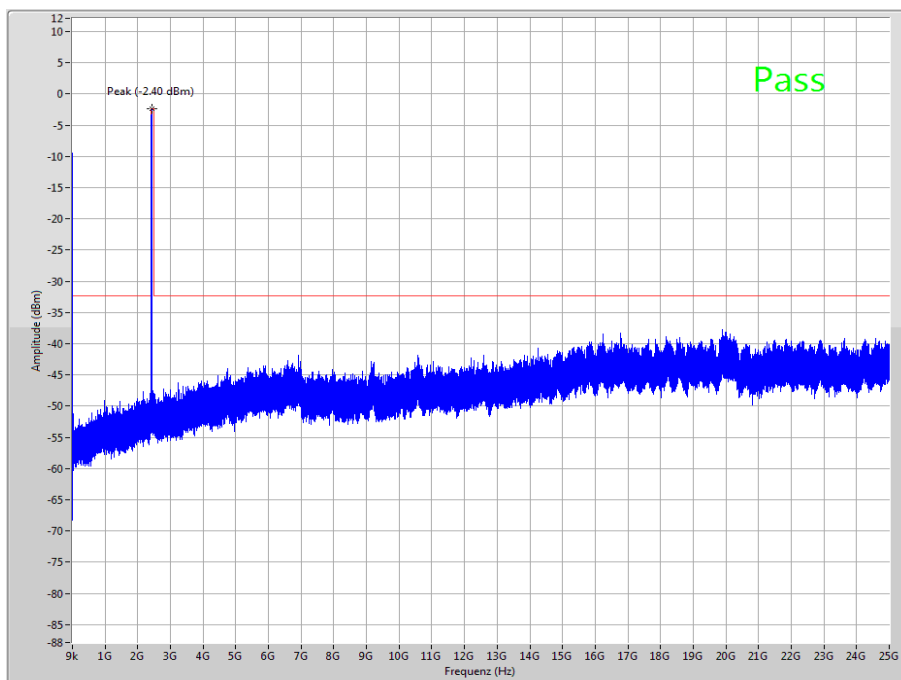
**Plot 9:** 2462 MHz, up to 25 GHz

The peak at the beginning of the plot is the LO from the SA.

**Plot 10:** 2462 MHz, zoomed carrier

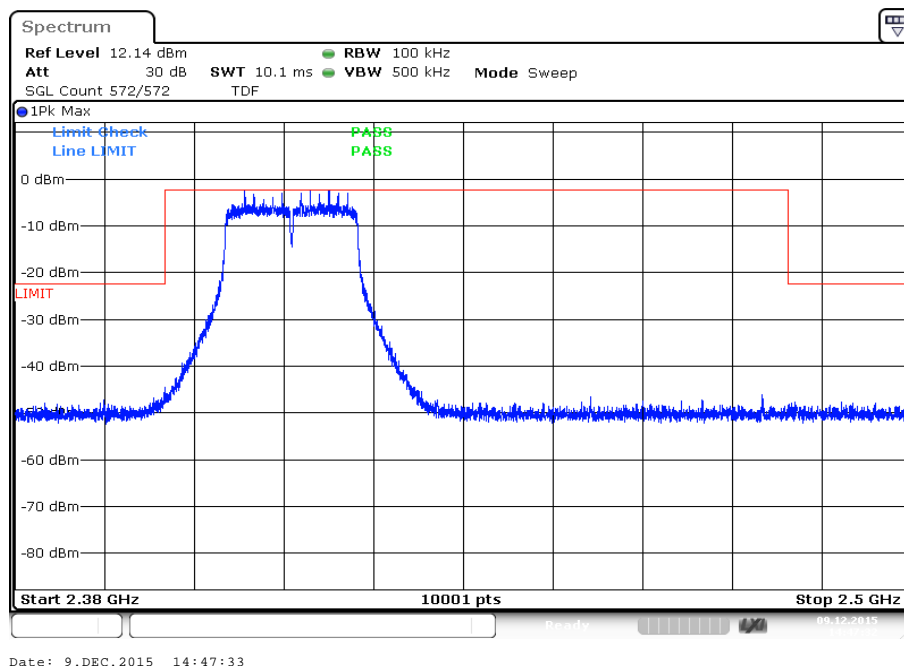
**Plots:** OFDM / n HT20 – mode, antenna port 3

**Plot 1:** 2417 MHz, up to 25 GHz



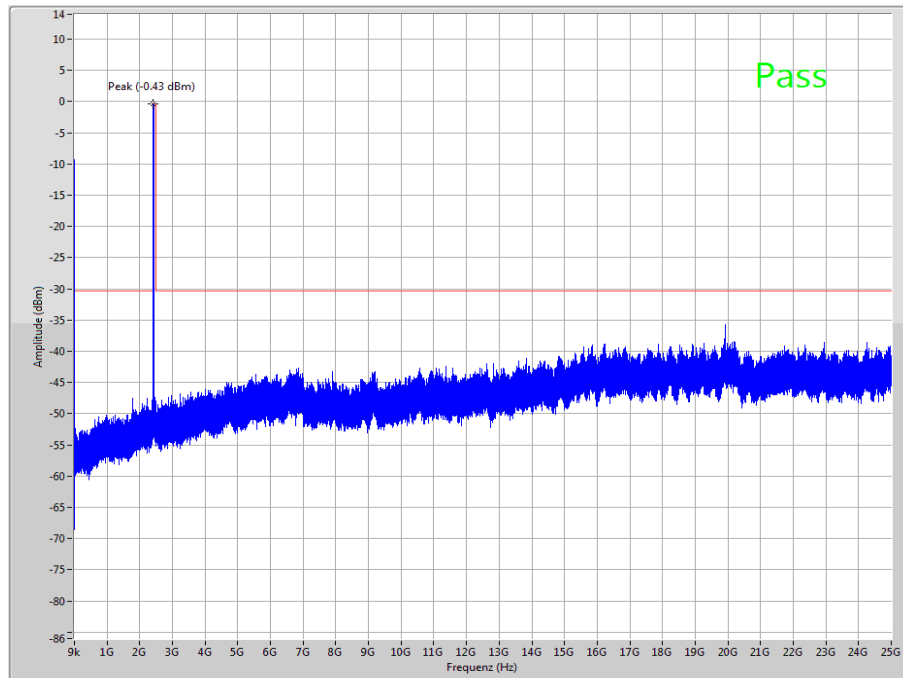
The peak at the beginning of the plot is the LO from the SA.

**Plot 2:** 2417 MHz, zoomed carrier

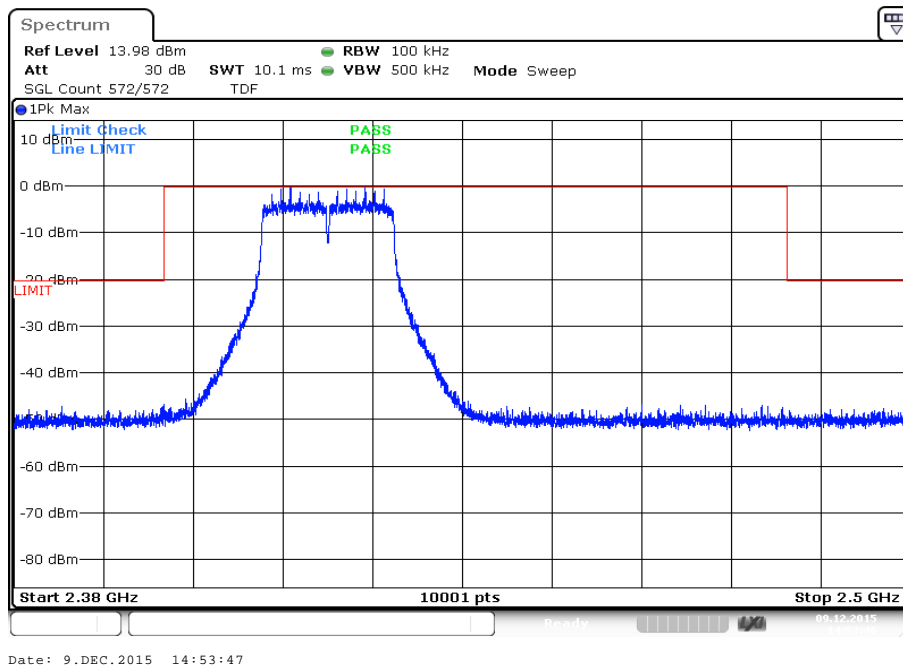


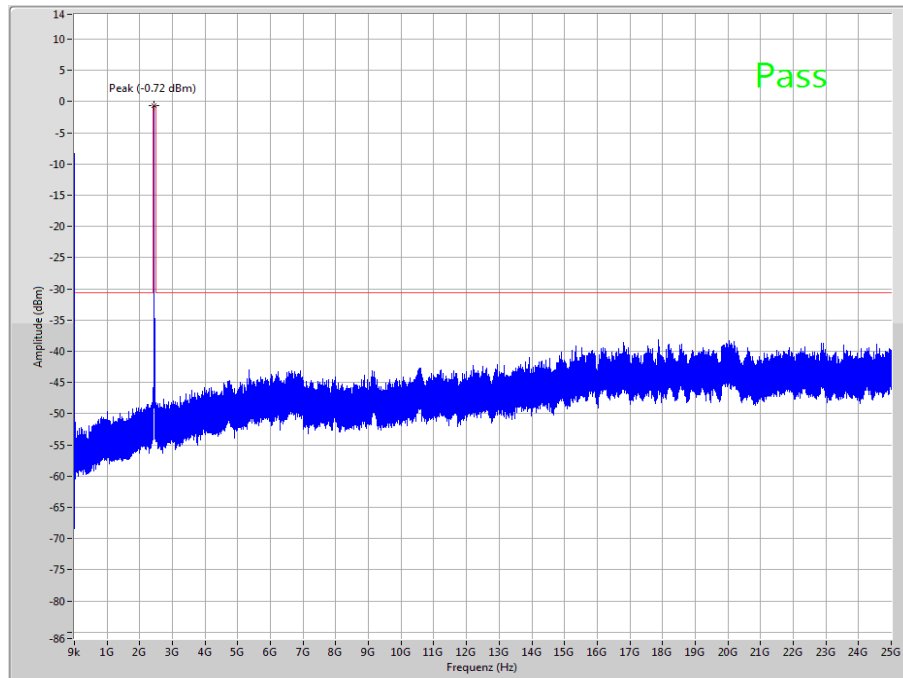
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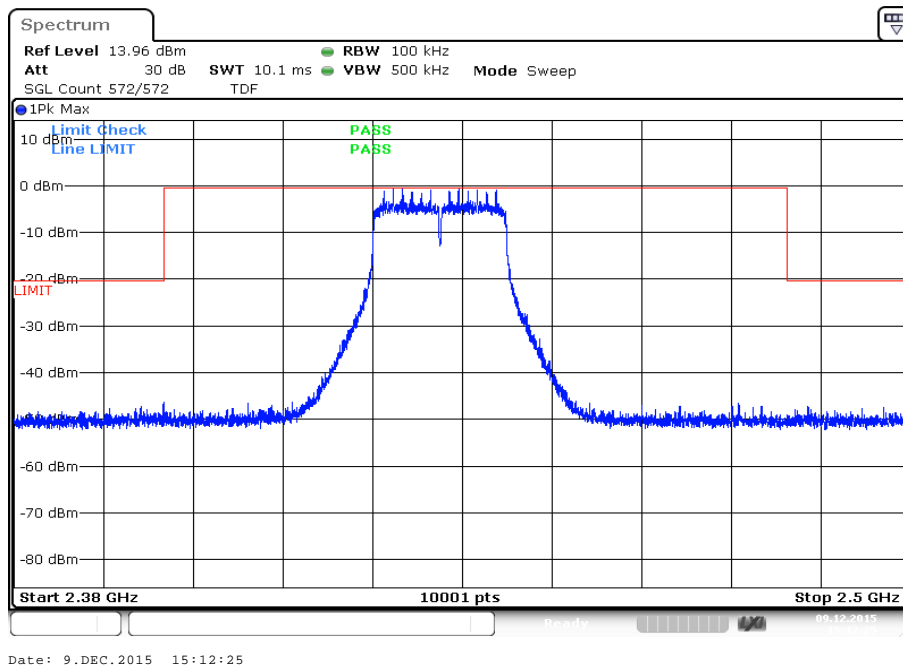
**Plot 3: 2422 MHz, up to 25 GHz**

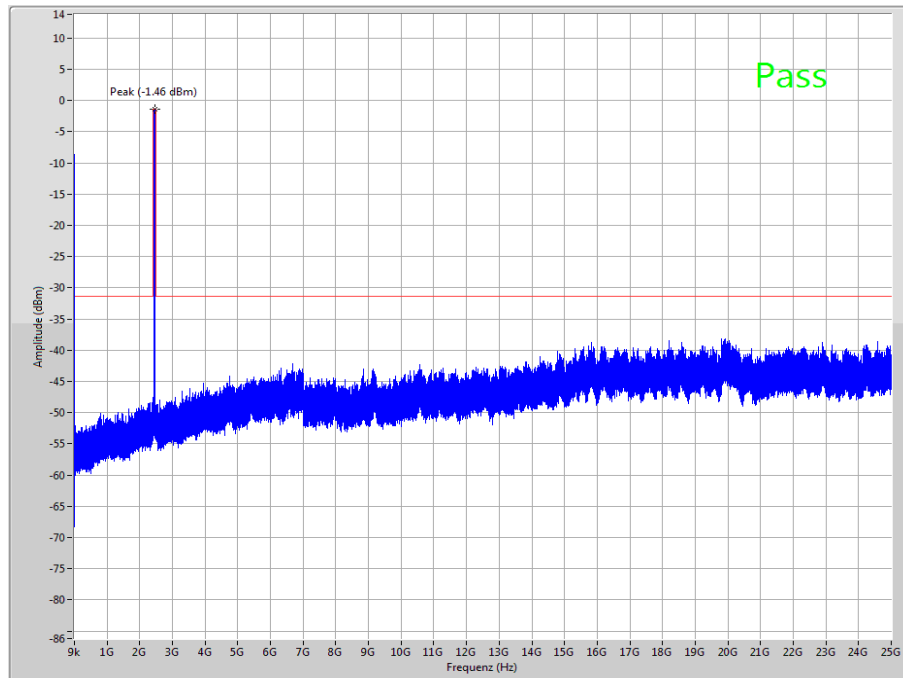
The peak at the beginning of the plot is the LO from the SA.

**Plot 4: 2422 MHz, zoomed carrier**

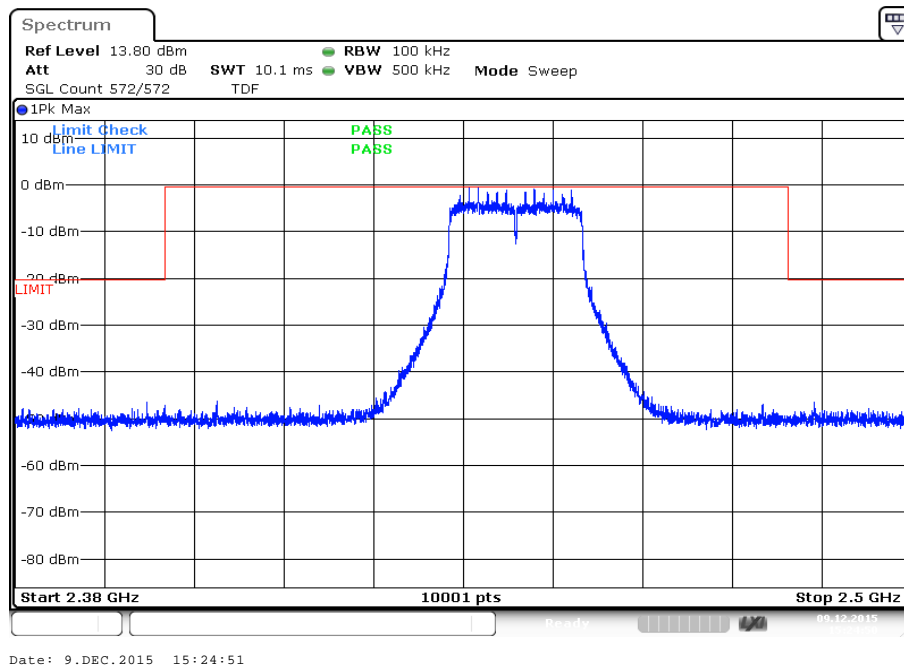
**Plot 5: 2437 MHz, up to 25 GHz**

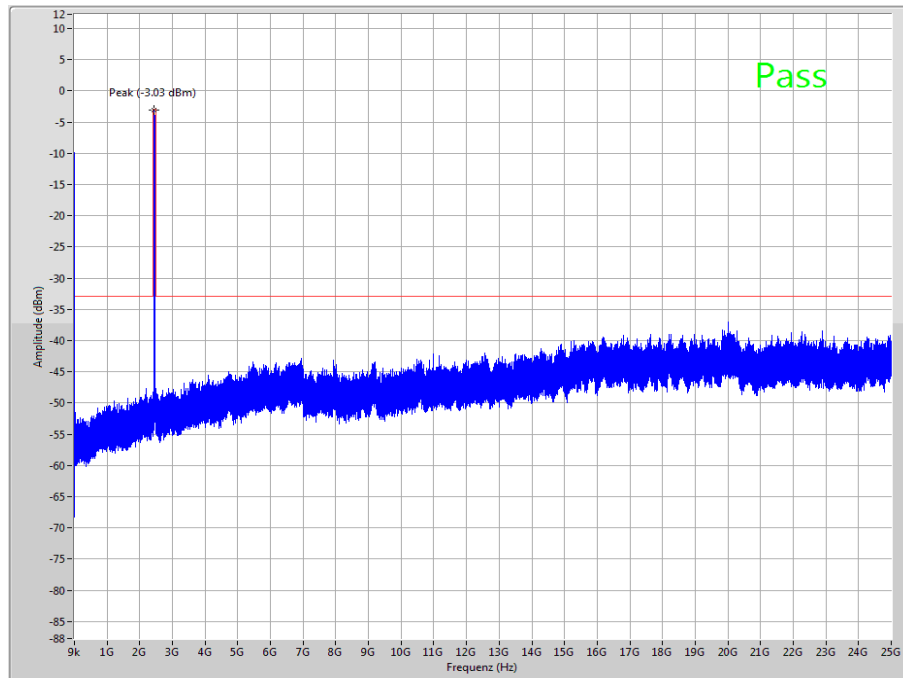
The peak at the beginning of the plot is the LO from the SA.

**Plot 6: 2437 MHz, zoomed carrier**

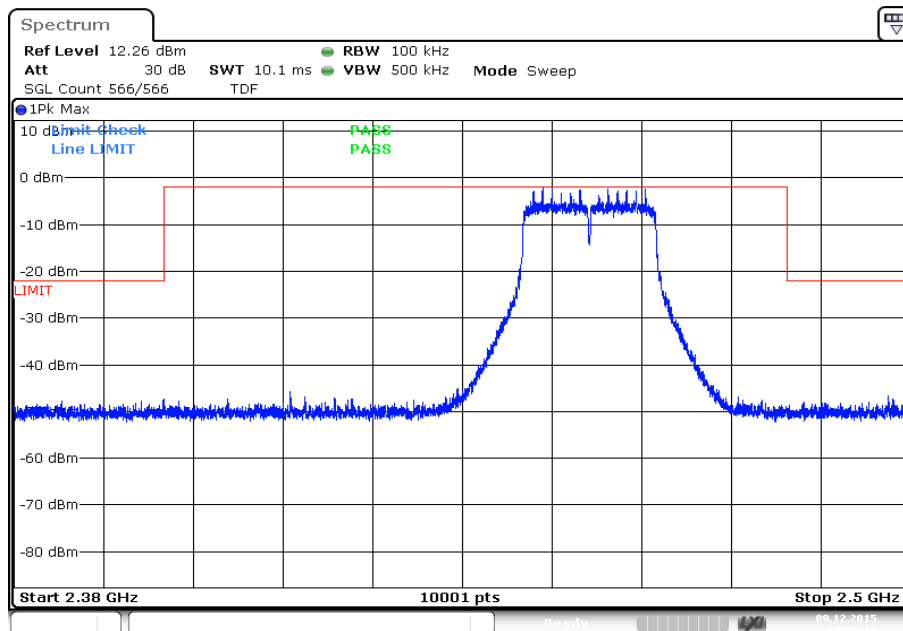
**Plot 7: 2447 MHz, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

**Plot 8: 2447 MHz, zoomed carrier**

**Plot 9:** 2457 MHz, up to 25 GHz

The peak at the beginning of the plot is the LO from the SA.

**Plot 10:** 2457 MHz, zoomed carrier

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