

8.4 Conducted Spurious Emissions

Test requirements and limit, §15.247(d)& RSS-210[A8.5]

§15.247(d) specifies that in any 100 kHz bandwidth outside of the authorized frequency band, the power shall be attenuated according to the following conditions:

If the **peak output power procedure** is used to measure the fundamental emission power to demonstrate compliance to **15.247(b)(3)** requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated **by at least 20dB** relative to the maximum measured in-band peak PSD level.

If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to **15.247(b)(3)** requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured inband average PSD level.

In either case, attenuation to levels below the general emission limits specified in **§15.209(a)** is not required.

■ TEST CONFIGURATION

Refer to the APPENDIX I.

■ TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer.

- Measurement Procedure 1 – Reference Level

1. Set instrument center frequency to DTS channel center frequency.
2. Set the span to ≥ 1.5 times the DTS bandwidth.
3. Set the RBW = 100 kHz.
4. Set the VBW $\geq 3 \times$ RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum PSD level

- Measurement Procedure 2 - Unwanted Emissions

1. Set the center frequency and span to encompass frequency range to be measured.
2. Set the RBW = **100 kHz.** (Actual 1 MHz, See below note)
3. Set the VBW $\geq 3 \times$ RBW. (Actual 3 MHz, See below note)
4. Detector = **peak**.
5. Ensure that the number of measurement points \geq span/RBW
6. Sweep time = **auto couple**.
7. Trace mode = **max hold**.
8. **Allow the trace to stabilize** (this may take some time, depending on the extent of the span).
9. Use the peak marker function to determine the maximum amplitude level.

Note : The conducted spurious emission was tested each ranges were set as below.

Frequency range : 9KHz ~ 30MHz

RBW= 100kHz, VBW= 300 kHz, SWEEP TIME = AUTO, DETECTOR = PEAK, TRACE = MAX HOLD, Sweepoint : 40001

Frequency range : 30MHz~10GHz, 10GHz~26GHz

RBW= 1MHz, VBW= 3MHz, SWEEP TIME = AUTO, DETECTOR = PEAK, TRACE = MAX HOLD, Sweepoint : 40001

If the emission level with above setting was close to the limit (ie, less than 3 dB margin) then zoom scan is required using RBW = 100 KHz, VBW = 300KHz, SAPN = 100 MHz and BINS = 2001 to get accurate emission level within 100 KHz BW.

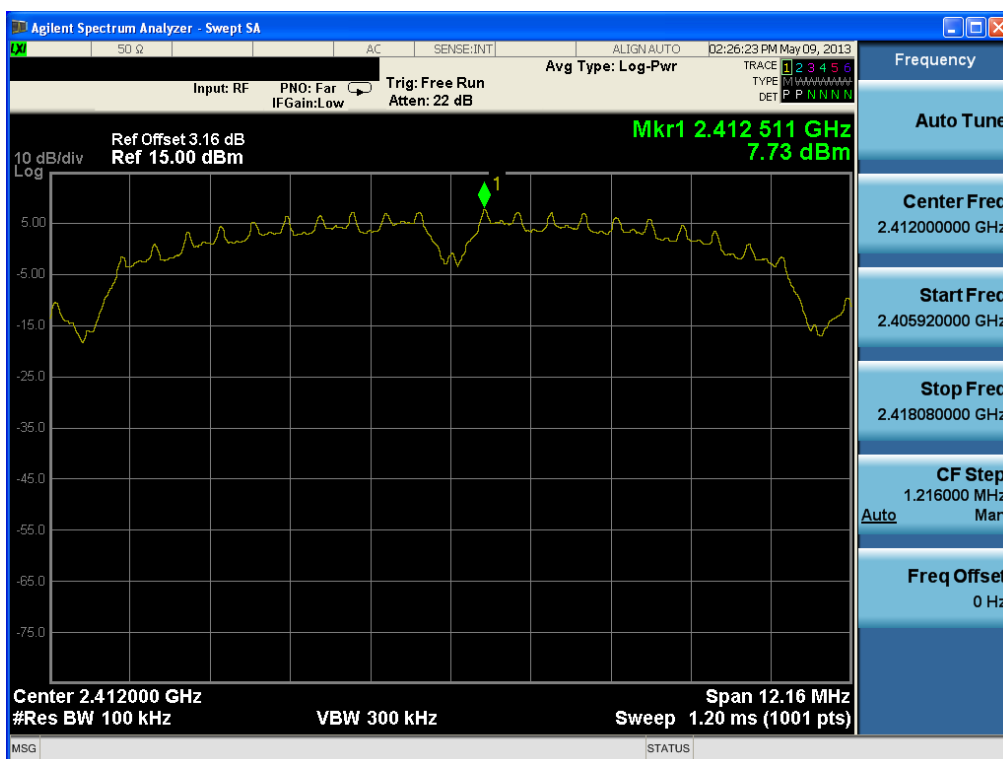
Also the path loss for conducted measurement setup was used as described on the Appendix I of this test report.

■ TEST RESULTS: **Comply**

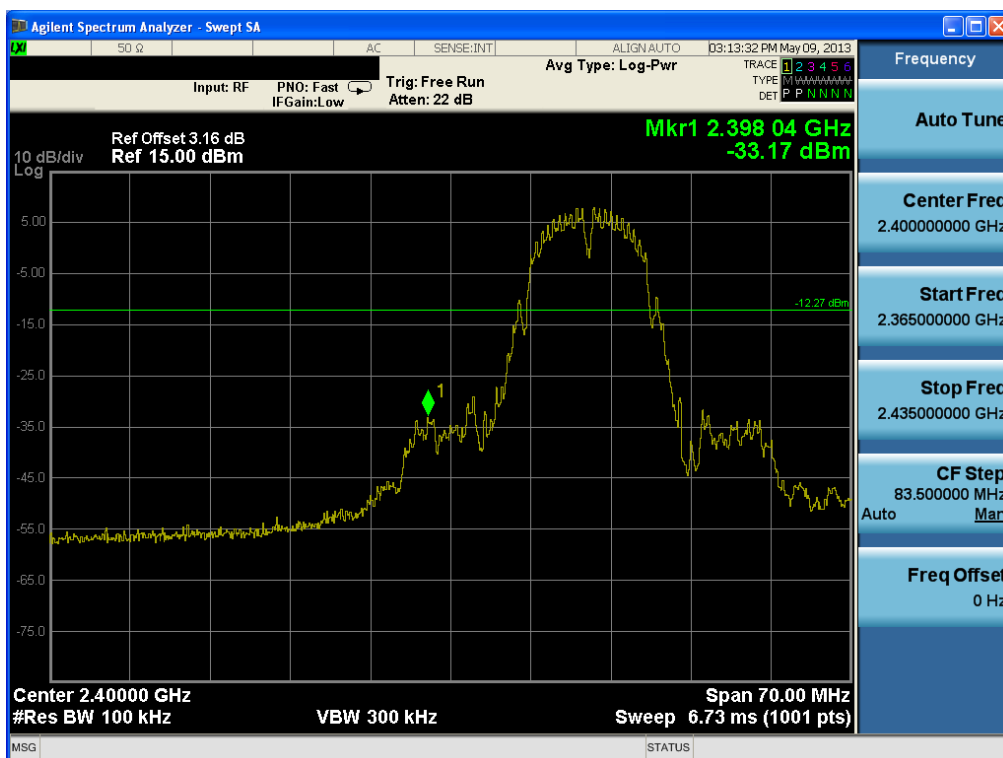
■ RESULT PLOTS

Test Mode: Chain 0 & 802.11b & 1Mbps & 2412MHz

Reference



Low Band-edge



Agilent Spectrum Analyzer - Swept SA

50 Ω DC SENSE:INT ALIGN: AUTO 04:52:36 PM May 09, 2013

Input: RF PNO: Fast IF Gain: Low Trig: Free Run Atten: 24 dB Avg Type: Log-Pwr

TRACE 1 2 3 4 5 6
TYPE N N N N N N
DET P P N N N N

Ref Offset 2.95 dB
Ref 15.00 dBm

10 dB/div
Log

Mkr1 287.2 kHz
-59.550 dBm

-12.27 dBm

1

Start 9 kHz
#Res BW 100 kHz
VBW 300 kHz

Stop 30.00 MHz
Sweep 5.33 ms (40001 pts)

MSG STATUS DC Coupled

Frequency

Auto Tune

Center Freq
15.004500 MHz

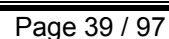
Start Freq
9.000 kHz

Stop Freq
30.000000 MHz

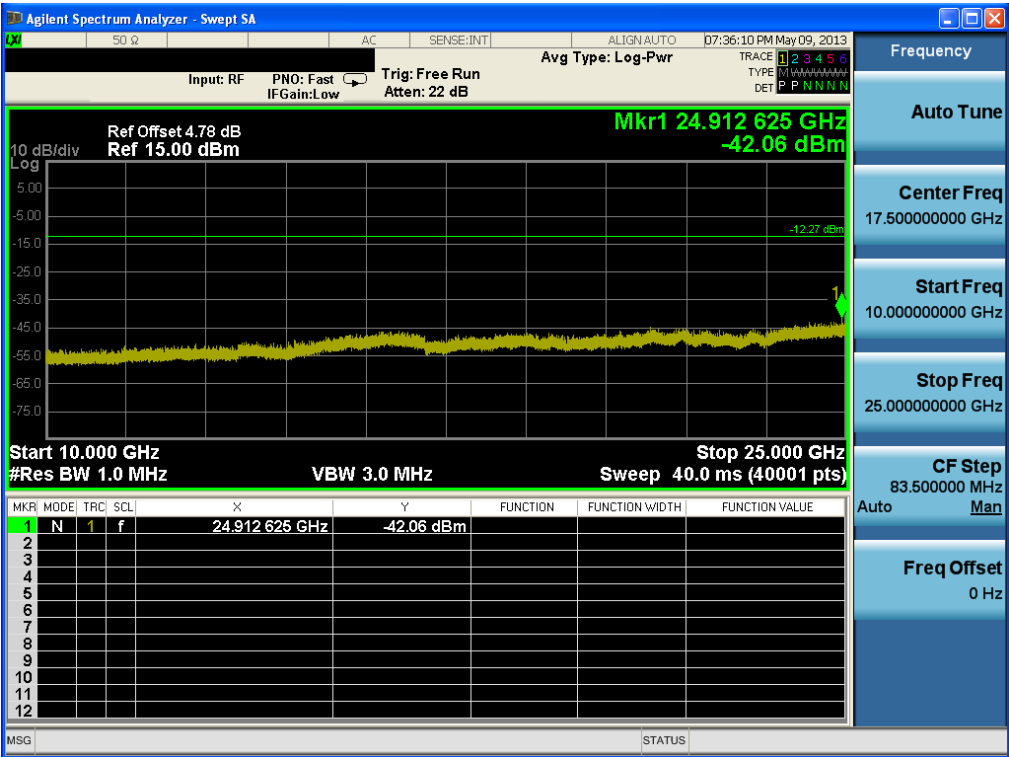
CF Step
83.500000 MHz

Auto Mar

Freq Offset
0 Hz

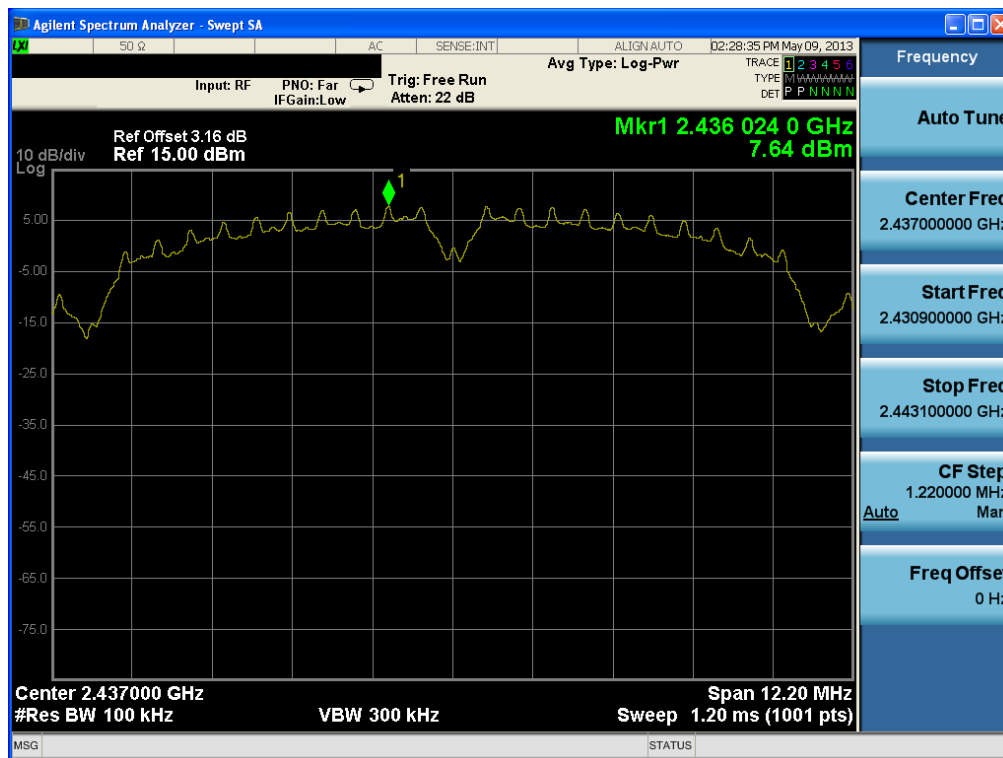


Conducted Spurious Emissions

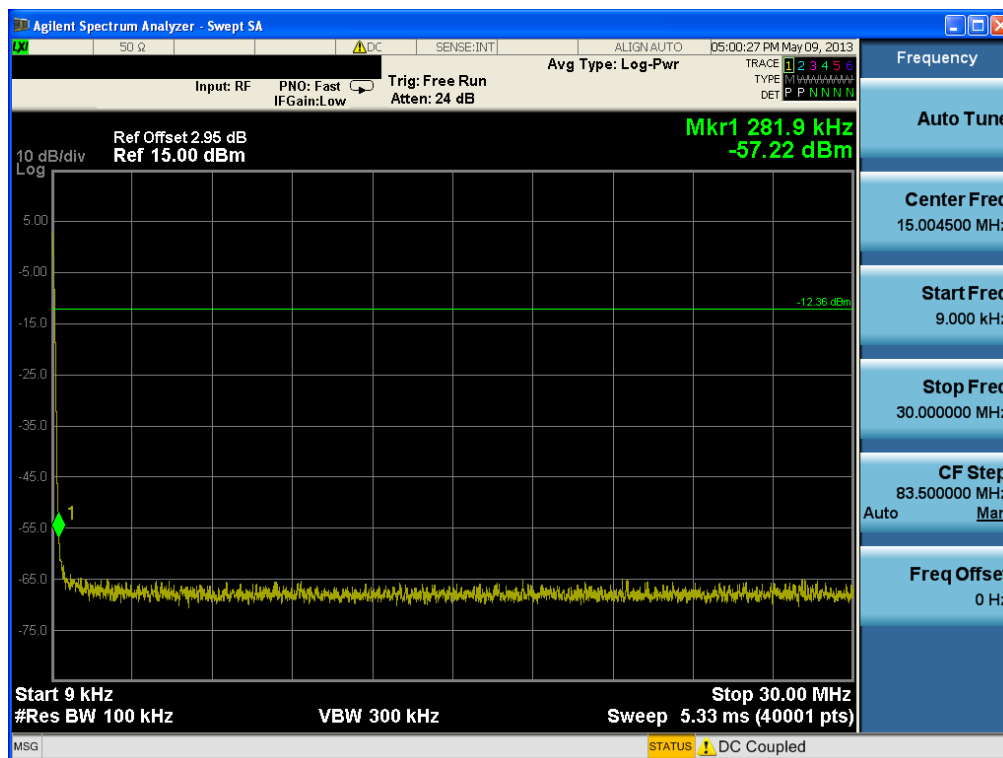


Test Mode: Chain 0 & 802.11b & 1Mbps & 2437MHz

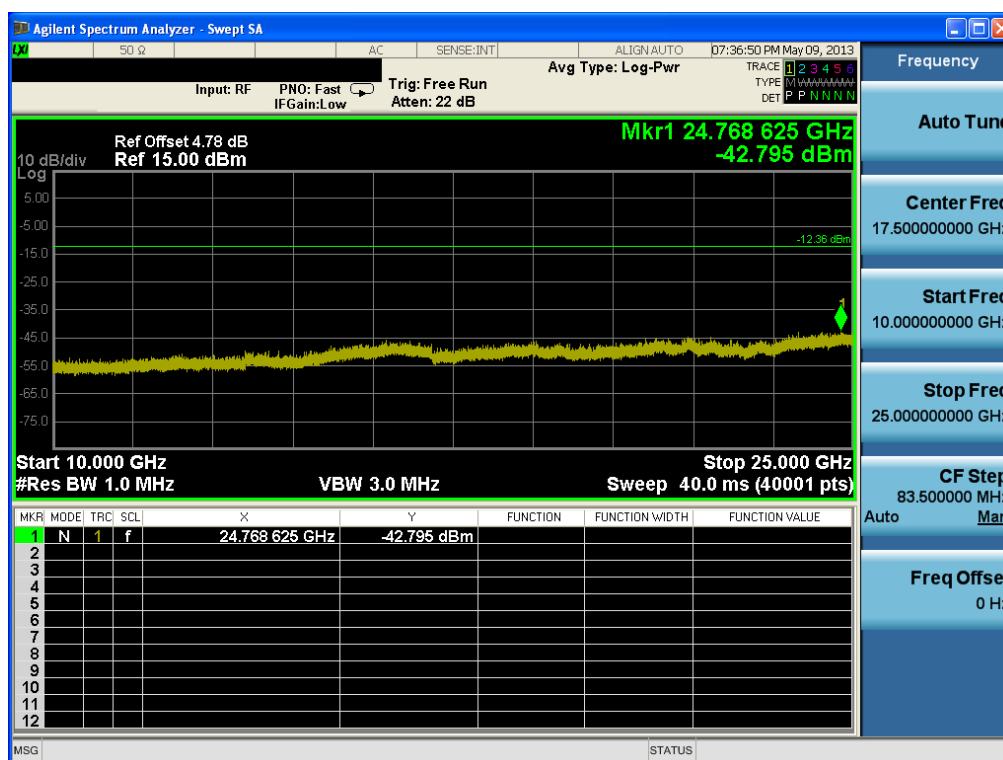
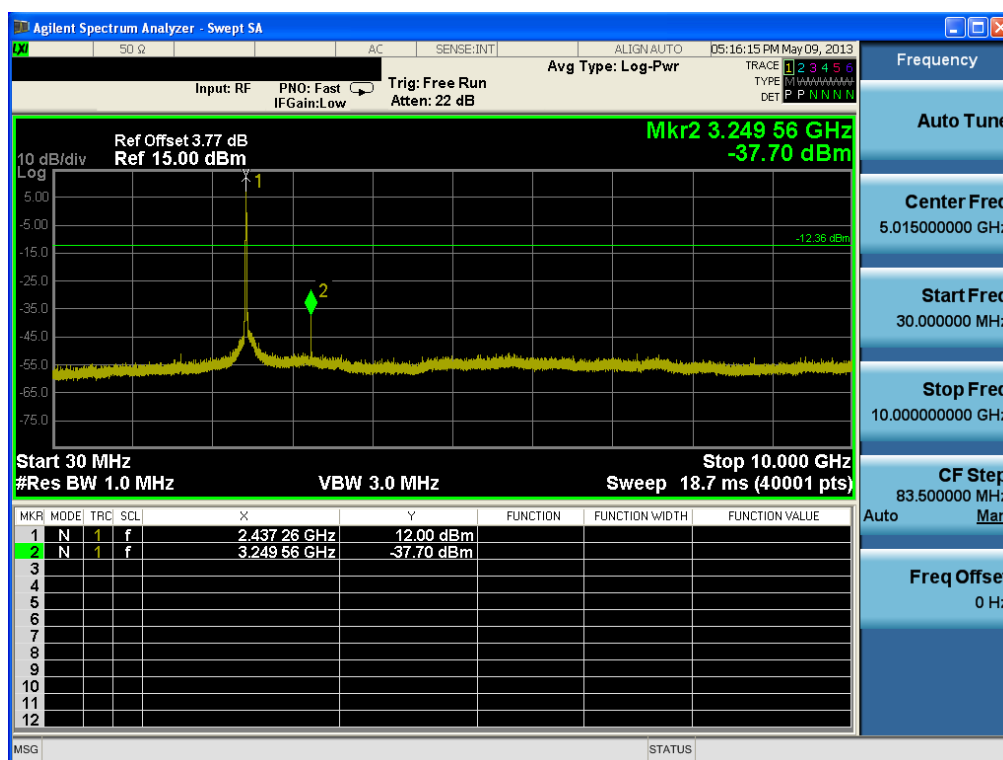
Reference



Conducted Spurious Emissions

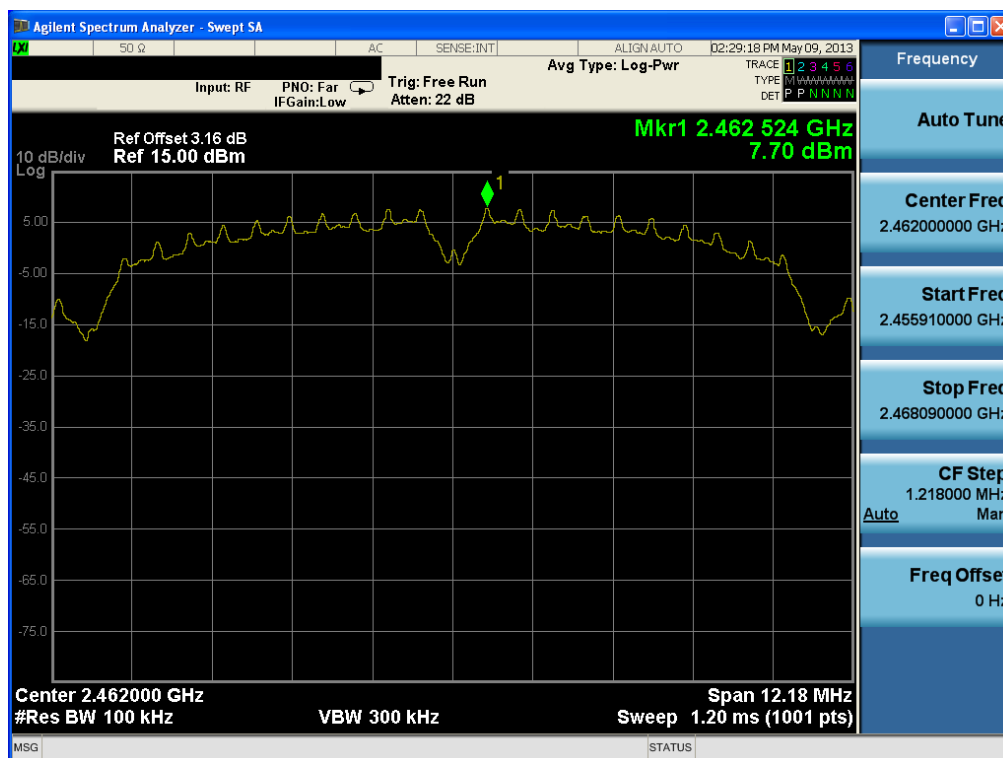


Conducted Spurious Emissions

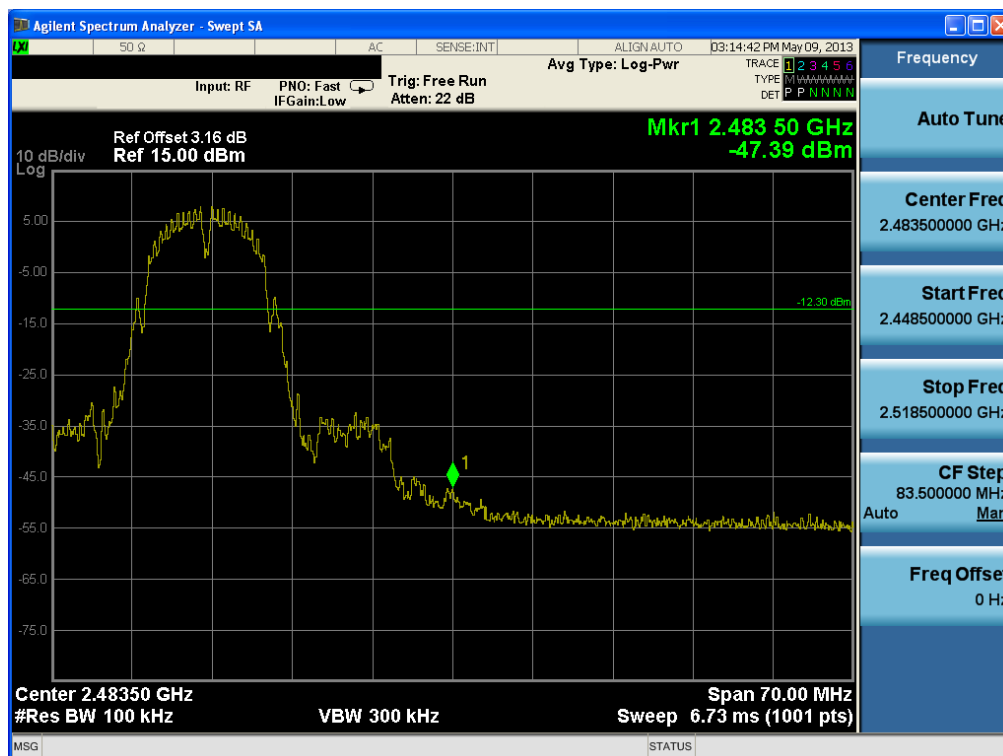


Test Mode: Chain 0 & 802.11b & 1Mbps & 2462MHz

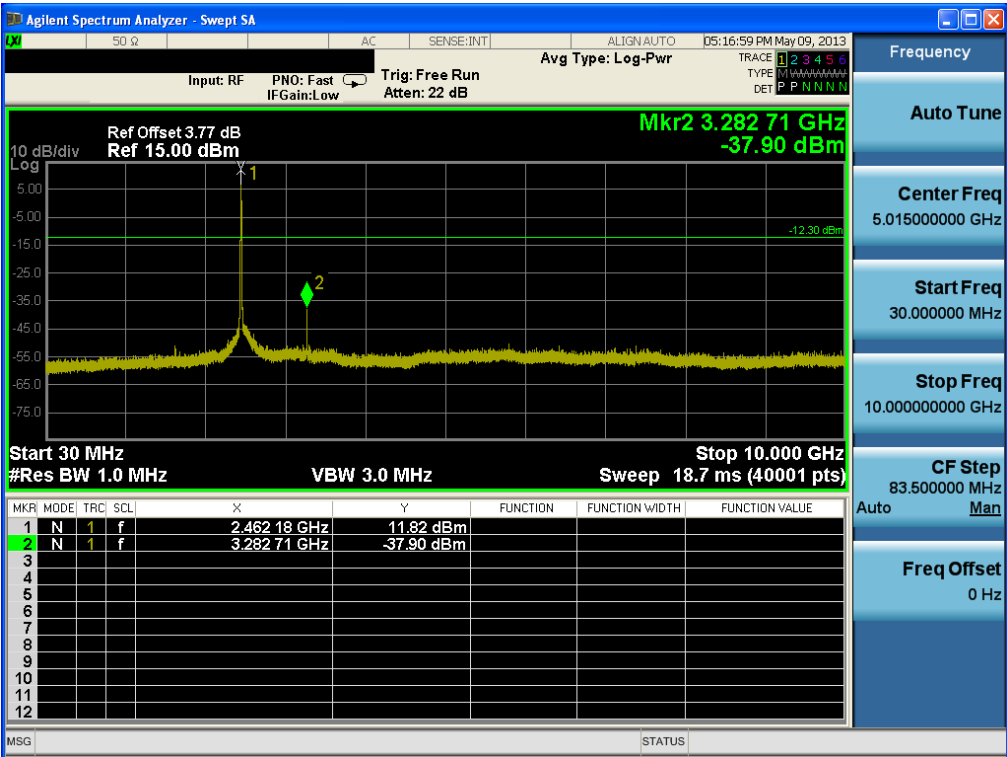
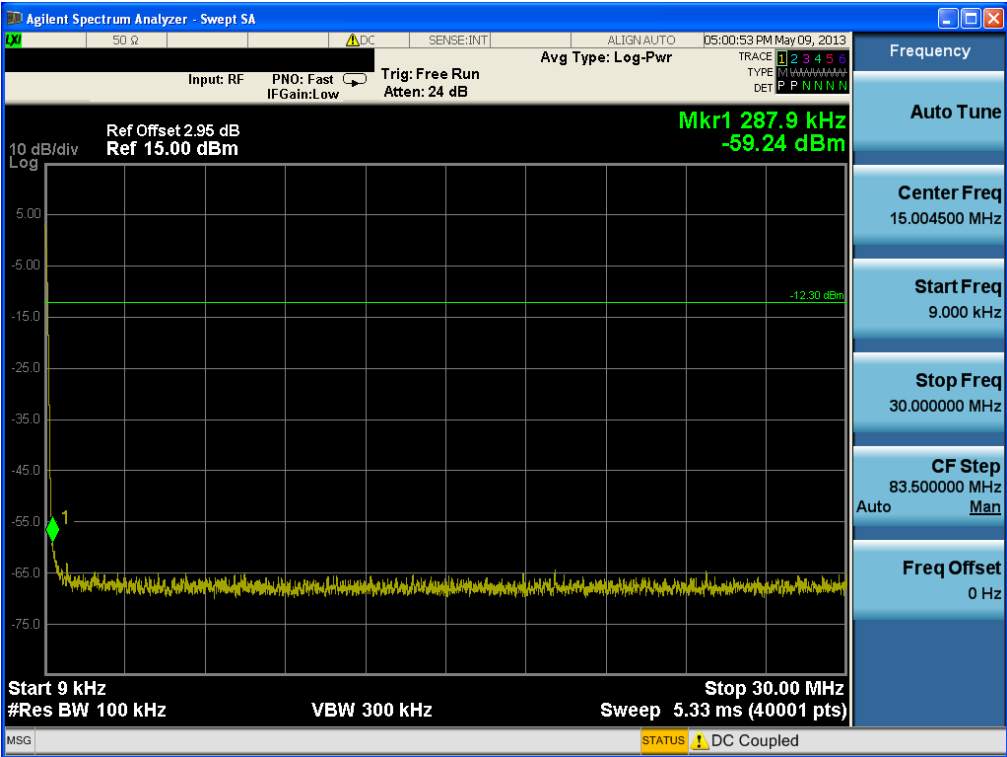
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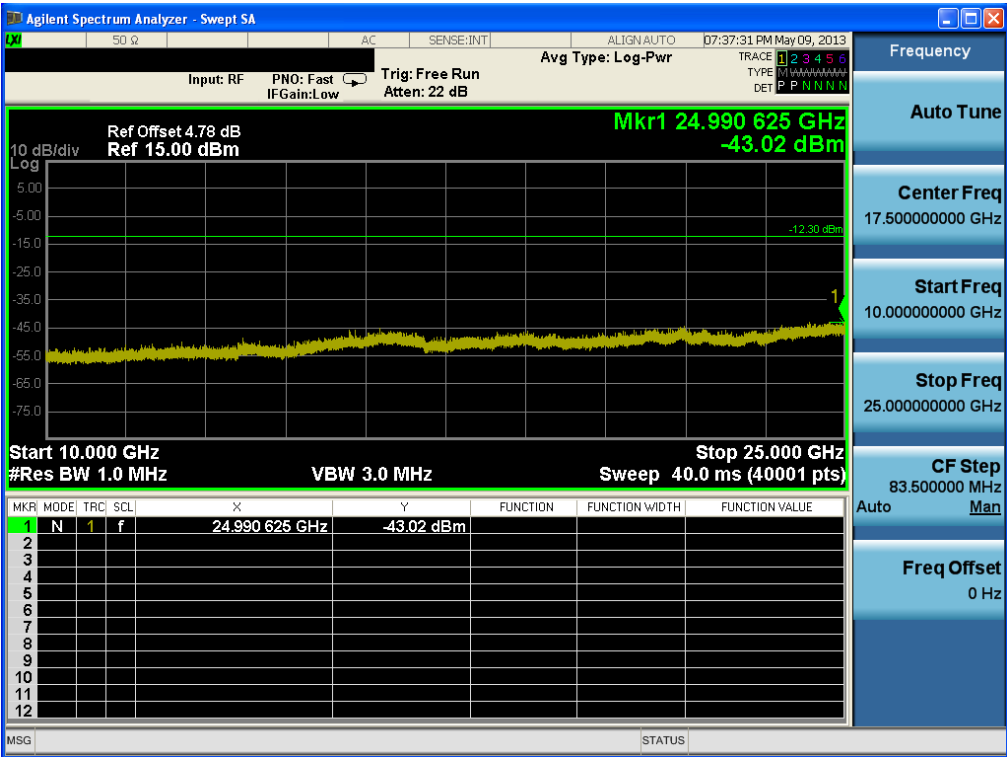
Low Band-edge



Conducted Spurious Emissions

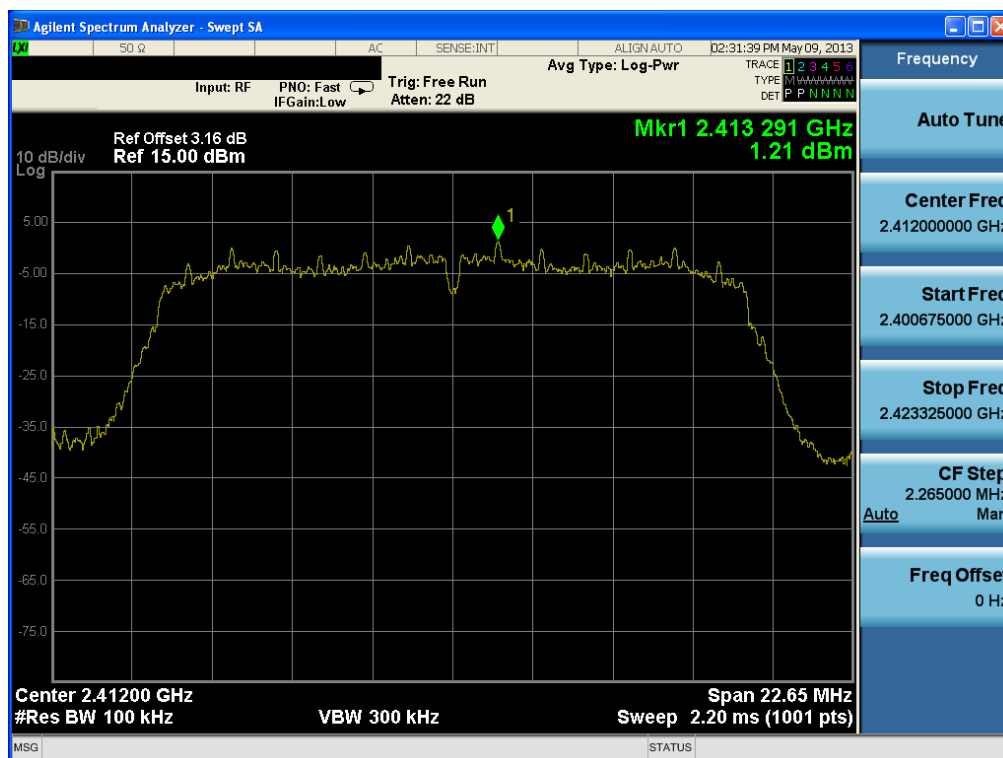


Conducted Spurious Emissions

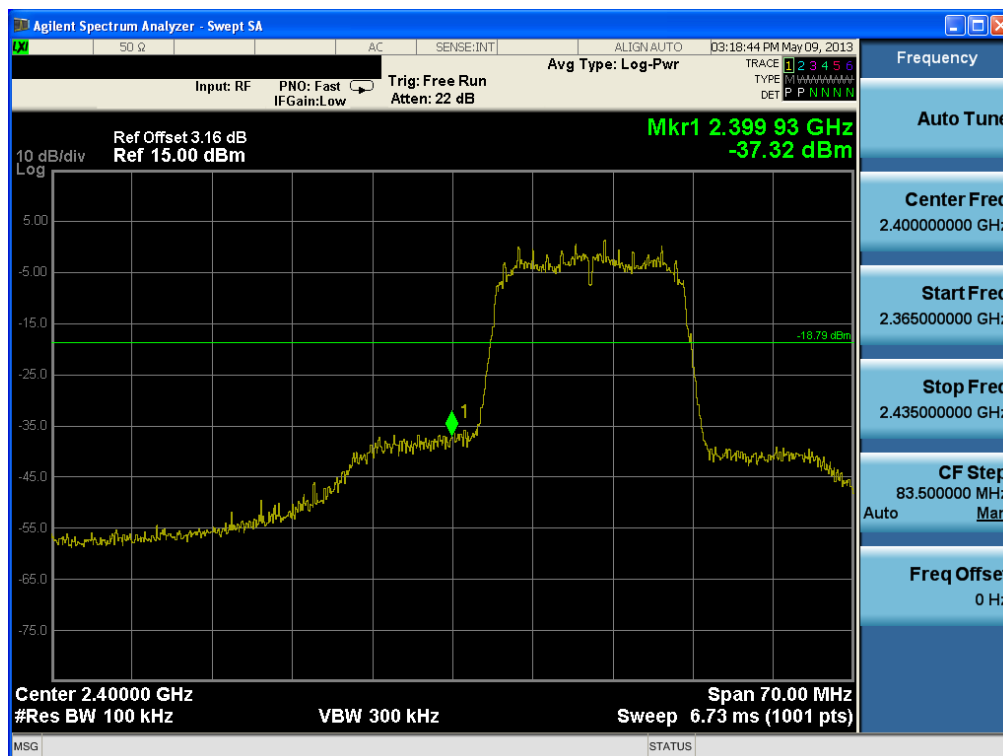


Test Mode: Chain 0 & 802.11g & 6Mbps & 2412MHz

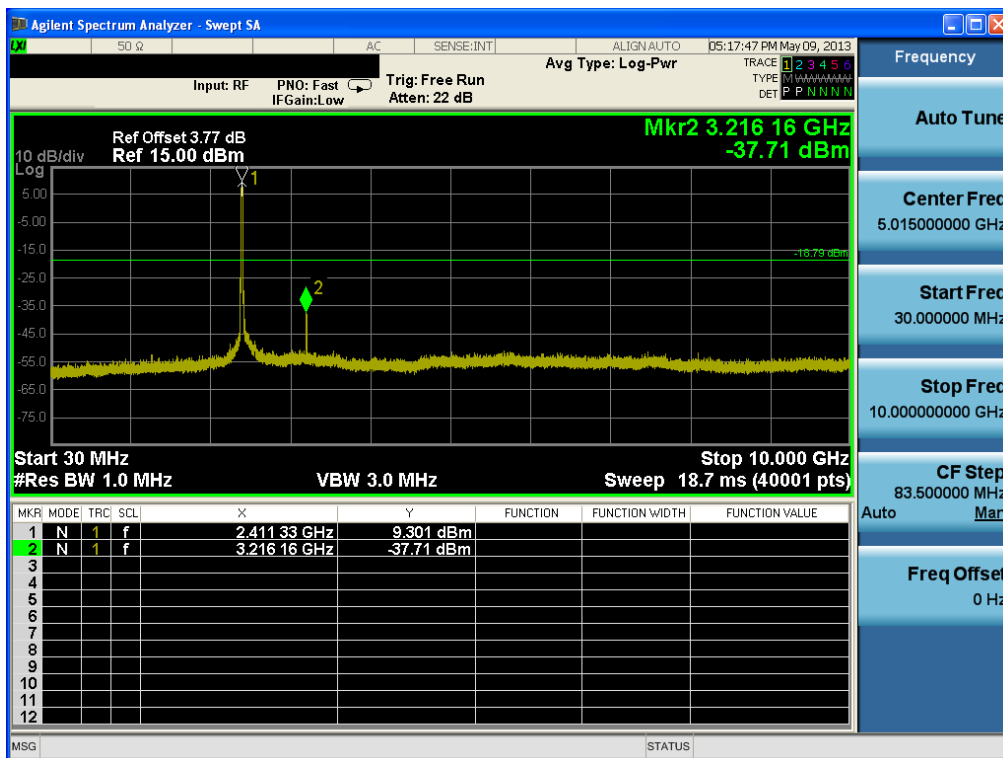
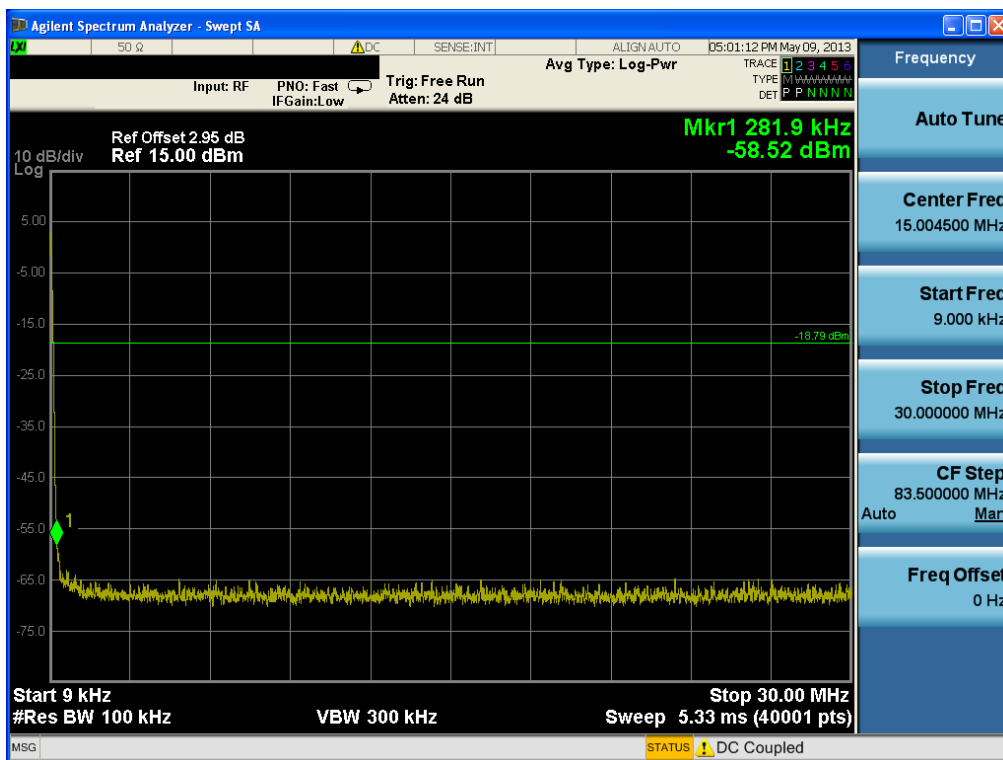
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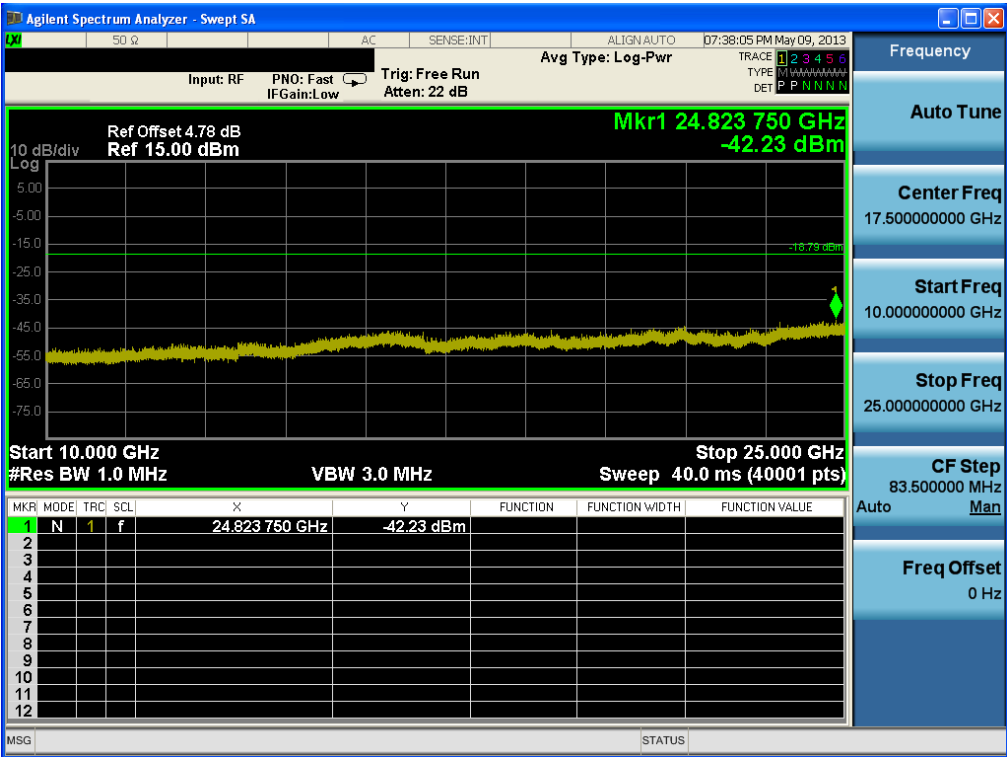
Low Band-edge



Conducted Spurious Emissions

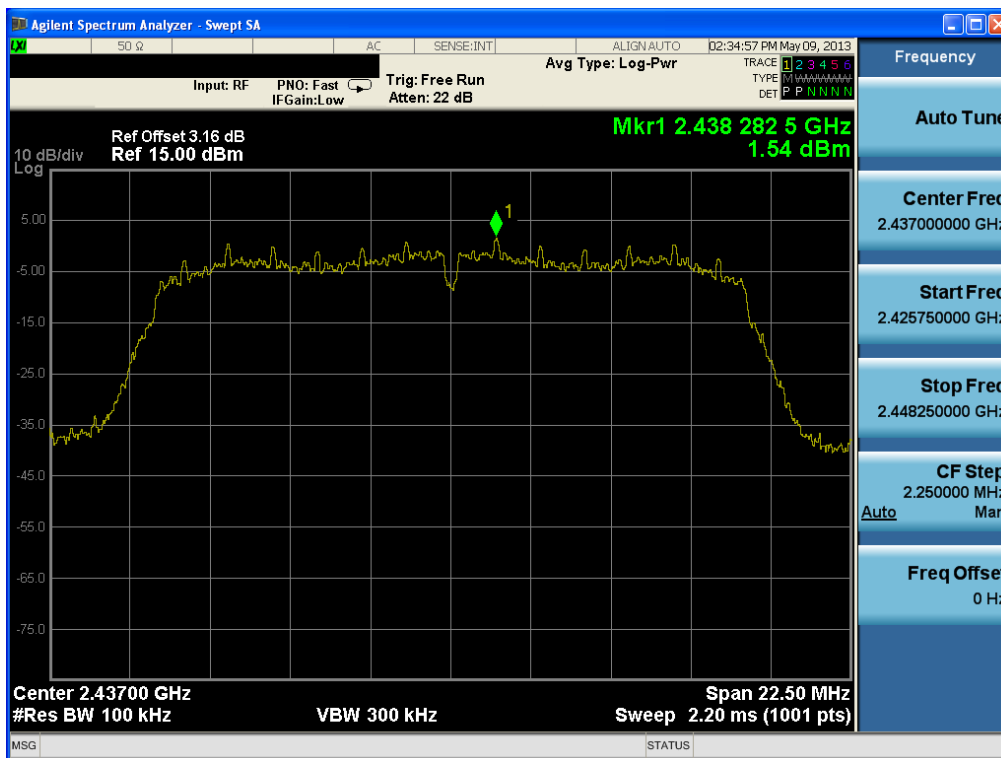


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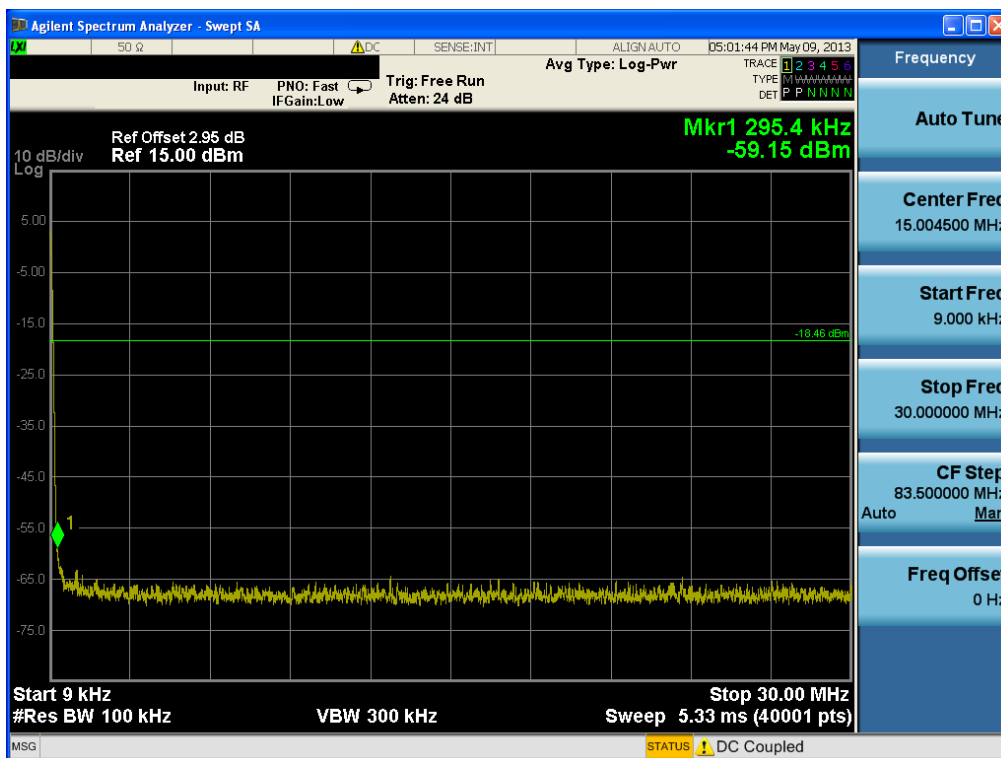


Test Mode: Chain 0 & 802.11g & 6Mbps & 2437MHz

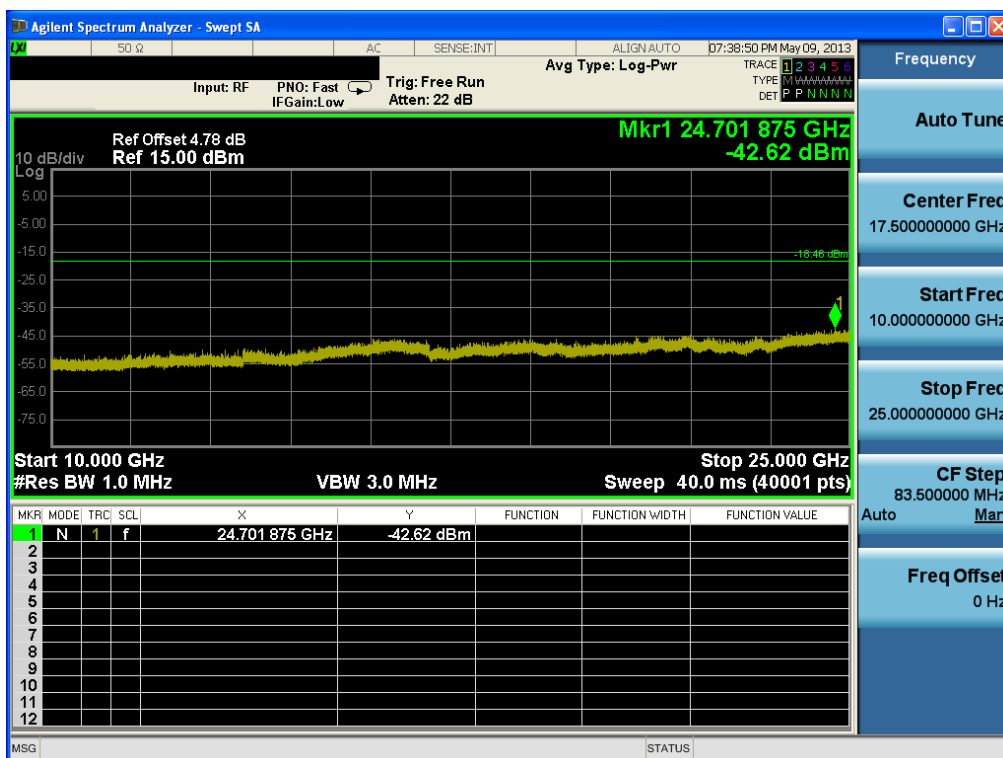
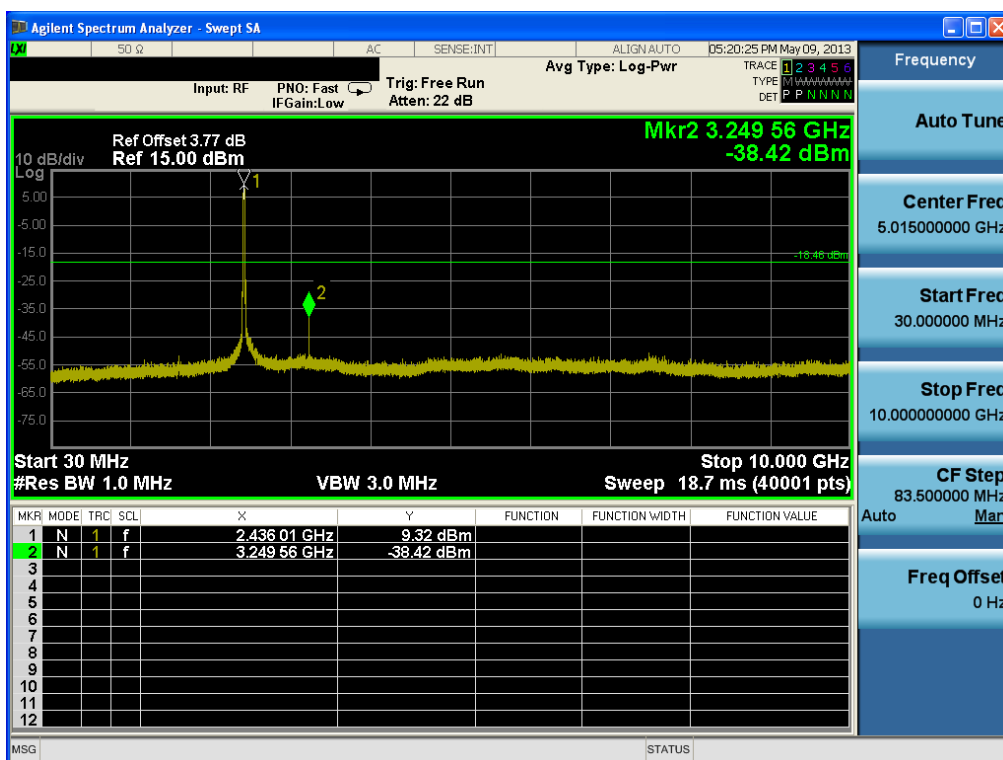
Reference



Conducted Spurious Emissions

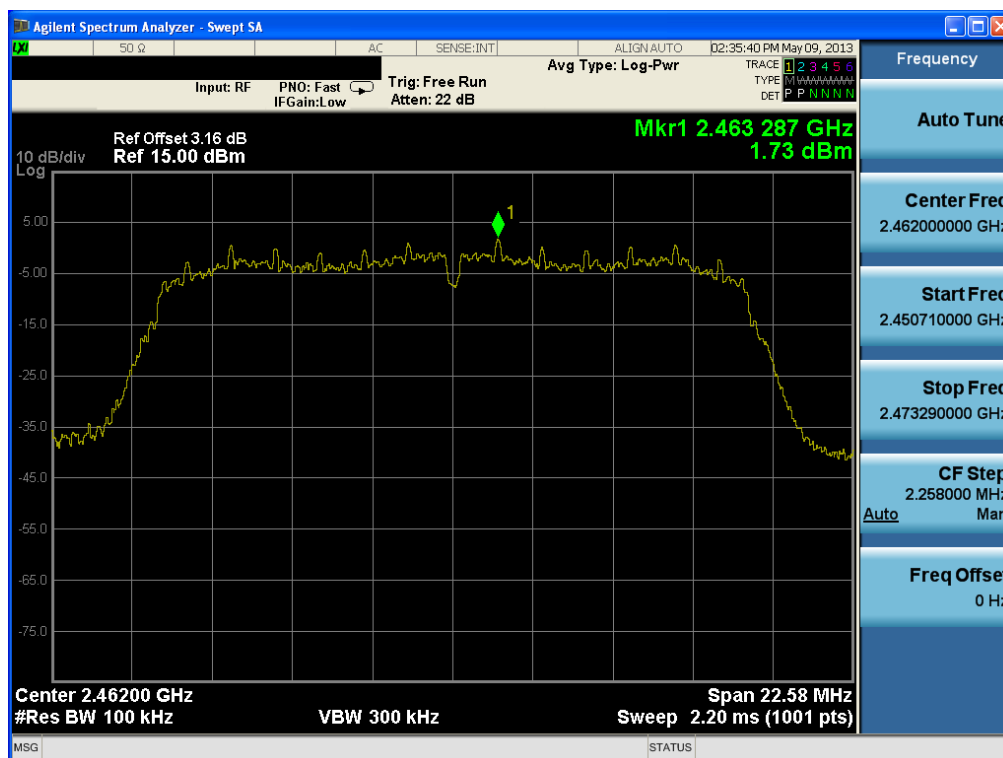


Conducted Spurious Emissions

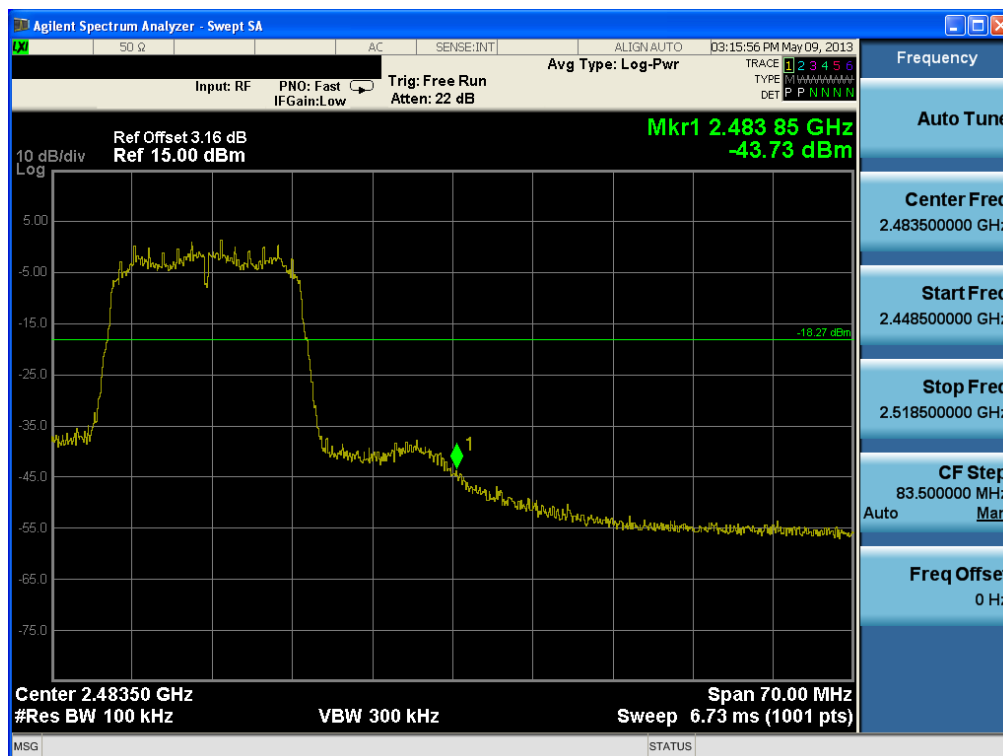


Test Mode: Chain 0 & 802.11g & 6Mbps & 2462MHz

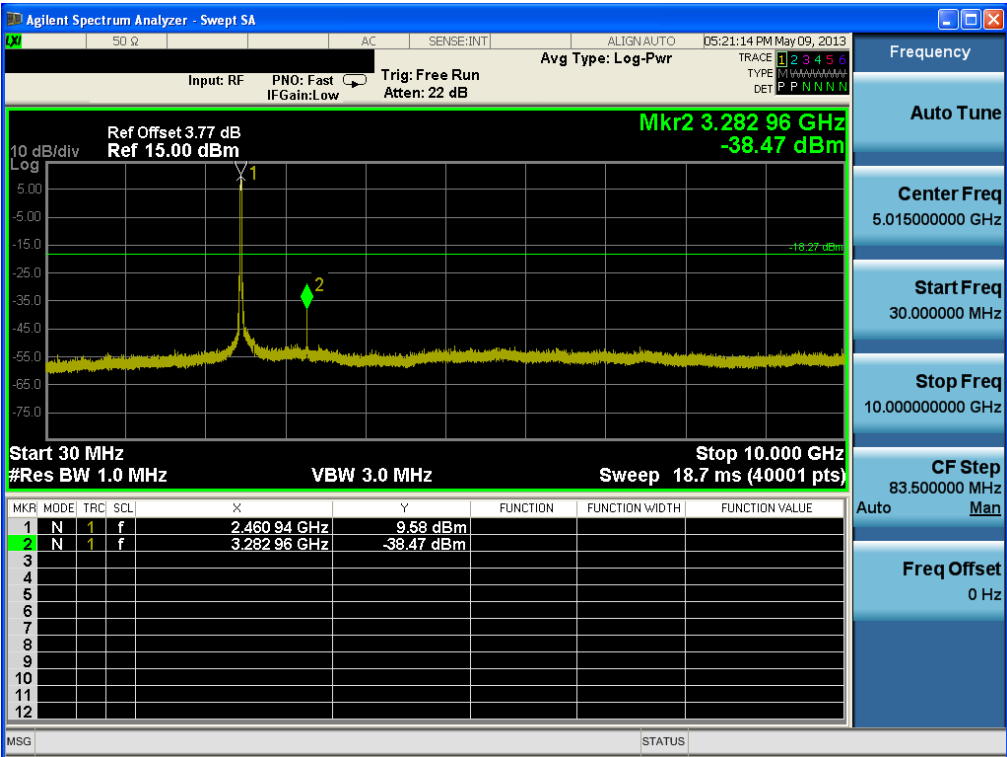
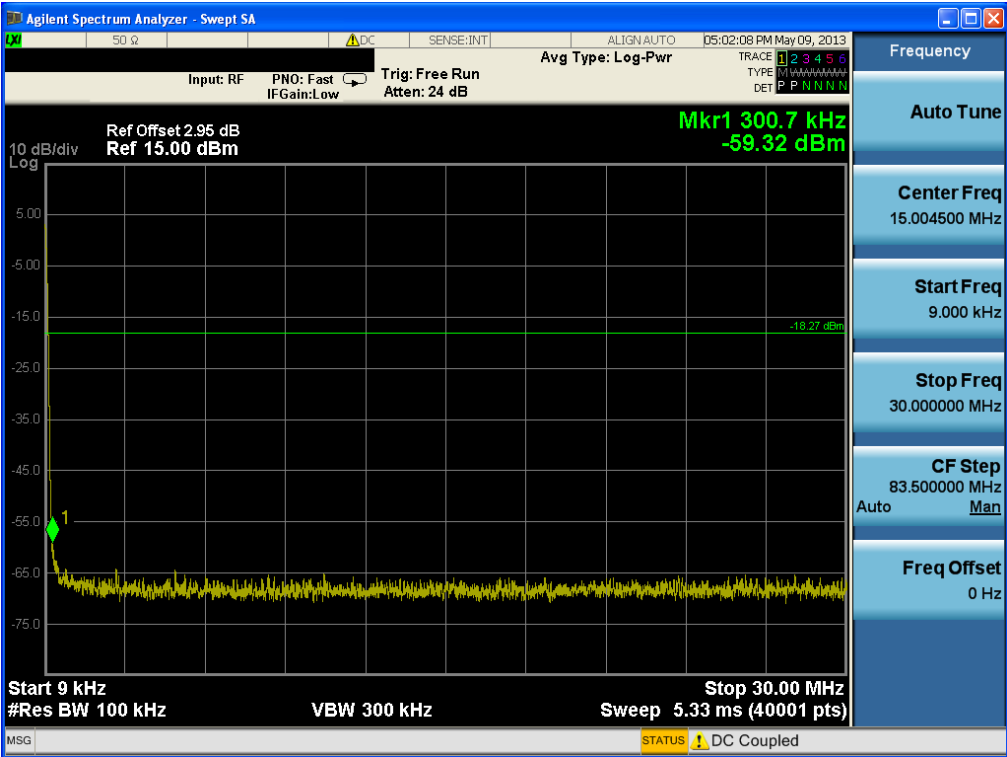
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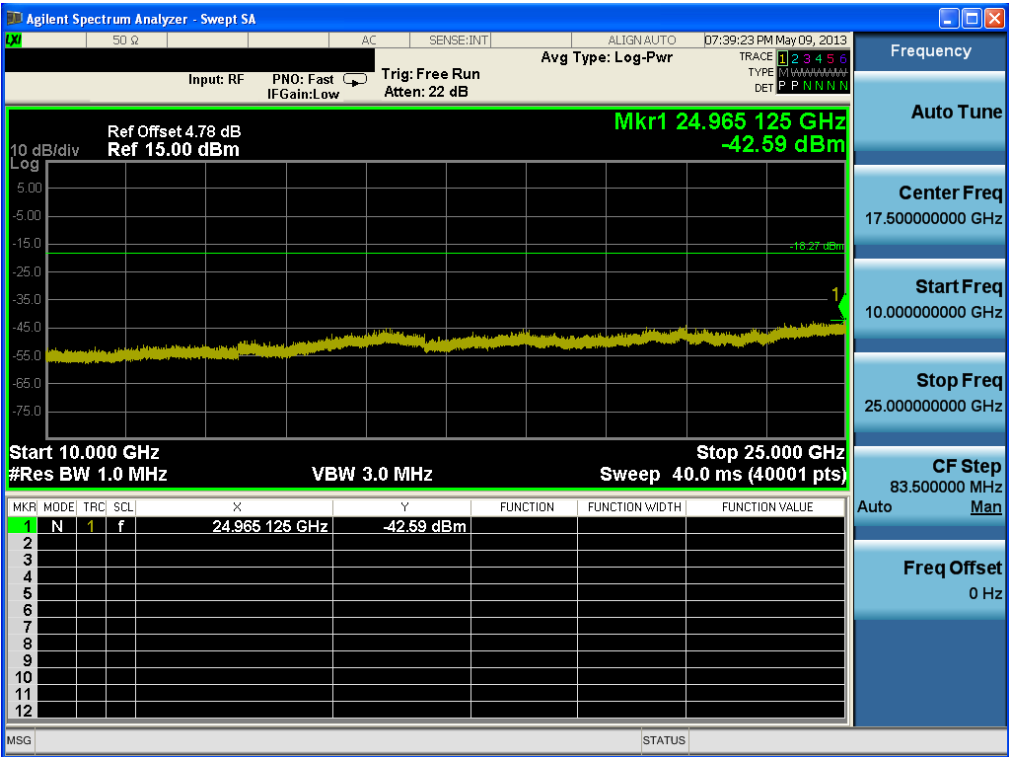
Low Band-edge



Conducted Spurious Emissions

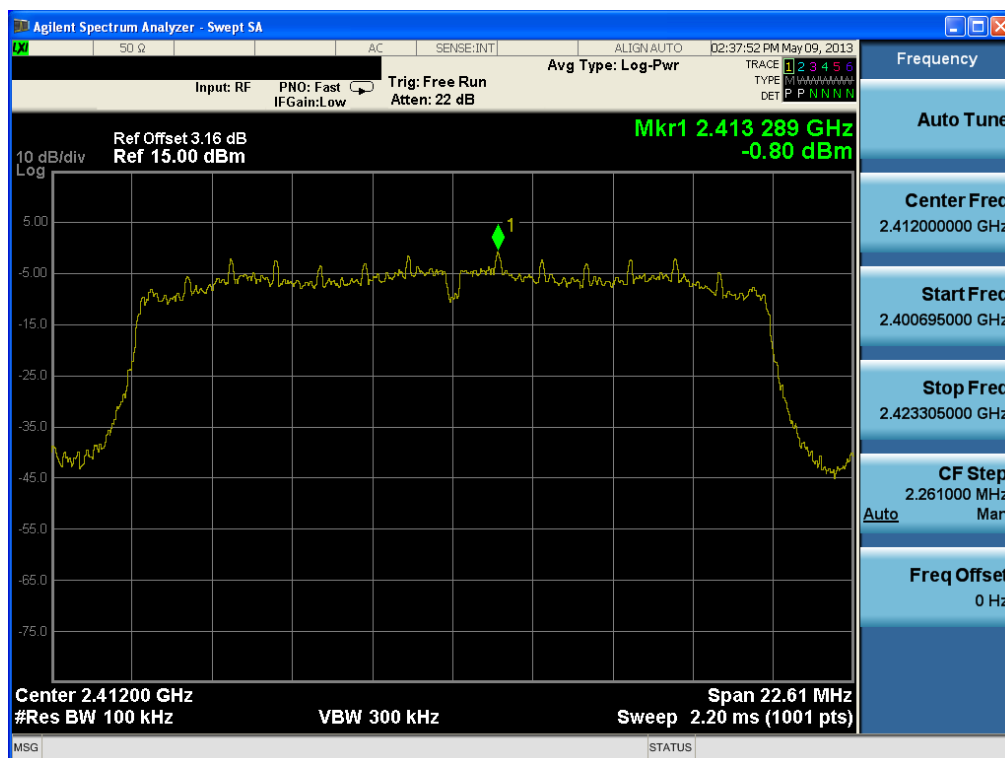


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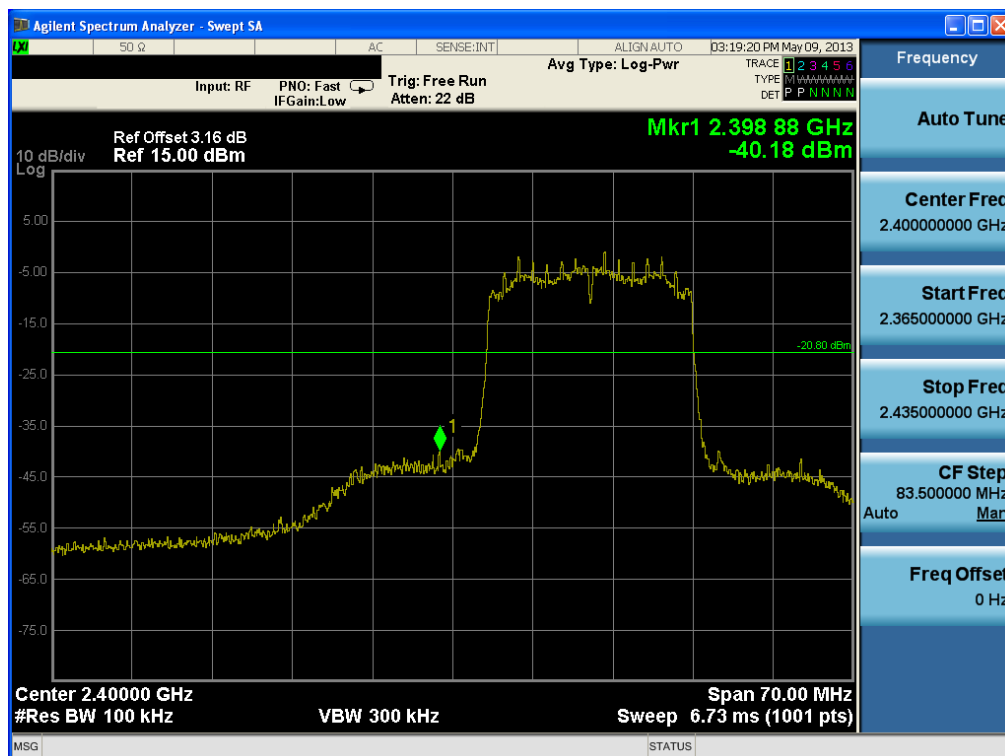


Test Mode: Chain 0 & 802.11n HT20 & MCS 8 & 2412MHz

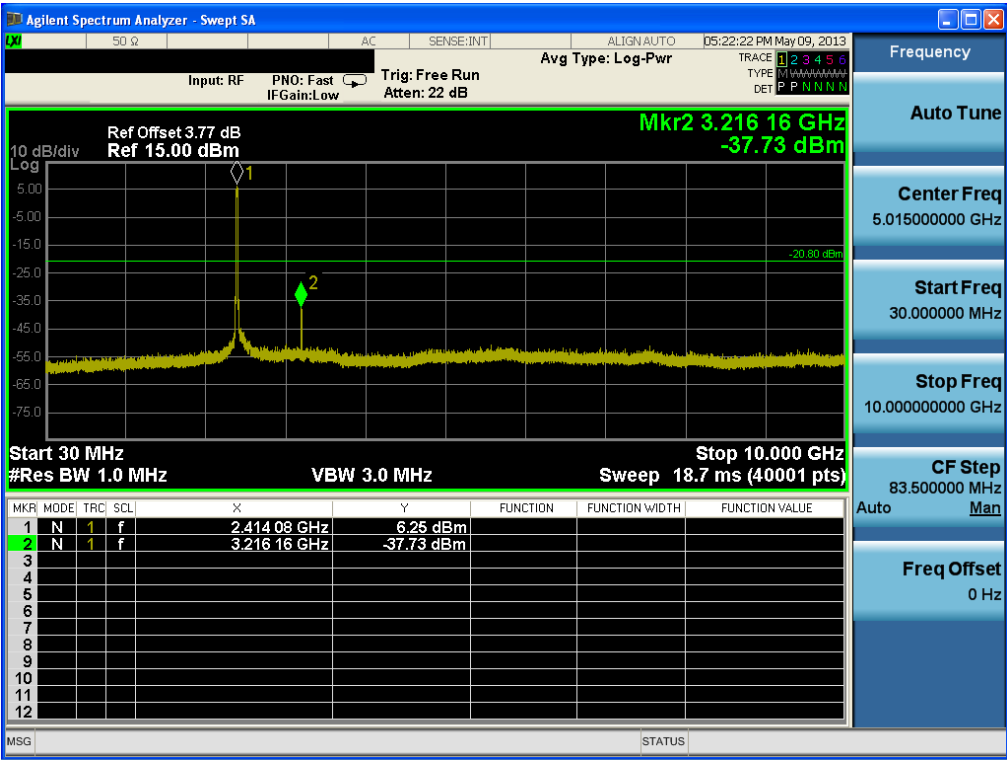
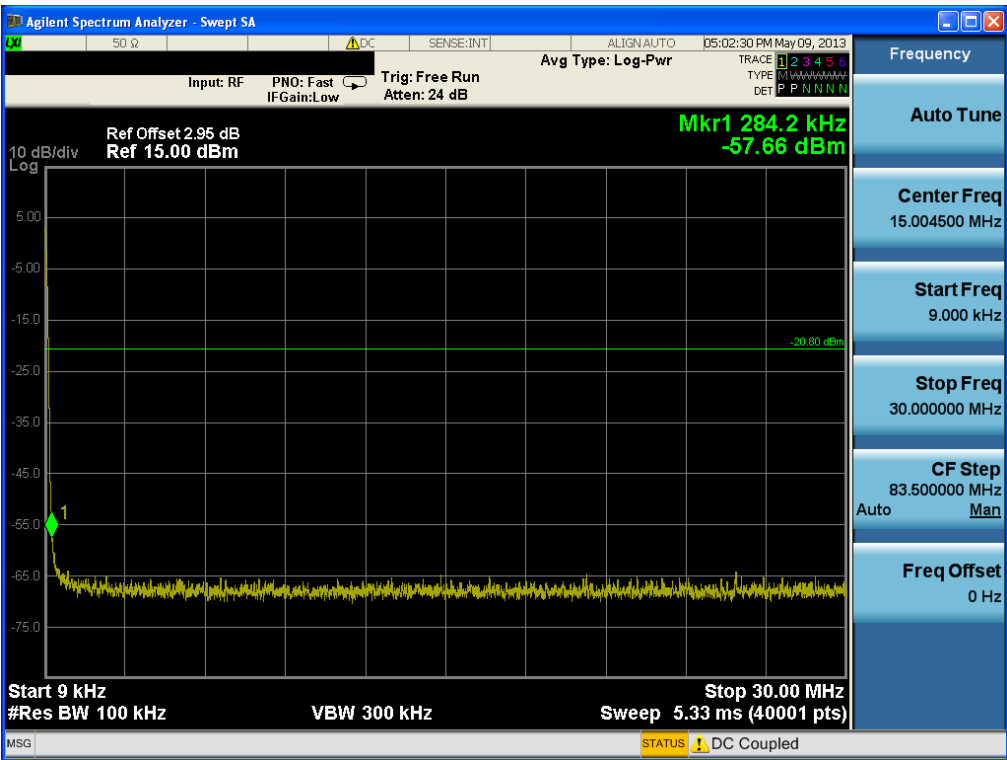
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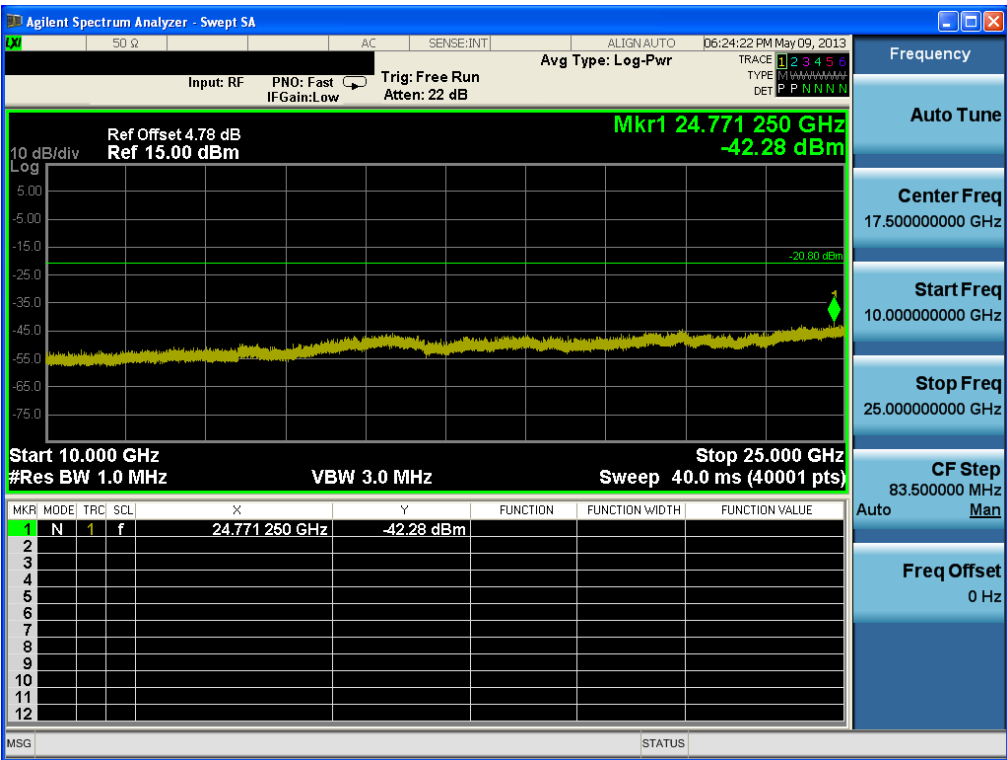
Low Band-edge



Conducted Spurious Emissions

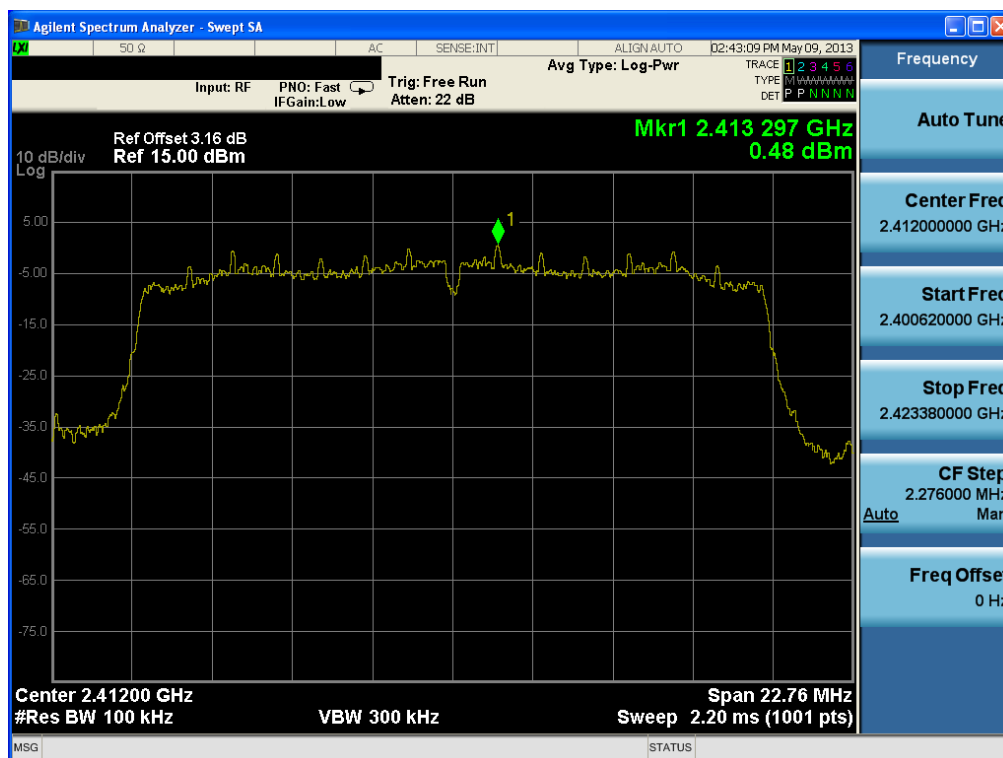


Conducted Spurious Emissions

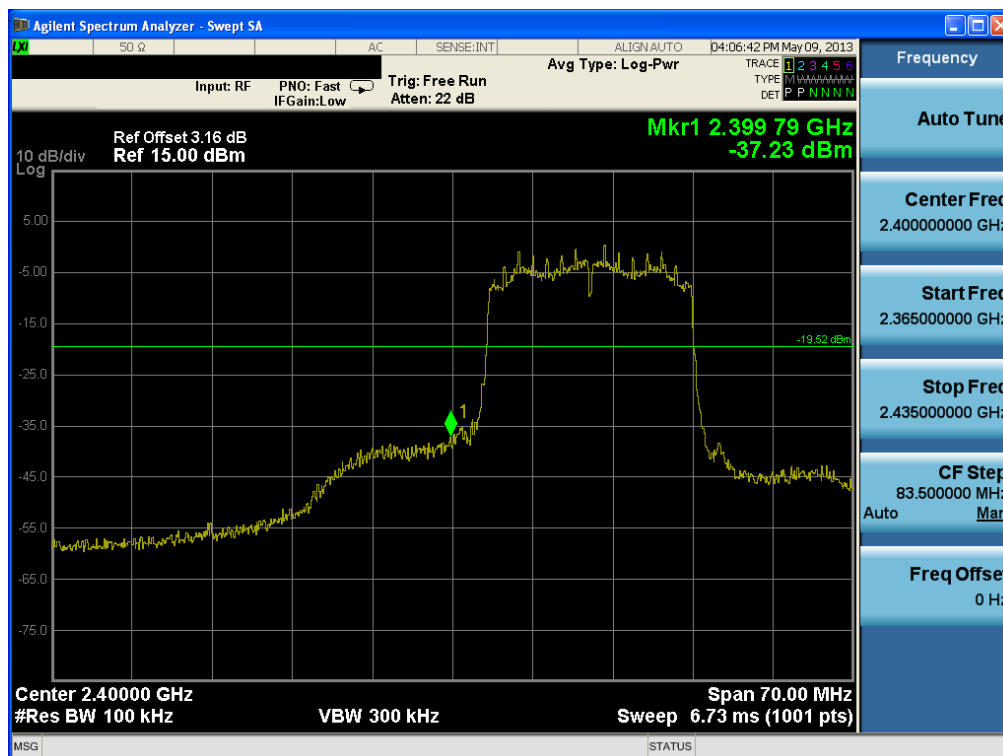


Test Mode: Chain 1 & 802.11n HT20 & MCS 8 & 2412MHz

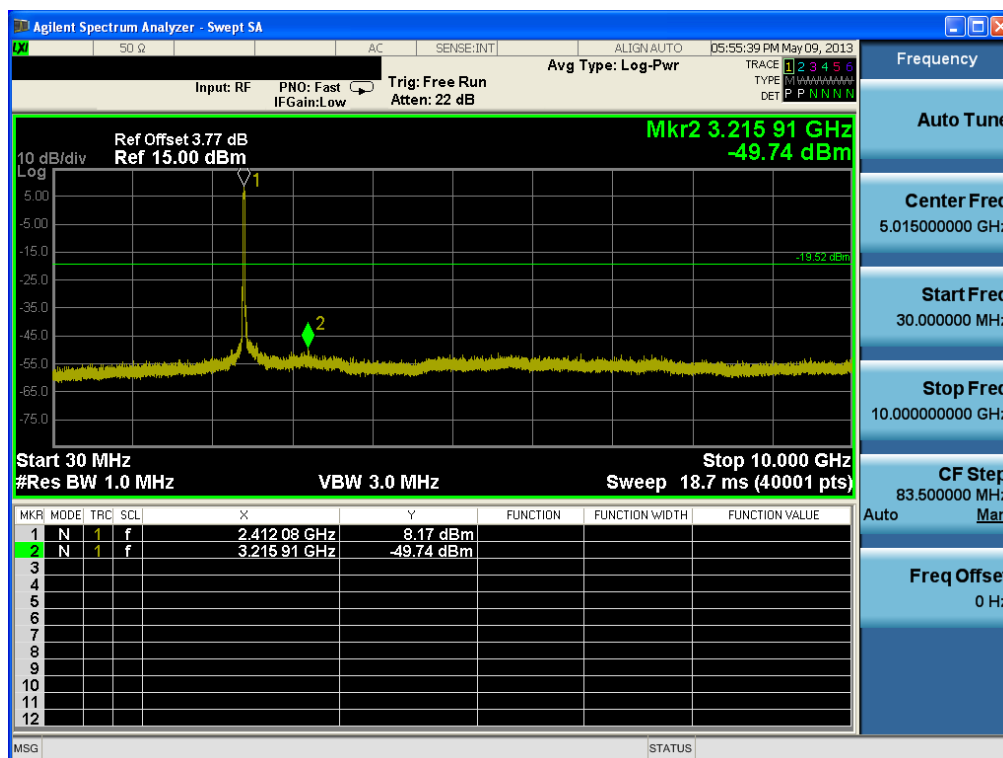
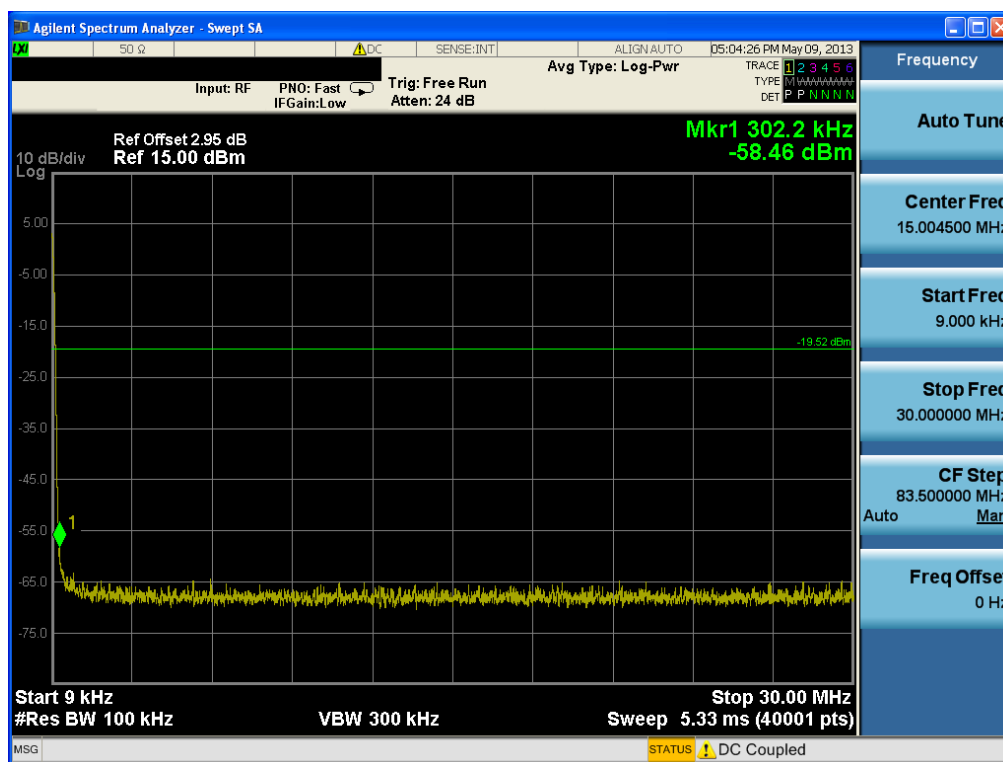
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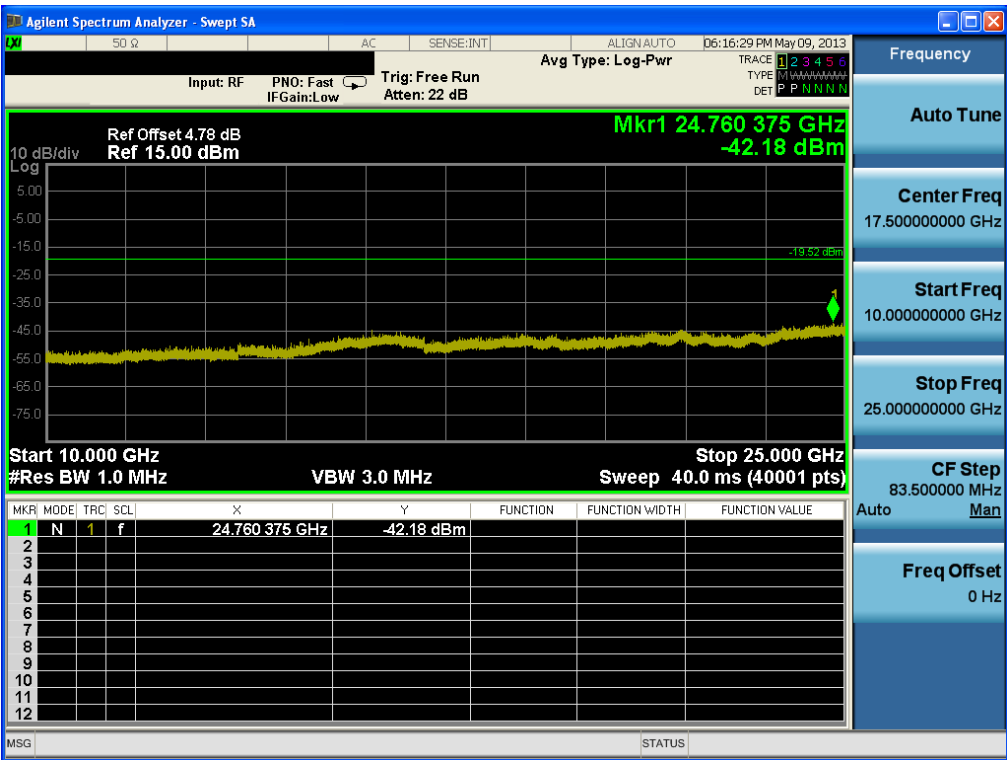
Low Band-edge



Conducted Spurious Emissions

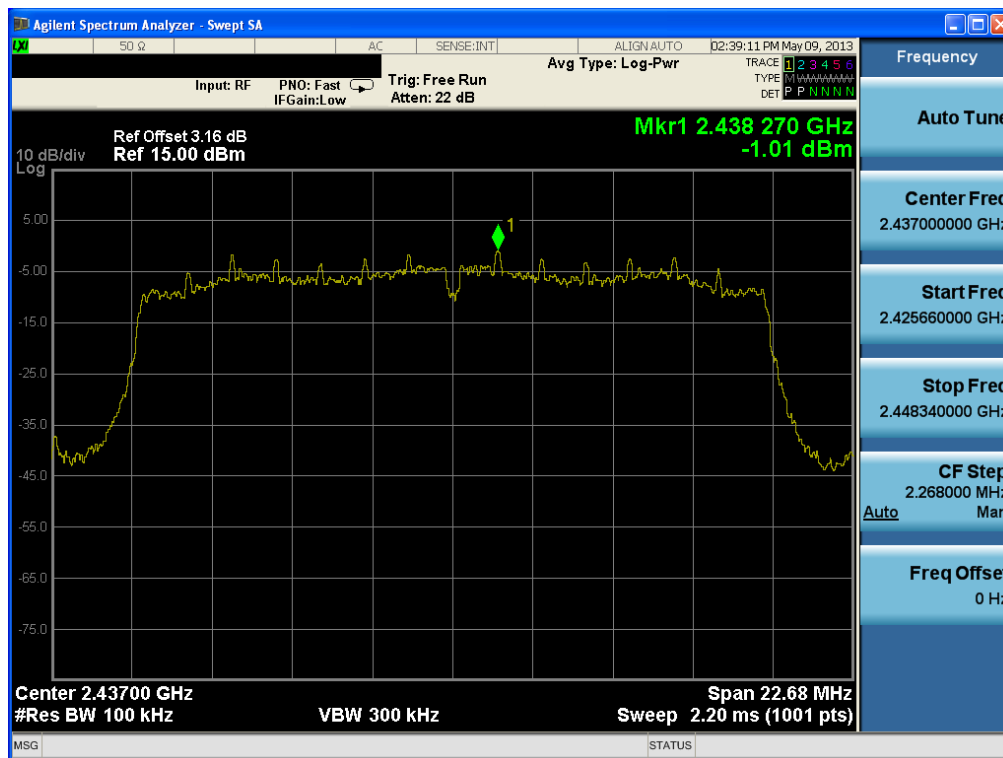


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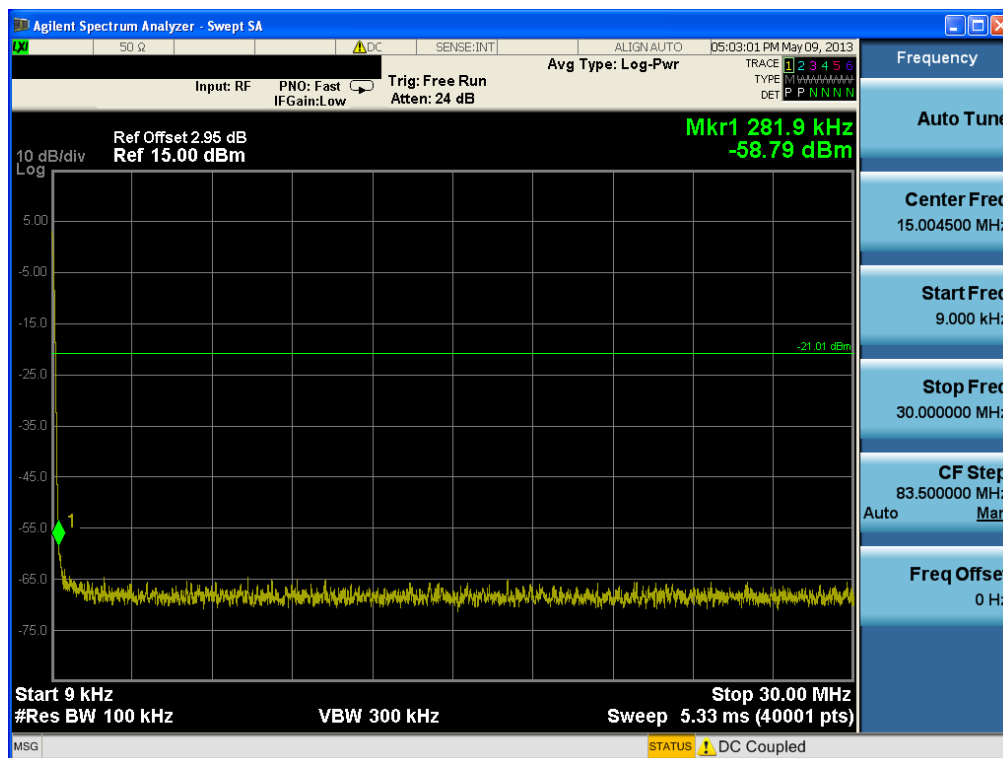


Test Mode: Chain 0 & 802.11n HT20 & MCS 8 & 2437MHz

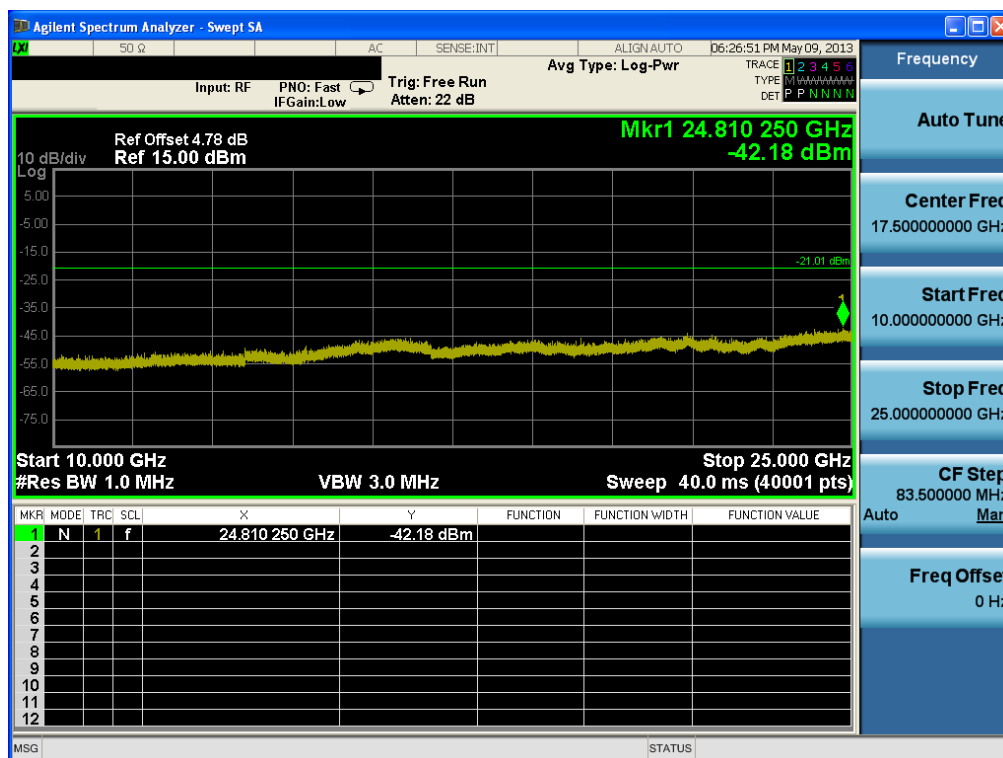
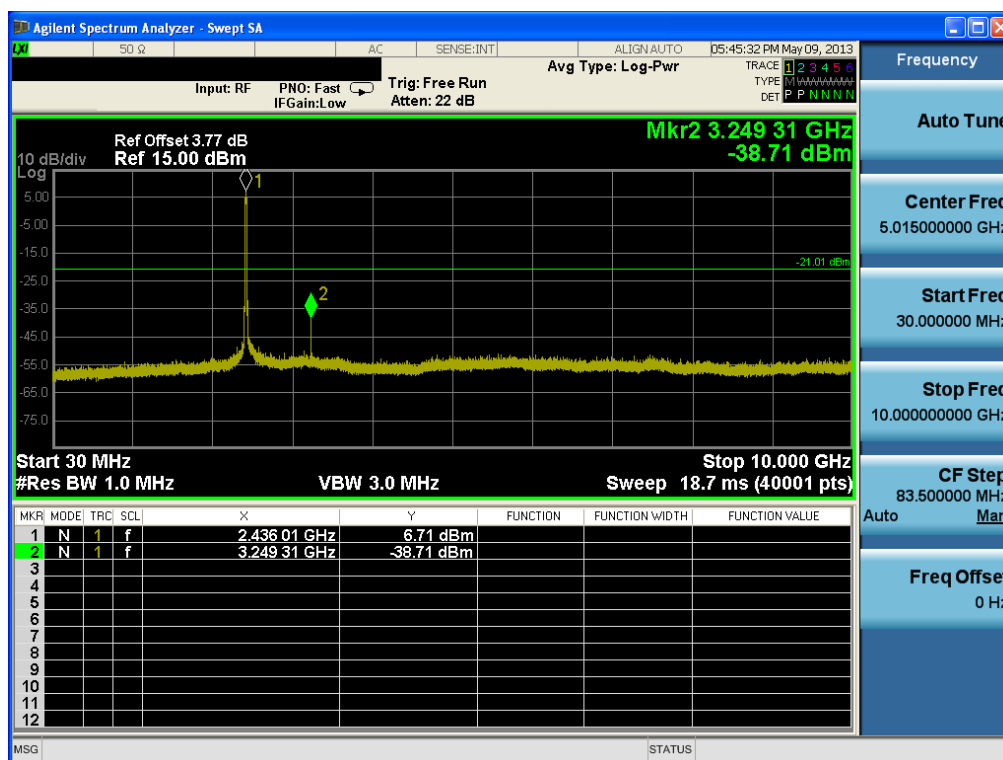
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Conducted Spurious Emissions

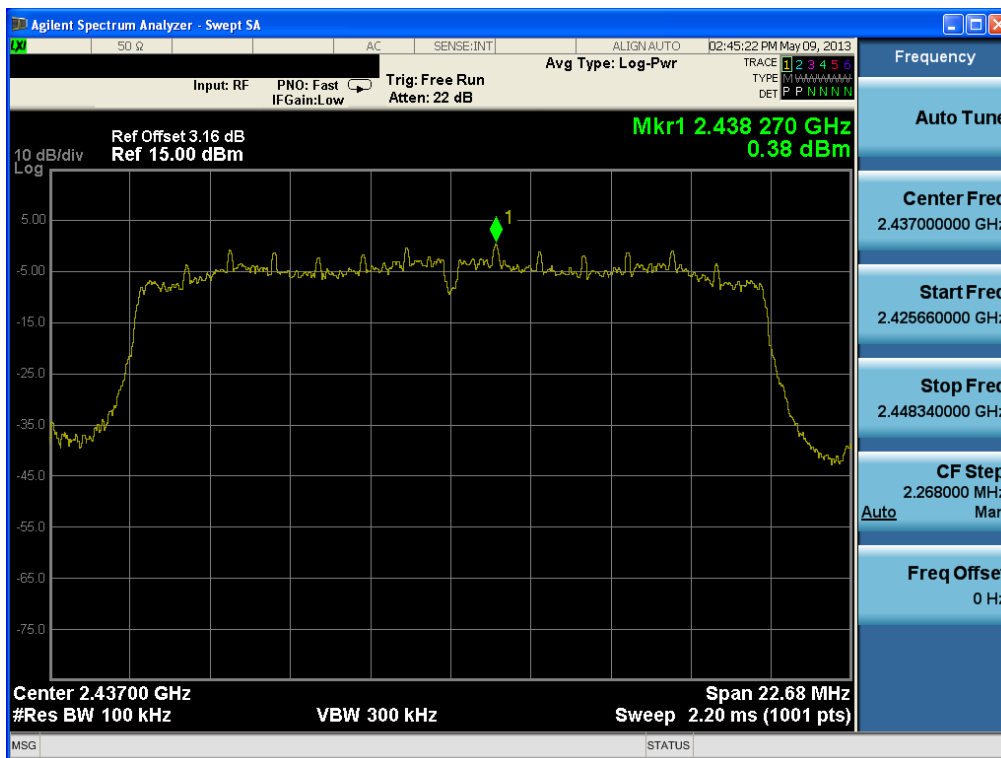


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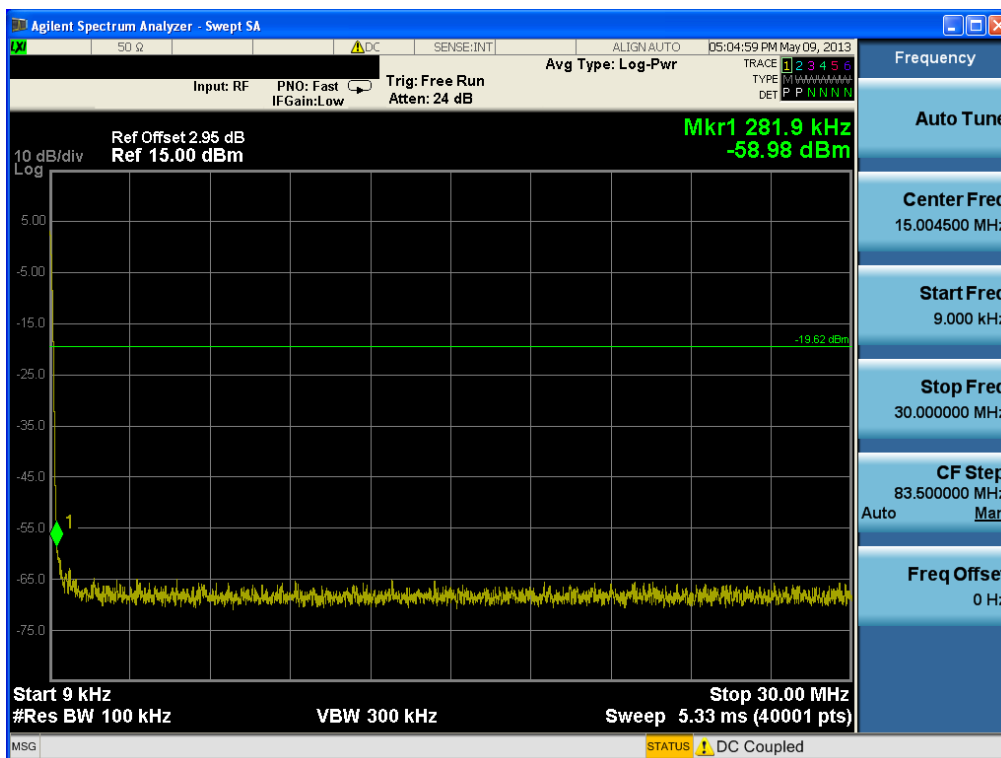


Test Mode: Chain 1 & 802.11n HT20 & MCS 8 & 2437MHz

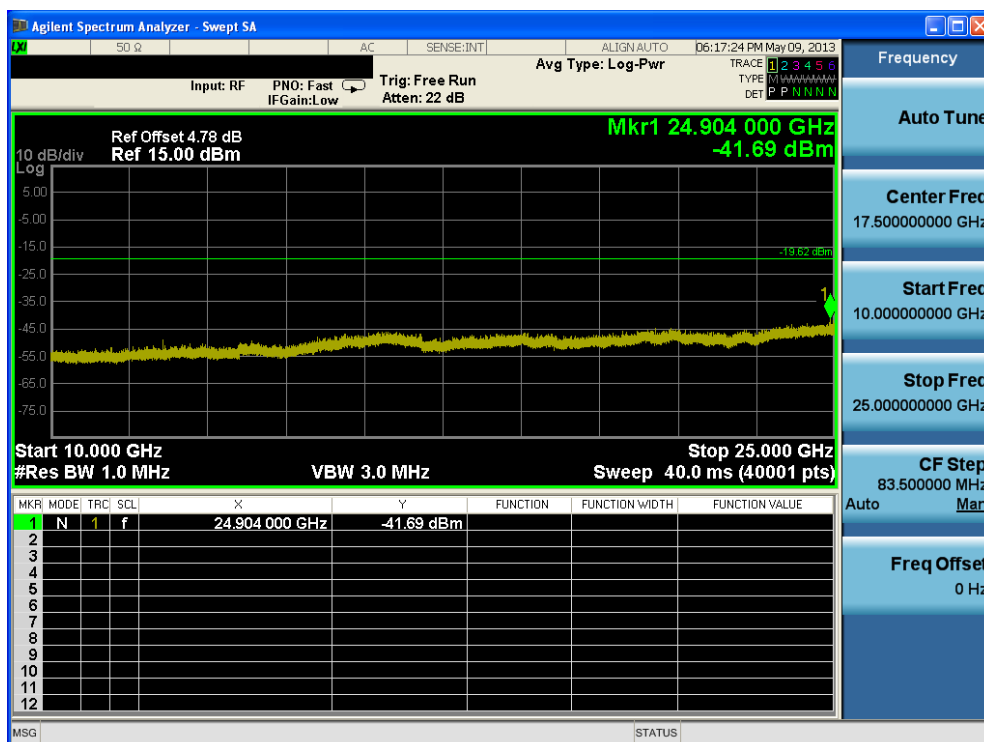
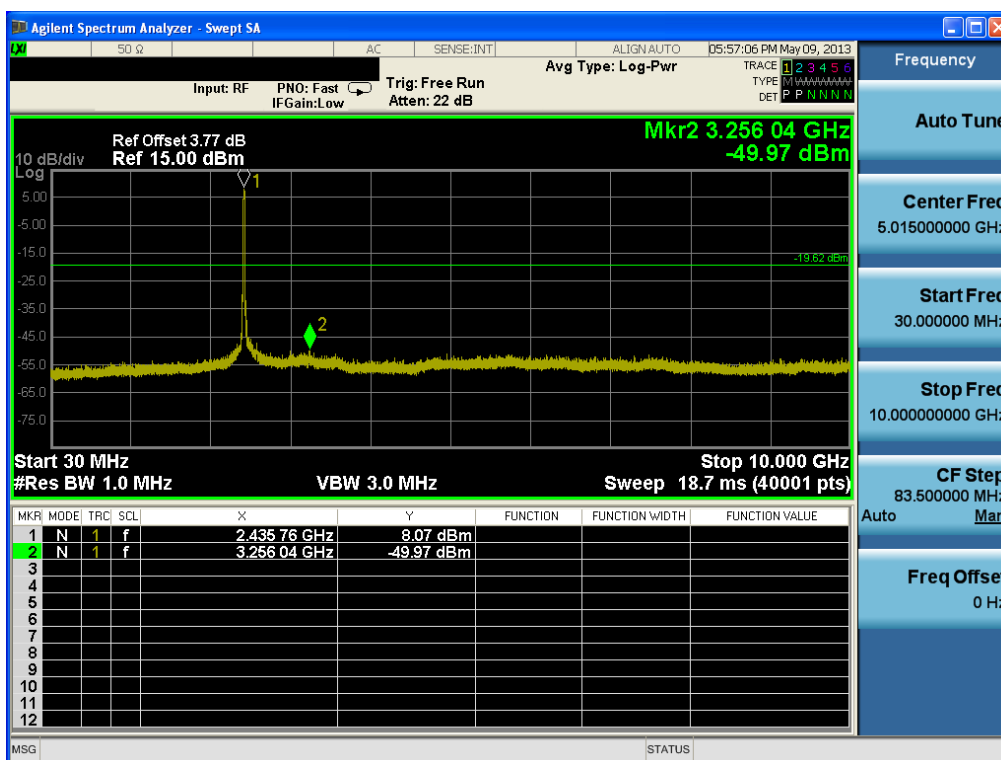
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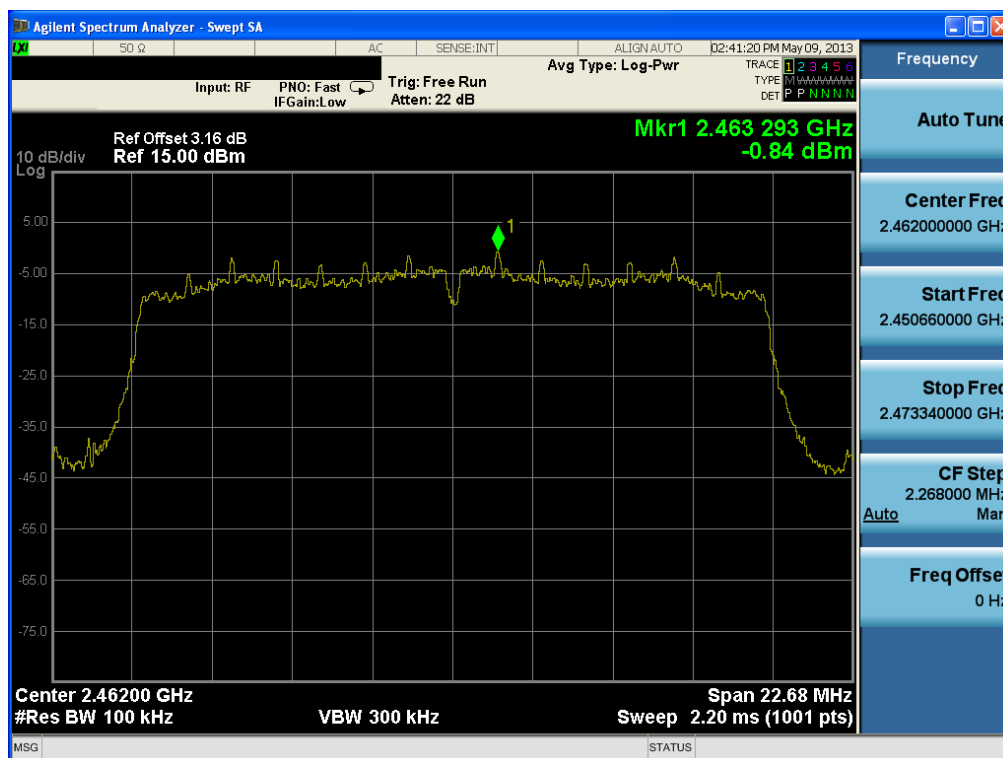


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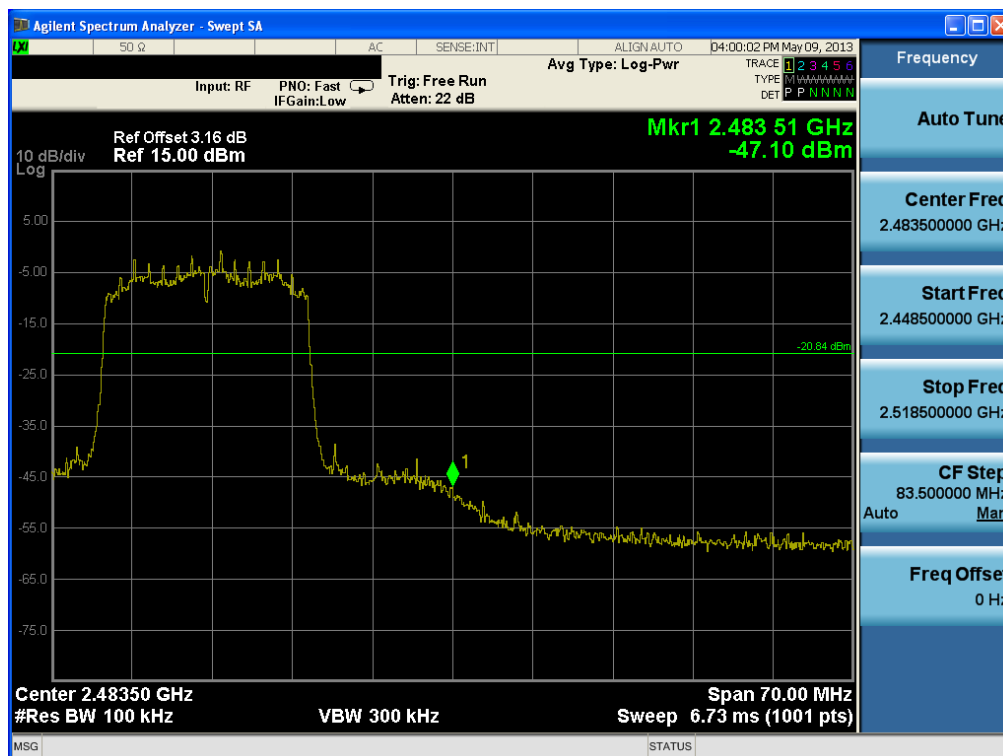


Test Mode: Chain 0 & 802.11n HT20 & MCS 8 & 2462MHz

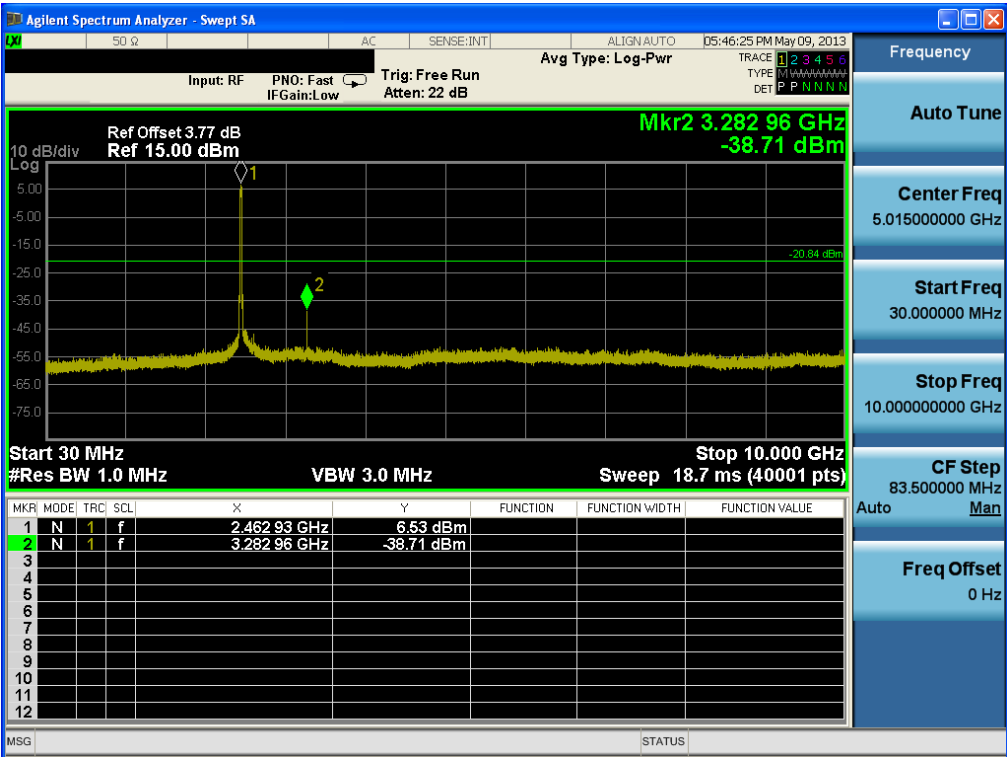
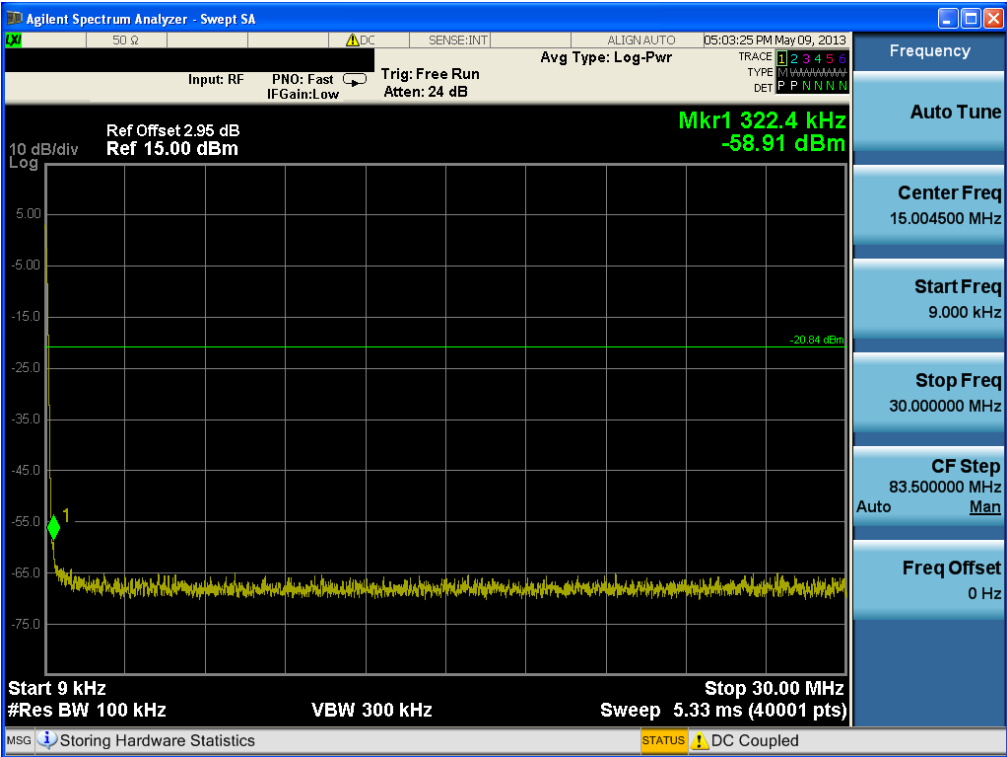
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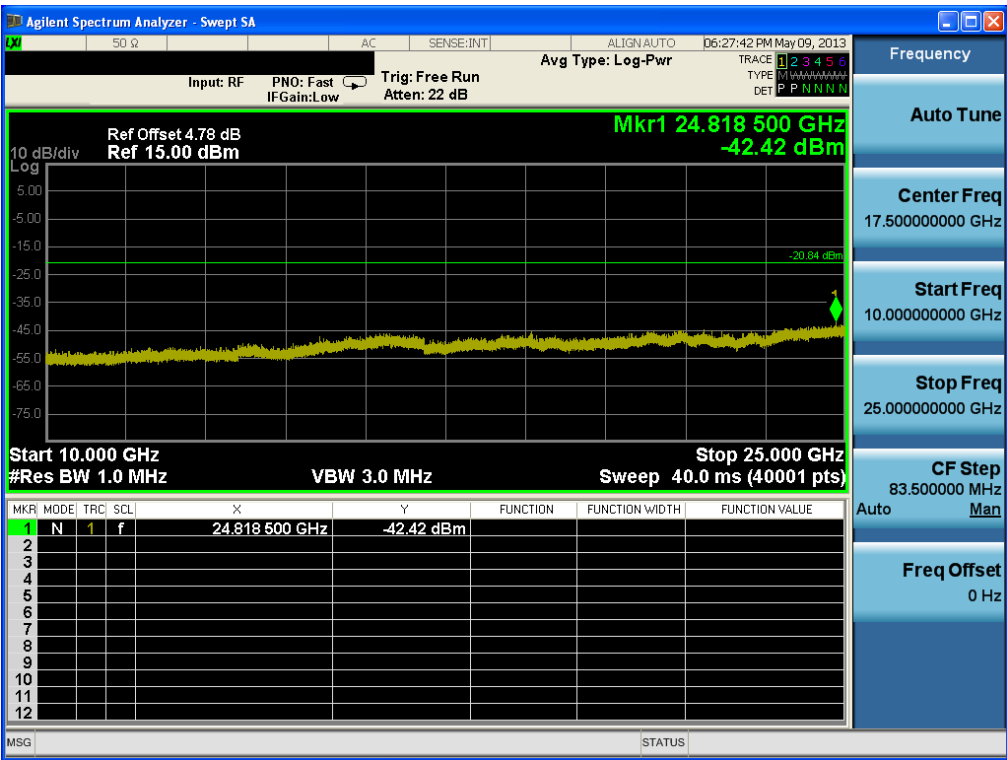
Low Band-edge



Conducted Spurious Emissions

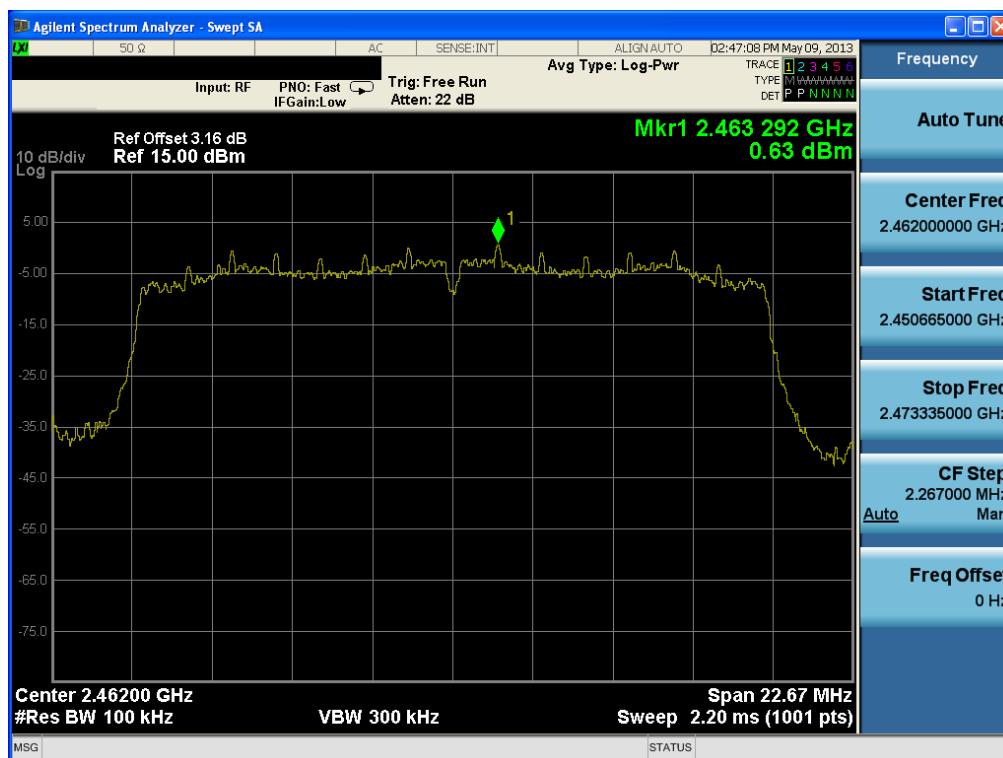


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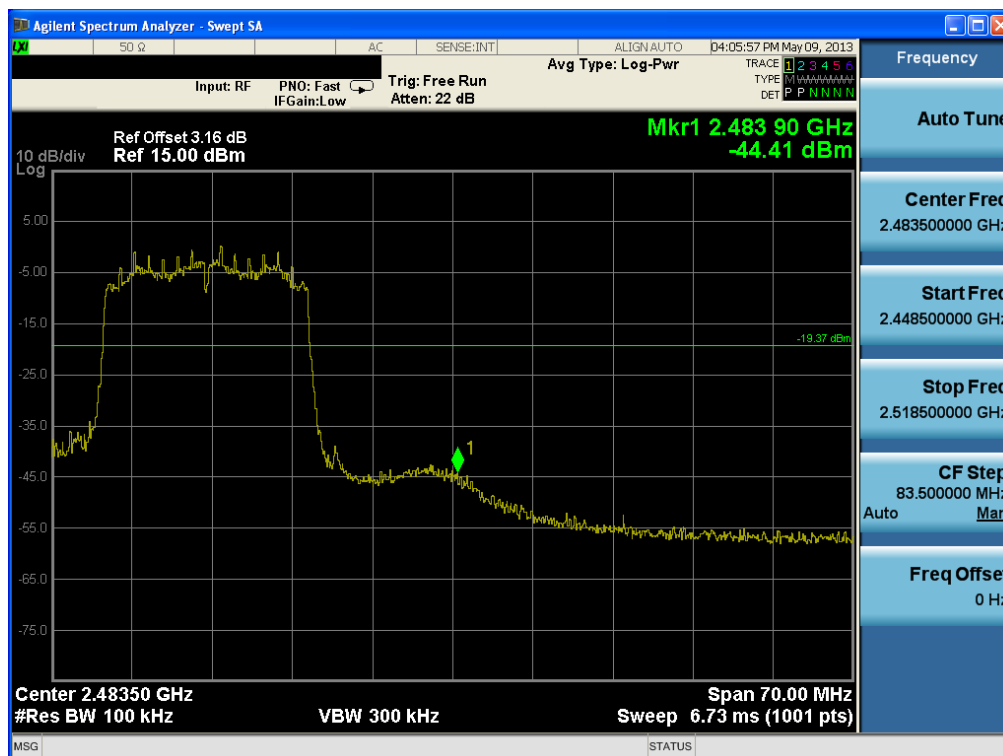


Test Mode: Chain 1 & 802.11n HT20 & MCS 8 & 2462MHz

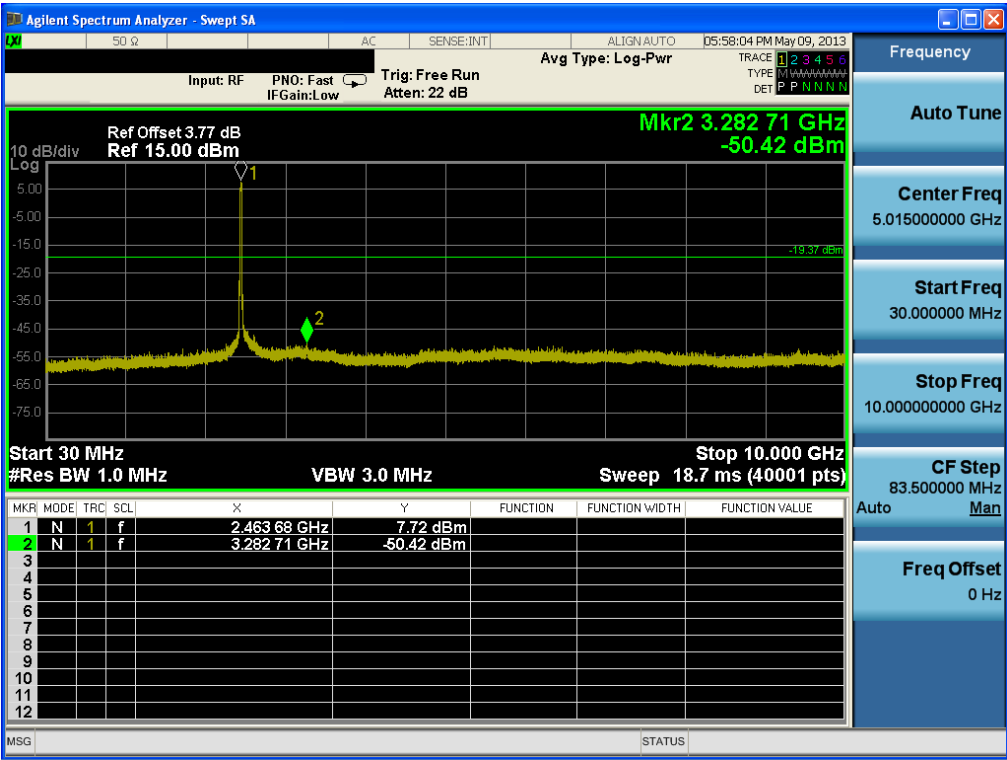
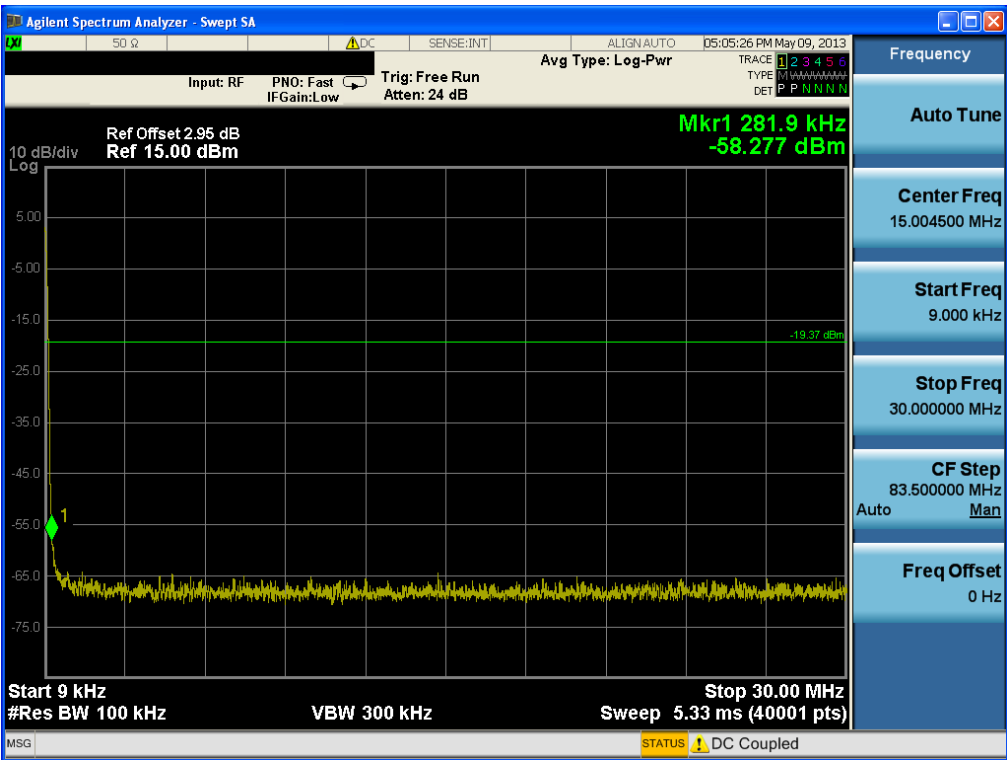
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Low Band-edge



Conducted Spurious Emissions



Conducted Spurious Emissions

