

5.4 Channel Spacing and Number of Hop Channels (FCC Part §15247(a)(1))

Per the FCC requirements, frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25kHz or the two thirds of the 20 dB bandwidth, whichever is greater. The maximum 20dB bandwidth measured is 1.025MHz so the channel spacing must be more than 687kHz. In addition, for a 2.4GHz the number of hopping channels shall be 15 channels minimum.

The EUT antenna was removed and the cable was connected directly into a spectrum analyzer through a 10 dB attenuator. An offset was programmed into the spectrum analyzer to compensate for the loss of the external attenuator. The spectrum analyzer resolution bandwidth was set to 100 kHz and the video bandwidth was set to 100 kHz. The channel spacing of 2 adjacent channels was measured using a spectrum analyzer span setting of 2.3MHz. Also, the number of hopping channels was measured from 2.4GHz to 2.5GHz.

The following are plots of the channel spacing and number of hopping channels data. The channel spacing was measured to be 1 MHz and the number of channels used is 79.

Table 7 Channel spacing and number of hopping channels summary

Test	Result	Limit	Pass/Fail
Channel spacing	1.00MHz	687 kHz Minimum	Pass
Number of Channels	79 channels	15 channels minimum	Pass

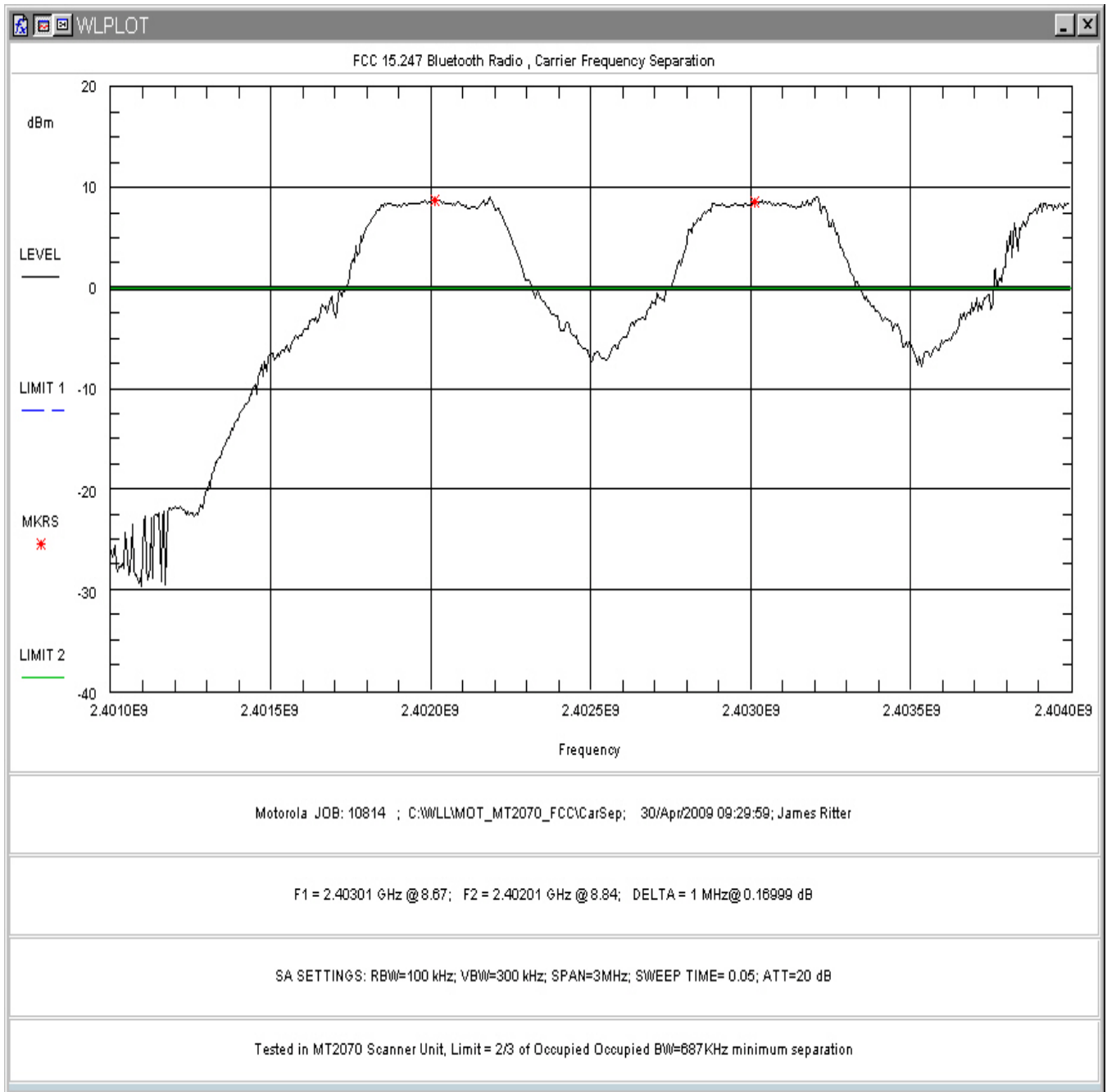


Figure 17, Channel Spacing

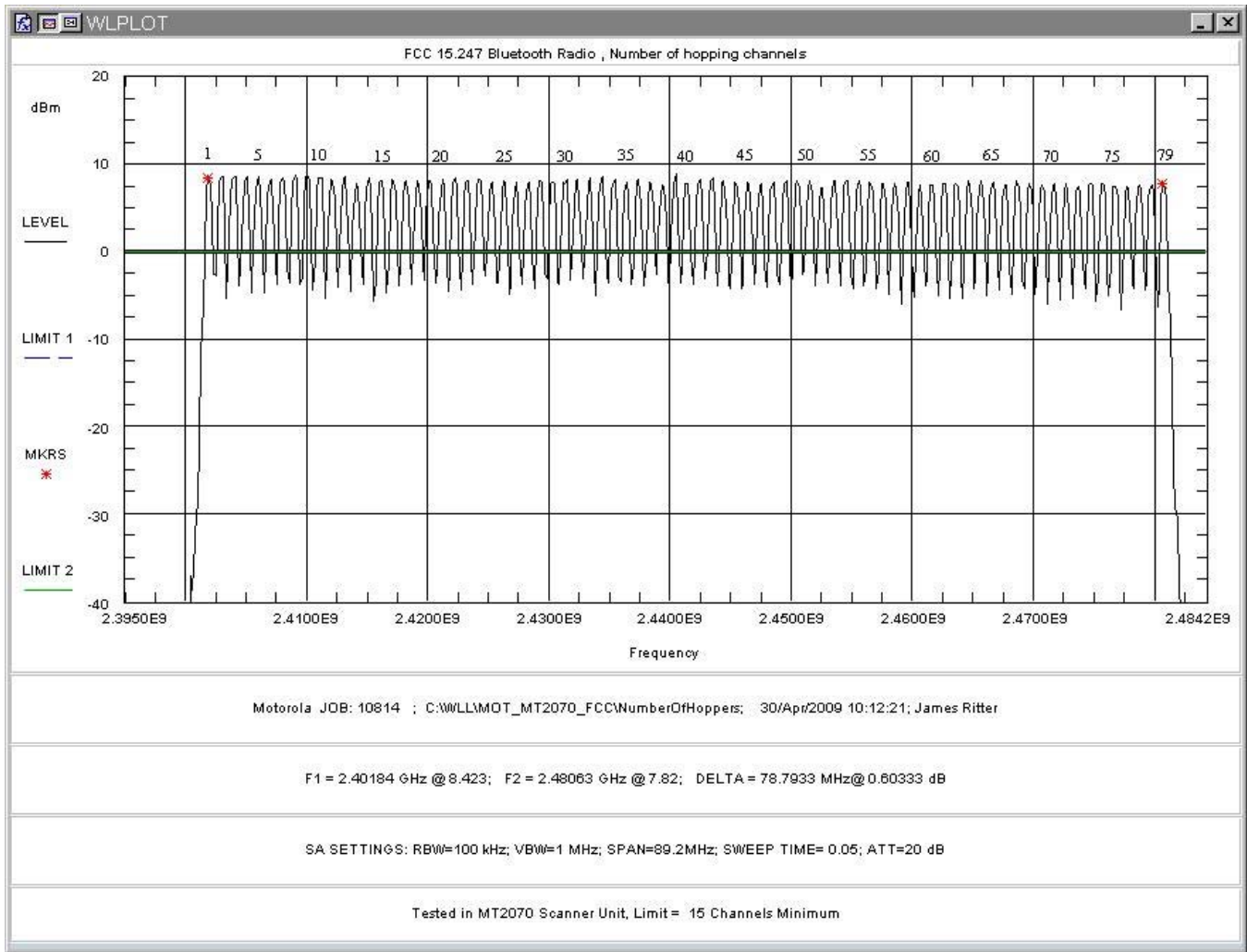


Figure 18, Number of Channels

5.5 Conducted Spurious Emissions at Antenna Terminals (FCC Part §2.1051)

The EUT must comply with requirements for spurious emissions at antenna terminals. Per §15.247(c) all spurious emissions in any 100 kHz bandwidth outside the frequency band in which the spread spectrum device is operating shall be attenuated 20 dB below the highest power level in a 100 kHz bandwidth within the band containing the highest level of the desired power.

The EUT antenna was removed and the cable was connected directly into a spectrum analyzer through a 10 dB attenuator. An offset was programmed into the spectrum analyzer to compensate for the loss of the external attenuator. The spectrum analyzer resolution bandwidth was set to 100 kHz and the video bandwidth was set to 100 kHz. The amplitude of the EUT carrier frequency was measured to determine the emissions limit (20 dB below the carrier frequency amplitude). The emissions outside of the allocated frequency band were then scanned from 30 MHz up to the tenth harmonic of the carrier.

Close-up plots of the 2400- 2483.5MHz band edges are provided in both the hopping and non-hopping modes to show compliance at both of these points

The following are plots of the conducted spurious emissions data.

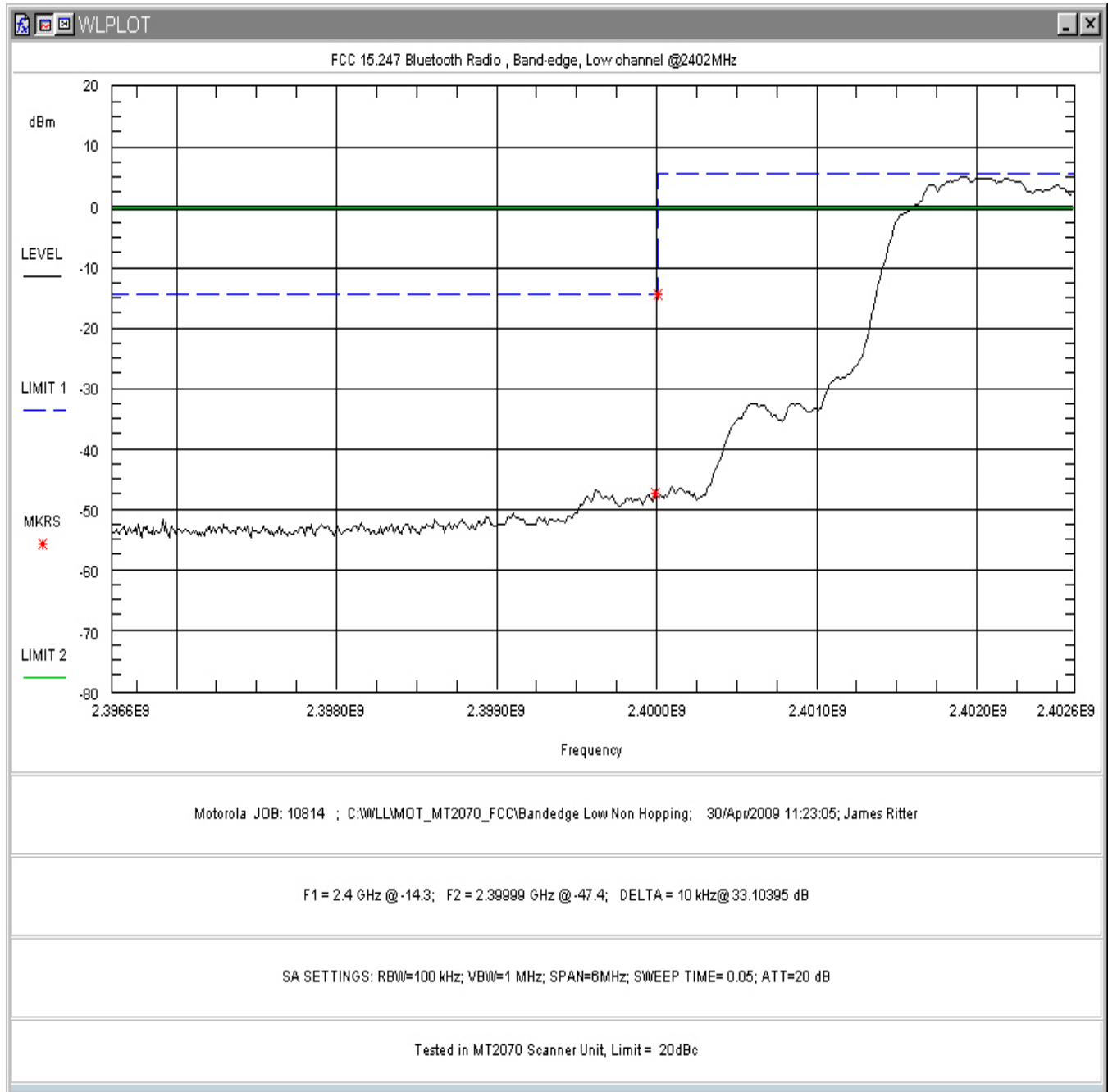


Figure 19 Lower Band Edge Plot, Low Channel (in MT2070 Host)

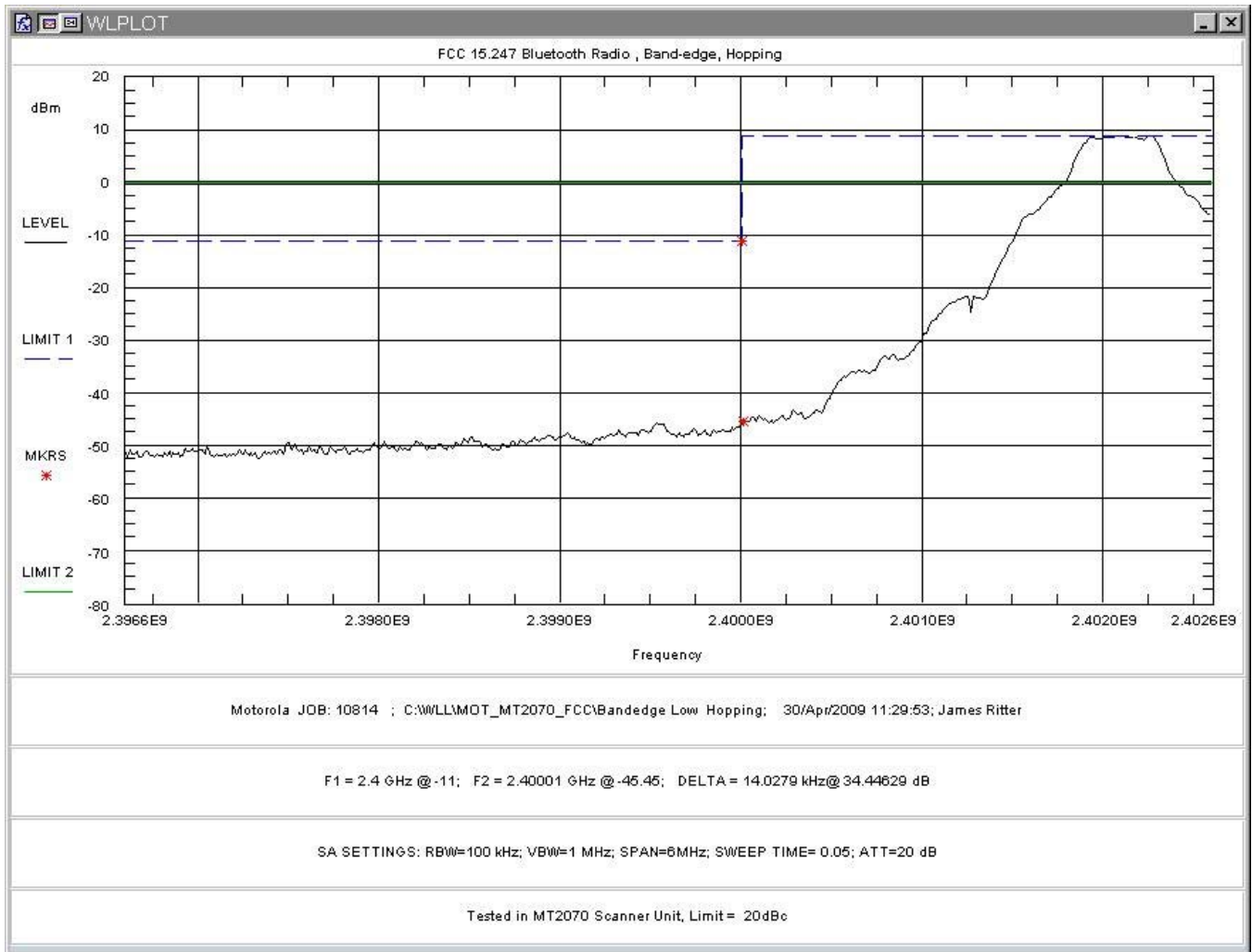


Figure 20 Lower Band Edge Plot, Hopping Mode (in MT2070 Host)

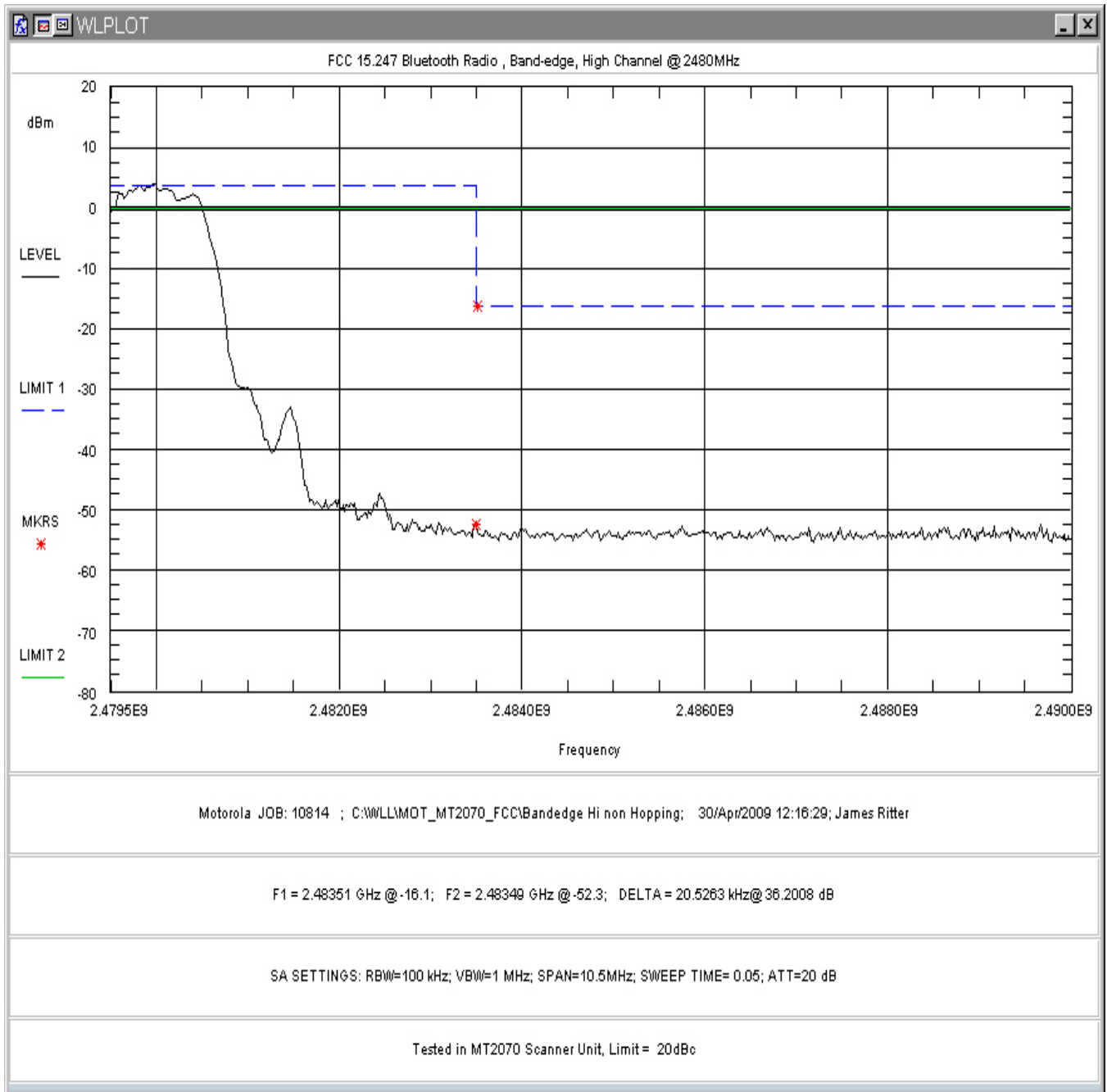


Figure 21 Upper Band Edge Plot, High Channel (in MT2070 Host)

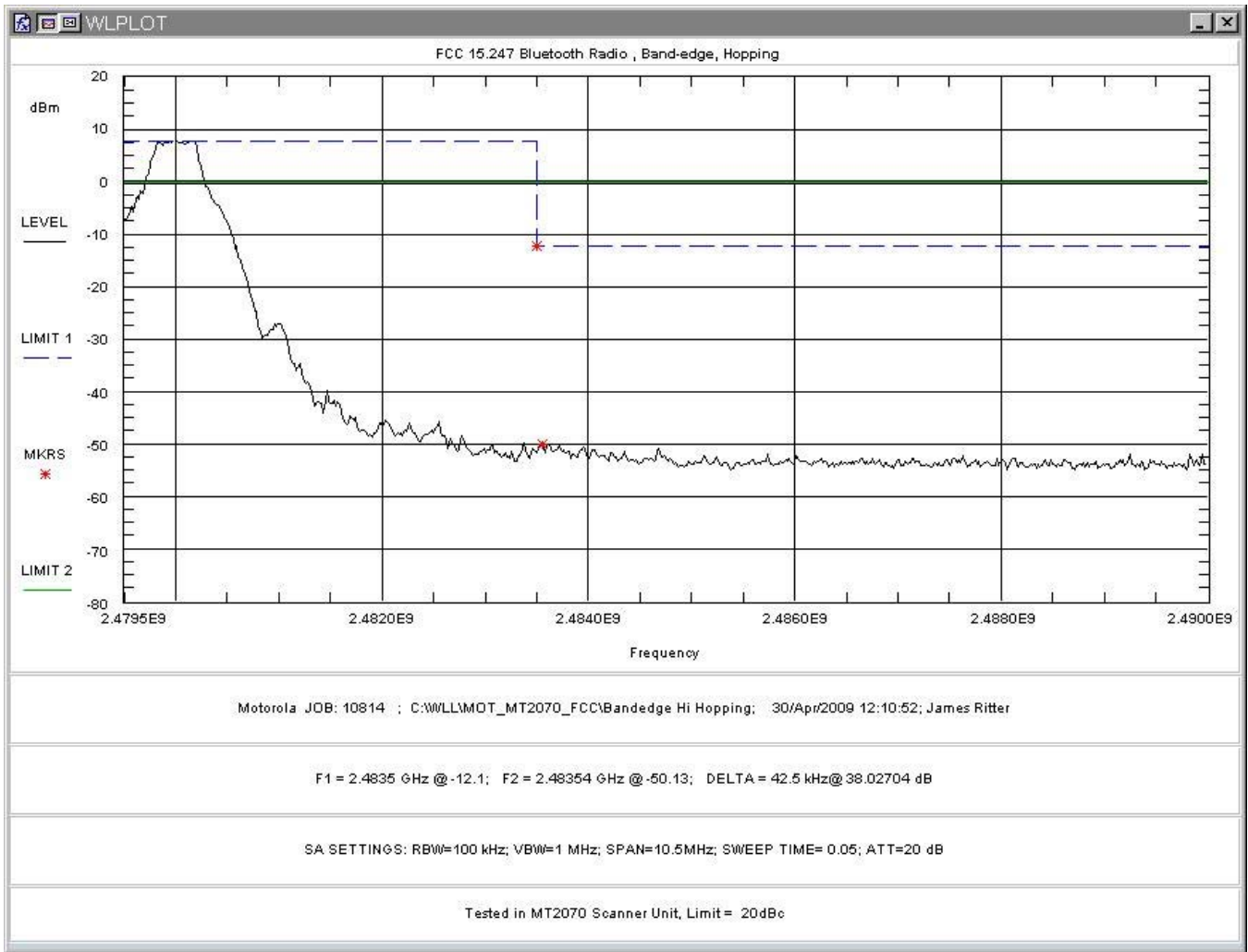


Figure 22 Upper Band Edge Plot, Hopping Mode (in MT2070 Host)

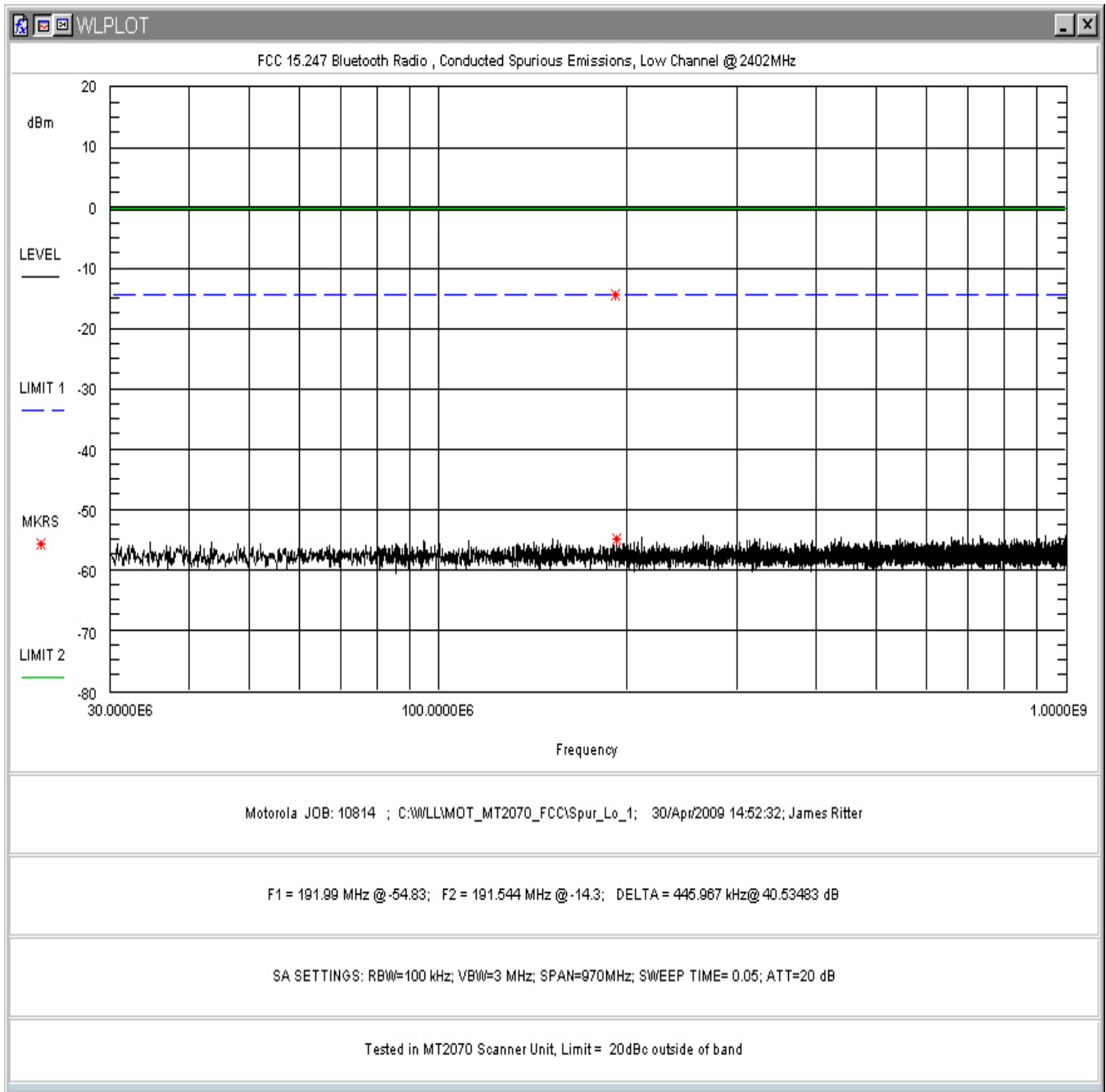


Figure 23. Conducted Spurious Emissions, Low Channel 30 - 1000MHz (in MT2070 Host)

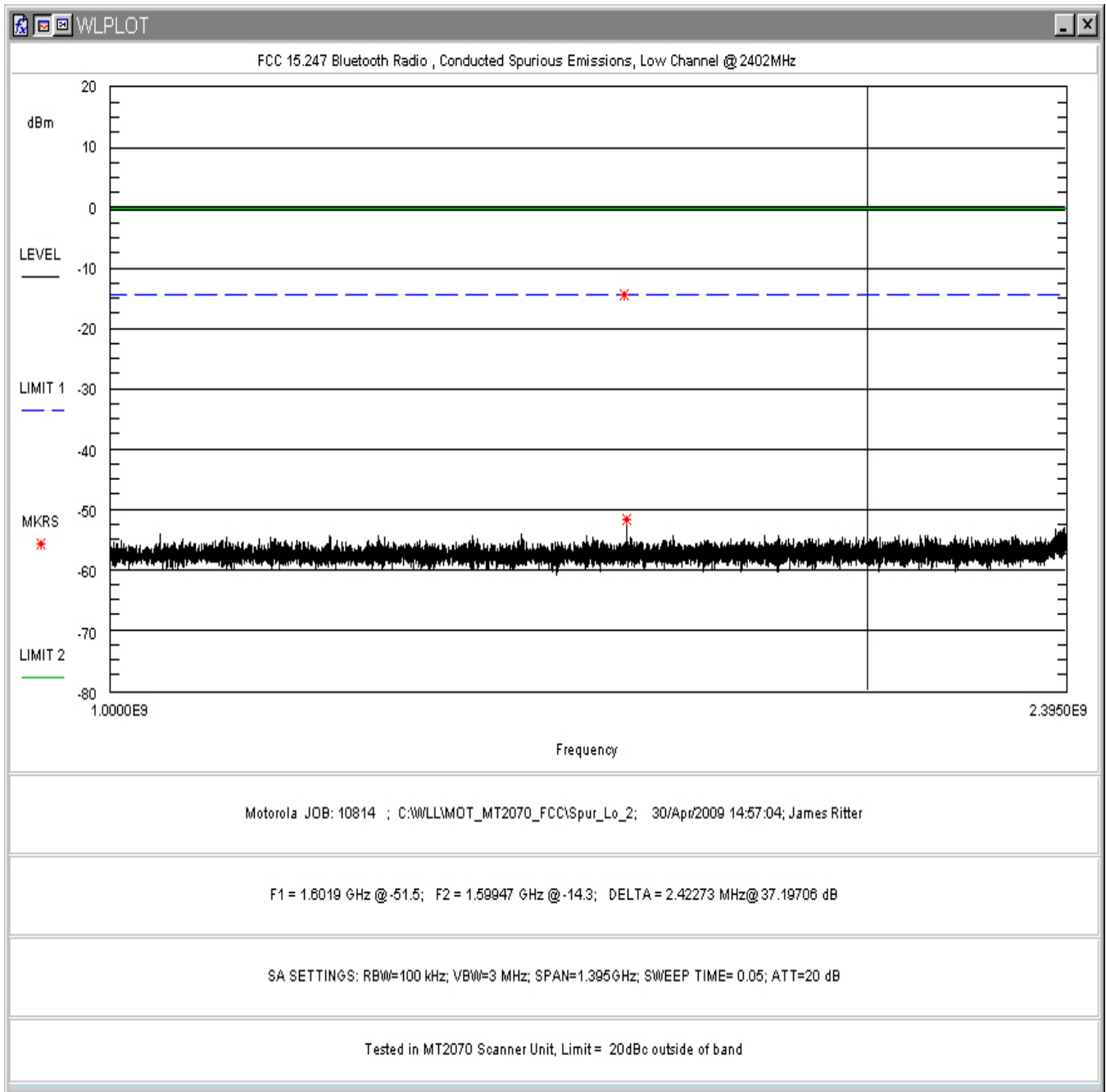


Figure 24. Conducted Spurious Emissions, Low Channel 1 – 2.395GHz (in MT2070 Host)

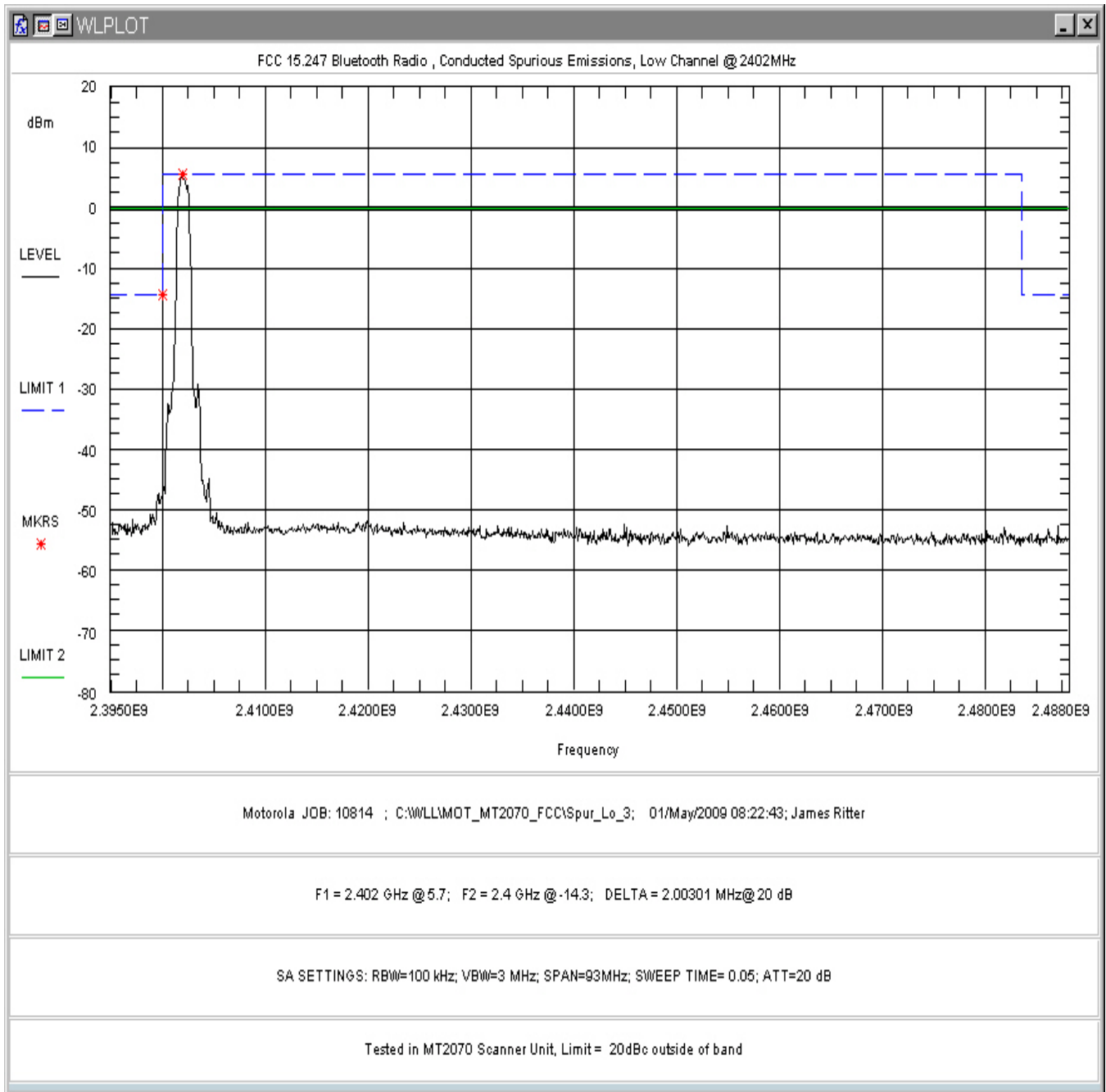


Figure 25. Conducted Spurious Emissions, Low Channel 2.395 – 2.488GHz (in MT2070 Host)

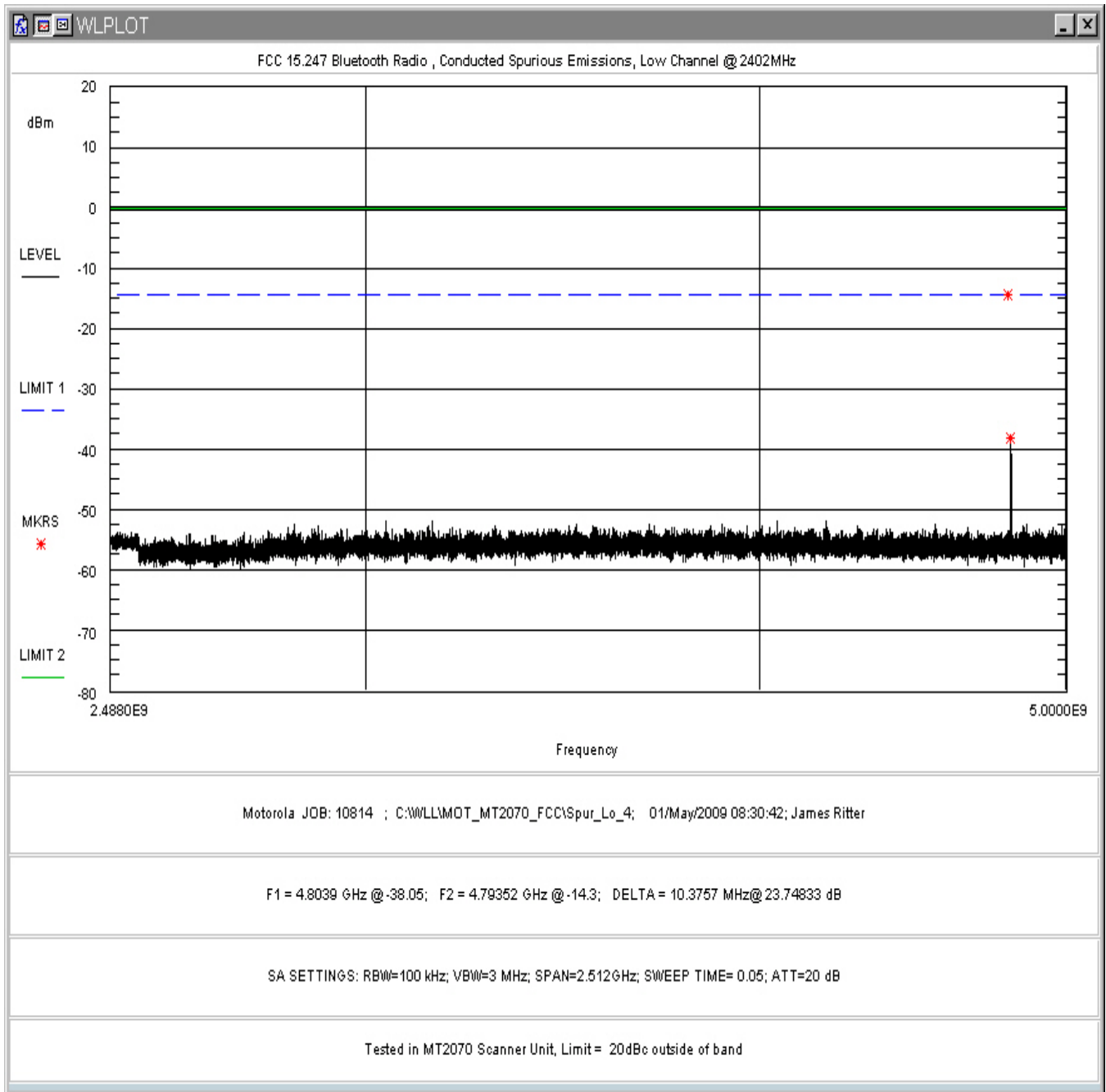


Figure 26. Conducted Spurious Emissions, Low Channel 2.488 - 5GHz (in MT2070 Host)

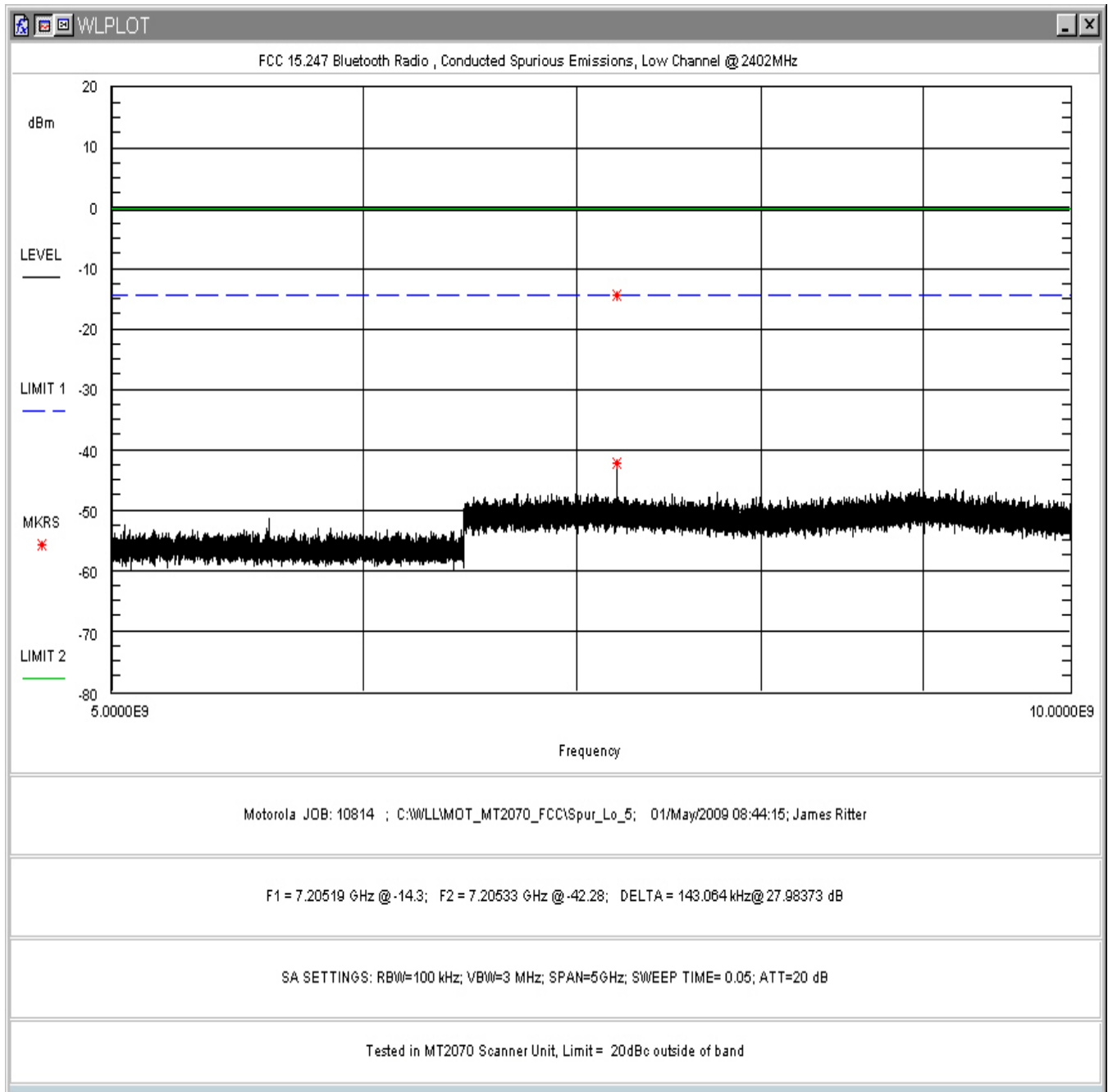


Figure 27. Conducted Spurious Emissions, Low Channel 5-10GHz (in MT2070 Host)

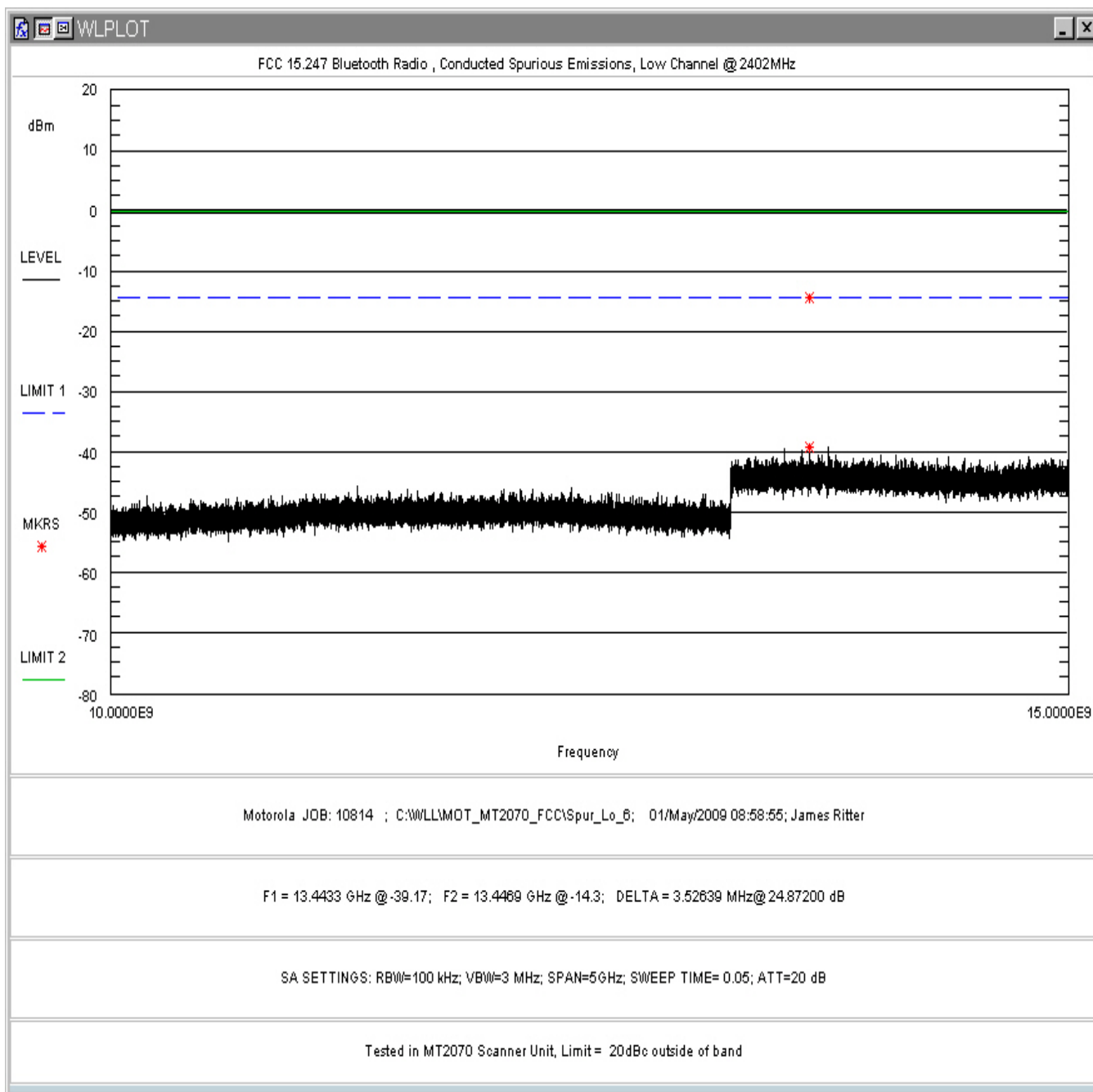


Figure 28. Conducted Spurious Emissions, Low Channel 10-15GHz (in MT2070 Host)

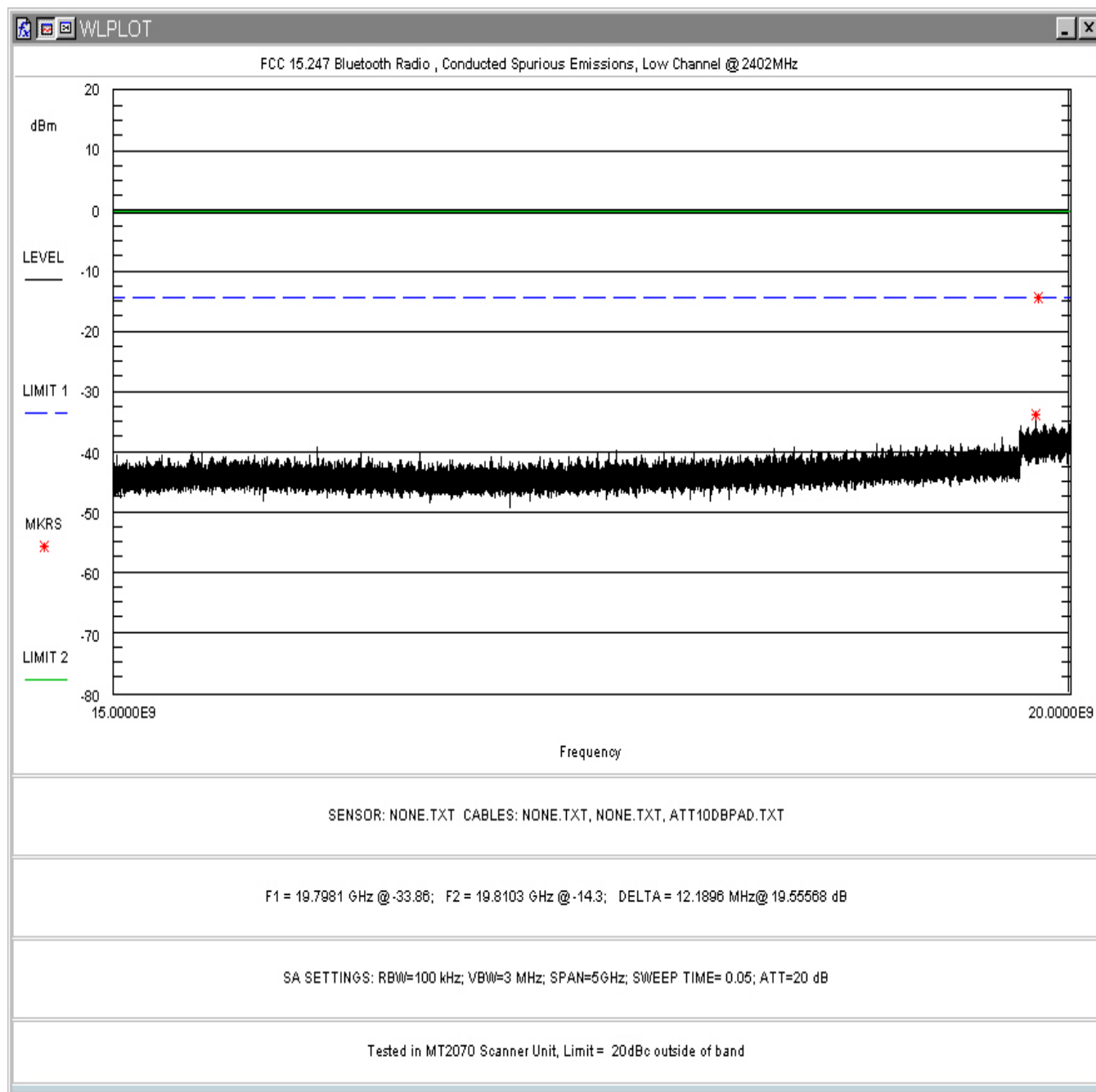


Figure 29. Conducted Spurious Emissions, Low Channel 15-20GHz (in MT2070 Host)

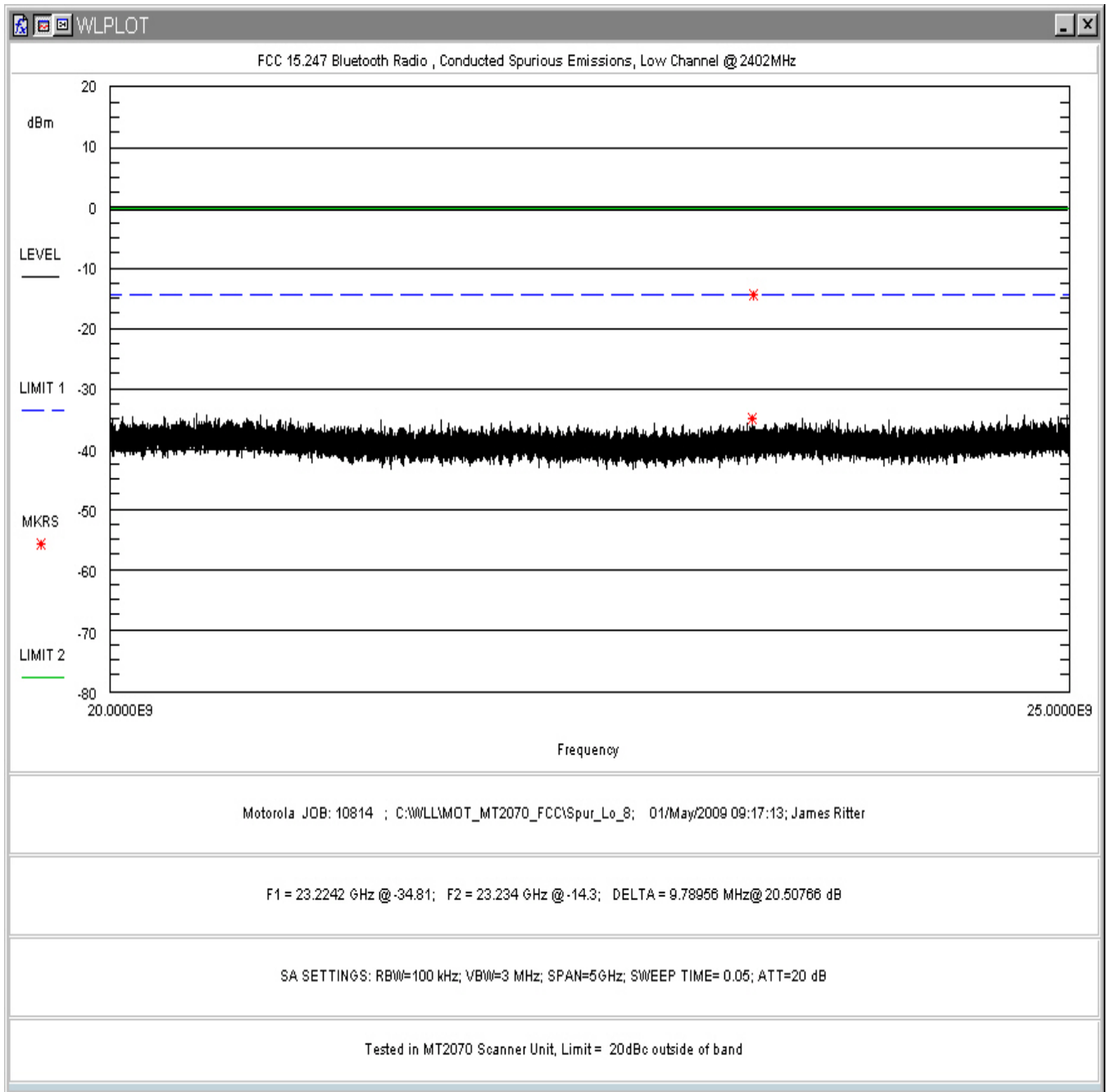


Figure 30. Conducted Spurious Emissions, Low Channel 20-25GHz (in MT2070 Host)