

WSA Blind Scan Feature (5G-SSB, 4G-LTE)

Sage Instruments - Application Note - 2026-07-05

Introduction

Prior to software version 20260602, the *Blind Scanner* feature only covers 4G-LTE signal. Starting with version 20260602, the *Blind Scanner* has been expanded to include 5G-SSB searching. This is useful for finding active 5G signals within a wide frequency range without ever having to check Spectrum Analysis first and then trying the 5G-NR analysis second coupled with SSB search within the 5G-NR analysis feature. Or within a 100 MHz 5G-NR signal, this new *5G Blind Scanner* feature can also be used to find the main CD (Cell Defining) SSB plus multiple NCD (Non-cell Defining) SSBs that might be present within the 5G band for the *RedCap* (Reduced Capability) applications, for example.

Necessary name change

The menu option for the “*Blind Scanner*” feature has been changed slightly as shown in Figure 1.

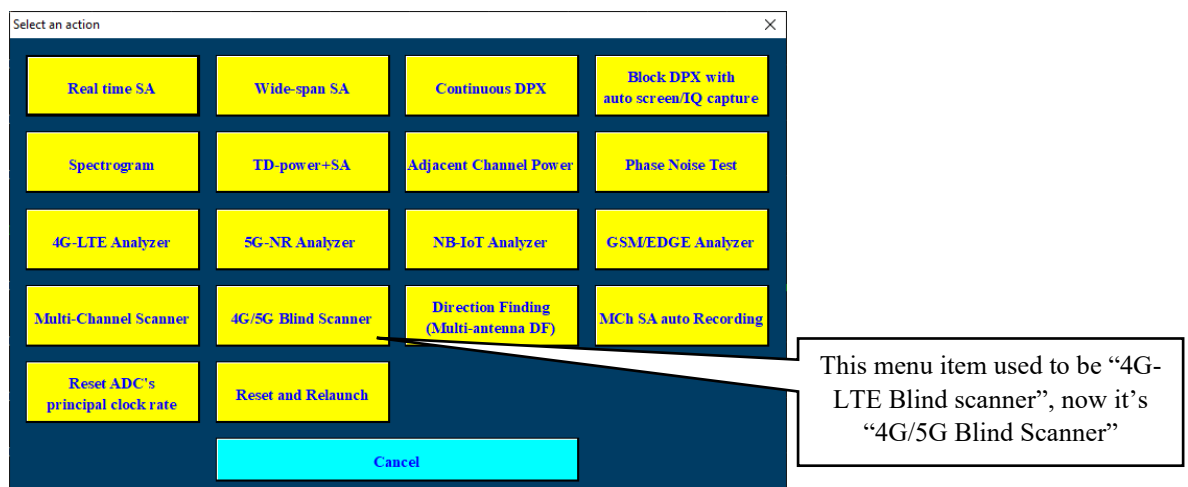


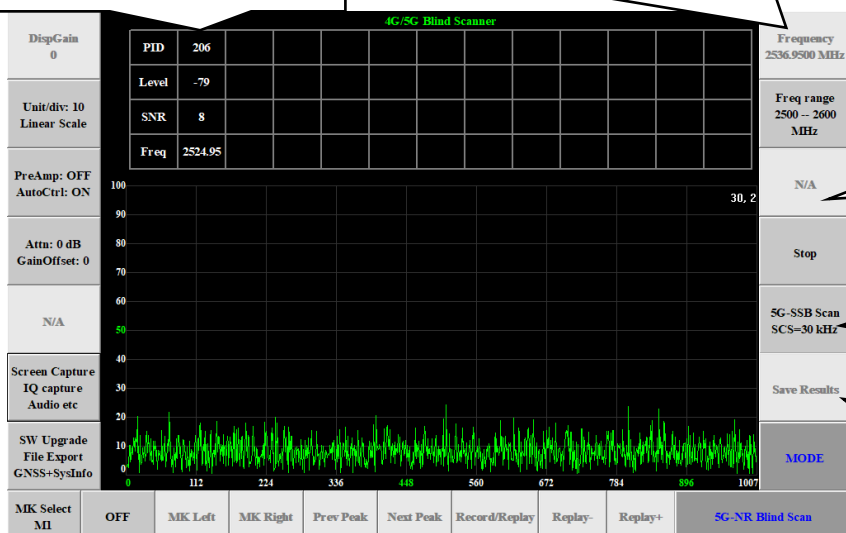
Figure 1, necessary menu item name change needed to reflect the inclusion of 5G into the *Blind Scanner* feature.

Initiating 5G blind scan

If “4G/5G Blind Scanner” is selected in Figure 1, you’ll see display as shown in Figure 2.

Each discovered 5G-SSB frequency will occupy one table column here. More measurement metrics addition will be considered in future SW release

Although this button is grayed out, it’s constantly updated to reflect frequency value that has just been scanned. The frequency scanning step is based on GSCN (Global Synchronization Channel Number) channel raster as specified in 3GPP document.



Press this button at any time to specify the frequency range to be scanned.

In future SW release, this button will be activated to include NR operating band selections, from n1, n2 to n109.

This used to be “TDD-FDD” toggle switch, now it’s been expanded to a multi-signal selection button. Once pressed, you’ll see a sub-dialog shown as in Figure 3.

Once search is finished within the specified frequency range, this button will be activated. Once pressed, the discovered frequencies will be saved to a CSV file as well as to an internal user frequency list.

Figure 2, the new “4G/5G Blind Scanner” test display.



Figure 3, when the right-5 button is pressed in Figure 3, this dialog will pop-up to permit users to select the signal type to be scanned.

Saving and retrieving the discovered frequencies

After scanning through the whole frequency range as specified, the right-6 button “Save Results” in Figure 2 will be activated if Blind Scanner has discovered 1 or more qualified signal frequencies. Pressing this button once will trigger the following two actions:

1. The discovered frequencies will be saved to a CSV file.
2. The frequencies will also be saved to an internal user frequency list.

To check the saved frequencies from the internal user frequency list, switch test to the Spectrum Analyzer mode, then press the right 1 button “Frequency” and follow steps shown in Figure 4.

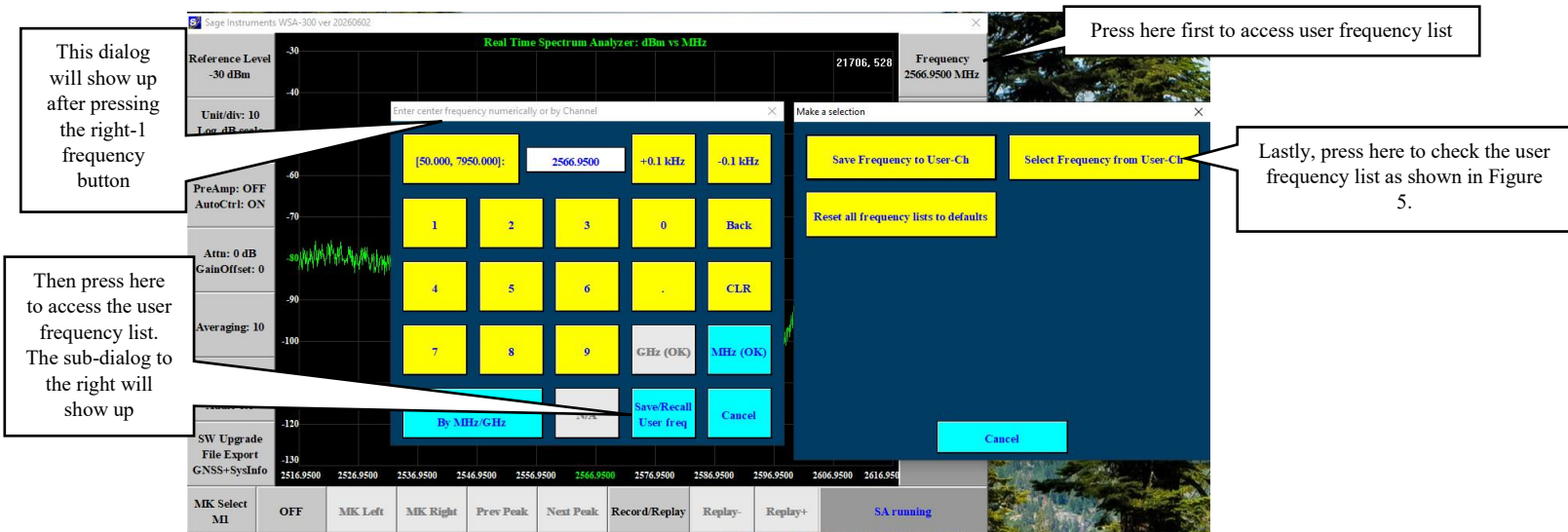


Figure 4, buttons to push to access the saved user frequency list.

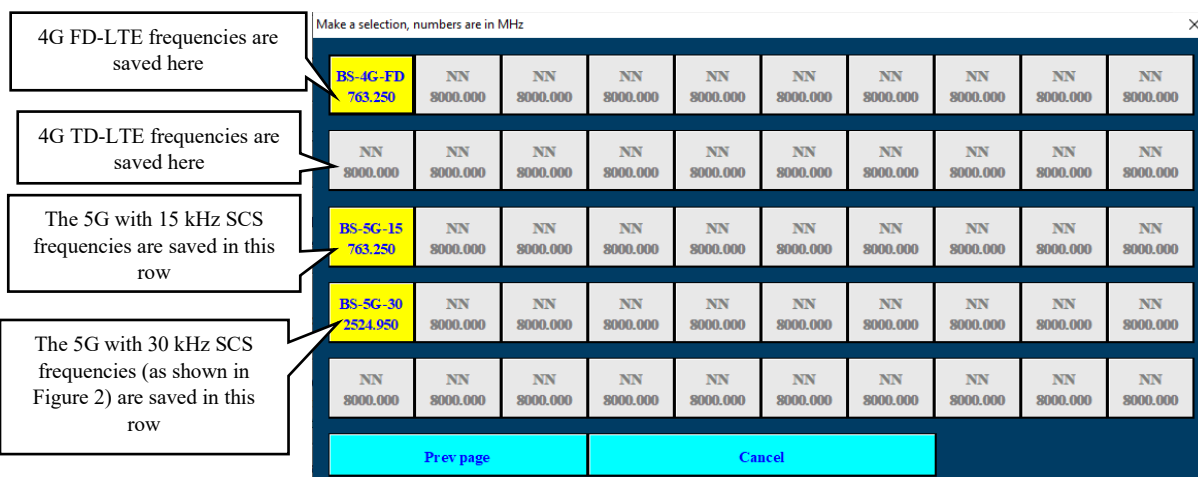


Figure 5, upon seeing this sub-dialog, keep pressing bottom “next page” button until the last page as shown here, the Blind Scanner saved frequencies are listed here.

How to speed up the blind scan process?

You can greatly speed up, especially for the 4G-LTE blind scan, by 3 times, if you go to the “Narrow Band” operation. You can do this by pressing “MODE”, then clicking the lower left button “Reset ADC’s Principal Clock Rate” in Figure 1. After which, select the lower right “Lower ADC clock rate for narrow band applications” as shown in Figure 6 below. Afterwards, proceed with the Blind-Scan operations as before. The scan speed should be 3 times as fast.



Figure 6, click the lower right button to enter “Narrow Band” operation in order to speed up the Blind-Scan process.

After entering narrow-band operations, if you wish to return to the normal “wide-span” mode, press the MODE button, then the “Reset ADC...” button again in Figure 1, then press the upper left button “Return to normal high-speed ADC operation” in Figure 6.