QUICK CARD

# Over-the-Air Cell Phase Synchronization Measurement

This quick card describes how to set up the OneAdvisor 800 **SPA06MA-O Radio Analysis Module** to test TDD 5G NR Radio Time Accuracy Over the Air for C-Band Clusters

## Part 1: Stationary Measurement Equipment Requirements

- OneAdvisor 800 equipped with the following:
  - SPA06MA-O Radio Analysis Module
  - ONA-SP-5GOTA Software Option
  - Or ONA-SP-5GRAN Software Option
  - ONA-SP-CPS Software Option
- Omni Antennas such as G700050350 stick Antenna or Magnetic Mount Antennas G700050345 or Magmount GPS Antenna JD71050351
- Optional G700050616 C-Band Band Pass Filter (to block out nearby strong signals outside of C-Band)

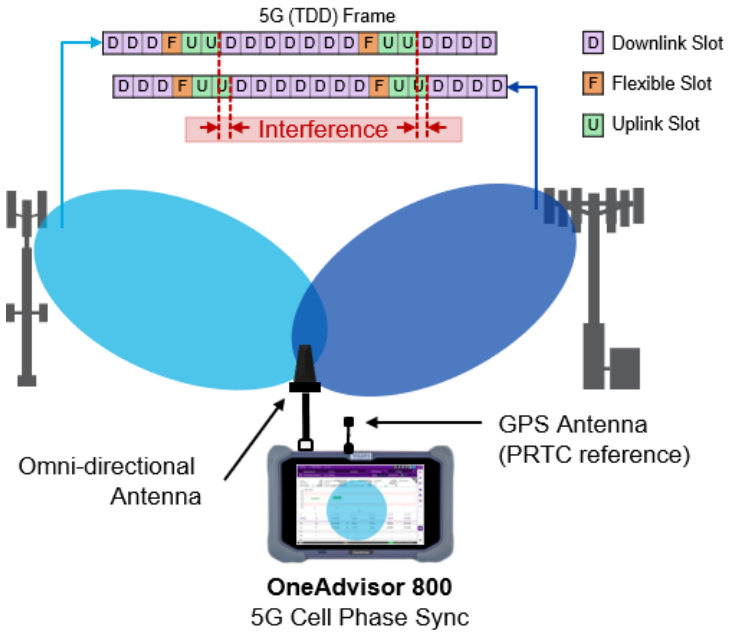


*Figure 1: Test Setup*

*Figure 2: Accessories*

# QUICK CARD

## LAUNCH TEST

1. Press the Power button on the ONA-800 base top panel to turn on the OneAdvisor.
2. Tap Home to display the Home Screen.
3. Tap Tests to display the Tests menu.
4. Tap Radio Analysis 6 GHz to show Radio Analysis test applications.
5. Tap the 5G NR Signal Analyzer icon. 5G NR SIGNAL ANALYZER
6. Tap the on the top left of the screen and select 5G NR Signal Analyzer followed by Sync Analysis Done
7. Tap to autoconfigure the Power Settings
8. Set the Channel Number by setting ARFCN to 650006 with Band n77
9. Set the GSCN to 8006. At this point the Sync on the top right of the screen will turn Green
10. Make sure the Bandwidth is set to 100 MHz with SCS to 30 kHz
11. Swipe the Top Menu Screen to the left until Trigger Menu is visible Trigger GNSS Frequency Reference GNSS
12. Set the Trigger/Frequency Referent to GNSS
13. Once the unit gets Sync from the GPS Antenna, the to right GPS Satellite Icon will show a white Check Mark
14. Next to the Trigger Menu is the Sync Error Limit Menu
15. Set the Test Limits On Off to On
16. Select the Limit Range e.g. 3 µsec. If Sync Error is greater than the Limit Range set, the bar will turn red Sync Error On 3 µs
17. Sync Error is the Delta between 2 or more PCIs

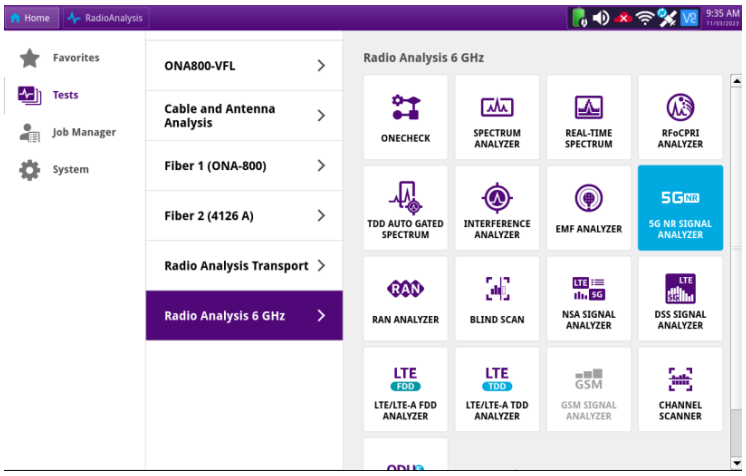


*Figure 3: Select Test*

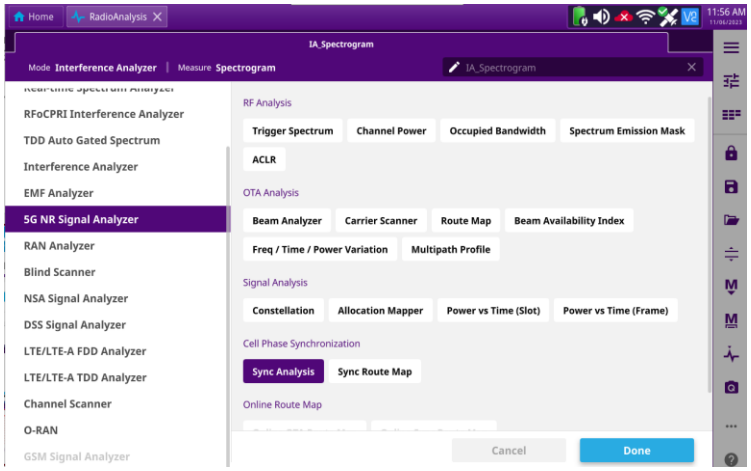


*Figure 4: Select Measurement*

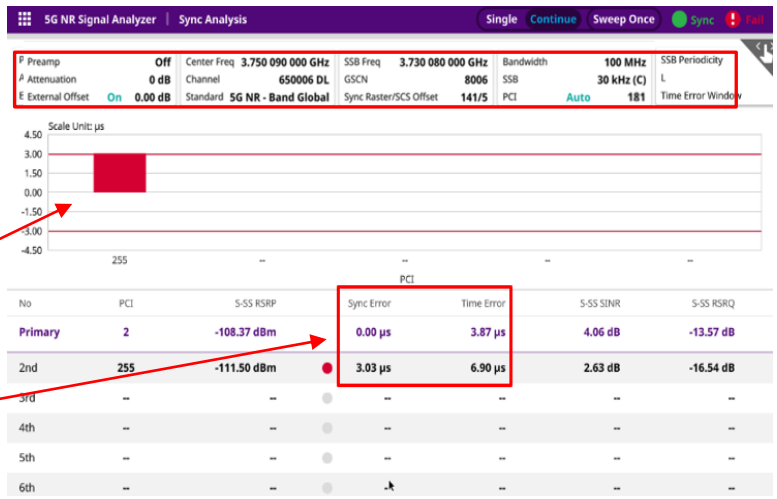


*Figure 5: Measurement Result*

QUICK CARD

# Over-the-Air Cell Phase Synchronization Online Route Map Measurement

This quick card describes how to set up the OneAdvisor 800 **SPA06MA-O Radio Analysis Module** to test TDD 5G NR Radio Time Accuracy over the Air for C-Band Clusters

## Part 2: Mobile(Map) Measurement Equipment Requirements

- OneAdvisor 800 equipped with the following:
  - SPA06MA-O Radio Analysis Module
  - ONA-SP-5GOTA Software Option
  - Or ONA-SP-5GRAN Software Option
  - ONA-SP-CPS Software Option
  - ONA-SP-ORM Software Option
- Magnetic Mount Antennas G700050345 or Magmount GPS Antenna JD71050351
- Optional G700050616 C-Band Band Pass Filter (to block out nearby strong signals outside of C-Band)

*Figure 2: Accessories*

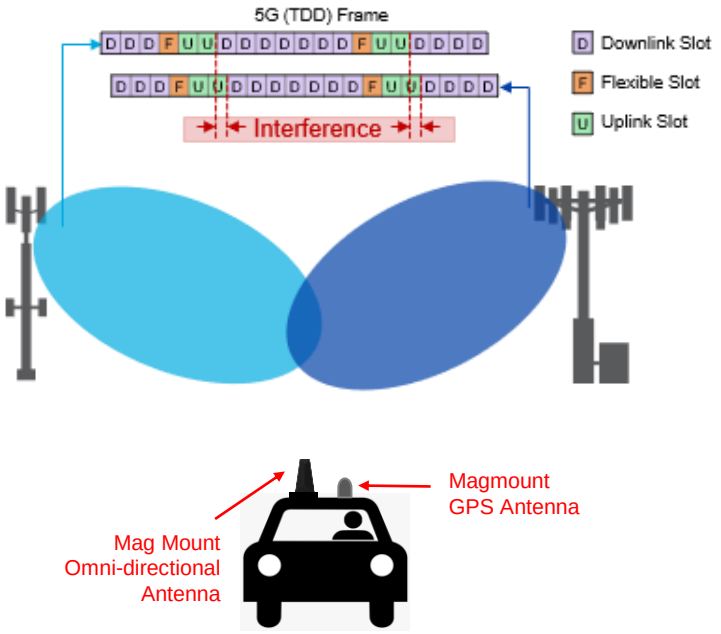


*Figure 1: Test Setup*

## LAUNCH TEST

1. Follow the same procedure as 1 through 5 from Part 1.
2. Tap the ⊞ on the top left of the screen and select **5G NR Signal Analyzer** followed by **Online Sync Route Map** **Done**

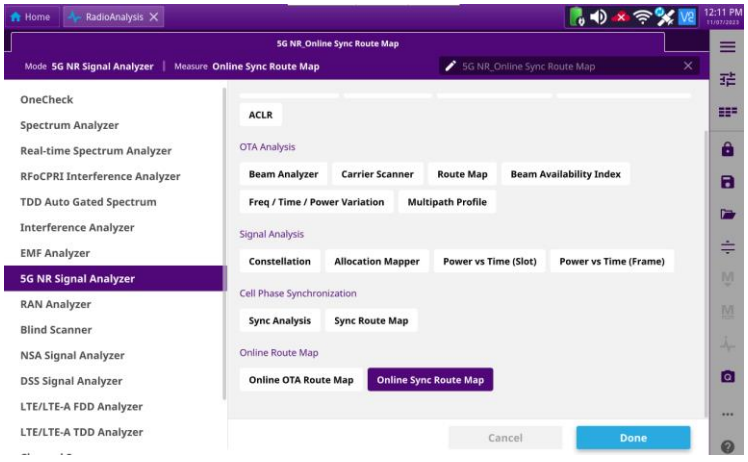


*Figure 3: Select Measurement*

# QUICK CARD

## LAUNCH TEST Continued

1. Tap ⇋ to autoconfigure the Power Settings
2. Set the Channel Number by setting ARFCN to 650006 with Band n77
3. Set the GSCN to 8006. At this point the Sync on the top right of the screen will turn Green
4. Make sure the Bandwidth is set to 100 MHz with SCS to 30 kHz.
5. Swipe the Top Menu Screen to the left until Trigger Menu is visible Trigger GNSS Frequency Reference GNSS
6. Set the Trigger/Frequency Reference to GNSS
7. Once the unit gets Sync from the GPS Antenna, the GPS Satellite Icon on the top right will show a white Check Mark
8. Next to the Trigger Menu is the Sync Error Limit Menu
9. Set the Test Limits On Off to On
10. Select the Limit Range e.g. 3 µsec. If Sync Error is greater than Limit Range set, the bread crumb displayed on map once the test is started will turn red Sync Error On 3 µs
11. Sync Error is the Delta between 2 or more PCIs
12. To connect to WiFi Hotspot tap the Home followed by System icon
13. Select the Network icon followed by the Wi-Fi icon
14. Check the Enable wireless adapter and select hotspot ☑ Enable wireless adapter
15. Enter Password

16. IP Address will appear when connected

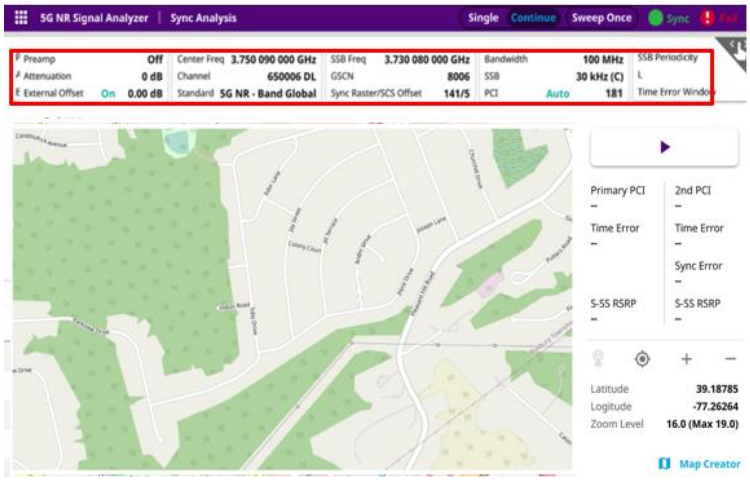


*Figure 4: Select Test*

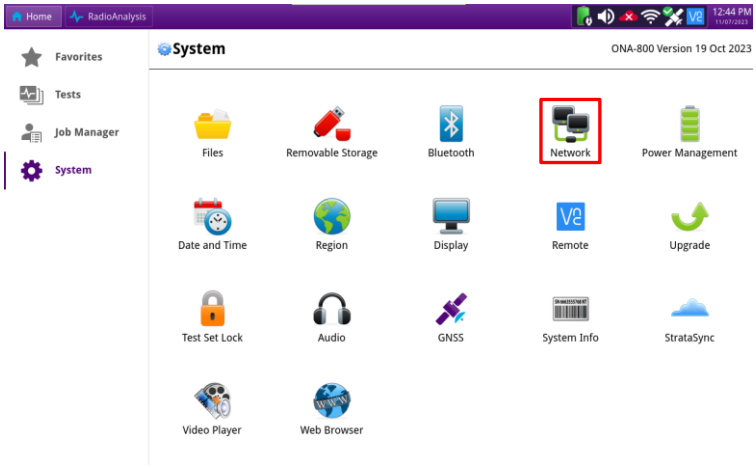


*Figure 5: Setting Up WiFi*

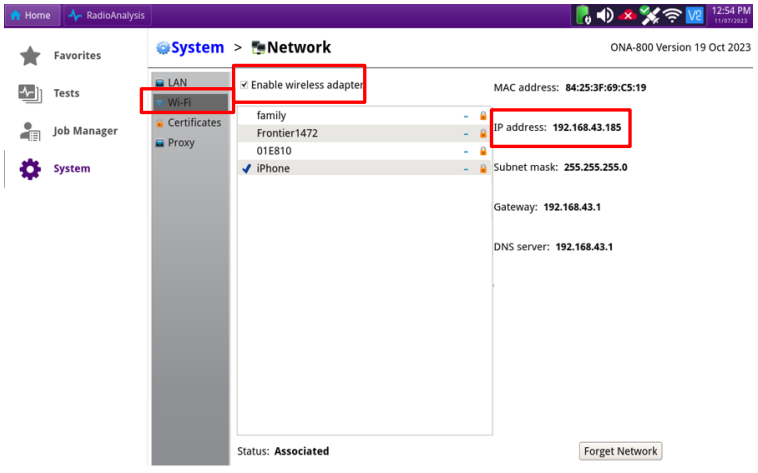


*Figure 6: Setup Hotspot*

# QUICK CARD

## LAUNCH TEST Continued

1. Tap to use Online Route Map to load the current location
2. Tap ▶ and start driving, and the breadcrumbs will start to populate
3. If two or more neighboring sectors exceed the delta threshold that was set previously, the breadcrumb will turn red, otherwise it will stay green
4. Tap the ■ once the drive is complete
5. Tap the to save the drive test result
6. Enter File Name by clicking on the File Name Field
7. Select the File Type that you want to save
8. Result is Viavi .orr file Format for Playback
9. Result as CSV is .csv file which includes all the measurements in tabular form
10. Screen is .png screenshot
11. Setup is Viavi .stav file for all setup parameters
12. Once Saved, to Load a file Tap the icon
13. Select the file you want to load followed by Load
14. In the example on the right, the .orr file is loaded and the map can be zoomed using the icons + − on right side of the screen
15. To analyze the Sync Error, simply click on the desired breadcrumb, and the corresponding Sync Error will be displayed on the right.
16. Additional Measurements can be shown by scrolling the right bottom bar to the right

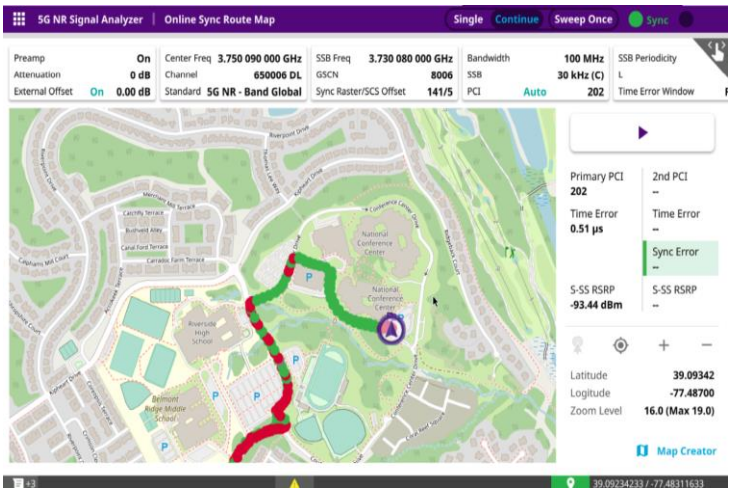


*Figure 7: Drive Test*

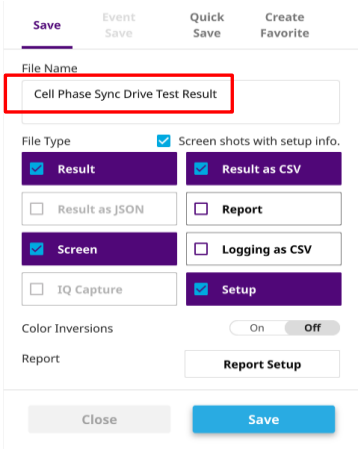


*Figure 8: Saving Test Files*

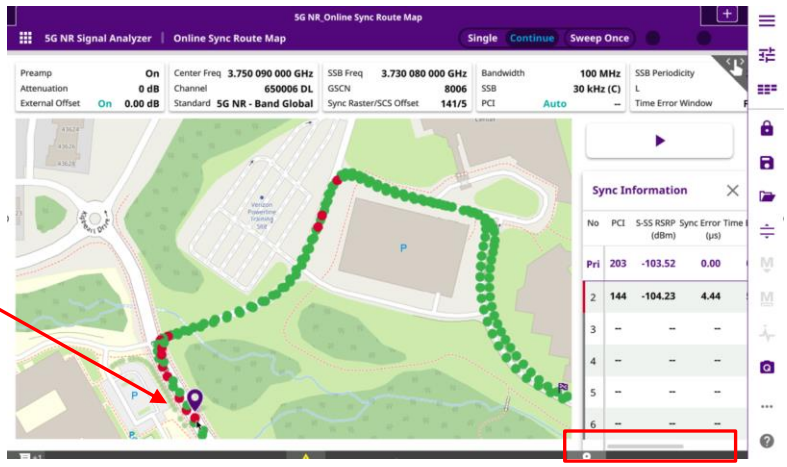


*Figure 9: Post Processing*