## QUICK CARD

## **Over-the-Air Cell Phase Synchronization Measurement**

This guick 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)

Stick Antenna

G700050350



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Figure 2: Accessories

Magmount GPS

# **OneAdvisor 800 Wireless Platform**

## QUICK CARD

#### LAUNCH TEST

- 1. Press the Power button on the ONA-800 base top panel to turn on the OneAdvisor.
- 2. Tap 1 Home to display the Home Screen.
- 3. Tap 🛃 Tests to display the Tests menu.
- Tap Radio Analysis 6 GHz > to show Radio Analysis test applications.
- 5. Tap the 5G NR Signal Analyzer icon.
- Tap the iii on the top left of the screen and select 5G NR Signal Analyzer followed by Sync Analysis Done
- 7. Tap  $\Rightarrow$  to autoconfigure the Power Settings
- 8. Set the Channel Number by setting ARFCN to 650006 with Band n77
- Set the GSCN to 8006. At this point the 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
- 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 On Off to On
- 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



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#### Figure 3: Select Test

🟫 Home 🛛 🕂 RadioAnalysis 🗙					🛛 🛃 📣 📣	? ? *	11:56 AM
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Mode Interference Analyzer   Measure Spe	ctrogram		IA_Spect	rogram		×	72
Near-time spectrum Analyzer	RF Analysis						
RFoCPRI Interference Analyzer	Trigger Spectrum	Occupied Bandwidth		Spectrum Emission Mask		===	
TDD Auto Gated Spectrum	ACLE						ô
Interference Analyzer	ACER						
EMF Analyzer	OTA Analysis						
5G NR Signal Analyzer	Beam Analyzer	Carrier Scanner	Route Map	Beam Ava	ailability Index		
RAN Analyzer	Freq / Time / Pow	er Variation Mult	tipath Profile				÷
Blind Scanner	Signal Analysis						м
NSA Signal Analyzer	Constellation	Allocation Mapper	Power vs Tir	ne (Slot)	Power vs Time	(Frame)	Ť
DSS Signal Analyzer	Cell Dhase Sunchroni	ration					M
LTE/LTE-A FDD Analyzer	Cell Phase Synchronic	zauon					Å-
LTE/LTE-A TDD Analyzer	Sync Analysis	Sync Route Map					O
Channel Scanner	Online Route Map						
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GSM Signal Analyzer			Ca	incel	D	one	0

#### Figure 4: Select Measurement

Preamp Attenuation	Off 0 dB	Center Freq 3.750 090 000 GHz Channel 650006 DL	SSB Freq 3.730 080 GSCN	000 GHz 8006	Bandwidth SSB	100 MHz 30 kHz (C)	SSB Periodicity
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rimary	2	-108.37 dBm	0.00 µs	3.87 µ	is	4.06 dB	-13.57 dB
ind	255	-111.50 dBm 🔴	3.03 µs	6.90 µ	IS	2.63 dB	-16.54 dB
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-1							

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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)





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Figure 1: Test Setup

### LAUNCH TEST

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



OneAdvisor 800 Wireless Platform

# **OneAdvisor 800 Wireless Platform**

## QUICK CARD

#### LAUNCH TEST Continued

- 1. Tap  $\Rightarrow$  to autoconfigure the Power Settings
- 2. Set the Channel Number by setting ARFCN to 650006 with Band n77
- Set the GSCN to 8006. At this point the 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
- 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 off to On
- 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
- To connect to WiFi Hotspot tap the Home followed by System icon
- 13. Select the icon icon followed by the rewrite Wi-Fi
- 15. Enter Password



16. IP Address will appear when connected OneAdvisor 800 Wireless Platform



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Figure 4: Select Test



#### Figure 5: Setting Up WiFi



Figure 6: Setup Hotspot

# **OneAdvisor 800 Wireless Platform**

# QUICK CARD

#### LAUNCH TEST Continued

- Tap 

   to use Online Route Map to load the current location
- 2. Tap ► and start driving, and the breadcrumbs will start to populate
- 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 **b** 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
- 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



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Figure 7: Drive Test



Figure 8: Saving Test Files

