

URT-5000

RF Player and Signal Generator



Generate, impair and play back all common radio, video, and navigation signals, **ensuring complete test coverage** and the **highest quality** for your **RF receivers**.



URT-5000

RF Player and Signal Generator

Available Toolkits

- AM/FM
- DAB/DAB+/DMB
- GPS Manufacturing Simulators (Single Satellite or Constellation)
- HD Radio (IBOC)
- RDS/RBDS (1 or 3 Channels)
- Sirius and XM – Type 1 Acceptance and Manufacturing
- TMC–RDS
- RF Player
- DriveView Player

Averna RF Instruments

RP-6100 Series: Multi-Channel RF Record & Playback

Powerful, cost-effective RF solutions for capturing GNSS, WiFi, LTE & more

RF Studio: RF Record & Playback Software

Easily record and analyze RF, audio and video as well as NMEA data

→ Want an all-in-one RF signal solution?

The state-of-the-art, software-defined URT-5000 is the RF Player and Signal Generator of choice in industries such as automotive, semiconductor, consumer electronics and telecommunications. It utilizes Averna's protocol-specific RF signal toolkits and signal libraries, and can generate and impair all common navigation and broadcast radio signals for receiver design validation, testing, production and support purposes.

→ Extends Test Coverage and Boosts Quality

The URT-5000 provides a convenient and repeatable method to validate software protocol stacks, demodulator designs and embedded software. Employ it to create test signals and scenarios that ensure ultimate test coverage for your products. And it's much more powerful than a simple commercial broadcast transmitter because it also enables you to add and fine-tune common impairments to the signal.

→ Advances Design Validation and Lowers Costs

As well as effective signal generation, the URT-5000 lets you play back your captured real-world (impaired) RF signals without demodulation or alteration, extending your coverage of RF receiver use cases. And with a library of repeatable recordings, the RF Player can speed up your development phase and reduce, if not eliminate, costly trips back to the field to validate each engineering change.

IMPORTANT LEGAL NOTE: Every country has different laws governing the transmission and reception and/or recording of radio signals. Users are solely responsible for using their URT/R&P in compliance with all local and applicable laws and regulations governing the transmission and reception and/or recording of radio signals. Averna Technologies Inc. does not accept liability for such use of our products. Averna recommends that you determine what licenses may be required and what restrictions may apply prior to use.

→ Key Features and Benefits

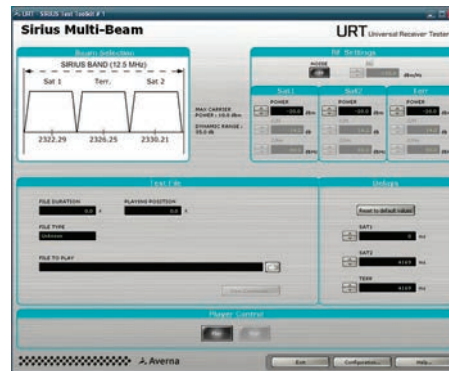
- Supports all common navigation and broadcast radio protocols
- Easily adapts to new and ever-changing protocols, eliminating need for new instruments
- Real-time signal generation for long-running lifecycle tests like HALT and HASS
- Allows synchronization of units to support multiple channels
- Easy-to-use interface to generate signals quickly and intuitively
- Complete API for automating remote control of the instrument
- Front-access hot-swappable hard-disk drives for maximum convenience



→ URT Radio and Navigation



Get easy access to any Avera RF toolkit from the handy URT console.

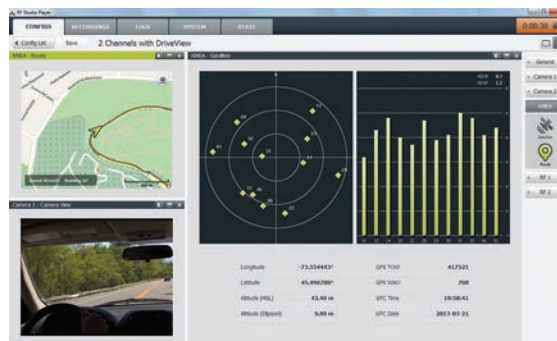


Each RF toolkit has all the features you need for precise, repeatable testing.

→ RF Studio Player and DriveView



The RF Studio Player enables you to view real-world signals from multiple perspectives.



The DriveView option displays full environment data of your field-captured recordings.

RF Output Specifications

Frequency	
Output Range	140 kHz to 2.5 GHz
Resolution	0.1 Hz
Phase Noise @ 1 GHz	< -90 dBc/Hz, 1 kHz Offset < -95 dBc/Hz, 10 kHz Offset < -110 dBc/Hz, 100 kHz Offset
Noise Floor	-140 dBm/Hz @ 10 MHz Offset
Internal Reference	+/- 0.2 ppm initial accuracy +/- 0.8 ppm/year aging +/- 1.0 ppm temperature

Amplitude & Power	
Range	-140 dBm to +10 dBm P.E.P.
Resolution	0.1 dB
Accuracy	+/- 1.0 dB (≤ -110 dBm), +/- 2.0 dB (≤ -110 dBm)
Gain Resolution, RF Playback	0.25 dB
Max. IMD Level	-60 dBm typ. (two -5 dBm tones)
Harmonics	-30 dBc @ 0 dBm (typ.)

NOTE: All specifications apply for $\sqrt{(12+Q2)} = 0.5$ FS

Baseband	
1 MHz to 20 MHz real-time BW	
Sample Rate	25 MS/s
Dynamic Range	80 dB SFDR
Output Resolution	16-bit

Environmental

Warm-up Time	Weight
60 min. @ 20°C (68°F) (typ.)	15 kg (33.06 lbs)

Size (H x W x D)	
Unit	2 U
Rackmount	48 cm (19 in)
Deep	40 cm (16 in)
Removable rack ears and handles	

Temperature	
Operating	5°C (41°F) to 45°C (113°F)
Storage	-20°C (-4°F) to 70°C (158°F)

Relative Humidity	
10% to 90% (non-condensing)	

Storage	
4 x 6.4 cm (2.5 in) hot-swappable drive bays	
Up to 4 x 6.4 cm (2.5 in) 500-GB SATA 2.0 hard-disk drives	

Calibration	
Every year.	

Power	
90-264 VAC, 50/60 Hz, 125 Watts (typ.)	
IEC 60320-C14 power connector inlet	
IEC 60320-C13 to NEMA 5-15P, 3 m (9.8 ft) North American power cord included	
IEC 60320-C13 to CEE 7/7, 3 m (9.8 ft) European power cord included	

Connectivity

RF Connector	
RF Output (50Ω)	1 x N Female +20 dBm, +/- 16V DC, AC coupled

LO	
LO Input	1 x SMA Female Freq. 150 MHz/2.5 GHz Level 0/+5 dBm, Max.: +12 dBm
LO Output	1 x SMA Female Freq. 150 MHz/2.5 GHz Level 0/+5 dBm, Max.: +20 dBm

10 MHz Reference	
10 MHz REF Input (50Ω)	1 x SMA Female Freq. 10 MHz, Level 0/+10 dBm Max.: +15 dBm

10 MHz REF Output (50Ω)	1 x SMA Female Freq. 10 MHz, Level +2 dBm Max.: +10 dBm
-------------------------	---

100 MHz Sample Clock	
Clock Input (50Ω)	1 x SMA Female Freq. 100 MHz, Level 0/+10 dBm Max.: +12 dBm

Clock Output (50Ω)	1 x SMA Female Freq. 100 MHz, Level +4 dBm Max.: +20 dBm
--------------------	--

Trigger/Sync Input(s) & Output(s)	
Input (50Ω)	2 x SMA Female Freq.: PULSE, Level: TTL 5V TOL Max.: -0.5/5.5V
Output (50Ω)	1 x SMA Female Freq.: PULSE, Level: TTL 5V TOL Max.: -0.5/5.5V

Ethernet	
1 x 10/100/1000 Mbps RJ-45 LAN port	

Peripheral	
4 x USB 2.0/1.1 Type A peripheral ports (back)	
2 x USB 2.0/1.1 Type A peripheral ports (front)	

Display	
1 x DBHD-15 FVGA port	

Compliance	
FCC 47 Part 15 Class A	
European Directive 98/336/EEC Class A (Emissions)	
European Directive 2002/95/EC (RoHS)	



averna.com Canada United States Mexico Europe Japan

Averna is a trademark of Averna Technologies Inc. All other brand names, product names or trademarks belong to their respective holders. © 2023 Averna. All rights reserved. 07/2023

