

4G Test Radio



Product Overview

AceAxis is a well established technology company with a long history in radio design and test solutions for the telecommunications industry.

AceAxis has produced a radio designed to support validation of 4G, 4.5G and 4.9G systems.

The AceAxis Radio Test System (RTSx4) is a powerful 19" Rack based 4 channel wideband transceiver for Wireless system testing. It has been designed to operate as a mobile signal emulator for use with LTE eNode B base stations during test and conformance.

The RTSx4 offers flexible BTS connections communicating via CPRI. Internally there are two 2x2MIMO Radio entities, using their own unique IP addresses obtained via DHCP, or set to the default static address. Each Radio has Ethernet control either via an RJ45 interface or via an Ethernet over CPRI channel.

The equipment can support 4Tx, 4Rx channels, 4x4MIMO or 4xSISO. Each radio supports Channel frequencies between 700-2700MHz and up to 2 carriers with 60MHz instantaneous bandwidth.

General Specifications

Specification	Value
Bandwidth	50 MHz
Frequency ranges	700-2700MHz
Operating mode	FDD/TDD
Number of Tx/Rx paths	2x2 MIMO
Digital baseband I/F	CPRI V4.2
Clock reference	Recovered from CPRI line rate
Ambient Temperature range	5-50 C
Module RF connectors	SMA
Power meters	Tx and Rx power meters located at the antenna
Calibration	Continuous compensation of quadrature (IQ) imbalance
PSU Spec	100 – 240 VAC, 50-60 Hz; 80W Replaceable or resettable fuse Input: IEC-C14

Product Features

- 700MHz to 2.7GHz frequency range
- FDD/TDD support
- 4x4 MIMO
- 50MHz instantaneous bandwidth
- TX output power 0dBm
- Support for CPRI V4.2
- CPRI line rates 1-8 supported
- Ambient temperature range 5-50 degree C
- RF connectors N-Type
- Low power consumption typical < 350W
- Product Weight 12Kg

Optional Features

- TX Power options for 30dBm, 33dBm and 36dBm

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Fibre Optic Interface Specification

Specification	Value
Operating mode	RE (CPRI slave)
Line rate	Rate 1 (0.6144Gbps) to Rate 8 (10.1376 Gbps)
Number of AxC	currently 2 (extend to 4 in future)
Sample rate	Fixed at 30.72Msps
Sample format	15bit, signed
IQ mapping	I and Q samples are reversed and bit interleaved.
Mapping method-3 : backwards compatible (section 4.2.7.2.7 of CPRI spec V4.2)	
With 2 AxC, 16 AxC samples (8 x AxC0 + 8 x AxC1) are packed into the first half of the CPRI basic frame (480bits). The second half is empty	
Tunnelled Ethernet	Fast C&M plane to tunnel ethernet packets for control of the RF card
Loopback	CPRI loopback (unpack-repack) used for running BBU FPGA BIST
SFP+ Module BiDi	Bi-directional: SFP's are not supplied with this product
Fiber Optic Cable	Simplex LC Single Mode Fiber Wave Length: 1310nm Fiber Type: 9/125nm

Physical/Environmental and Electrical Specifications

Specification	Value
Height	1U
Depth	Depth 630mm;
Weight/Mass	12kg including removable rails (but with no packaging)
Top Lid	Split lid to protect RF modules when Splitters/Circulators are added.
19" Rack connection	Tool-less rack supplied with product. Rail Range: Min = 660mm ; Max = 800mm
Front Panel	8 x N-type RF connectors, female (4 x Rx, 4 x Tx) to SMA, female (internal connector) Center-Center Spacing: > 38mm LED Panels: see Requirements section for details
Rear Panel	2 x SFP ports (bidirectional CPRI), 2x Ethernet Power Input: IEC-C14 Ground Lug with bolt/washer or equivalent
Metalwork colour	Powder Coat: RAL 7021 LT BLACK

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Electrical Specifications (at 25°C unless otherwise specified)

Transmit Specifications

Specification	Value
Tx power (OFDM)	0dBm
Tx max. power (CW)	≥10dBm
Tx power meter	Wideband power @ antenna
Tx gain range	>40dB
Tx gain accuracy	0.25dB
Passband ripple	<±1dB
Tx spurious emissions	<-45 dBm
EVM	<2% (64 QAM@ Max Power)
Noise power density	<133dBc/Hz @ 10Mhz offset
Tx to Tx isolation	>50dB
Tx to Rx isolation	>60dB
DAC	16 bit

Receive Specifications

Specification	Value
Rx power max. (no damage)	30dBm
Rx power meter	Wideband power @ antenna
Noise figure	≤5dB
Rx gain range	60dB
Rx gain accuracy	0.25dB
Spurious emissions	<-45dBm
Pass band ripple	<±1dB
ADC	14 bit
Average EVM	<2%, 64 QAM @ -30....0dBm

Ordering Information

A36XX4X7002000105M-1 – 700MHz to 2.7GHz Radio