

iRM4451 - Intelligent Macrocellular Remote Radio Head (iRRH)

iRM4451 Product Description:

The iRM4451 Intelligent Macrocell Remote Radio Head (iRRH) is an energy-efficient radio system using leading-edge multicore processors. It is designed with a robust, convection-cooled (fanless), IP65 housing for use in all outdoor environments. In conjunction with the Altiostar virtual baseband unit (vBBU), the iRM4451 provides a complete intelligent C-RAN solution.

The iRM4451 is capable of providing Macrocellular (3GPP Wide Area base station) coverage capability with four transmitters and four receivers (4T4R), and a total combined transmit power of up to 120W across its RF ports (four x 30W, or 51dBm). It also supports a lower power mode with 80W (four x 20 W, or 49 dBm).

The radio transceiver is based on a wideband transceiver design permitting rapid development of new products and bands. The design is configured through software to support all key LTE channel bandwidths, starting from 5 MHz to 20 MHz. The product incorporates highly flexible and adaptive DPD and CFR algorithms that provide excellent linearity and EVM performance. The receivers offer diversity or MIMO reception with a high linearity, low noise figure design, that exceeds the 3GPP requirements.



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The iRM4451 has dual, direct-access, IP67 rated fiber ports. These ports provide data and communications between the iRRH and the vBBU.

For system synchronization and timing, the Macrocell iRRH has an onboard GPS receiver. It also has IEEE 1588v2 capabilities that support scenarios where access to clear sky for GPS is restricted or where IEEE 1588v2 is the preferred synchronization method.



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Summary of the iRM4451 features & benefits:

- Highly flexible and adaptive DPD and CFR algorithms, for excellent transmitter linearity, EVM performance, and frequency accuracy
- 30W per RF path in a 4T4R configuration
- Low Power PA biasing to operate at 20W per path with highest achievable efficiency
- Factory configurable Signal Processing Module (SPM) to support advanced processing requirements on a per-customer or per-deployment basis
- Can be remotely located from the server hosting the vBBU, using readily available wired or wireless Ethernet-based transport (certain delay and bandwidth requirements must be met)
- Use of low phase-noise architecture with a high stability Phase Locked Loop (PLL) and high linearity through the RF chain providing minimal distortion of transmitted signals
- Remote management and control capability for configuration, diagnostics, troubleshooting, etc.
- Integrated with Self Organizing Network (SON) solution to reduce truck rolls and associated manual configuration costs
- QoS, interference, channel-aware Weighted Proportionally Fair (WPF) scheduler for improved spectral efficiency

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Technical Specifications:

Frequency Band(s):

iRM-44510200	iRM-44510300	iRM-44510400
PCS (3GPP Band 2)	1800 MHz (3GPP Band 3)	AWS (3GPP Band 4)
UL 1850–1910 MHz DL 1930–1990 MHz	UL 1710–1785 MHz DL 1805–1880 MHz	UL 1710–1755 MHz DL 2110–2155 MHz
iRM-44510700	iRM-4451E400	
2.6 GHz (3GPP Band 7)	AWS-1 & AWS-3 (3GPP Band 4 + AWS-3)	
UL 2500–2570 MHz DL 2620–2690 MHz	UL 1710–1780 MHz DL 2110–2180 MHz	

Duplex Mode:	FDD
TRx Configuration:	4T4R
Number of Carriers:	1 (Multi-Carrier Software Upgrade - TBD)
Max. RF Output Power:	120 W (4 x 30 W)
Max IBW:	45 MHz (25 MHz OBW)
Channel Configurations:	5, 10, 15, 20 MHz
Timing & Synchronization:	GPS and 1588v2
Dimensions (HxWxD):	
Radio Module:	SPM (Delta to Radio Module):
17.7 in x 21.1 in x 6.1 in (450 mm x 535 mm x 156 mm)	13.8 in x 6.0 in x 0.9 in (350 mm x 153 mm x 24 mm)
Volume:	<39 L
Weight:	75 lbs (34.2 kg) (Excludes Brackets, Solar Cover)
Mounting Options:	Wall / Mast
Power Supply:	–48 VDC
Consumption (Typ.):	600 W
External Interfaces:	
RF Connector:	50 Ω 7/16 DIN (Female)
Data (Fiber):	Q-XCO Connector (Ethernet x 2)
Power Input:	Tyco CPC Series 5
GPS:	SMA (Female)
AISG/RET:	8-pin IEC 60130-9 (Female)
Operating Temperature:	–40° to 131°F (–40° to 55°C)
IP Rating:	IP65
Cooling:	Fanless Convection
MTBF:	> 10 years