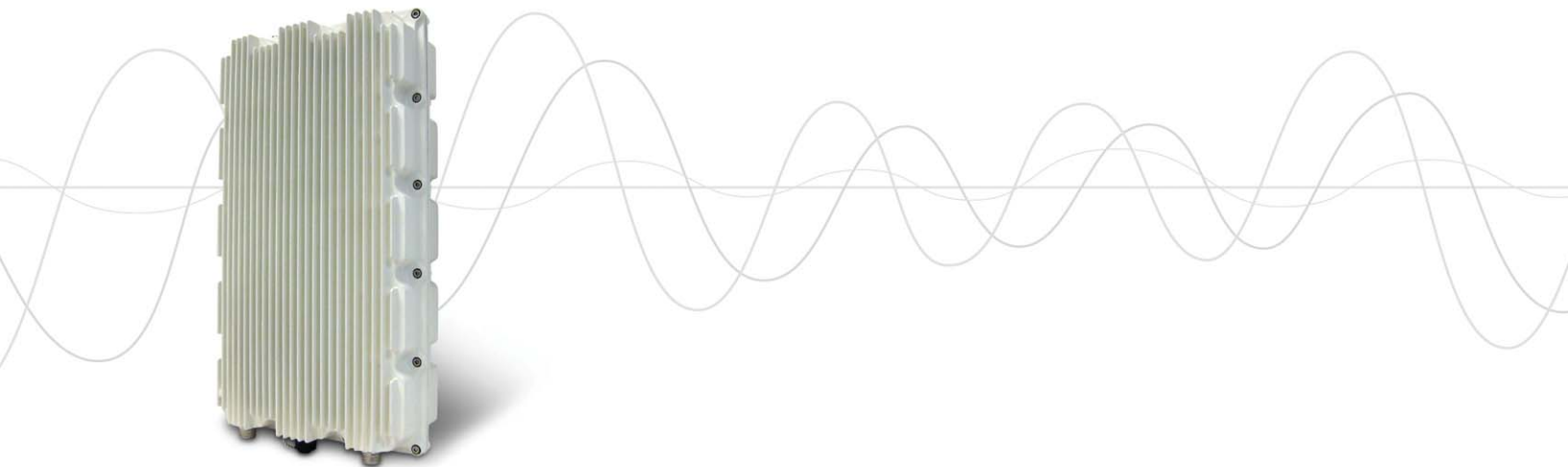# RedMAX™ 4C Remote Radio Head (RRH)

The RedMAX 4C Remote Radio Head (RRH) is Redline's high-power, high capacity software reconfigurable Mobile WiMAX radio based on Redline's 5th generation WiMAX technologies. Conforming to the stringent specifications for the IEEE802.16e-2005 standards for Mobile WiMAX, the RRH is designed to seamlessly interoperate with emerging WiMAX products based on the 802.16e standards that utilize the OBSAI RP 3.01 Digital IF standard.

The RRH offers carriers significant advantages over other mobile WiMAX radios. Its high-power capabilities enable greater reach, resulting in reduced infrastructure and operational costs to operators as fewer base station radios are required in their coverage area. A single radio supports 200 MHz of RF bandwidth with software reconfigurable channel sizes of 3.5, 5, 7 & 10 MHz.

The RedMAX 4C RRH also boasts one of the smallest and lightest form factors in the industry. Weighing only 10.2 kg, the RRH can be installed by a single technician, which results in accelerated deployments and further savings in installation costs.

The RRH is designed for operation in all WiMAX Forum targeted band classes including the flagship 2.5 GHz and 3.5GHz frequency bands using either TDD or FDD modulation techniques, enabling operators to deploy it in a range of environments. The RRH readily supports operation in the 2.3 GHz, 3.3-3.5 GHz, 3.4-3.6 GHz and 3.6-3.8 GHz bands. This Remote Radio Head solution addresses logistics issues faced by many telecom carriers and their supply chain by reducing the number of radio variants required to support a global customer base. Redline's scalable OFDMA and Non Line of Sight (NLOS) technology helps overcome typical urban obstacles such as trees and buildings while maintaining high reliability. Rugged design standards and sophisticated techniques combine to deliver wire line-equivalent high availability.

Redline's RRH implements a number of key digital radio techniques, including AQM (Analog Quadrature Modulator) calibration, CFR (Crest Factor Reduction) and DPD (Digital Predistortion) ensuring the performance level required for reliable delivery of delay-sensitive services such as video, voice-over-IP (VoIP), and prioritized data traffic. The RRH also supports an XML SOAP interface to enhance end to end system control and management.

RedMAX 4C Remote Radio Head (RRH) Specifications

RF Bands of Operation:	2.3-2.4GHz, 2.49-2.69GHz, 3.3-3.5 GHz, 3.4-3.6GHz, 3.6-3.8 GHz
Channel Size:	3.5 MHz, 5, 7 and 10 MHz
Radio Configuration:	2X2 supporting Matrix A and Matrix B MIMO operation
Tx Power:	w/o DPD option +38 dBm meeting ETSI 302 544 SM, ACLR (Adjacent Channel Leakage Ratio) and AACLR (Alternate ACLRACLR)
TX Power:	with DPD option 40dBm meeting ETSI 302544, ACLR and AACLR
Typical EVM (Error Vector Modulation) @ Pnom:	-34dBC measure with 5MHz channel of operation, PUSC (Partial Use Sub Carrier) all sub-channels used 64QAM 3/4
Rx Sensitivity:	Better than -102dBm @ QPSK 1/2 (based on BER of 1x10e-6) SISO mode of operation
Rx Noise Figure:	3.4 dB typical, 4 dB guaranteed
Interface Cable:	Optical Single Mode or Multi Mode optical cable interface, Single or Dual Fibre Optic Cable Interfaces and SFP (Small Form Factor Pluggable) modules supported
Modulation/Coding Rates:	All WiMAX 802.16e MCS (Modulation and Coding Schemes) supported: BPSK, QPSK, 16 QAM, 64 QAM
Synchronization:	Recovered BTS Clock from OBSAI RP3 interface
Duplex Technique:	TDD (time division duplex) FDD (half duplex frequency division duplex)*
Debug Interface:	Standard: 10/100 Ethernet RJ-45
Management:	CLI (Command Line Interface) via Telnet and Local Console or OBSAI SOAP XML Module Agent Control agent Interface Full management by Redline Management Suite (RMS)
Power Requirements:	DC -36 to -72V
Power Consumption:	110W both Antennas operational at Pnom (nominal power)
Compliance:	EMC: EN 301 489-1, EN 301 489-4, EN 55022/CISPR 22 RF: FCC: CFR 47, Part 27 Safety: IEC 60950-1, UL 60950-1 Environmental: IP 65
Operating Temperature:	-40 C to 60 C
Dimensions:	19 x 11 x 7 in
Weight:	10.2kg
Humidity:	Up to 95% non-condensing

Contact sales for availability / approvals in your region

About Redline Communications

Redline Communications is the leading provider of fixed and mobile standards-based wireless broadband solutions. Redline's RedMAX™ WiMAX Forum Certified™ system, RedMAX 4C Mobile WiMAX™ products, and its award-winning broadband wireless infrastructure family of products – RedCONNEX™ and RedACCESS™ – enable service providers and other network operators to cost-effectively deliver high-bandwidth services, including voice, video and data communications. Redline is committed to maintaining its wireless industry leadership with the continued development of WiMAX and other advanced wireless broadband products. With more than 75,000 installations in 80 countries, and a global network of over 140 partners, Redline's experience and expertise helps service providers, enterprises and government organizations roll out wireless broadband networks to support advanced communications.