



Wavesight Hawk

Cellular Product Range (4G/LTE)

Remote Radio Head (RRH) 2x2 MIMO 20W Version Overview





About Wavesight

With headquarters in UK, Wavesight Limited is a leading designer and supplier of outdoor and indoor Broadband Wireless communication products.

With a complete range of solutions including Radio, Microwave, Millimeter-Wave, Free Space Optics, WiFi and 4G/5G/LTE, customers in over 80 countries have chosen Wavesight as the “one stop shop” solution of choice for dependable wireless networking.

About SDR Base Stations

Using the latest Software Defined Radio and RF technology, our cellular Base Station products operate in all the common cellular bands from 380MHz-5925MHz, distances over 20km and high net throughput to subscriber devices.

Our advanced LTE Cellular Base Station platform with IP/Ethernet interfaces supports LTE Release 14 and offers software updates for future features.

Flexibility, performance, and low cost of ownership are ensured.



Advanced 4G/LTE Remote Radio Heads (RRH)

Wavesight offers high performance 4G/LTE Base stations solutions for a wide variety of applications. Covering all common 4G/LTE bands the base stations feature Software Defined Radio (SDR) which enables great flexibility of operation and future upgrade path.

4G/LTE networks using Wavesight Hawk 4G SDR base stations enjoy great flexibility, high performance as well as very low cost of operation and ownership. "Stand Alone" operation is possible which enables the 4G Base station to connect remote terminals without need for external network elements. This is ideal for closed network type applications such as CCTV, campus sites and disaster recovery scenarios, where there is no centralised infrastructure or Network Operations Centre.

System Features

- Compact, Ruggedised 4G/LTE Remote Radio Head
- Ideal for Multi-Sector Macro Site
- Spectrally Efficient, Software-Defined Radio
- The Hawk RRH is available in versions for both FDD & TDD and supports MIMO 2x2 natively
- Transmit Power from 500mW to 20W per Tx
- Supports LTE release 12, 13 & 14 (LTEAdvanced)
- Supports NB-IoT (Internet of Things) Modes
- Upgradable to 5G with future software releases

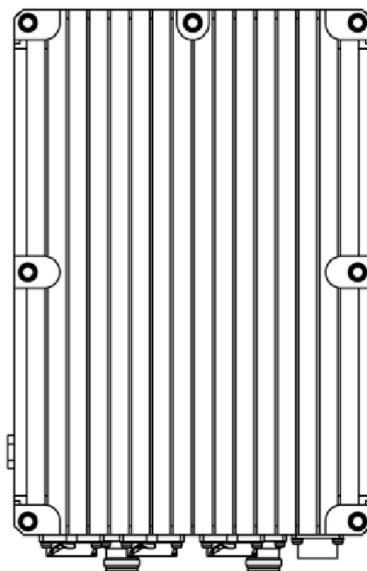
Applications

- Cellular Network operators
- Telecom Service Providers & ISPs
- Point-to-Multipoint Point Wireless networking
- CCTV & Safe City Camera Networks
- Oil & Gas Utilities
- Fast Roll-out & Temporary Deployment

Enhanced Performance, Flexibility & Features

The Wavesight Hawk platform is an integrated advanced system capable of handling multiple LTE carriers. Provided in a sealed carrier grade unit for installation in most locations. The Hawk RRH platform is at the forefront in terms of digital pre-distortion technology and signal processing associated to advanced PA architecture. This make the Hawk platform ideal for implementation within the cellular and advanced point to point communications market.

The Hawk RRH platform is suitable as a multicarrier power amplifier either in the Base station or aggregated within the deployment. From 1 up to 5 carriers can be supported depending on specific band and channel width combinations.



To achieve maximum flexibility in terms of utilisation, the RRH is factory configured with either a filter or duplexer with specific tuning to enable:

- TDD or FDD Modes
- Standard LTE bands, or sub-bands
- Optional Customer-specific frequencies

The addition of the duplexer ensures compliance with the ETSI TS136 104 specifications.

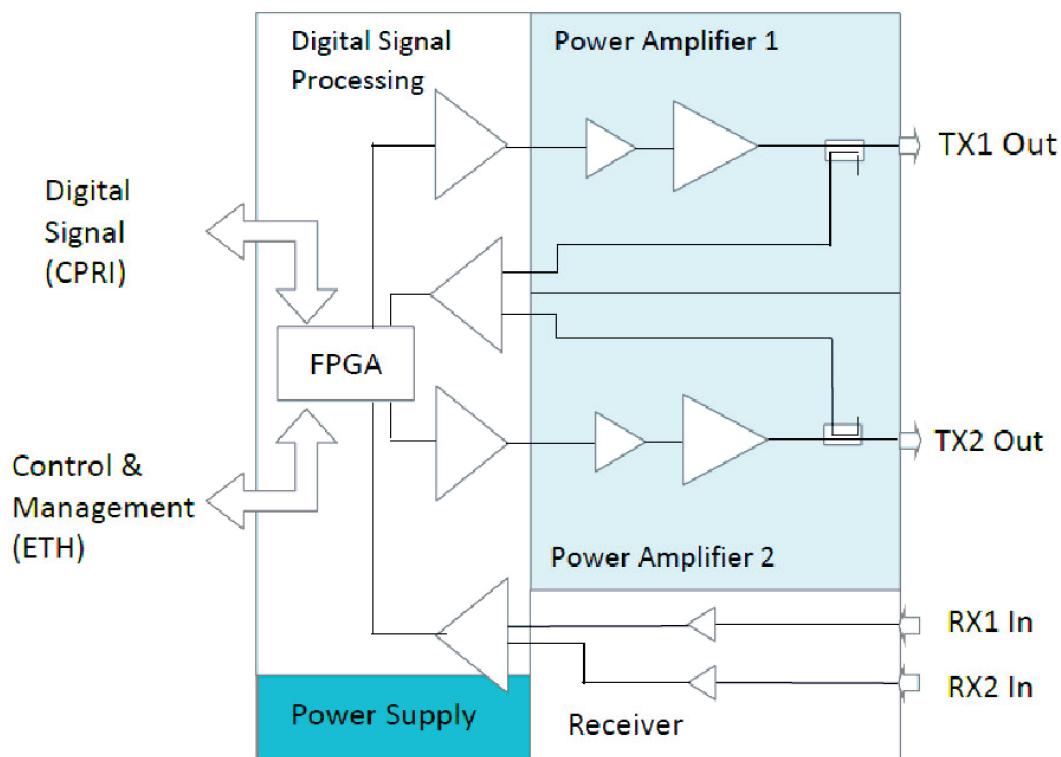
The Hawk RF platform allows management through the Ethernet based connection. This allows for the transceiver to be managed or upgraded either via local connection or via secure remote protocols.

Wavesight Hawk RRH platform allows for the Rx inputs to operate in high or low sensitivity modes for NF receiver performance.

The Hawk RRH unit carries 2 CPRI input connections to allow for the latest generation of LTE architecture to be implemented.

Optional upgrade to eCPRI will be supported on this platform for future proofing and roadmap compatibility.

Wavesight Hawk Remote Radio Head (RRH) Unit block diagram:





Wavesight Hawk Platform Specifications

Specific Version Information

The specific RRH version described on this datasheet is for:

- 2x20W Output
- Versions for all LTE Bands available
- CPRI interface with options for eCPRI

Available in versions to cover all LTE Bands

The Wavesight Hawk range is available in versions to cover all commonly used LTE bands. Please ask for specific versions which can include specific versions for:

- LTE Frequency Bands 380MHz up to 5925MHz
- TDD or FDD Operation
- 2x2, 4x4 or other MIMO configuration
- Transmit power from 500mW up to 40W per chain
- Multi-carrier capability up to 5 carriers

Custom LTE Bands & Frequencies

Wavesight LTE Base stations can be supplied for custom bands and frequencies if/as required. nfigurations 7 and 9

System Variant WS-Hawk-RRH-20W-B-X

System Parameters

Max. No Carriers per LTE TX/RX	1 (1, 4.3 MHz channel widths) 5 (5,10, 20MHz channel widths)
Transmitter	
2 ports (2x2 MIMO version)	
Tx Max Pout per port	5 - 20 W Avg per chain, under software control
Tx Frequency range	Depends on specific band version selected *
Receiver	
2 ports (2x2 MIMO version)	
Rx frequency range	Depends on specific band version selected *
Rx input level	-28dBm Max
LTE sensitivity (5,10,20 MHz)	<-101.5dBm

*Depending on band, one or two sub-band variants may be required to cover full LTE Band.

Regulatory

LTE Compliancy	ETSI TS 136 104 cat B Opt2
Electrical safety	UL 60950 - Ed.3 2000, EN 60950 Ed.2001, CSA C22.2 No 60950
Environmental Conditions	ETSI EN 300 019-1, ETSI EN 300 019-1, ETSI EN 300 019-3, IP67
Mechanical	IEC 60297-3 - Standard definition for 19" modules
Inflammability	UL94

Physical Interfaces

RF	2x 4.3/10 RF connectors, low-PIM, high power
CPRI/eCPRI	2x SFP Optical Cages with weather-sealed glands
Management	1x Management Port Interface with weather-sealed gland

Physical Parameters

Operational Temperature	-20°C to 55°C ETS 300 019-2-4 Class 4M5
Humidity	0 to 95%, non-condensing
Power Supply	DC 36-60 V
Overall Efficiency	>20% (with duplexer*)
Power Consumption	<230 W
I/Q connectivity	2 CPRI V4.0 Option for eCPRI for future upgrade
Local Management & debugging	1 Gigabit Eth. 1 Serial Port
Weights and Dimensions	(2x20W model)
Dimensions	180mm x 230mm x 280mm
Weight	<14 Kg