HARMONY EBAND

ALL OUTDOOR HIGH CAPACITY RADIO

4G -READY PACKET MICROWAVE EBAND RADIO

The Harmony Eband is a compact all-outdoor radio that delivers 2.6 Gbps full-duplex and operates in 71-86 GHz spectrum. By utilizing large and generally untapped frequency bands, the Harmony Eband provides a good alternative to other more congested microwave frequencies for path distances up to 8 kilometers.

The Harmony Eband's high output power, MIMO capability and Adaptive Modulation and Waveform techniques provider greater reach than traditional Eband systems. Using an ultra-low delay mode and a CPRI interface, the Harmony Eband radio is also an ideal solution for high capacity fronthaul applications.

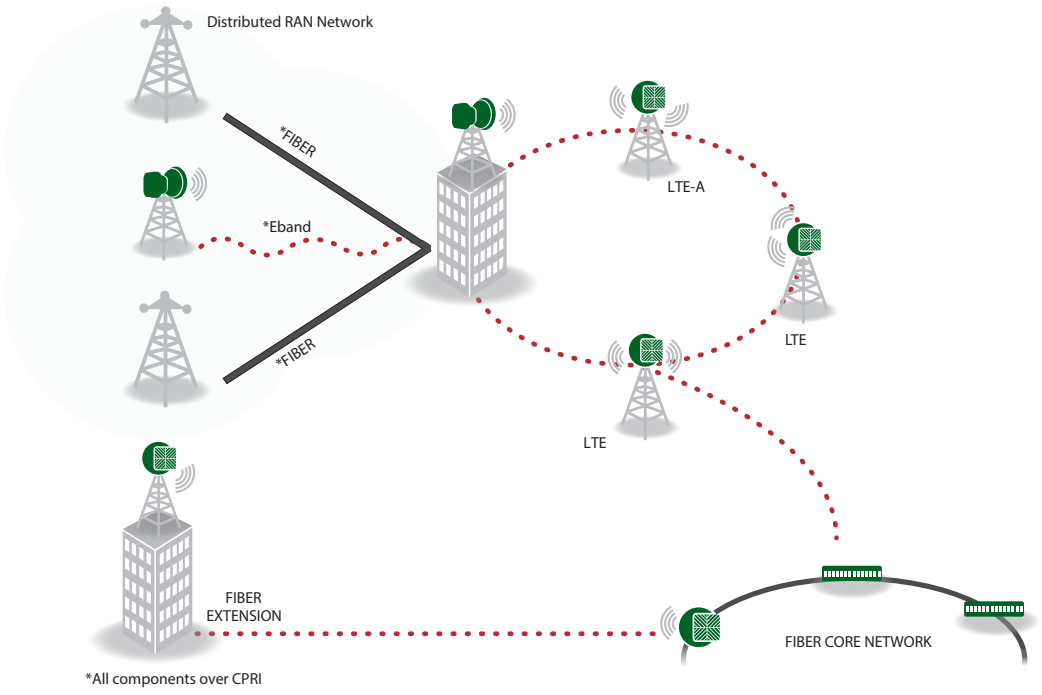
Operators gain a significant OPEX advantage with the Harmony Eband's low cost spectrum, low energy consumption and a small form factor for reduced tower load. Standard RJ45 connections using DragonWave's All-Weather solution to simplify the installation and reduce deployment costs.

SOLUTION HIGHLIGHTS

- Small, all-outdoor form factor
- CPRI for direct integration with Cloud RAN
- Ultra low delay: <40 µsec for packet applications and <10µsec for CPRI
- DragonWave Reach Extender: Dual mode MIMO with integrated high gain antenna and hitless adaptive modulation and adaptive waveform
- 30% to 100% throughput improvement with BW Accelerator+
- 4 x Ethernet ports and integrated Ethernet Switch to deliver full outdoor solution
- Innovative cabling design – removes the need for bulky outdoor connectors and simplifies the installation
- 2.6 Gbps in a single ODU
- 5 Gbps in a 2+0 configuration

KEY APPLICATIONS

- Fiber Extension
- Small Cell Backhaul
- LTE and LTE-A optimized Backhaul
- Cloud RAN Fronthaul
- Private and Enterprise network



Product Sheet

HARMONY EBAND

PRODUCT SPECIFICATIONS

FREQUENCIES

71-86 GHz FDD	FCC/ETSI

FEATURES

Capacity w/Accelerator	Up to 4 Gbps
Base Capacity	2.6 Gbps (500 MHz)
Interface	2 x 10/100/1000bT + 2 x Optical SFP
Latency CPRI	< 10µs (64 QAM – 500 MHz)
Latency Packet	< 40µs (64 QAM – 500 MHz)
Modulations	QPSK/16QAM/32QAM/64QAM
Modulation Shifting	Hitless modulation and waveform shifting
Synchronization	SynchE (with SSM) and 1588v2 Transparent Clock
Bandwidth supported (MHz)	250 MHz/500 MHz
System Gain	Up to 85dB
ATPC	30dB
Antenna	Flat panel integrated and 20/30/60cm dishes available

POWER

Input	Power over Ethernet or direct -48VDC
Optional Adapter	External AC/DC adapter
Typical Consumption	46W

MECHANICAL

Radio (without antenna)	
Dimensions (W x H x D)	7.5 x 8.7 x 3.4” (19.1 x 22.0 x 8.6cm)
Weight	6.8 lbs/3.1 kg
Antenna interface	WR12

ELEMENT MANAGEMENT (NMS)

Alarm Management	SNMP Traps, Enterprise MIBs
EMS Support	DragonWave’s NetViewer or any SNMP based network manager
SNMP Support	V1/V2
Management Access	Web based management, EMS,Telnet
Ethernet OAM Fault Management	802.1ag, Y.1731
Ethernet OAM Performance Management	Y.1731
Authentication, Authorization & Accounting	RADIUS, TACACs+
Management Interface	In band and out of band

ENVIRONMENTAL

Operating Temperature	-40°C to +55°C
Humidity	100%
Altitude	Up to 4000m
Standards	IEC 60529 Class IP 66
	UL 50 NEMA 4X
	EN 300 019-1-4 Class 4.1

CARRIER ETHERNET FUNCTIONALITY

Packet Size	Up to 9600B
Flow Control	WRED
Prioritization	Port based, IPv4, IPv6, VLAN or DSCP
Class of Service	8 hardware queues

500MHz Channels					
Modem	Throughput (Mbps)	Max Tx Power	Threshold (10-6 BER)	Latency (us)	System Gain
QPSK*	217	15	-67	212	82
QPSK	869	15	-61	35	76
QAM16	1738	12	-55.5	21	67.5
QAM32	2172	12	-52	19	64
QAM64	2607	12	-48.5	17	50.5

250MHz Channels					
Modem	Throughput (Mbps)	Max Tx Power	Threshold (10-6 BER)	Latency (us)	System Gain
QPSK+	109	15	-70	415	85
QPSK	434	15	-64	61	79
QAM16	869	12	-58.5	32	70.5
QAM32	1086	12	-55	27	67
QAM64	1303	12	-54	24	66

*125MHz channel bandwidth available only in adaptive mode

+62.5MHz channel bandwidth available only in adaptive mode

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