



# BP 4500

## 45 Mbps Point-To-Point Digital Microwave Radios

### Why wireless broadband?

The BP 4500 wireless radios deliver 45Mbps of full duplex bandwidth making it the perfect candidate for HD Radio Studio-to-Transmitter Links, links with multiple transmitters at a site, Studio-to-Studio Links, or any point to point application where increased capacity and maximum flexibility is desired.

This radio has enough bandwidth capability to deliver your main channel audio at a full 44.1kHz or 48kHz sampling rate, HD Coded Audio, HD secondary Audio, and HD Advanced data services for multiple transmitters while still providing Ethernet connectivity, serial data, and telephone connections to your remote site.

### What are the BP 4500 radios?

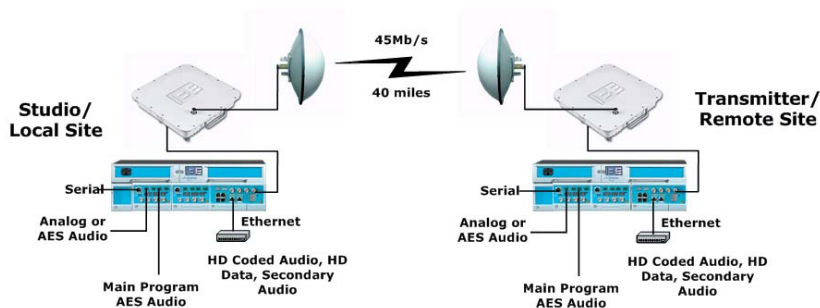
The BP 4500 is a line of high capacity, point-to-point microwave radios. Each radio supports 45 Mbps bandwidth, full-duplex, with Telco grade performance.

The BP 4500 radios operate in the license-free band, and operators can select a version offering transmission in the 5.3 GHz UNII band reaching up to 7 miles or a version supporting the 1st GHz ISM band reaching up to 40 miles. Each radio can be ordered with either an integral antenna, or a connector for an external antenna. All BP 4500 radios include both DS3 and 10/100BaseT interfaces, which are user software selectable.

BP radios are optimized for audio, voice, data services, and Ethernet backhaul applications. BP radios are easy to deploy, with a unique quick release install bracket for handy pole-mounted installations.

### The BP 4500 offers customers:

- Unprecedented capacity and flexibility when implementing your point-to-point system
- Bi-directional link. Your RPU backhaul can be sent through this link
- Ethernet connectivity to your site
- Carrier class reliability 'Five Nines'
- Easy installation and maintenance with high MTBF rate
- Internal BERT and loopback tests



### KEY PRODUCT FEATURES

- 45 Mbps Full Duplex, Frequency Division Duplexing (FDD) operation for low latency and symmetrical backhaul
- User software selectable for DS3 or 10/100BaseT Ethernet modes
- Three distinct software selectable channel pairs for industry leading frequency coordination
- Advanced security settings allow three levels of user access
- Single weatherproof unit for outdoor applications (providing minimal RF cable loss). Extended temperature range: -30°C to +65°C (-22°F to 149°F)
- Integral antenna or optional connection for external flat or parabolic directional antennas
- 16 QAM modulation allowing up to 12 co-located radios without interference
- Two license-free versions available: 5.8GHz ISM band or 5.3GHz UNII band
- SNMP, FTP, Telnet, and Web Interface provided for ease of management, configuration, installation, and operation of the radio
- Low part count contributing to a High Mean Time Between Failure Rate (MTBF) >7 years
- 99.999% uptime carrier class reliability meets or exceeds wireline standards
- Built-in BERT tester for local and far end loopback testing
- 5-year product warranty and advance replacement service options

# SPECS: BP 4500 45 Mbps Point-To-Point Digital Microwave Radios

## GENERAL PRODUCT INFO

FREQUENCY BAND	Full Duplex operation in either the UNII or ISM bands, depending on the model
SPECTRUM OPTIONS	5.250-5.350 GHz or 5.725-5.825 GHz
CAPACITY OPTIONS	1xDS3 Payload and 2x10/100BaseT Ethernet switched ports OR 2x10/100BaseT Ethernet switched ports
CHANNEL BANDWIDTH	16 MHz

## DIGITAL INTERFACES

1) DS3	
TYPE	1xDS3 per GR-499
LINE RATE	44.736 Mbps
LINE CODE	B3ZS
INTERFACE	75 Ω Unbalanced coax
CONNECTORS	TNC (75Ω)
2) 10/100BASET	
TYPE	2X10/100BaseT per IEEE802.3
ETHERNET MODE THROUGHPUT	45 Mbps
MAX DISTANCE (CPE to WaveLink)	300 feet

## TRANSMITTER

FREQUENCY RANGE (Frequency Agile)	5.250-5.350 GHz or 5.725-5.825 GHz
OUTPUT POWER (Adjustable)	+16 dBm
ATPC (Auto Transmit Power Control)	User selectable
TRANSMIT ATTN	1-30 dB adjustable below max power
FREQUENCY STABILITY MODULATION	±5 ppm
MODULATION	16 QAM with built-in equalization

## RECEIVER

TYPE	Double Heterodyne
SENSITIVITY, BER 10-6	-78 dBm or better, including Forward Error Correction (FEC)
MAX RF INPUT LEVEL	-35 dBm
FREQUENCY STABILITY	±5 ppm
ADJACENT CHANNEL REJECTION	≥40 dB (RF bandwidth of ≤16 MHz)

## NETWORK MANAGEMENT

SNMP	MIB II and private WaveLink functions
NMS/EMS	Standard SNMP based NMS, or Web Browser Interface
CRAFT INTERFACE	RS232, 9600bps, CLI
REMOTE ACCESS	HTTP, FTP and Telnet

## STATUS INDICATORS/DIAGNOSTICS

EXTERNAL LEADS	Power, Local Alarm, RF Link, 1xDS3 Input, 2xEthernet links
ALARMS	DS3 LOS, AIS, Radio TX, Radio RX, BER Threshold
STATUS	NMS IP addresses, BER, TX Power, RX Signal Level, Loopback Test Status, DS3 Input, Ethernet Input
CONFIGURATION CMDS	NMS IP addresses, TX Power, TX Mute, ATPC, Frequency, RSL, BER Alarm, Loopback Tests, BER Tests
DIAGNOSTIC TEST FEATURES	BER, Local/Remote/RF Loopbacks
PERFORMANCE MONITORING	Receive Signal Strength Indicator (RSSI)

## POWER

INPUT POWER RANGE	±21 to 60 VDC
POWER CONSUMPTION	36 Watts max

## MECHANICAL

DIMENSIONS (HxWxD)	12"x12"x4" (30x30x10cm)
WEIGHT	11 lbs (5Kg)

## ENVIRONMENTAL

TEMP. RANGE	-30°C to +65°C (-22°F to 149°F)
ALTITUDE	15,000 feet (4600 meters)
HUMIDITY	Outdoor/weatherproof

## ANTENNAS

	FORWARD GAIN	FRONT/BACK RATIO
INTEGRAL	21 dBi	40 dB
EXTERNAL PARABOLIC:		
-2 feet (.61m)	28.1 dBi	38 dB
-4 feet (1.22m)	34 dBi	46 dB

## FCC INFO (US ONLY)

5.3 GHZ OPTION	5.7 GHZ OPTION
OEWCX-DS3-53G	OEWCX-DS3-58G
Certified to FCC Part 15.407	Certified to FCC Part 15.247
Subpart E	Subpart C
UNII Certified	ISM Certified

## REVISIONS:

4/5/04:  
Original

## COMPLIMENTARY EQUIPMENT:

BP 3400 34 Mbps Point-to-Point Digital Microwave Radio  
 BP 800 8 Mbps Point-to-Point Digital Microwave Radio  
 BP 600 6.5 Mbps Point-to-Point Digital Microwave Radio  
 BP 400 INT Integrated Network Terminal Chassis  
 BP 400 DS3 NAU DS3 Network Access Unit  
 BP 400 AVSIM Audio and Video Service Interface Module  
 BP 400 FXSIM Telephone Service Interface Module  
 BP 400 SMPTE310 SMPTE 310 Service Interface Module

## FAQs:

**Q:** What is the maximum data rate of the point-to-point radios?

**A:** BP 4500 is 45 Mbps. BP 3400 is 34 Mbps. BP 800 is 8 Mbps. BP 600 is 6.5 Mbps.

**Q:** Where is the radio located?

**A:** The radio is located on the tower or pole in order to minimize cable loss at the 5.3 or 5.8 GHz frequencies.

**Q:** What are the interfaces to the radio?

**A:** The BP Series of radios accepts coaxial DS3 interface or an RJ45 10/100 baseT connection.

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