

# 1500 UHF Solution

A Corning  
MobileAccess  
Solutions Product

## features and benefits |

<b>Service range</b>	Supports 421–512 MHz band for paging, 2-way business or public safety radio
<b>Flexible</b>	Supports the entire band with any combinations of channels and/or services
<b>Scalable</b>	Additional base units added as needed to distribute services up to 20 km from the radio base location
<b>Adaptable</b>	The output power can be easily adjusted via software to accommodate changes in capacity/coverage requirements
<b>Cost effective</b>	Requires only a single strand of single-mode fiber, conserving valuable infrastructure
<b>Easy set up</b>	Intuitive GUI enables end-to-end setup, adjustment and monitoring through an RS-232 connection on either end
<b>Reliable</b>	The 1500 has an exceptionally high MTBF of greater than 30 years
<b>Green</b>	Power consumption of less than 20 W per unit

## RF Distribution for 421-512 MHz UHF 2-Way Radio/Paging

The 1500 solution distributes services, such as Public Safety or 2-way business radio, from their BTS or BDA source to remote locations within a 20 km radius.

The 1500 is ideally-suited for campus style installations. Using the existing fiber optic infrastructure, the system can extend the coverage from a single BTS to multiple buildings on the campus, yielding significant savings in CAPEX and OPEX.

The 1500 combines the flexibility of broadband coaxial cable with the low loss characteristics of optical fiber transport to provide a modular, scalable infrastructure that cost effectively supports UHF services in the 421-512 MHz range.

The 1500 may be seamlessly integrated with the MobileAccess1000/MobileAccess2000 platform to provide a single infrastructure, supporting services from 421 MHz to 6 GHz.



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## system architecture |

The 1500 UHF solution consists of the following elements:

**1500-UHF-BU-1/2:** Installed at the headend, adjacent to the RF signal source. This unit performs RF-to-optical conversions and wave division multiplexing to deliver services over a single strand of single-mode fiber to remote locations up to 20 km away. The 1500-UHF-BU-1 contains one F/O transceiver and the 1500-UHF-BU-2 contains two F/O transceivers in the same housing.

**1500-UHF-RU:** Installed at remote locations, this unit performs the optical-to-RF conversions, amplification and filtering. Antennas may be connected directly to the RF ports or an external coupler may be used to duplex these ports. The RF ports may be split to serve multiple antennas. F/O transceiver; the 1500-UHF-BU-2 contains two F/O transceivers in the same housing.

**GUI Based Setup Software:** Provides easy “one button” setup and optimization from either end of the 1500 link. Monitoring is supported locally by LEDs and a RS-232 connection at either unit. Dry contact alarm outputs, located on the BU, may be interfaced with the Network Management System (NMS) for remote alarming.

The 1500 solution can be integrated with the MA1000/MA2000 platform by using optional low-cost crossband couplers and the appropriate Corning MobileAccess Universal antennas as illustrated in Figure 2. With the 1500’s exceptional propagation characteristics, UHF services will typically require just one antenna per eight MA2000 antennas.

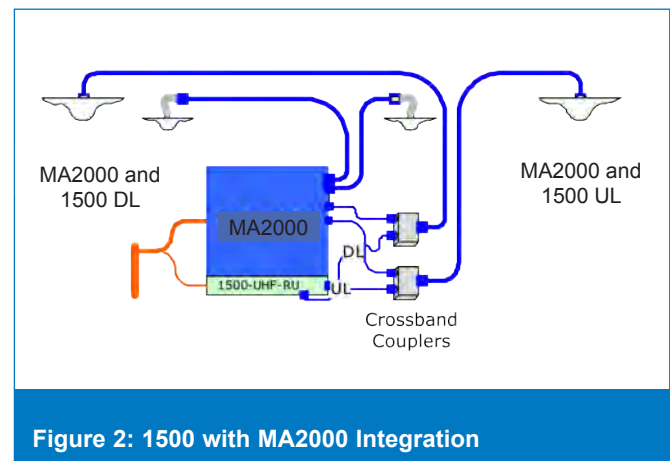


Figure 2: 1500 with MA2000 Integration

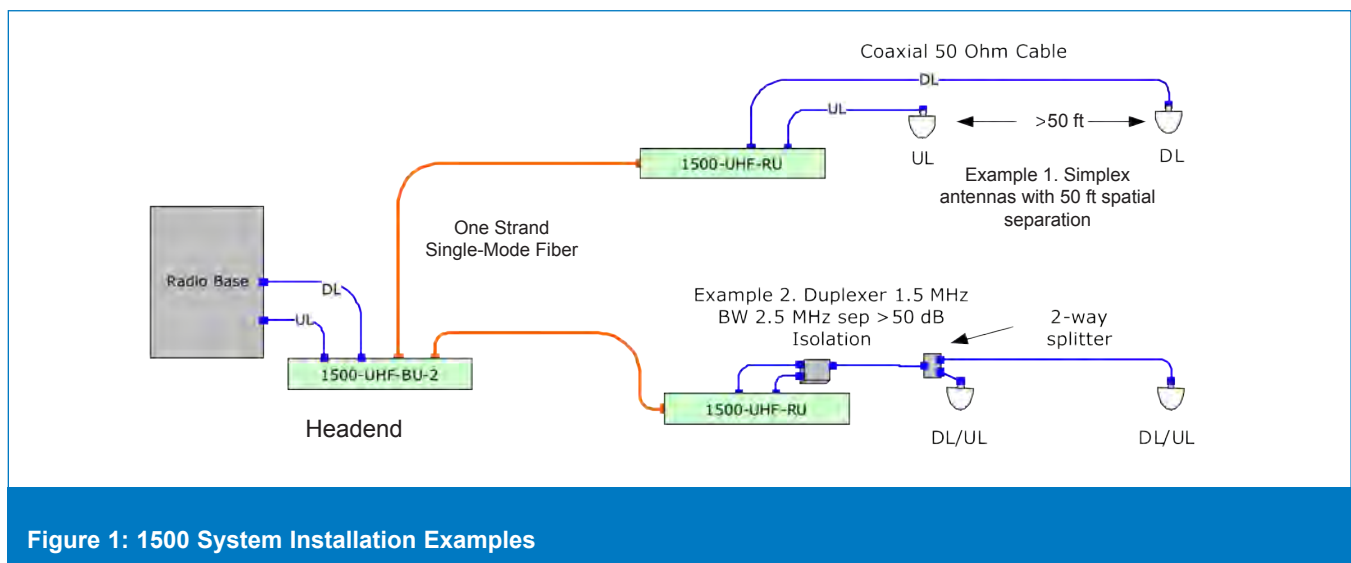


Figure 1: 1500 System Installation Examples

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## specifications |

Specifications stated as typical with 5 km of optical fiber from remote “Exp Ports” unless otherwise noted.

Band	UHF	
	DL	UL
Frequency Range (MHz)	421-512	421-512
Output Power, dBm		
Carriers 1-2	14	
4 Carriers	11	
8 Carriers	8	
16 Carriers	5	
IMD, Max/Min, dBm	-13	IIP3 +7
Gain, In to Exp Port, dB	15	15
Maximum Input, dBm	-1	-10 no AGC
UL AGC, dB		15
UL NF (dB) at BU		26
Gain Flatness, dB	± 1.2 dB	± 1.2 dB

## General

<b>Management</b>	RS232 9-pin com port. GUI based end-to-end adjustment procedure and monitoring from a single location
<b>Alarms Port</b>	Normally closed dry contacts, 1 per link
<b>Fiber Type</b>	9/125 SM, Corning SMF-28e+ (or compatible)
<b>Wavelength</b>	1310/1550 nm wave division
<b>Maximum Optical Budget</b>	9 dB end to end including all connectors and patch cords with back reflection < -45 dB. All connectors must be APC
<b>Propagation Delay</b>	< 0.6 $\mu$ s + fiber delay of 5 $\mu$ s per km
<b>Temperature</b>	<ul style="list-style-type: none"><li>• Operating: 0° to +50°C (32° to 122°F)</li><li>• Storage: -20° to 85°C (-4° to 185°F)</li></ul>
<b>Standards and Approvals</b>	FCC-47 CFR, parts 15, 90, TUV - UL 60950-1

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## specifications | (continued)

### Physical

	BU-1 Link / BU-2 Link	RU
<b>RF connectors (50Ω)</b>	N female, 1 DL and 1 UL per link	N female, 1 DL and 1 UL
<b>Optic connections</b>	8 degree SC/APC, 1 per link	8 degree SC/APC, 1
<b>Dimensions (H x W x D): cm (in)</b>	48.26 x 4.44 x 29.97 (19 x 1U x 11.8)	48.26 x 4.44 x 29.97 (19 x 1U x 11.8)
<b>Weight: kg (lb)</b>	2.5 (5.5) / 2.9 (6.38)	3.36 (7.39)
<b>Power draw at 20 to 48 VDC</b>	14 W / 20 W	20 W

## ordering information |

Catalog Number	Product Description
<b>1500-UHF-BU-1</b>	Base Unit, 421-512 MHz supporting 1 remote unit
<b>1500-UHF-BU-2</b>	Base Unit, 421-512 MHz supporting 2 remote units
<b>1500-UHF-RU</b>	Remote Unit, 421-512 MHz

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