

Millimeter-Wave Radio (MMW)

MMW Radio –60GHz Antenna Datasheet Overview



About Wireless Excellence

Founded in 1996 and with headquarters in Oxford UK, Wireless Excellence 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 Wireless Excellence as the “one stop shop” solution of choice for dependable wireless networking.

About Millimeter Wave

CableFree MMW links offer high performance connections using Millimeter Wave frequencies. MMW is a high frequency microwave technology offering bandwidths of up to 10Gbps Full Duplex capacity or 40Gbps.

Millimeter Wave technology is complimentary to FSO (Free Space Optics) and ideal for dense urban areas where radio spectrum is congested. Planning for Millimeter Wave is based on rainfall, giving useful transmission distances of many kilometres.

CableFree 57.0 - 64.0 GHz High Performance Parabolic Antennas

Product Features

- Superior Radiation Efficiency
- Meets FCC Part 15.255 (57-64 GHz)
 - 30cm (1-ft) meets ETSI EN 302 217-4-2v1.5.1 Class 3
 - 60cm (2-ft) meets ETSI EN 302 217-4-2v1.5.1 Class 2
- Linear Polarization, Dual Polarization option available
- Integrated direct waveguide connect to CableFree MMW radios
- 30cm (1-ft): Sturdy weather resistant plastic reflector & radome
- 60cm (2-ft): Sturdy aluminium one piece construction reflector, shroud assembly & weather resistant radome
- Compact, rugged aluminium mount design using corrosion resistant materials, stainless steel hardware
- Superior fine azimuth and elevation adjustment
- Survival ratings: 125 mph wind / 1 inch ice
- Operate wind: 70 mph
- Optional sight alignment tool available
- Pre-assembled, ready to install
- Weights
 - 30cm (1ft): 14 lbs (6.35 kg)
 - 60cm (2ft): 20 lbs (9.07 kg)

Operating distance limit for mm-wave communication

The spectrum between 30 GHz and 300 GHz is referred to as the millimeter wave band because the wavelengths for these frequencies are about one to ten millimeters. Millimeter wave propagation has its own peculiarities. This bulletin reviews the characteristics of millimeter wave propagation, including free space propagation and the effects of various physical factors on propagation. It was created to provide an easy to understand reference explaining the characteristics of radio signal propagation at millimeter wave frequencies and their implications for spectrum management.

The millimeter wave spectrum at 30-300 GHz is of increasing interest to service providers and systems designers because of the wide bandwidths available for carrying communications at this frequency range. Such wide bandwidths are valuable in supporting applications such as high speed data transmission and video distribution. Planning for millimeter wave spectrum use must take into account the propagation characteristics of radio signals at this frequency range. While signals at lower frequency bands can propagate for many miles and penetrate more easily through buildings, millimeter wave signals can travel only a few miles or less.

However, these characteristics of millimeter wave propagation are not necessarily disadvantageous. Millimeter waves can permit more densely packed communications links, thus providing very efficient spectrum utilization, and they can increase security of communication transmissions.

CableFree 60GHz (V-band) MMW antennas are available in 30 and 60cm variants for shorter to longer range links.

Planning Tools and MMW Network Design

Please contact CableFree for link planning tools and expert assistance.



Product Features and Benefits

CableFree 60GHz (V-band) MMW products are highly robust and ruggedized for operation in harsh climates.

The highly integrated Full-Outdoor radio units are shipped with a choice of 30cm or 60cm antennas to meet customer network requirements. The use of larger antennas increases the maximum distance and availability of a MMW network. 60cm variant offers the highest link margin and range capability.

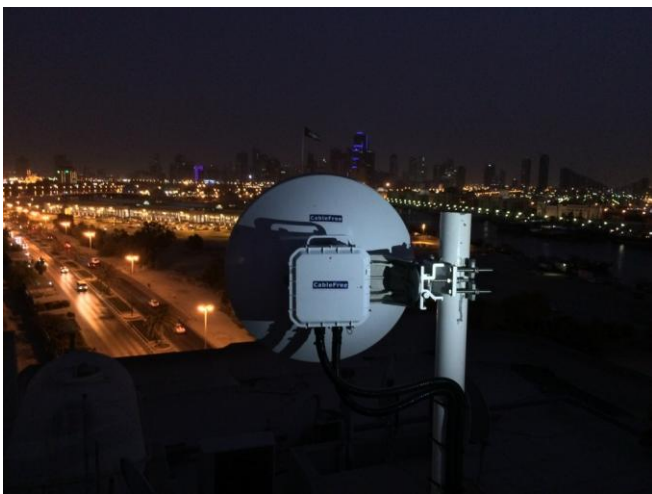
Inside the radio unit there are connectors for user network interface and power. The default network interface is 10/100/1000BaseT with RJ45 connector, and an SFP feature for optional SFP optical interface for Multimode or Singlemode fibre interface with LC fibre optic connectors. Various choices of SFP area available to match customer network equipment and fibre installations.

The links are supplied with mounting brackets to mount the units on poles which are typically installed on walls, towers or roof top locations to ensure clear Line of Sight (LOS) between the end points of the wireless link.

.Alignment of the links is achieved using simple Digital Voltmeter connection to the radio unit as common with most microwave links and takes a skilled installer team typically 5-20 minutes.

When installed the links provide “fit and forget” connectivity between the nodes on the network and can be remotely managed and monitored using a choice of Web-based NMS and SNMP Management platforms.

Typical Installation



A CableFree 60cm (2-ft) MMW antenna installed in the UAE for Safe City Project.

Specifications

System Variant	MMW-60-30cm	MMW-60-60cm
Antenna Type	Cassegrain type antenna with radome	Cassegrain type antenna with radome
Gain	42dBi	47dBi
Beamwidth	1.2° beamwidth	0.5° beamwidth
Xpol dB	>35	>35
VSWR	1.4:1	1.4:1

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