

# Simple Satellite Monitoring System

Application Note

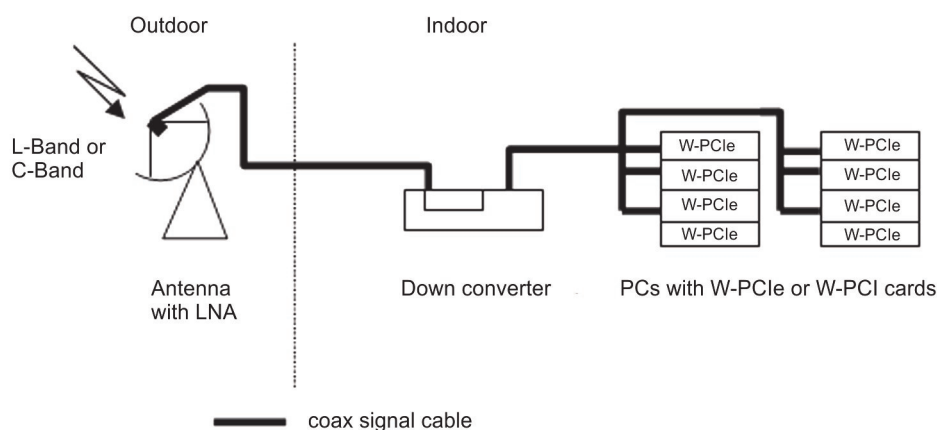
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## Introduction

This document describes how the Wavecom W-PCle or W-PCI card can be used to install a simple Satellite L-Band or C-Band monitoring system.

The W-CODE satellite software allows the monitoring of the L-Band downlink (in the 1550 MHz

range, also called forward path) of the INMARSAT System. This link contains the information from the Land Earth Station (LES) to the Mobile Earth Stations (MES).



The monitoring system consists of three main components

- ◆ An antenna, including a low noise amplifier (LNA)
- ◆ A down converter
- ◆ One or more W74PC, W-PCle or W-PCI card(s)
- ◆ One or more card hosts

These components are connected via coax cable. If more than one W-PCle is to be fed from the

same source, a splitter must be used to correctly match the input impedance of the 70 MHz input.

The recommended PC requirements are

- ◆ Windows 7 32-bit/64-bit or Server 2008 with the same number of PCIe or PCI slots as the number of cards to be installed
- ◆ Intel® Core i5 or i7 2.8 GHz, 4-8 GB RAM and a hard disk with 500 GB to 1 TB of free space.
- ◆ Wavecom recommends up to four cards in a computer, if the cooling and power supply are appropriate.

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## General Description of the Components

### Antenna/LNA

The antenna system must have a figure of merit  $G/T > 0$  dB/K, this is easily possible with a parabolic dish of at least 2 m diameter and a low noise amplifier with a noise figure of  $\leq 0.8$  dB. The polarization of the L-Band signal is RHCP, so

if a parabolic reflector is used, the feed must pick up the LHCP component (mirror effect).

No tracking of the satellite is necessary. The antenna can be of a fixed type, which is installed and aligned to the satellite only once.

### Downconverter

MP-9201 (L-Band) or MP-9240 (C-Band) are commercial products, converting L-Band or C-

Band to 70 MHz IF with a bandwidth of  $\pm 20$  MHz.

## Wavecom Recommends the Following Products

### L-Band

#### Dish antenna

3.7 m epoxy-glass resin dish

#### Feed and LNA

L-Band, Dual-Polarization-Feed with integrated LNA (1.5-1.7 GHz) from <http://www.globotech.ch>

#### Down converter

MP-9201 Satellite Down converters from <http://www.microphaseinc.com>

### C-Band

#### Dish antenna

5 - 7 m epoxy-glass resin dish

#### Feeds and LNA

C-Band-Feed, Seavey ESA-44C C-Band Dual Circular Polarity Feed horn (INTELSAT Feed 3.7 GHz – 4.2 GHz) from [www.vincor.com](http://www.vincor.com)

C-Band LNA LNA8000N from [www.norsat.com](http://www.norsat.com)

#### Down converter

MP-9240 Satellite Down converters from <http://www.microphaseinc.com>

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Since more than thirty years Wavecom Elektronik AG has developed, manufactured and distributed high quality devices and software for the decoding and retrieval of information from wireless data communication in all frequency bands. The nature

of the data communication may be arbitrary, but commonly contains text, images and voice. The company is internationally established within this industry and maintains a longstanding, world-wide network of distributors and business partners.

### Product Information

Products	<a href="http://www.wavecom.ch/product-summary.php">http://www.wavecom.ch/product-summary.php</a>
Datasheets	<a href="http://www.wavecom.ch/brochures.php">http://www.wavecom.ch/brochures.php</a>
Specifications	<a href="http://www.wavecom.ch/product-specifications.php">http://www.wavecom.ch/product-specifications.php</a>
Documentation	<a href="http://www.wavecom.ch/manuals.php">http://www.wavecom.ch/manuals.php</a>
Online help	<a href="http://www.wavecom.ch/content/ext/DecoderOnlineHelp/default.htm">http://www.wavecom.ch/content/ext/DecoderOnlineHelp/default.htm</a>
Software warranty	One year free releases and bug fixes, update by DVD
Hardware warranty	Two years hardware warranty
Prices	<a href="http://www.wavecom.ch/contact-us.php">http://www.wavecom.ch/contact-us.php</a>

### System Requirements

	<i>Minimum</i>	<i>Recommended</i>
CPU	P4 Dual-Core 2.4 GHz	Core i5 or Core i7 2.8 GHz
Memory	2 GB RAM	4 - 8 GB RAM
OS	Windows XP	Windows 7 32-bit or Windows 7 64-bit

### Distributors and Regional Contacts

You will find a list of distributors and regional contacts at <http://www.wavecom.ch/distributors.php>