



---

# Table of Contents

---

## **Preface ix**

Purpose of This Document	ix
Intended Audience	ix
Document Organization	ix
Conventions	x

## **Chapter 1 SubSpace 2001 Product Overview 1-1**

1.1 Wireless Subsystem	1-2
1.2 Router Subsystem	1-2
1.3 Installing the SubSpace 2001	1-3

## **Chapter 2 Preparing to Install the SubSpace 2001 2-1**

2.1 Initial Link Analysis	2-1
2.1.1 Verifying Line-of-Sight Paths	2-1
2.1.2 Understanding Environmental Conditions	2-2
Moisture	2-2
Wind	2-3
Lightning	2-3
2.1.3 Selecting Radio Parameters	2-3
Transmission Frequency	2-4
Power Level	2-5
PN Code	2-5
2.1.4 Selecting Antennas, Filters, and Cables	2-5
Antennas	2-6
RF Filters	2-7
Cables and Power	2-7
2.1.5 Determining Your Fade Margin	2-8
System Gain	2-9
Antenna Gain	2-9
Cable and Connector Loss	2-9

	Path Loss	2-10
	Fade Margin Worksheet	2-11
	2.1.6 Verifying ERP	2-12
	2.2 Installation Worksheet	2-12
	2.3 Equipment Checklist	2-15
	2.3.1 SubSpace 2001 Checklist	2-15
	2.3.2 Required Tools and Equipment	2-15
	2.3.3 Recommended Tools and Equipment	2-16
<b>Chapter 3</b>	<b>Installing the SubSpace 2001</b>	<b>3-1</b>
	3.1 Safety Recommendations	3-1
	3.2 Installing the Wireless Subsystem	3-2
	3.2.1 Mounting Your Antenna	3-2
	3.2.2 Connecting the Radio and Antenna	3-2
	3.2.3 Testing the Radio and Antenna Installation	3-4
	3.3 Installing the Router Subsystem	3-8
	3.3.1 Connecting the Router to the Wireless Subsystem	3-8
	3.3.2 Make Optional Router Connections	3-9
	3.3.3 Testing the Paths	3-12
<b>Chapter 4</b>	<b>Troubleshooting the SubSpace 2001</b>	<b>4-1</b>
	4.1 Determining the Source of the Problem	4-1
	4.1.1 Send a Ping to the Local Router	4-2
	4.1.2 Send a Ping to the Remote Router	4-2
	4.2 Troubleshooting the Wireless Subsystem	4-2
	4.3 Troubleshooting the Router Subsystem	4-5
<b>Appendix A</b>	<b>Hardware Specifications</b>	<b>A-1</b>
	A.1 Router Specifications	A-1
	A.2 Radio Specifications	A-2
	A.3 Power Supply Specifications	A-3
	A.4 EIA-530 Connector Pinouts	A-4
	A.5 Radio Switch Settings	A-5
<b>Appendix B</b>	<b>Antenna Options</b>	<b>B-1</b>
	B.1 L-Band Antenna Options	B-2
	B.2 S-Band Antenna Options	B-3
<b>Appendix C</b>	<b>Glossary</b>	<b>C-1</b>
	<b>Index</b>	