WaveWare Technologies, Inc.
"We Deliver Information at the Speed of Light"

Apollo RP-125 Repeater

Programming Overview

The Apollo RP-125 Repeater will Normally be Programmed by WaveWare when you Order Directly from us and Supply us with the Information Required to Program the Repeater.

When Programmed by WaveWare, the Repeater will have a "Label" on the Front of the Repeater with the "Frequency and Watts". If No Label, then WaveWare did Not Program the Repeater

Tech Support is Given by the Dealer or Company who Sold the Repeater

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Shown Below is a "Typical" WaveWare Configuration Screen

The "Basic" Fields that Normally Require Programming are:

- ➢ **RX Frequency**
- ➢ **TX Frequency**
- ➢ **Source**

- ➢ **Hi-Lo Power**
- ➢ **Pager Baud Rate**
- ➢ **S_RSSi Value**

The Other Fields Not Listed above should "Not be Changed", except for Rare Occasions

Explanation of the "Marked" Fields

The RX Frequency: Enter 7 Digits - Has to Match the TX Frequency of the Main Transmitter On-Site

The TX Frequency: Enter the Same Frequency used in the RX Frequency Field

The Source: Must Match the Main Transmitter – If that Transmitter is Narrow Band, then Enter NB

Hi-Lo Power: Strongly Suggested that you use Low Power, for a Smaller Coverage "Overlap" area

Baud Rate (TX/RX): Must Match the Baud Rate of the Pagers used with the Main Transmitter

S_RSSi: Default is 90 – Some Installs will Require a Different Value for the Repeater to Work Properly

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Basic Programming Instructions

If Purchased from WaveWare, the RP-125 includes: A CD with the Repeater Programming Software, the RSSi Software, and the Program Manual. Also Includes: A Serial Cable, Power Supply and Antenna.

It is "Highly Recommended", if you are going to make any Changes to the Repeater Programming, that you "Read" and "Save" the Existing Program Before making Changes, as a "Back up" (Default).

Both of the Repeater Software Programs are in "Zip Format".

A Trial Copy of "WinZip" is also included on the CD, if you need it.

Unzip the RP-125 Software Program "First", as it may be all that you will need.

The RP-125 Software allows you to "Program and/or Edit" the Repeater's Configuration.

The RSSi Software Program is Only to be used when the Repeater is Not Sending out a Signal and you are totally sure that All other Programmed Fields are Correct.

The RSSi Program will "Listen" to the Surrounding Area and give an "Average RSSi Value".

VERY IMPORTANT

The RSSi Program MUST be used with the Repeater Mounted EXACTLY where it will be used for it to be Affective, or the Program will give a "False" Reading / Value.

So you have to take the Program to the Repeater, not the Repeater to the Program. In other words, this Program needs to be installed onto a Laptop so you can take it to where the Repeater is installed.

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How to Program the Repeater

To get started…

Attach the Repeater to the PC or Laptop via a RS-232 Standard Serial Cable (Included)
Power-up the Repeater and Start the Repeater Software Program

Choose the Com Port, Click on the "LINK" Button and Immediately Cycle Power to the Repeater
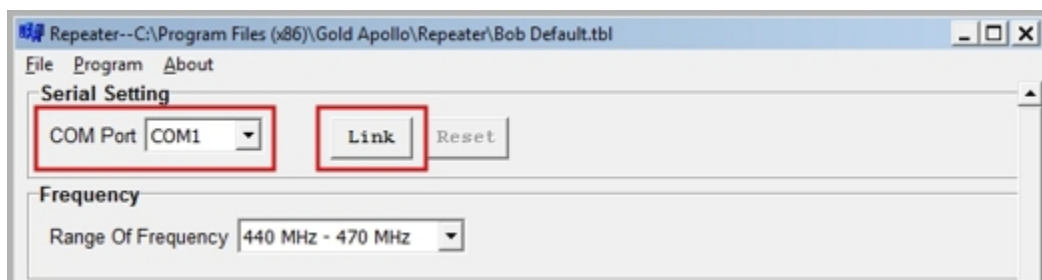
After Cycling Power to the Repeater, you will Notice that the 2 LED's are on steady.

When "Both" are lit up, the Software is "Attempting" to Connect.
When the Red LED (TX) goes out, you should see: "Connection Success".

You should see the Following Screen Shots:

While Attempting to Connect	When Connected Successfully

If the Connection "Fails", Check Com Port and Cable and/or "Restart" the Computer and Try again.

** IMPORTANT **

NOTE: Having a "Successful Connect" Does NOT mean that you have "Read" the Repeater.

It ONLY means that you have "Established a Connection".

You now Have to "Read the Repeater", before making any Changes. This is Important!
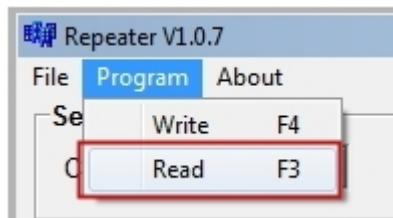
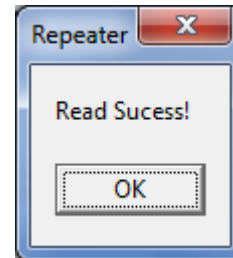## *How to Program the Repeater…Continued*

Read the Repeater

To "Read" the Repeater, Click on the word "Program" in the Menu and then Click on "Read".

(You can also just Press the "F3 Key" on the PC Keyboard)

Read the Repeater   **Read Success**

Click "OK" to Continue

Enter the Frequency (RX and TX) and Set Source and Power Level

-The RX and the TX Frequency Field:
 MUST match the Main Paging Transmitter On-Site
 Do NOT Enter a Period (464.6250) in this Field, Enter as Shown (4646250)

-The "Source" Field:
 MUST Match the Main Transmitter
 Set the Repeater "Source" for Narrow Band (NB_Mod) or for Wide Band (WB_Mod)
NOTE: All Paging Transmitters are supposed to be set for NB or Converted to NB by Jan. 1st 2013

-The Power Field:
 It is "Strongly Recommended" that the "Hi-Lo Power" be Set for Low Power (Lo)
 Only Set to High Power (Hi) if Low Power isn't getting you the Coverage you need and Only
 After you have tried moving the Repeater to a another/better location.
 Reason is that a Lower Power Output gives a smaller Coverage Area of "Overlapping Signal".

NOTE: See Coverage Information Diagrams at the End of this Document for more subject Information

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Apollo RP-125 Repeater

How to Program the Repeater…*Continued*

Enter the *"Pager Baud Rate"*

-The Baud Rate (TX/RX) Field:
MUST match the Main Paging Transmitter On-Site
Whatever the Main Transmitter is Programmed for is what this Setting Must Also be Set to.

NOTE: This is to Communicate **"Over-the-Air"** from the Transmitter/Repeater to the Pagers.

This is the **"Pager Baud Rate"** and you can also get this Information from the **"Pagers"**.

Enter the "S_RSSi" Value

The RSSi Factory Setting is "90" by Default and this Value works for Most Installations

At times the RSSi Value may need to be Changed from the Factory Setting

Troubleshooting

A Blinking Yellow LED (Not getting any Red LED for Transmission) usually means that the Repeater isn't Working with the RSSi Value Programmed and you will need to Check this Value.

Note: After Programming in a New RSSi Value, you "Must Wait" up to 15 Minutes with the Repeater "Powered-up" before the Repeater is Ready to be used with the New Setting.

If you Do Not Wait long enough you will get the Yellow Blinking LED again.

Entering a New RSSi Value is Next….

The "S_RSSi" Value

The RSSi Factory Setting is "90" by Default and this Value works for Most Installations

At times the RSSi Value may need to be Changed from the Factory Setting

How the Repeater should Work

The Repeater should "Send a Page" within 3- 4 Seconds (Max) after the Main Transmitter

If the Repeater is Not Sending any Pages, the "RSSi Value" may need to be Adjusted.

To Adjust this Value, the Installer Must use the "RSSi Software Program" to get the New Value

NOTE: This Value can and most likely will Change for each Installation Location.

-The S_RSSi Field:

** IMPORTANT NOTE **

YOU MUST leave the Repeater EXACTLY where it is Mounted for this Program to work Properly

This means that the RSSi Software Program Must be Installed onto a Laptop so you can take the Laptop to the Location of where the Repeater has been Mounted.

How to get a New RSSi Value is Next….

How to get the New RSSi Value
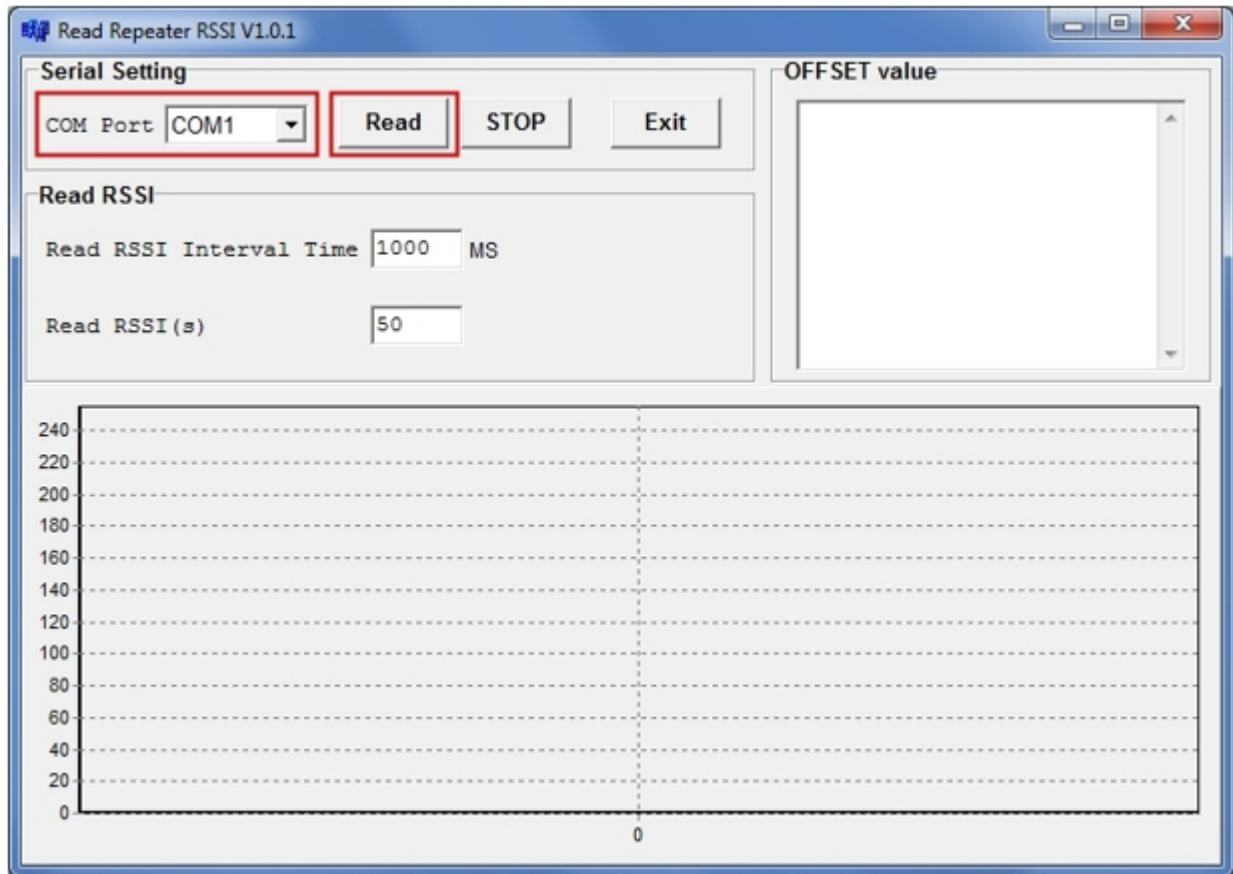
RSSi Software Screen – Ready to Read

Choose the Com Port on the Laptop for which the Repeater is attached.

Click the "Read" Button.

The RSSi Program will run thru Qty. of 50 "Reads" and give an Average Numeric Value.

How to get the New RSSi Value…Continued
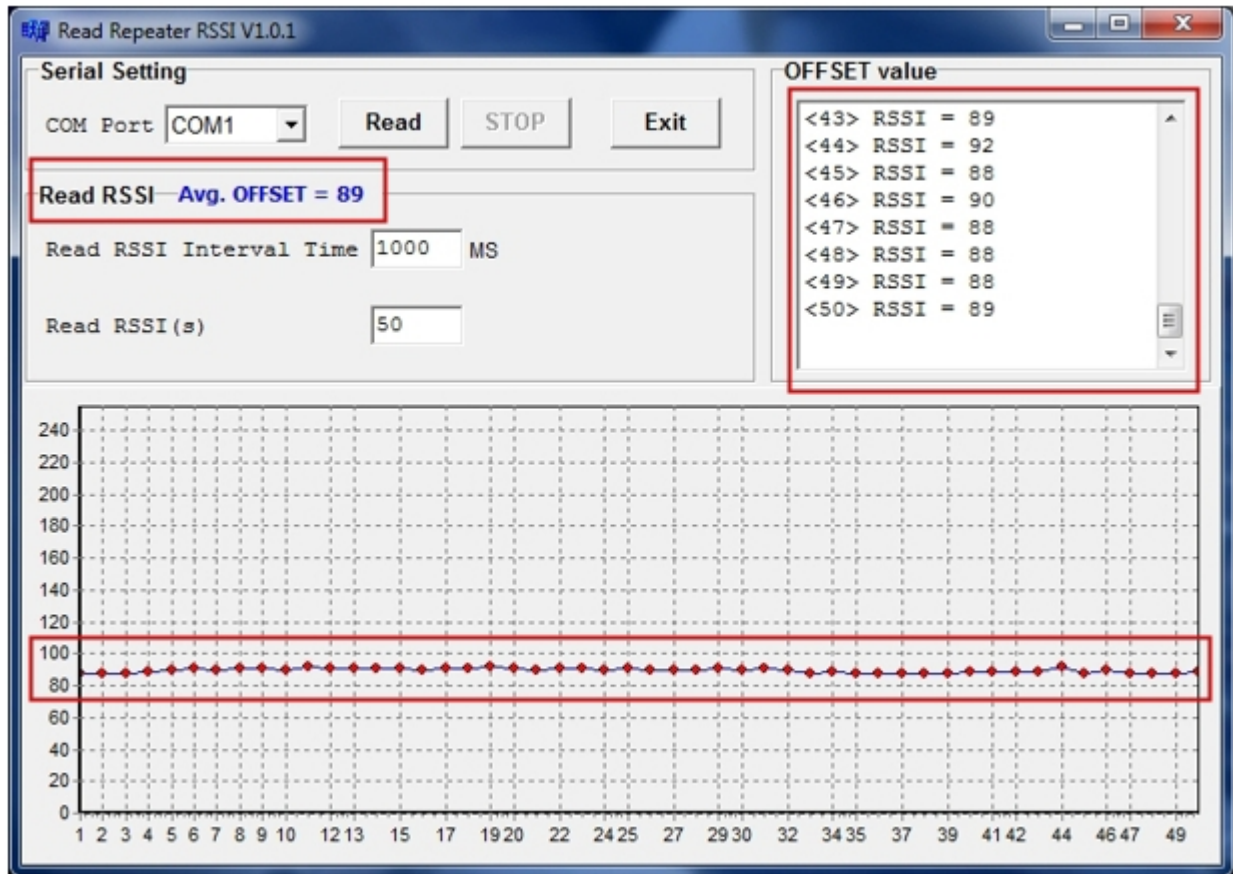
Main RSSi Software Screen – Finished Reading

The RSSi Program has "Read 50 Times" and came up with "89" as the "Average Numeric" Value.

Take this New "Average Numeric" Value and "ADD" a Value of "10" to that Number.

Now the New RSSi Value will be "99" and this is what you would "Enter" into the RSSi Field.

Program the Repeater with the New RSSi Value

Close the RSSi Program and Open the RP-125 Repeater Program

"Link-up" and "Read" the Repeater

Enter the New RSSi Value of "99" and "Write" (F4) to the Repeater, to Program in the New Value(s)

Name the New Program Data

It is "Strongly Suggested" that you now "Save" this New Data as a Backup File.

Save it under a Different Name than the Original File (maybe with the "RSSi Value"?)

Test the Repeater with the New RSSi Value

To Test the New Configuration just Send a Test Page from the Main Transmitter.

The Pager should get Two Identical Paging Messages with 3- 4 Seconds between the Messages

(Unless you have the Pager Programmed Not to Display any Duplicate Messages for 30 Seconds)

If this is the case, then you can look at the Repeater and see if the Red TX LED Lights up.

If so, then this is a Good Indicator that the Repeater is now Working as Expected

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Troubleshooting

A Blinking Yellow LED (Not getting any Red LED for Transmission) usually means that the Repeater isn't Working with the RSSi Value Programmed and you will need to Check this Value.

Note: After Programming in a New RSSi Value, you "Must Wait" up to 15 Minutes with the Repeater "Powered-up" before the Repeater is Ready to be used with the New Setting.

If you Do Not Wait long enough you will get the Yellow Blinking LED again.

How to get Technical Support is Next….

WaveWare Technologies, Inc.
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Technical Support

Users Please Contact your Dealer for Support

Dealers Please Contact WaveWare Technologies for Support.

WaveWare Website: www.WirelessMessaging.com

WaveWare Tech Support Email: Support@WirelessMessaging.com

Tech Support Phone: 1.800.373.1466

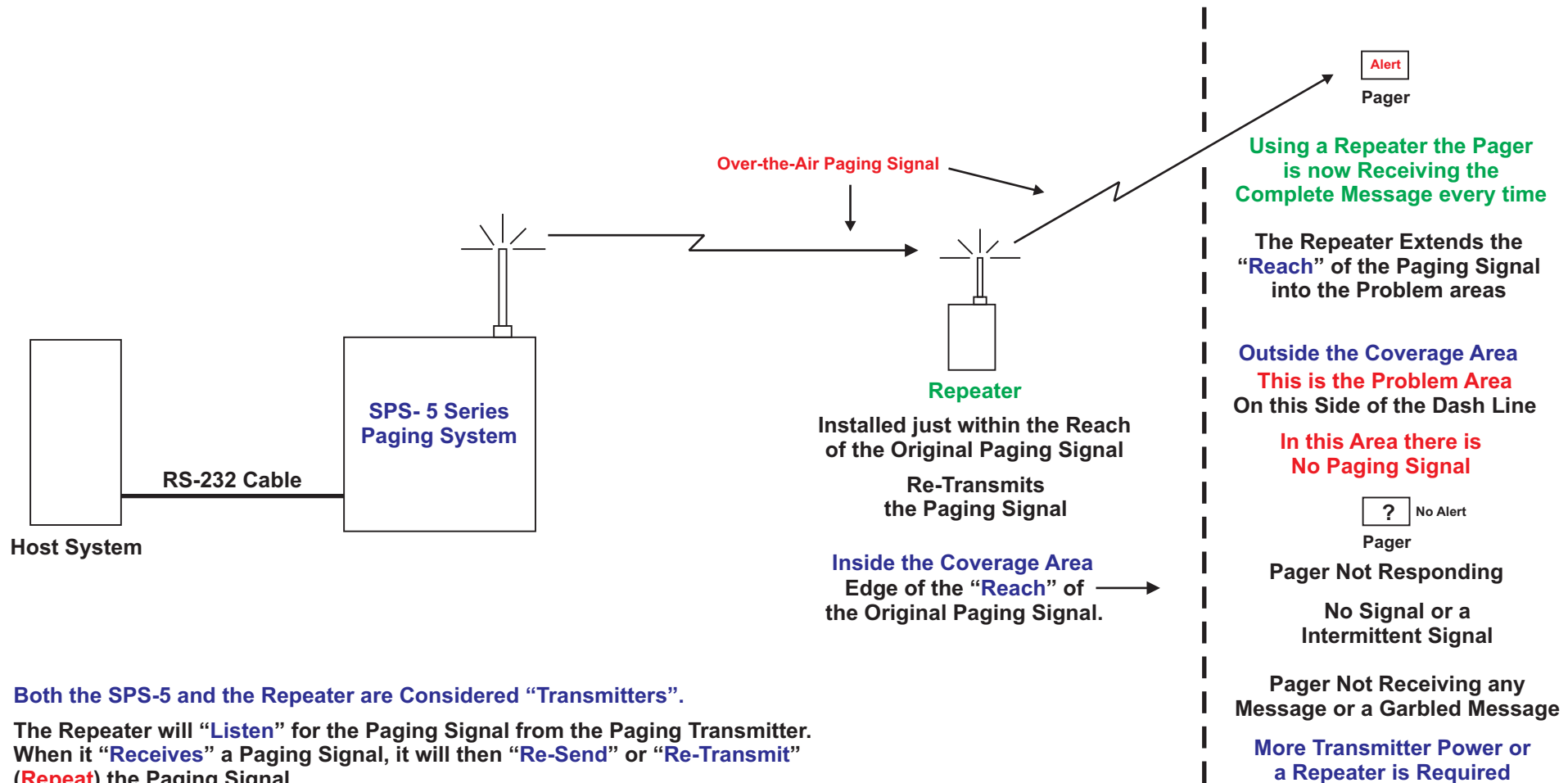### *Repeater Software Programs Download*

For Both the RP-125 Repeater Software and the RSSi Software Visit the

WaveWare Website at: http://www.WirelessMessaging.com/Programming_Software.html

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Technical Diagrams

For Information about Why a Repeater may be needed and for Suggested Installation Ideas

Please Review the Diagrams on the next 3 Pages, about Repeater Coverage.

Alert

Pager

Over-the-Air Paging Signal

**Using a Repeater the Pager
is now Receiving the
Complete Message every time**

**The Repeater Extends the
"Reach" of the Paging Signal
into the Problem areas**

**SPS- 5 Series
Paging System**

**Outside the Coverage Area
This is the Problem Area
On this Side of the Dash Line**

**In this Area there is
No Paging Signal**

Repeater

**Installed just within the Reach
of the Original Paging Signal**

**Re-Transmits
the Paging Signal**

? No Alert

Pager

Pager Not Responding

RS-232 Cable

**No Signal or a
Intermittent Signal**

Host System

**Inside the Coverage Area
Edge of the "Reach" of
the Original Paging Signal.**

**Pager Not Receiving any
Message or a Garbled Message**

Both the SPS-5 and the Repeater are Considered "Transmitters".

**More Transmitter Power or
a Repeater is Required**

**The Repeater will "Listen" for the Paging Signal from the Paging Transmitter.
When it "Receives" a Paging Signal, it will then "Re-Send" or "Re-Transmit"
(Repeat) the Paging Signal.
The Repeater should be Installed where it can Receive a "Good/Clean" Signal
from the Paging Transmitter every time.
The Repeater will "Extend" the Paging Signal into Areas where the Original
Paging Signal could Not Reach effectively and consistently.**

**See Page 2 for an Explaination of Overlap Signals caused by
using two Transmitters and what can done to help this Problem.**

MATERIAL	FINISH		DATE
	NONE		**6.15.12**
TITLE			DWN BY
Description of Transmitter used with a Repeater			**Bob Clyburn**
			APP.
WAVEWARE TECHNOLOGIES GARLAND, TEXAS 972-479-1702	DWG. NUMBER		REV. **1**

And Overlapping Signals when used with a Repeater

The Signals from most Transmitters are sent out in Waves.
Much like when you drop a Pebble into a still Pond.
The "Ripples" of Waves go out in all directions,
Mostly Horizontally, but Upwards as well as Down.
(This assumes that the Paging System is Installed Vertically on a Wall)

Below Describes where a Repeater Must be Installed and
Explains the Overlap of Paging Signals which can cause Double Pages.

Also Below Explains what can be Done to Help this Problem.

Repeater

SPS- 5 Series Paging System
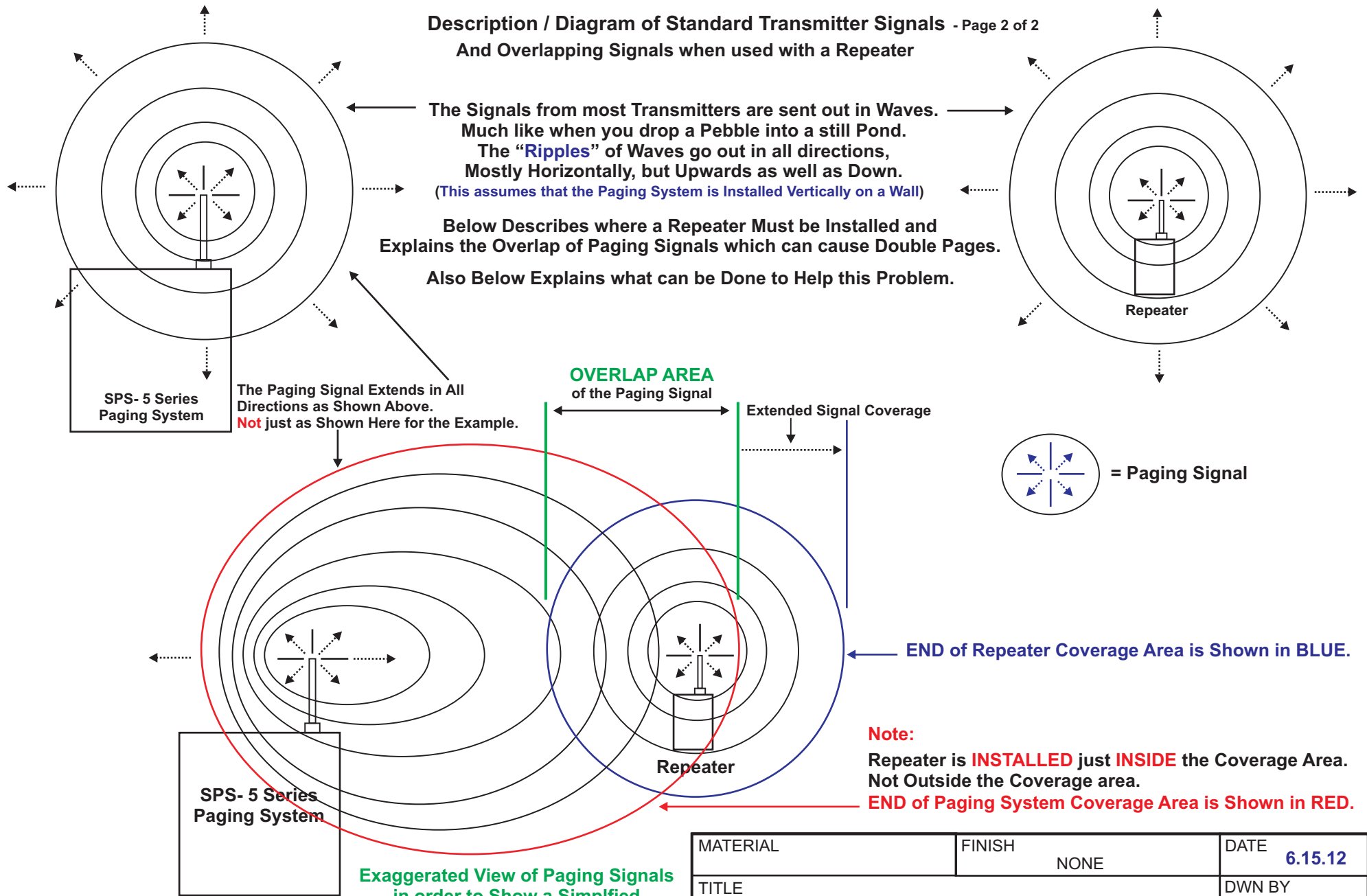
The Paging Signal Extends in All
Directions as Shown Above.
Not just as Shown Here for the Example.

OVERLAP AREA
of the Paging Signal

Extended Signal Coverage

= Paging Signal

END of Repeater Coverage Area is Shown in BLUE.

Repeater

**SPS- 5 Series
Paging System**

**Exaggerated View of Paging Signals
in order to Show a Simplfied
View of Signal Overlap.**

Note:
Repeater is INSTALLED just INSIDE the Coverage Area.
Not Outside the Coverage area.
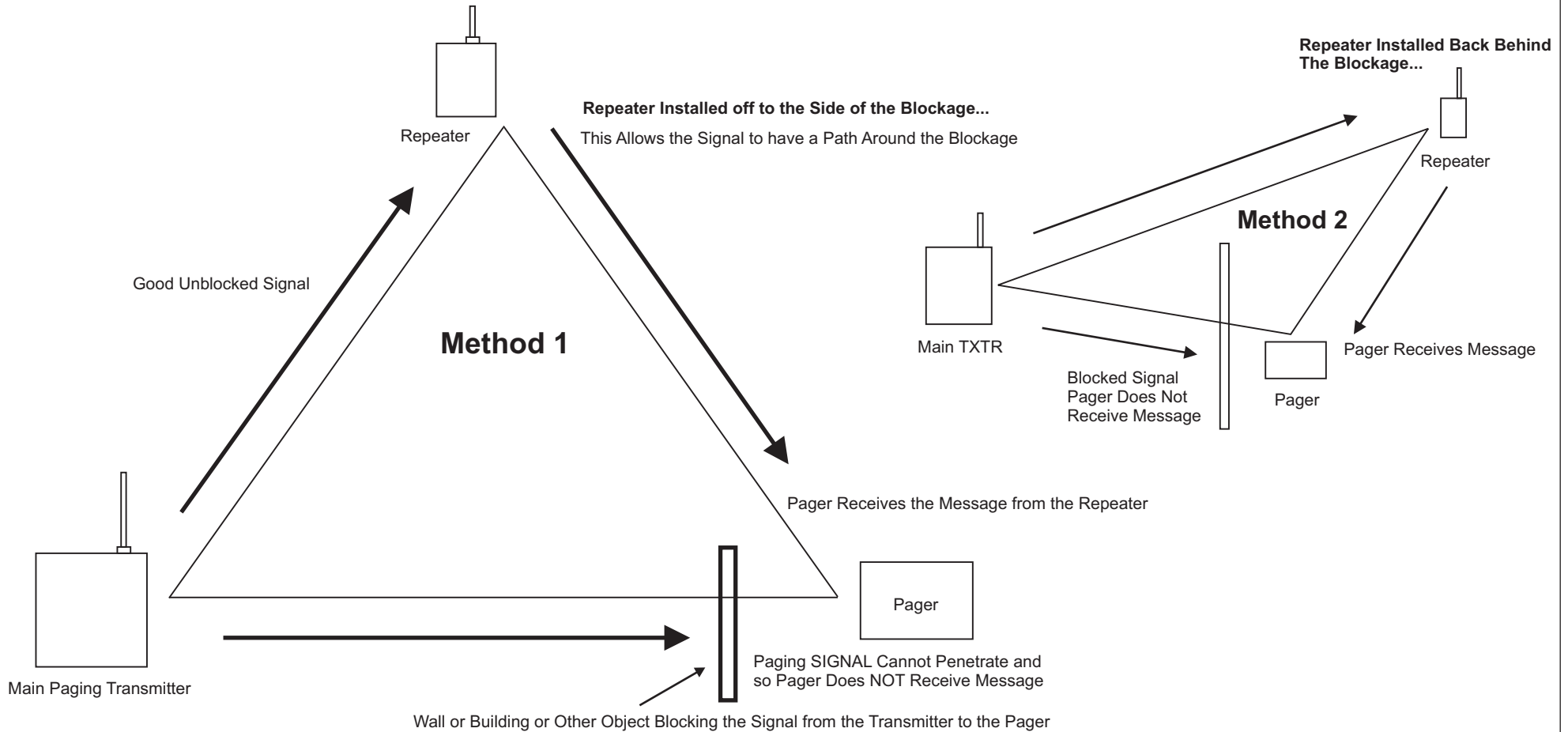END of Paging System Coverage Area is Shown in RED.

Note:
The Area of Overlapping Paging Signals will Cause Any Pager in the Overlap Area to get a
Second Page, one from Both the Paging Transmitter and from the Repeater.
If more than one Repeater is used, then any Pager within any of the Overlaping Signals will
be Paged, so a Pager may get more than two Pages.
This Problem can be worked around by Re-Programming a Pager to Not Display any
Duplicate Messages for 30 Seconds. This Change has to be Done using the Pager Software.

MATERIAL	FINISH		DATE	
	NONE		6.15.12	
TITLE			DWN BY	
	Description of Transmitter Signal Overlap		**Bob Clyburn**	
			APP.	
WAVEWARE TECHNOLOGIES GARLAND, TEXAS 972-479-1702	DWG. NUMBER		REV. **1**	

General Ideas of Installation Methods of the Repeater for a Blocked Signal

Install the Repeater in an Area that gets a Good Paging Signal so it can Receive and Resend the Signal

Repeater is Not Blocked and Receives Message and then Repeats the Message

Repeater

Repeater Installed off to the Side of the Blockage...

This Allows the Signal to have a Path Around the Blockage

Repeater Installed Back Behind The Blockage...

Repeater

Good Unblocked Signal

Method 1

Method 2

Main TXTR

Pager Receives Message

Blocked Signal Pager Does Not Receive Message

Pager

Pager Receives the Message from the Repeater

Pager

Main Paging Transmitter

Paging SIGNAL Cannot Penetrate and so Pager Does NOT Receive Message

Wall or Building or Other Object Blocking the Signal from the Transmitter to the Pager

NOTE:
There is No Guarantee of Coverage even with a Repeater
Too Many Variables per Site Location

TITLE		DATE	
Repeater General Basic Installation Layout Diagram For a Blocked Paging Signal		**10.4.12**	
		DWN BY **Bob Clyburn**	
WAVEWARE TECHNOLOGIES Garland, Texas 972-479-1702	DWG. NUMBER		REV. **1**