ENGINEERING REPORT 01-001

Introduction

This report defines the recommended method for programming the ESTeem Model 192 modems to operate with Mobil Data Computer (MDC) software. This mode allows host and client computers to communicate using different repeater routing.

Listed below are the key commands and their definitions:

AUtolf (on/off)
This command enables the auto line feed sent to the terminal after each carriage return.
ON: Enabled
OFF: Disabled.
Factory default = ON.

ECHO (on/off)
This command enables the ESTeem to echo characters received from the input device back to the input device.
ON: Enabled
OFF: Disabled.
Factory default = ON.

SENDPACK (0-255)
Send packet (SENDPACK) command. The value specifies an ASCII character used to signal when to send the packet. If set to a value of 255 the command is disabled. The factory default value is 13 (Return)

PACKleng (1-2000)
This command defines the length of the data packet in bytes.
Factory default = 2000.

TEMCont (on/off)
The RS-232C/422/485 receive termination timer.
ON:If there are characters in the RS-232 buffer and the Modem is in Converse Mode, the termination timer starts from the time the last receive character is updated in the buffer. If the termination time expires before another character is received, the characters are transmitted.
OFF: Disabled
Factory default = OFF

TERMTime (10-65535)
The RS-232C/422/485 receive termination timer value. This value can be 10 to 65535 milliseconds. This value is enabled by TERMCONT. Factory default = 50.

MESSform(on/off)
When enabled all of the system status and error messages will be in a formatted form.

"xx" indicates what error or message (See Error Messages and System Status Messages).

EMxx <CR> [ESTeem Error Messages]
SExx <CR> [System Error Messages]
SSxx <CR> [System Status Messages]
SSxx-xxxx <CR> [System Status Message W/Returned Value]

ON: Enabled.
OFF: Disabled.
Factory default = OFF.

MULTID (on/off)
This command, when enabled, allows the ESTeem User to send data to another ESTeem from the CONVERSE MODE by specifying the routing address before the data. Factory default = OFF.

Example of Transmitted Inquiry:

[001]Data	Routes data to an ESTeem addressed 1.
[100,200,250,1]Data	Routes data to an ESTeem addressed 1 via ESTeems addressed 100, 200, and 250.
[255]Data	
[1,255]Data	Global send using address 1 as repeater.

This replaces using the CONNECT command from the COMMAND Mode.

Received data packets will have the address of the ESTeem that sent the data at the beginning of the data packet.

Example of Received Data:

[004]DATA	Data received from an ESTeem addressed 4.
[030,100,244,004]Data	Data received from ESTeem addressed 4 via ESTeems addressed 30, 100, and 244.

ENGINEERING REPORT 01-001

Suggestions for Programming the Esteems

SETUP PROCEDURE:

Step #1: Connect the ESTeem wireless modem to a PC running the ESTeem Utilities Program using one of the interface cables. Enter the Terminal Emulation section of the Utility. Match the baud rate, parity and number of data bits programmed into the RS-232 Setup Switch on the rear of the modem to the port settings on the Terminal Emulation section of the ESTeem Utility.

Step #2: Turn Bit 8 off on the RS-232 Setup Switch. Reset (RST) the ESTeem from the front panel switch. On the keyboard, type FA (FACTORY DEFAULT) carriage return <cr> from the keyboard. Your key strokes may or may not be echoed on the screen depending on the program that was in the ESTeem when you received it. If everything is correct, you have now restored the ESTeem to Factory Default parameters.

Step #3: From the COMMAND MODE (CMD), program each ESTeem as follows:

Remote	Value	Definition
FA		Restore Factory Defaults
ADD	XXX	Sets ESTeem Address to XXX
* SETC	255	Enable Global Feature
• TERMC	ON	Set Termination Timer
• TERMT	10	Set Termination Time
• SENDP	XX	Set Sendpack Character
• PACKL	XXX	Set Packet Length
MULTID	ON	Enable Multi-ID
AUTOLF	OFF	Disables Auto Linefeeds
EDIT	OFF	Disables Edit Commands
TYPSYSTE	OFF	Disables Type System
ECHO	OFF	Disables Character Echoes
SAVE		Saves Configuration
BIT 8 (RS-232)	ON	Enable Autoconnect
RESET ESTEEM		Reset ESTeem

* ***Set In Global Mode Only***

• ***Defines the end of a packet. Only one type will need to be set.***

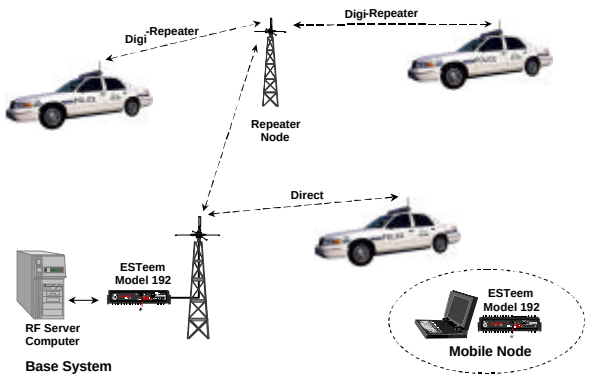
ENGINEERING REPORT 01-001

Protocol Handshaking

Example: Below is an example of the protocol handshaking used between the ESTeem and the host/client computer. The ESTeem uses the "*" character as a message received acknowledgment from the destination ESTeem for messages sent over the RF length. Please see the user manual (appendix C) for the message format.

Computer		ESTeem
Computer performing the initial connection and sending a data packet to an ESTeem with an Address of 10.		
[10]data	→	Computer sends data to ESTeem at Address 10.
SS01-10	←	ESTeem sends Connected to 10 message to Computer (this message is sent on the initial connect only.)
*	←	ESTeem sends an ACK to Computer indicating the message was received by ESTeem at Address 10.
Computer sending additional data to ESTeem Address 10 after the initial connection is made.		
[10]data	→	Computer sends data to Addess 10.
*	←	ESTeem sends an ACK to Computer indicating the message was received by ESTeem at Address 10.
Example of an RF link down message to the Computer		
[10]data	→	Computer sends data to ESTeem at Address 10.
SS03	←	RF link is down. The ESTeem sends a Link Down Message to the Computer.
*	←	ACK is sent to the Computer indicating the ESTeem is ready for next packet.
After receiving the Link Down Message the Computer resends the message.		
[10]data	→	Computer sends data to ESTeem at Address 10.
SS01-10	←	ESTeem sends Connected to 10 message to Computer (this message is sent on the initial connect only.)
*	←	ESTeem sends an ACK to Computer indicating the message was received by ESTeem at

RF Systems Block Diagram



ENGINEERING REPORT 01-001

Address 10.