

INFORMATION HANDOUT

For Contract No. 03-3F8204

At 03-But,ED,Nev,Pla,Sac,Sol,Yol-VAR-VAR

Identified by

Project ID 0313000196

MATERIALS INFORMATION

Digital HAR Acceptance Testing Procedure (ATP)

DIGITAL HAR ACCEPTANCE TEST PROCEDURE (ATP)

Perform the HAR Acceptance Test Procedure (ATP) in the presence of the District 3 Electrical Systems Engineer.

Fill out the following for each site:

Location: _____

Date of test: _____

Equipment Manufacturer and Model Number of testing unit: _____

Latest Calibration date of testing unit: _____

The ATP must use the following test methods:

1. Three-Point Method
2. Four-Point Method using the Wenner Arrangement
3. Voltage Standing Wave Ratio (VSWR) graph
4. Electronics test

1. In the Three-Point Method, each ground electrode must have a spacing of 30 feet.

There must be three sample measurements.

	Sample 1	Sample 2	Sample 3
Vx			
Ix			
Resistance			

2. In the Four-Point Method using the Wenner Arrangement, place four rods in a straight line at 30 feet spacing with a depth of 3 feet.

V: _____ Volt

I: _____ Amp

Resistivity: _____ Ohm-cm

3. In the VSWR graph, explain any discrepancies where the ratio is greater than 1:1.

4. In the Electronics test:

HAR Power Supply:

1. Turn on main power switch and verify that meters show 13.5 volts +/- 0.5 volt when system is using AC power.
YES _____ NO _____

2. HAR Transmitter:

1. Serial Number: _____
2. Frequency: _____ AM
3. Modulation Level – Using the recorder/player module, set a message to broadcast and verify that the modulation LED's blink continuously up to 80% and occasionally blink at 100%
YES _____ NO _____
4. Output Wattage – Using the antenna mounted atop the pole, verify that the transmitter power wattage is 10 watts +/- 1.0 watts
YES _____ NO _____
5. Voltage Standing Wave Ratio (VSWR) – Using the antenna mounted atop the pole, verify that the VSWR indicator LEDs are at 1.5 VSWR or lower with the transmitter turned on (+/- 0.5)
YES _____ NO _____
Reading: _____

3. HAR Digital Recorder/Player:

1. Local Control Test – Using the handset, press the * and then the # key for the security code prompt. Enter security code (12345#) and the unit should respond with “Main menu, to hear the command list press *0#”.
YES _____ NO _____
2. Message Record Test – Using the handset, press *1# to record a message. Unit will respond with available time remaining. Enter a message number (1) followed by #. Begin recording at the beep. When recording is completed, press # to end and return back to the main menu.
YES _____ NO _____
3. Message Playback Test – Using the handset, press *2# to monitor a message. Enter a message number (1) followed by #. Listen to message playback. When playback is complete press # to return to main menu.
YES _____ NO _____
4. Remote Control Test (Analog – phone line) – Connect an active telephone line to the TELCO port on the Recorder/Player. Using another phone line or cell phone to call out, dial the number of the phone line for the Recorder/Player. When the Recorder/Player answers and asks for the security code, enter 1 2 3 4 5 # to access the main menu. Once connected repeat the monitor, record, and playback tests listed above.
YES _____ NO _____
5. Remote Control Test (Digital – Ethernet) – Connect an active Ethernet connection to the port on the Digital Communications Controller device. Ensure that the Digital Communications Controller has been programmed with the correct IP, subnet mask, and gateway information. Using a laptop or remote computer, access the device by pointing to the IP address. When the Digital Ethernet Controller responds with the commands from the Recorder/Player, then the test is a success. Once connected repeat the monitor, record, and playback tests listed above.
YES _____ NO _____

4. HAR Digital Communications Controller:

1. Verify proper Front Panel LED operation per Table below and the Digital Communications Controller.
YES _____ NO _____

LED	No Conn- ections	DR1500 Only	GPS-1 Not Locked	GPS-1 Locked	AC Fault (Immed.)	AC Fault (Final)
HEART BEAT	Blinks GRN	Blinks GRN	Blinks GRN	Blinks GRN	Blinks GRN	Blinks GRN
CENTRAL	Dark	Dark	Dark	Dark	Dark	Dark
LOCAL	Dark	Dark	Dark	Dark	Dark	Dark
DR1500	RED (some- times YEL)	Dark	Dark	Dark	Dark	Dark
GPS	RED	RED	YEL	GRN	GRN	GRN
BROADCA ST	GRN	GRN	GRN	GRN	GRN	GRN
AC	GRN	GRN	GRN	GRN	GRN	RED
BATTERY	GRN	GRN	GRN	GRN	GRN	GRN
HAR STATUS	GRN	GRN	GRN	GRN	GRN	GRN
STATUS 1	GRN	GRN	GRN	GRN	GRN	GRN
STATUS 2	Dark	Dark	Dark	Dark	Dark	Dark
STATUS 3	Dark	Dark	Dark	Dark	Dark	Dark

LED Name	Description
Heart Beat	Blinks green once per second to indicate normal operation.
Central	A brief green flash when receiving or transmitting data over either the Central serial port or internal modem.
Local	A brief green flash when receiving or transmitting data over the Local serial port.
DR1500	A brief green flash when receiving or transmitting data over the DR1500 serial port. Solid amber indicates that the DCC is awaiting a response from the DR1500. Solid red indicates a communications error between the DCC and DR1500.
GPS	Solid amber indicates valid communication with the GPS unit, but time is invalid. Solid green indicates valid time. Solid red indicates a communications error between the DCC and GPS.
Broadcast AC Battery HAR Status	Status Indicator LEDs. Solid red indicates fault. Solid green indicates no fault. Not updated real-time. Are only updated after a status command is parsed by the DCC.
Status 1	Outdated Message Indicator. Status Indicator LED. Solid red indicates fault. Solid green indicates no fault. Not updated real-time. Are only updated after a status command is parsed by the DCC.
Status 2	Not used
Status 3	Internal Modem Indicator. Solid green indicates that the internal modem is off-hook.

5. HAR GPS Synchronization Module:

1. Serial Number: _____
2. Signal Lock - Connect the GPS antenna to the HAR equipment in a 19" rack. Ensure the antenna is outside in an open area to the sky. Apply power to the 19" rack using the supplied

AC power cord to 110 VAC. Turn on all components including the GPS module. Ensure the green LED's turn on and signal is locked onto a satellite.

YES _____ NO _____

3. Audio Synchronization Test – (NOTE: This test requires 2 complete HAR racks setup and powered on the same broadcast frequency and both connected to a backhaul communication link. The messages must be downloaded by using the Platinum Central Control software to ensure each message is recorded and trimmed identically. This test cannot be performed using the handset). Setup two (2) HAR racks that have the same transmitter frequencies. Connect communication to each Recorder/Player. Using the Platinum Central Control software, follow the procedures to record into a group of sites the same message (synchronized) to play. Once message has been downloaded to each unit, verify that the messages are playing at the same time.

YES _____ NO _____

6. HAR Field Strength Measurement:

1. Turn on HAR transmitter and drive out 0.93 of a mile from the HAR site. Using a calibrated field strength signal meter, tune to the HAR frequency and record the signal strength measurement.
2. FCC regulations limit this to a maximum of 2.0 millivolts per meter (mV/m) measured at 0.93 of a mile or 1.5 kilometers from the HAR station. Final reading should be 2.0 mV/m +/- 0.5 mV/m.
YES _____ READING _____
3. At least 2 locations should be checked and recorded in different directions from each HAR site. Repeat the setup and tests in #1 above and record readings.
YES _____ READING _____
4. Attach Map of reading location (latitude/longitude and readings)