HUGHES NETWORK SYSTEMS

FIELD SERVICE BULLETIN

SUBJECT: Force Ranging HN/DW7000 terminials

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APPROVED BY: Doug Dostalik

CHANGE TO BE IMPLEMENTED BY:

AUTHORIZED HUGHES REPRESENTATIVE ☐ CUSTOMER ☐

DOCUMENTATION AFFECTED: training, Installation Specifications

CATEGORY:

HARDWARE ☐ FIRMWARE ☐ SOFTWARE ☒ OTHER ☐

EFFECTIVE DATE: 10/13/06

IMPLEMENT: ☒ IMMEDIATELY

☐ NEXT SERVICE CALL

☐ OTHER

COMMENTS: This Field Service Bulletin describes using the Force Range command on a DW/HN remote terminal, when to use it, and how to interpret the results after the ranging session is complete.

REMOVED MATERIAL DISPOSITION

    SHIP TO N/A

    ATTENTION N/A

    COMMENTS N/A

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Background:

For best subscriber remote terminal performance, the signal quality should be optimized during new installations and site repairs. Transmit and receive signal quality measurements can be initiated, measured and observed at the subscriber's remote unit through the web interface. Transmit signal quality is shown by the EsNo value. Receive signal quality is indicated by the SQF value.

Purpose:

This describes how to use of the *Force Range* command on a DW/HN remote terminal, when to use it, and how to interpret the results after the ranging session is complete to determine if they are within the acceptable range. Running the Force Range command adjusts remote transmit timing and power. It also measures and records the NOC receive signal quality, or *EsNo*. This is similar to the RX SQF on the remote receive. It will determine the remote transmit performance. This EsNo will also determine the inroute rate that a terminal can operate at, where the higher rates will allow a higher upload speed from the terminal.

Generally, 74 cm 1 Watt sites operate at the 256K rates, whereas 98 cm 2 Watt units operate at the 512K or higher inroute rates. Sites with low EsNo values will likely have high stream naks (no acknowledgment) counts, causing lost data and slow browsing/upload speeds.

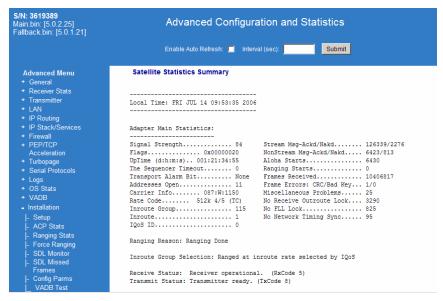**Using Force Ranging for DW7000, DW7700, HN7000S and HN7700S**

To perform properly, the DW7000, DW7700, HN7000S and HN7700S **must** be re-ranged whenever:

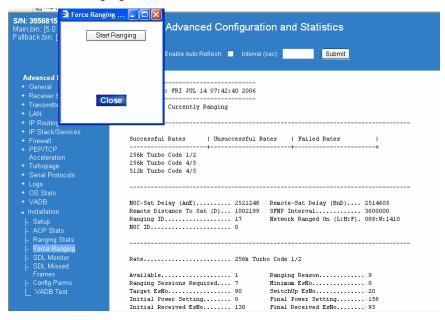|	RePeak	ACP	Force Range
Replaced feed Arm/Feed horn	√	√	√
Replaced Transmitter	√	√	√
Replaced/Repaired Cables/Connectors		√	√
RePeak		√	√

Force Ranging will adjust the transmitter power for optimal operation based on the changes in the antenna, pointing, and signal power.

Use this procedure to re-range the remote using the Force Range function from the *Advanced Configuration and Statistics* web page.

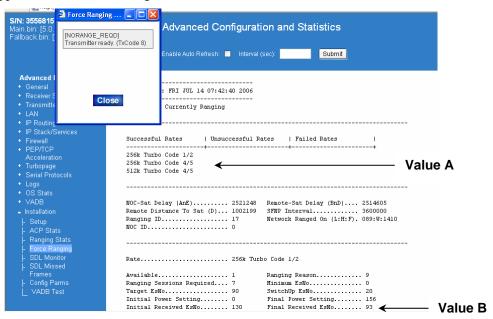1. Select Installation→*Force Ranging* as shown:

2. Click the Start Ranging popup button. The ranging process may take a minute or two – do not close the window.

3. Open Installation – Ranging stats

Ranging is complete when the
    [NORANGE_REQD]
    Transmitter ready (TxCode8)
message appears as shown in the figure below:

4. Click the Close popup button. The ranging procedure is complete.

5. Review ranging session results:

   Successful rates show the inroute rate to which the remote has successfully ranged and is capable of normally operating. Unsuccessful or failed rates are disallowed rates.

   The final EsNo value (Value B) is based on geographic location and satellite used. If the EsNo falls below the threshold listed in Table 1, the site may have poor performance, resulting in high stream Naks rates. Further debugging of the site is required to achieve these target levels.

Table 1. Minimum acceptable values

Configuration	Value A	Value B
.74m 1 Watt	256K (any rate)	60 (minimum) Final Received EsNo
.98m 2 Watt	512K (any rate)	75 (minimum) Final Received EsNo

6. Verify remote terminal performance:
   - Open the General tab→*Clear Stats*.
   - Open the *Summary* tab.
   - Check the Enable Auto Refresh checkbox and set the Interval (sec.) refresh rate to 2 seconds.
   - Verify the browsing speed is acceptable.
   - Verify the Stream Msg-Ackd/Nakd results are between 0 and 10, with 1000 or more Stream Msg-Ackd counts as shown below.