



IWAY CUSTOMER SUPPORT 1ST LEVEL TROUBLESHOOTING GUIDE

AIM: This document is designed for and intended to clearly describe the various aspects of basic troubleshooting of faults that may occur while on the iWayAfrica network. This troubleshooting guide should be consulted prior to lodging an incident with the Customer Support Desk.

APPLICATION SCOPE: HN7000/7740/9200/HX200 and common incidences on the iWayAfrica network

TIPS

- Always ensure that the modem is powered from a clean power source and that LAN cables are properly connected.
- It is always important to check the status of the modem first to find out the nature of the problem. Any abnormal indication shows a possible problem that must be looked at carefully.
- There are 5 LEDs (on the front panel of the modem) that can provide information about its operating status. These are: LAN, Transmit, Receive, System and power.
- Always confirm the Transmit status, Receive status and Signal strength obtained on site by pointing the URL on the browser to the LAN 1 IP address of the modem E.G. <http://10.128.15.97> and then clicking on the system status button once the page loads. This should always be done after checking on the LEDs and communicated to support during level 2 troubleshooting.

NORMAL OPERATIONS

During normal operations when the modem is powered on and sending or receiving data, the following are the LED indicators to look out for.



- The LAN LED is usually on and solid blue in color. The LED blinks when traffic is sent or received to the local network (LAN).
- The Transmit LED is usually on and solid blue in color .The LED blinks when traffic is sent to the satellite.
- The Receive LED is usually on and solid blue in color .The LED blinks when traffic is received from the satellite.
- The System LED is usually on and solid blue in color.
- The Power LED is usually on and solid blue in color.

ABNORMAL OPERATIONS

1. **When the LAN LED is Off** - This indicates that the modem is unreachable on the local area network (LAN) and we recommend that you check on your LAN cable to ensure that it is properly connected to the LAN port on the back panel of the modem. Kindly proceed to push the LAN cable (if loose) further into the LAN port at the back of the modem or replace faulty cables that may result to service degradation.
2. **When Transmit or Receive LEDs OFF** - Take the following corrective steps: Confirm the Transmit status, Receive status and Signal strength obtained on site by pointing the URL on the browser to the LAN 1 IP address of the modem e.g. <http://10.128.15.97> and then clicking on the system status button once the page loads. Under normal circumstances, the Receive Status will have an RX code 5 and Transmit status will have a TX Code 8. If normal status is confirmed, kindly reboot the modem by unplugging from the clean power source, waiting for a few seconds and then plugging back. If the problem still persists, contact Support detailing the troubleshooting steps that have since failed
3. **When System LED OFF** - If the System LED is off, but the Transmit and Receive LEDs are on, this may indicate a NOC (NOC) problem that usually resolves after a short while. However, should the problem persist, power the modem off and on and then proceed to contact Customer Support describing the steps of the troubleshooting procedures that have failed.
4. **Power LED off and other LEDs blinking** - Under such circumstances, please perform a modem reboot and then proceed to contact Customer Support for modem troubleshooting and possible replacement should the problem persist. More information on the modem replacement process (Return Material Authorization) can be discussed with Customer Support.



5. However, if the **Power LED blinks continuously** – This is an indication that the modem is running older software and you therefore need to contact Customer Support to assist in upgrading it to the latest software.
6. In the event that the **all LEDs are off** - Check to make sure that the power cable is securely attached from a clean power source.

Transmit error codes.

TX Code 0 : The transmitter is not connected to the receiver.

If this state persists over at least 10 seconds, then the system is not properly functioning. If an TX Cable is present on the system but this message appears, first check the LEDs on the TX Cable. If neither is flashing, then one of the following is likely the cause.

RX Cable-TX Cable cable not properly connected to the RX Cable or TX Cable.

In this situation, the TX Cable does not receive power or does not have the communication link established. Please check that the cable is properly connected and secured.

TX Code 1 : The transmitter has been disabled by the NOC.

This status appears when a unit is disabled. If the NOC does not support automated cross-polarization, the unit is disabled when first installed onto the network and must be manually enabled by the NOC once the installer has met the cross-polarization and installation specs and requests that the NOC enable the unit.

TX Code 2: The transmitter has been placed in test mode by the NOC.

This state occurs when the NOC staff places the unit into special transmission modes to measure the performance of a user's unit. One example is that cross-polarization requires that a special continuous carrier be transmitted by the unit. When in this mode, the unit is unable to transmit user traffic to the NOC. If the unit is not expected to be in test mode, the NOC must be contacted to remove the unit from test mode.

TX Code 3 : The transmitter is locking to the receive carrier.

This status should correlate to one of the following issues: Upon initial startup or locking to the receive carrier, this is a normal state for up to 10 seconds. If this persists for more than 10 seconds, try disconnecting and reconnecting the IFL and wait 10 seconds to check for recovery.

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If the problem persists, then the TX Cable and RX Cable must be replaced



TX Code 4: The transmitter is not responding to commands set from the receiver.

This indicates that there is something not properly operating in the RX Cable/TX Cable configuration. The expected actions to attempt to recover are as follows:

- Perform Activate TX Cable from the Adapter Diagnostic Utility to see if the system recovers
- Perform a reset of the RX Cable (power-cycle the unit) which will reset the RX Cable and TX Cable
- Check the RX Cable/TX Cable cable to ensure it is connected and secure
- If it cannot be resolved via resets, replace the power support, RX Cable/TX Cable cable, and the TX Cable
- This could also be caused if the power supply is faulty.

TX Code 5 : The transmitter is not locked to network timing.

No action is necessary if this occurs from time to time and quickly resolves itself. If this issue persists, it is likely due to a NOC-related service issue. If this problem is occurring on a user unit while it is not occurring on other units in the network, then it could be caused by one of the following:

Marginal Receive power: If the receive signal strength is in the 30"s, then this is causing sufficient dropped packets to lead to loss of network timing information. Use standard approaches to peak the receive power or re-point the antenna.

TX Cable Failure: Swap out the TX Cable.

TX Code 6 : The transmitter is not available because the receiver is not detecting a signal or is not locked to the correct network. This status should correlate to the receive status indicating a problem.

Refer to the receive status messages to deal with this issue.

TX Code 7 : The transmitter is not available because the receiver is not tuned for normal operation. When the unit is placed into special modes like antenna pointing mode, then the unit cannot transmit. By exiting the antenna pointing function, this should be resolved. In the worse case, a PC reboot (or restart of the navigator) should resolve this.

TX Code 8 : The transmitter is available.

This is the normal operational state of the transmitter if it is installed.

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TX Code 9 : The transmitter is adjusting for optimal network timing.

The unit is currently in a special mode where it measures its power and timing and is adjusting both to properly operate in the network. When in this mode, the transmitter is able to send small amounts of data (~1- 2kbps). It will enter this mode at installation until it succeeds. It may enter this mode at NOC operator command or when the dish is installed into a different location and re-pointed using the antenna pointing program. This is a normal state for a unit when it is first installed.

TX Code 10 : The transmitter is unable to communicate with the NOC.

This state indicates that the unit has stopped attempting to transmit user data because of a large number of packets unable to be received by the NOC. This could be a result of weather conditions causing lost packets or NOC equipment failure on the return channel equipment. Also, verify that the cable connecting the TX Cable to the ODU is in place, secure, and not damaged. Replace cable if necessary.

TX Code 11 : The transmitter is not available because the receiver software is out of date.

This state indicates that the client software is not recent enough to operate on the network. New client software will be required from time to time due to network infrastructure and capability upgrades. The system will always back-support software for a period of time, but may at times obsolete software to ensure maximum network efficiency. If this message appears, new software is needed on the client machine.

TX Code 12 : The transmitter is not receiving network control messages from the NOC.

This state indicates a NOC equipment outage on the server that controls return channel bandwidth (the DNCC). This problem should be reported to the NOC for service recovery.



TX Code 13 : The transmitter is unable to range because it cannot communicate with the NOC.

This state may indicate many root causes. It occurs when the NOC does not receive ranging information from the unit. This could occur because the unit is unable to achieve enough transmit power for the NOC to receive. It could also occur because timing is incorrect due to entering the improper latitude/longitude information. It could also occur if the transmit ODU is not properly operating or is not properly cabled to the TX Cable. Severe weather conditions may also cause this to occur.

TX Code 14 : The transmitter is not available because ranging has failed.

This state indicates that the NOC was unable to complete ranging if a user. The NOC needs to re-enable ranging to ensure successful ranging by users. This likely indicates that ranging capability is not currently operating correctly in the NOC.

TX Code 15 : The transmitter is waiting for a ranging request to be processed by the NOC.

This state occurs if the system is busy with adjusting power and timing for other users. This can be resolved by the NOC by adding more ranging capacity. Otherwise, the user must wait for a turn ranging.

TX Code 16 : The transmitter is waiting for a transmit request to be processed by the NOC.

This state occurs if the system is overloaded with users going active and is unable to provide bandwidth to a user going active. This indicates an overloading of the network with users. NOC operations should be contacted about increasing capacity.

TX Code 17 I: The transmitter is unable to obtain an available transmission rate.

This occurs if the unit cannot successfully range at any of the available in-route rates. The possible causes are:

First generation TX Cable is used on a system that does not have 128K in-routes. In this case, the TX Cable must be replaced.

Unit could not achieve enough power to transmit on the lowest available in-route rate. This is likely caused by an installation/transmit power problem



TX Code 18 : The transmitter is requesting a transmit pointing test.

(Automatic Cross-Pol (ACP) Only) The unit is in this state when the antenna pointing program on the PC requests that the unit perform a transmit pointing test. The unit remains in this state until the NOC responds that the unit is either performing the test or queued to perform the test.

This is a normal state for installation. The unit may also periodically go into this state for short periods of time (<5 seconds) for periodic system checks that are performed on the antenna pointing to ensure that it continues to meet the cross-polarization requirements.

TX Code 19 : The transmitter is queued for a transmit pointing test.

(Automatic CrossPol (ACP) Only) The unit is in this state when the antenna pointing program on the PC requests that the unit perform a transmit pointing test and the NOC has responded that the unit is queued. It also may occur periodically when the system is rechecking the pointing of the antenna. This occurs when other users have requested transmit pointing. This is a normal state for installation.

TX Code 20 : The transmitter is performing a transmit pointing test.

(Automatic CrossPol (ACP) Only) The unit is in this state when either the antenna pointing program on the PC requests that the unit perform a transmit pointing test or the periodic system check is performing the antenna pointing test. This occurs once the NOC has provided the resources to initiate the test. If this is a PC pointing function, the unit remains in this state until the user exits pointing mode or the NOC times out the pointing. If this is the periodic test, it should exit this state within 5 seconds.

TX Code 21 : The transmitter is disabled because a transmit pointing test failed.

(Automatic CrossPol (ACP) Only) The unit failed the transmit pointing test, which means that it did not meet the specifications required by the satellite provider for cross-pol versus co-pol. This is likely due to an installation problem. The installer needs to fine-point the antenna to improve the cross-pol result and then re-execute the transmit pointing. The unit will not transmit until the cross-pol passes.

TX Code 22 : The transmitter is disabled pending a transmit pointing test.

Units will only enter this mode on systems that support automated cross-polarization periodic rechecks. The unit is expected to be in this mode for up to 2 minutes at periodic intervals. This is also likely to occur upon power up after the unit has been turned off for more than a day. If the unit remains in this state for more than 2 minutes, then the auto-cross-polarization system in the NOC is likely experiencing an outage.

TX Code 23 : The transmitter is disabled because a transmit pointing test cannot be performed.

A unit is placed into this mode when it cannot perform transmit pointing upon initial setup on the network or when the unit is required to re-range. This mode indicates that the NOC components that perform the automated cross-polarization pointing function are not operational.

Receive State Message Strings:

Rx Code 0 : The receiver is in USB suspend.

This should be a transient state at startup or after a suspend. A customer should never see this message. If they do, shutdown and restart the PC to clear this state and check TCP/IP settings if the condition persists.

Rx Code 1 : The receiver is in pointing mode.

This status indicates that the user is performing antenna pointing. In this mode, the transmitter is disabled for safety reasons since the installer is working near the dish.

Rx Code 2 : The receiver is in factory or NOC mode. This status is for testing purpose only and will not be seen by users.

Rx Code 3 : The receiver is not locked to a signal.

This status indicates that the RX Cable is unable to receive the signal from the NOC. This is also associated with a signal level less than 30. This occurs if there is a weather outage for the user, a complete NOC outage, a mis- pointed antenna, or if the LNB is not operating correctly (either due to the connection via cable to the RX Cable or an LNB failure). This is likely a pointing issue or a temporary NOC outage.

Rx Code 4 : The receiver is locked to the wrong network.

This status appears if the receiver locked to a signal, which does not match that which the user was assigned to at web- setuptime. This is likely due to the user changing pointing to the wrong satellite or changing the tuning frequency to not match that which was provided during the commissioning process. If the user has been reassigned to a different transponder or satellite, then the user should use web- setupto get the proper configuration parameters.

Rx Code 5 : The receiver is operational.

This is a normal operating state where the receiver is receiving data from the NOC. This is the only state when the transmitter will operate normally.

Rx Code 6 : The receiver is not detecting any signal (check connections).

This indicates that the LNB to RX Cable connections are either faulty or the RX Cable itself is faulty. The cables and connectors should be checked.

Rx Code 7 : The receiver is locked to a unknown network.

This status appears if the receiver locked to a signal that does not have the correct identification. This is likely to occur if part of the NOC is not operational. It is also likely if the user is pointed to the incorrect satellite or a frequency other than that provided during the commissioning process. To ensure it is not a local issue, reset the RX Cable to see if this condition persists.