4.4.2 Host RF Window

The host **RF** (Radio Frequency) window, shown in Figure 62, displays two alarm indicators for the forward path RF composite signal. The window shows operating mode, also, because a mode other than normal may cause the indicators to report falsely. Table 12 describes the RF alarms.

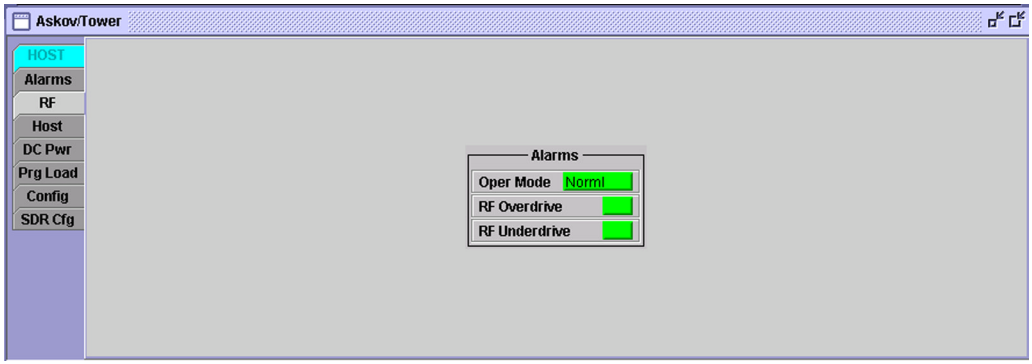

Figure 62. Host RF Window

Table 12: Host RF Alarms When Faulted

ALARM NAME	DESCRIPTION
Oper Mode	The operating mode is not “Norml.” (“StandBy” mode will cause a green **RF Underdrive** indicator to falsely read as red; a red **RF Overdrive** indicator will falsely read as green. “Test” mode will have no effect on the RF indicators. If mode is “PrgLd,” wait for the load to complete.) For more information on operating mode, refer to Topic 4.1.4, Tools Menu, on page 60.
RF Overdrive	The forward path composite signal level of all channels from the server is too high. The overdrive threshold is −3 dBFSrms. See also **Oper Mode** above.
RF Underdrive	The forward path composite signal level of all channels from the server is too low. The overdrive threshold is −25 dBFSrms. See also **Oper Mode** above.

4.4.3 Host Window

The **Host** window identifies the bandwidth that the host is set to and contains two subsets of alarms, one for the host unit optics functions and one for the host unit synthesizer functions. The names for these alarms refer in a number of places to "primary" and "secondary" fibers and "forward" and "reverse" paths. For clarification (see Figure 63):

NOTE: The "host unit" in the Digivance SDR system is the Host PCIx Card within the BTS server shown in Figure 63.

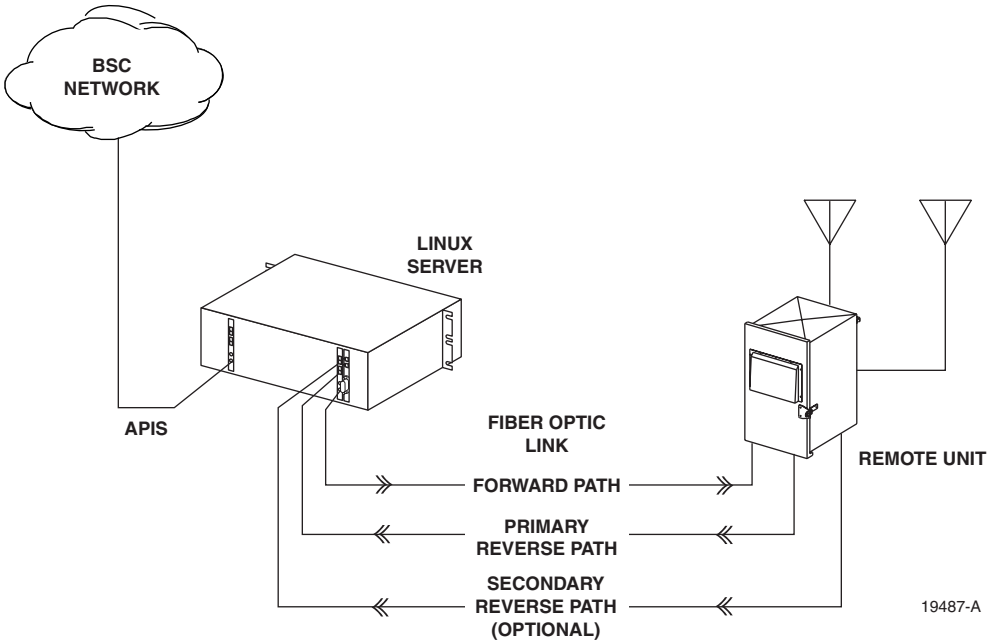

Figure 63. Forward and Reverse Paths (in Product Model With Secondary Fiber)

- The host unit (Host PCIx Card) will usually have two primary fibers (connected to host Port 1 and Port 2). These fibers carry the primary forward path (Port 1) and primary reverse path (Port 2) optical signals. If Wave Division Multiplexers (WDMs) are used, both signals may be transported on one fiber between multiplexers on either end. A free space optics link may also be used.

- Depending on the product model, the host unit (Host PCIx Card) may, in addition, have a secondary fiber (connected to host Port 3) to provide a diversity gain option. In this case, the secondary fiber will carry a secondary reverse path from a secondary antenna.

Synthesizer alarms also refer to the primary forward path, primary reverse path, and secondary reverse path because the host unit has a separate synthesizer for each of these paths. The synthesizers are monitored independently; an error condition in one synthesizer will not affect the others.

Figure 64 shows the **Host** window. Table 13 describes the optics alarms when failed. Table 14 describes the synthesizer alarms and band alarm when failed. Table 16 describes the band indicator.

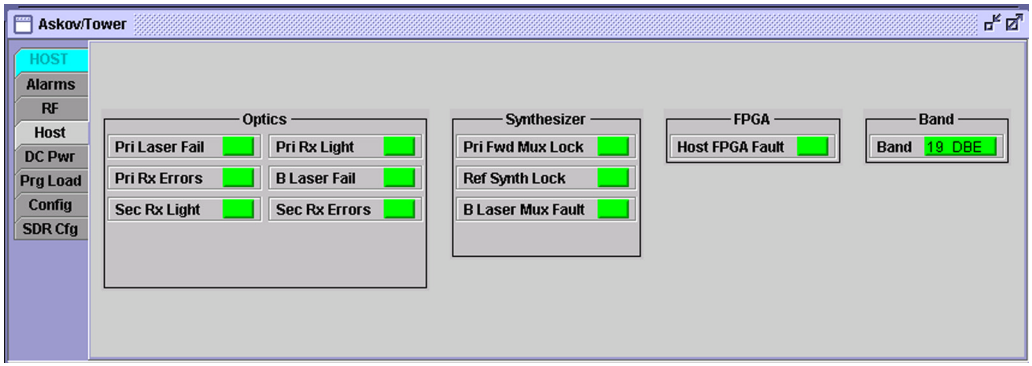

Figure 64. Host Window

Table 13: Host Optics Alarms When Faulted

ALARM NAME	DESCRIPTION
Pri Laser Fail	The forward path primary fiber laser is not sending light (no light from host unit to remote unit).
Pri Rx Light	No light is being received from the primary fiber (no light from remote unit to host unit).
Pri Rx Errors	Multiple errors are occurring on primary fiber. Error rate has exceeded 10^{-6} (one bit error per million bits).
B Laser Fail	Not used. Always green.
Sec Rx Light	No light is being received from the secondary fiber.

Table 13: Host Optics Alarms When Faulted (Continued)

ALARM NAME	DESCRIPTION
Sec Rx Errors	Multiple errors on secondary fiber. Error rate has exceeded 10^{-6} (one bit error per million bits).

Table 14: Host Synthesizer and Band Alarms When Faulted

ALARM NAME	DESCRIPTION
Pri Fwd Mux Lock	The forward path primary fiber phase-locked-loop is out of lock.
Ref Synth Lock	The reference synthesizer is out of lock.
B Laser Mux Fault	The secondary fiber phase-locked-loop is out of lock.

Table 15: FPGA Alarm When Faulted

INDICATOR NAME	DESCRIPTION
Host FPGA Fault	Fault was reported in FPGA chip on Host PCIx Card.

Table 16: Host Band Indicator

INDICATOR NAME	DESCRIPTION
Band	Indicates the RF bandwidth and sub-band at which this unit is running. If the host unit and remote unit are at different bands, a Hardware Mismatch alarm is reported (for more information, see Topic 4.4.1, Host Alarms Window, on page 69).

4.4.4 Host DC Pwr Window

The host **DC PWR** (DC Power) window, shown in Figure 65, contains dashboard displays with readings from the temperature sensor and voltage supply sensors on the host unit control board. Table 17 describes the dashboard displays.

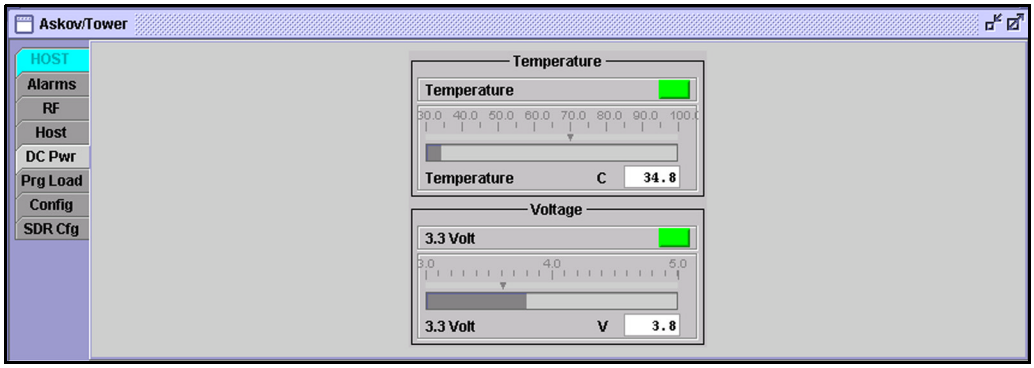

Figure 65. Host DC Pwr Window

NOTE: For each bar graph in the displays, there is a down-arrow threshold marker showing the point at which the unit goes into alarm. Figure 66 show an example.

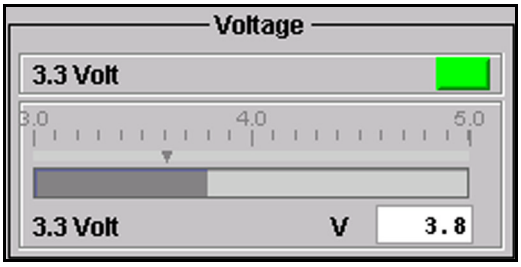

Figure 66. Down-Arrow Threshold Marker (at 3.6 Volt)

Table 17: Host DC Power Display

DISPLAY NAME	DESCRIPTION
Temperature	Not used. Always green in an SDR application. The Host PCIx Card has no circuitry for computing and reporting temperature.
Voltage	Shows current readings for the host unit onboard 3.3 Volt supply. A reading exceeding the threshold indicated by the down arrow triggers the corresponding alarm.

4.4.5 Host Prg Load Window

The host **Prg Load** (Program Load) window, shown in Figure 67 and Figure 68, is used to download a program file from the EMS computer to a host unit. The program file may be a control program or a Field Programmable Program Array (FPGA).

Table 18 describes the components of the window. For the download procedure, refer to Topic 3.14 on page 50.

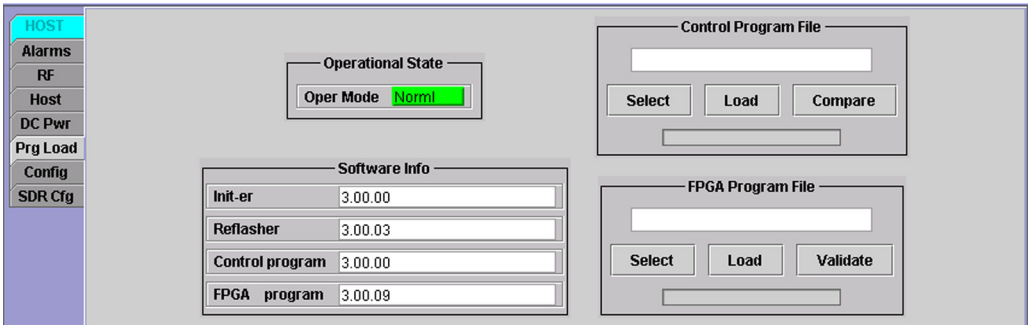

Figure 67. Host Prg Load Window

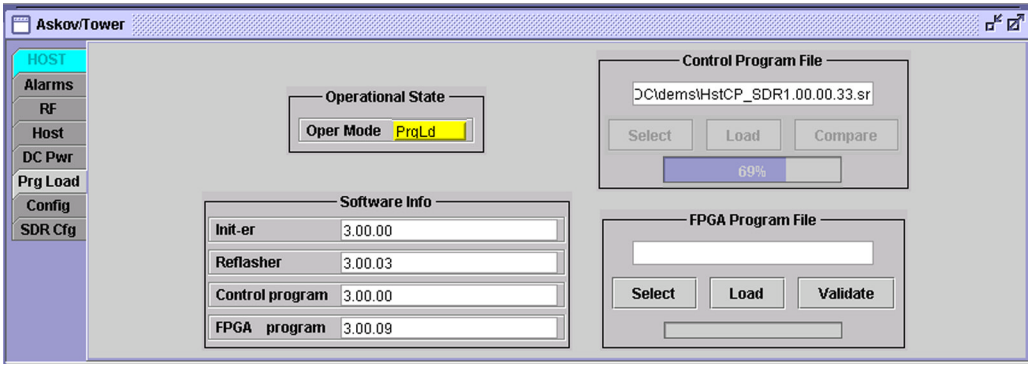

Figure 68. Program Load in Progress

Table 18: Host Prg Load Window Components

DISPLAY NAME	DESCRIPTION
Operational State	
Operating Mode	This mode is not set here, merely indicated. The host should be in a **Norml** mode when starting the download. The mode then changes automatically to **PrgLd** or **FPGALd**.
Control Program File or FPGA Program File	
(Unnamed Field)	`<Name><Version>.sr` where `<Name>` = name of program being downloaded `<Version>` = major.minor.rev.build
Select	Click on this button to browse for and open the program file.
Load	Click on this button to download the selected program file from the EMS computer to the host unit.
Compare	Click on this button to compare the version of the selected program with the version of the control program already installed on the unit.
Validate	Click on this button to determine whether the FPGA on the host is in a functional state in which an FPGA can be downloaded. For newer hardware, the FPGA will be reported as “not functional” if the FPGA software did not successfully download to begin with. If the FPGA is not functional, the RF system will be in alarm. NOTE: The response to this button click should be disregarded for older hardware. The older hardware can be identified by the FPGA version being “UNKNOWN” (in the **FPGA Program** field). On this older hardware, the FPGA is not downloadable.
Software Info	
Init-er	Host Initialization Program version
Reflasher	Host Reprogram Program version
Control program	Host Control Program version (<Band> = bandwidth)
FPGA program	Field Programmable Gate Array version. If unit is older type with non-replaceable array, this field will say “UNKNOWN.”

4.4.6 Host Config Window

The host **Config** (Configuration) window, shown in Figure 69, shows the site number and site name of the host unit currently selected for view.

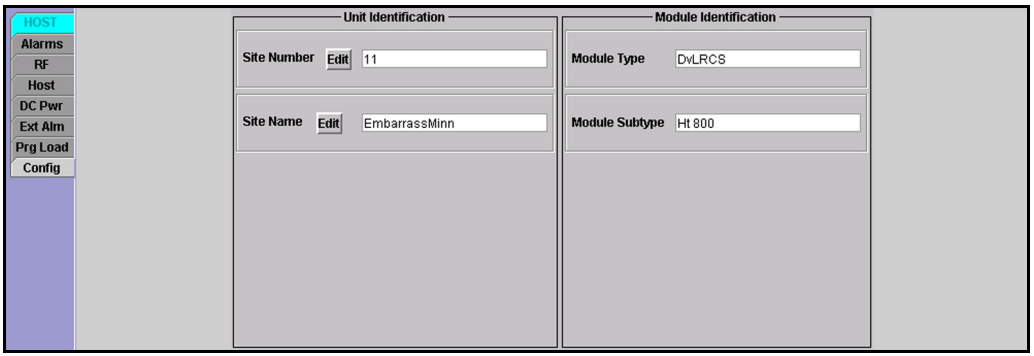

Figure 69. Host Config Window

Clicking on the **Edit** button for **Site Number** or **Site Name** causes a dialog window to be displayed. The dialog window can be used to enter or edit a site number or site name. For instructions, refer to Topic 3.7 on page 36.

4.4.7 Host SDR Cfg Window

The host **SDR Cfg** window, shown in Figure 70, is used to configure the software-defined radio channels within the Host Unit. Table 19 and Table 20 describe the window fields.

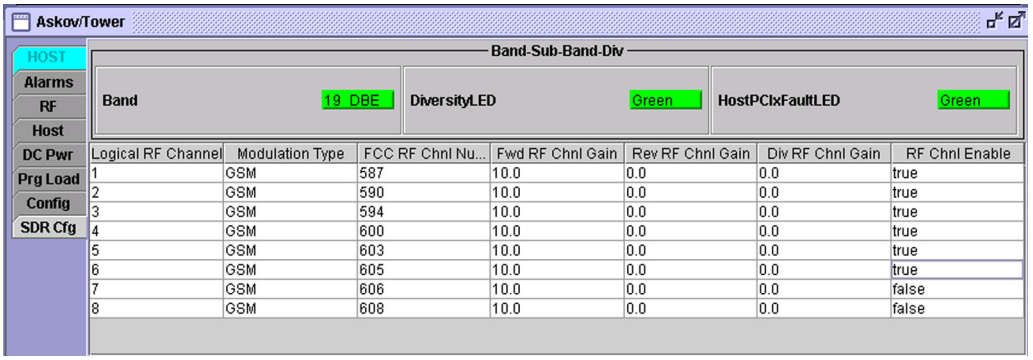

Figure 70. Host SDR Config Window

The Digivance SDR system is capable of handling eight logical RF channels. Each logical channel is a multiplex of up to eight voice RF channels received from the SDR application (see Figure 3 on page 5).

Table 19: Band-Sub-Band-Div Alarms When Faulted

ALARM NAME	DESCRIPTION
Band	Band and sub-band system is operating at.
Diversity LED	Diversity status of system. Only present if diversity option is supported by remote unit.
HostPCIxFault LED	State of LED on front panel of Host PCIx Card: green (no alarm), red (major alarm), or yellow (minor alarm).

Table 20: RF Channels Fields

FIELD NAME	DESCRIPTION
Logical RF Channel	Arbitrary number from 1 to 8 assigned to a logical channel as an identifier.
Modulation Type	RF modulation type of logical channel.
FCC RF Chnl Number	RF channel number (purchased with license).
Fwd RF Chnl Gain	Gain setting in dBm set for forward path for given logical channel. Standard value is 10.
Rev RF Chnl Gain	Gain setting in dBm for primary reverse path for given logical channel. Standard value is 0 (zero).
Div RF Chnl Gain	Gain setting in dBm for secondary reverse path for given logical channel. Standard value is 0 (zero). This path is only present in diversity systems.
RF Chnl Enable	True value enables the channel (makes it active). False value turns off the channel.

4.5 Remote Displays

The EMS "remote displays" include seven windows with information available for any operational remote unit currently known to EMS.

4.5.1 Remote Alarms Window

The remote **Alarms** window reports all major and minor alarm indicators for the remote unit. The indicators are refreshed about once every three seconds. In general, GREEN indicates okay, RED indicates that a major alarm exists, and YELLOW indicates that a minor alarm exists. A major alarm causes RF functions to be halted; a minor alarm allows RF functions to proceed as normal. Figure 71 shows the remote Alarms window.

Table 21 describes the major alarms when faulted. Table 22 describes the minor alarms when faulted.

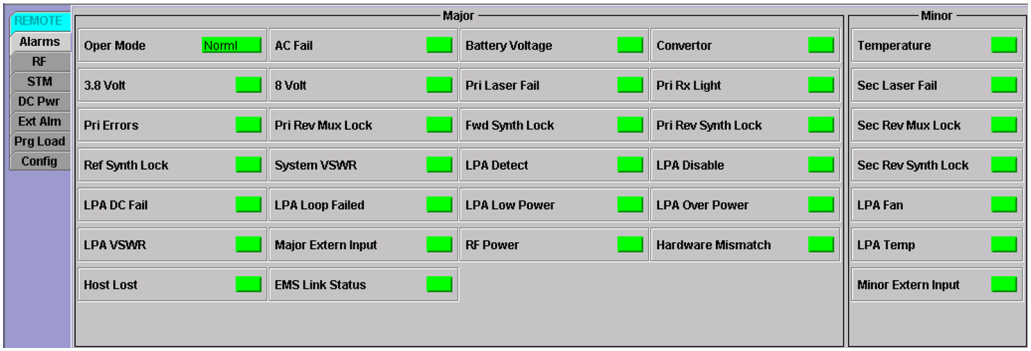

Figure 71. Remote Alarms Window

Table 21: Remote Major Alarms When Faulted

ALARM NAME	DESCRIPTION
Oper Mode	Operating mode is not "Norml." For a description of other modes, see Topic 4.1.4, Tools Menu, on page 60.
AC Fail	There is no AC power to the remote unit.
Battery Voltage	Battery voltage is low.
Converter	AC converter in Spectrum Transport Module (STM) has failed.

Table 21: Remote Major Alarms When Faulted (Continued)

ALARM NAME	DESCRIPTION
3.8 Volt	The 3.8 Volt onboard supply is too low.
8 Volt	The 8 Volt onboard supply is too low.
Pri Laser Fail	The reverse path primary fiber laser is not sending light (no light from remote unit to host unit).
Pri Rx Light	No light is being received on the primary fiber (no light from host unit to remote unit).
Pri Errors	Multiple errors are occurring on primary fiber. Error rate has exceeded 10^{-6} (one bit error per million bits).
Pri Rev Mux Lock	The reverse path primary fiber phase-locked-loop is out of lock.
Fwd Synth Lock	The forward path synthesizer is out of lock.
Pri Rev Synth Lock	The primary reverse path synthesizer is out of lock.
Ref Synth Lock	The reference synthesizer is out of lock.
System VSWR	Voltage Standing Wave Ratio measured at the duplexer is too high.
LPA Detect	The LPA is “not present” when read (physically not there).
LPA Disable	LPA has been disabled due to an alarm. For instructions on clearing this condition, position the mouse cursor on this indicator and read the text in the pop-up window.
LPA DC Fail	Linear Power Amplifier (LPA) DC power is faulted.
LPA Loop Failed	LPA has an internal loop failure.
LPA Low Power	RF output signal level measured in LPA is too low.
LPA Over Power	RF output signal level measured in LPA is too high.
LPA VSWR	Voltage Standing Wave Ratio measured in LPA is too high.
Major Extern Input	Major alarm input to the remote unit is faulted.
RF Power	Forward path RF power (measured in duplexer) is too low.

Table 21: Remote Major Alarms When Faulted (Continued)

ALARM NAME	DESCRIPTION
Hardware Mismatch	Host unit and remote unit are on different bands.
Host Lost	Remote unit cannot communicate with host unit.
EMS Link Status	EMS has not heard from the remote unit for the number of minutes specified by the current value of the **EMS Link Timeout** parameter (see Topic Topic 3.6, Setting EMS Link Timeout, Cataloging Time, Demo Mode, on page 34).

Table 22: Remote Minor Alarms When Faulted

ALARM NAME	DESCRIPTION
Temperature	STM temperature is too hot.
Sec Laser Fail	The reverse path secondary fiber laser is not sending light (no light from remote unit to host unit).
Sec Rev Mux Lock	The reverse path secondary fiber phase-locked-loop is out of lock.
Sec Rev Synth Lock	The secondary reverse path synthesizer is out of lock.
LPA Fan	LPA fan is faulted.
LPA Temp	LPA temperature is too high.
Minor Extern Alarm	The minor alarm input to the remote unit is faulted.

4.5.2 Remote RF Window

The remote **RF** (Radio Frequency) window, shown in Figure 72, contains two subset of alarm indicators, one pertaining to the RF system in general and one specific to the Linear Power Amplifier (LPA). In addition, this window has dashboard displays for RF and Voltage Standing Wave Ratio (VSWR) readings received from the LPA.

NOTE: When the LPA has been automatically disabled due to an internal LPA alarm, it may be manually restored. For instructions, position the mouse cursor on the LPA Disable indicator and read the instructions in the pop-up window that appears as shown in Figure 73. In this situation, the remote Alarms window will also display a message indicating to “Reset PA,” as shown in Figure 74.