The Agilent N5106A PXB Baseband Generator and Channel Emulator supports fading of the Agilent E5515C (8960) Test Set DL channel by controlling the baseband I/O and channel parameters over GPIB, similar to the process used in the now obsolete Agilent N5115B Baseband Studio for Fading.

The PXB can also control external instruments, such as signal generators, using LAN, the internal GPIB interface re-configured as a controller, or by using a USB/GPIB interface converter. PXB control of external instruments using the USB interface is currently not supported.

Cellular fading tests are performed over numerous bands and channels and can be facilitated by test automation. Control of the fading parameters and base station configuration is required. Unlike the discontinued Agilent N5115B Baseband Studio for Fading product, the PXB only queries the current 8960 settings and does not support direct setting of the 8960 band, channel, power levels, etc. It is also important to note that the PXB does not support a “pass-through” mode of operation over the configured interface to the 8960 and that the PXB's internal GPIB interface cannot be configured as both an input and an output concurrently (System Controller and Talker/Listener).

However, there are multiple ways that the PXB can be configured using mixed modes of I/O interfaces between a PC, the PXB, and external instruments. Of the four possible methods described in the PXB Users Guide, only one is compatible with the 8960, which requires a GPIB interface for remote programming:

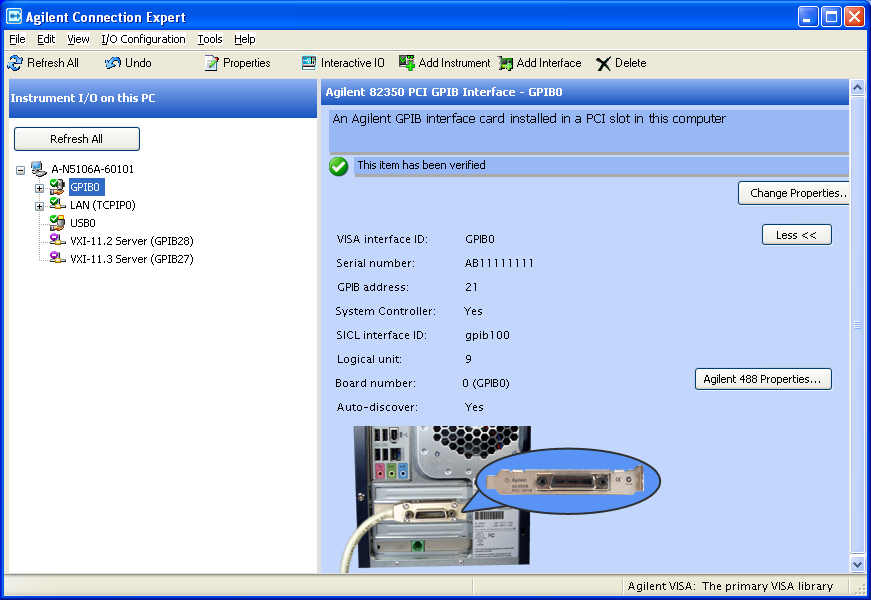
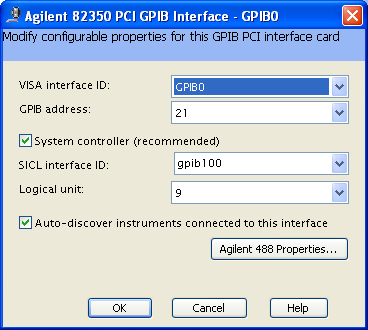
* LAN interface from PC to PXB, then GPIB interface from the PXB to the 8960. This requires configuration of the PXB's internal GPIB interface as a System Controller or the installation of an additional GPIB interface such as the Agilent 82357B USB/GPIB Interface.

This document describes the remote control of a PXB configured with an 8960 for channel fading. The PXB / 8960 combination can be considered as two separate instruments for the purposes of programming. Once “Play” is executed in the fading software, the PXB will directly control the 8960 baseband IO connection. It is recommended that the fading test parameters are saved in setup files stored on the PXB and 8960 prior to testing to simplify the programming requirements.

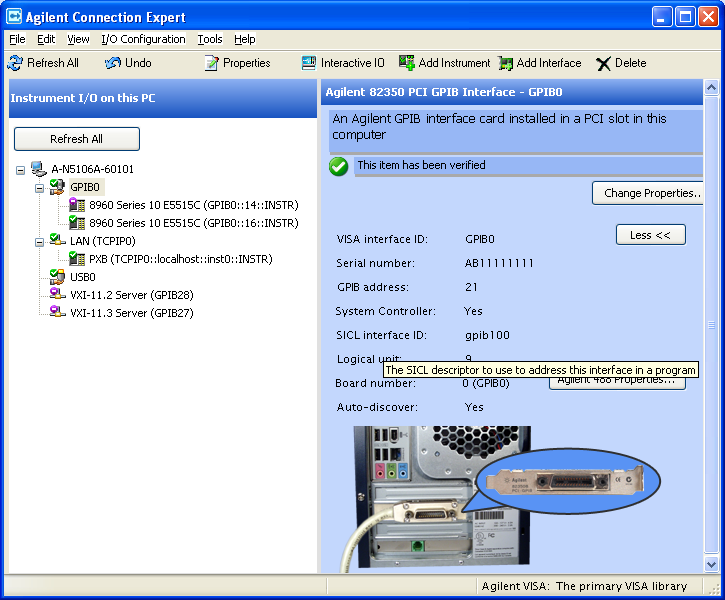
To establish communications from a remote PC to the PXB/8960 system, use the following steps:

On the PXB:

1. Open the Agilent IO Library Suite Connection Expert (ACE).
   1. Change the internal PXB GPIB (GPIB0) interface (or add-on GPIB) to System Controller.
   2. Select Tools, Remote IO Server, Start.

1. Connect the PXB LAN interface and your remote control PC to a common network using appropriate switches, hubs or routers.
2. Make note of the PXB LAN IP interface address and the PXB/8960 GPIB interface “SICL address”. The former can be determined by executing ipconfig at a command prompt.  
   The latter will be listed in Agilent Connection Expert as “gpibxxx, yy” (ex. gpib100, 16) as shown below:



On the Remote PC:

1. Open Agilent Connection Expert (ACE).
2. Select I/O Configuration, Add Interface, Remote GPIB (via E5810 or Remote IO Server), Add.
3. Select IP Address and enter the IP address of the PXB from step 3 above.
4. In the “Interface name on remote host” field enter the first portion of the “SICL address” from PXB step 3 above (i.e. gpib100).
   1. Select the desired SICL Interface ID from the drop down list. This will be the interface descriptor used in your remote program.
   2. The Logical unit is for Agilent VEE Pro use.
   3. Enable Auto-discover.
5. Select “Test Connection” and then OK.
6. The new entry in ACE should list the 8960 at the correct GPIB address as set on the 8960.
7. Highlight the LAN (TCPIP0) entry, then I/O Configuration, Add Instrument.
8. Select Auto Find and locate the PXB at the address noted in PXB step 3 (this is the simplest method).
9. Select this instrument by checking the Select box and then selecting OK.

You have now configured remote interfaces to the PXB and 8960, hosted on the PXB.

PERL

To automate the PXB using the perl language references must be made to the appropriate IO Library. To use the Agilent IO Libraries Suite the following statements need to be added to the perl script:

my $viOpenDefaultRM = Win32::API->new('agvisa32', 'viOpenDefaultRM', 'P', 'N');

my $viOpen = Win32::API->new('agvisa32', 'viOpen', 'NPNNP', 'N');

my $viClose = Win32::API->new('agvisa32', 'viClose', 'N', 'N');

my $viWrite = Win32::API->new('agvisa32', 'viWrite', 'NPNP', 'N');

my $viRead = Win32::API->new('agvisa32', 'viRead', 'NPNP', 'N');

my $viSetAttribute = Win32::API->new('agvisa32', 'viSetAttribute', 'NNN', 'N');

Use of the agvisa32 reference supports operation alongside other vendor VISA libraries.