USB Driver:

In order for Windows to recognize the Eye-BERT Micro LR the USB driver must first be installed, after which the Eye-BERT Micro appears as an additional COM port on the computer. Currently Windows XP, Vista, and 7 are supported.

1. Copy the file "cdc_NTXPV764.inf" from the supplied CD to the hard drive.

2. Plug the Eye-BERT into a free USB port. When the hardware installation wizard asks for the driver location, browse to the "cdc_NTXPVista.inf" file on the hard drive.

3. After the driver has been installed right click "my computer" and select "properties". In the properties window select the "hardware" tab. Click on "device manager" and expand the "Ports (COM & LPT)" item. Locate the "Spectronix, Inc." entry and note the assigned COM number, (ie "COM4"). This is the COM port that the software will use to communicate with the Eye-BERT Micro.

Note, on some operating systems such as Window 7, manual USB driver installation may be necessary. If the hardware installation wizard fails, go to "My Computer" > "Properties" > "Hardware" > "Device Manager", and find the "Spectronix" or "SERIAL DEMO" entry under "Other Devices" and select "Update Driver". At this point you will be able to browse to the location of the driver.

USB Commands:

The Eye-BERT Micro uses a combination of ASCII and binary data to communicate with a host computer; the tables below list the individual commands, parameters, and responses from the Eye-BERT Micro.

Notes:

1. All communication is initiated by the host.

2. Commands are not case sensitive.

3. A space or equal sign should be inserted between the command and any parameters.

4. All commands should be terminated with a <CR> <LF>.

5. Responses from the Eye-BERT are not terminated unless noted.

6. Text inside quotations ("") are ASCII and those not in quotations are binary.

Get Unit Information	
Command:	Parameters:
"?"	**(none)**
Response:	Parameters:
Unit name	**"Eye-BERT Micro LR:"**
String Termination	**0x00**
Notes:	

Set the data rate	
Command:	Parameters:
"SetRate"	**"##########"** *(Bit Rate in bps)*
Response:	Parameters:
(none)	
Notes:	*Example: "setrate=100000000" for 100.00Mbps)*

Set the pattern (generator and detector)	
Command:	Parameters:
"SetPat"	**"3"** *(PRBS 2^{31}-1)*
	"2" *(PRBS 2^{23}-1)*
	"5" *(PRBS 2^{15}-1)*
	"1" *(PRBS 2^{11}-1)*
	"7" *(PRBS 2^{7}-1)*
	"K" *(K28.5)*
	"D" *(DCD 010101)*
	"C#########" *(custom, "#" = 1-99, duty cycle in %)*
	"L" *(Loop-back: data on the input is retransmitted on the output)*
Response:	Parameters:
(none)	
Notes:	*Example: "setpat=C10" generates a 10% duty cycle at the bitrate*

Turn Transceiver Laser on / off	
Command:	Parameters:
"TX"	**"0"** *(laser off)*

	"1" *(laser on)*
<u>Response:</u>	<u>Parameters:</u>
(none)	
<u>Notes:</u>	*Example: "tx=1" turns the laser on*

Reset error counters, BER, and test timers	
<u>Command:</u>	<u>Parameters:</u>
"Reset"	*(none)*
<u>Response:</u>	<u>Parameters:</u>
(none)	
<u>Notes:</u>	

Read the measurement results	
<u>Command:</u>	<u>Parameters:</u>
"R"	*(none)*
<u>Response:</u>	<u>Parameters:</u>
Rx Bit rate (4 bytes)	*Rate (bps) =* **byte1** ** 2^24 +* **byte2** ** 2^16 +* **byte3** ** 2^8 +* **byte4** *A Bit Rate value of 0 indicates that there is a frequency error most likely caused by an out of range value.*
PRBS (1 byte)	*(per "SetPat" command above)*
Rx Bit rate (4 bytes)	*(same as above)*
Transmit state (1 byte from byte4 above)	*Tx (on/off) = (0= off, 1=on)*
Transmit Wavelength (2 bytes)	*Not used, read as 0's*
Temperature in °C (2 bytes)	*Not used, read as 0's*
Optical Receiver status (one byte)	**0** *(not used)* **1** *(no signal)* **2** *(signal and sync)* **3** *(signal but no lock)*
Total bit count (four bytes)	*Count = (*$\mathbf{byte1} * 2^{16} + \mathbf{byte2} * 2^{8} + \mathbf{byte3}$*)* $* 2^{(\mathbf{byte4} - 24)}$
Error count (four bytes)	*Errors = (*$\mathbf{byte1} * 2^{16} + \mathbf{byte2} * 2^{8} + \mathbf{byte3}$*)* $* 2^{(\mathbf{byte4} - 24)}$
Termination (one byte)	**0x00** *(termination character)*
<u>Notes:</u>	BER = Errors / Count

Factory / Test Commands:

Print Terminal Formatted Menu / Status	
Command:	Parameters:
"!"	**(none)**
Response:	Parameters:
Notes:	

Toggles Command Echo	
Command:	Parameters:
"echo"	**(none)**
Response:	Parameters:
Notes:	

Clears the Terminal Screen	
Command:	Parameters:
"Clear"	**(none)**
Response:	Parameters:
Notes:	

Displays the Si5338 clock generator Registers	
Command:	Parameters:
"RdCG"	**(none)**
Response:	Parameters:
Notes:	
Response:	Parameters:
(none)	
Notes:	*Example: "map=10" tests the CDR locking from 100Mbps to 4.29Gb increasing each point by 10%.*