

TrueTest

Standard Fixture Communication Protocol

V1.03

**Overview:**

This document describes the standard fixture communication protocol compatible with Radiant Vision Systems TrueTest software. It is meant to be a generic protocol that can be adapted to control illuminated displays or backlight units for automated visual inspection by Radiant Prometric Imaging systems and TrueTest software analysis.

The Protocol is written from the fixture’s perspective. Commands sent are delivered to the PC running the TrueTest software and received commands are sent by the TrueTest PC to the fixture. All command and data strings are sent with standard ASCII code.

**Serial Port Parameters:**

These parameters must be used to set:

1. The fixture serial port hardware
2. The computer serial port hardware
3. Within TrueTest software

|  |  |
| --- | --- |
| **Parameter** | **Value** |
| Baud rate | 9600 |
| Data bits | 8 |
| Parity | None |
| Stop bits | One |
| Terminator | CrLf |
| Request To Send (RTS) | Enabled |
| Data Terminal Ready (DTR) | Enabled |

**Fixture Communication Protocol:**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Description** | | **TT** |  | **PLC** | **TrueTest Action** |
| 1 | Send Serial Number |  | <<< | SN,###### | Send the serial number of DUT when test begins. ####### represents an alphanumeric string of any length which corresponds to the serial number of the DUT being tested. |
| 2 | Serial Number Acknowledged | SA,###### | >>> |  | Acknowledge the serial number received and echo the value. |
| 3 | Device Ready |  | <<< | RD | Once this command is received by TrueTest it will begin the sequence. |
| 4 | Show Pattern | SP,X | >>> |  | TrueTest will send request to show pattern. X represents the identity of the pattern requested and will be bound to a specific color/gray value set by the pattern generator and TrueTest software. For example, 1 = white, 2 = black, 3 = red, 4, green, 5 blue.  **Note:** Acknowledges the device ready command. |
| 5 | Acknowledge Show Pattern |  | <<< | PA,X | Fixture responds when pattern has been changed and is ready for measurement and reports the pattern number shown. |
| 7 | Unload Device | UL | >>> |  | TrueTest has finished all camera exposures for the DUT and the device can be removed. |
| 8 | Acknowledge Unload Device |  | <<< | UA | Acknowledge Unload Device command received. |
| 9 | Send Result | RS,XX | >>> |  | TrueTest will send result with one of two options as string:   * “OK” * “NG” |
| 10 | Acknowledge Send Result |  | <<< | RA,XX | Acknowledge Send Result command and include reported state. |

**Revision History**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Revision | Section Changed | Change Made | Editor Name | Date |
| 1.0 | All | Initial Draft | Erik Hauan | 7/25/2018 |
| 1.01 | Protocol | Updates to conform to standard practice | Eric Eisenberg | 7/25/2018 |
| 1.02 | Protocol | Added Acknowledgement commands | Erik Hauan | 7/27/2018 |
| 1.03 | Protocol | Fixed commands to adhere to standard practice | Erik Hauan | 7/27/2018 |