FINAL INSPECTION REPORT
2x2 50:50 Wideband Coupler

Item #: TW630R5A2
SN: T002677

Center Wavelength: 630 nm
Coupling Ratio Specification
Signal Output: 44.0% - 56.0%
Tap Output: 44.0% - 56.0%
Bandwidth: ±50 nm
Maximum Optical Power[a]
With Connectors or Bare Fiber: 300 mW
Spliced: 0.5 W
Fiber Type: Nufern 630-HP

Test Data[b]					
Excess Loss[c]	≤ 0.30 dB				
Input-Output Path	White (Input) – White (Signal Output)				
Wavelength[d]	556 nm	580 nm	630 nm	680 nm	705 nm
Coupling Ratio[e]	56.0%	50.8%	46.7%	51.0%	56.0%
Insertion Loss[f]	2.64 dB	3.03 dB	3.32 dB	2.90 dB	2.47 dB
Uniformity	0.7 dB	0.3 dB	0.1 dB	0.4 dB	0.9 dB
Input-Output Path	White (Input) – Red (Tap Output)				
Wavelength[d]	556 nm	580 nm	630 nm	680 nm	705 nm
Coupling Ratio[e]	44.0%	49.2%	53.3%	49.0%	44.0%
Insertion Loss[f]	3.66 dB	3.16 dB	2.74 dB	3.08 dB	3.52 dB
Uniformity	0.9 dB	0.4 dB	0.1 dB	0.3 dB	0.8 dB

a. Specifies the maximum power allowed through the component. Performance and reliability under high power conditions must be determined within the user's setup.

b. All values are measured at room temperature without connectors through the white input port.

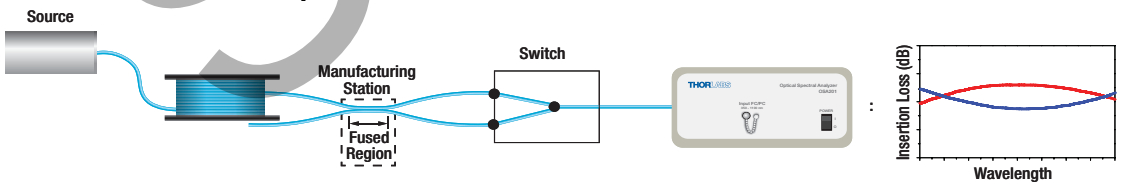
c. Ratio of the input optical power to the total optical power from all output ports. It is measured at the center wavelength.

d. These wavelengths indicate the range that meets the specified coupling ratio. It is shown by the gray shaded area on the accompanying graphs. Coupling ratio specification wavelength range may exceed measurement capabilities at the manufacturing station.

e. Does not include losses, as this is a measurement of the output power distribution only.

f. Includes both the split of the power between the two outputs, as well as any optical losses in the coupler.

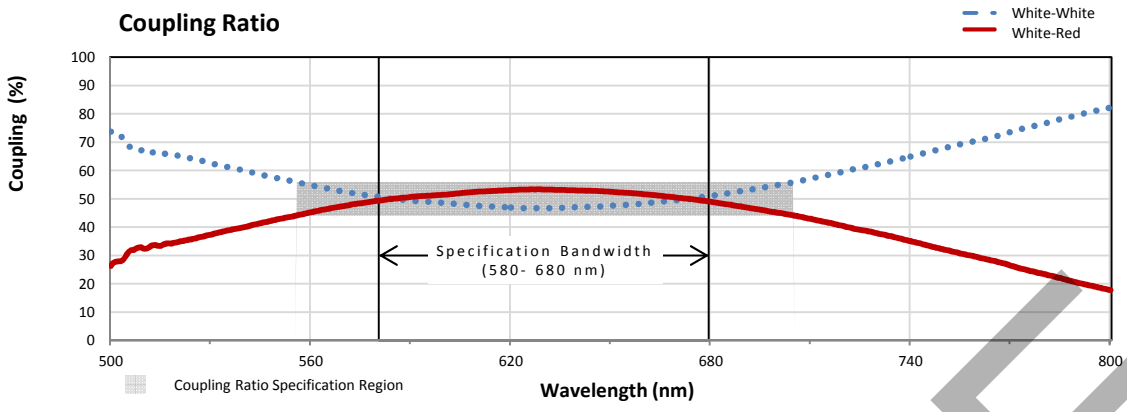
Verification Test Setup



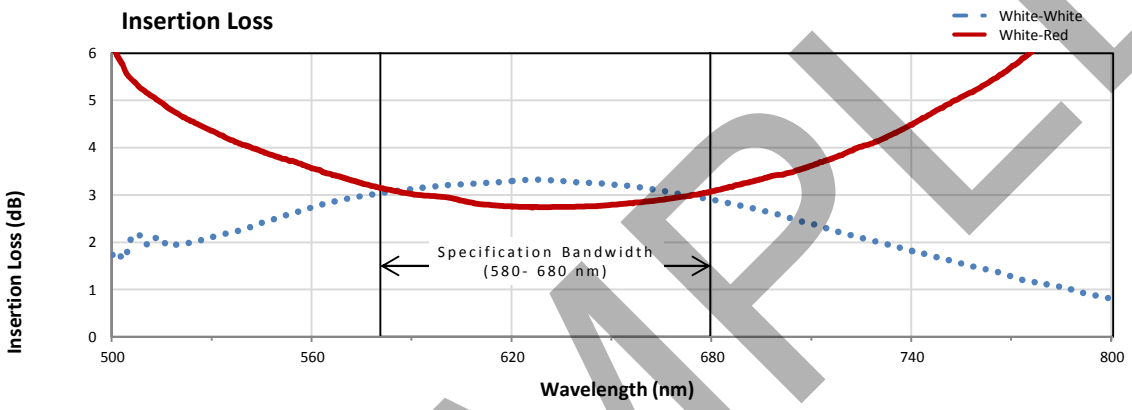
During Thorlabs' coupler manufacturing process, the spectral response of both output ports is monitored using an optical spectrum analyzer. Doing so ensures that the coupling ratio, insertion loss, uniformity, and excess loss meet or exceed the stated values over the specified wavelength range. While this coupler is specified as working across its minimum bandwidth, Thorlabs provides data across a wider wavelength range to provide insight into how this particular device would perform if used outside its guaranteed operating range. The out-of-band performance can vary from device to device.

Verified by: _____

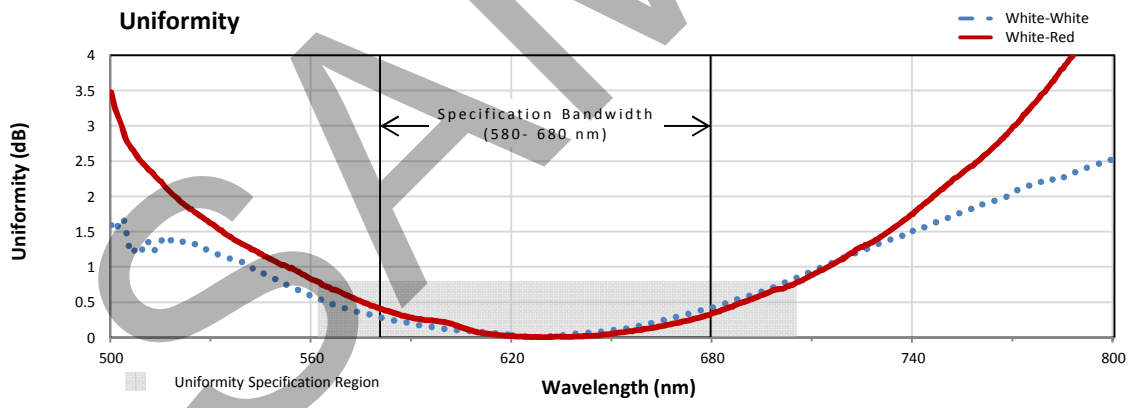
Test Data



Coupling ratio (%) is the ratio of the optical power from each output port to the sum of the total power of both output ports as a function of wavelength.



Insertion loss (dB) is the ratio of the input power to the output power from each leg of the coupler as a function of wavelength. It captures both the coupling ratio and the excess loss.



Uniformity is the variation (dB) of the insertion loss over the bandwidth. It is a measure of how evenly the insertion loss is distributed over the spectral range. The uniformity of the Signal Port (White-White) is the difference between the largest insertion loss within the specification bandwidth and the blue insertion loss curve (in the Insertion Plot above). The uniformity of the Tap Port (White-Red) is the difference between the red insertion loss curve and the smallest insertion loss within the specification bandwidth.