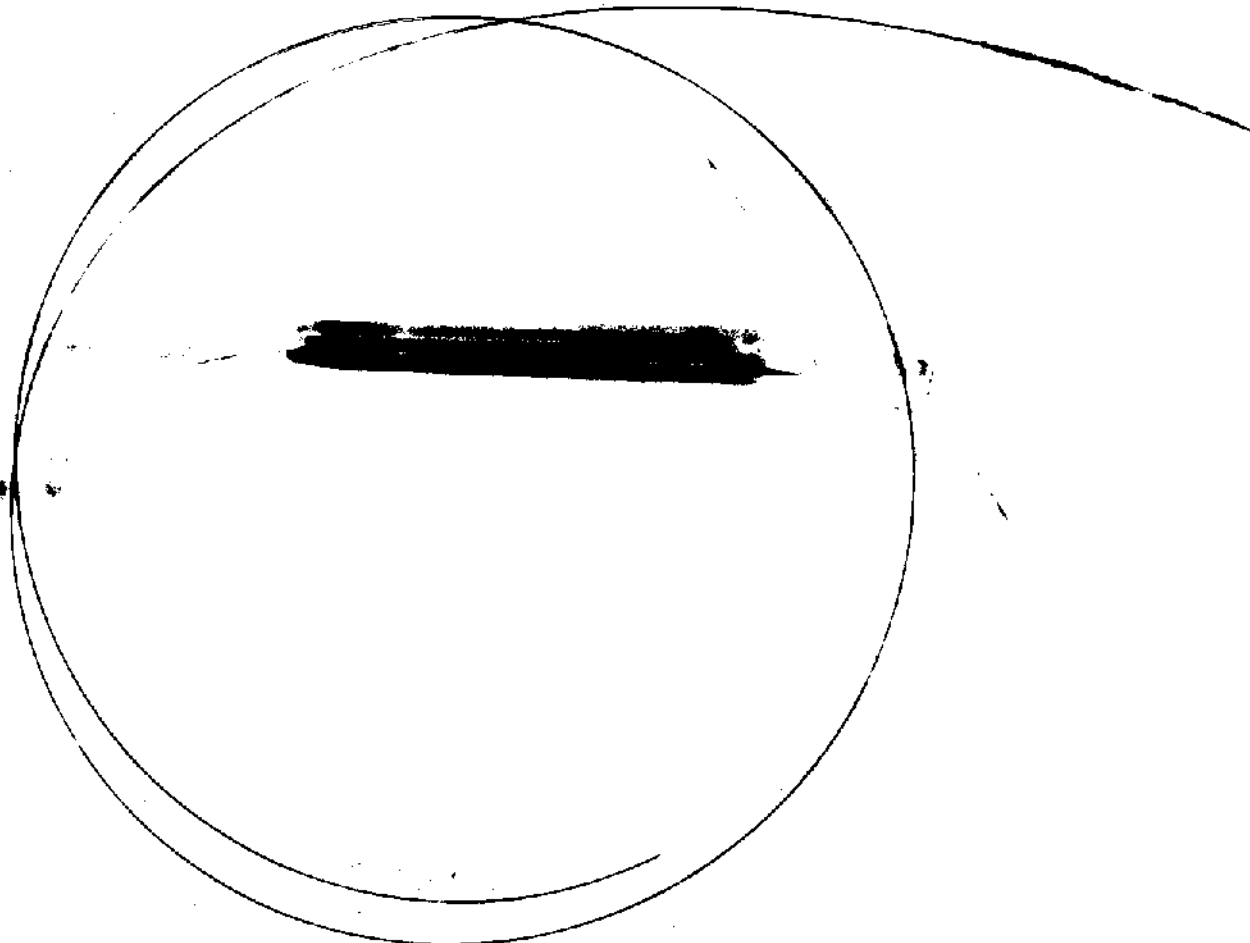


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Product number	SC-22-1550-50-F-A-T-N-N-E500
Component type	Singlemode coupler
Configuration	2x2
Center Wavelength	1550 nm
Coupling ratio	50/50
Fiber type	Fos SM-R
Grade	A
Package option	56 mm x 3.5 mm tubular
Pigtail option	None (250 μ m acrylate coating)
Connector option	None

1550 nm Optical characteristics

RED lead designates the primary input	BLUE	NATURAL
EXCESS LOSS	0.061 dB	
COUPLING RATIO	0.508 (± 0.004)	
INSERTION LOSS	3.14 dB	3.00 dB



Ultra-low insertion loss fused couplers fabricated by a long furnace

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Abstract - We have fabricated fused couplers with an unprecedented low excess loss, ≤ 0.06 dB routinely obtained with a yield better than 98%. Evidence is reported about correlation between low loss and increased length of the fused region. By further refining fabrication parameters, excess losses down to 0.01 dB appear in the reach. Also, accuracy of the splitting ratio, return loss and PMD of the coupler are substantially better than commonly accepted values.

I INTRODUCTION

Since about 1980 [1], fused couplers fabricated by tapering two single-mode fibers appropriately twisted and heated have provided a practical solution to the need for a stable and low loss all-fiber beamsplitter [2-5,7-10]. With the micro-furnace concept [7,8], fused couplers have improved to the point of a well-

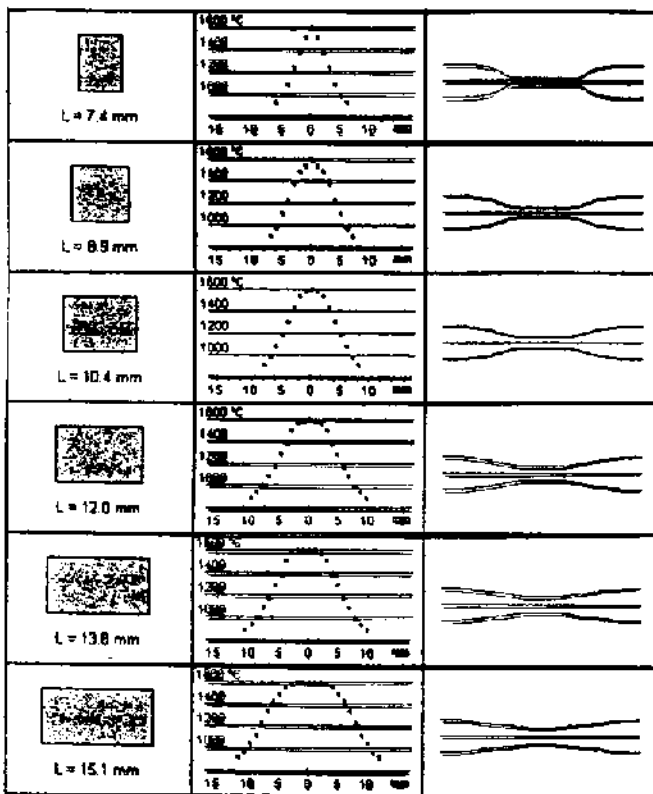
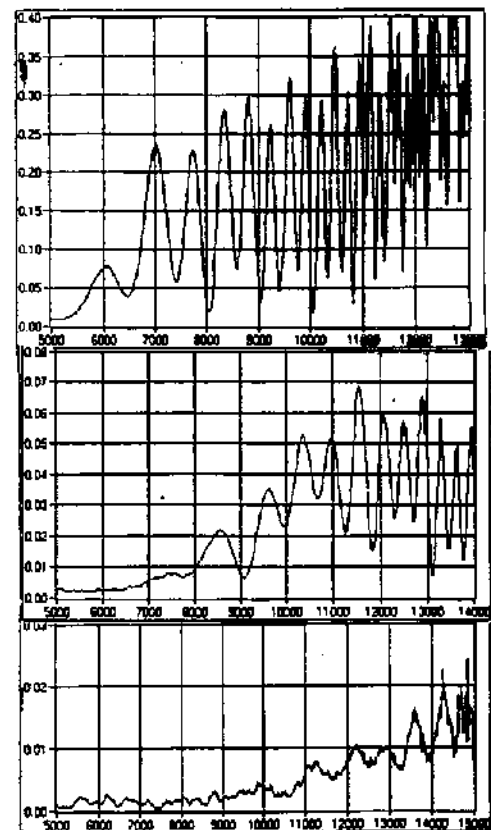


Fig.1 Temperature distribution (center) and taper shape (right) for several microfurnace lengths (left), showing a constant top value for $L > 11$ mm.



Excess loss (in dB, vertical scale) versus taper elongation E (horizontal scale p : $L=7.4$ mm, middle $L=8.9$, bottom $L=15.1$. Coupling ratio is $< 1\%$ at $E=1$ and 20%, 50% at $E=12000, 14000$.