## FIC Parameter Multimode - Couplers

## Definition of parameters for Multimode-Couplers and Multimode-Coupler-Modules

Term	Definition	Component	Calculation		Explation
Insertion Loss	Sum of coupling loss and excess loss	ММС	-10 log (P $_1$ / P $_0$ ) -10 log (P $_2$ / P $_0$ )	[dB]	$P_0 \rightarrow P_1$
		MMC- Modules	-10 log (P <sub>i</sub> / P <sub>0</sub> ) (i = 1n)	[dB]	$P_0 \rightarrow P_1$
Coupling Ratio	Percentage division ratio of the optical performance at them outlets	ММС	[P <sub>2</sub> / (P <sub>1</sub> +P <sub>2</sub> )] x 100	[%]	$P_0 \rightarrow P_1$
Splitting Ratio	Percentage division ratio of the optical signals to the outputs points	MMC- Modules	[P <sub>i</sub> /ΣP <sub>n</sub> ] x 100	[%]	$P_0 \rightarrow - P_1 \rightarrow P_n$
Excess Loss	Power lost in the coupler	ММС	-10 log [(P <sub>1</sub> + P <sub>2</sub> ) / P <sub>0</sub> ]	[dB]	$P_0 \rightarrow P_1$
Return Loss	Ratio of transmitted signal to reflected signal at one input or output	ММС	-10 log (P <sub>r</sub> / P <sub>0</sub> )	[dB]	$P_0$ $P_r$ R=0 R=0
		MMC- Modules	-10 log (P <sub>r</sub> / P <sub>0</sub> )	[dB]	$\begin{array}{c} P_0 \rightarrow & & \\ P_r \rightarrow & & \\ \end{array} \rightarrow \begin{array}{c} P_1 \\ P_n \end{array}$
Directivity	Proportion of transmitted signal which is reflected to the parallel fibre on the same side	ММС	-10 log (P <sup>*</sup> <sub>r</sub> / P <sub>0</sub> )	[dB]	P <sub>0</sub> R=0
		MMC- Modules	-10 log (P' <sub>r</sub> / P <sub>0</sub> )	[dB]	$R=0  \blacksquare  \blacksquare  \blacksquare  \blacksquare  \blacksquare  \blacksquare  \blacksquare  \blacksquare  \blacksquare  $



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