Fiber-Optic Reference Cables

Reference cables are required for fiber-optic attenuation measurements. These cables must always be of a better quality than standard patch cables; otherwise, the attenuation value would be determined by the reference cable as opposed to the cable to be measured. Therefore, standard patch cables are not used as reference cables for attenuation measurements. This is also specified in the IEC and EN standard.

In addition, reference cables must also be checked regularly for wear and impurities and always be transported under favorable conditions (dustproof, etc.).

High-quality reference cables for laboratory measurements (e.g., from Optotest) are manufactured according to the FOTP171A (A2.2.1) standard.

Quality Assurance

In addition to handling and external properties, several important specifications must also be considered in the design, manufacture, and possible range of fiber launch cables. Since these are measuring connectors, the tolerances of which should have a negligible effect on the measurement, all components of the launch cable (i.e., connector, fiber, and processing) must correspond to each other.
LASER COMPONENTS uses selected fibers and connectors. All polishing processes are optimized to such an extent that excellent values can be achieved according to international standards.

Eccentricity Measurements
Image source: FOK Faseroptische Konfektion

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Eccentricity measurements are used to determine the position of the fiber core in the connector after assembly. The deviation from the ideal center is shown in µm. At the same time, the connector can be "tuned" (i.e., the maximum eccentricity is stored in the key).

The polishing processes are designed for optimum results. The radius, apex, fiber height, and angle are constantly being checked for each connector type.

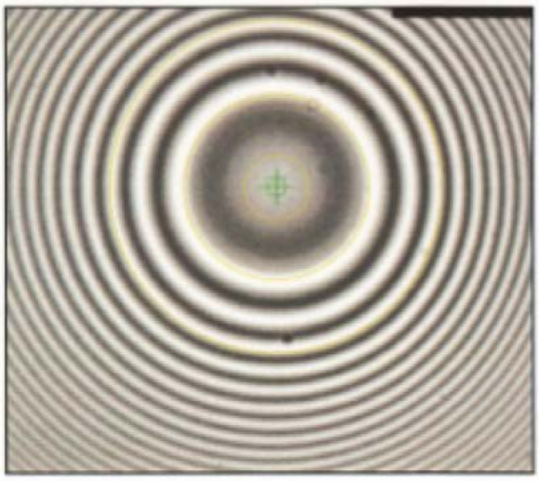
Image source:
OptoTest Corporation

Quality Control Report

Sample ID: DIN APC 8				PASSED
Sample Name & Type:	Messkabel APC			Direct Optical Research Company
Measurement Time & Date:	8:47:34	11/10/10		ZX-1 Zoom Interferometer
Fitting Regions Used:	D=250µm, E=140µm, F=50µm, A=1000µm			XR: No

Measurement Parameter	Pass/Fail Limits Minimum	Maximum	Measured Value		Passed or Failed
Radius of Curvature	5.00	12.00	7.17	mm	Pass
Fiber Height (Spherical Fit)	-125.0	100.0	-78.3	nm	Pass
Fiber Height (Planar Fit)	-10.0	290.0	183.9	nm	Pass
Apex Offset	0.00	50.00	2.92	µm	Pass
Bearing			323.000	degrees	
Angle			-0.014	degrees	Pass
Tilt Offset			8.000	degrees	
Actual Angle	7.700	8.300	7.986	degrees	Pass
Key Error	-0.500	0.500	0.019	degrees	Pass
Fiber Roughness (Rq)	0	50	2	nm	Pass
Fiber Roughness (Ra)	0	50	2	nm	Pass
Ferrule Roughness (Rq)	0	50	7	nm	Pass
Ferrule Roughness (Ra)	0	50	6	nm	Pass
Diameter	123.0	135.0	127.6	µm	Pass
Comments					

BLANK = NOT APPLICABLE OR NOT SELECTED



Sample ID:	DIN APC 8
PASSED	08:47:34 11/10/10

Interferometer Measurement
Image source: FOK Faseroptische Konfektion

All reference cables are interferometrically tested before delivery. All relevant data is thus part of the report.

We will be happy to advise you and offer you adapted reference cables for your measurement requirements, be it a single ferrule-based or multi-fiber connector.

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