شرکت دانیال کیا
Daniel Kia Co.
Innovation & New Technology Exchange

Form 2.1 / Rev 6

OPTOKON

Accredited Calibration Laboratory: No. 2315

The Daniel Kia & OPTOKON Calibration Laboratory[1]

CALIBRATION CERTIFICATE No.:950001

Object of calibration:	Attuneator
Manufacturer:	ghakhan MahallatiAlireza A
Type:	Telnoor V1.0
Serial No.:	5123
Client address:	Telnoor Co.
Date of calibration:	2016/24/07
Calibration method:	PCL_2_4
Number of pages:	4
Notes:	Optical ports are always cleaned before calibration.

This calibration certificate documents the traceability to national standards, which realize the units of measurement in conformity with the International System of Units (SI).
The user is obliged to have the object of calibration recalibrated at appropriate intervals.
The calibration results refer exclusively to the object of calibration.
This calibration certificate may not be reproduced other than in full except the permission of the issuing laboratory.
Calibration certificates without signature and stamp are not valid.

Stamp	Date of issue	Calibrated by	Authorized by
	2016/25/07	M.Rokhsary	M.Rokhsary
		Head of calibration laboratory	Head of calibration laboratory

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[1] The Daniel Kia & OPTOKON Calibration Laboratory is associated Calibration Laboratory of the OPTOKON, as, The Czech Republic; WWW.OPTOKON.COM
The Daniel Kia & OPTOKON Calibration Laboratory
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ENVIRONMENT CONDITIONS

Ambient temperature:	(22.6±2)°C	**Relative humidity**	(34±6)%

CONDITIONS OF CALIBRATION

Optical fiber type:	9/125 μm SMF
Optical connector type:	FC/PC

OBJECT OF CALIBRATION

Connector adapter:	FC/PC				
Power supply:	Battery ☐		AC/DC adapter ☒		Mains ☐
Setting:	As in Calibration method requested.				
Notes:					

DESCRIPTION OF CALIBRATION METHOD: Calibrating Insertion Loss, Attenuation Accuracy and Repeatability of Optical Variable Attenuator as DUT according to calibration method code PCL_2_4.

MEASURING INSTRUMENTS USED FOR CALIBRATION

Measuring instrument	Manufacturer, *type*	Serial No.	Calibration validity until	Calibration by/CN#
Optical Power Meter	Keysight	MY48207231	2.2.2017	Optokon/11799
Optical Power Head	Keysight	DE41301791	2.2.2017	Optokon/11799
Light Source	Optokon	30502	17.6.2017	Optokon/13199

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Insertion Loss Test

Wavelength	Cables, Connectors and Adapter	Insertion Loss
1310	2.7 dB	9.4dB
1550	2.56 dB	10.7 dB

Attenuation Accuracy Test

Wavelength	1310 nm		1550 nm	
Setting/dB	Reading/dB	Deviation/dB	Reading/dB	Deviation/dB
1	-1.12	-0.12	-1.01	-0.01
2	-2.02	-0.02	-1.97	0.03
3	-3.06	-0.06	-2.79	0.21
4	-4.1	-0.1	-3.75	0.25
5	-5.09	-0.09	-5.01	-0.01
6	-6.04	-0.04	-6.02	-0.02
7	-7.02	-0.02	-7.12	-0.12
8	-7.98	0.02	-7.85	0.15
9	-8.92	0.08	-9.22	-0.22
10	-10.1	-0.1	-10.2	-0.2
11	-11.23	-0.23	-11.01	-0.01
12	-12.15	-0.15	-11.93	0.07
13	-13.12	-0.12	-13.18	-0.18
14	-14.07	-0.07	-14.13	-0.13
15	-15.28	-0.28	-15.55	-0.55
25	-25.34	-0.34	-25.52	-0.52
35	-35.10	-0.1	-35.2	-0.2
45	-44.56	0.44	-44.7	0.3
55	-55.5	-0.5	-55.2	-0.2
60	Block	0	Block	0

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Attenuation Repeatability Test

Wavelength	1310 nm	1550 nm
Setting / dB	Deviation / dB	Deviation / dB
1	0.04dB	0.03dB
7	0.02 dB	0.01 dB
15	0.07 dB	0.08 dB
24	-0.02 dB	-0.03 dB
32	0.06 dB	0.04 dB
40	0.01 dB	0.02 dB
48	0.02 dB	0.05 dB
54	-0.02 dB	-0.03 dB
60	0.01 dB	0.01 dB

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