



The Dutch Accreditation Council RvA, by law appointed as the national accreditation body for The Netherlands, hereby declares that accreditation has been granted to:

TRESCAL Zoetermeer B.V. Technical Operations Zoetermeer

The organisation has demonstrated to be able to generate technical valid results in a competent way and work according to a management system.

This accreditation is based on an assessment against the requirements as laid down in EN ISO/IEC 17025:2017.

The accreditation covers the activities as specified in the authorized annex bearing the registration number.

The accreditation is valid provided that the organisation continues to meet the requirements.

The accreditation with registration number:

K 052

is granted on 12 September 1989

This declaration is valid until

1 March 2026

The board of the Dutch Accreditation Council,
on its behalf,


mr. J.A.W.M. de Haas

of **TRESCAL Zoetermeer B.V.**
Technical Operations

This annex is valid from: **17-02-2022** to **01-03-2026**

Replaces annex dated: **zie T06**

HCS code	Measured quantity, Range	Frequency	CMC ¹	Remarks	Location
	10 ms – 100 ms		$1.2 \cdot 10^{-8} \cdot T - 1.2 \cdot 10^{-6} \cdot T$		
	100 ms – 1 s		$1.2 \cdot 10^{-6} \cdot T - 1.2 \cdot 10^{-5} \cdot T$		
	1 s – 10 s		$1.2 \cdot 10^{-5} \cdot T - 1.2 \cdot 10^{-4} \cdot T$		
TF 2 2	Time interval			Measurement	
	0.1 μ s – 100 ms		$1 \cdot 10^{-6} \cdot T + 10$ ns	Equipment with separated electrical start and stop inputs.	
	100 ms – 1 s		$1 \cdot 10^{-5} \cdot T + 10$ ns		
	1 s – 10 s		$1 \cdot 10^{-4} \cdot T + 10$ ns		

HCS code	Measured quantity, Instrument, Measure	Range	CMC ²	Remarks	Location
OQ 0 0	Optical quantities				
OQ 1 3	Optical system properties				ZTM
	Optical wavelength	1511 – 1542 nm	0.2 pm	Generation of wavelength with a wavelength reference cell, fixed wavelengths	
		840 – 860 nm	0.4 pm	Generation of wavelength in combination with a reference wavelength meter	
		1270 – 1650 nm	0.4 pm	Measurement of wavelength with a reference wavelength meter	
		840 – 860 nm	0.4 pm	Measurement of wavelength with a reference wavelength meter	
		1270 – 1650 nm	0.4 pm	Measurement of wavelength with an optical spectrum analyser	
		600 – 1530 nm	300 pm		
		1530 – 1570 nm	50 pm		
		1570 – 1750 nm	300 pm		

² Calibration and Measurement Capability (CMC): Demonstrated measurement uncertainty, with coverage probability of 95%, in a given measurement point or measurement range. Measurement uncertainty, U , is calculated according to EA-4/02 "Evaluation of the Uncertainty of Measurement in Calibration".

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HCS code	Measured quantity, Instrument, Measure	Range	CMC ²	Remarks	Location
OQ 1 5	Optical Power				ZTM
	-5 dBm to -55 dBm (316 µW – 3.16 nW)	850 nm	0.09 dB	Measurement with a power meter (e.g. optical source) and generation with a source and reference power meter (e.g. optical power meter)	
	-5 dBm to -55 dBm (316 µW – 3.16 nW)	1300 nm	0.13 dB		
	+3 dBm to -55 dBm (2 mW – 3.16 nW)	1310 nm	0.09 dB		
	+3 dBm to -55 dBm (2 mW – 3.16 nW)	1550 nm	0.09 dB		
	-5 dBm to -55 dBm (316 µW – 3.16 nW)	1625 nm	0.10 dB		
OQ 1 5	Linearity of optical power meters				ZTM
	-5 dBm to -55 dBm (316 µW – 3.16 nW)	850 nm	0.05 dB	Linearity calibration relative to -10 dBm (e.g. optical power meter)	
	-5 dBm to -55 dBm (316 µW – 3.16 nW)	1300 nm	0.05 dB		
	+3 dBm to -55 dBm (2 mW – 3.16 nW)	1310 nm	0.05 dB		
	+3 dBm to -55 dBm (2 mW – 3.16 nW)	1550 nm	0.05 dB		
	-5 dBm to -55 dBm (316 µW – 3.16 nW)	1625 nm	0.05 dB		

Annex to declaration of accreditation (scope of accreditation)
 Normative document: EN ISO/IEC 17025:2017
 Registration number: **K 052**

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HCS code	Measured quantity, Instrument, Measure	Range	CMC ²	Remarks	Location
OQ 1 5	Optical attenuator				ZTM
	0 dB to 45 dB	850 nm	0.06 dB	Measurement of incremental loss (e.g. optical step attenuator)	
	0 dB to 45 dB	1300 nm	0.06 dB		
	0 dB to 55 dB	1310 nm	0.05 dB		
	0 dB to 55 dB	1550 nm	0.05 dB		
	0 dB to 50 dB	1625 nm	0.05 dB		
TE 0 0	Temperature				
TE 15 0	Cold junction compensation				ZTM
TE 15 1	Compensation wires for reference junction	0 °C	0.25 °C	Cold junction compensation, thermocouple J and K	

Electrical and optical calibrations are performed at nominal 23 °C.

The CMC in RF and Microwave measurements are applicable to instruments with a characteristic impedance of nominal 50 Ohm

- 1) Measurements are performed at a fixed set of measurement frequencies;
- 2) Calibration factor is applicable to measurements relative to 50 MHz;
- 3) CMC is calculated for a test object VSWR of 1.01 and the maximal VSWR for the uncertainty calculation is 1.35;
- 4) CMC is calculated for a test object with a typical VSWR of 1 to 1.27;