KI 2300/2700 Series Hand Held Loss Test Set

The KI 2300 / 2700 series Optical Loss Test Set combines an Optical Power Meter & Light Source with many useful features. It is a single direction loss test set which measures and displays loss at multiple wavelengths. Bi-directional testing is supported by PC reporting software.

Robust, versatile and easy to use, the KI2700 series general purpose instrument can also incorporate VisiTester, which conveniently mixes a VFL laser with the test signal, making high fibre count testing much easier.

Alternatively the KI2300 series provides a Zero Warm-Up Source for ultimate test accuracy and speed of deployment.

Applications

- Single mode & multimode cable
- Optical Power testing
- Optical Loss testing and reporting
- Optical continuity & tone testing
- Standards compliant cable certification

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Features & Benefits

- Simple to use, versatile & rugged
- Interchangeable connectors with dust cap / tilt bail
- Over 25 genuine calibration wavelengths
- LCD is large, clear, sunlight readable & backlit
- Long battery life, external power / charger via USB
- Memory with text, timestamp & USB key file dump
- Simultaneous 3 λ loss display with Autotest source
- Continuity test tone with 12 fibre Multi-Fibre ID
- Up to 6 mixed LED, Laser & VFL sources
- Zero warm up & ultra stable (KI 2300 series)
- Mandrel wraps supplied and fully encircled flux compliant multi-mode sources
- 3 ~ 7 Year warranty & 3 year calibration cycle
- Made in Australia

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FOS Fibre Optic Systems

The KI 2300 / 2700 Loss Test Sets are fast and easy to use single directional loss testers which integrate of a power meter and up to 6 light sources in a single automated unit.

The practical interchangeable optical connectors are dust & drop protected and very simple to swap over or clean. SC adaptors are supplied, with others available including small form factor LC styles. The metal free adaptors avoid contamination of connectors in high power systems.

Autotest provides fast & easy multi λ (wavelength) loss testing, with up to 3 λ displayed simultaneously, along with the source nominal power level and λ, with either local or remote referencing.

Flexible instrument power options include a choice of batteries, with a jumper selectable battery charger. External power is via micro USB.

The instruments meet MIL PRF 28800F class 2 general requirements.

The Power Meter measures absolute/relative power and test tones. It displays mW, µW, nW, dB, dBm to 0.01 dB resolution, with no range changing delays. A separate reference for each λ is stored & displayed. The tight Total Uncertainty specification covers all power levels, temperatures, connectors and fibres, without user dark current offset.

The multi-Fibre ID feature tests common test tones, and can also positively identify 1 of 12 test tones from multiple test sources. This can speed up continuity / polarity testing.

Loss test results can be stored in the large memory, along with a text-input cable name and timestamp, and then dumped onto a USB memory key, providing future-proof data handling.

Alternatively, live readings can be clicked directly onto a customer report using our proven KITS™ customizable Excel-based reporting software. Reports can be easily customized for any terminology, language or format. A one-button file dump only requires Windows OS.

Please enquire for non-standard power meter configurations such as high power detectors, large area detectors, special connectors, wavelength selective detectors, special calibrations etc

Technical Specifications (Power Meter)

Response wavelength (nm)	Damage level (dBm)	Calibration wavelength (nm)	Power range (dBm)	Tone & autotest min (dBm)	Mid range linearity (dB) [1]	Calibration accuracy (%) [2]	Polarization insensitivity (dB)	Total uncertainty (dB) [3,5]	Wavelength sensitivity ± 30 nm [5] dB
InGaAs detector									
600 ~ 1700	+15	780, 820, 850, 980 **1270, 1290, 1300, 1310, 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610, 1625,** 1650	+10 ~ -60 +10 ~ -70	-45 -50	0.02	1 % (0.06 dB)	< 0.005	0.3	0.03
Ge detector									
600 ~ 1650	+25	635, 650, 660, 780, 820, 1590, 1610, 1625, 1650 **850, 980, 1270, 1290, 1300, 1310, 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490,** 1510, 1530, 1550, 1570	+15 ~ -50 +15 ~ -60	-40 -50	0.04	1 % (0.06 dB)	< 0.005	0.5	0.03

Note 1: Mid range linearity excludes top 5 dB and bottom 10 dB of range.
Note 2: Calibration condition: non coherent light, -35 ±5 dBm, 23 ±1°C, ±1 nm, 10±3 nm FWHM, PC ceramic connector, 100 um fibre.
Note 3: Includes contributions of: varying optical connector types, calibration uncertainty, full temperature, dynamic range and fibre core diameter up to 200 um.
Note 5: At calibration wavelengths in bold type.

The emitters feature excellent repeatability and stability. Re-connection repeatability is < 0.1 dB, resulting in exceptional test accuracy.

Up to 6 assorted LED or laser sources can be specified per instrument, making this a versatile Loss Test Set for mixed multimode / single mode fibre testing.

Laser options compliant with CWDM standards cover typical cable qualification for O, E, S, C, & L bands, including the water absorption peak, 1625 and 1650 nm.

LED sources are Encircled Flux (EF) compliant, to provide the most consistent and reliable testing results.

The unique VisiTester option mixes a laser VFL with the Autotest source, so at the power meter end, the active test fibre winks, making it obvious to the user. The mixed signal also extends practical fault finding options since a clip-on fibre identifier can be used simultaneously with VFL methods. The VisiTester laser can also be used as a traditional stand-alone VFL.

The KI2300 series Zero Warm-Up Sources provide a unique level of guaranteed source stability over temperature, and eliminate warm up drift.

Please enquire for non-standard source configurations such as other wavelengths, power levels, connectors etc.

Technical Specifications (Light Source)

	1310/1550 nm Laser	CWDM[1] Laser	1625 nm Laser	650 nm VisiTest	850 / 1300 nm LED	1310/1550 nm LED	Comments
KI 2800 Series							
Power accuracy	± 1 dB	± 1 dB	± 1 dB	± 1 dB	± 1 dB	± 1 dB	± 1 dB
Short term stability (dB)	0.04	0.06	0.06	NA	0.01	NA	For 15 min, typ ± Δ 2°C, after warm up, ORL < -25 dB
Stability over temp (dB)	0.6	0.6	0.6	NA	0.35	NA	Typical
KI 2400 - Premium zero warm up and ultra stable							
Short term stability (dB)	0.03	0.05	0.05	NA	0.01	0.03	For 15 min, max, ± Δ 3°C no warm up
Stability over temp (dB)	0.2	0.2	0.2	NA	0.35	0.2	Max
Common Specifications							
λ initial tolerance (nm)	20	6.5	20	5	NA	20	At 25°C
λ width (nm)	3	< 1	3	3	NA	35 / 48	FWHM, typical
λ (nm/°C)	0.4	0.1	0.4	0.1	0.4	0.4	Typical
Mode controlled source	NA	NA	NA	NA	Yes	NA	50/125 compliant: IEC 61280-4-1 {Ed.1.0}, TIA 526-14A & TIA TSB-178.
Reconnection repeatability (dB)	0.1	0.1	0.1	0.1	0.05	0.1	95% confidence
Modulation	270 Hz, 1 kHz, 2kHz ± 2%, 12 Multi-fibre ID tones, 2 Hz blink for Visitester						
Laser output power	Adjustable over 7 dB in 0.01 dB steps				NA	NA	

Note 1: CWDM laser wavelengths: 1270, 1290, (1310), 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490, 1510, 1530, (1550), 1570, 1590, 1610 nm

Optical Performance

Insertion loss

KI 2800 & KI 2400 light sources achieves very high reconnection repeatability of 0.1 dB, which provides steady output power every time connecting the light sources. See figure 1 for an indicative insertion loss performance chart.

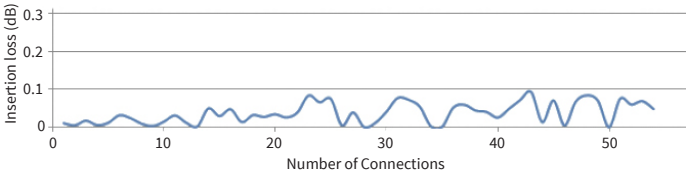

Figure 1. Reconnection insertion loss

Laser source stability - 2400 series

The red curve shown in figure 2 represents the stability of a typical laser source when switch on. After initial warm up, practical stability is affected by ambient temperature variations only.

Conversely, the blue curve represents the Kingfisher *no warm up* laser source. Stability remains within ± 0.03dB right from initial activation. (KI2400 series)

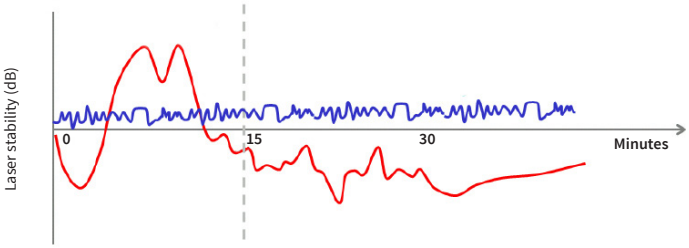

Figure 2. Laser stability

Visitest

The unique VisiTester option mixes a laser VFL with Autotest, so at the power meter end, the active test fibre winks, making it obvious to the user. It also extends to practical fault finding options.

Figure 3. Autotest: 1310/1550/1625 nm + 650 nm visible light

General Specifications

Battery life	Laser/LED source: 90/80 hours in Autotest, typical
Size WxHxD (mm)	105 x 190 x 35
Weight unit/shipping (kg)	0.420 / 1.5
LCD size (mm)	74 x 55
Case material	Polycarbonate / rubber edges & corners
Physical resistance	1m drop test, moisture resistant
Dust cap	Captive, functions as tilt bail when slid open
Memory	1,000 four λ tests with date & time in internal memory, unlimited on USB memory key
Operating temp (°C)	-15 to 55
Storage temp (°C)	-25 to 70
Relative humidity (%)	0 ~ 95
Tone detection	150 ~ 9900 Hz ± 1 %
Calibration cycle (years)	3
Power	2 Alkaline AA cells Or 2 x NiMh AA cells, user selectable charging; Ext power input via micro USB; Selectable auto-off, low battery indicator, backlit display

Ordering Information

	Power (dBm)						
	Laser	LED			Visitest		
Description	SMF	SMF	OM3/4	OM1	SMF	Ports	Part number
KI 2700 Series							Refer to LIGHT SOURCE SPECIFICATIONS for Power Accuracy specifications
Instrument, LTS 1310-1550 nm Laser, InGaAs	0	-	-	-	-	2	KI2722-InGaAs
Instrument, LTS 1310-1550 nm Laser VisiTester, InGaAs	-3	-	-	-	+2	2	KI27622-InGaAs
Instrument, LTS 850-1300 nm LED, Ge	-	-32	-22	-20	-	2	KI2703-Ge
Instrument, LTS 850-1300 nm LED VisiTester, Ge	-	-35	-25	-23	+2	2	KI27603-Ge
Instrument, LTS 850-1300 nm LED, 650 nm VFL, Ge	-	-35	-25	-23	+2	3	KI27703-Ge
Instrument, LTS 850-1300 nm LED, 1310-1550 nm Laser, Ge	0	-32	-22	-20	-	3	KI2724-Ge
Instrument, LTS 850-1300 nm LED, 1310-1550 nm Laser APC, Ge	0	-32	-22	-20	-	3	KI2724-Ge-APC
Instrument, LTS 850-1300 nm LED, 1310-1550 nm Laser VisiTester, Ge	-3	-32	-22	-20	+2	3	**KI27624-Ge**
Instrument, LTS 850-1300 LED VisiTester, 1310-1550 Laser VisiTester, Ge	-3	-35	-25	-23	+2	3	KI27634-Ge
Instrument, LTS 850-1300 nm LED, 1310-1550nm Laser VisiTester APC, Ge	-3	-32	-22	-20	+2	3	KI27624-Ge-APC
Instrument, LTS 1310-1490-1550 nm Laser APC, InGaAs	-3	-	-	-	-	2	KI2727-InGaAs-APC
Instrument, LTS 1310-1490-1550 nm Laser VisiTester APC, InGaAs	-7	-	-	-	+2	2	KI27627-InGaAs-APC
Instrument, LTS 1310-1550-1625 nm Laser APC, InGaAs	-3	-	-	-	-	2	KI27010-InGaAs-APC
Instrument, LTS 1310-1550-1625 nm Laser VisiTester APC, InGaAs	-7	-	-	-	+2	2	KI27610-InGaAs-APC
Instrument, LTS 1310-1490-1550-1625 nm Laser APC, InGaAs	-3	-	-	-	-	2	KI27016-InGaAs-APC
KI 2300 - Premium zero warm up and ultra stable							
Instrument, LTS 1310/1550 nm Ultra Stable Laser, InGaAs	-4	-	-	-	-	2	KI2322-InGaAs
Instrument, LTS 1310-1550-1625 nm Ultra Stable Laser APC, InGaAs	-7	-	-	-	-	2	KI23010-InGaAs-APC

Please enquire for non-listed specifications such as: Wavelength, Power Levels, PC / APC Connectors.

