KINGFISHER INTERNATIONAL

KITS™ Training Manual

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Table of Content

1. Introduction of KITS™

2. Demo Mode Operation
   - 2.1. Start KITS™
   - 2.2. Demo operation of "Meter Reading" worksheet
   - 2.3. Demo operation of "Live Data" worksheet

3. Live Mode Operation
   - 3.1. Setting up the Meter
   - 3.2. Connecting meter to KITS™ & Start KITS™
     - *3.2.1. Connecting meter to KITS™*
     - *3.2.2. Start KITS™*
   - 3.3. Working with "Meter Reading" worksheet
   - 3.4. Working with "Live Data" worksheet
     - *3.4.1. "Live Data" worksheet overview*
     - *3.4.2. Job Details / Site Data subsection*
     - *3.4.3. Test Parameter Setup subsection*
     - *3.4.4. Data entry on Test Results subsection*
       - Method-I: A mouse-click during live testing
         - *Method-I (a): Meter/source in AutoTest mode*
         - *Method-I (b): Meter/source in manual mode*
       - Method-II: Manual entry (only with Data Secure Mode unset)
       - Method-III: Download from meter memory
       - Method-IV: Download and merge from meter memory
       - Method-V: Import from CSV file
     - 3.4.5. Saving/exporting data on "Live Data" worksheet to a CSV file
   - 3.5. Working with "Final Report" worksheet
   - 3.6. Working with "Data Logging" worksheet
     - *3.6.1. Auto data Logging mode*
     - *3.6.2. Manual data Logging mode*
     - *3.6.3. Loading saved log files onto Data Logging worksheet*
     - *3.6.4. Printing saved log file*
   - 3.7. Download data in Meter memory onto "Meter Dump" worksheet
   - 3.8. Exporting data in Meter memory to computer using KITS™ utility, "Save Csv"
   - 3.9. Working with "Remote hold interlock" function (KITS™ feature for communication aids)
     - *3.9.1. Introduction of "Remote hold interlock" function*
     - *3.9.2. Setting up the LTS pair*
     - *3.9.3. Enabling the "Remote hold interlock" function*
     - *3.9.4. Data entry in Live "Data worksheet" with enabled "Remote hold interlock" function*
     - *3.9.5. Disabling "Remote hold interlock" function*

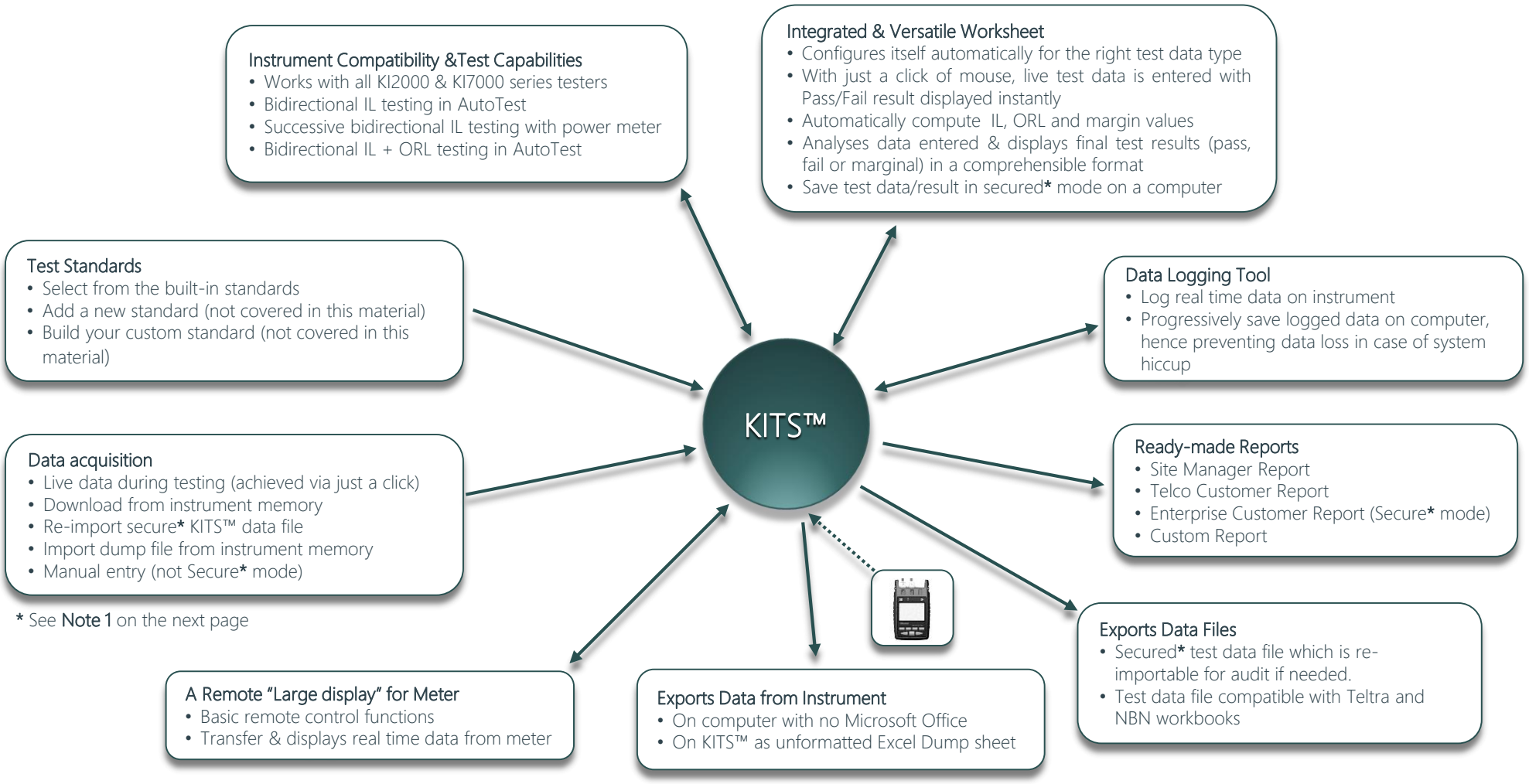
This training material is prepared based on the assumptions that,
- KITS™ software has already been installed on a computer
- the user has basic knowledge of both fibre optical testing and Kingfisher instrument operations.

Back to TOC

KINGFISHER INTERNATIONAL

1. Introduction of KITS™

- KITS™ is an Excel based, integrated data acquisition & reporting program used for fiber optic testing. The diagram below illustrates the functions of KITS™.



1. Introduction of KITS™...continue

Note 1:
Data Secure Mode is used to protect the worksheet against unauthorised or accidental manual data modification.

- This mode is set as default when KITS™ is installed.
- "(Data Is Secure)" is shown on Live Data worksheet indicating that Data Secure Mode is enabled.
- When Data Secure Mode is enabled, manual data entry on the worksheet is not allowed. Only data entered via clicking of the mouse during live testing, memory download, file import are permitted.
- If manual data entry is required, the Data Secure Mode can be disabled, and "(Data Is NOT Secure)" will be shown on Live Data worksheet.

- KITS™ is made up of 6 components with their respective main functions as described below,

  Meter Reading worksheet – Displays instantaneous readings of a connected meter/Loss Test Set on a "large display", and with basic remote control functions.
  Live Data worksheet – Acquires live or saved test data, and instantly analyses it and produce pass/fail results.
  Final Report worksheet – Provides reports on test & result in comprehensible format of user's choice.
  Data Logging worksheet – A data logging tool to monitor power levels over a time period.
  Meter Dump worksheet – A convenient tool used to download data saved in meter/Loss Test Set memory, to KITS™.
  Save Csv utility – A convenient standalone (from KITS™) utility used to export data saved in meter/Loss Test Set memory, to a computer in CSV format.

- KITS™ can be operated in 2 modes:

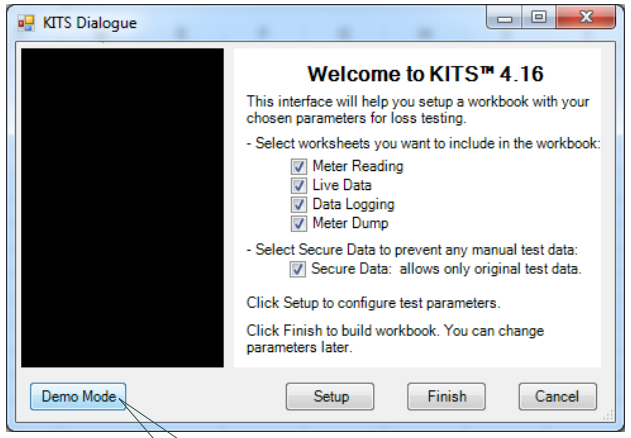
  Demo mode: Demonstrates basic operations of KITS™ by simulations.
  Live mode: Real operations of KITS™.

2. Demo Mode Operation

2.1. Start KITS™

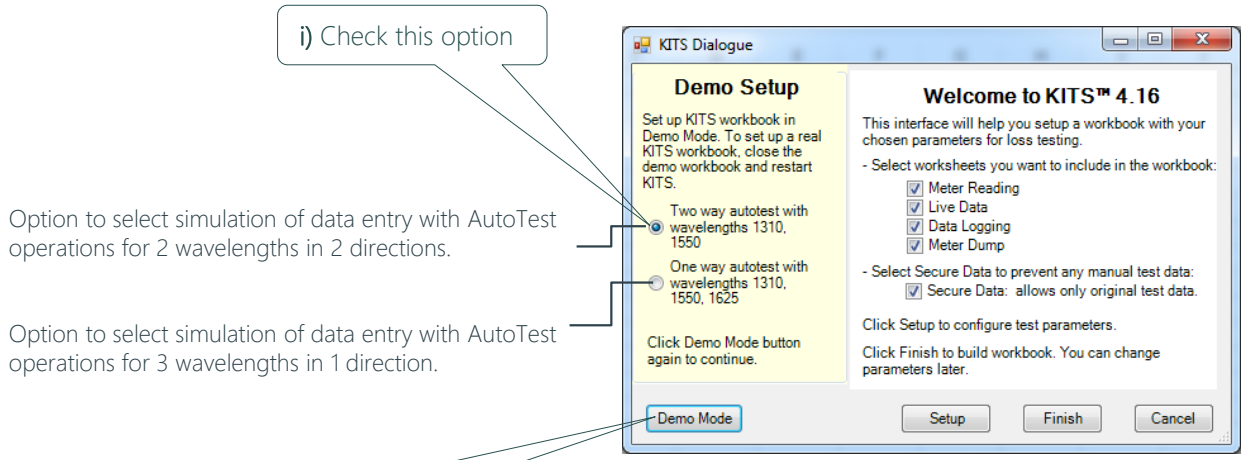
❶ Double-click on **"KITS Wizard"** icon,  on computer or alternatively, navigate via the Windows **Start** menu. e.g. *[Start] -> [all Programs] -> [Kingfisher Kits] -> [Kits Wizard]*

❷ The popup window below will be displayed,



Click *[Demo Mode]* to continue

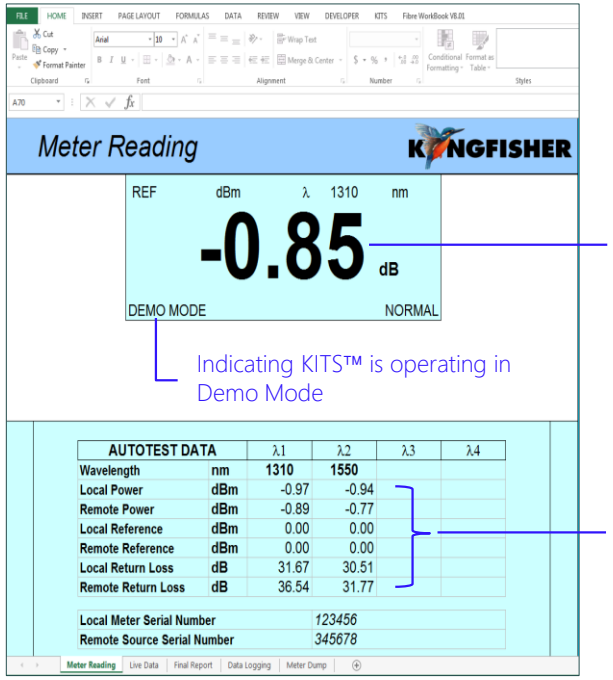
❸ The popup window below for Demo Setup options selection will be displayed,



2. Demo Mode Operation…continue

2.2. Demo operation of “Meter Reading” worksheet

❹ The **“Meter Reading”** worksheet will be opened displaying the simulated readings of a meter.



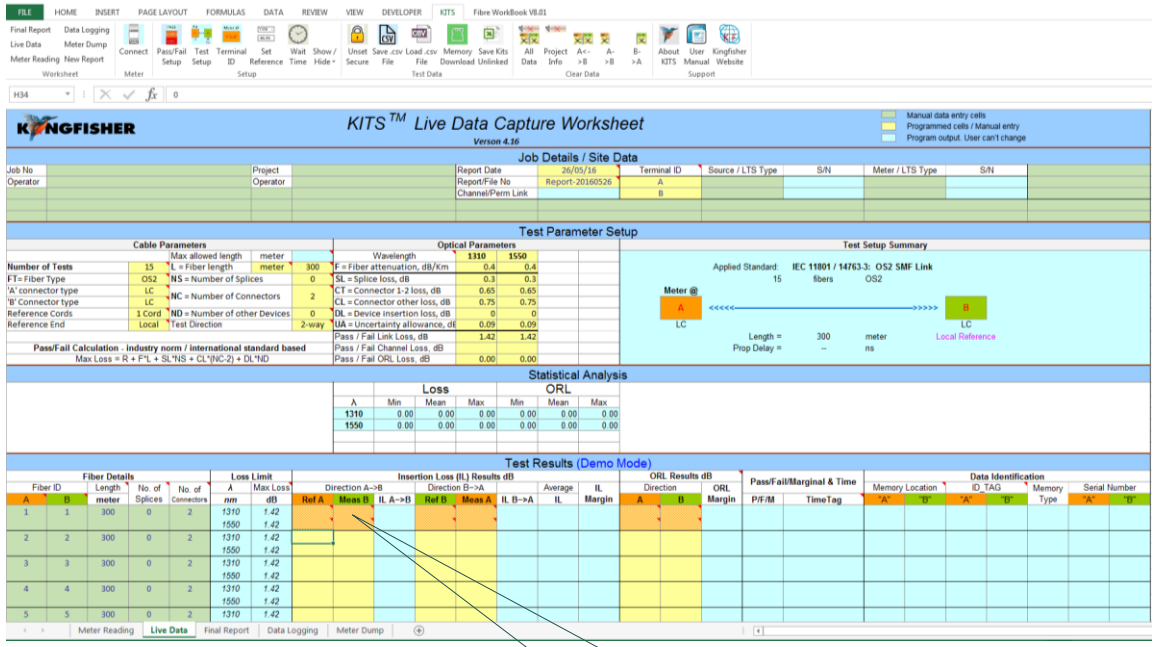
Simulated instantaneous Insertion Loss transferred from meter

Indicating KITS™ is operating in Demo Mode

Simulated real-time data transferred from meter

2.3. Demo operation of “Live Data” worksheet

❺ Click on tab, **“Live Data”** to switch to that worksheet.

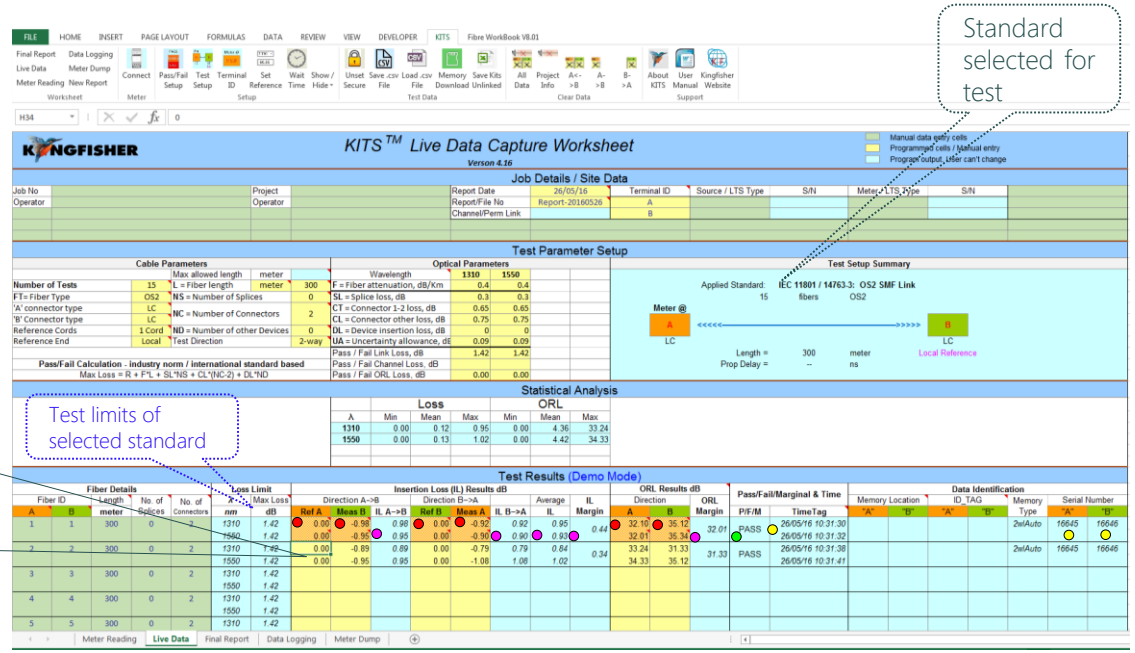


Click on any orange cells in the rows for Fiber IB , “1”.

2. Demo Mode Operation…continue

2.3. Demo operations of **"Live Data"** worksheet…continue

❻ The rows for Fiber ID, "1" will be automatically entered with simulated 2-way (direction) data & results, as can be seen on the picture below.



❼ To get familiarized with the operations, click on any yellow cells on the rows for the subsequent Fiber IDs, to enter data in the same way.

- Reference, power and ORL values transferred from meter.

- IL (Insertion Loos), Loss Margin, ORL values computed automatically from the data transferred from meter.

- Test results is automatically displayed as *Pass*, *Fail* or *Marginal* according to the standard selected.

- Timestamp for test data/results, and serial no. info of test instruments.

❽ Close the workbook and restart KITS™.

Repeat steps, ❷ ~ ❻ in this section, but select Demo Setup options, ***"One way autotest with wavelengths 1310. 1550, 1625"*** this time.

Take note of the data/results, which are of only 1-way (1 direction) but with 3 wavelengths, being entered on the rows for the different Fiber IDs.

Note:

In Demo Mode, only **"Meter Reading"** & "**Live Data"** worksheets are active with simulated reading/data.

3. Live Mode Operation

3.1. Setting up the Meter

❶ Use a pair of Source and Meter that could made up of models from either KI 2000 or KI7000 series. Do steps ❷ ~ ❹ before connecting KITS™.

❷ Clear meter memory (assuming no stored data is wanted!) as follow:

- For KI2600, select **[Memory]** mode, press and hold **[Toggle Centre]** button then press green **[Power]** button, 'clr' will be displayed until all memories are cleared.
- For KI7000, press both **[MR]** and **[Exit]** simultaneously for 3 seconds. **'clr'** will display.

❸ Connect source and meter optical ports with a test lead, select **[AutoTest]** (on the source). The meter will briefly display 'auto', and then change to AutoTest mode without any intervention.
If Relative Meter Mode (dB R) was selected on Meter, press **[Set Reference]** on the meter to set references.

❹ Save say 12 new AutoTest readings in Meter memory:

- For KI2600, press **[►]** button 12 times to save 12 readings.
- For KI7000, press **[M+]** 12 times to save 12 readings.

The saved data will be used later.

3.2. Connecting meter to KITS™ & Start KITS™

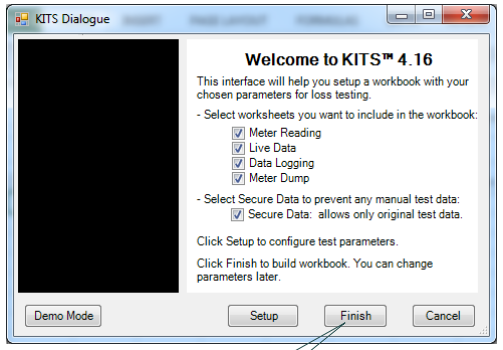
3.2.1. Connecting meter to KITS™ :

Physically connect meter to the computer where KITS™ software was installed, using a USB cable or a USB-RS232 adaptor for the older generation KI7000 series. Refer to FAQ section on the website, http://www.kingfisherfiber.com for assistance if required.

3.2.2. Start KITS™ :

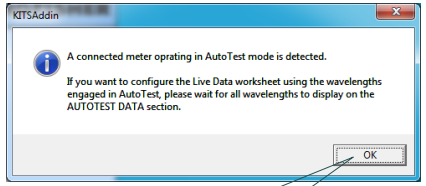
Double-click on icon,  and follow the instructions in steps, ❶ ~ ❸ in this section to complete the start up process.

❶ The dialog box below will be displayed.



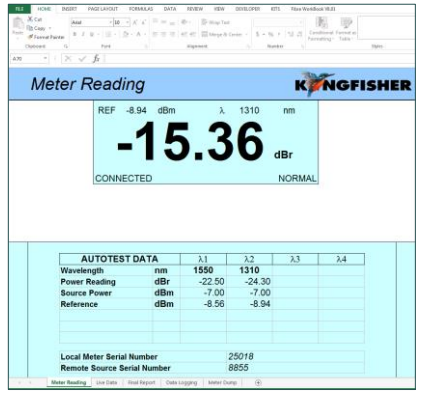
Click *[Finish]* to continue

❷ As the connected meter is operating in AutoTest mode, KITS™ detects this & displays the popup message below,



Take note of the prompted message & click *[OK]* to continue

❸ "Meter Reading" worksheet will be opened, displaying the meter's instantaneous readings for Insertion Loss (IL) of the respective λ engaged in AutoTest.



3.3. Working with "Meter Reading" worksheet

Instantaneous IL readings of connected meter @ respective wavelength

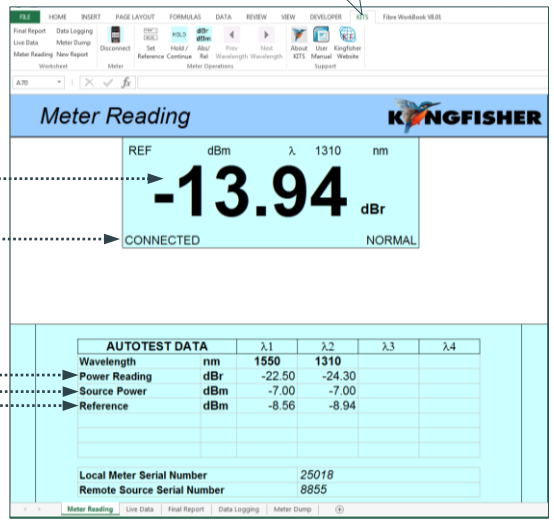
Connection status between KITS™ & meter

IL of respective λ read from meter

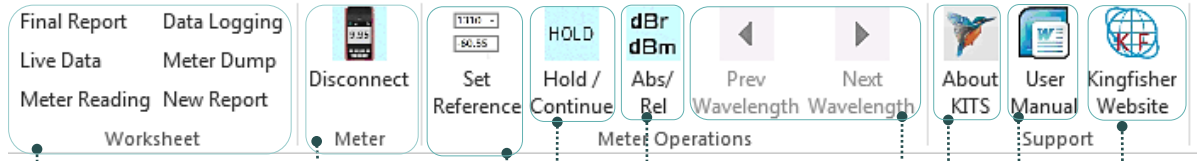
Power setting for respective λ on source

Reference powers of respective λ read from meter

Click on *[KITS]* to display the KITS™ commands on the ribbon.



KITS™ commands:



Click 1 of these to switch between worksheets alternatively.

Click to connect or disconnect meter to KITS™

Click to select Absolute (dBm) or Relative (dBr) measurement mode of meter.

Click to go to Kingfisher's website

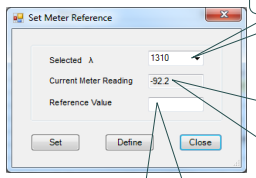
Click to show KITS™ user manual

Click to hold meter display or to continue with real time display. When in hold-mode, **"HOLD"** is displayed

Click to show version & release info of KITS™

Click to change wavelength of data to display.

To set reference values for measurement in **Rel**ative mode.



❶ Select λ

❷ Click *[Set]* to set this meter reading as reference value for the selected λ

OR

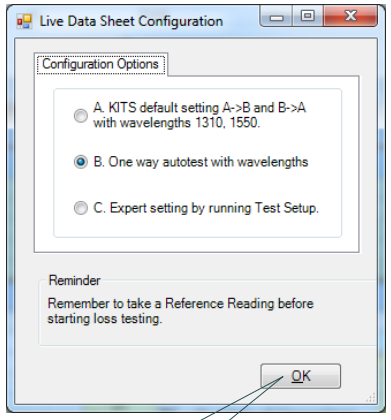
❷ Enter a value here, click *[Define]* to define that value as reference.

Note: Before switching from **"Meter Reading"** to other worksheet, wait for all wavelengths engaged in AutoTest to be displayed in the **"AUTOTEST DATA"** section. This is to ensure that all engaged wavelengths are auto-configured on **"Live Data"** worksheet.

3.4. Working with “Live Data” worksheet

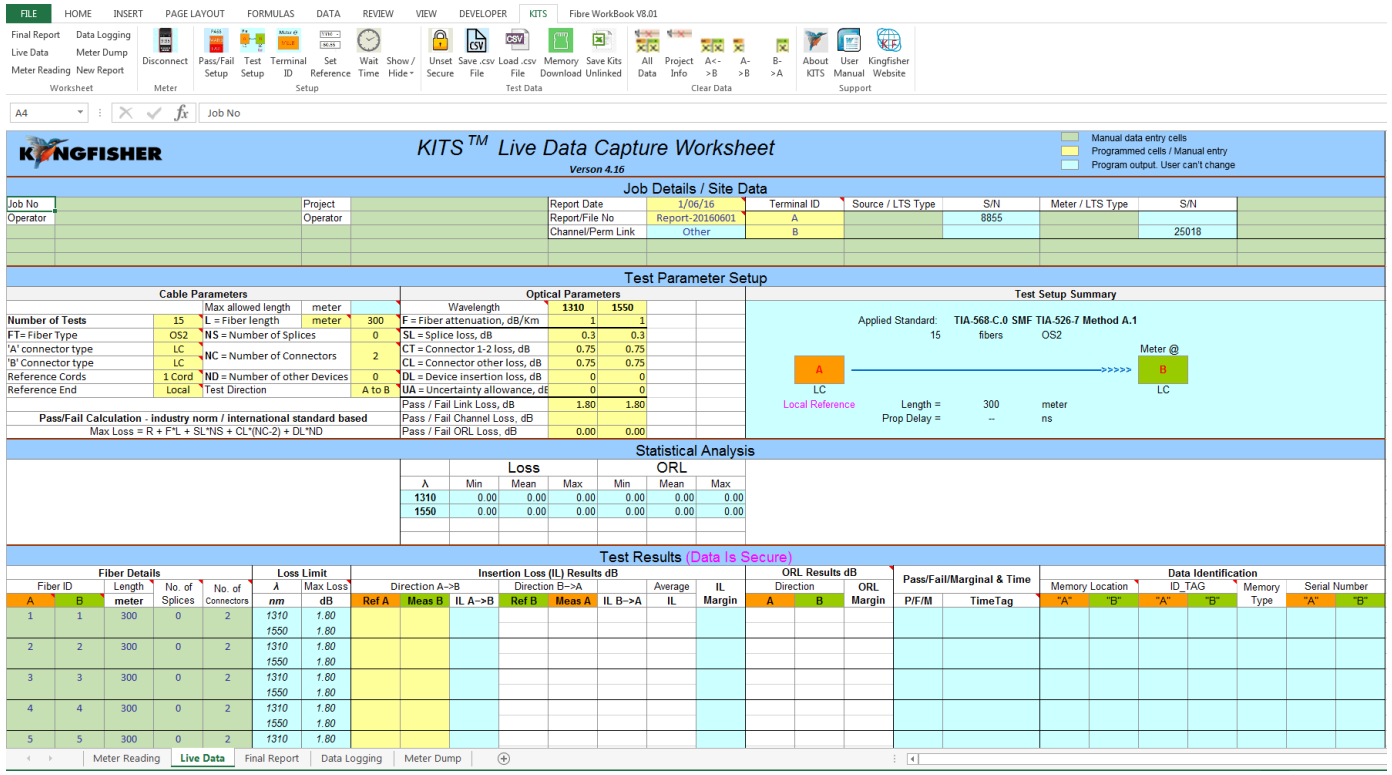
❶ Click on tab, **“Live Data”** to open the worksheet.

The dialog box below will pop up, with Configuration Option, “B” checked, as KITS™ detects that a meter operating in one way AutoTest has been connected.

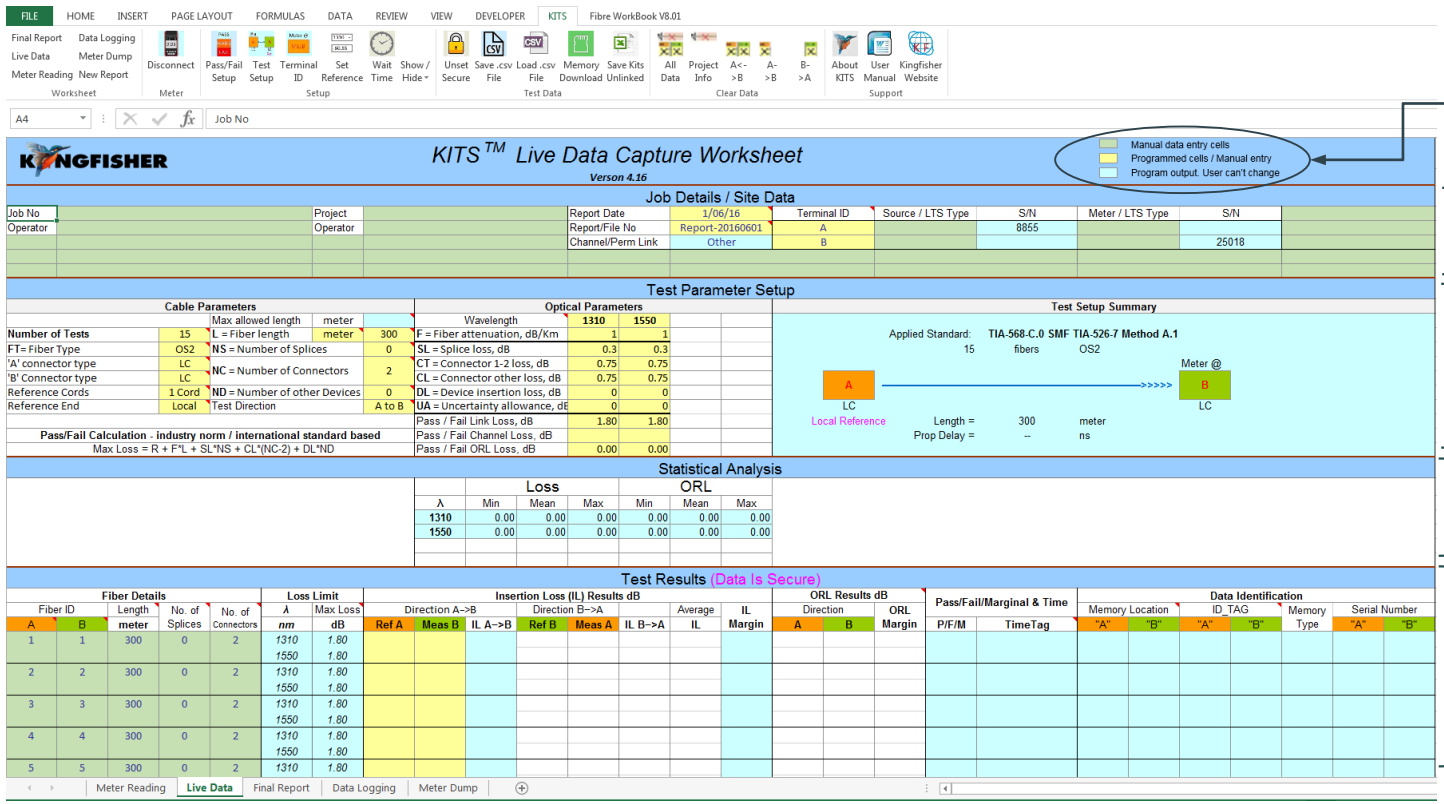


Click *[OK]* to continue

❷ The Live Data worksheet will be automatically setup (base on the detected AutoTest operation in ❶) with the configuration for one-way test, see below.



3.4.1. “Live Data” worksheet overview:



Take note of this colour scheme. There are 3 categories of cells on the worksheet, each represented by the colours as shown.

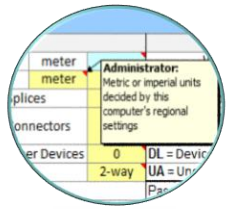
Project, site & test equipment related information/detail is manually or automatically entered in this section. See 3.4.2. for more instructions to manually enter data in this subsection.

This subsection displays the selected test standard, and the values of the parameters in that test standard. See 3.4.3. for instructions for Test Parameter Setup.

The statistical data of test measurements are presented in this subsection.

Test measurement/data acquired from the connected meter is entered, and the result is displayed in this subsection. See 3.4.4. for different methods of entering data.

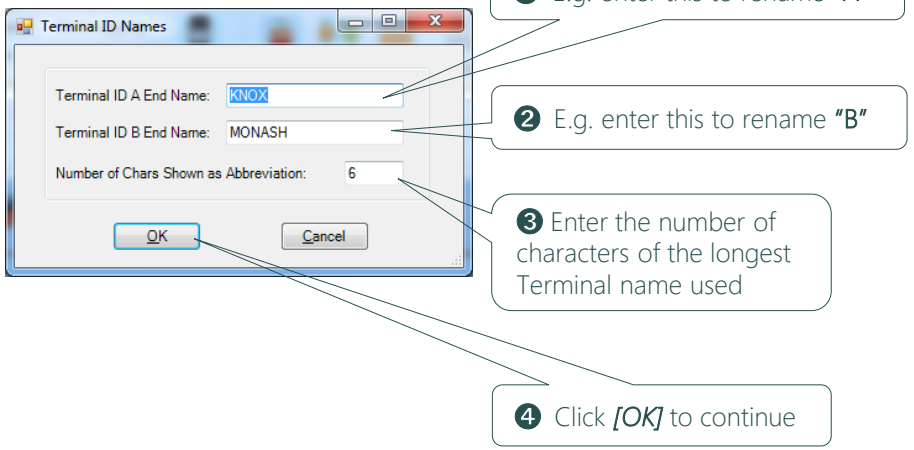
Note: Information about the cells with Excel Comment could be displayed by placing the cursor on those cells, see e.g. on the right.



3.4.2. Job Details / Site Data subsection:

Relevant information can be entered manually to the green cells on this subsection.
When the worksheet is opened, the blue and yellow cells should have been automatically entered with data. However, content of the yellow cells can still be edited manually.

To edit the yellow cells under **"Terminal ID"**, click on 1 of them to display the "**Terminal ID Name**" editor window, and follow the instructions below,



❶ E.g. enter this to rename **"A"**

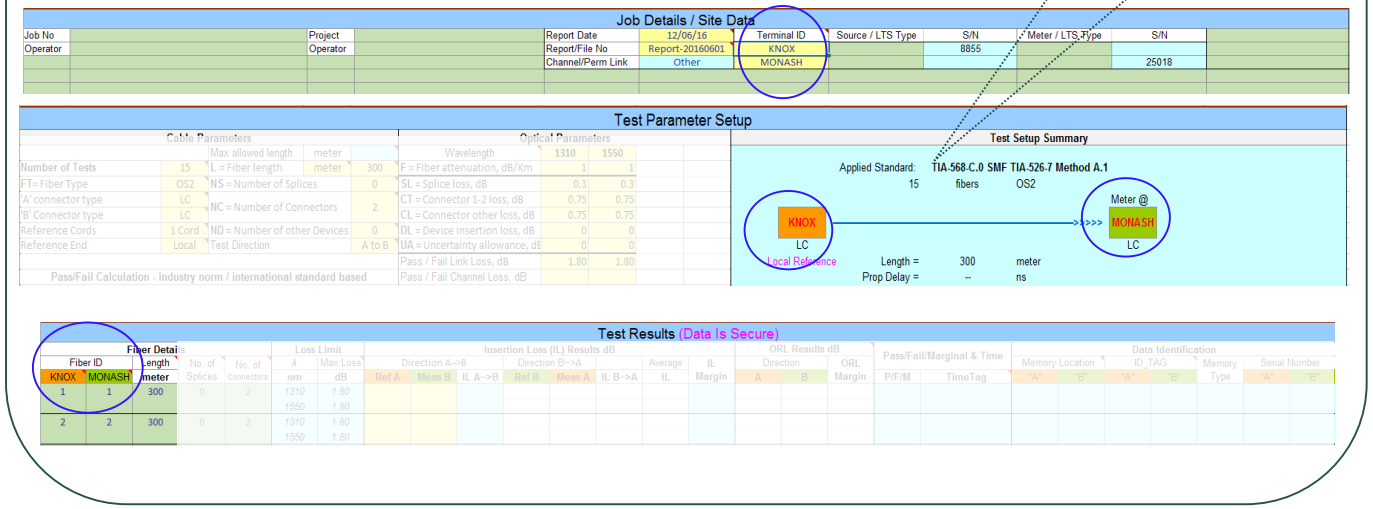
❷ E.g. enter this to rename **"B"**

❸ Enter the number of characters of the longest Terminal name used

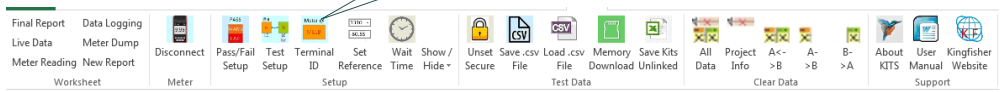
❹ Click *[OK]* to continue

❺ The renamed Terminal IDs will be displayed on various subsections of the worksheet as depicted by the 4 blue circles on the figures below,

The Standard selected, see section 3.4.3. for Standard selection instruction.



Alternatively, the **"Terminal Name"** editor window can be started by a click on the KITS™ command, *[Terminal ID]*

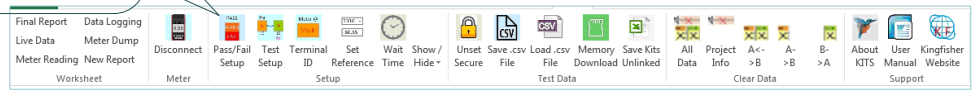


< Back to worksheet overview

3.4.3. Test Parameter Setup subsection

To setup pass/fail criteria and to select test standard, follow the instructions ❶~ ❻ below.

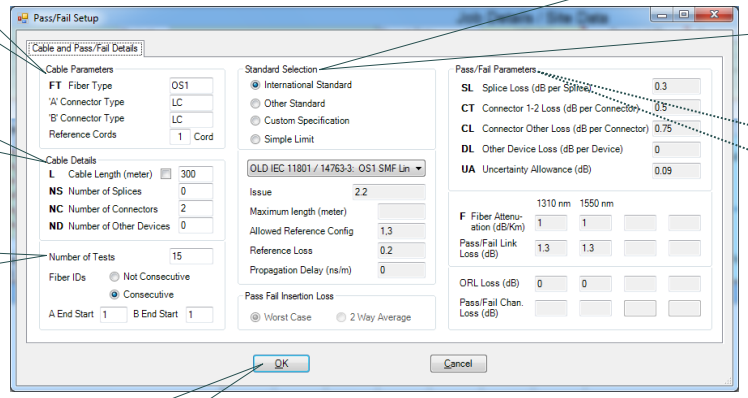
❶ Click *[Pass/Fail Setup]* (or click on any of the yellow cells in this subsection of the worksheet) to display the setup window below.



❸ Enter relevant information of the connectors of DUT in this section.

❹ Enter relevant information of DUT (cable) in this section. Check box beside **"Cable Length"** will change unit to "Km".

❺ Value entered in this field determines the number of Fiber ID lines displayed in Test Result subsection of worksheet.



❷ Check 1 of the standard category options in this section. When category, **"International Standards"** or **"Other Standards"** is checked, the required standard can then be selected from the respective drop down menus.

Once a standard is selected the following restrictions apply:-
- Specifications that are set by the standard are greyed as they are not user changeable.
- KITS™ will not allow a referencing method or length parameter at variance to the standard.

In this section, the parameter values/settings of the selected standard will be displayed in the fields which have been greyed, indicating that they are not editable.

❻ Click *[OK]* to continue

< Back to worksheet overview

3.4.4. Data entry on Test Results subsection:

Test measurements/data can be entered on this subsection of the worksheet with 1 of the 5 methods below:-

Method-I: A mouse-click during live testing

Method-II: Manual entry (only if Data Secure Mode is unset)

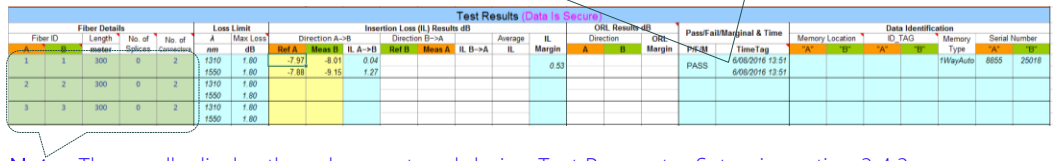
Method-III: Download from meter memory

Method-IV: Download & merge data from meter memory

Method-V: Import from CSV file.

❷ After a KITS™ wait time, the power & reference values (in yellow cells) of the connected meter will be entered in the rows for Fiber ID, "1" along with the Pass/Fail results (in blue cells) etc.

Note that the entered test data & results are for all the wavelengths engaged in AutoTest, i.e. 1310 & 1550 nm for in this example.



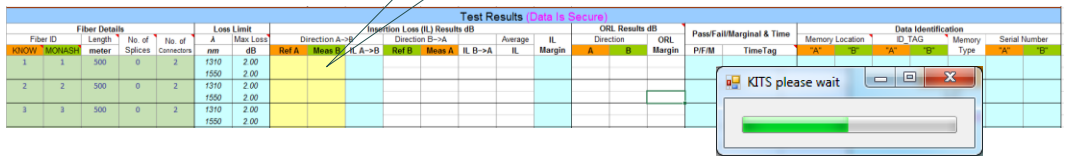
Note: These cells display the values entered during Test Parameter Setup in section 3.4.3. They are editable e.g. to rename the Fiber ID according to specific cable labelling scheme.

Method-I: A mouse-click during live testing:

Method-I (a) A mouse-click during live testing - meter/source in AutoTest mode

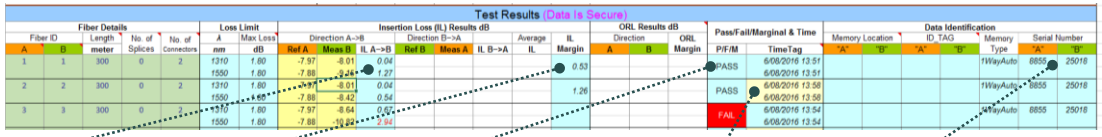
Note: If KITS™ was started with a connected meter operating in AutoTest, this subsection of the worksheet should have been configured automatically according to the AutoTest setup (λ, 1-way or 2-way etc.).

❶ Make sure that the connected meter & source are turned on, and operating in AutoTest mode.
Click on **any** of the yellow cells on the rows for Fiber ID, "1".



❸ Test data & results for the subsequent Fiber IDs can be entered the same way.

Note: click on a yellow cell with data will overwrite the existing data/results for that Fiber ID.



Insertion loss (IL) value computed automatically from the data entered.

IL Margin value computed automatically from the data entered.

Test results is automatically displayed as *Pass*, *Fail* or *Marginal* according to the standard selected.

Time stamp of test. Retested data are highlighted.

Serial numbers of meter & source used during test.

< Back to worksheet overview

3.4.4. Data entry on Test Results subsection...continue

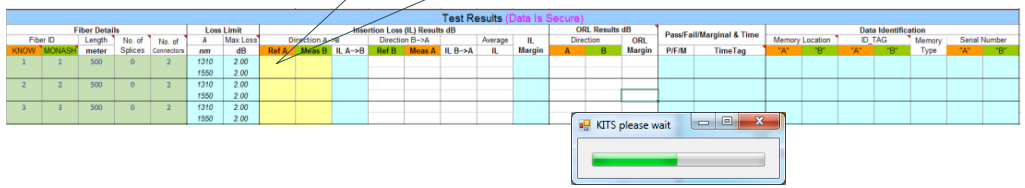
Method-I: A mouse-click during live testing...continue

Method-I (b): A mouse-click during live testing- meter/source in manual mode

❶ Exit AutoTest mode, and set source/meter pair for 1310 nm only measurements.

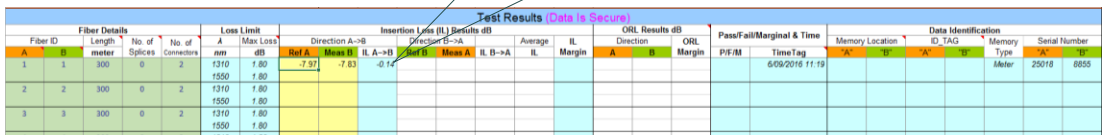
Note:
Exiting Autotest operation of a source/meter pair is only possible after disconnecting the meter from KITS™ by a click on *[Disconnect]*.
Remember to *[Connect]* meter back to KITS™ before initiating data entry process on worksheet.

❷ Click on a yellow cell for λ, **"1310 nm"** on the row for Fiber ID, "1".



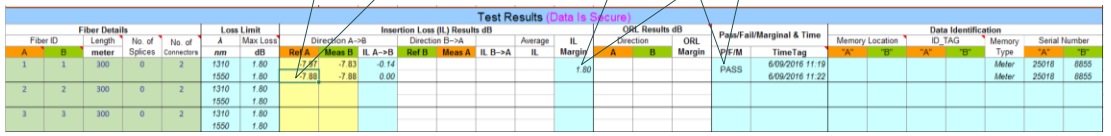
❸ After a KITS™ wait time, power & reference values will be entered for Fiber ID "1" , along with the computed IL value, time & meter info.

Note that only data for 1310 nm is entered.



❹ **Change** source and meter settings to 1550 nm, click on a yellow cell for λ, **"1550 nm"** on the row for Fiber ID, "1".

❺ Take note that the worse-case value for **"IL Margin"** & the overall result (**"P/F/M"**) for both 1310 & 1550 nm will now be entered.



< Back to worksheet overview

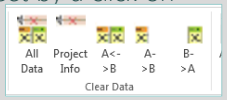
3.4.4. Data entry on Test Results subsection...continue

Method-II: Manual entry (only if Data Secure Mode is unset):

❶ Click *[Disconnect]* to disconnect Meter from KITS™.

❷ Exit AutoTest mode of meter & source pair (so that meter performs measurements manually) & set meter to Absolute measurement (dBm) mode.

❸ Clear the existing data/results on worksheet by a click on *[Clear Data / All Data]*.



❹ Click command, *[Unset Secure]* to disable Data Secure Mode.

Secure Data Mode is set as default when the KITS™ workbook is installed.

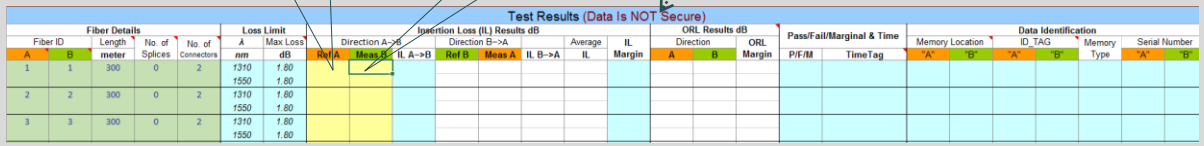
Data Secure Mode is used to protect the worksheet against unauthorised or accidental manual data modification.

In secure mode, manual data entry on the worksheet is not allowed. Only data entered via clicking of the mouse during live testing, memory download, file import are permitted.

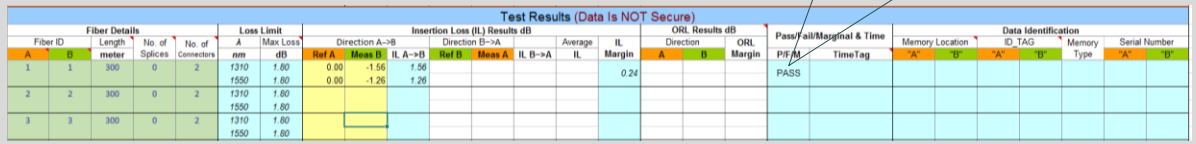
❺ Enter here with transmit power levels (for 1310 & 1550 nm respectively) that are sent from source (A-end) to Meter(B-end).

❻ Enter here with power levels (for 1310 & 1550 nm respectively) received at Meter (B-end) from Source(A-end)

This indicates that Data Secure Mode is disabled/unset



❼ When data for all wavelengths is entered, the test result will be automatically entered on the corresponding rows for that Fiber ID.



❽ Continue to enter data for the subsequent Fiber IDs this way until you are familiarized with the process.

< Back to worksheet overview

3.4.4. Data entry on Test Results subsection ...continue

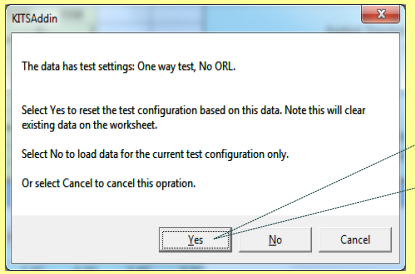
Method-III: Download from meter memory

❶ Click *[Connect]* to re-connect meter to KITS™.
Make sure that the meter is not operating in AutoTest mode.

❷ Click *[Set Secure]* to re-enable **Data Secure** Mode.

❸ Click *[Memory Download]* to display the **"Memory Download"** dialog box.

❹ Without changing any of the default value, click *[OK]* to continue.
At this stage, if the existing configuration of the workbook does not match the data type of the content in meter memory, the dialog box below will be displayed.

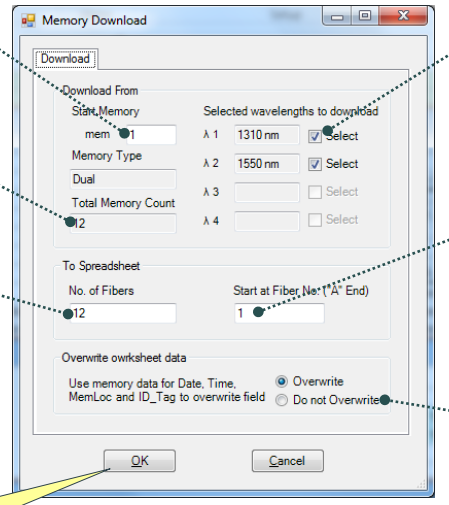


Click *[yes]* to continue so that data is loaded on an appropriately configured worksheet, see figure on the right.

The memory location in meter to start downloading from. The default value is "1".

KITS™ detects that there are 12 memory locations saved (in section 3.1) with data in the meter.

The value in this field determines the number of Fiber ID rows on worksheet that will be entered with data when the download process completes. It is usually defaulted to the value in **"Total Memory Count"** field.

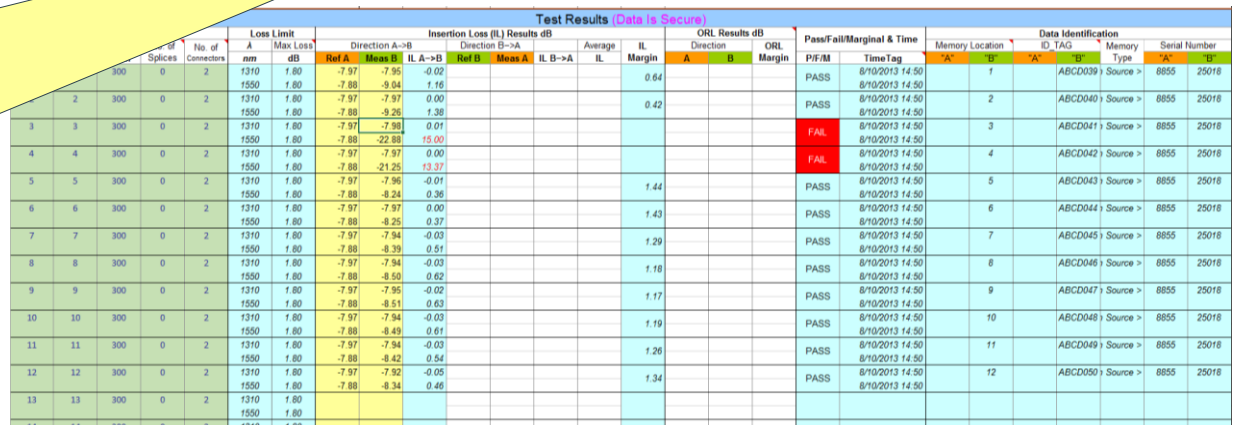


Check/uncheck to select/unselect wavelength for data to be downloaded.

The value in this field determines the starting Fiber ID on worksheet, to be entered with the downloaded data. "1" is the default value.

If this is checked, the existing values on worksheet will not be overwritten by the downloaded data.

Back to section, *Method-IV: Import from CSV file.*



< Back to worksheet overview

3.4.4. Data entry on Test Results subsection ...continue

Method-IV: Download and merge from meter memory

Assuming below are the contents of the data saved in meter memory:

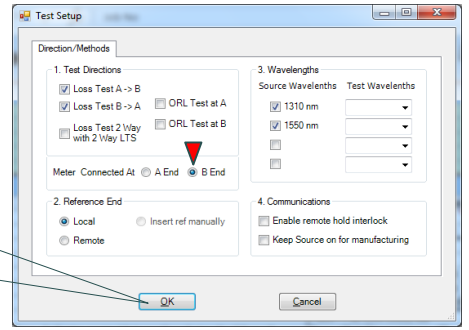
Memory location	Memory content
1 ~ 3	Data for test direction **A -> B** for Fiber ID, 1, 2 & 3 respectively
4 ~ 6	Data for test direction **B -> A** for Fiber ID, 1, 2 & 3 respectively

To download the above data in meter memory, and correctly merge it on worksheet (setup for 2-way test), do steps ❶ ~ ❿ in this section.

❶ Clear existing data on worksheet.
Make sure that the Meter is powered on and is connected to KITS™.

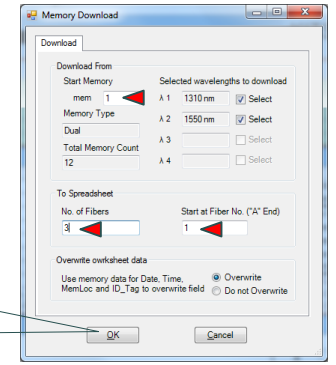
❷ Setup worksheet for 2-way test configuration with test direction A -> B.

Click command, *[Test Setup]* , and check the relevant options as shown below.

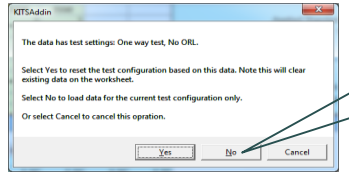


Click *[OK]* to continue

❸ Select 1st~3rd locations of meter memory for download onto 1st 3 Fiber IDs on worksheet.
Click command, *[Memory Download]* & enter values as shown below.

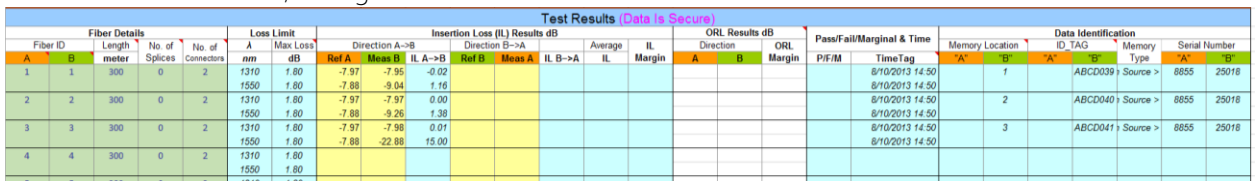


Click *[OK]* to continue



❹ When this message pops up, click *[NO]* to continue.

❺ Note that data in Meter memory locations, 1~3 will be downloaded onto Fiber IDs, 1~3 on worksheet in the columns for direction A -> B, see figure below.



< Back to worksheet overview

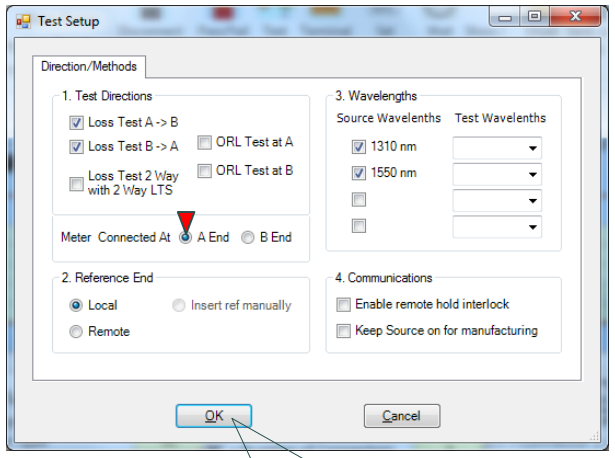
KINGFISHER INTERNATIONAL

3.4.4. Data entry on Test Results subsection ...continue

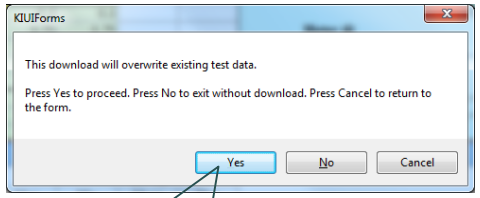
Method-IV: Download and merge from meter memory...continue

❻ Setup worksheet for 2-way test configuration with direction B -> A.

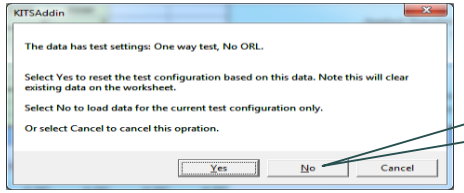
Click command, *[Test Setup]* , and check the options as shown below.



Click *[OK]* to continue



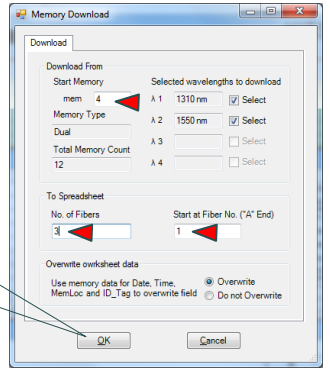
❼ Click *[Yes]* to continue



❾ Click *[No]* to continue

❽ Select 4th~6th locations of meter memory for download onto the 1st 3 Fiber IDs on worksheet.

Click command, *[Memory Download]* & enter values as shown below.



Click *[OK]* to continue

❿ Note that data in Meter memory locations, 3~4 will be downloaded & merged onto the existing data on worksheet, along with the overall test results in 2-way configuration as show below.

Test Results (Data Is Secure)

Fiber Details					Loss Limit		Insertion Loss (IL) Results dB							ORL Results dB			Pass/Fail/Marginal & Time		Data Identification						
Fiber ID		Length	No. of	No. of		Max Loss	Direction A->B			Direction B->A			Average	IL	Direction		ORL			Memory Location		ID_TAG		Memory	Serial Number	
A	B	meter	Splices	Connectors	nm	dB	Ref A	Meas B	IL A->B	Ref B	Meas A	IL B->A	IL	Margin	A	B	Margin	P/F/M	TimeTag	"A"	"B"	"A"	"B"	Type	"A"	"B"
1	1	300	0	2	1310	1.80	-7.97	-7.95	-0.02	-7.97	-7.97	0.00	-0.01					FAIL	8/10/2013 14:50	4	1	ABCD042	ABCD039	Source >	25018	8855
					1550	1.80	-7.88	-9.04	1.16	-7.88	-21.25	13.37	10.61						8/10/2013 14:50							
2	2	300	0	2	1310	1.80	-7.97	-7.97	0.00	-7.97	-7.96	-0.01	0.00	0.42				PASS	8/10/2013 14:50	5	2	ABCD043	ABCD040	Source >	25018	8855
					1550	1.80	-7.88	-9.26	1.38	-7.88	-8.24	0.36	0.90						8/10/2013 14:50							
3	3	300	0	2	1310	1.80	-7.97	-7.98	0.01	-7.97	-7.97	0.00	0.01					FAIL	8/10/2013 14:50	6	3	ABCD044	ABCD041	Source >	25018	8855
					1550	1.80	-7.88	-22.88	15.00	-7.88	-8.25	0.37	12.14						8/10/2013 14:50							
4	4	300	0	2	1310	1.80																				
					1550	1.80																				

< Back to worksheet overview

KINGFISHER INTERNATIONAL

3.4.4. Data entry on Test Results subsection…continue

Method-V: Import from CSV file.

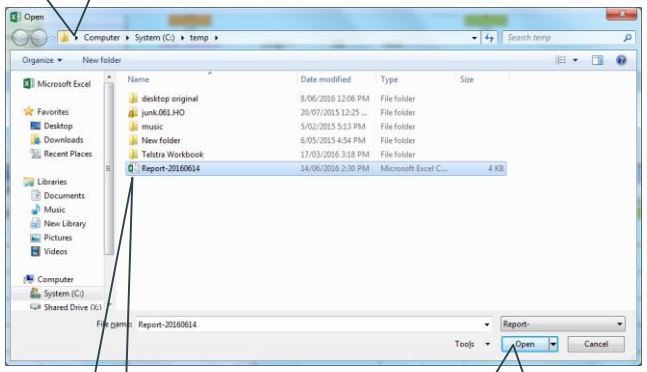
Note:
CSV files exported or saved using KITS™ or its **Save Csv** utility, can be loaded onto the worksheet.

See section 3.4.5. for Saving/exporting data on "Live Data" worksheet to a CSV file.

See section 3.8. for exporting data in meter memory to computer using KITS™ utility, **"Save Csv"**.

❶ Click command, *[Load .csv File]*.

❷ Navigate to the directory where the CSV file is saved.

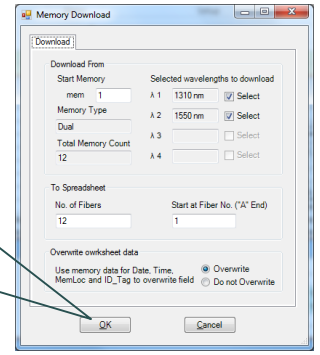


❸ Select the CSV file for download

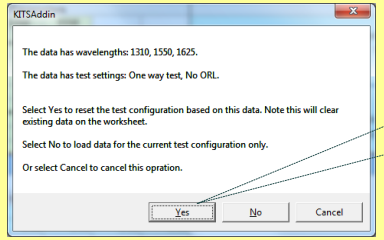
❹ Click *[Open]* to continue, and data in the selected CSV file will be loaded on to worksheet.

❺ Without changing any of the default value, click *[OK]* to continue.

See section, ***Method-III: Download from meter memory*** on slide 18 for explanation notes on **Memory Download** window.



❻ At this stage, if the existing configuration of the workbook does not match the data type of the content in CSV file, the dialog box below will be displayed.



Click *[yes]* to continue so that data is loaded on an appropriately configured worksheet.

< Back to worksheet overview

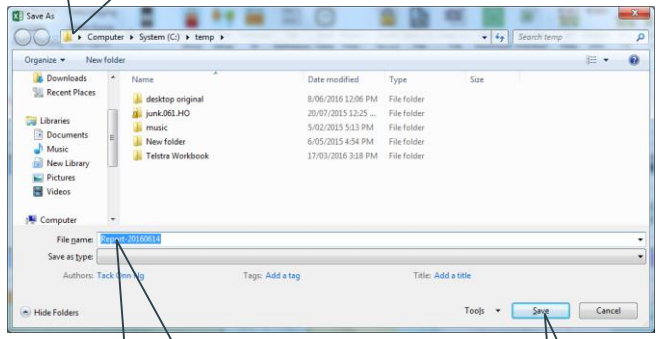
3.4.5. Saving/exporting data on "Live Data" worksheet to a CSV file.

Data will be saved in CSV file with checksum. CSV file that has been resaved will not be reloadable or loaded only in non secured data mode on KITS™. This is KITS™ secured data feature to prevent unauthorized data alteration.

❶ Load data from Meter memory to Live Data worksheet as per instructions in section, **3.3.4.1.3(a).**

❷ Click on command, *[Save .csv File]*

❸ Navigate to the directory in which the CSV file to be saved.



❹ use the default file name or specify another file name to save the data.

❺ Click *[save]* to continue, and the data on worksheet will be saved in the specified file and directory.

Note:
An alternative way to save/export data on the worksheet in a file is via command, *[Save Kits Unlink]*. This saves data in a normal Excel file which is no longer re-downloadable onto KITS™.

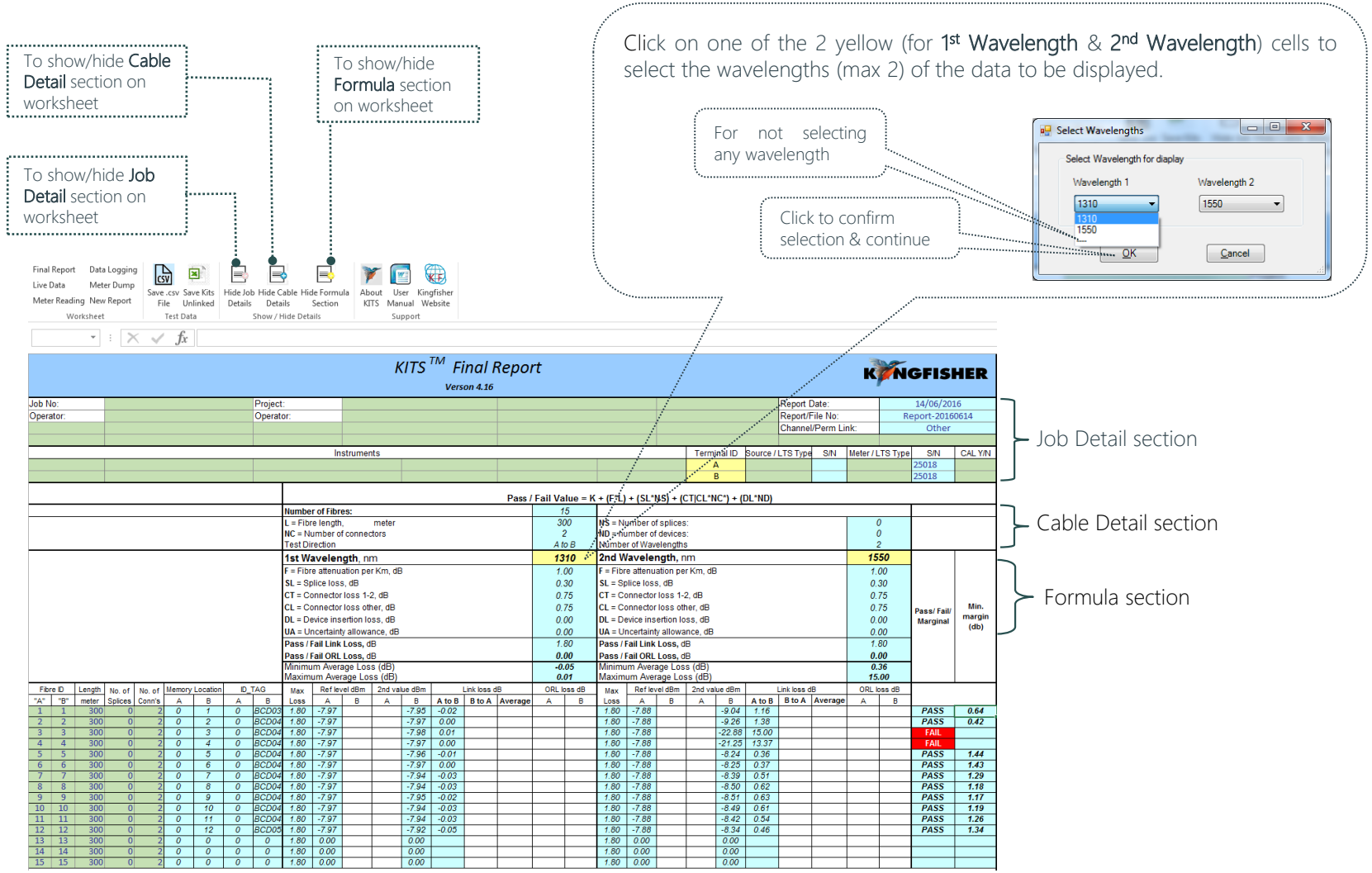
< 3.3.4.1.3. Import from CSV file

3.5 Working with "Final Report" worksheet

❶ Load data from meter memory as per instructions in section, **3.3.4.1.3(a).**

❷ Click on tab, **"Final Report"** to open the worksheet.
After a "KITS please wait", the data & results in **Live Data** worksheet will be presented in a different format on this worksheet, see figure on the right.

Note:
- The **Final Report** worksheet is <u>receive</u> only.
- All data is imported from **Live Data** worksheet.
- The **Final Report** worksheet can be configured to display one or maximum two wavelengths.



Pass / Fail Value = K + (F*L) + (SL*NS) + (CT|CL*NC*) + (DL*ND)

Fibre ID "A"	Fibre ID "B"	Length meter	No. of Splices	No. of Conn's	Memory Location A	Memory Location B	ID_TAG A	ID_TAG B	Max Loss	Ref level dBm A	Ref level dBm B	2nd value dBm A	2nd value dBm B	Link loss dB A to B	Link loss dB B to A	Link loss dB Average	ORL loss dB A	ORL loss dB B	Max Loss	Ref level dBm A	Ref level dBm B	2nd value dBm A	2nd value dBm B	Link loss dB A to B	Link loss dB B to A	Link loss dB Average	ORL loss dB A	ORL loss dB B	Pass/ Fail/ Marginal	Min. margin (db)
1	1	300	0	2	0	1	0	BCD03	1.80	-7.97			-7.95	-0.02					1.80	-7.88			-9.04	1.16				PASS	0.64
2	2	300	0	2	0	2	0	BCD04	1.80	-7.97			-7.97	0.00					1.80	-7.88			-9.26	1.38				PASS	0.42
3	3	300	0	2	0	3	0	BCD04	1.80	-7.97			-7.98	0.01					1.80	-7.88			-22.88	15.00				FAIL	
4	4	300	0	2	0	4	0	BCD04	1.80	-7.97			-7.97	0.00					1.80	-7.88			-21.25	13.37				FAIL	
5	5	300	0	2	0	5	0	BCD04	1.80	-7.97			-7.96	-0.01					1.80	-7.88			-8.24	0.36				PASS	1.44
6	6	300	0	2	0	6	0	BCD04	1.80	-7.97			-7.97	0.00					1.80	-7.88			-8.25	0.37				PASS	1.43
7	7	300	0	2	0	7	0	BCD04	1.80	-7.97			-7.94	-0.03					1.80	-7.88			-8.39	0.51				PASS	1.29
8	8	300	0	2	0	8	0	BCD04	1.80	-7.97			-7.94	-0.03					1.80	-7.88			-8.50	0.62				PASS	1.18
9	9	300	0	2	0	9	0	BCD04	1.80	-7.97			-7.95	-0.02					1.80	-7.88			-8.51	0.63				PASS	1.17
10	10	300	0	2	0	10	0	BCD04	1.80	-7.97			-7.94	-0.03					1.80	-7.88			-8.49	0.61				PASS	1.19
11	11	300	0	2	0	11	0	BCD04	1.80	-7.97			-7.94	-0.03					1.80	-7.88			-8.42	0.54				PASS	1.26
12	12	300	0	2	0	12	0	BCD05	1.80	-7.97			-7.92	-0.05					1.80	-7.88			-8.34	0.46				PASS	1.34
13	13	300	0	2	0	0	0	0	1.80	0.00			0.00						1.80	0.00			0.00						
14	14	300	0	2	0	0	0	0	1.80	0.00			0.00						1.80	0.00			0.00						
15	15	300	0	2	0	0	0	0	1.80	0.00			0.00						1.80	0.00			0.00						

3.6 Working with “Data Logging” worksheet

Data logging can be performed in the *Auto data Logging mode* or *Manual data logging mode*

3.6.1 Auto data Logging mode

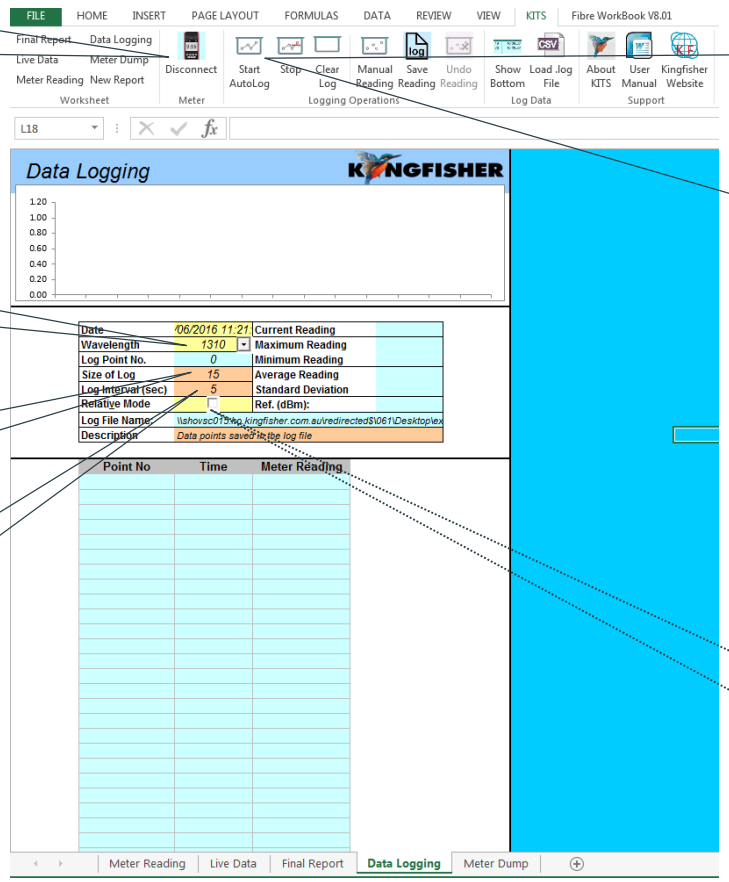
❶ Click on **“Data Logging”** tab to open the worksheet.

❷ Make sure that Meter is powered up and connected to KITS™ .

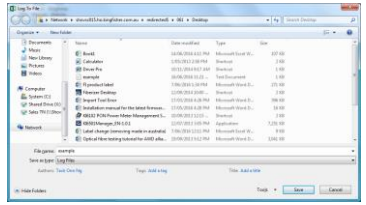
❸ Select e.g. **“1310”** for **Wavelength**

❹ Enter e.g. **“15”** for **Size of log**.

❺ Enter e.g. **“5”** for **Log interval (sec).**



❻ Click *[Start AutoLog]* to show the dialog below,



Specify the file name and directory to save data log, and click *[Save]*. Auto data logging will start.

Note:
From the start of Auto Data Logging, data is always saved in the specified file on computer, hence minimising the chance of data loss if the computer hangs up during the process.

Note: If this box is checked, the connected meter will be set to Relative measurement mode

3.6.1 Auto data Logging mode...continue

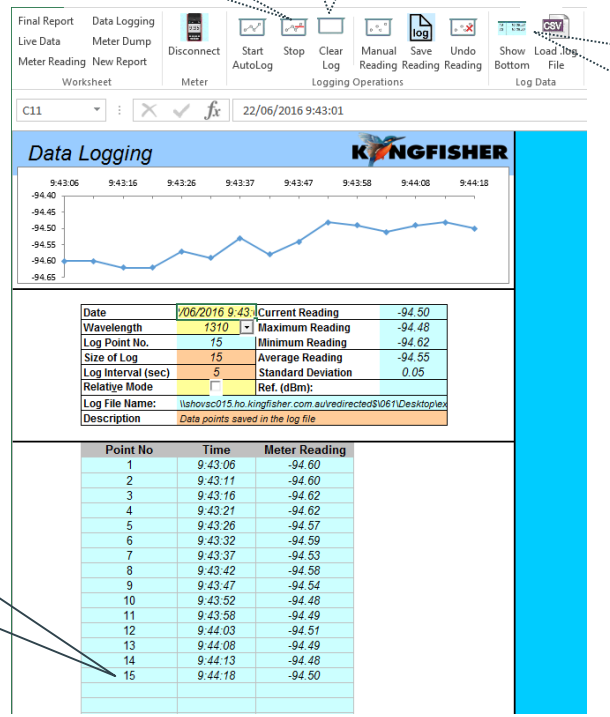
The Auto Data logging can be temporarily stop/hold by a click on *[Stop]*. To continue, click *[Continue Auto Datalog]*.

2 clicks on *[Stop]* will end/abort the current data logging session.

Click *[Clear Log]* to clear all existing data on the worksheet before starting a new data loggingsession.

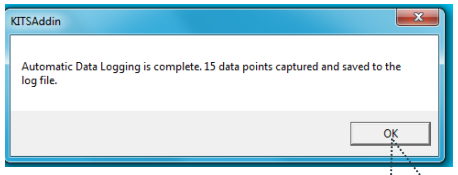
Caution:

The source should be in CW mode, however data logging may be possible in AutoTest mode. Depending upon sample interval and computer speed, the reading may become unreliable if the instrument is in AutoTest mode. AutoTest samples intervals greater than 5 seconds are generally OK.



Whilst data is being logged (with extended number of data points), click *[Show Log Data Bottom]* to show current data readings . To revert to the top of the worksheet, to show the earliest data readings, click *[Show Log Data Top]*.

❼ After the last data (the 15'th data point in this example) is logged, the message below will pop up.



The logged data will be saved in the directory & file specified earlier in step ❻.

Click to *[ok]* to continue.

Live Mode Operation - Working with "Data Logging" worksheet

Back to TOC

3.6.2 Manual data Logging mode

❶ Make sure that Meter is powered up and is connected to KITS™.

Click *[Clear Log]* to clear all existing data on the worksheet.

❷ Select a wavelength.

❸ Click *[Manual Reading]*.

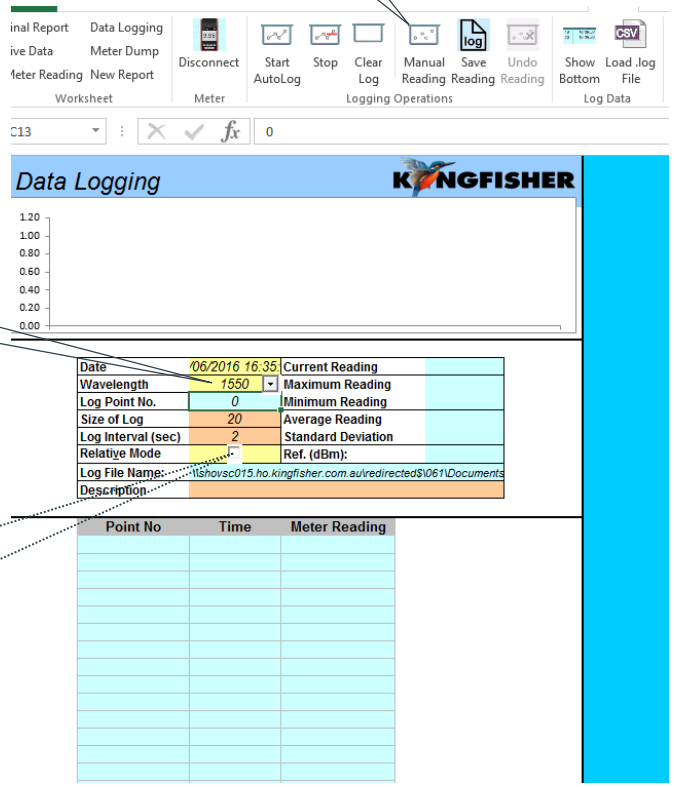
❹ Note that the current reading on Meter is entered as the 1st data point on the 1st line of the worksheet.

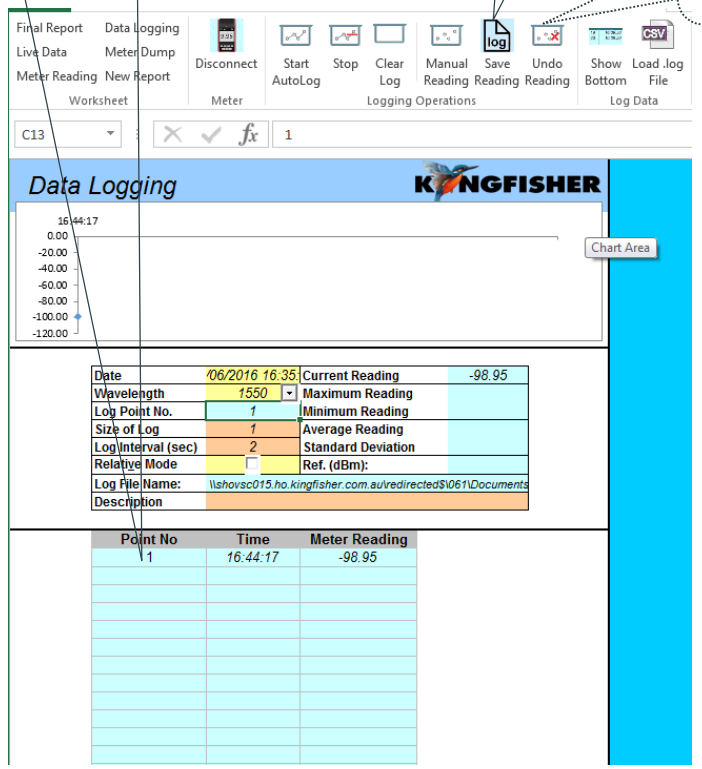
On each subsequent click of [Manual Reading] , a data point is logged. The data point index and the size of the log is automatically incremented.

❺ Click [Save Reading] and specify file name and directory to save the data in a log file on computer.

To undo the last logged reading, click *[Undo Reading]*.

Note: If this box is checked, Meter will be set to Relative measurement mode

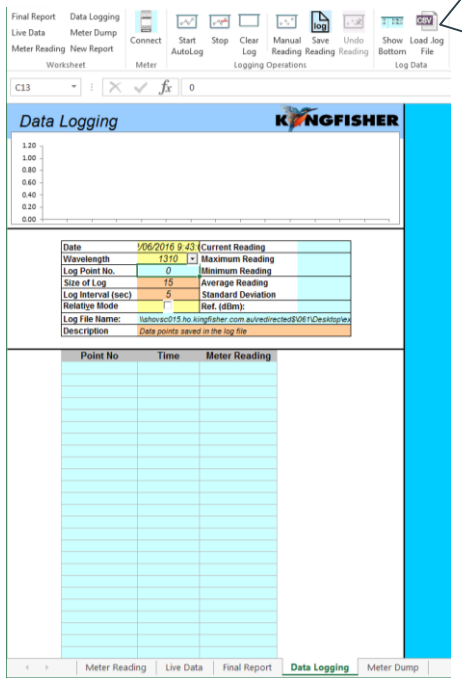




3.6.3 Loading saved log files onto Data Logging worksheet

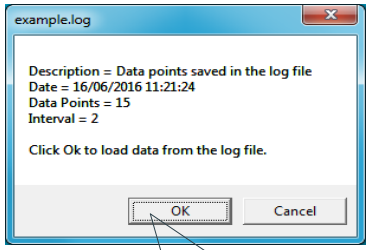
❶ *[Disconnect]* Meter from KITS™.

Click *[Clear Log]* to clear any existing data on the worksheet.



❷ Click *[Load .log File]* and navigate to the directory on computer where the saved log file (e.g. that saved in step ❼ of section 3.6.1) is located.

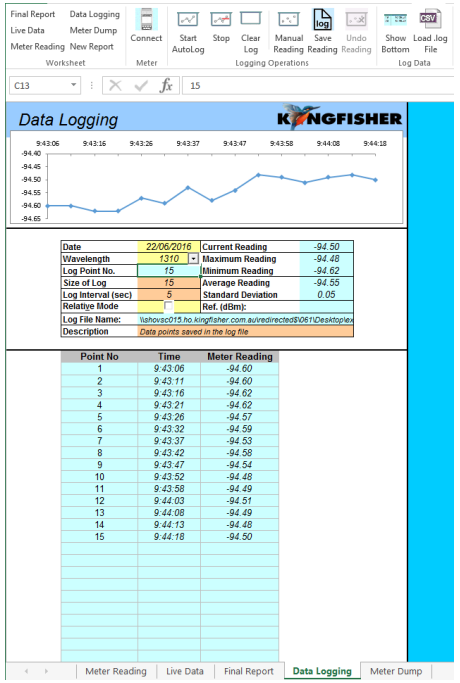
❸ Note that a dialogue box below providing information about the selected log file and its content, will be displayed.



Click *[OK]* to continue.

Note:
Very large Log files may take a while to load. Load completion is easily confirmed by the presence of the graph.

❹ Note that the data in the log file will be loaded on the worksheet as show below.



3.6.4 Printing saved log files

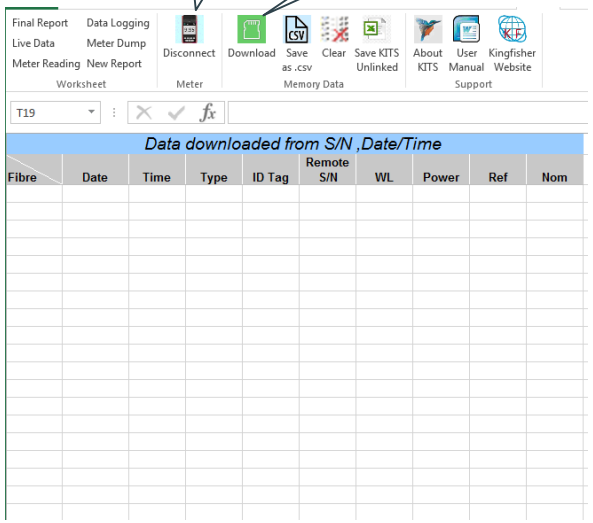
Use Windows print options to print hardcopy of the logged data.

3.7 Download data in Meter memory onto "Meter Dump" worksheet

❶ Click on **"Meter Dump"** tab to open the worksheet.

❷ Make sure meter is powered up & connected to KITS™

❸ Click *[Download]* to start downloading data from meter.



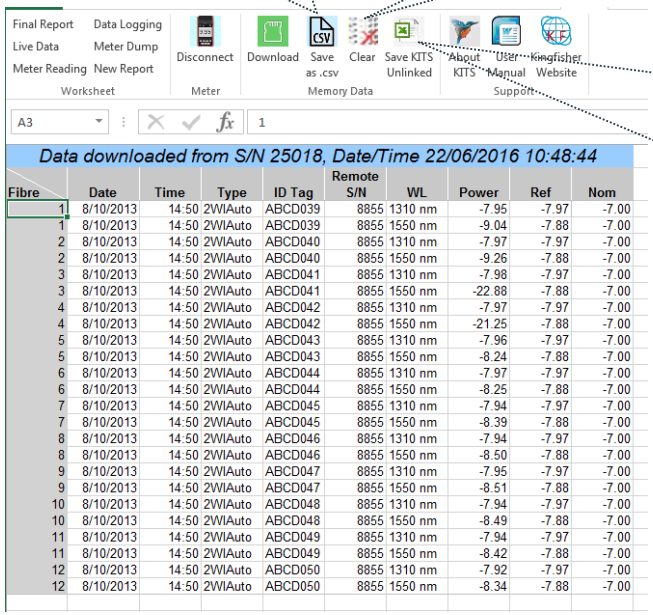
Note: Unlike **"Live Data"** worksheet where only the memory readings that match the selected wavelengths are downloaded, **"Meter Dump"** sheet downloads all data from meter memory. No analysis is performed.

❹ Note that all the data in meter memory (saved in step ❹ of section 3.1) will be downloaded and displayed on the worksheet s shown below.

Data on the worksheet can be saved in a file in CSV format by a click on *[Save as .csv]*, and follow the instructions prompted.

Click *[Clear]* to clear existing data on worksheet before reloading it with a new set of data from Meter.

Click *[Save KITS Unlink]* to save data on worksheet in a normal Excel file (not linked to KITS™). Note that file saved this way is no longer reloadable onto KITS™.



Fibre	Date	Time	Type	ID Tag	Remote S/N	WL	Power	Ref	Nom
1	8/10/2013	14:50	2WIAuto	ABCD039	8855	1310 nm	-7.95	-7.97	-7.00
1	8/10/2013	14:50	2WIAuto	ABCD039	8855	1550 nm	-9.04	-7.88	-7.00
2	8/10/2013	14:50	2WIAuto	ABCD040	8855	1310 nm	-7.97	-7.97	-7.00
2	8/10/2013	14:50	2WIAuto	ABCD040	8855	1550 nm	-9.26	-7.88	-7.00
3	8/10/2013	14:50	2WIAuto	ABCD041	8855	1310 nm	-7.98	-7.97	-7.00
3	8/10/2013	14:50	2WIAuto	ABCD041	8855	1550 nm	-22.88	-7.88	-7.00
4	8/10/2013	14:50	2WIAuto	ABCD042	8855	1310 nm	-7.97	-7.97	-7.00
4	8/10/2013	14:50	2WIAuto	ABCD042	8855	1550 nm	-21.25	-7.88	-7.00
5	8/10/2013	14:50	2WIAuto	ABCD043	8855	1310 nm	-7.96	-7.97	-7.00
5	8/10/2013	14:50	2WIAuto	ABCD043	8855	1550 nm	-8.24	-7.88	-7.00
6	8/10/2013	14:50	2WIAuto	ABCD044	8855	1310 nm	-7.97	-7.97	-7.00
6	8/10/2013	14:50	2WIAuto	ABCD044	8855	1550 nm	-8.25	-7.88	-7.00
7	8/10/2013	14:50	2WIAuto	ABCD045	8855	1310 nm	-7.94	-7.97	-7.00
7	8/10/2013	14:50	2WIAuto	ABCD045	8855	1550 nm	-8.39	-7.88	-7.00
8	8/10/2013	14:50	2WIAuto	ABCD046	8855	1310 nm	-7.94	-7.97	-7.00
8	8/10/2013	14:50	2WIAuto	ABCD046	8855	1550 nm	-8.50	-7.88	-7.00
9	8/10/2013	14:50	2WIAuto	ABCD047	8855	1310 nm	-7.95	-7.97	-7.00
9	8/10/2013	14:50	2WIAuto	ABCD047	8855	1550 nm	-8.51	-7.88	-7.00
10	8/10/2013	14:50	2WIAuto	ABCD048	8855	1310 nm	-7.94	-7.97	-7.00
10	8/10/2013	14:50	2WIAuto	ABCD048	8855	1550 nm	-8.49	-7.88	-7.00
11	8/10/2013	14:50	2WIAuto	ABCD049	8855	1310 nm	-7.94	-7.97	-7.00
11	8/10/2013	14:50	2WIAuto	ABCD049	8855	1550 nm	-8.42	-7.88	-7.00
12	8/10/2013	14:50	2WIAuto	ABCD050	8855	1310 nm	-7.92	-7.97	-7.00
12	8/10/2013	14:50	2WIAuto	ABCD050	8855	1550 nm	-8.34	-7.88	-7.00

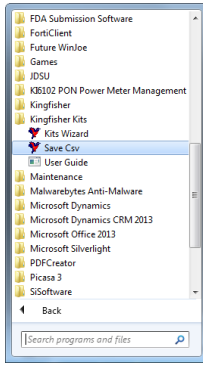
3.8 Exporting data in Meter memory to Computer using KITS™ utility, "Save Csv"

❶ Close KITS™ & connect meter which had been saved with data in step ❹ of section 3.1.

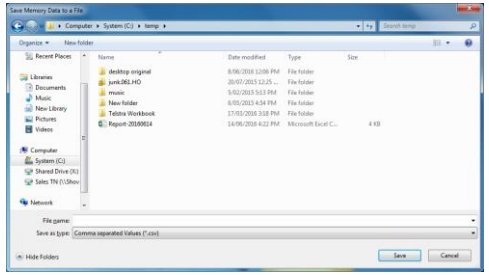
Note: On a computer with full KITS™ software installed, it is recommended to close KITS™ first before executing this utility.

❷ Click on Microsoft **Start** button and navigate to select *[Save csv]* as follow,

[Start]
-> [Programs]
-> [Kingfisher Kits]
-> [Save Csv]



❸ Enter/select to specify file name and location on computer to save data in meter memory in the dialog box below, and click *[Save]* to continue .



Note:
The dialog box may take a little while to show up depending on the data size in instrument memory.

Note:

- The **Save Csv** utility is independent of Microsoft Office, i.e. it works on a computer without Excel installed.
- The saved CSV file includes a checksum.
- The exact CSV file format saved using this KITS utility depends upon the instrument type. E.g. KI7000 series differs to that of KI2000 series. See below for samples files.

Memory extract KI2600 via 'Save Csv':

Save csv output from KI2X00. SN: 25018		Time in 24h format.		Wavelengths in nm.	Optical Power values in dBm.									
Mem	Date	Time	Type	ID_Tag	RemSN	WI1	Pwr1	Ref1	Nom1	WI2	Pwr2	Ref2	Nom2	WI3
1	26/05/2014	10:09	2WIAuto	THUR001	11216	1310	-8.9	-0.7	-7	1550	-8.57	-0.77	-7	
2	26/05/2014	10:09	2WIAuto	THUR002	11216	1310	-9.31	-0.7	-7	1550	-8.59	-0.77	-7	
3	26/05/2014	10:09	2WIAuto	THUR003	11216	1310	-9.42	-0.7	-7	1550	-8.61	-0.77	-7	
4	26/05/2014	10:09	2WIAuto	THUR004	11216	1310	-8.91	-8.93	-7	1550	-8.63	-8.28	-7	
5	26/05/2014	10:09	2WIAuto	THUR005	11216	1310	-8.95	-8.85	-7	1550	-8.28	-8.34	-7	

Memory extract KI7343 via 'Save Csv':

Save csv output from KI Meter. SN: 11216		Time in 24h format.		Wavelengths in nm.	Optical Power values in dBm.										
Mem	Date	Time	ID_Tag	RemSN	Length	WI1	Pwr1	Ref1	Orl1	RemPwr1	RemRef1	RemOrl1	WI2	Pwr2	Ref2	Orl2
1				24919		1310	-0.34	-99.99	1.44	-99.99	-99.99	-99.99	1310	-0.43	-99.99	99.98
2				24919		1310	-0.1	-0.1					1550	-0.25	-0.25	
3				24919		1310	-0.09	-0.1					1550	-0.25	-0.25	
4				24919		1310	-8.33	-0.1					1550	-19.31	-0.25	
{xcheck: 00a1a199e0}																

< 3.3.4.1.3. Import from CSV file

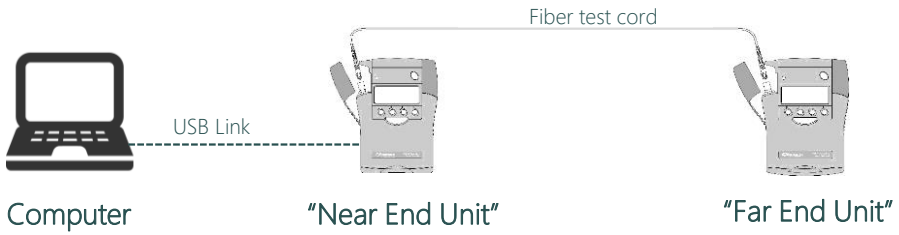
3.9. Working with “Remote hold interlock” function (KITS™ feature for communication aid)

3.9.1. Introduction of “Remote hold interlock” function

- This is a feature in KITS™ which when enabled, provides a communication aid for the operators at DUT ends in the field, to better coordinate their work.
- This feature only works with a pair of identical Loss Test Set (LTS) e.g. KI 7343, connected at the ends of a DUT (fiber cable).

3.9.2. Setting up the LTS pair

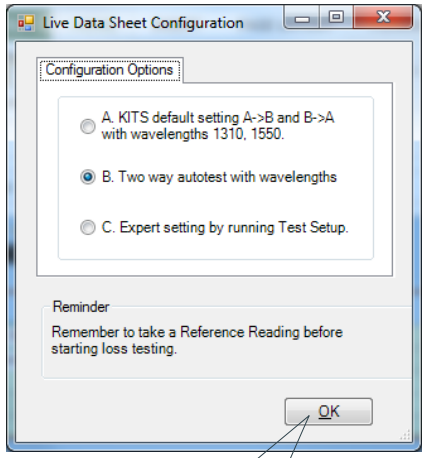
- Connect up the left ports of two LTS with a test cord with the appropriate connectors.
- Power up both the LTS units, AutoTest at any one of the units, and set references on any of the units.
- When the LTS pair is operating in AutoTest mode, connect the *unit which AutoTest was started*, to computer via USB or RS232-USB adaptor, depending on the instrument models.
  Note that the unit connected to computer becomes “Near End Unit”, and the other becomes “Far End Unit”. See instrument setup below.



- If KITS™ is already started, exit and restart it as per instructions in section 3.2.2.

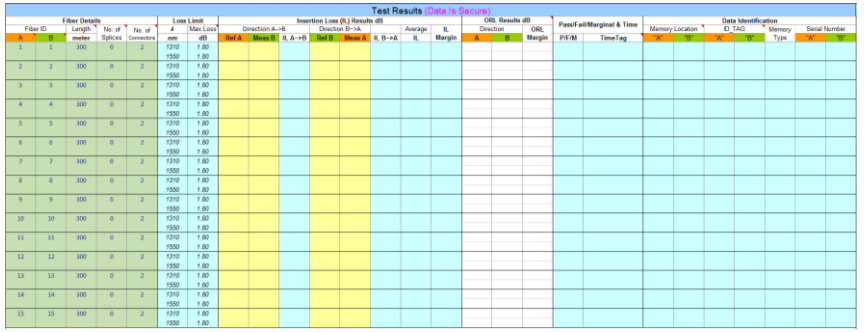
3.9.3. Enabling the "Remote hold interlock" function

❶ Switch from **"Meter Reading"** to **"Live Data"** worksheet. KITS™ will detect that the connected LTS is operating in 2-way AutoTest mode, and displays the dialog box below,



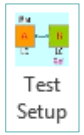
Click *[OK]* to continue.

❷ Note that the worksheet will be automatically setup as 2-way test configuration with 4 columns of yellow cells, 2 for data of each test direction, as shown below,

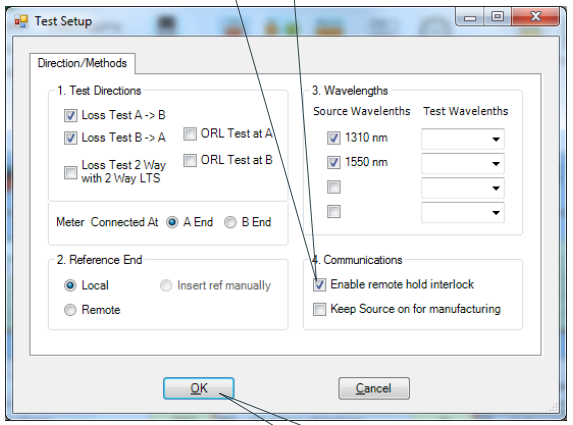


Note that at this stage, the LTS operating in AutoTest mode should have been automatically connected to KITS™, as indicated by the command button below,

❸ Click *[Test Setup]* to display the **Test Setup** box below,



I. Check *"Enable remote hold interlock"* option.



II. Click *[OK]* to continue.

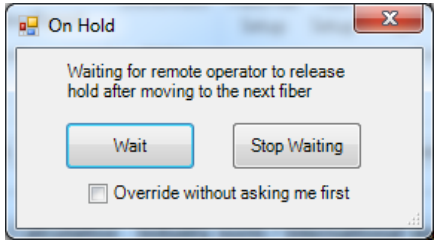
3.9.4. Data entry in Live "Data worksheet" with enabled "Remote hold interlock" function

Step	ACTIONS	EVENTS		
		KITS™	"Near End Unit"	"Far End Unit"
❶	Click on a yellow cell on the row for Fiber ID, "1" to start auto-enter data on worksheet.	Data entry for Fiber ID, "1" on worksheet completes after a KITS™ wait time.	• Beeps once. • Display is "freeze" (LTS in Hold mode)	• Beeps twice. • Display is "freeze" (LTS in Hold mode) *Application in the field:* *Near end operator makes use of this to signal far end operator that test data for the current fiber has been recorded by KITS™, time to move on to the next fiber .*
❷	Briefly press *[Hold]* on "Far End Unit"	If a yellow cell on a Fiber ID row is clicked on before *[Hold]* on "Far End Unit" is pressed, see the subsequent events in Note 2 on the page that follows.	• Beeps once • Display is "unfreeze" (LTS in real time mode) *Application in the field:* *Far end operator makes use of this to signal near end operator that a new fiber has been connected, test data entry on KITS™ for that fiber can now commence.*	• Beeps once • Display is "unfreeze" (LTS in real time mode)
❸	Click on a yellow on the row for the subsequent Fiber IDs, to start auto-enter data on worksheet.	Each time when data entry for a Fiber ID completes, the events in ❶ & ❷ above repeats, until the "Remote hold interlock" function is disabled. See section 3.9.5 on instructions to disable this function.		

3.9.4. Data entry in Live "Data worksheet" with enabled "Remote hold interlock" function...continue

Note 2:

The dialog box below will be displayed,



- If *[Wait]* is clicked: Both the LTS will remain in "freeze" (Hold) mode, and no data will be entered on the worksheet row which was clicked on until *[Hold]* on "Far End Unit" is pressed, after which the events that begin with step ❷ resumes.

- If *[Stop Waiting]* is clicked: The displays of both the LTS will "unfreeze" (reverted to real time mode), and data will be entered on the worksheet row which was clicked on. The events in steps, ❶ ~ ❸ then repeats.

  Note that, doing this in real field application may result in the worksheet being entered with test data of an unintended or wrong fiber.

- If option, **"Override without asking me first"** is checked, followed by a click on *[Stop Waiting]* : The displays of both the LTS will "unfreeze" (reverted to real time mode), and data will be entered on the worksheet row which was clicked on. The "Remote hold interlock" function will then be disabled.

  Note that, doing this real field application may result in the worksheet being entered with test data of an unintended or wrong fiber.

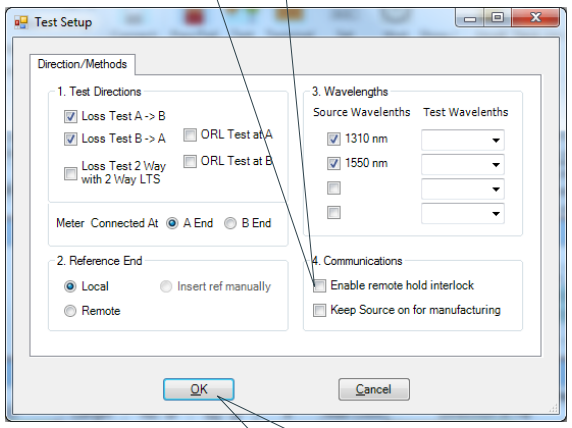
3.9.5. Disabling “Remote hold interlock” function

The function can be disabled in 2 ways,

Way-1:

Click *[Test Setup]* to display the **Test Setup** box below,

I. Uncheck *“Enable remote hold interlock”* option.



II. Click *[OK]* to continue.

OR

Way-2 :

Select , **“Override without asking me first”,** followed by a click on *[Stop Waiting]* as per instructions in Note 2 (last bullet point) of section 3.9.4.

Thank you for your attention

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