# Analysis and Reporting Module

## Trending of check-to-conformance (CTC) module data

*By Simon Innes • SKF*

With SKF's Analysis and Reporting Module, version 1.5, it is now possible to trend the results data taken from check-to-conformance (CTC) module results files (.ccr). You cannot trend data taken from the spectral results files, only the band result values, as shown in the check-to-conformance results table **(Table 1)**.

Check-to-conformance trends are built up on the fly by the application by nesting existing results files (.pds format) into custom directories. This removes the need for the user to manage files manually using Windows Explorer. The trend is given a name which is used for the trend directory; all check-to-conformance trend directories are stored within a "CTC Trend" folder within the application's normal documents path.

Any check-to-conformance results sets can be grouped together for trending – the only restriction is that they must all utilize a common check-to-conformance set up (number and type of bands).

To start check-to-conformance trending, open a check-to-conformance results file (either from a download, the CCR file or a previously stored .pds file). This will allow a menu item under the File menu called **Add to CTC trend** (Figure 1).

| PUHLMDA6T1 | | | |
|---|---|---|---|
| Position | Direction | um rms | mm/s rms |
| 1 | H | 9.300 | 1.640 |
| | V | 17.940 | 2.860 |
| | A | 18.380 | 2.920 |
| 2 | H | 3.060 | 0.901 |
| | V | 7.560 | 1.350 |
| | A | 27.310 | 4.270 |
| 3 | H | 9.030 | 2.290 |
| | V | 3.230 | 1.210 |
| | A | 5.470 | 1.080 |
| 4 | H | 4.760 | 1.610 |
| | V | 5.100 | 1.300 |
| | A | 7.730 | 1.790 |
| 5 | H | | |
| | V | | |
| | A | | |
| 6 | H | | |
| | V | | |
| | A | | |

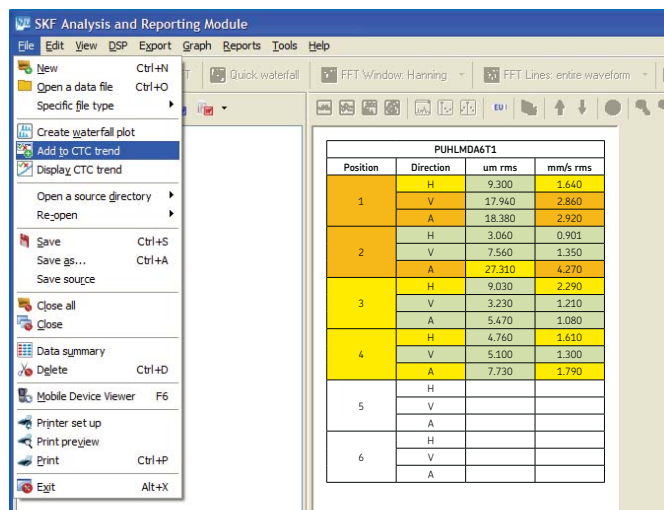*Table 1. Check-to-conformance results table.*



*Figure 1. File menu – Add to CTC trend.*

This will open up a **Save to CTC trend directory** dialog which allows you to select a new or existing destination for this data:
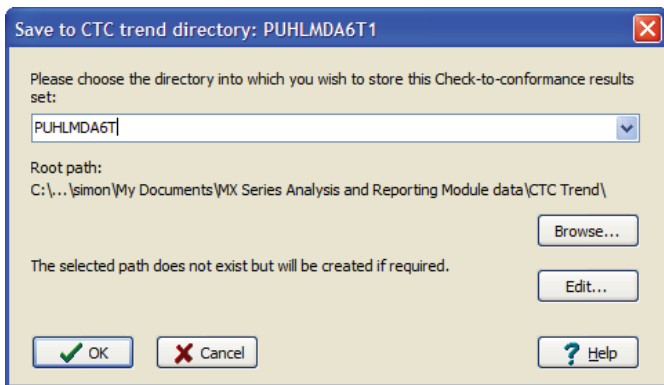


*Figure 2. Save to CTC trend directory.*

The drop-down list box at the top of the dialog contains the names of all directories discovered within the "CTC Trend" folder, whether they contain anything or not. In addition, the name of the current result set is added as a default. You do not need to use this name and can change it to anything you like – it will usually be the tag name of the equipment that is being monitored.

Below this control is an indication of the current location of the "CTC Trend" folder and a **Browse** button that allows you to temporarily change this folder.

The permanent location of this folder is a part of the application set up and can be changed at any time using the **Program options** dialog found under the **Tools** menu.

Below the path controls is a text label showing the current status of the selected trend directory and an **Edit** button which allows you to edit trends.

To save the current result set into a new or existing trend, click on **OK**.

If this is a new trend and it only contains one set result, no CTC trend will be displayed. Instead, a confirmation message will let you know in which folder the trend was set up to. If you set up a CTC trend and save it into an existing trend, the trend will be displayed.

- *Note that what actually happens when you add a result set to a trend is that the .pds results file is moved from its current location into the relevant directory within the "CTC Trend" folder. Later on, when we edit a trend, you will see how removing a result set from a trend results in the file being put back into the data directory.*
- *Note also that moving the file has no effect on any source data files associated with this result set, like the .ccr and .csv files unloaded from the analyzer.*

If the trend has sufficient data for display, it will appear as a new data structure containing a series of trend plots:
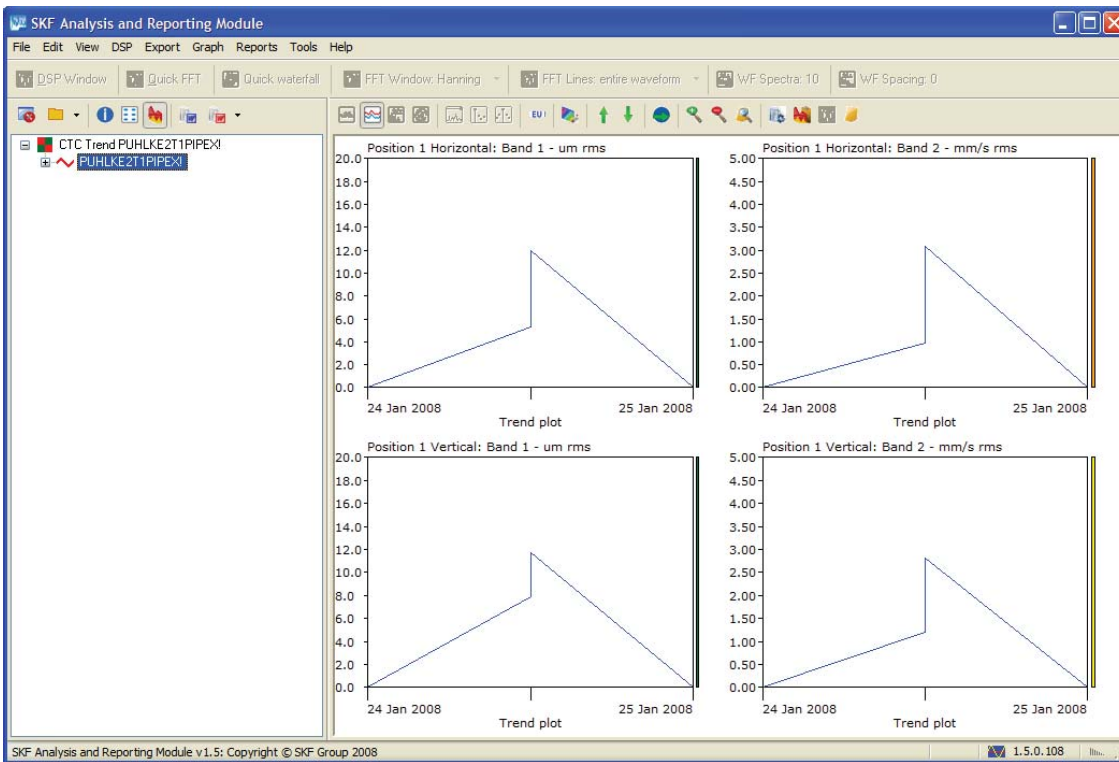


*Figure 3. Series of trend plots.*

• *Note that for clarity only the first four trend plots are shown here.*

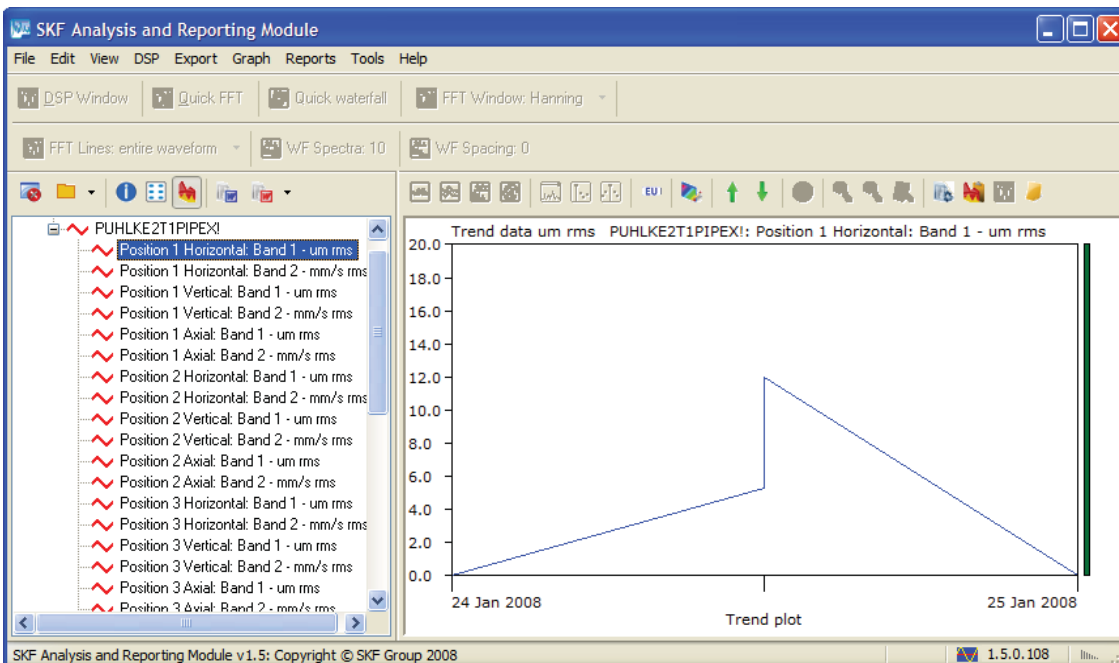You can expand the record to display individual trend plots:



*Figure 4. Expanded individual trend plots.*

To the right of each plot is a colour bar – this corresponds to the band result colour code for the last reading in the trend.

Once created, a trend is named after the directory used to store it, with a prefix to distinguish it from the original results files. In the example above, PUHLMDAT6 would be named "CTC Trend PUHLMDAT6." This name is used to store this trend set (in the normal data directory). If the trend is later recreated or updated, this original file is overwritten, ensuring that your data directory does not fill up with redundant trend files.

The trend .pds file is completely independent of its source files and can be sent to others for viewing without having to include any source files.

- *Note that the "root notes" of the trend data structure list the results files that were used to create it. This is a handy way to keep a track of how it was generated:*
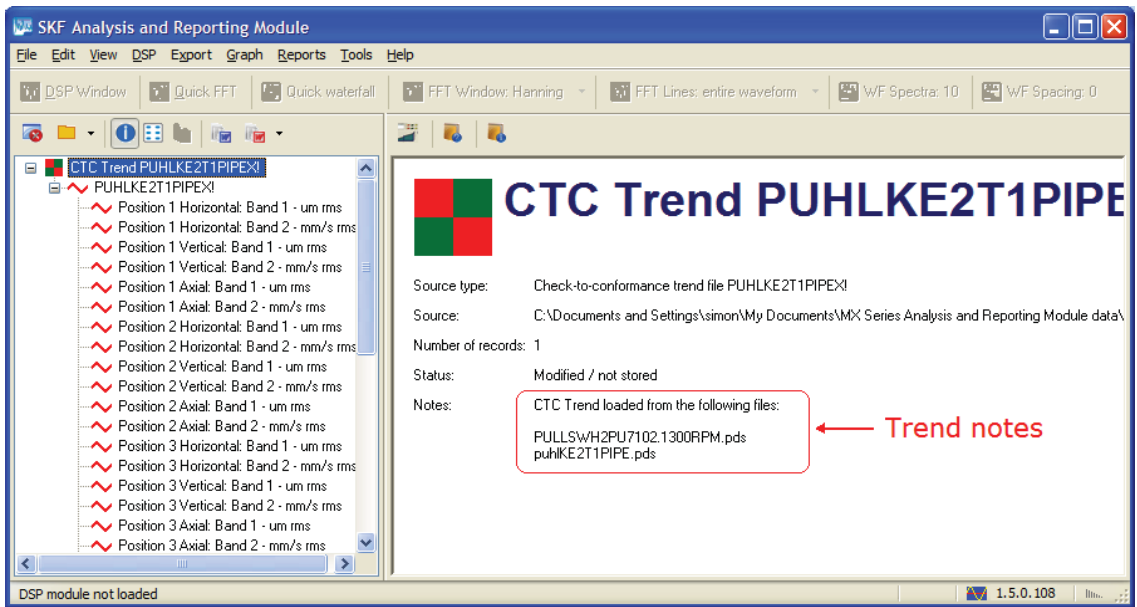


*Figure 5. Root notes.*

To view or edit any previously created trends, choose **Display CTC trend** from the **File** menu. This will open up a **Choose trend set** dialog showing all of the current trend sets[1] **(Figure 6)**.

As with the previous dialog, this window allows you to view and edit any existing trends as well as change the parent trend directory.

To edit a trend, select it and click on the **Edit** button; this will open up an **Edit trend** dialog[1] **(Figure 7)**.
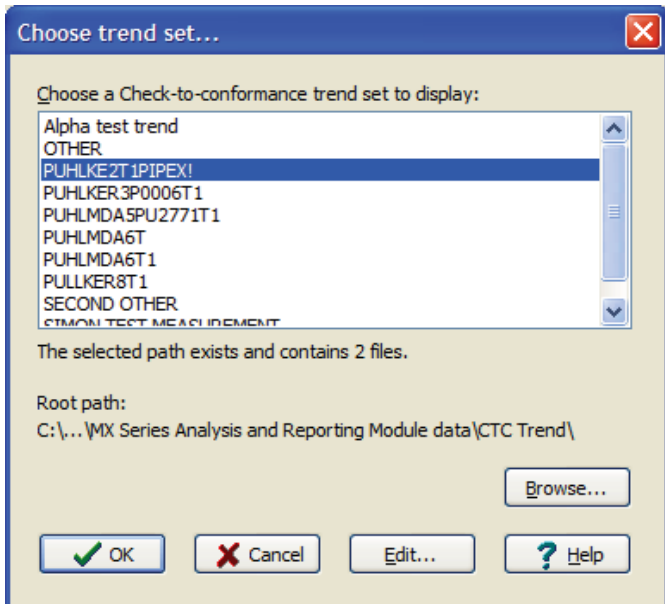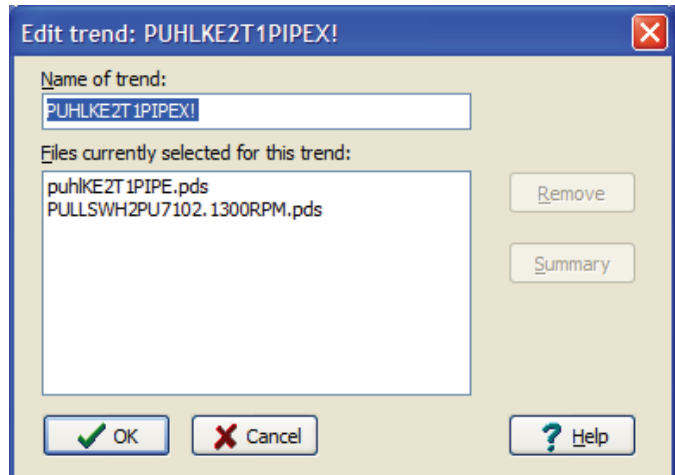


*Figure 7. Edit a CTC trend.*



*Figure 6. Choosing CTC trend set.*

[1]   *Microsoft Word screen shots reprinted with permission from Microsoft Corporation.*

SKF

Editing is limited to changing the name (which will change the name of the directory storing the files) and removing individual results sets from the trend.

In order to help you decide which results sets to remove, you can click on the **Summary** button to see a text listing of the results set:
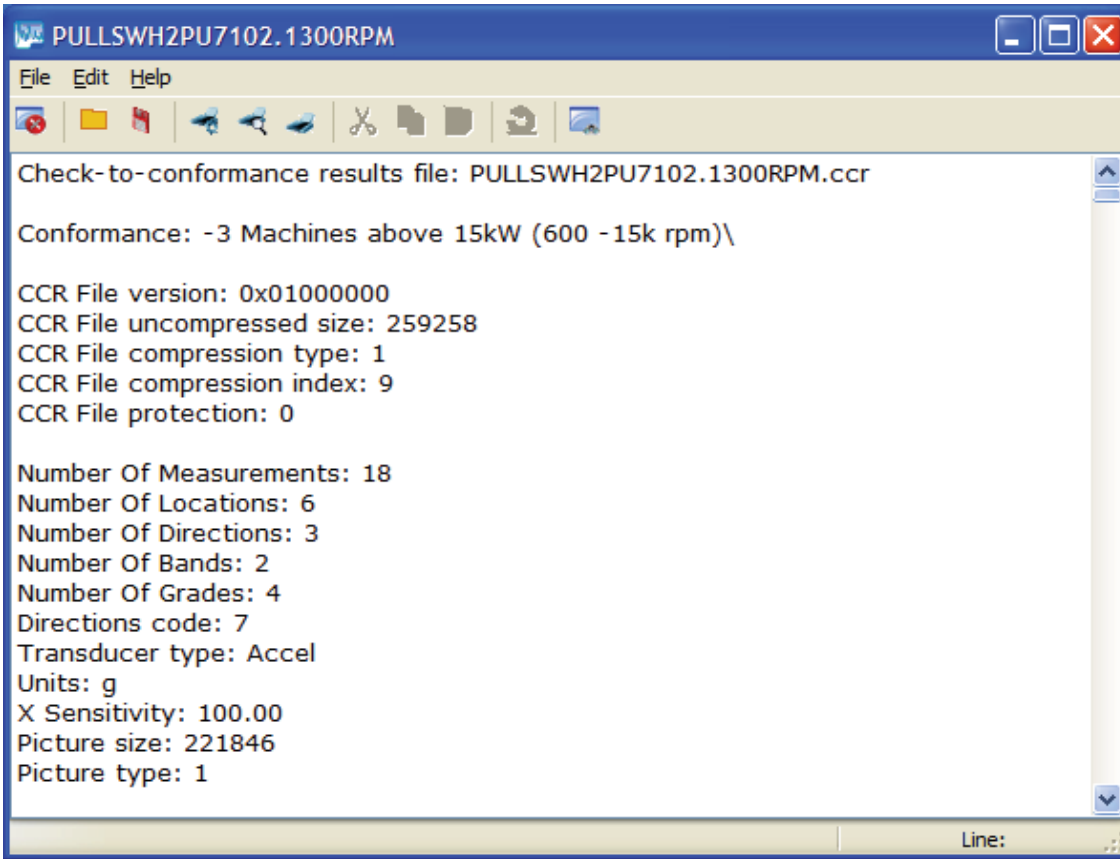


*Figure 8. Summary – text listing of the results set.*

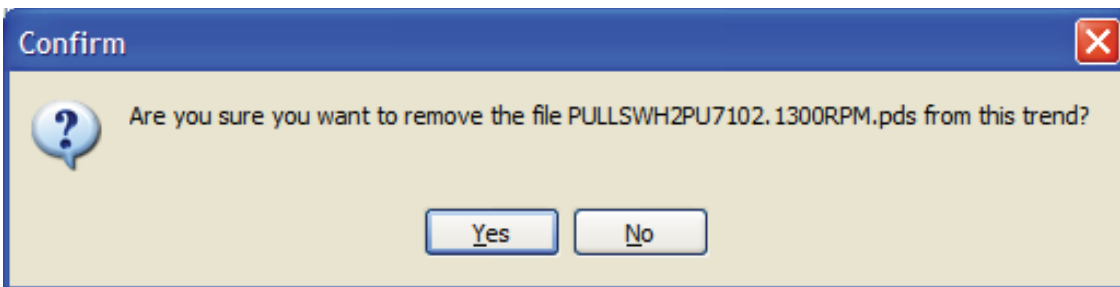To remove a results set from the trend, select it and click **Remove**. A prompt will ask you to confirm this:



*Figure 9. Confirm – remove results set.*

Is your reply **Yes**, the file will be moved back to the main data directory and therefore removed from the trend.

• *Note that if there is already a file with the same name in the main data directory, you will be asked whether to delete the file from the trend directory rather than overwrite the existing one. It will in most cases be sent to the Windows recycle bin.*

When you select a trend set and exit from the *Choose trend set* dialog using the *OK* button, the trend will be recalculated and displayed in the main window.

There is one further way to update a trend which is useful if you have manually changed the contents of a trend directory: when a trend is open, a new option under the *Edit* menu will be enabled called *Update CTC trend*:
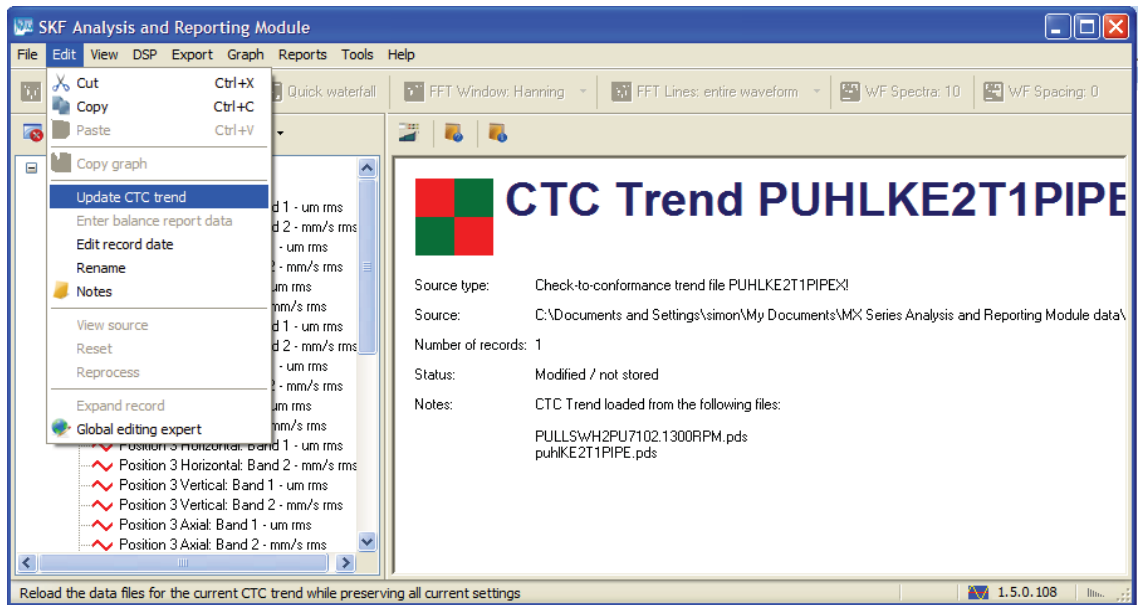


*Figure 10. Edit menu – Update CTC trend.*

Choosing this option will make the software reload the results sets from the trend directory but without losing any of the settings, cursor positions and notes in your existing trend. Once completed, a message will be displayed informing you of the latest data now in the trend:
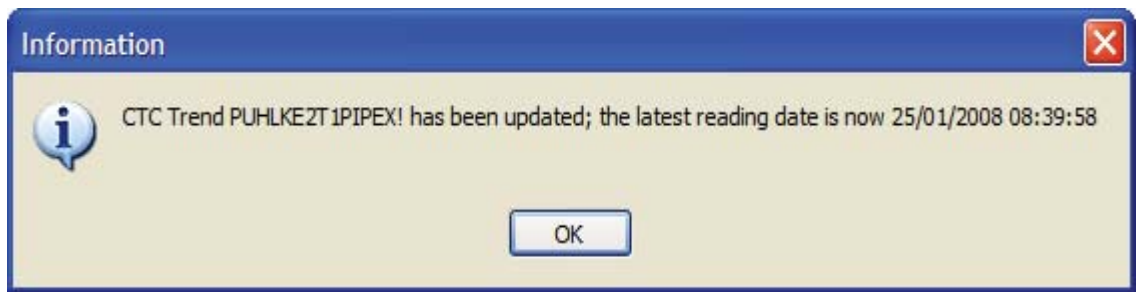


*Figure 11. Information window informing user of the latest data.*

Any trend plot currently displayed will be updated automatically.

Please contact:

**SKF USA Inc.**
**Condition Monitoring Center – San Diego**
5271 Viewridge Court • San Diego, California 92123  USA
Tel: +1 858-496-3400 • Fax: +1 858-496-3531

**Web: www.skf.com/cm**