Why do I need a software for EMC pre-compliance testing???

Reason #1: when you do an EMC pre-compliance test, you typically use a spectrum analyzer and a device ,which picks up the unwanted signals produced by your DUT. This device may be a LISN, a RF current monitoring probe, a TEM cell, an antenna, etc.

All these devices have a frequency response. As an example, let´s look at a 5µH LISN:

Assuming your spectrum analyzers measures a spurious at 70 MHz with an amplitude of 43 dBµV. In order to get the real value, you have to look up the graph or corrrection plot of the LISN and apply the correction value to your measurement result.

Frequency [MHz]	Insertion loss CISPR-25 and ISO1145-2/4/5 (1µF across source terminals) [dB]
0.03	-3.9
0.05	-1.8
0.1	-0.6
0.5	-0.1
1	-0.1
10	-0.15
20	-0.25
30	-0.42
40	-0.61
50	-0.84
60	-1.07
70	-1.3
80	-1.56
90	-1.86
100	-2.15
110	-2.33
120	-2.55
130	-2.73
140	-2.91
150	-3.1
160	-3.3
170	-3.5
180	-3.71
190	-3.9
200	-4.05

In our example we have to add 1.3 dB, means the corrected value of the Spurious is 43 dBµV + 1.3 dB = 44.3 dBµV.

EMCview is freeing you of this task.

The displayed result is already corrected. EMCview already comes with ready correction files, covering all Tekbox products. Correction files of other products can be easily created with a built in editor or by creating a simple text file.

Reason #2: CISPR specifications

CISPR 16 specifies the measurement setup and settings for conducted or radiated emission tests. Following requirements are especially relevant for spectrum analyzers or measurement receivers:

Detector type	Average, Peak and Quasi-peak	Quasi-peak detector is only available on analyzers with EMI option
Filter response	CISPR filter response	CISPR filter is only available on analyzers with EMI option
Filter bandwidth	200 Hz, 9 kHz, 120 kHz, 1 MHz	these bandwidths are only available on analyzers with EMI option
Spacing of adjacent frequency points		maximum spacing is half the configured filter bandwidth
Sweep speed		frequency range and detector dependent

Without going into too much details, let´s look into frequency spacing. Spectrum analyzers are not doing a continuous sweep. In reality they hop from frequency point to frequency point. The number of frequency points is by default equal to the horizontal resolution of the analyzer display. A typical value is in the range 600 ... 800 pixels in X-direction (frequency axis). Means – per sweep, the analyzer measures 600 ... 800 discrete frequency points.

As an example lets look at the CISPR requirement for the band 150 kHz – 30 MHz: CISPR filter, 9 kHz RBW

-> the **maximum sweep** for a 601 pixel analyzer = 600 * 4.5 kHz = **2.7 MHz**

Thus, a 150kHz – 30 MHz conducted or radiated noise measurement must be split into segments of 2.7 MHz span. **Doing this manually would be highly inefficient. EMCview makes repeated sweeps to step through the entire frequency range and then connects the segments to a complete graph.**

What do YOU need to do to carry out an EMC pre compliance measurement?

Determine the relevant CISPR standard for your product
Determine the necessary test
Look up in our application notes and set up the equipment accordingly
Start EMCview and select from a large list of pre-defined projects/standards, press the measure button

What does EMCview do for you?

Applies CISPR compliant measurement parameters (RBW, segment size, sweep time …)

Applies the appropriate limit lines

Carries out segmented sweeps

Connects the results of the sweep segments to a complete graph

Compensates the measurement results against the frequency responses of all involved components

Marks peaks

Creates reports

And many more….