

## Handscope HS6 DIFF-1000XMESG, the EMI pre compliance tester.

Sneek, The Netherlands, October 26, 2017

The powerful capabilities of the Handscope HS6 DIFF-1000XMESG EMI analyzer give the user the possibility to quickly perform a good EMI compliance test. With this cost effective test, time and money are saved by avoiding extra visits to expensive EMC testing facilities. The supplied TP-EMI-HS6 probe set contains three magnetic field (H field) probes and one electric field (E field) probe. The tripod ensures that the probes can be positioned properly at the object under test.



Figure 1: *Handscope HS6 DIFF EMI setup.*

The EMI analyzer of the Handscope HS6 DIFF-1000XMESG has a multi window option. In each window, the total spectrum or a selected part of the spectrum is simultaneously shown. A standard RF spectrum analyzer has the disadvantage of having only one display, where simultaneously zooming in at several different parts of the signal is not possible. With the multi display option of the Handscope HS6 DIFF-1000XMESG EMI analyzer viewing multiple parts of the spectrum at the same time is easy. This gives the user a better understanding of the signals that are analyzed. Besides the spectrum, also a time domain signal is visible, allowing to analyze the signal shape at the same time. The multi display option is also available for the time domain signal.



Figure 2: Above: a total spectrum from 0 Hz to 500 MHz and 3 displays with magnified parts of the live spectrum. Below: the total time domain signal and a magnified part of the time domain signal, live with the spectrum.

The Handscope HS6 DIFF-1000XMESSG EMI analyzer has a very low resolution bandwidth of up to 7.45 Hz (at a span of 500 MHz), which is unique in its class. As a result, details in each part of the spectrum can be analyzed thoroughly.

To clarify: a resolution bandwidth of 7.45 Hz at a span of 500 MHz gives a total of 67,108,864 spectral components. When your display is 1920 pixels wide, you require 34,952 displays to show the full spectrum 1:1. 34,952 displays with a width of 50 cm (23" diagonal) each, gives a total display width of 17.47 km (10.85 mile)! So, if you zoom in 35,000 times, you will get the spectral components 1:1 on your display. That is exceptional for an EMI analyzer and it makes each frequency component very well visible.

The large dynamic range of 140 dB allows the measurement of a wide variety of interference frequencies. Standard limit lines according to EN61326-1:2006 / EN55011:2007 can be switched on or off. The resolution bandwidth and frequency range can be selected individually.

There are three operating modes: Normal, Average and Max Hold. Normal mode displays the spectrum of the source trace. Averaging mode is effective in reducing the noise of the signal, to see more of the harmonic or carrier detail. You can select the number of spectra to be averaged. Max Hold displays the maximum level that the signal reaches and is useful for frequency measurements where it shows the history of peak values across the frequency axis. Averaging and Max Hold history can be cleared manually to start a new measurement.

With the extensive marker capabilities, the spectrum can be measured.

The amplitude unit can be set to dB, dBv, dBmV, dBμV, dBμV (at 10m) and dBm. The amplitude range can be set to one of three ranges: 1 to 100 dBμV, 20 to 120 dBμV or 40 to 140 dBμV. For accurate amplitude measurement, a flat top window is used by default. Besides the flat top window, eight other windows can be selected from.

The EMI analyzer can also be used as normal spectrum analyzer. With a biconical antenna or combilog antenna a spectrum of 10 MHz to 500 MHz can be measured.

Figure 3 shows a spectrum measured with a Combilog antenna which was placed outside. Next to the full spectrum from 0 Hz to 500 MHz, there is also a view with the FM band of 87.5 MHz to 108 MHz, an FM radio station at 92.2 MHz and even an AM radio station at 1600 kHz. The time domain signal is also shown, as well as a zoomed in part of the time domain signal. All windows are real time and correlations between different frequencies and the time domain signal can be conveniently viewed. The multi window feature of the EMI analyzer offers the user unlimited analysis and display capabilities.

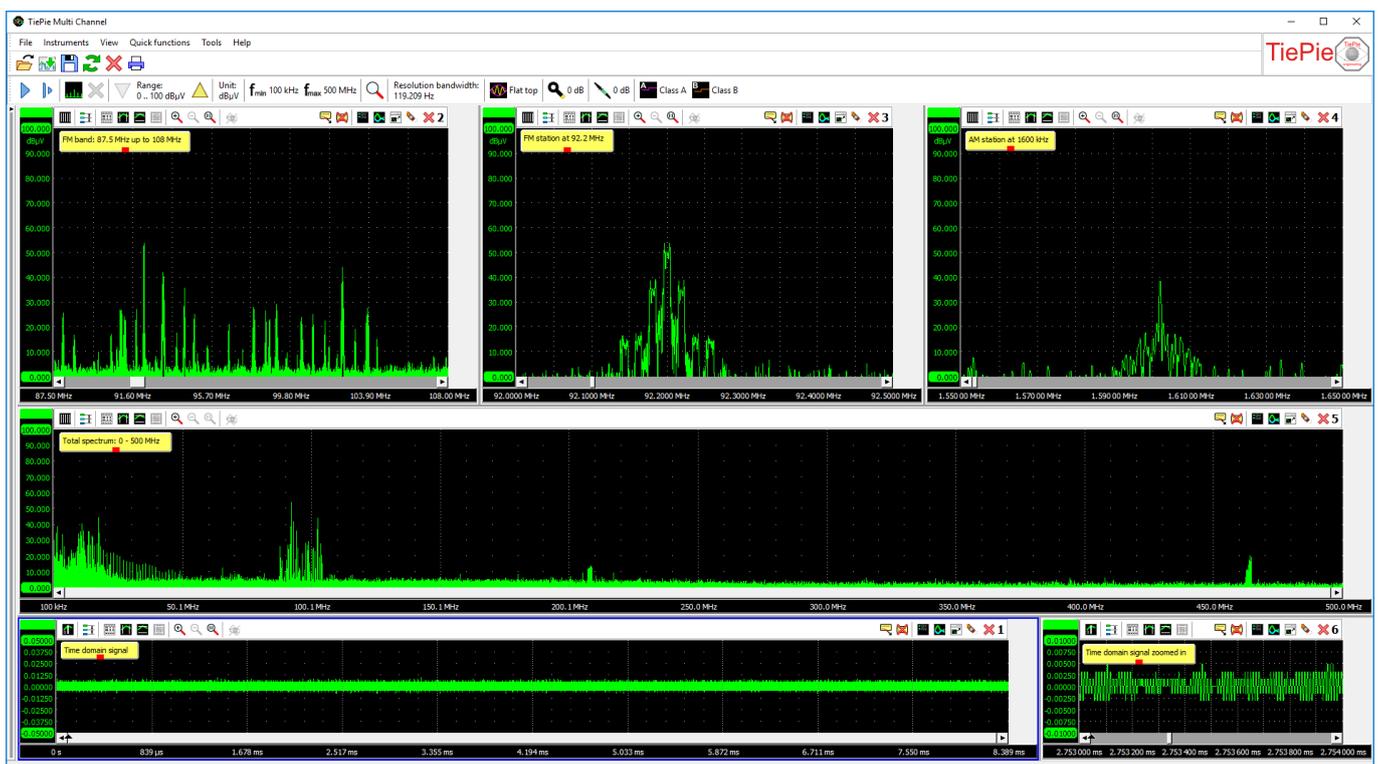


Figure 3: Using the Quick Setup button, the EMI analyzer can be controlled fast and easy.

The Handyscope HS6 DIFF-1000XMESSG EMI analyzer consists of a Handyscope HS6 DIFF-1000 with **option E** installed. Option E also requires options **XM** (extended memory) and **G** (**SafeGround**) to be installed. With option E installed, the Handyscope HS6 DIFF has an extra ground connection next to the Channel 1 input. Option E also includes the EMI probe set TP-EMI-HS6.

The EMI probe set TP-EMI-HS6 is a complete set of probes, conveniently packed in a carry case.

The set contains three differently sized H field probes and an E field probe.

To connect the probes to the scope, a short semi flexible antenna cable and a long flexible antenna cable are included. For proper grounding and termination, a grounded 50 Ohm terminator is also included.

The tripod allows exact positioning of the probe near the test subject.

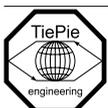
Information on the Handyscope HS6 DIFF-1000XMESSG EMI analyzer can be found at <http://www.tiepie.com/HS6D/Features/EMI>



The Handyscope HS6 DIFF-1000XMESSG EMI analyzer is the ideal instrument to perform your EMC / EMI pre compliance tests.

## About TiePie engineering

Founded in 1987, the Dutch company TiePie engineering has become a recognized manufacturer of high quality computer controlled test and measurement equipment, such as USB oscilloscopes, arbitrary waveform generators, function generators, spectrum analyzers, protocol analyzers, data loggers and multimeters. TiePie's compact oscilloscopes, function generators and other data acquisition products are being used worldwide in many markets, including industrial process automation, automotive test and measurement, service departments, medical applications, research centers and educational institutes.



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