

## EMI Test Receivers R&amp;S ESIB

# Limit lines and transducer factors ready for download

## The EMI Test Receivers R&S ESIB [\*]

support generation and storage of virtually any number of limit lines and transducer factors with the aid of an easy-to-use table editor. However, it takes a certain amount of time to edit a large number of tables. For this reason, as a special service the limit lines of the most important EMC standards and the transducer factors of the most common transducers in an R&S ESIB-specific file format can be downloaded from the Rohde & Schwarz website.

## Test Receivers R&S ESIB offering high convenience

In EMI measurements, limit lines define values for the spectral characteristic of interference parameters such as voltages, field strengths, currents and powers that must not be exceeded. After a limit line stored in the test receiver has been activated, it is displayed on the screen. The characteristic of the measured values can then be checked either visually or automatically by means of a receiver-internal evaluation routine, to determine whether the limit line (or an adjustable margin to it) has been exceeded, with the line permanently assigned to one of the four traces of the test receiver. In this way, different limit lines can be assigned to the different detectors in the R&S ESIB.

To detect radiated or conducted RF disturbance, a transducer is connected ahead of the test receiver. The transducer converts the disturbance to be measured to a voltage into  $50 \Omega$  (receiver input impedance). Most transducers have a frequency-dependent transducer factor. If a typical transducer factor has been stored and activated in the R&S ESIB, the test receiver automatically takes it into account and presents the measured values with correct quantity and unit.

These user-definable limit-value and transducer-factor tables are stored on the internal hard disk of the R&S ESIB; their number is therefore virtually unlimited. As many as 50 values per table are possible.

## Which files are ready for downloading?

To reduce the amount of time required to generate the different tables, Rohde & Schwarz provides on its website the limit values of the most important civil and military standards for EMI measurements and the typical transducer factors for common transducers such as antennas, absorbing clamps, probes and coupling networks.

The zip file "lim\_tdf.zip" can be downloaded from the Rohde & Schwarz website (just enter the name of the file as the search term). After unpacking this file, the appropriate files in R&S ESIB-specific format can be directly loaded into the instrument.

The file "limitall.lia" provides the limit lines for numerous standards; the two other files, "tdf\_all.tfa" and "tdf\_all.tsa", contain the typical transducer factors of different transducers (FIGs 1 and 2).

The tables can be easily stored in the R&S ESIB at the press of a button via the RECALL function and the built-in disk drive (path a:\...). After calling the appropriate function <LIMITS> or <SETUP>+<TRANSDUCER>, the tables are available (FIG 3).

More information and data sheet at [www.rohde-schwarz.com](http://www.rohde-schwarz.com) (search term: ESI or ESIB)

[\*] For references, see page 45.

Transducer	Type designation
Log-Periodic Broadband Antennas	R&S HL023A1, R&S HL025, R&S HL040, R&S HL223
ULTRALOG	R&S HL562
Biconical Antenna	R&S HK116
Rod Antennas	R&S HFH2-Z1, R&S HFH2-Z6
Loop Antenna	R&S HFH2-Z2
Horn Antennas	EMCO 3115, R&S HF906
BiLog Broadband Antennas	CBL6111, CBL6112
Conical Log Spiral Antenna	R&S HUF-Z4
Broadband Dipole	R&S HUF-Z1
Precision Halfwave Dipole Sets	R&S HZ-12, R&S HZ-13
Current Probes	R&S ESH2-Z1, R&S ESV-Z1, R&S EZ-17
Probes	R&S ESH2-Z2, R&S ESH2-Z3
Coupling Networks (CISPR22)	R&S ENY22, R&S ENY41
Absorbing Clamp	R&S MDS21
Calibrated Magnetic Field Pickup Coil	R&S HZ-10

FIG 1 Transducer factor tables are available for these transducers.

Civil standards	Disturbance
EN55011 (class B/groups 1 and 2)	RFI voltage QP/AV
EN55011 (class B/group 1)	RFI field strength QP
EN55013 (AC supply connection)	RFI voltage QP/AV
EN55013 (AC supply connection)	RFI power QP/AV
EN55014	RFI voltage QP/AV
EN55014	RFI power QP/AV
EN55015	RFI voltage QP/AV
EN55022	RFI voltage QP/AV
EN55022	RFI field strength QP
FCC 15 class A	RFI voltage QP/AV
FCC 15 class A	RFI field strength QP
FCC 15 class B	RFI voltage QP/AV
FCC 15 class B	RFI field strength QP
Military standards	
MIL-STD-461 E CE 101-1 to -4	RFI voltage Pk
MIL-STD-461 E CE 102-1	RFI voltage Pk
MIL-STD-461 E RE 101-1 to -2	RFI field strength Pk
MIL-STD-461 E RE 102-1 to -4	RFI field strength Pk

FIG 2 Civil and military standards for which limit lines are available (QP: quasi-peak; AV: average; Pk: peak).

FIG 3 Top: overview (first page) of typical transducer factors loaded with the files "tdf\_all.tfa" and "tdf\_all.tsa". Right: overview (first page) of limit lines loaded with the file "limitall.lia".

Saving these files overwrites existing files of the same name; files with other names remain unaffected and are alphabetically sorted into the list.

NAME	COMPATIBLE	LIMIT CHECK	TRACE MARGIN	MARGIN
CE101-1		off	1	0.000 dB
CE101-2A		off	1	0.000 dB
CE101-2B		off	1	0.000 dB
CE101-3A		off	1	0.000 dB
CE101-3B		off	1	0.000 dB
CE101-4A		off	1	0.000 dB
CE101-4B		off	1	0.000 dB
CE102-1		off	1	0.000 dB
EN55011A		off	1	0.000 dB
EN55011F		off	1	0.000 dB
EN55011Q		off	1	0.000 dB
EN55013		off	1	0.000 dB
EN55013A		off	1	0.000 dB
EN55013P		off	1	0.000 dB
EN55013Q		off	1	0.000 dB
EN55014		off	1	0.000 dB
EN55014A		off	1	0.000 dB
EN55014P		off	1	0.000 dB
EN55014Q		off	1	0.000 dB
EN55015A		off	1	0.000 dB