

Declaration of Conformity / Evaluation Method

Item	Modulation Interference Factor (MIF)
Type No	SPEAG Communication Systems
Series No	n/a
Manufacturer / Origin	Schmid & Partner Engineering AG Zeughausstrasse 43 CH-8004 Zürich Switzerland

Summary

The Modulation Interference Factor (MIF) is used to convert the power averaged field measurement for HAC measurements according to [1] to the desired quantity, the RF Interference Potential. The MIF is characteristic for a given waveform envelope and can be used as a constant conversion factor if the probe has been PMR calibrated.

Probe Modulation Response (PMR) calibration linearizes the probe response over its dynamic range for specific modulations which are characterized by their UID and result in an uncertainty specified in its probe calibration certificate. The modulation characteristics of the waveforms used for the calibration are available from [3].

DASY52 uses the indirect method of [1] 5.2 using the MIF evaluation and verification according to [1] D.7. DASY52 field measurements and required settings are described in [2] section 24.8, probe data for PMR are available from the probe configuration files documented in the probe calibration certificate. The MIF data are contained in the file "Communication_Systems_SPEAG.xml" which is provided with the probe configuration file of the probe and shall be used in the DASY52 software.

The evaluation and verification for the MIF including the numerical results is described in [2] chapter 39. Verification of the MIF of emitted waveforms by conducted or radiated measurement is possible with Audio Interference Analyzer [4] with DASY52 according to [2] section 24.9.

Results

The numerically evaluated MIF values were verified successfully by the measurement with different digital evaluation. Deviations are within the expected uncertainty if fundamental modulation frequency and at least 2 harmonics are within the nominal passband of 100 Hz - 10 kHz and if the signal range peak-to-average ratio (PAR) is < 20 dB and within the dynamic range of [4].

0.2 dB for MIF: -7 to +5 dB,

0.5 dB for MIF: -13 to +11 dB

1 dB for MIF: > -20 dB

References

- [1] ANSI-C63.19-2011, "American National Standard for Methods of Measurement of Compatibility between Wireless Communication Devices and Hearing Aids"
- [2] DASY52 manual, December 2012
- [3] Communication Systems specification sheets:
<http://www.speag.com/services/cal-lab/communication-system-support-page/3gpp/>
- [4] Audio Interference Analyzer, SE UMS 170 C

Conformity

Based on the described evaluation and verification, we confirm that the MIF provided with the probe modulation calibration (PMR) fulfills the requirements from the standard [1].

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Responsible Fin Bomholt