Common features

ISO 11452-1 defines a number of features that are common to all the tests.

Frequency step size

The frequency can be stepped either in linear steps according to the following table, or logarithmically (constant percentage frequency increment) according to an agreed test plan and documented in the test report.

Frequency range	10 - 100 KHz	100 kHz - 1 MHz	1 MHz - 10 MHz	10 MHz - 200 MHz	200 MHz - 400 MHz	400 MHz - 1 GHz	1 - 18 GHz
Step size	10 KHz	100 KHz	1 MHz	5 MHz	10MHz	20MHz	40MHz

Dwell time

The dwell time at each frequency is the longer of 1 second, or the minimum time needed to "control" the DUT.

Temperature

The ambient temperature must be maintained between 18 and 28 C°

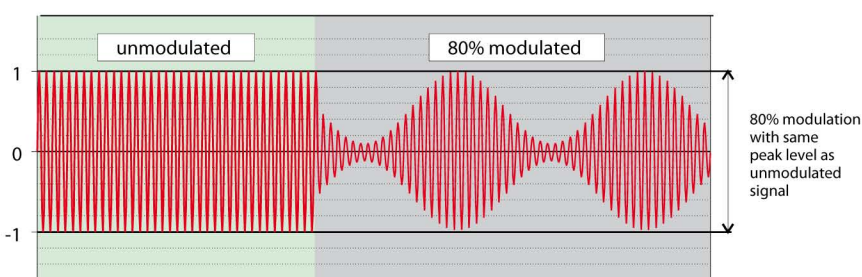
Supply voltage

The supply voltage to the EUT during the tests is to be in the range 13 — 14 V for 12 V systems and 26 — 28 V for 24 V systems.

Modulation

The automotive test standards require the modulated signal to exhibit the same peak test level as the unmodulated signal, as shown in the diagram. This is different from IEC 61000-4 standards where modulation increases the peak level of the signal.

Field strength readings should only be made on the unmodulated signal because of the inaccurate response of the field strength meter



Modulation is applied after the required test level is set on an unmodulated signal, by backing off the applied level by an appropriate figure and then switching to the required modulation signal and depth. The relationship between the initial CW level P_{CW} and the required level as modulation is applied $P_{CW\text{-}M}$, i.e. the backing-off factor, is given by

$$P_{CW\text{-}M} = P_{CW} \text{ Æ } \{1/(1+m)\}^2 \text{ where m is the modulation index}$$

The table below gives the required backing-off factor B versus modulation index.

m	1.0	0.9	0.8	0.7	0.6	0.5	0.25	0
B (dB)	6.02	5.57	5.1	4.6	4.08	3.52	1.94	0