Intermodulation Distortion

CCIF style math

when close together fundamentals

CCIF2 uses a single value

CCIF2 IMD =

$$\frac{V_{fH-fL}}{V_{fH}+V_{fL}}$$

CCIF3 uses a different single value

CCIF3 IMD =

$$\frac{\sqrt{V_{fH-fL}^2+\left(V_{2fL-fH}+V_{2fH-fL}\right)^2}}{V_{fH}+V_{fL}}$$

SMPTE/DIN IMD (or MOD IMD)

When the fundamentals are far apart use SMPTE/DIN math

MOD IMD =

$$\frac{\sqrt{\left(V_{fH-fL}+V_{fH+fL}\right)^2+\left(V_{fH-2fL}+V_{fH+2fL}\right)^2}}{V_{fH}}$$

Other IMD

Finally, the other IMD methods using RMS addition when 2<f2/f1<7

Other IMD = 2nd and 3rd order rms added

$$\frac{\sqrt{V_{fH-fL}^2+V_{fH+fL}^2++V_{fL-2fH}^2+V_{fL+2fH}^2+V_{fH-2fL}^2+V_{fH+2fL}^2}}{\sqrt{V_{fH}^2+V_{fL}^2}}$$