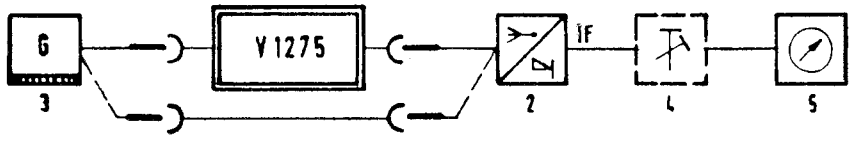
Reduce the attenuation setting of the attenuator line II until the meter (5) reads the reference level. The required reduction of the attenuation setting of the attenuator line II to fulfil this condition corresponds to the combination frequency rejection factor, expressed in dB. The value should be −80 dB ≙ IPIP 2 = 80 dBm.

Measuring process for IM 3:
Same as for IM 2. Tune receiver to 4 MHz (giving combination frequency $2f_1 - f_2$ = 4 MHz). IM 3 distance should be −68 dB ≙ IPIP 3 = 34 dBm.

4.4.4.3 Measuring the Sensitivity

Measuring set-up:



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On account of the low gain factor of about 1 dB, the sensitivity of the Antenna Multicoupler V 1275 can not be measured directly in kT_0. Instead, it must be determined by a method which takes the noise figure of the receiver (which should be better than 10 kT_0) into account too.

Important: The rejection factor for the own combination frequencies must be greater than 90 dB for the receiver which is used here (check this using the intermodulation measuring set-up, but without the Antenna Multicoupler V 1275).

After adjusting the signal level of the signal generator I, the signal/noise ratio should be greater than 20 dB and, when the attenuation factor setting of the attenuator line II is changed over the range from 1 dB to 10 dB, the reading of the IF signal level meter (5) should follow in the same steps (linearity test).

The noise figure of the antenna multicoupler is given by the relationship:

$$F_V = F_{V+R} - \frac{F_R}{G^2_V} [kT_0]$$

where:

F_V = Noise figure of the Antenna Multicoupler V 1275, in kT_0

F_{V+R} = Noise figure of the cascaded combination of the Antenna Multicoupler V 1275 **and** the receiver, in kT_0

F_R = Noise figure of the receiver, in kT_0

G_V = Gain of the Antenna Multicoupler V 1275 as voltage ratio, measured according to Section 4.4.4.1

The noise figures F_R and F_V are directly measurable in kT_0.