MOBILE RADIO

DATAFILE SERVICE BULLETIN

FILE UNDER: Servicing

DUPLEX OPERATION

BULLETIN NO: 10007-6

DATE: MAY, 1976

DUPLEX OPERATION CURVES

25–50 MHz MASTR® Progress Line Professional
(Narrow Band)

ABSTRACT

The curves included in this Bulletin present data for planning duplex systems using 25-50 MHz MASTR Progress Line Professional equipment. They are also useful in solving interference problems where MASTR Progress Line base stations, operating on nearby channels share an antenna site. The following equipment is covered:

Receiver Type ER-39-C (narrow band)
Transmitter Type ET-55-A (narrow band)

DATAFILE Bulletin 10007-4 is a guide to the use of these curves. Use Form 10007-5 for making duplex operation calculations.

GENERAL ELECTRIC

DUPLEX OPERATION CURVES
for
25-50 MHz MASTR PROGRESS LINE PROFESSIONAL

The use of these duplex operation curves is described in DATAFILE Bulletin 10007-4, which also includes curves showing the attenuation provided by antenna spacing. Use Form 10007-5 for making duplex operation calculations. Receiver desensitization and transmitter noise are discussed in detail in DATAFILE Bulletin 10002-2.

EXPLANATION OF DUPLEX OPERATION CURVES

The curves in Figure 1 indicate the amount of attenuation (isolation) required between narrow-band Transmitter Type ET-55-A and narrow-band Receiver Type ER-39-C to prevent more than a 1-dB degradation in the receiver's 12-dB SINAD sensitivity. The curves may be considered as typical for these units.

CURVE 1: RECEIVER DESENSITIZATION

Curve 1 indicates the attenuation required between Transmitter ET-55-A (assuming no transmitter noise interference) and Receiver ER-39-C, so that receiver desensitization will not reduce the 12-dB SINAD sensitivity of the receiver more than 1 dB. Add the correction factor from scale "3" if transmitter power output is not 100 Watts. If the receiver's sensitivity is not 0.2 microvolt, add the correction from scale "4".

CURVE 2: TRANSMITTER NOISE

Curve 2 shows the attenuation required, because of transmitter noise, between Transmitter ET-55-A and Receiver ER-39-C so as not to reduce the 12-dB SINAD sensitivity of the receiver more than 1 dB. If the transmitter power output is not 100 Watts, add the correction factor from scale "3". The power-correction curve should not be used for any transmitter (or power amplifier) other than the Type ET-55-A. Add the correction factor from scale "4" if the receiver's sensitivity is not 0.2 microvolt.

NOTE

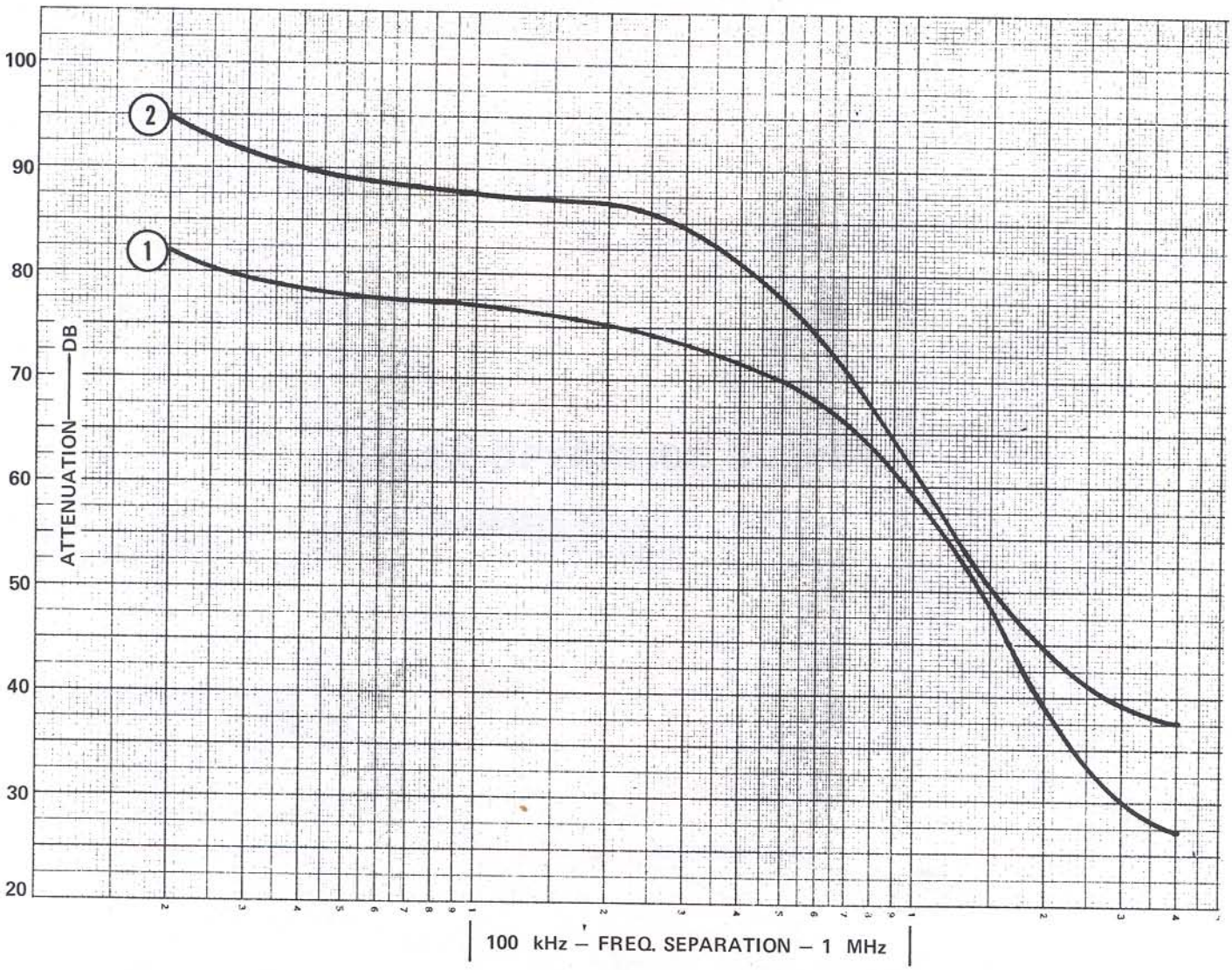
These curves are corrected to prevent greater than 1 dB reduction in a 12-dB SINAD Ratio - Do not apply Step 8 of DATAFILE Bulletin 10007-5.

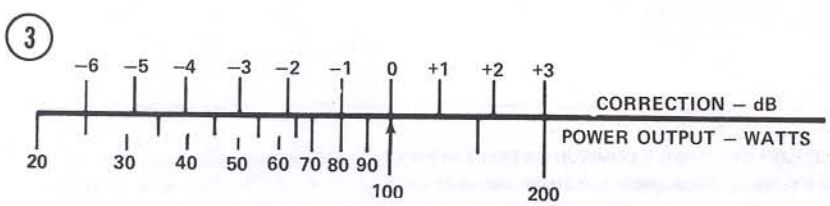
THESE CURVES SHOW THE ATTENUATION REQUIRED TO PREVENT GREATER THAN 1-dB REDUCTION IN A 12 dB SINAD RATIO, DUE TO:

① DESENSITIZATION OF RECEIVER ER-39-C. ADD CORRECTION FROM SCALES ③ AND ④.

② TRANSMITTER NOISE WITH NB MODULATION, FROM 100 WATT TRANSMITTER ET-55-A ONLY. ADD CORRECTION FROM SCALES ③ AND ④.

DUPLEX OPERATION CURVES FOR 25-50 MHz MASTR PROGRESS LINE PROFESSIONAL (40 MHz)





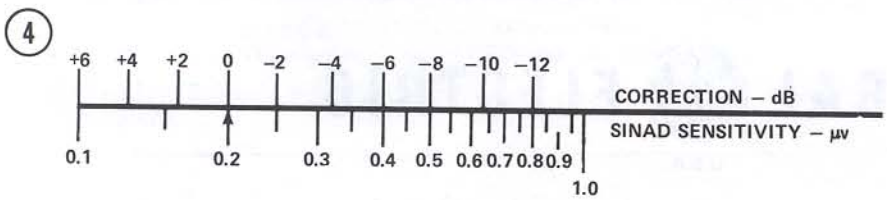


Figure 1