

Theory of Operation

DME unit, DM- 855

Emission type 850KLOD

FCC Identifier: GB8DM855

The DM-855 DME Assembly (Interrogator) is a six-channel scanning unit that tracks four selected distance measuring equipment (DME) channels simultaneously. The Interrogator has two additional preset channels that provide an identification (IDENT) code when selected as active. The Interrogator measures the elapsed time of a pulse transmission to determine distance from a ground station.

The Interrogator transmits in the frequency band of 1025 to 1150 Mhz with an emission type of 850KLOD, with a typical output power of 400 watts. The unit has a capability of 352 X, W, Y, Z, MLS compatible VOR/LOC or MLS paired channels. The unit is capable of operation from Sea Level to 70,000 ft.

The digital range accuracy is .05 nm +/-0.1% of range with an analog accuracy of 0.3nm +/- 1% of range. The unit has a range capability of 0.0 to 300 nm and a range tracking rate from 0.0 to 999 knots, and has a velocity accuracy +/-1% or +/- 1.0 knot. The unit has a velocity acquisition time within 10% in 10 seconds and a velocity output range from 0.0 to 999 knots with a time to station capability of 0 to 999 minutes.

The DME transmitter is comprised of a low level stage, followed by a stage utilizing class A to a stage using a class AB biased amplifier. It then goes to a class C common base transistor stage where the output is 5 1/2 to 6 1/2 watts on the first transistor, 35 watts on the second transistor and 150 watts applied to a power splitter to each of the two output stages. The output stage is a common base matched pair of transistors that each handle 1/2 of the output power and allowing for one transistor failure, and can allow the transmitter to still output 75 watts in the event there was an output transistor failure. Nominal output would be typically 400 watts. The Interrogator module will still interrogate ground stations at long distances with a single transistor stage failure.