

# TOSHIBA

## NAVAIDS SYSTEMS

# DME

## Distance Measuring Equipment

- Toshiba's DME is designed based on the advanced technology.
- Toshiba's DME has more than a 60-year-history with a huge supply record of installations in domestic and worldwide airports.
- Toshiba's DME is continuing to contribute to the improvement in air traffic safety throughout the world.

### Key Product Features

#### System

- ◆ Dual transponders, monitors and power supplies
- ◆ Ergonomics design
- ◆ Color touch panel for local control
- ◆ Extensive BITE for fault isolation
- ◆ Front accessible plug-in modules for easy exchange
- ◆ Local and remote setup and control through a user-friendly PC program
- ◆ Optional battery backup with dual battery banks
- ◆ Recording operation events and equipment conditions
- ◆ Master and slave operation with associated VOR (VHF Omni-directional Radio Range)
- ◆ Support for SNMP

#### Transponder

- ◆ Digital signal generation and high power amplifiers
- ◆ Up to 1kW peak output power
- ◆ Free channel shift with synthesizer and smooth parametric setting

#### Monitor

- ◆ Advanced digital design for high stability and accuracy
- ◆ Automatic continuous integrity testing
- ◆ Monitor and control by digital hardware

#### Antenna System

- ◆ 1 stack array antenna



# DME

## ■ GENERAL CHARACTERISTICS

Type	DME/N
Output Power	Nominal 1 kW peak
Distance Accuracy	±75 m
Coverage	More than 200 NM
Handling Capability	200 interrogators (searching: 10 and tracking: 190)
Channel Number	252 (X mode: 126 and Y mode: 126)
Input Power	+40 to +56 VDC (battery nominal 48 V)
Power Consumption	250 VA (Normal operation)

## ■ ENVIRONMENTAL CONDITIONS

Ambient Temperature (Except COTS)	-10 to +55 °C (Indoor Equipment) -40 to +60 °C (outdoor Equipment)
Relative Humidity (Except COTS)	Maximum 95 % RH (up to +35 °C) Maximum 60 % RH (up to +55 °C) (indoor Equipment)
Wind speed	Maximum 60 m per second (survival, standard) Maximum 90 m per second (survival, option)

## ■ TRANSMITTING CHARACTERISTICS

Frequency Range	960 to 1,215 MHz
Frequency Stability	±0.001 %
Channel Spacing	1 MHz
Pulse Shape	Rise Time 1.5 to 3.0 μs Decay Time 1.5 to 3.5 μs Duration 3.5 ±0.5 μs
Pulse Spectrum	As per ICAO Annex 10
Pair Pulse Power Variation	Less than 1 dB
Pair Pulse Spacing	X mode: 12 ±0.25 μs, Y mode: 30 ±0.25 μs
Transmitting Rate	700 to 5,400 pps
Spurious	More than 60 dBc
ON/OFF Isolation	More than 80 dB

## ■ RECEIVING CHARACTERISTICS

Sensitivity	Less than -91 dBm (at Receiver Efficiency 70 %)
Selectivity	Rejection of adjacent channels More than 80 dB (at fc ±900 kHz) Rejection of Spurious and Image More than 75 dB (at 960 to 1,215 MHz)
Reply Delay	X mode 50 μs ±0.5 μs, Y mode 56 μs ±0.5 μs (1st pulse timing operation)
Echo Suppression Period	0 to 400 μs, Adjustable
Echo Suppression level	0 to 60 dB, Adjustable

## ■ MONITOR SYSTEM CHARACTERISTICS

Reply Delay	±1 μs, Adjustable (Tolerance ±0.1 μs)
Reply Efficiency	55 to 70 %
Reply Pulse Power	- 3 to - 5 dB, Adjustable (Tolerance ±0.5 dB)
Transmission Rate	More than 5,400 pps or Less than 700 pps
Pulse Pair Spacing	±1 μs, Adjustable (Tolerance ±0.1 μs)
ID Code group length	More than 9 seconds
No ID period	More than 45 seconds
Automatic self-check item	System delay, Pulse spacing, Sensitivity, Output Power, Transmission rate
Manual self-check item	Automatic self-check item and ID check

## ■ DME Antenna

Omni-directional type stack array antenna with pickup monitor, co-located with VOR antenna with obstruction light

## ■ Remote Control and Monitor

Remote operation control and equipment status monitoring of DME

### Remote Control & Monitoring System (RCMS)

- RCMS is capable of monitoring and displayed the operating status of DME interfaced.
- RCMS displays monitored/measured data sent from DME on the window in a systematic expression.
- Control and Monitoring: ON/OFF of equipment, Switching of dual configuration equipment, Monitoring of equipment status
- Windows OS based PC Application (Interface RS232C or Ethernet)

### Remote Control & Status Unit (RC Unit)

- RC Unit performs monitoring and control of the DME via landline between site and monitor room.
- Monitoring functions: Transmitter ON/OFF status, Total monitor alarm status, AC commercial power failure, Battery voltage alarm, Remote Control line alarm, Buzzer stop status, Power ON/OFF status, others
- Control functions: Transmitter ON/OFF, Buzzer stop, Power ON/OFF, others

### DME Status Unit (NAV Panel)

- NAV Panel indicates the operating status of the DME equipment.
- Function: Operation / failure indication, Alarm for failure and shut down, Alarm silence control

## ■ APPLICABLE STANDARDS

ICAO Annex 10  
EUROCAE ED-57  
ISO9001  
RE DIRECTIVE 2014/53/EU

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