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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