TELERAD

RBT 9300-24

50 W MF RADIOBEACONS NON/A1A - NON/A2A

The RBT 9300-24 NDB's have been developped in order to meet the operational needs of the Civil Aviation regarding landing procedures. The equipment is compliant with I.C.A.O. requirements.

The RBT 9300-24 equipment, associated with the ''Umbrella'' or ''Daisy'' terminal capacity antenna, constitute a low-cost simple installation, ''Locator'' type.

Its performances are quite interesting since even at a very low altitude, significant carriers are obtained.

We developped the study of this radiobeacon in order to hit the following targets :

- high performances and utmost reliability,
- fast, simple installation and easy setting into service,
- easy maintenance.

The NDB is synthesized, step 100 Hz. The output power is adjustable up to 50 W carrier on 50 ohms. Keyers are integrated in the transmitters. The identification signal may be transmitted in NON/A1A or NON/A2A. The equipment configuration (frequency - mode - code) is stored in EEPROM and can easily be modified from the change-over unit. Transmitter EBT 9300-24, specially developped for RBT 9300-24 NDB's, can operate without being associated to the change-over unit BRB 9300-24 (single configuration).

The RBT 9300-24 equipment is composed of :

- 2 transmitters EBT 9300-24,
- 1 automatic change-over unit BRB 9300-24,
- 1 24V charger/power supply unit, single or dual (option),
- 1 18U or 36U rack designed to receive the equipment above.

RBT 9300-24

EBT 9300-24 - GENERAL CHARACTERISTICS

- **Power supply voltage :**
  24 V d.c. (typical)
- **Frequency range :**
  200-535 kHz (100 Hz step)
- **Output power :**
  Adjustable up to 50W (200W peak) on 50 ohms load. The power stage is constituted of 4 ”Mosfet” transistors installed in ”H”, ”D” class.
- **Consumption for 50W carrier :**
  < 3,5A (carrier non keyed)
- **Modulation mode :**
  NON/A1A - NON/A2A
- **Modulation frequency in NON/A2A:**
  1020 Hz ±50 Hz, 400 Hz ± 25 Hz
- **Distortion :**
  < 5% at 95% of modulation
- **Harmonic frequency:**
  - < -45 dBc at the transmitter output
  - < -65 dBc after antenna
- **Spurious frequency :**
  < -45 dB compared with the carrier
- **Code signal programming :**
  Up to 3 letters
- **Keying cycle :**
  20 s in NON/A1A, 10 s in NON/A2A
  Dot duration : 120 ms. Possibility of indicating standby transmitter and power supply on battery between 2 code signals
- **Operating temperature :**
  -20°C to +55°C
- **Storage temperature :**
  -40°C to +70°C
- **Presentation :**
  Drawer unit for 19” standard rack, 2 units heigh

BRB 9300-24 - GENERAL CHARACTERISTICS

The change-over unit BRB 9300-24 has been specially designed for RBT 9300-24 radiobeacon; it insures the following fonctions :

- Programming of the transmitters by means of LCD’s and 3 control keys (frequency - code - mode).
- Checking of the operation, with changing onto the standby transmitter in case of failure of the normal transmitter.
- Display of the functionning parameters of the radiobeacon.
- Transmission of telemonitoring information.

Its characteristics are the following :

- **Programming of the frequency :**
  200-535 kHz (100 Hz step)
- **Maximum admissible power:**
  50 W carrier (200 W peak)
- **Power supply :**
  24 V d.c. (typical)
- **Code signal programming :**
  Up to 3 letters
- **Modulation mode programming :**
  NON/A1A - NON/A2A
- **Programming of AF frequency :**
  400 Hz or 1020 Hz (NON/A2A)
- **Display of the parameters :**
  Supply voltage, direct power, reflected power, modulation rate in A2A, RF frequency, transmission type, modulation frequency, code signal
- **Change-over criteria :**
  - NON/A1A mode : carrier reduction of more than 3dB, absence of keying
  - NON/A2A mode : carrier reduction of more than 3dB, modulation rate reduction of more than 4dB, absence of keying
- **Telemonitoring :**
  The change-over unit has a RS232 serial port for telemonitoring. The telemonitoring system is optional and permits to transmit the following information :
  - programming parameters,
  - power supply voltage,
  - direct power,
  - reflected power,
  - transmitter switched on standby,
  - absence of mains,
  - limit stop information (for tuning unit),
  - external informations.
- **Telesignalling :**
  Station on stanby. Good operation of the change-over unit
- **Dummy antenna :**
  A 50-ohm load is incorporated in the change-over unit, in order to enable the adjustment of the transmitters
- **Operating temperature :**
  -20°C to +55°C
- **Storage temperature :**
  -40°C to +70°C
- **Presentation :**
  Drawer unit for 19” standard rack, 2 units heigh

SINGLE/DUAL POWER SUPPLY CHARGER (optional)

The power supply unit 24V 20A is associated with an assembly of leadproof batteries with a minimum capacity of 85 Ah.

Input specifications :

- **Input voltage :**
  230 V a.c.
- **Input voltage :**
  180-264 V a.c.
- **Frequency range :**
  45-65 Hz
- **Input protection :**
  - protection against input rejection,
  - limitation of riging current,
  - protection against overload,
  - protection against overvoltage.

Ouput specifications :

- **Nominal power :**
  27 V at 25°C
- **Adjustment :**
  20 to 28 V d.c.
- **Nominal current :**
  20 A
- **Limitation :**
  21 A
- **Short-circuit protection**
- **Operating temperature :**
  -10°C to +45°C
- **Storage temperature :**
  -40°C to +85°C
- **Presentation :**
  Drawer unit, 2 units height

AERIALS ASSOCIATED WITH THE NDB RBT 9300-24

Aerials, associated with the NDB RBT 9300-24, include :

- ''Umbrella'' antenna and the automatic tuning device DAA 9400 (see specific documentation),
- ''Daisy'' antenna and the automatic tuning unit UAA 9400

** See specific documentations.*

NOTE

In the case of a site with an aerial already installed, the automatic tuning device DAA 9400 TI may be associated with the existing pylons and T antennas.

MAINTENANCE TOOL

In the absence of a change-over unit, the programmer PGM 9200 * permits the configuration of the transmitters and the display of the measures.

** See specific documentation.*

OPTIONAL EQUIPMENT

The optional equipment include :

- the telecontrol system TSV 9400 *,
- the control receivers RCB 9200 P * and RCB 9200 B *,
- the transmitter selection control PSE 9300 *,
- the VHF remote control unit TLC 9200 *.

* *See specific documentations.*

TELERAD NDB's

- **RBA 9300 T** *:
  50/100 W VHF solar energy/remote controlled
- **RBM 9300** *:
  100 W transportable,
- **RBT 9300 P** *:
  100 W offshore installation,
- **RBT 9300-24** *:
  50 W NON/A1A - NON/A2A
  24 V Power supply
- **RBT 9400** *:
  200 W NON/A1A - NON/A2A,

* *See specific documentations.*

SIMPLE 50 W NDB

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