



## RF Unit CHARACTERISTICS

**PRODUCT:** RF Unit

**CODE:** D168X01\_DDS06

**VERSION:** 01

**REVISION:** 01

**DATE:** 09/10/08

**CLASSIFICATION:**

General information

Internal document

### DOCUMENT MAINTENANCE

THIS DOCUMENT HAS 5 PAGES

EDIT.	DATE	AUTHOR	DESCRIPTION
1.0	15/10/07	Miguel Ángel Gutiérrez	Technical characteristics of RF Unit
1.1	09/10/08	Javier Córdova Val	Frequency bands updating.

### DOCUMENT APPROVAL

ACTIVITY	NAME	DATE	SIGNATURE
Prepared			
Revised Project Manager			
Approved R&D Director			

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## 1. RF UNIT TECHNICAL CHARACTERISTICS

### Functional characteristics:

- Frequency bands: 380-400, 410-430, 450-470, 764-806, 806-870 MHz.
- Transmit offset frequency: -30 MHz for 764-806 MHz band; 45 MHz for 806-870 MHz band; any for other frequency bands.
- Channel spacing: 6.25KHz, 12.5KHz or 25KHz.
- Frequency Division Multiple Access (FDMA): 1 physical channel per carrier.
- Modulation: Analog FM / C4FM.
- Emissions Designator:
  - WB analog: 16K0F3E.
  - NB analog: 11K0F3E.
  - Digital: 8K10F1W.
- Data bit rate: 9.6 Kbits/s.
- Ethernet interface: IEEE 802.3u,x.
- RF Unit is hot swap as a unit, but individual modules (RPS, RPA P25, RTX P25, RRX P25, BSYNC, RCP25) are not.

### Electrical characteristics:

- Nominal voltage: 26,4Vdc (21.1 – 31.7 Vdc).
- Consumption: 500 W maximum.
- Transmitter:
  - RF Output Power: 100 Watt (+50dBm). Adjustable in 2dB steps.
  - Transmitter Frequency Range: 380 - 400, 410 - 430, 450 - 470, 764 - 776, 851 - 870 MHz.
  - Frequency Accuracy:  $\pm 0.1$  ppm.
  - Spurious Emissions:  $< -70$  dBc.
  - Adjacent Channel Power (ACP) Ratio:  $> 67$ dB.
  - Inter-modulation attenuation:  $> 40$ dB.
  - Modulation Limiting (Analog):
    - 25KHz Channels  $\rightarrow \pm 5$ KHz
    - 12.5KHz Channels  $\rightarrow \pm 2.5$ KHz
  - Modulation Fidelity (Digital):  $< 5\%$  (Class A).
- Receiver:
  - Receiver Frequency Range: 380 - 400, 410 - 430, 450 - 470, 764 - 776, 806 - 825 MHz.
  - Sensitivity: -119dBm (0.25uV) (Class A).
  - Faded Sensitivity:  $< -108$ dBm (Class A).
  - Selectivity:
    - 25KHz Channels  $\rightarrow > 75$ dB (Class A).
    - 12.5KHz Channels  $\rightarrow > 60$ dB (Class A).
  - Co-Channel Rejection:  $> 9$ dB.
  - Spurious response rejection:  $> 75$ dB.
  - Intermodulation response rejection:  $> 75$ dB.
  - Unwanted conducted emissions:  $< -57$ dBm.

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Data rate:

- ❑ Ethernet interface: bandwidth for dimensioning WAN link between Master Site P25 and Repeater Site P25: 40 Kbps.
- ❑ Ethernet interface: bandwidth for dimensioning Repeater Site P25 LAN: 60 Kbps.

Environmental characteristics:

- ❑ Operating Temperature Range: -30°C to +60°C (-22°F to +140°F).
- ❑ Storage Temperature Range: -40°C to +85°C (-40°F to +185°F).
- ❑ Humidity: 0 to 90% RH @ 50°C (122°F).

Mechanical characteristics:

- ❑ Dimensions (Length x Height x Width): 379mm x 133mm(3U) x 483mm.
- ❑ Weight: 10250 gr. (10500 gr. with BSYNC).
- ❑ RF Unit is assembled in a 19"-wide 3U-high rack.