

VHF 50 W TRANSMITTER

The EM 908 F transmitter has been principally designed to meet the VHF AM requirements of aeronautical ground-to-air radio telecommunications. Associated with a synthesizer or a synthesized receiver, it can be used for the Navy communications (Navy Mobile Service channels*) in frequency modulation (F3E or G3E).

It can operate either with a 8.33 kHz or 25 kHz frequency spacing. The wide band transmitter delivers a rated carrier power adjustable from 10 W to 50 W.

Thanks to many integrated functions, it can be used in many configurations, thus meeting the requirements of all GROUND installations in the aeronautical telecommunications field.



Fully modular, it has the shape of 3U module unit which can be housed in a 19" standard support frame which can integrate other associated elements such as mains power supply unit, synthesized receiver, single channel or multi channel receiver, change-over unit, etc.

Two possibilities of operation :

- with an incorporated synthesized master oscillator,
- with an external multi channel synthesizer or receiver.

(*) Described in appendix 18, radiocommunications regulation (UIT2001).

MAIN CHARACTERISTICS

- Amplitude modulation A3E, and frequency modulation G3E if it is associated with RY 908 F or SY 908 F (*)
- Wide band operation without any adjustment (118-144 MHz in AM / 137-163 MHz in FM)
- Power adjustable between 10 W and 50 W
- Locking of the output power in carrier and in modulation
- Operation in 25 kHz or 8.33 kHz spacing
- LOCAL and REMOTE operations
- Built-in test (for overall operation test)
- Internal protection for voltages, temperatures, SWR, regulation and locking of the P.T.T control
- Reduced dimensions and fully modular design
- Integrated cooling unit (motor without collector)
- Easy maintenance
- Possibility of coupling for 100 W, 200 W operation up to 700 W

(*) Possibility of modulation F3E

RADIOELECTRICAL CHARACTERISTICS

- **Power supply :**
 - D.c. voltage :
24 V nominal (21 V to 31 V)
 - Consumption in standby :
< 1 A
 - Consumption in transmission :
< 12 A
 - Typical consumption according to the output power (SWR = 1 without ventilation) :
5.4 A at 12 W
6.7 A at 20 W
8.1 A at 30 W
9.4 A at 40 W
10.4 A at 50 W
NOTE : The consumption depends only slightly on the supply voltage.
 - Additional consumption with ventilation :
about 200 mA at 24 V
- **Wide band operation :**
Without frequency adjustment within the range
- **Frequency range :**
118-144 MHz in AM / 137-163 MHz in FM
- **Modulation types :**
A3E / F3E with RY 908 F or SY 908 F
- **Output power (under 24 V=) :**
50 W in nominal value, which can be reduced down to 10 W by the user
- **Power variation within the range :**
 $\pm 0,5$ dB
- **Frequency stability from -20°C to +55°C :**
 ± 1 ppm with PY 908, SY 908 F, RY 908 F
- **Channel spacing :**
25 or 8,33 kHz with SY 908 and PY 908
- **CLIMAX mode :**
with PY 908 and SY 908 according to Annex 10 of I.C.A.O., addition D §2.2 compatible : 2/3/4 carriers
- **Modulation :**
Input level on 600 ohms :
-30 at +10 dBm
Regulation of the modulation level :
< 1 dB for an input variation of 30 dB level above compression threshold (Typ. 0.3 dB)

EM 908 F

- **AM Modulation :**
 - Modulation ratio :
> 80%
 - Distortion :
< 5% at 1 kHz (1,5% typical)
 - AF bandpass (channels 25 kHz spaced) :
-3 dB > 300-3400 Hz
 - AF bandpass (channels 8.33 kHz spaced) :
 ≥ -3 dB at 2500 Hz ; ≤ -40 dB at 3200 Hz
- **Residual modulation :**
< -45 dB (ref. 85% of modulation at 1000 Hz)
- **FM Modulation (with RY 908 F or SY 908 F) :**
 - Max. frequency deviation : 4,25 kHz \pm 0,5 dB
 - Harmonic distortion : < 5%
 - AF bandpass : < 3 dB at 300 Hz / 4 dB at 3400 Hz
 - Residual modulation : < -35 dB
- **Spectral purity :**
 - Harmonics : < -83 dBc
 - Interference with synthesizer : < -90 dBc
 - Noise at $\pm 1\%$ of OF : < -150 dBc/Hz
- **Protections, progressive decrease of the power according to :**
 - SWR > 2
(operation without any damage with infinite SWR),
 - Temperature > 70°C,
 - Supply voltage < 24 V (at the nominal power).
- **Operation according to the temperature (radiator of module AMPL) :**
Continuous operation (without any damage) with progressive reduction of power in case of significant increase of temperature
 - at 40°C : reduced exhaust fan switched on
 - at 60°C : exhaust fan balancing speed
 - at 70°C : progressive reduction of power
 - at 85°C : equipment trip-out
- **Operation according to the power supply voltage :**
 - Overvoltage (> 32.5 V) : equipment trip-out
 - Voltage (< 24 V) : progressive reduction of power
 - Undervoltage (< 17.5 V) : equipment trip-out
- **Climatic conditions :**
Operation guaranteed between -20°C and +55°C
95% relative humidity at 40°C (without condensation)
- **Storage :**
-40°C to +80°C

MECHANICAL RADIOELECTRICAL

The transmitter EM 908 F can fit in a bare support frame, type BS 108, whose dimensions are those of a 19" standard rack, 3 U high, cote "0" and depth about 430 mm.

- **Weight :**
approximately 6.5 kg

Data subject to change