

Communications for the JPL Titan Aerobot Testbed

December 2006

SCLA air traffic control provides handset equipment (walkie-talkies) for the JPL ground crew to communicate with the air traffic control. The ATC Freq's are Ground 124.45 and Air 118.35, the walkie models are the I-COM IC-A4 and the IC-A6.

IC-A4 Specifications

This information is taken directly off of the Icom IC-A4 brochure.

General

Frequency Range:

Transmit: 118.00-136.975 MHz

Receive: 108.00-136.975 MHz

Mode: 6K00A3E (AM)

Number of Memory Channels: 19

Useable Temperature Range: -10°C to +50°C; -14°F to +122°F

Frequency stability: ± 10 ppm (-10°C to +50°C)

Power Supply Requirement: 9.6 V DC $\pm 15\%$ (negative ground)

Current drain (at 9.6 V DC):

Tx: (max power) 0.7A typical

Rx (standby): 55 mA typical

Rx (max. audio): 230 mA typical

Antenna Connector: BNC (50)

Dimensions (projections not included): 58(W) x 140.5(H) x 32.3(D) mm; 2-9/32(W) x 5-17/32(H) x 1-9/32(D) in

Weight (with battery and antenna): 425 g; 15 oz (approx.)

Transmitter

Output Power (typical): 3.7 W (PEP); 1.0 W (CW)

Modulation System: Low level modulation

Spurious Emissions: Less than -60 dB

External Microphone Connector: 3-conductor 2.5 (d) mm (1/10")/150

Receiver

Sensitivity (at 6 dB S/N): Less than 1.0 μ V

Squelch Sensitivity: Less than 1.0 μ V

Selectivity: More than 8 kHz/-6 dB; Less than 25 kHz/-60 dB

Spurious Response Rejection Ratio: More than 60 dB

Audio Output Power: More than 500 mW at 10% distortion with an 8 load

External SP Connector: 3-conductor 3.5 (d) mm (1/8")/8

IC-A6

VHF AIR BAND TRANSCEIVERS

SPECIFICATIONS

OPTIONS

* Frequency range :

Tx/Rx 118.000-136.975MHz

Rx 108.000-117.975MHz*

Weather 161.650-163.275MHz

* IC-A24 only.

* Mode : AM (6K00A3E)

WX FM (16K0G3E)

* Channel spacing : 25kHz

* No. of memory channels : 200 (20 Ch × 10 banks)

* Power supply requirement: 7.4/7.2V DC (Battery pack)

11.0V DC (External DC Jack)

* Current drain (at 7.2 V DC) :

Tx 1.5A typical

Rx Max. audio 300mA typical

Stand-by 70mA typical

* Frequency stability : ±5ppm

* Operating temp. range : -10°C to +60°C; +14°F to +140°F

* Dimensions (W×H×D) : 54×129.3×35.5 mm

(projections not included) ; 2178×53732×113732 in

* Weight (approx.) : 430g; 15.2oz

(with antenna and BP-210N)

* Antenna impedance : 50Ω (BNC type)

* Output power : 5.0W typ. (PEP)

(at 7.2V DC) 1.5W typ. (CW)

* Modulation system : Low level modulation

* Modulation limiting : 70-100%

* Audio harmonic distortion : Less than 10% (at 60% mod.)

* Hum and noise ratio : More than 35dB

* Spurious emissions : More than 46dB (Except operating
freq. ±62.5kHz point)

* Microphone connector : 3-conductor 2.5 (d) mm

(1/10")/ more than 100kΩ

* Intermediate frequency : 1st/2nd 30.05MHz/450kHz

* Sensitivity (typical) :

VOR (AM 6dB S/N) Less than 0.71μV

COM (AM 6dB S/N) Less than 0.5μV

WX (FM 12dB SINAD) Less than 0.22μV

* Selectivity : More than 7.5kHz/-6dB

Less than 25kHz/-60dB

- * Hum and noise : More than 40dB
- * Spurious response : AM More than 60dB
FM More than 30dB
- * Audio output power : More than 500mW typ. with
an 8 Ω load, 30% modulation
- * Ext. speaker connector : 3-conductor 3.5 (d) mm