

# **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:  $\pm 10$  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  $\mu$ V

Squelch Sensitivity: Less than 1.0  $\mu$ 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

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## 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 $\Omega$  load, 30% modulation
- \* Ext. speaker connector : 3-conductor 3.5 (d) mm