

GENERAL DYNAMICS
C4 Systems

June 10, 2013

Federal Aviation Administration
Office of Spectrum Policy and Management, ASR-1
800 Independence Avenue S.W.
Washington, DC 20591

Dear Sir/Madam:

This is to inform you that General Dynamics C4 Systems (GDC4S) will be submitting applications for FCC certification under 47 CFR Part 87 for two (2) Air Traffic Control VHF Radio transmitters, also referred to as the CM-350 (V2) VDT (High Power) and CM-300 (V2) VDT (Low Power). This equipment is being certified under the current FAA Next Generation Air-Ground Communications (NEXCOM) Segment 2 program, Contract # DTFAWA-12-C-00040.

These FCC certification applications will be processed through Intertek Testing Services, NA Inc. (ITS) which is a Telecommunications Certification Body (TCB) for the FCC.

The applicant and manufacturer are identified as:

General Dynamics C4 Systems
8220 E. Roosevelt St.
Scottsdale, Az 85257

These VHF transmitters are part of a rack mounted VHF transmitter and receiver system. The CM-350 (V2) VDT is capable of transmitting at a maximum RF output power level of 35W. The CM-300 (V2) VDT is capable of transmitting at a maximum RF output power level of 12W. Additional details including emission types, operational frequency band, and receiver characteristics are provided in the attached data sheet.

GDC4S does not supply the antennas for use with these Radios.

Please contact me if you have any questions or if additional information is required. My email address is Gil.Estrella@gdc4s.com and phone number (480) 441-3725.

Sincerely,



Gil O. Estrella
GDC4S EMC Engineer

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CM-300/350 (V2) Series Digital Radios

VHF/UHF General Data

- Frequency Range:
 - VHF: 112–150 MHz
 - UHF: 225–399.975 MHz
- Frequency Stability:
 - ≤ 1 ppm
- Channel Spacing:
 - VHF: 25 kHz, 8.33 kHz
 - UHF: 25 kHz
- Modulation:
 - VHF: A3E (Voice), AM-MSK (ACARS), optional D8PSK 10500 symbol/s (VDL2)
 - UHF: A3E (Voice), optional D8PSK 10500 symbol/s (UDL)
- Power Supply:
 - DC power supply:
 - 24 V DC nominal (21.6–28.8 V)
 - AC power supply:
 - 100–230 VAC, 47–63Hz
 - Automatic switchover AC-to-DC
- Temperature:
 - Operating: –10°C to +50°C
 - Relative humidity: 90% at 40°C (non-condensing)
 - Storage: –40°C to +70°C
- Data Interface:
 - RS485 up to 115.2 Kbps
- Maintenance:
 - Local: Ethernet, RS232
 - Remote: Ethernet, RS232
 - Comprehensive: BIT, software upload
 - Setup functions: available on front panel keypad/display
 - Internal Measurements: Internal voltages, audio levels, Tx output power, FWD power, REV power, VSWR, Rx AGC voltage
- Standards:
 - ICAO SARPS
 - ETSI EN 300 676: VHF AM
 - ETSI EN 302 617: UHF AM
 - ETSI EN 301 841 - 1: VDL2
 - ETSI EN 301 489 (-1/-22)
 - EUROCAE ED-137: VoIP
 - FAA-E-3014: VHF/UHFAM

VHF/UHF Receiver Data

- Mechanical Characteristics:
 - Width: 19 in
 - Overall depth: 18.5 in
 - Height: 1.75 in, 1U
 - Weight: approximately 11 lbs (with co-site filter installed)
- Power Consumption (receiving):
 - 24V DC: 500 mA typical
 - 230V AC: 180 mA typical
 - 115V AC: 270 mA typical
- Sensitivity (with co-site filter installed):
 - A3E (with cavity filter): <–102 dBm (SINAD ≥ 10 dB, 1 kHz 30%)
 - ACARS: –102 dBm (> 99% of messages)
 - Mode 2: –98 dBm (BER < 10-3 w/o FEC)
- Distortion (1 kHz, 30%): ≤ 2%
- AF Bandwidth:
 - A3E AM Voice at 25 kHz channel spacing: > 300–3400 Hz
 - A3E AM Voice at 8.33 kHz channel spacing: > 300–2500 Hz
- AF Noise (–13 dBm, 1 kHz, 90%):
 - > 50 dB
- Effective Bandwidth @6dB:
 - In 25 kHz: > +/-8.5 kHz
 - In 12.5 kHz: > +/-8.5 kHz
 - In 8.33 kHz: > +/-2.8 kHz
- Adjacent Channel Rejection:
 - VHF: ≥ 70 dB
 - UHF: ≥ 60 dB
- Spurious Response: ≥ 70 dB
- 3rd Order Intermodulation (SINAD 12 dB, 100 kHz and 200 kHz): ≥ 80 dB
- Desensitization: ≥ 100 dB
- Cross Modulation: ≥ 85 dB
- AGC Response (A3E Voice):
 - Dynamic range: 100 dB (Variation ≤ 3 dB)
 - Attack time: < 30 ms
 - Release time: < 50 ms
- Audio Line Output:
 - Adjustable from –25 to +20 dBm in 0.2 dB steps
 - Impedance: 600 ohms
- Squelch:
 - Carrier, Audio SNR
 - Independently selectable
 - Independently adjustable thresholds

VHF/UHF Transmitter Data

- Mechanical Characteristics:
 - Width: 19 in
 - Overall depth: 17 in
 - Height: 5.2 in, 3U
 - Weight: approx. 35 lbs (with co-site filter installed)
- Power Consumption (50W AM – 1kHz 80%):
 - 24V DC: 14 A typical
 - 230V AC: 2.2 A typical
 - 115 VAC: 3.9 A typical
- Carrier Offset (ICAO Annex 10):
 - Up to 4 in 25 kHz channels (up to 5 optional)
 - 2 in 8.33 kHz channels
- RF Output Power:
 - 2W to 50W* (adjustable in 0.2dB steps)
- VSWR:
 - Up to a VSWR of 2:1 without power reduction
- Protections:
 - Power reduction on overheating, low voltage and high VSWR
- AM Voice (A3E):
 - Modulation rate: adjustable from 0 to 100%
 - THD: < 3% (m=85%)
 - Line input level: –25 to +20 dBm
 - Line input impedance: 600 ohms
- AM and Data Responses:
 - A3E AM Voice at 25 kHz channel spacing: > –3 dB 300–3400 Hz, < –40 dB @ 5000 Hz
 - A3E AM Voice at 12.5 kHz channel spacing: > –3 dB 300–2500 Hz, < –40 dB @ 3200 Hz
 - A3E AM Voice at 8.33 kHz channel spacing: > –3 dB 300–2500 Hz, < –40 dB @ 3200 Hz
 - ACARS: > –3 dB 200–3400 Hz
- Tx Time Out:
 - Adjustable from 5 sec to 5 min
 - Can be disabled for continuous transmit
- Spectral Purity:
 - Harmonics: < –80dBc (< –65dBm in L1 and L5 GPS bands)
 - Out of band spurious: < –90dBc
 - Noise at 1% of Fo: < –150 dBc/Hz
- Adjacent Channel Power:
 - AM 8.33 and 25 kHz: < –80 dBc
 - D8PSK: 1st channel < –18 dBm (16 kHz)
2nd channel < –28 dBm (25 kHz)
4th channel < –38 dBm (25 kHz)
- Embedded Antenna Transfer Relay (ATR)
 - User configurable
 - Main/standby or transceiver configurations

* Lower power transmitters with optional embedded cosine filters available. Power out with embedded cosine filters is reduced. Contact factory for details.

GENERAL DYNAMICS C4 Systems

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