Raytheon

AN/PSC-5C Shadowfire

Multi-mission Communication Terminal

The AN/PSC-5C terminal provides all the features of the AN/PSC-5 Spitfire terminal plus additional ECCM, COMSEC, and networking capabilities. It is available as a kit to upgrade existing AN/PSC-5 Spitfire terminals.

Benefits

- NSA and JITC certified
- SATCOM, including DAMA
- Enhanced MELP vocoder and improved LPC
- Anti-jam communications: Have Quick I/II and SINCGARS
- SINCGARS relay mode
- MARITIME Ship/Shore, US and International Communications
- Embedded Tactical Internet and Joint Range Extension protocols
- Embedded COMSEC
- OTAR/OTAT Capable
- Embedded Advanced Data Controller (ADC)
- 142 preset channels
- Software programmable
- Available on GSA
- 30-420 MHz operation
- Data rates up to 76.8kbps supported

NSA and JITC Certified

The AN/PSC-5C exceeds the Department of Defense requirements for a lightweight, reliable, multiband/multimission terminal supporting critical tactical communications. The AN/PSC-5C, like the AN/PSC-5 before, is a military standard based product by design and verified through military testing that ensures interoperability and human factor operations across the spectrum of the tactical environment. The AN/PSC-5C operates in the VHF and UHF frequency spectrum and supports LOS (Line-of-Sight) with frequency agile modes, SATCOM (Satellite communications), DAMA (Demand Assigned Multiple Access), and Maritime voice and data operation.

Communications security is achieved with an embedded encryption engine.

Communications integrity is maintained with SINCGARS (Single Channel Ground and Airborne Radio System) and Have Quick I and II frequency agile operation modes. DAMA protocols extend the satellite communications capabilities and a Maritime mode enables ship-to-shore communications. Networking is achieved with an embedded Internet Protocol (IP) stack and menu configurable network parameters.

Voice communication is significantly enhanced with the incorporation of the Mixed Excitation Linear Predictive (MELP) vocoder. This mode improves communications capabilities in noisy environments over narrowband channels. Additional MELP improvements have been incorporated and extended to ANDVT operation.

Data communications benefit from an internal data controller that is menu configurable and may be disabled should an external data controller be utilized. Data rates up to 76.8kbps can be achieved dependent upon channel and operational mode. The networking parameters facilitate Tactical Internet and Range Extension (TI-RE) and Joint Range Extension (JRE) capabilities supporting situational awareness (FBCB^2) data via satellite.

This product meets the definition of Commercial item as defined by FAR 2.101.

General Characteristics

Frequency Range:	30-420 MHz (CNR, ATC, Maritime)
Channel Spacing:	5, 25 kHz (VHF, UHF, LOS and SATCOM)
Stability:	1 ppm
Modes of Operation:	
LOS:	AM, FM, FSK, CPM (CPM data rate up to 48 kbps)
Non-DAMA:	MIL-STD-188-181B - Narrowband (1.2 kbps - 9.6 kbps) Wideband (1200 bps - 48 kbps)
5 kHz DAMA:	MIL-STD-188-182A (75 bps - 2.4 kbps)
25 kHz DAMA:	MIL-STD-188-183 AC and DC modes (75 bps - 16 kbps)
Programmable Presets:	142 between the modes of operation
Continuous Internal Bit	
Modulation:	AM, FM, FSK, BPSK, SBPSK, DESBPSK, SOQPSK, DEQPSK, CPM
Relay Modes:	PSC-5 / PSC-5 (LOS and SATCOM) PSC-5 / SINCGARS (16k)
Scan Mode:	10 Frequencies

Encryption

KY-57/58, KY99/99A/100	Voice (16 kbps) / Data (16 kbps)
KY-99/99A/100	Voice (2.4 kbps) / Data (2.4 kbps)
KYV-5	Data (1.2 kbps, 2.4 kbps)
ANDVT/KYV-5	Voice (2.4 kbps)
MELP	Voice (2.4 kbps)
KG-84A, Modes 1-4	Data 75, 300, 600 bps; 1.2, 2.4, 4.8, 7.2, 8.0, 9.6, 16, 19.2, 28.8, 32, 38.4, 48, 56, 64 and 76.8 kbps

FASCINATOR (Saber); VINSON / ANDVT; DS101/102 Fill Capability; Transmit and Receive OTAR (Limited ANDVT and KG-84A Functionality)

ECCM Modes

SINCGARS

Have Quick I and II

Modulation Modes

LOS AM	80% nominal @ 1 kHz
LOS FM	± 5.6 kHz dev @ 1 kHz
Dedicated SATCOM	FM, FSK, SBPSK, DEBPSK, CPM
DAMA	BPSK, SOQPSK, DEQPSK

Accessories/Ancillaries

Nomenclature	Part No.	Description
MXF-100-6B	535763-30	AC/DC Input Power Supply (120/220 VAC) 10.5-33 VDC
MXF-100-6C	535763-301	AC/DC Power Supply with Amplifier Control
MXF-250	902224-801	Interface Unit (Intercommunication System)
MXF-272	902496-801	Remote Control Interface System
MXF-270	622292-1	Portable Remote Control Device (PRCD)
MXF-4012	622293-1	30-512 MHz Medium Power Amplifier (100 W in SATCOM)
MXF-366	726937-801	RT Vehicle Mounting Adapter

Radio Terminal Physical Characteristics

Part Number:	726356-801
NSN:	5820-01-483-0566
Size (H x W x D) (Radio and Battery Case)	3.3" x 10.6" x 13"
Weight:	11.5 lbs Less Batteries
	Two BB-390A/U batteries: 6.5 lbs
	Two BA-5590/U batteries: 4.5 lbs

Receiver Characteristics

LOS: Sensitivity (10 dB SINAD) - AM	-103 dBm (30% mod)
Sensitivity (12 dB SINAD) - FM	-110 dBm (±3 kHz dev)
IF Bandwidth (automatically matched to mode)	±5, ±12.5, ±22 kHz
Audio Output: FM	2.4 mW, 600 ohms (1.2 Vrms)
AM	0.4 mW, 600 ohms (0.5 Vrms)
Response: Narrowband (±3 dB)	300-3,200 Hz
Distortion:	<5% AM or FM
SATCOM Sensitivity: Bit Error Rate (BER) 1 x 10^{-5}	
Dedicated Channel (2.4K)	C/kt = 46 dB-Hz
5 k DAMA (all Burst Rates)	E_b/N_o = 7.6 dB with FEC
25 k DAMA (19.2k Burst)	E_b/N_o = 6.5 dB with FEC
SATCOM Mode Noise Figure (240-270 MHz)	4 dB max
SATCOM Mode Sensitivity (10 dB SINAD)	-121 dBm (@5.6 kHz dev)

Transmitter Characteristics

Power Output (max)		
LOS AM (80% modulation)	10 W	
LOS FM	8 W	
SATCOM	225-400 Mhz, 20 W ±2 dB	
SATCOM	290-320 MHz, 20 W min	
Adjustable Power	1 dB steps down to 0.2 W any mode	
Output Level		
Broadband Noise (@ 10 MHz and greater offset)		-110 dBm/Hz
Spurious Output		-70 dBc
Harmonic Output		-56 dBc
Beacon	AM (150 Hz to 3850 Hz sweep)	50% mod
	FM (150 Hz to 3850 Hz sweep)	±4 kHz dev

Environmental Characteristics

Temperature Range:	Operating	-40°C to +65°C
	Non-Operating	-45°C to +71°C
Drop		4 ft
Humidity		100%
EMI/EMC		MIL-STD-461D and 462D
ADS-37A-PRF (with Power Adapter)		MIL-STD-704D
Primary Power		21-32 VDC
MTBF (Mean Time Between Failures)		> 5000 hr
Immersion		3 ft for 2 hrs

MBMMR Help Line
CONUS: 800.545.2340
OCONUS: 260.429.4998
FAX: 260.429.8215
PSC-5_Support@raytheon.com

www.raytheon.com/capabilities/products/PSC5C/

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