

UNCLASSIFIED

MILITARY COMMUNICATIONS ELECTRONICS BOARD (MCEB)				
EQUIPMENT FREQUENCY ALLOCATION GUIDANCE				
Military Department Army	Equipment Cubic Defense Systems Modela 284565 and 325015 Transceivers			Stage 4 - Operational
Section 1: ENCLOSURES				
Enclosure Number 1	Description J/F 12/9004			Dated 29 Oct 03
Section 2: OPERATING CHARACTERISTICS FOR WHICH SUPPORT IS CERTIFIED				
Frequency 225 - 231 MHz	Emission 20K1F1D	Power Mean 20 watts	Stage 4 Type of Service Fixed and Mobile	Operating Location US & P Test and Training Ranges
Section 3: MCEB GUIDANCE				
1. The enclosed application as described above is approved for operational use at US & P Test and Training Ranges, subject to the guidance below. 2. For the intended use in the fixed and mobile services, the subject system is in accordance with the ITU and US Tables of Frequency Allocations. 3. Based on the information provided, a. the equipment complies with the requirements of NTIA Manual Section 5.2. b. the equipment does not comply with the transmitter 2nd harmonic level and spurious emission requirements of MIL-STD-461E. 4. Continued compliance with the specific portions of the standards cited in paragraph 3a above is mandatory. 5. Frequency assignment requests must be submitted using Standard Frequency Action Format (SFAF) and coordinated with the cognizant Area Frequency Coordinator (AFC) in accordance with ACP-190 US SUPP-1(C), Guide to Frequency Planning, prior to activation. 6. Use of this system must be in accordance with the channeling plans for the 225 - 399.9 MHz band. 7. NTIA Spectrum Certification was not requested.				
Steering Member ESG Working Group MCEB Frequency Panel	Signature 		Date NOV 19 2003	IRAC/SPS Number NA
Downgrading Instructions Classified by: Declassify on:			Distribution J-12 Holders	Page 1 of 1
NA			MCEB J-12 Number J/F 12/9004/1	

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APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION	CLASSIFICATION UNCLASSIFIED	DATE 10/29/2003	J/F 12/09004 Page 1 of 7 Pages
DOD GENERAL INFORMATION			
TO USMCEB		FROM Office of the Army Spectrum Manager Submitted by: (PM Training Devices ATTN: TRADE-PM-LTS)	
1. APPLICATION TITLE (U) Cubic Defense Systems Models 284565 and 325015 Transceivers			
2. SYSTEM NOMENCLATURE (U) Cubic Defense Systems Models 284565 and 325015 Transceivers			
3. STAGE OF ALLOCATION (U) ☐ a. STAGE 1 CONCEPTUAL ☐ b. STAGE 2 EXPERIMENTAL ☐ c. STAGE 3 DEVELOPMENTAL ☒ d. STAGE 4 OPERATIONAL			
4. FREQUENCY REQUIREMENTS a. FREQUENCY(IES) (U) 225 MHz - 231 MHz b. EMISSION DESIGNATORS (U) 20K1F1D			
5. TARGET STARTING DATE FOR SUBSEQUENT STAGES			
a. STAGE 2 (U) NA		b. STAGE 3 (U) NA	
		c. STAGE 4 (U) NA	
6. EXTENT OF USE (U) Continuous			
7. GEOGRAPHICAL AREA FOR			
a. STAGE 2 (U) NA			
b. STAGE 3 (U) NA			
c. STAGE 4 (U) US&P Test and Training Ranges			
8. NUMBER OF UNITS			
a. STAGE 2 (U) NA		b. STAGE 3 (U) NA	
		c. STAGE 4 (U) (See Remarks)	
9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT (U) 1100			
10. OTHER J/F 12 APPLICATION ID(S) TO BE (U) ☐ a. SUPERSEDED ☐ b. RELATED		11. IS THERE ANY OPERATIONAL REQUIREMENT AS DESCRIBED IN THE INSTRUCTIONS FOR PARAGRAPH 11? (U) ☐ a. YES ☒ b. NO ☐ c. NAVAIL	
12. NAMES AND TELEPHONE NUMBERS (U)			
a. PROGRAM MANAGER Roger Weber		(1) COMMERCIAL 407-384-5218	(2) DSN 970-5218
b. PROJECT ENGINEER David Horrigan		(1) COMMERCIAL 407-384-3818	(2) DSN 970-3818
13. REMARKS (U) Item 8c: 800 man worn, 300 vehicle, 10 rotary wing aircraft			
DOWNGRADING INSTRUCTIONS			J/F 12/09004 CLASSIFICATION UNCLASSIFIED

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TRANSMITTER EQUIPMENT CHARACTERISTICS			
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) Relay Model 284565 & Player Unit 325015		2. MANUFACTURER'S NAME (U) Cubic Defense Systems	
3. TRANSMITTER INSTALLATION (U) Fixed and Manportable		4. TRANSMITTER TYPE (U) FM Communications	
5. TUNING RANGE (U) 225 MHz - 231 MHz		6. METHOD OF TUNING (U) Digital Synthesizer	
7. RF CHANNELING CAPABILITY (U) 225 MHz, 12.5 kHz increments		8. EMISSION DESIGNATORS (U) 20K1F1D (U) (U)	
9. FREQUENCY TOLERANCE (U) 3 ppm		12. EMISSION BANDWIDTH ☐ CALCULATED ☒ MEASURED	
10. FILTER EMPLOYED (U) ☒ a. YES ☐ b. NO		a. -3 dB (U) 10 KHz (U) (U)	
11. SPREAD SPECTRUM (U) ☐ a. YES ☒ b. NO		b. -20 dB (U) 25 KHz (U) (U)	
13. MAXIMUM BIT RATE (U) 20 Kbps		c. -40 dB (U) 38 KHz (U) (U)	
14. MODULATION TECHNIQUES AND CODING (U) Shaped MSK		d. -60 dB (U) 60 KHz (U) (U)	
16. PRE-EMPHASIS (U) ☐ a. YES ☒ b. NO		e. OC-BW (U) 20.1 KHz (U) (U)	
19. POWER a. MEAN (U) 0.1 W (U) (U) - 20 W		15. MAXIMUM MODULATION FREQUENCY (U) 5 KHz	
b. PEP (U) NA (U) (U)		17. DEVIATION RATIO (U) 0.5	
20. OUTPUT DEVICE (U) Power Transistor		18. PULSE CHARACTERISTICS a. RATE (U) NA (U) (U)	
22. SPURIOUS LEVEL (U) -79 dB		b. WIDTH (U) NA (U) (U)	
23. FCC TYPE ACCEPTANCE NO. (U) NA		c. RISE TIME (U) NA (U) (U)	
24. REMARKS (U) Item 10: Bandpass		d. FALL TIME (U) NA (U) (U)	
		e. COMP RATIO (U) NA (U) (U)	
		21. HARMONIC LEVEL a. 2nd (U) -60 dB	
		b. 3rd (U) -70 dB	
		c. OTHER (U) -70 dB	
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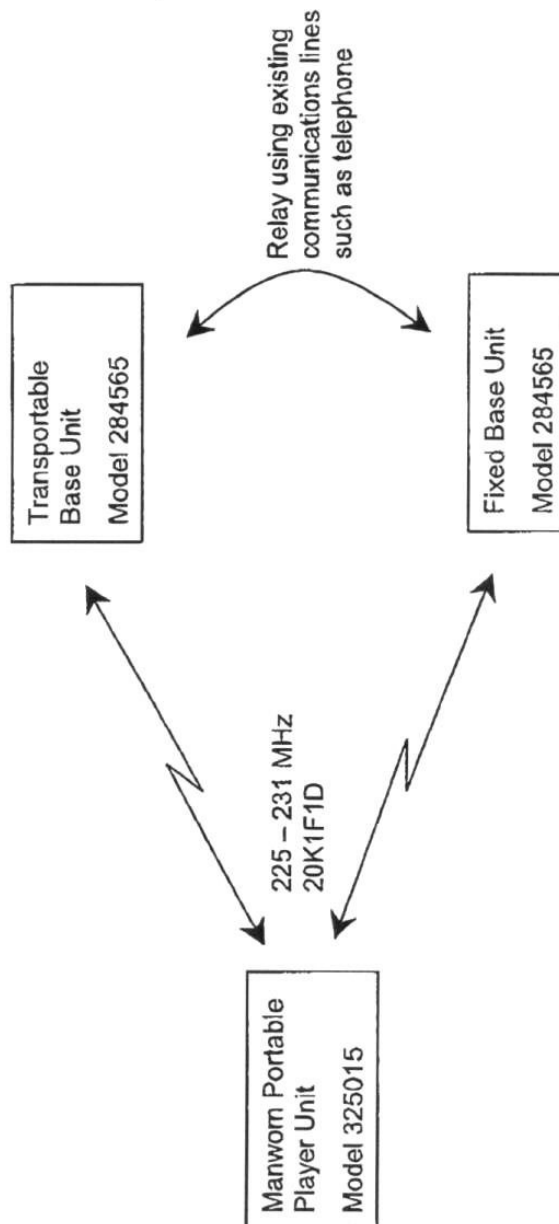
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RECEIVER EQUIPMENT CHARACTERISTICS					
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) Relay Model 284565; Player Model 325015			2. MANUFACTURER'S NAME (U) Cubic Defense Systems		
3. RECEIVER INSTALLATION (U) Base Unit and Manworn			4. RECEIVER TYPE (U) Direct Conversion		
5. TUNING RANGE (U) 225 MHz - 231 MHz			6. METHOD OF TUNING (U) Digital Synthesizer		
7. RF CHANNELING CAPABILITY (U) 225 MHz, 12.5 kHz increments			8. EMISSION DESIGNATORS (U) 20K1F1D		
9. FREQUENCY TOLERANCE (U) 3 ppm			11. RF SELECTIVITY ☐ CALCULATED ☒ MEASURED		
10. IF SELECTIVITY		1st (U)	2nd (U)	(U) 28 MHz	
a. -3 dB		NA		(U) 80 MHz	
b. -20 dB				(U) 200 MHz	
c. -60 dB				(U) NA	
12. IF FREQUENCY			13. MAXIMUM POST DETECTION FREQUENCY (U) (See Remarks)		
a. 1st (U) NA			14. MINIMUM POST DETECTION FREQUENCY (U) (See Remarks)		
b. 2nd (U)			16. MAXIMUM BIT RATE (U) 20 Kbps		
c. 3rd (U)			17. SENSITIVITY		
15. OSCILLATOR TUNED		1st (U)	2nd (U)	a. SENSITIVITY (U) - 110 dBm	
a. ABOVE TUNED FREQUENCY				b. CRITERIA (U) 1E-5 BER; S/N = 10 dB	
b. BELOW TUNED FREQUENCY				c. NOISE FIG (U) 4 dB	
c. EITHER ABOVE OR BELOW THE FREQUENCY				d. NOISE TEMP (U) NA	
18. DE-EMPHASIS (U) ☐ a. YES ☒ b. NO			20. SPURIOUS REJECTION (U) 70 dB		
19. IMAGE REJECTION (U) NA					
21. REMARKS (U) Item 13: Estimated as 160 kHz Item 14: Estimated as 0 Hz					
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ANTENNA EQUIPMENT CHARACTERISTICS			
1. (U) ☐ a. TRANSMITTING ☐ b. RECEIVING ☒ c. TRANSMITTING AND RECEIVING			
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) Player Unit Model 325013-1		3. MANUFACTURER'S NAME (U) Cubic Defense Systems	
4. FREQUENCY RANGE (U) 225 MHz - 231 MHz		5. TYPE (U) Whip	
6. POLARIZATION (U) Vertical		7. SCAN CHARACTERISTICS	
8. GAIN		a. TYPE (U) FIXED	
a. MAIN BEAM (U) -8 dBi		b. VERTICAL SCAN (U) NA	
b. 1st MAJOR SIDE LOBE (U) NA		(1) Max Elev (U)	
9. BEAMWIDTH		(2) Min Elev (U)	
a. HORIZONTAL (U) 360 deg		(3) Scan Rate (U)	
b. VERTICAL (U) 65 deg		c. HORIZONTAL SCAN (U) NA	
10. REMARKS (U)		(1) Sector Scanned (U)	
Item 5: Antenna is a flexible tape which is 1/4" wide and 13" long.		(2) Scan Rate (U)	
		d. SECTOR BLANKING (U) ☐ (1) YES ☒ (2) NO	
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ANTENNA EQUIPMENT CHARACTERISTICS			
1. (U) ☐ a. TRANSMITTING ☐ b. RECEIVING ☒ c. TRANSMITTING AND RECEIVING			
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) Relay model 2509-0051-201		3. MANUFACTURER'S NAME (U) Antenna Products Corporation	
4. FREQUENCY RANGE (U) 225 MHz - 233 MHz		5. TYPE (U) Dipole Array	
6. POLARIZATION (U) Vertical		7. SCAN CHARACTERISTICS	
8. GAIN		a. TYPE (U) FIXED	
a. MAIN BEAM (U) 2.15 dBi		b. VERTICAL SCAN (U) NA	
b. 1st MAJOR SIDE LOBE (U) NA		(1) Max Elev (U)	
9. BEAMWIDTH		(2) Min Elev (U)	
a. HORIZONTAL (U) 360 deg		(3) Scan Rate (U)	
b. VERTICAL (U) 75 deg		c. HORIZONTAL SCAN (U) NA	
10. REMARKS (U)		(1) Sector Scanned (U)	
(U)		(2) Scan Rate (U)	
(U)		d. SECTOR BLANKING (U) ☐ (1) YES ☒ (2) NO	
(U)			
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LINE DIAGRAM

Cubic Defense Systems Model 284565 and 325015



APPLICATION FOR SPECTRUM REVIEW	CLASSIFICATION UNCLASSIFIED	PAGE 7
NTIA GENERAL INFORMATION		
1. APPLICATION TITLE (U) Cubic Defense Systems Models 284565 and 325015 Transceivers		
2. SYSTEM NOMENCLATURE (U) Cubic Defense Systems Models 284565 and 325015 Transceivers		
3. STAGE OF ALLOCATION (U) ☐ a. STAGE 1 CONCEPTUAL ☐ b. STAGE 2 EXPERIMENTAL ☐ c. STAGE 3 DEVELOPMENTAL ☒ d. STAGE 4 OPERATIONAL		
4. FREQUENCY REQUIREMENTS a. FREQUENCY(IES) (U) 225 MHz - 231 MHz b. EMISSION DESIGNATORS (U) 20K1F1D		
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS (WARTIME USE) ☐ a. YES ☒ b. NO (U) Provides a capability to report position and events of downed pilots and aggressor units during Combat Search and Rescue (CSAR) training exercises.		
6. INFORMATION TRANSFER REQUIREMENTS (U) 20 kbps MSK data		
7. ESTIMATED INITIAL COST OF THE SYSTEM (U) \$5M for 30 portable, 5 base and central collection operational units.		
8. TARGET DATE FOR		
a. APPLICATION APPROVAL (U) 12/01/2003	b. SYSTEM ACTIVATION (U) 01/15/2004	c. SYSTEM TERMINATION (U) NAvail
9. SYSTEM RELATIONSHIP AND ESSENTIALITY (U) The player unit (manworn portable unit) and the relay (base unit) interface with several other systems.		
10. REPLACEMENT INFORMATION (U) None		
11. RELATED ANALYSIS AND/OR TEST DATA (U) NAvail		
12. NUMBER OF MOBILE UNITS (U) 900		
13. GEOGRAPHICAL AREA FOR		
a. STAGE 2 (U) NA		
b. STAGE 3 (U) NA		
c. STAGE 4 (U) US&P Test and Training Ranges		
14. LINE DIAGRAM (U) See Page(s) 7		15. SPACE SYSTEMS (U) See Page(s) NA
16. TYPE OF SERVICE(S) FOR STAGE 4 (U) Fixed Mobile		17. STATION CLASS(ES) FOR STAGE 4 (U) FX MO FB MLP
18. REMARKS ()		
DOWNGRADING INSTRUCTIONS		J/F 12/09004 CLASSIFICATION UNCLASSIFIED