

APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION		CLASSIFICATION UNCLASSIFIED		DATE 04/22/2004		/	
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DOD GENERAL INFORMATION							
TO AF Frequency Management Agency AFFMA/SCM 2461 Eisenhower Ave., Suite 1203 Alexandria, VA 22331-1500				FROM AF Materiel Command (ESC 005-04) Electronic Systems Center ESC/NI6O (Spectrum Management) 30 Hamilton Street Hanscom AFB, MA 01731-2802			
1. APPLICATION TITLE (U) Telephonics Corp., Advanced Radar Surveillance System (ARSS-1)							
2. SYSTEM NOMENCLATURE (U) Telephonics Corp., Advanced Radar Surveillance System (ARSS-1)							
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) 8739.55 MHz - 8960.00 MHz (See Remarks)							
b. EMISSION DESIGNATORS (U) 22M0P0N 7M35Q3N							
5. TARGET STARTING DATE FOR SUBSEQUENT STAGES							
a. STAGE 2 (U) NA b. STAGE 3 (U) c. STAGE 4 (U) NAvail							
6. EXTENT OF USE (U) Continuous 24 hours per day, 7 days per week							
7. GEOGRAPHICAL AREA FOR							
a. STAGE 2 (U) NA							
b. STAGE 3 (U) US&P and Worldwide (See Remarks)							
c. STAGE 4 (U) US&P and Worldwide (See Remarks)							
8. NUMBER OF UNITS							
a. STAGE 2 (U) NA b. STAGE 3 (U) 500 c. STAGE 4 (U) NAvail							
9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT(U) 5							
10. OTHER J/F 12 APPLICATION ID(S) TO BE (U) ☒ a. SUPERSEDED J/F 12/8210 ☐ b. RELATED NA				11.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 1LT Adam Blankenship, ESC/FDT				(1) COMMERCIAL 781-377-5606		(2) DSN 478-5606	
b. PROJECT ENGINEER Mr. Donald Rich, ESC/FDT				(1) COMMERCIAL 781-377-7222		(2) DSN 478-7222	
13. REMARKS (U)							
Item 4a. System requires one of the following eight (8) factory preset frequencies to operate (selectable via Menu software control: 8750.55 MHz, 8778.90 MHz, 8807.25 MHz, 8835.60 MHz, 8863.95 MHz, 8892.30 MHz, 8920.65 MHz, or 8949.00 MHz. Item 9. Minimum operating distance between units is 100 meters. Item 7c/d. Albania, Australia, Austria, Bahrain, Belgium, Brazil, Canada, Chile, Columbia, Czech Republic, Denmark, Finland, France, Germany, Greece, Honduras, Hungary, Iceland, Israel, Italy, Japan (Misawa AB, Kadena AB, Yokota AB), Jordan, Kuwait, Luxembourg, Mexico, Morocco, Netherlands, New Zealand, Norway, Oman, Panama, Philippines, Poland,							
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Portugal, Romania, Saudi Arabia, Slovakia, Slovenia, South Korea (Osan AB, Kunsan AB), Spain, Sweden, Thailand, Turkey, United Arab Emirates, and United Kingdom.

2. MANUFACTURER'S NAME

(U) Telephonics Corp.

4. TRANSMITTER TYPE

(U) **Pulse Doppler Radar**

6. METHOD OF TUNING

(U) (See Remarks)

8. EMISSION DESIGNATORS

(U) 22M0P0N (U) 7M35Q3N (U)

12. EMISSION BANDWIDTH

☐ CALCULATED ☒ MEASURED

a. -3 dB (U) 3.5 MHz (U) 4.7 MHz (U)

(U) ☒ a. YES ☐ b. NO

b. -20 dB (U)	15 MHz	(U)	7.35 MHz	(U)
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c. -40 dB (U)	95 MHz	(U)	26 MHz	(U)
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(U) ☐ a. YES ☒ b. NO

d. -60 dB (U)	200 MHz	(U)	160 MHz	(U)
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15. MAXIMUM MODULATION FREQUENCY

(U) NA

(U) NA

17. DEVIATION RATIO

(U) Unmodulated and Non-Linear FM Chirp Radar Pulses

(U) NA

18. PULSE CHARACTERISTICS

(U) ☐ a. YES ☒ b. NO

a. RATE	(U)	4546 pps	(U)	4546 pps	(U)
		- 5582 pps		- 5582 pps	

b. WIDTH (U)	280 ns	(U)	16 μ s	(U)
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a. MEAN (U) 0.001 W (U) 0.483 W (U)

c. RISE TIME (U)	40 ns	(U)	700 ns	(U)
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b. PEP (U)		5 W		(U)		5 W		(U)	
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d. FALL TIME (U)	40 ns	(U)	700 ns	(U)
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21. HARMONIC LEVEL

(U) Solid State Amplifier

a. 2nd	(U)	-60 dB
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b. 3rd	(U)	-60 dB
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(U) -60 dB

c. OTHER (U) -60 dB

c. OTHER (U) -60 dB

(U) NA

Item 6 & 7. For current configuration: Factory fixed tune (presets) at 8750.55 MHz, 8778.90 MHz, 8807.25 MHz, 8835.60 MHz, 8863.95 MHz, 8892.30 MHz, 8920.65 MHz, or 8949.00 MHz (selectable via menu software control). If crystal oscillator packages are installed, then the transmitter is capable of tuning from 8750.55 MHz-8949 MHz in 28.35 MHz Steps.

Item 10. Individual bandpass filters centered on each factory preset frequency: -3dB bandwidth: 25 MHz minimum, -30 dB bandwidth: 240 MHz maximum, and 2 dB maximum insertion loss. Appropriate filter dependent upon authorized frequency will be installed at the input of the final power amplifier prior to operation.

Item 14. NLFM chirp interlaced with unmodulated pulse when simultaneously observing ranges greater and less than 300 meters. Unmodulated pulse transmitted followed by the NLFM chirp delayed 22.4

TRANSMITTER REMARK OVERFLOW PAGE

usec.

RECEIVER EQUIPMENT CHARACTERISTICS

1. NOMENCLATURE, MANUFACTURER'S MODEL NO.

(U) 366-1020-001

2. MANUFACTURER'S NAME

(U) Telephonics Corp.

3. RECEIVER INSTALLATION

(U) Fixed (Manportable)

4. RECEIVER TYPE

(U) Single Conversion Superheterodyne

5. TUNING RANGE

(U) 8750.55 MHz - 8949.00 MHz

6. METHOD OF TUNING

(U) (See Remarks)

8. EMISSION DESIGNATORS

(U) 22M0P0N 5M00Q3N

7. RF CHANNELING CAPABILITY

(U) (See Remarks)

11. RF SELECTIVITY

☐ CALCULATED☒ MEASURED

9. FREQUENCY TOLERANCE

(U) 200 ppm

a. -3 dB (U) 400 MHz

b. -20 dB (U) 810 MHz

c. -60 dB (U) NAVAIL

d. Preselection Type (U) None

10. IF SELECTIVITY

1st (U)

2nd (U)

3rd (U)

a. -3 dB

3.0 MHz

NA

NA

b. -20 dB

10 MHz

NA

NA

c. -60 dB

(See Remarks)

NA

NA

12. IF FREQUENCY

a. 1st (U) 120 MHz

b. 2nd (U) NA

c. 3rd (U) NA

13. MAXIMUM POST DETECTION FREQUENCY

(U) NA

14. MINIMUM POST DETECTION FREQUENCY

(U) NA

16. MAXIMUM BIT RATE

(U) NA

15. OSCILLATOR TUNED

1st (U)

2nd (U)

3rd (U)

17. SENSITIVITY

a. SENSITIVITY (U) -100 dBm

b. CRITERIA (U) MDS

c. NOISE FIG (U) 3 dB

d. NOISE TEMP (U) NA

20. SPURIOUS REJECTION

(U) 60 dB

18. DE-EMPHASIS

(U) ☐ a. YES☒ b. NO

19. IMAGE REJECTION

(U) 60 dB

21. REMARKS (U)

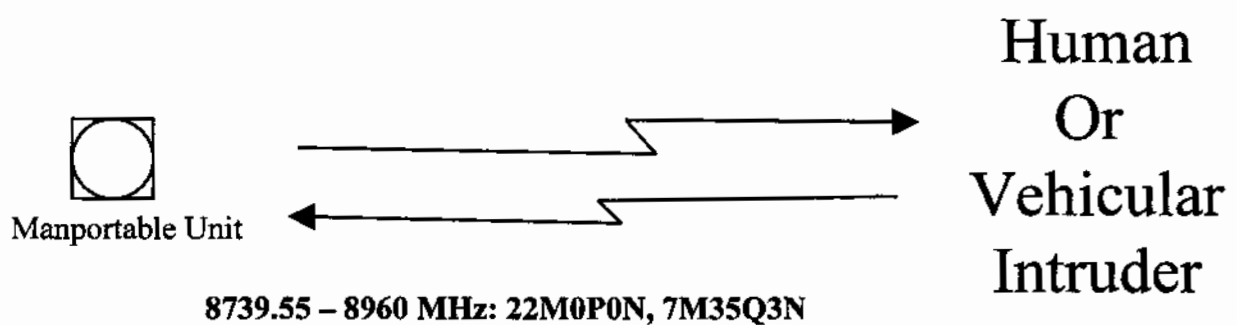
Item 6 & 7. For current configuration: Factory fixed tune (presets) at 8750.55 MHz, 8778.90 MHz, 8807.25 MHz, 8835.60 MHz, 8863.95 MHz, 8892.30 MHz, 8920.65 MHz, or 8949.00 MHz (selectable via menu software control). If crystal oscillator packages are installed, then the transmitter is capable of tuning from 8750.55 MHz-8949 MHz in 28.35 MHz Steps.

Item 10a & b. Above bandwidths are for unmodulated mode. Values for compressed mode are: 1.5 MHz and 5.0 MHz, respectively.

Item 10c. -60 dB bandwidth not symmetrical.

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ANTENNA EQUIPMENT CHARACTERISTICS			
1. (U) ☐ a. TRANSMITTING ☐ b. RECEIVING ☒ c. TRANSMITTING AND RECEIVING			
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) 366-1020-001		3. MANUFACTURER'S NAME (U) Telephonics Corp.	
4. FREQUENCY RANGE (U) 8740 MHz - 8960 MHz		5. TYPE (U) Phased-Array	
6. POLARIZATION (U) Vertical		7. SCAN CHARACTERISTICS	
8. GAIN		a. TYPE (U) ELECTRONIC & MECHANICAL	
a. MAIN BEAM (U) 30.8 dBi		b. VERTICAL SCAN (U) (See Remarks)	
b. 1st MAJOR SIDE LOBE (U) (See Remarks)		(1) Max Elev (U) 11 deg	
9. BEAMWIDTH		(2) Min Elev (U) -22 deg	
a. HORIZONTAL (U) 3.8 deg		(3) Scan Rate (U) NA	
b. VERTICAL (U) 5.35 deg		c. HORIZONTAL SCAN (U) (See Remarks)	
		(1) Sector Scanned (U) 0 to 358 degrees	
		(2) Scan Rate (U) 7.8, 15.6, or 22.8 deg/sec	
		d. SECTOR BLANKING (U) ☐ (1) YES ☒ (2) NO	
10. REMARKS (U) Item 7b. Antenna is set to a fixed elevation position angle remotely via operator control of a linear actuator motor. Item 7c(1). Antenna scans in azimuth from 0 to 358 degrees clockwise and counterclockwise. Item 7c(2). Scan rate is operator selectable. Item 8b. -22 dBi for azimuth and -18 dBi for elevation; Degrees: Navail.			
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**Telephonics Corp., Advanced Radar Surveillance
System (ARSS-1)**

APPLICATION FOR SPECTRUM REVIEW	CLASSIFICATION UNCLASSIFIED	PAGE 1
NTIA GENERAL INFORMATION		
1. APPLICATION TITLE (U) Telephonics Corp., Advanced Radar Surveillance System (ARSS-1)		
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4. FREQUENCY REQUIREMENTS		
a. FREQUENCY(IES) (U) 8739.55 MHz - 8960.50 MHz (See Remarks)		
b. EMISSION DESIGNATORS (U) 22M0P0N 5M00Q3N		
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS (U) Tactical radar system used to detect ground and low flying targets for the purpose of collecting intelligence information and detecting penetration during routine security activities. (WARTIME USE) ☒ a. YES ☐ b. NO		
6. INFORMATION TRANSFER REQUIREMENTS (U) Unmodulated and Non-Linear FM Chirp Radar Pulses		
7. ESTIMATED INITIAL COST OF THE SYSTEM (U) \$160,000 per unit		
8. TARGET DATE FOR		
a. APPLICATION APPROVAL (U) 01-31-2004	b. SYSTEM ACTIVATION (U) 02-01-2004	c. SYSTEM TERMINATION (U) 01-2014
9. SYSTEM RELATIONSHIP AND ESSENTIALITY (U) Essential to national security through the protection of high value resources.		
10. REPLACEMENT INFORMATION (U) None		
11. RELATED ANALYSIS AND/OR TEST DATA (U) None		
12. NUMBER OF MOBILE UNITS (U) None		
13. GEOGRAPHICAL AREA FOR		
a. STAGE 2 (U) NA		
b. STAGE 3 (U) US&P and Worldwide (See Remarks)		
c. STAGE 4 (U) US&P and Worldwide (See Remarks)		
14. LINE DIAGRAM (U) See Page(s) 6		15. SPACE SYSTEMS (U) See Page(s) NA
16. TYPE OF SERVICE(S) FOR STAGE 4 (U) Radiolocation		17. STATION CLASS(ES) FOR STAGE 4 (U) MRP
18. REMARKS (U) Item 4a. System requires one of the following eight (8) factory preset fixed frequencies to operate (selectable via Menu software control): 8750.55 MHz, 8778.90 MHz, 8807.25 MHz, 8835.60 MHz, 8863.95 MHz, 8892.30 MHz, 8920.65 MHz, or 8949.00 MHz. Item 13b/c. Albania, Australia, Austria, Bahrain, Belgium, Brazil, Canada, Chile, Columbia, Czech Republic, Denmark, Finland, France,		
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NTIA REMARK OVERFLOW PAGE

Germany, Greece, Honduras, Hungary, Iceland, Israel, Italy, Japan (Misawa AB, Kadena AB, Yokota AB), Jordan, Kuwait, Luxembourg, Mexico, Morocco, Netherlands, New Zealand, Norway, Oman, Panama, Philippines, Poland, Portugal, Romania, Saudi Arabia, Slovakia, Slovenia, South Korea (Osan AB, Kunsan AB), Spain, Sweden, Thailand, Turkey, United Arab Emirates, and United Kingdom.