

UNCLASSIFIED

J/F 12/09180

SECURITY SUMMARY & SPECIAL HANDLING REQUIREMENTS

The title of this application is: Enerdyne Technologies Enerlinks2 Video/Data
Downlink

The overall classification of this application is: **UNCLASSIFIED**

The following Special Handling summary lists the applicable markings for the printed page(s).
It is your responsibility to place all Special Handling markings on the cover page of the application.

If an Entire Application was printed, the following Special Handling summary lists the applicable markings for the Entire Application.

If an Individual Page (TX, RX, ANT, etc.) was printed, the following Special Handling summary lists the applicable markings for the printed page. It is your responsibility to make certain that any Special Handling markings that are unique to the Individual Page are also reflected on the cover of the Entire Application.

If the "!" code is shown below, the "SEE REMARKS" refers to the REMARKS block on the applicable page.

Refer to your Security Manual for further guidance.

No Application Level Special Handling
No Page Level Special Handling

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All Application Level Special Handling markings (if any) will appear at the top of the Special Handling list for each individual page type. Field Level markings will follow. It is your responsibility to mark the individual pages of this application in accordance with the procedures in your Security Manual. The following summaries are provided for that purpose.

Page Type:	Page #:	Classification:	Special Handling Requirement:
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Transmitter Page 1	2	UNCLASSIFIED
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General Continuation 1	6	UNCLASSIFIED
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APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION		CLASSIFICATION UNCLASSIFIED		DATE 04/28/2007		J/F 12/09180	
						Page 1 of 7 Pages	
DOD GENERAL INFORMATION							
TO Navy Marine Corps Spectrum Center 2461 Eisenhower Ave., Suite 1202 Alexandria, VA 22331-1400				FROM PMS NSW-SP Room 301, Bldg. 22 1244 Patterson Ave SE Washington Navy Yard, DC 20374			
1. APPLICATION TITLE (U) Enerdyne Technologies Enerlinks2 Video/Data Downlink							
2. SYSTEM NOMENCLATURE (U) UAS Video/Data Downlink							
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) 1755 MHz - 1850 MHz b. EMISSION DESIGNATORS (U) 8M11F1D							
5. TARGET STARTING DATE FOR SUBSEQUENT STAGES							
a. STAGE 2 (U) NA		b. STAGE 3 (U) NA			c. STAGE 4 (U) 2008		
6. EXTENT OF USE (U) Intermittent							
7. GEOGRAPHICAL AREA FOR							
a. STAGE 2 (U) NA							
b. STAGE 3 (U) US&P Test and Training Ranges							
c. STAGE 4 (U) (See Remarks)							
8. NUMBER OF UNITS							
a. STAGE 2 (U) NA		b. STAGE 3 (U) 19			c. STAGE 4 (U) 200		
9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT (U) 1							
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 Mr. Robert Murray				(1) COMMERCIAL 202-781-5782		(2) DSN 326-5782	
b. PROJECT ENGINEER Mr. Bruce Venanzi				(1) COMMERCIAL 757-492-7960		(2) DSN 537-2505	
13. REMARKS (U) Item 7c. US&P, NATO Countries, Japan, Korea, Australia and Contingency Areas Worldwide							
DOWNGRADING INSTRUCTIONS						J/F 12/09180	
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CLASSIFICATION UNCLASSIFIED		PAGE 2	
TRANSMITTER EQUIPMENT CHARACTERISTICS			
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) Enerlinks2 Video Data Link		2. MANUFACTURER'S NAME (U) Enerdyne Technologies, Inc	
3. TRANSMITTER INSTALLATION (U) Aircraft/UAV		4. TRANSMITTER TYPE (U) FSK Digital Data	
5. TUNING RANGE (U) 1710 MHz - 1850 MHz		6. METHOD OF TUNING (U) PLL Synthesizer	
7. RF CHANNELING CAPABILITY (U) 1710 MHz @ 500 kHz increments		8. EMISSION DESIGNATORS (U) 8M11F1D (U) (U)	
		12. EMISSION BANDWIDTH ☐ CALCULATED ☒ MEASURED	
9. FREQUENCY TOLERANCE (U) 20 ppm		a. -3 dB (U) 5.75 MHz (U) (U)	
10. FILTER EMPLOYED (U) ☒ a. YES ☐ b. NO		b. -20 dB (U) 6.5 MHz (U) (U)	
		c. -40 dB (U) 14.0 MHz (U) (U)	
11. SPREAD SPECTRUM (U) ☐ a. YES ☒ b. NO		d. -60 dB (U) 20.0 MHz (U) (U)	
		e. OC-BW (U) 8.11 MHz (U) (U)	
13. MAXIMUM BIT RATE (U) 5 Mbps		15. MAXIMUM MODULATION FREQUENCY (U) 2.75 MHz	
14. MODULATION TECHNIQUES AND CODING (U) FSK (See Remarks)		17. DEVIATION RATIO (U) 0.175	
16. PRE-EMPHASIS (U) ☐ a. YES ☒ b. NO		18. PULSE CHARACTERISTICS	
		a. RATE (U) NA (U) (U)	
19. POWER		b. WIDTH (U) NA (U) (U)	
a. MEAN (U) 20 W (U) (U)		c. RISE TIME (U) NA (U) (U)	
b. PEP (U) NA (U) (U)		d. FALL TIME (U) NA (U) (U)	
		e. COMP RATIO (U) NA (U) (U)	
20. OUTPUT DEVICE (U) FET		21. HARMONIC LEVEL	
22. SPURIOUS LEVEL (U) -70 dB		a. 2nd (U) -75 dB	
		b. 3rd (U) -80 dB	
		c. OTHER (U) -90 dB	
23. FCC TYPE ACCEPTANCE NO. (U) NA			
24. REMARKS (U) Item 10: Gaussian pre-modulation filter, bandwidth scales with bit rate Item 14. Gaussian filtered FSK, turbo product coding with selectable rates approximately 1/2, 2/3, 4/5 and uncoded			
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RECEIVER EQUIPMENT CHARACTERISTICS																							
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) Enerlinks2 Video Data Link		2. MANUFACTURER'S NAME (U) Enerdyne Technologies, Inc																					
3. RECEIVER INSTALLATION (U) Ground Control Station		4. RECEIVER TYPE (U) Dual Conversion Superheterodyne																					
5. TUNING RANGE (U) 1710 MHz - 1850 MHz		6. METHOD OF TUNING (U) PLL Synthesizer																					
7. RF CHANNELING CAPABILITY (U) 1710 MHz @ 500 kHz increments		8. EMISSION DESIGNATORS (U) 8M11F1D																					
9. FREQUENCY TOLERANCE (U) 20 ppm		11. RF SELECTIVITY ☒ CALCULATED ☐ MEASURED																					
10. IF SELECTIVITY <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>1st (U)</th> <th>2nd (U)</th> <th>3rd (U)</th> </tr> </thead> <tbody> <tr> <td>a. -3 dB</td> <td>37 MHz</td> <td>(See Remarks)</td> <td>NA</td> </tr> <tr> <td>b. -20 dB</td> <td>50 MHz</td> <td>(See Remarks)</td> <td>NA</td> </tr> <tr> <td>c. -60 dB</td> <td>77.5 MHz</td> <td>(See Remarks)</td> <td>NA</td> </tr> </tbody> </table>			1st (U)	2nd (U)	3rd (U)	a. -3 dB	37 MHz	(See Remarks)	NA	b. -20 dB	50 MHz	(See Remarks)	NA	c. -60 dB	77.5 MHz	(See Remarks)	NA	a. -3 dB (U) 359 MHz b. -20 dB (U) 474 MHz c. -60 dB (U) 768 MHz d. Preselection Type (U) Bandpass					
	1st (U)	2nd (U)	3rd (U)																				
a. -3 dB	37 MHz	(See Remarks)	NA																				
b. -20 dB	50 MHz	(See Remarks)	NA																				
c. -60 dB	77.5 MHz	(See Remarks)	NA																				
12. IF FREQUENCY <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tbody> <tr> <td>a. 1st (U) 400 MHz</td> </tr> <tr> <td>b. 2nd (U) 70 MHz</td> </tr> <tr> <td>c. 3rd (U) NA</td> </tr> </tbody> </table>		a. 1st (U) 400 MHz	b. 2nd (U) 70 MHz	c. 3rd (U) NA	13. MAXIMUM POST DETECTION FREQUENCY (U) 6 MHz																		
a. 1st (U) 400 MHz																							
b. 2nd (U) 70 MHz																							
c. 3rd (U) NA																							
		14. MINIMUM POST DETECTION FREQUENCY (U) NA																					
		16. MAXIMUM BIT RATE (U) 5 Mbps																					
15. OSCILLATOR TUNED <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th></th> <th>1st (U)</th> <th>2nd (U)</th> <th>3rd (U)</th> </tr> </thead> <tbody> <tr> <td>a. ABOVE TUNED FREQUENCY</td> <td></td> <td></td> <td></td> </tr> <tr> <td>b. BELOW TUNED FREQUENCY</td> <td>X</td> <td>X</td> <td></td> </tr> <tr> <td>c. EITHER ABOVE OR BELOW THE FREQUENCY</td> <td></td> <td></td> <td></td> </tr> </tbody> </table>			1st (U)	2nd (U)	3rd (U)	a. ABOVE TUNED FREQUENCY				b. BELOW TUNED FREQUENCY	X	X		c. EITHER ABOVE OR BELOW THE FREQUENCY				17. SENSITIVITY <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tbody> <tr> <td>a. SENSITIVITY (U) (See Remarks)</td> </tr> <tr> <td>b. CRITERIA (U) BER 1E-07</td> </tr> <tr> <td>c. NOISE FIG (U) 6 dB</td> </tr> <tr> <td>d. NOISE TEMP (U) NA</td> </tr> </tbody> </table>		a. SENSITIVITY (U) (See Remarks)	b. CRITERIA (U) BER 1E-07	c. NOISE FIG (U) 6 dB	d. NOISE TEMP (U) NA
	1st (U)	2nd (U)	3rd (U)																				
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b. BELOW TUNED FREQUENCY	X	X																					
c. EITHER ABOVE OR BELOW THE FREQUENCY																							
a. SENSITIVITY (U) (See Remarks)																							
b. CRITERIA (U) BER 1E-07																							
c. NOISE FIG (U) 6 dB																							
d. NOISE TEMP (U) NA																							
18. DE-EMPHASIS (U) ☐ a. YES ☒ b. NO		20. SPURIOUS REJECTION (U) 73 dB																					
19. IMAGE REJECTION (U) 70 dB																							
21. REMARKS (U) Item 10. 2nd IF Selectivity <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Narrow</th> <th>Medium</th> <th>Wide</th> </tr> </thead> <tbody> <tr> <td>-3 dB</td> <td>2.1 MHz</td> <td>4.9 MHz</td> <td>9.4 MHz</td> </tr> <tr> <td>-20 dB</td> <td>3.2 MHz</td> <td>7.5 MHz</td> <td>12.0 MHz</td> </tr> <tr> <td>-60 dB</td> <td>4.0 MHz</td> <td>9.0 MHz</td> <td>14.0 MHz</td> </tr> </tbody> </table> Line 17a. Sensitivity Rate 1/2 FEC: -94 dBm Rate 2/3 FEC: -93 dBm Rate 4/5 FEC: -92 dBm Uncoded: -82 dBm					Narrow	Medium	Wide	-3 dB	2.1 MHz	4.9 MHz	9.4 MHz	-20 dB	3.2 MHz	7.5 MHz	12.0 MHz	-60 dB	4.0 MHz	9.0 MHz	14.0 MHz				
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ANTENNA EQUIPMENT CHARACTERISTICS

1. (U) ☐ a. TRANSMITTING ☒ b. RECEIVING ☐ c. TRANSMITTING AND RECEIVING

2. NOMENCLATURE, MANUFACTURER'S MODEL NO.

(U) RF1710-1850-HN-01

3. MANUFACTURER'S NAME

(U) RF Concepts Inc.

4. FREQUENCY RANGE

(U) 1710 MHz - 1850 MHz

5. TYPE (U) Horn

7. SCAN CHARACTERISTICS

a. TYPE (U) FIXED

6. POLARIZATION

(U) Vertical

b. VERTICAL SCAN (U) NA

(1) Max Elev (U)

8. GAIN

(2) Min Elev (U)

a. MAIN BEAM

(U) 16 dBi

(3) Scan Rate (U)

b. 1st MAJOR SIDE LOBE

(U) NAvail

c. HORIZONTAL SCAN (U) NA

(1) Sector Scanned (U)

9. BEAMWIDTH

(2) Scan Rate (U)

a. HORIZONTAL

(U) 60 deg

b. VERTICAL

(U) 40 deg

d. SECTOR BLANKING (U) ☐ (1) YES ☒ (2) NO

10. REMARKS (U)

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GENERAL CONTINUATION PAGE

APPLICATION FOR SPECTRUM REVIEW	CLASSIFICATION UNCLASSIFIED	PAGE 7
NTIA GENERAL INFORMATION		
1. APPLICATION TITLE (U) Enerdyne Technologies Enerlinks2 Video/Data Downlink		
2. SYSTEM NOMENCLATURE (U) UAS Video/Data Downlink		
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) 1755 MHz - 1850 MHz b. EMISSION DESIGNATORS (U) 8M11F1D		
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS (U) Provide video/data downlink (WARTIME USE) ☒ a. YES ☐ b. NO		
6. INFORMATION TRANSFER REQUIREMENTS (U) 5 Mbps, FSK digital video/data		
7. ESTIMATED INITIAL COST OF THE SYSTEM (U) \$88,000 per unit		
8. TARGET DATE FOR		
a. APPLICATION APPROVAL (U) ASAP	b. SYSTEM ACTIVATION (U) ASAP	c. SYSTEM TERMINATION (U) UNKNOWN
9. SYSTEM RELATIONSHIP AND ESSENTIALITY (U) None		
10. REPLACEMENT INFORMATION (U) None		
11. RELATED ANALYSIS AND/OR TEST DATA (U) None		
12. NUMBER OF MOBILE UNITS (U) 19		
13. GEOGRAPHICAL AREA FOR		
a. STAGE 2 (U) NA		
b. STAGE 3 (U) US&P Test and Training Ranges		
c. STAGE 4 (U) US&P		
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) Aeronautical Mobile		17. STATION CLASS(ES) FOR STAGE 4 (U) MA
18. REMARKS (U)		
DOWNGRADING INSTRUCTIONS		J/F 12/09180 CLASSIFICATION UNCLASSIFIED