

UNCLASSIFIED

J/F 12/09140

SECURITY SUMMARY & SPECIAL HANDLING REQUIREMENTS

The title of this application is: Quasonix QSX-VSR-111-5E-20-6A, aka
Emhiser EHTC-06DEDU

The overall classification of this application is:

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 "I" 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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<p align="center">SECURITY SUMMARY & SPECIAL HANDLING REQUIREMENTS</p>	
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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.

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

Page Type:	Page #:	Classification:	Special Handling Requirement:
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DoD Page	1	UNCLASSIFIED	
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General Continuation 1	7	UNCLASSIFIED	
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	12	UNCLASSIFIED	
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APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION		CLASSIFICATION	DATE 05/26/2006	J/F 12/09140	
		Page 1 of 13 Pages			
DOD GENERAL INFORMATION					
TO NMSC 2461 Eisenhower Avenu Hoffman-I, Suite 1202 Alexandria, VA 22331-1400			FROM Department of the Navy NAVAIR-WD, Code 52J300D Naval Air Warfare Station 130 Easy Road, M/S 1104 China Lake, CA 93555-6109		
1. APPLICATION TITLE (U) Quasonix QSX-VSR-111-5E-20-6A, aka Emhiser EHTC-06DEDU					
2. SYSTEM NOMENCLATURE (U) Quasonix QSX-VSR-111-5E-20-6A Emhiser EHTC-06DEDU Emhiser EHTC-06DEDU					
3. STAGE OF ALLOCATION (U) <input type="checkbox"/> a. STAGE 1 CONCEPTUAL <input type="checkbox"/> b. STAGE 2 EXPERIMENTAL <input type="checkbox"/> c. STAGE 3 DEVELOPMENTAL <input checked="" type="checkbox"/> d. STAGE 4 OPERATIONAL					
4. FREQUENCY REQUIREMENTS					
a. FREQUENCY(IES) (U) 2200 MHz - 2290 MHz					
b. EMISSION DESIGNATORS (U) 700KG1D 1M10F1D 2M70G1D 6M60F1D See Data Overflow Page					
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) Intermittent, Test Range data acquisition					
7. GEOGRAPHICAL AREA FOR					
a. STAGE 2 (U) NA					
b. STAGE 3 (U) NA					
c. STAGE 4 (U) DoD Test and Training Ranges in US&P					
8. NUMBER OF UNITS					
a. STAGE 2 (U)		b. STAGE 3 (U)		c. STAGE 4 (U) 10	
9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT(U) 4					
10. OTHER J/F 12 APPLICATION ID(S) TO BE (U) <input type="checkbox"/> a. SUPERSEDED <input type="checkbox"/> b. RELATED			11. IS THERE ANY OPERATIONAL REQUIREMENT AS DESCRIBED IN THE INSTRUCTIONS FOR PARAGRAPH 11? (U) <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO <input type="checkbox"/> c. NAVAIL		
12. NAMES AND TELEPHONE NUMBERS (U)					
a. PROGRAM MANAGER Scott Kujiraoka		(1) COMMERCIAL 8059898101		(2) DSN 351-8101	
b. PROJECT ENGINEER Albert Gabaldon		(1) COMMERCIAL 760 939-6023		(2) DSN 437-6023	
13. REMARKS (U) Item 4b: This is a multi-mode transmitter. It is capable of using more than one modulation type, PCM/FM (Tier0), SOQPSK (Tier 1), and Multi-H CPM (Tier 2). A total of 3 bit/data rates for the 3 modulations have been measured.					
DOWNGRADING INSTRUCTIONS					J/F 12/09140
					CLASSIFICATION

CLASSIFICATION UNCLASSIFIED		PAGE 2		
DOD DATA OVERFLOW PAGE				
2. SYSTEM NOMENCLATURE				
4. FREQUENCY REQUIREMENTS				
b. EMISSION DESIGNATORS (U)		6M80G1D	9M80G1D	11M1F1D 11M3G1D
b. EMISSION DESIGNATORS		16M2G1D		
10. OTHER J/F 12 APPLICATION NUMBER(S) TO BE				
b. RELATED J/F 12/				
CLASSIFICATION UNCLASSIFIED		J/F 12/09140		

CLASSIFICATION <div style="font-size: 1.2em; font-weight: bold; margin-top: 5px;">UNCLASSIFIED</div>		PAGE 3																																									
TRANSMITTER EQUIPMENT CHARACTERISTICS																																											
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) QSX-VSR-111-5E-20-6A and EHTC-06DEDU		2. MANUFACTURER'S NAME (U) Quasonix and Emhiser Research																																									
3. TRANSMITTER INSTALLATION (U) Airborne weapons systems		4. TRANSMITTER TYPE (U) Digital Communications																																									
5. TUNING RANGE (U) 2200 MHz - 2290 MHz		6. METHOD OF TUNING (U) Synthesizer																																									
7. RF CHANNELING CAPABILITY (U) 2200 MHz, 500 KHz increments		8. EMISSION DESIGNATORS See Data Overflow Page (U) 700KG1D (U) 1M10F1D (U) 2M70G1D																																									
		12. EMISSION BANDWIDTH See Data Overflow Page <div style="text-align: center; margin-top: 5px;"> <input type="checkbox"/> CALCULATED <input checked="" type="checkbox"/> MEASURED </div>																																									
9. FREQUENCY TOLERANCE (U) 20 ppm		a. -3 dB (U) NA (U) NA (U) NA																																									
10. FILTER EMPLOYED (U) <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO		b. -20 dB (U) 700 KHz (U) 1.05 MHz (U) 1.55 MHz																																									
11. SPREAD SPECTRUM (U) <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO		c. -40 dB (U) 1.2 MHz (U) 2.05 MHz (U) 3.65 MHz																																									
		d. -60 dB (U) 1.65 MHz (U) 2.85 MHz (U) 5.6 MHz																																									
13. MAXIMUM BIT RATE (U) (See Remarks)		e. OC-BW (U) 700 KHz (U) 1.1 MHz (U) 2.7 MHz																																									
14. MODULATION TECHNIQUES AND CODING (U) PCM/FM (Tier 0) SOQPSK (Tier 1) Multi-H CPM (Tier 2)(See Remarks)		15. MAXIMUM MODULATION FREQUENCY (U) 20 MHz																																									
16. PRE-EMPHASIS (U) <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO		17. DEVIATION RATIO (U) NAvail																																									
19. POWER See Data Overflow Page a. MEAN (U) 5 W (U) 5 W (U) 5 W		18. PULSE CHARACTERISTICS See Data Overflow Page a. RATE (U) NA (U) NA (U) NA																																									
b. PEP (U) NA (U) NA (U) NA		b. WIDTH (U) NA (U) NA (U) NA																																									
20. OUTPUT DEVICE (U) Solid State		c. RISE TIME (U) NA (U) NA (U) NA																																									
22. SPURIOUS LEVEL (U) -74 dB		d. FALL TIME (U) NA (U) NA (U) NA																																									
23. FCC TYPE ACCEPTANCE NO. (U) NA		e. COMP RATIO (U) NA (U) NA (U) NA																																									
24. REMARKS (U) Items 12, 13, 14: Some of the emission bandwidths under Item 12 are marked "NA", indicating that the peak modulated power level is below the corresponding emissions bandwidth reference power in dBc. Modulation, bit rate, emission designators and peak modulated power levels are related as follows: <div style="margin-top: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: left;">Modulation</th> <th style="text-align: left;">Bit Rate (Mbps)</th> <th style="text-align: left;">Emission</th> <th style="text-align: left;">Peak Mod Pwr (dBc)</th> </tr> <tr><td>PCM/FM</td><td>1</td><td>1M10F1D</td><td>-14.0</td></tr> <tr><td>PCM/FM</td><td>6</td><td>6M60F1D</td><td>-21.8</td></tr> <tr><td>PCM/FM</td><td>10</td><td>11M1F1D</td><td>-23.7</td></tr> <tr><td>SOQPSK</td><td>1</td><td>700KG1D</td><td>-10.7</td></tr> <tr><td>SOQPSK</td><td>12.25</td><td>9M80G1D</td><td>-21.7</td></tr> <tr><td>SOQPSK</td><td>20</td><td>16M2G1D</td><td>-23.8</td></tr> <tr><td>Multi-H CPM</td><td>5</td><td>2M70G1D</td><td>-16.0</td></tr> <tr><td>Multi-H CPM</td><td>12.25</td><td>6M80G1D</td><td>-20.2</td></tr> <tr><td>Multi-H CPM</td><td>20</td><td>11M3G1D</td><td>-22.4</td></tr> </table> </div>		Modulation	Bit Rate (Mbps)	Emission	Peak Mod Pwr (dBc)	PCM/FM	1	1M10F1D	-14.0	PCM/FM	6	6M60F1D	-21.8	PCM/FM	10	11M1F1D	-23.7	SOQPSK	1	700KG1D	-10.7	SOQPSK	12.25	9M80G1D	-21.7	SOQPSK	20	16M2G1D	-23.8	Multi-H CPM	5	2M70G1D	-16.0	Multi-H CPM	12.25	6M80G1D	-20.2	Multi-H CPM	20	11M3G1D	-22.4	21. HARMONIC LEVEL a. 2nd (U) -82 dB b. 3rd (U) -78 dB c. OTHER (U) -75 dB	
Modulation	Bit Rate (Mbps)	Emission	Peak Mod Pwr (dBc)																																								
PCM/FM	1	1M10F1D	-14.0																																								
PCM/FM	6	6M60F1D	-21.8																																								
PCM/FM	10	11M1F1D	-23.7																																								
SOQPSK	1	700KG1D	-10.7																																								
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SOQPSK	20	16M2G1D	-23.8																																								
Multi-H CPM	5	2M70G1D	-16.0																																								
Multi-H CPM	12.25	6M80G1D	-20.2																																								
Multi-H CPM	20	11M3G1D	-22.4																																								
CLASSIFICATION <div style="font-size: 1.2em; font-weight: bold; margin-top: 5px;">UNCLASSIFIED</div>		J/F 12/09140																																									

CLASSIFICATION UNCLASSIFIED	PAGE 4
TRANSMITTER DATA OVERFLOW PAGE	
1. NOMENCLATURE, MANUFACTURER'S MODEL NO.	
5. TUNING RANGE	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> 8. EMISSION DESIGNATORS (U) 6M60F1D </div> <div style="width: 30%;"> (U) 6M80G1D </div> <div style="width: 30%;"> (U) 9M80G1D </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> 12. EMISSION BANDWIDTH a. -3 dB (U) NA b. -20 dB NA c. -40 dB 7.15 MHz d. -60 dB 15.2 MHz e. OC-BW 6.6 MHz </div> <div style="width: 30%;"> (U) NA NA 8 MHz 12.8 MHz 6.8 MHz </div> <div style="width: 30%;"> (U) NA NA 11.1 MHz 17.4 MHz 9.8 MHz </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> 18. PULSE CHARACTERISTICS a. RATE (U) NA b. WIDTH (U) NA c. RISE TIME (U) NA d. FALL TIME (U) NA e. COMP RATIO (U) NA </div> <div style="width: 30%;"> (U) NA (U) NA (U) NA (U) NA (U) NA </div> <div style="width: 30%;"> (U) NA (U) NA (U) NA (U) NA (U) NA </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> 19. POWER a. MEAN (U) 5 W b. PEP (U) NA </div> <div style="width: 30%;"> (U) 5 W (U) NA </div> <div style="width: 30%;"> (U) 5 W (U) NA </div> </div>	
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CLASSIFICATION UNCLASSIFIED	PAGE 5
TRANSMITTER DATA OVERFLOW PAGE	
1. NOMENCLATURE, MANUFACTURER'S MODEL NO.	
5. TUNING RANGE	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> 8. EMISSION DESIGNATORS (U) 11M1F1D </div> <div style="width: 30%;"> (U) 11M3G1D </div> <div style="width: 30%;"> (U) 16M2G1D </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> 12. EMISSION BANDWIDTH a. -3 dB (U) NA b. -20 dB NA c. -40 dB 11.7 MHz d. -60 dB 24.2 MHz e. OC-BW 11.1 MHz </div> <div style="width: 30%;"> (U) NA NA 12.6 MHz 20 MHz 11.3 MHz </div> <div style="width: 30%;"> (U) NA NA 17.5 MHz 27.6 MHz 16.2 MHz </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> 18. PULSE CHARACTERISTICS a. RATE (U) NA b. WIDTH (U) NA c. RISE TIME (U) NA d. FALL TIME (U) NA e. COMP RATIO (U) NA </div> <div style="width: 30%;"> (U) NA (U) NA (U) NA (U) NA (U) NA </div> <div style="width: 30%;"> (U) NA (U) NA (U) NA (U) NA (U) NA </div> </div>	
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> 19. POWER a. MEAN (U) 5 W b. PEP (U) NA </div> <div style="width: 30%;"> (U) 5 W (U) NA </div> <div style="width: 30%;"> (U) 5 W (U) </div> </div>	
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GENERAL CONTINUATION PAGE

RESERVED FOR LINE DIAGRAM

APPLICATION FOR SPECTRUM REVIEW	CLASSIFICATION UNCLASSIFIED	PAGE 8
NTIA GENERAL INFORMATION		
1. APPLICATION TITLE (U) Quasonix QSX-VSR-111-5E-20-6A, aka Emhiser EHTC-06DEDU		
2. SYSTEM NOMENCLATURE (U) Quasonix QSX-VSR-111-5E-20-6A Emhiser EHTC-06DEDU Emhiser EHTC-06DEDU		
3. STAGE OF ALLOCATION (U) <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"><input type="checkbox"/> a. STAGE 1 CONCEPTUAL</div> <div style="text-align: center;"><input type="checkbox"/> b. STAGE 2 EXPERIMENTAL</div> <div style="text-align: center;"><input type="checkbox"/> c. STAGE 3 DEVELOPMENTAL</div> <div style="text-align: center;"><input checked="" type="checkbox"/> d. STAGE 4 OPERATIONAL</div> </div>		
4. FREQUENCY REQUIREMENTS a. FREQUENCY(IES) (U) 2200 MHz - 2290 MHz b. EMISSION DESIGNATORS (U) 700KG1D 1M10F1D 2M70G1D 6M60F1D <div style="text-align: right;">See Data Overflow Page</div>		
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS (U) Equipment provides telemetry transmission of airborne weapon system data using spectrally efficient Tier 1 or Tier 2 modulations and is also compatible with legacy Tier 0 modulations <div style="text-align: right;">(WARTIME USE) <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO</div>		
6. INFORMATION TRANSFER REQUIREMENTS (U) Digital data from 1Mbps to 20Mbps		
7. ESTIMATED INITIAL COST OF THE SYSTEM (U) \$5000 per unit		
8. TARGET DATE FOR		
a. APPLICATION APPROVAL (U) ASAP	b. SYSTEM ACTIVATION (U) ASAP	c. SYSTEM TERMINATION (U) NAvail
9. SYSTEM RELATIONSHIP (U) Test range telemetry support. AND ESSENTIALITY		
10. REPLACEMENT INFORMATION (U) NA		
11. RELATED ANALYSIS AND/OR TEST DATA (U) NA		
12. NUMBER OF MOBILE UNITS (U) 10		
13. GEOGRAPHICAL AREA FOR		
a. STAGE 2 (U) NA		
b. STAGE 3 (U) NA		
c. STAGE 4 (U) DoD Test and Training Ranges in US&P		
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) Aeronautical Mobile	17. STATION CLASS(ES) FOR STAGE 4 (U) MOEA MOEB	
18. REMARKS (U) Note: DD1494 covers transmitter onboard airborne weapons systems which can communicate with several existing ground TLM receivers at DoD ranges.		
DOWNGRADING INSTRUCTIONS		J/F 12/09140
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NTIA DATA OVERFLOW PAGE

2. SYSTEM NOMENCLATURE

4. FREQUENCY REQUIREMENTS

b. EMISSION DESIGNATORS (U)	6M80G1D	9M80G1D	11M1F1D	11M3G1D
b. EMISSION DESIGNATORS	16M2G1D			

17. STATION CLASS(ES) FOR STAGE 4

UNCLASSIFIED

MILITARY COMMUNICATIONS ELECTRONICS BOARD (MCEB)
EQUIPMENT FREQUENCY ALLOCATION GUIDANCE

Military Department Navy

Equipment: Quasonix QSX-VSR-111-5E-20-6A, aka Emhiser EHTC-06DEDU

Stage: 4 - Operational

Section 1: ENCLOSURES

Enclosure Number: 1 Description: J/F 12/9140 Dated: 26 May 2006

Section 2: OPERATING CHARACTERISTICS FOR WHICH SUPPORT IS CERTIFIED

Frequency: 2200-2290 MHz

Emissions:

700KG1D, 1M10F1D, 2M70G1D,
6M60F1D, 6M80G1D, 9M80G1D,
11M1F1D, 11M3G1D, 16M2G1D

Power (Mean): 5 W

Type of Services:

Aeronautical
Mobile

Operating Locations: DoD Test & Training Ranges in the US & P

Section 3: MCEB GUIDANCE

1. The enclosed application as described in Section 2 above is approved for operational use subject to the guidance below.
2. For the intended use in the Aeronautical Mobile service, the subject equipment is in accordance with the US Table of Frequency Allocations.
3. Based on the information provided,
 - a. The equipment complies with the requirements of Section 5.2.1 and 5.3.7 of NTIA Manual.
 - b. The equipment does not comply with the transmitter spurious emission and

other harmonic level requirements of MIL-STD-461E.

4. Continued compliance with the provisions of the standards cited in paragraph

3a above, is mandatory.

5. Frequency assignments request(s) must be submitted using Standard Frequency

Action Format (SFAF) and coordinated with the cognizant area frequency coordinator in accordance with ACP 190 US SUPP-1 (C), Guide to

Frequency

Planning, prior to activation.

6. Coordination with the NTIA Spectrum Planning Subcommittee was completed and

the following US certification statements were received:

a. DoD, in requesting frequency assignments for the subject system, comply

with the applicable guidance contained in the telemetering plans specified

in the section 4.3.4 of the NTIA Manual.

b. DoD ensure that personnel are protected from radiation levels that exceed

generally accepted levels.

7. Operational use within the various theater commands outside the United States

has not been approved. Approval for operational use in the intended deployment

area requires appropriate COCOM's statement(s) that the subject system has

been deemed frequency supportable.

Steering Member
ESG Working Group
MCEB Frequency Panel

Signature
Date 20 JUN 2007

IRAC/SPS
Doc. 35801/1
SPS-15961/1

Downgrading Instructions NA

Distribution
J-12 Holders

MCEB J-12 Number

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NTIA ADMINISTRATIVE PAGE

(U) SPS #: 15961/1

(U) SIN #:

(U) AGENCY: N

(U) STAGE: 4

(U) PREVIOUS CERTIFICATION:

(U) STATUS: DATE: ACTION:

(U) REMARKS:

IRAC Doc. #: 35801/1

(U) SPS RELATED DOCUMENTS: DATE: DOCKET #: DESCRIPTION:

(U) SPS RECOMMENDATIONS:

(U) NTIA CERTIFICATION:

ADMINISTRATIVE INFORMATION PAGE

1. SYSTEM IDENTIFIER:
 (U)
 C

2. EQUIPMENT FUNCTION:
 (U)
 C
 CD
 CT

3. EQUIPMENT NOMENCLATURE:
 (U)
 QSR-VSR-111-5E-20-6A
 (U)
 (U)
 QUASONIX
 (U)
 (U)
 EMHISER EHTC-06DEDU
 (U)
 (U)
 MODEL 6005
 (U)

4. ECI CODE:
 (U)

5. MCEB USE:
 (U)
 O
 (C:CONCEP; E:EXPER; D:DEVELOP; O:OPER; N:NOTED)

6. MCEB LOCATIONS:
 (U)
 COUNTRY
 STATE
 CITY
 USP
 DOD TEST & TRAINING RANGE

7. HOST COUNTRY:
 COUNTRY
 DATE
 MESSAGE DTG
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)

8. NOTE-TO-HOLDER:
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)
 (U)

9. JSC MEMO DATE:
 (U)
 06-20-2007

10. USING AGENCIES:
 (U)
 1:N
 2:
 3:

11. PROCURING AGENCY:
 (U)
 N

12. APPLICATION STATUS:
 (U)
 1
 (1:APPROV; 2:CANCEL; 3:SUPERSE; 4:NOTED; 5:WITHDR; 6:PEND)