

APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION	CLASSIFICATION	DATE 07/08/2009	Form Approved OMB No. 0704-0188						
			PAGE 1 OF 10 PAGES						
The public reporting burden for this collection of information is estimated to average 24 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Executive Services Directorate (0704-0188). Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ORGANIZATION. RETURN COMPLETED FORM TO THE USING AGENCY OR CONTRACTING AGENCY, AS APPROPRIATE.									
DOD GENERAL INFORMATION									
TO US Army Network Enterpric Technology Command 2461 Eisenhower Avenue Alexandria, VA 22331		FROM AirRobot US, Inc. 103 Rowell Court Falls Church, VA 22046							
1. APPLICATION TITLE Airrobot Unmanned Aerial Vehicle System									
2. SYSTEM NOMENCLATURE Airrobot Unmanned Aerial System ISR Force Protection									
3. STAGE OF ALLOCATION (X one) ☐ a. STAGE 1 - CONCEPTUAL ☐ b. STAGE 2 - EXPERIMENTAL ☐ c. STAGE 3 - DEVELOPMENTAL ☒ d. STAGE 4 - OPERATIONAL									
4. FREQUENCY REQUIREMENTS a. FREQUENCY(IES) 225.000 MHz - 228.1875 MHz and 4500.0 MHz - 4900.0 MHz b. EMISSION DESIGNATOR(S) 28K00F1N and 8M00X7D									
5. TARGET STARTING DATE FOR SUBSEQUENT STAGES a. STAGE 2 b. STAGE 3 c. STAGE 4 10/01/2009									
6. EXTENT OF USE ISR for Force Protection, Roadside Clearance									
7. GEOGRAPHICAL AREA FOR a. STAGE 2 b. STAGE 3 c. STAGE 4 Fort Benning, GA									
8. NUMBER OF UNITS a. STAGE 2 b. STAGE 3 c. STAGE 4 2									
9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT 2									
10. OTHER J/F 12 APPLICATION NUMBER(S) TO BE ☐ a. SUPERSEDED J/F 12/ ☐ b. RELATED J/F 12/		11. IS THERE ANY OPERATIONAL REQUIREMENT AS DESCRIBED IN THE INSTRUCTIONS FOR PARAGRAPH 11? ☐ a. YES ☒ b. NO ☐ c. N/Avail							
12. NAMES AND TELEPHONE NUMBERS <table border="1"> <tr> <td>a. PROGRAM MANAGER Thomas Meyer</td> <td>(1) COMMERCIAL (347) 332-6974</td> <td>(2) AUTOVON</td> </tr> <tr> <td>b. PROJECT ENGINEER Stefan Schulte +49</td> <td>(1) COMMERCIAL (293) 254-7740</td> <td>(2) AUTOVON</td> </tr> </table>				a. PROGRAM MANAGER Thomas Meyer	(1) COMMERCIAL (347) 332-6974	(2) AUTOVON	b. PROJECT ENGINEER Stefan Schulte +49	(1) COMMERCIAL (293) 254-7740	(2) AUTOVON
a. PROGRAM MANAGER Thomas Meyer	(1) COMMERCIAL (347) 332-6974	(2) AUTOVON							
b. PROJECT ENGINEER Stefan Schulte +49	(1) COMMERCIAL (293) 254-7740	(2) AUTOVON							
13. REMARKS									
DOWNGRADING INSTRUCTIONS		CLASSIFICATION							

APPLICATION FOR SPECTRUM REVIEW	CLASSIFICATION	PAGE 2
NTIA GENERAL INFORMATION		
1. APPLICATION TITLE AirRobot Unmanned Aerial System		
2. SYSTEM NOMENCLATURE Micro Unmanned Aerial System for ISR operations Force Protection		
3. STAGE OF ALLOCATION (X one) ☐ a. STAGE 1 - CONCEPTUAL ☐ b. STAGE 2 - EXPERIMENTAL ☐ c. STAGE 3 - DEVELOPMENTAL ☒ d. STAGE 4 - OPERATIONAL		
4. FREQUENCY REQUIREMENTS a. FREQUENCY(IES) 225.000 MHz - 228.1875 MHz and 4500.0 MHz - 4900.0 MHz b. EMISSION DESIGNATOR(S) 28K00FIN and 8M00X7D		
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS (WARTIME USE) (X one) ☒ a. YES ☐ b. NO Micro Unmanned Aerial System with VTOL for stealth ISR operations in complex and confined terrain, urban areas. Participation in AEWE Spiral F		
6. INFORMATION TRANSFER REQUIREMENTS		
7. ESTIMATED INITIAL COST OF THE SYSTEM \$ 72,000		
8. TARGET DATE FOR a. APPLICATION APPROVAL 10/01/2009 b. SYSTEM ACTIVATION 11/01/2009 c. SYSTEM TERMINATION TBD		
9. SYSTEM RELATIONSHIP AND ESSENTIALITY Control of Aircraft, Video and Data Transmission to Ground Station		
10. REPLACEMENT INFORMATION		
11. RELATED ANALYSIS AND TEST DATA		
12. NUMBER OF MOBILE UNITS ONE		
13. GEOGRAPHICAL AREA FOR a. STAGE 2 b. STAGE 3 c. STAGE 4 Fort Benning Georgia		
14. LINE DIAGRAM (See Page(s))	15. SPACE SYSTEMS (See Page(s))	
16. TYPE OF SERVICE(S) FOR STAGE 4 Mobile	17. STATION CLASS(ES) FOR STAGE 4	
18. REMARKS		
DOWNGRADING INSTRUCTIONS	CLASSIFICATION	

APPLICATION FOR FOREIGN SPECTRUM SUPPORT		CLASSIFICATION	PAGE 3
FOREIGN COORDINATION GENERAL INFORMATION			
1. APPLICATION TITLE Telluride 2.0 Unmanned Aerial System			
2. SYSTEM NOMENCLATURE Micro Unmanned Aerial System for ISR operations Force Protection			
3. STAGE OF ALLOCATION (X one) ☐ a. STAGE 1 - CONCEPTUAL ☐ b. STAGE 2 - EXPERIMENTAL ☒ c. STAGE 3 - DEVELOPMENTAL ☐ d. STAGE 4 - OPERATIONAL			
4. FREQUENCY REQUIREMENTS a. FREQUENCY(IES) 225.000 MHz - 228.1875 MHz and 4500.0 MHz - 4900.0 MHz b. EMISSION DESIGNATOR(S) 28K00F1N and 8M00X7D			
5. PROPOSED OPERATING LOCATIONS OUTSIDE US&P			
6. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS Micro Unmanned Aerial System with VTOL for stealth ISR operations in complex and confined terrain, urban areas. Participation in AEWE Spiral F			
7. INFORMATION TRANSFER REQUIREMENTS			
8. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT 2			
9. REPLACEMENT INFORMATION			
10. LINE DIAGRAM (See Page(s))		11. SPACE SYSTEMS (See Page(s))	
12. PROJECTED OPERATIONAL DEPLOYMENT DATE			
13. REMARKS			
DOWNGRADING INSTRUCTIONS		CLASSIFICATION	

CLASSIFICATION		PAGE
		4
TRANSMITTER EQUIPMENT CHARACTERISTICS		
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. CT4520		2. MANUFACTURER'S NAME BMS-Europe GmbH & Co KG (http://www.BMS-INC.com)
3. TRANSMITTER INSTALLATION Embedded in UAV		4. TRANSMITTER TYPE Digital
5. TUNING RANGE 4500 MHz - 4900 MHz		6. METHOD OF TUNING Synthesizer
7. RF CHANNELING CAPABILITY First Channel 4500 MHz 1 MHz increments		8. EMISSION DESIGNATOR(S) 8M00X7D
9. FREQUENCY TOLERANCE N/A		
10. FILTER EMPLOYED (X one) ☐ a. YES ☒ b. NO		
11. SPREAD SPECTRUM (X one) ☐ a. YES ☒ b. NO		12. EMISSION BANDWIDTH (X and complete as applicable) ☐ CALCULATED ☒ MEASURED
13. MAXIMUM BIT RATE 5 Mbit/s		a. -3 dB 5 MHz
14. MODULATION TECHNIQUES AND CODING COFDM digital No sub carrier, one data stream DVB-T compliant		b. -20 dB 14 MHz
		c. -40 dB 25 MHz
		d. -60 dB 32 MHz
		e. OC-BW 16 MHz
15. MAXIMUM MODULATION FREQUENCY 7 MHz		
16. PRE-EMPHASIS (X one) ☐ a. YES ☒ b. NO		17. DEVIATION RATIO 1 : 2.5
19. POWER a. MEAN 100mW b. PEP 100mW		18. PULSE CHARACTERISTICS a. RATE N/A b. WIDTH N/A c. RISE TIME N/A d. FALL TIME N/A e. COMP RATIO
20. OUTPUT DEVICE N/A		21. HARMONIC LEVEL
22. SPURIOUS LEVEL < -30 dBm		a. 2ND < -30 dBm
23. FCC TYPE ACCEPTANCE NO. N/A		b. 3RD < -30 dBm
		c. OTHER < -30 dBm
24. REMARKS		
CLASSIFICATION		

CLASSIFICATION					PAGE 5	
RECEIVER EQUIPMENT CHARACTERISTICS						
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. DR4500				2. MANUFACTURER'S NAME BMS-Europe GmbH & Co KG (http://www.BMS-INC.com)		
3. RECEIVER INSTALLATION Portable Ground Station				4. RECEIVER TYPE Diversity		
5. TUNING RANGE 4500 MHz - 4900 MHz				6. METHOD OF TUNING Synthesizer		
7. RF CHANNELING CAPABILITY First Channel 4500 MHz - 1 MHz increments				8. EMISSION DESIGNATOR(S) N/A		
9. FREQUENCY TOLERANCE N/A				11. RF SELECTIVITY (X and complete as applicable)		
10. IF SELECTIVITY		1ST	2ND	3RD	☐ CALCULATED ☒ MEASURED	
a. -3 dB		17 MHz			a. -3 dB 18 MHz	
b. -20 dB		20 MHz			b. -20 dB 22 MHz	
c. -60 dB		25 MHz			c. -60 dB 27 MHz	
12. IF FREQUENCY				13. MAXIMUM POST DETECTION FREQUENCY 4900 MHz		
a. 1ST 480 MHz				14. MINIMUM POST DETECTION FREQUENCY 4500 MHz		
b. 2ND						
c. 3RD						
15. OSCILLATOR TUNED		1ST	2ND	3RD	16. MAXIMUM BIT RATE	
a. ABOVE TUNED FREQUENCY					17. SENSITIVITY	
b. BELOW TUNED FREQUENCY		X			a. SENSITIVITY -8 dBm	
c. EITHER ABOVE OR BELOW TUNED FREQUENCY					b. CRITERIA 21 dBmV	
18. DE-EMPHASIS (X one)				c. NOISE FIG 12 dB		
☐ a. YES		☒ b. NO		d. NOISE TEMP N/A Kelvin		
19. IMAGE REJECTION				20. SPURIOUS REJECTION N/A		
21. REMARKS						
CLASSIFICATION						

CLASSIFICATION		PAGE 7
ANTENNA EQUIPMENT CHARACTERISTICS		
1. ☒ a. TRANSMITTING ☐ b. RECEIVING ☐ c. TRANSMITTING AND RECEIVING		
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. VLA4503 LP	3. MANUFACTURER'S NAME BMS-Europe GmbH & Co KG (http://www.BMS-INC.com)	
4. FREQUENCY RANGE 4.5 GHz to 4.9 GHz	5. TYPE Omni	
6. POLARIZATION vertical / linear	7. SCAN CHARACTERISTICS	
8. GAIN	a. TYPE	
a. MAIN BEAM 3 dB	b. VERTICAL SCAN	
b. 1ST MAJOR SIDE LOBE	(1) MAX ELEV N/A	
9. BEAMWIDTH	(2) MIN ELEV N/A	
a. HORIZONTAL 360°	(3) SCAN RATE N/A	
b. VERTICAL 78°	c. HORIZONTAL SCAN	
10. REMARKS		
(1) SECTOR SCANNED N/A		
(2) SCAN RATE N/A		
d. SECTOR BLANKING (X one)		
☐ (1) YES ☐ (2) NO		
CLASSIFICATION		

CLASSIFICATION		PAGE 8
TRANSMITTER EQUIPMENT CHARACTERISTICS		
1. NOMENCLATURE, MANUFACTURER'S MODEL NO.	2. MANUFACTURER'S NAME BMS-Europe GmbH & Co KG (http://www. BMS-INC.com)	
3. TRANSMITTER INSTALLATION Mobile Service	4. TRANSMITTER TYPE FM communication	
5. TUNING RANGE 225.0000 - 228.1875	6. METHOD OF TUNING synthesizer	
7. RF CHANNELING CAPABILITY 256 - 12.5 KHz increments pre tuned fix	8. EMISSION DESIGNATOR(S) 28K00F1N	
9. FREQUENCY TOLERANCE 10 ppm	12. EMISSION BANDWIDTH (X and complete as applicable) ☐ CALCULATED ☒ MEASURED	
10. FILTER EMPLOYED (X one) ☒ a. YES ☐ b. NO		
11. SPREAD SPECTRUM (X one) ☐ a. YES ☒ b. NO	13. MAXIMUM BIT RATE 9 K 6	
14. MODULATION TECHNIQUES AND CODING FSK	a. -3 dB 28KHz	
	b. -20 dB 31KHz	
	c. -40 dB 34KHz	
	d. -60 dB 32KHz	
	e. OC-BW	
15. MAXIMUM MODULATION FREQUENCY 15KHz	16. PRE-EMPHASIS (X one) ☐ a. YES ☒ b. NO	
17. DEVIATION RATIO 2.5	18. PULSE CHARACTERISTICS	
19. POWER a. MEAN 2W b. PEP 2W	a. RATE N/A (FM)	
20. OUTPUT DEVICE transistor	b. WIDTH N/A (FM)	
	c. RISE TIME N/A (FM)	
	d. FALL TIME N/A (FM)	
	e. COMP RATIO	
21. HARMONIC LEVEL	a. 2ND -23dBm	
22. SPURIOUS LEVEL -72dB	b. 3RD -35dBm	
23. FCC TYPE ACCEPTANCE NO.	c. OTHER	
24. REMARKS Item 10, Filter Types : Crystal filter 30kHz 1st IF Ceramic filter 30kHz 2nd IF Item 1 Data sheet is in preparation, new developed product not listed on the man web page		
CLASSIFICATION		

CLASSIFICATION				PAGE
9				
RECEIVER EQUIPMENT CHARACTERISTICS				
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. Spec Sheet in Preparation			2. MANUFACTURER'S NAME BMS-Europe GmbH & Co KG, http:// BMS-INC.com	
3. RECEIVER INSTALLATION UAV Mobile			4. RECEIVER TYPE dualconversion	
5. TUNING RANGE 225.000 - 228.3875 MHz			6. METHOD OF TUNING synthesizer	
7. RF CHANNELING CAPABILITY 256			8. EMISSION DESIGNATOR(S) 28K00FIN	
9. FREQUENCY TOLERANCE 10 ppm				
10. IF SELECTIVITY	1ST	2ND	3RD	11. RF SELECTIVITY (X and complete as applicable)
a. -3 dB	30KHz	30KHz		☐ CALCULATED ☒ MEASURED
b. -20 dB	100KHz	N/A		a. -3 dB 5 MHz
c. -60 dB	N/A	60KHz		b. -20 dB 6 MHz
				c. -60 dB 10 MHz
				d. PRESELECTION TYPE N/A
12. IF FREQUENCY			13. MAXIMUM POST DETECTION FREQUENCY 20 KHz	
a. 1ST 45MHz				
b. 2ND 445 KHz			14. MINIMUM POST DETECTION FREQUENCY 0 Hz	
c. 3RD				
15. OSCILLATOR TUNED	1ST	2ND	3RD	16. MAXIMUM BIT RATE 9 K 6
a. ABOVE TUNED FREQUENCY	☒			17. SENSITIVITY
b. BELOW TUNED FREQUENCY		☒		a. SENSITIVITY -121 dBm
c. EITHER ABOVE OR BELOW TUNED FREQUENCY				b. CRITERIA 12D SINAB
18. DE-EMPHASIS (X one)				c. NOISE FIG dB
☒ a. YES ☐ b. NO				d. NOISE TEMP N/A Kelvin
19. IMAGE REJECTION > 60 dB			20. SPURIOUS REJECTION N/A	
21. REMARKS				
Item 1				
Data sheet is in preparation, new developed product not listed on the man web page				
Item 13				
The transmitter has 28kHz bandwidth as the data rate is 9k6 for modulation				
CLASSIFICATION				

CLASSIFICATION		PAGE 10	
ANTENNA EQUIPMENT CHARACTERISTICS			
1. ☒ a. TRANSMITTING ☐ b. RECEIVING ☐ c. TRANSMITTING AND RECEIVING			
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. Omni Antenna DLA 225 VJ		3. MANUFACTURER'S NAME Broadcast Microwave Services Europe (BMS)	
4. FREQUENCY RANGE 225.000 - 228.1875 MHz		5. TYPE whip	
6. POLARIZATION vertical / linear		7. SCAN CHARACTERISTICS	
8. GAIN a. MAIN BEAM 5 dB b. 1ST MAJOR SIDE LOBE		a. TYPE N/A	
		b. VERTICAL SCAN	
		(1) MAX ELEV N/A	
(2) MIN ELEV N/A		(3) SCAN RATE N/A	
9. BEAMWIDTH a. HORIZONTAL 360°		(1) SECTOR SCANNED N/A	
b. VERTICAL 60°		(2) SCAN RATE N/A	
		d. SECTOR BLANKING (X one) ☐ (1) YES ☐ (2) NO	
10. REMARKS			
CLASSIFICATION			