

APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION	CLASSIFICATION UNCLASSIFIED	DATE 11/20/2003	Form Approved OMB No. 0704-0188 PAGE 1 OF 13 PAGES
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DOD GENERAL INFORMATION			
TO USAF Frequency Management Agency		FROM AF Material Command (ASC 028-99) AFMC CSO/SCSC 4225 Logistics Avenue, Suite 20 Wright-Patterson AFB, OH 45433-5759	
1. APPLICATION TITLE (U) AN/APX-113(V) IFF Interrogator-Transponder Set			
2. SYSTEM NOMENCLATURE (U) AN/APX-113(V) IFF Interrogator-Transponder Set			
3. STAGE OF ALLOCATION (X one) ☐ a. Stage 1 - Conceptual ☐ b. Stage 2 - Experimental ☒ c. Stage 3 - Developmental ☐ Stage 4 - Operational			
4. FREQUENCY REQUIREMENTS a. FREQUENCY(IES) (U) 1030 MHz 1090 MHz b. EMISSION DESIGNATOR(S) (U) (See Remarks) (See Remarks)			
5. TARGET STARTING DATE FOR SUBSEQUENT STAGES			
a. STAGE 2 (U) NA	b. STAGE 3 (U) 12-01-03	c. STAGE 4 (U) 06-01-04	
6. EXTENT OF USE (U) Peacetime pilot training, testing, and use as the Air Traffic Control (ATC) transponder will include approx. 4 to 8 hours per day, 6 days per week of intermittent transmissions. (See Remarks)			
7. GEOGRAPHICAL AREA FOR a. STAGE 2 (U) NA b. STAGE 3 (U) (See Remarks) c. STAGE 4 (U) US&P, United Arab Emirates (See Remarks)			
8. NUMBER OF UNITS			
a. STAGE 2 (U) NA	b. STAGE 3 (U) 25	c. STAGE 4 (U) 80	
9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT (U) (See Remarks)			
10. OTHER J/F 12 APPLICATION NUMBER(S) TO BE (U)			
☒ a. SUPERSEDED J/F 12 7030		11. IS THERE ANY OPERATIONAL REQUIREMENT AS DESCRIBED IN THE INSTRUCTIONS FOR PARAGRAPH 11?	
☐ b. RELATED J/F 12/990810-2 (U)		☒ a. YES ☐ b. NO ☐ c. NAVAIL.	
12. NAMES AND TELEPHONE NUMBERS (U)			
a. PROGRAM MANAGER TBD, ASC/YPD	(1) COMMERCIAL TBD	(2) AUTOVON DSN TBD	
b. PROJECT ENGINEER TBD, ASC/YPZ	(1) COMMERCIAL TBD	(2) AUTOVON DSN TBD	
13. REMARKS (U) 4. Interrogation function transmits SIF (6M00M1D) and Mode 4 (7M50M1D) challenges on 1030 MHz, receives SIF & Mode 4 replies on 1090 MHz. Transponder function receives SIF (6M00M1D), Mode 4 (7M00M1D), and Mode S (6M90M1D) interrogations on 1030 MHz and responds on 1090 MHz. 4a. [-----1030 MHz-----] [-----1090 MHz-----] 4b. [6M00M1D, 7M50M1D] [6M90M1D, 7M00M1D]			
DOWNGRADING INSTRUCTIONS		CLASSIFICATION UNCLASSIFIED	J/F 12/TBD

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6. During wartime, use will be intermittent depending on operational scenario and the need to identify friendly forces. 7b. TX, OK, AR, LA, NM (Holloman AFB), AZ, CA (Edwards AFB), and parts of Gulf of Mexico. Most flight tests will be staged out of Fort Worth, TX and Holloman AFB with some excursions to Eglin AFB, the Gulf of Mexico and China Lake. 7c. This is a Foreign Military Sales version. The system will be periodically ground tested at the Lockheed Martin (Fort Worth) facility. Occasional engineering flight tests will be conducted in the vicinity of the Fort Worth facility. Additional flight tests will be conducted at Edwards AFB, CA. The system will be used in the US&P for aircraft sell-off and ferry flights out of the country. For the purpose of RF Allocations, paths are defined as follows: 1) Holloman AFB: Texas, New Mexico 2) Tucson: Texas; New Mexico and Arizona 3) Edwards AFB & China Lake: Texas, New Mexico, Arizona, California 4) Eglin AFB: Texas, Louisiana, Mississippi, Alabama, Florida 5) Fort Worth to overseas: Texas, Oklahoma, Arkansas, Missouri, Kentucky, Indiana, Ohio, Pennsylvania, New York, Massachusetts, New Hampshire, Maine 6) Tucson to overseas: Arizona, New Mexico and then pick up the Fort Worth route above. 9. The estimated maximum number of units operating simultaneously in the areas specified in remark 7b is 25, to include flight test, pilot training and ferry cell. 11. AN/APX-113 (V) will operate with all military and commercial Mark X and Mark XII equipments of all services and civilian aviation. This system uses interrogator modes 1, 2, 3/A, C, and 4 and transponder modes 1, 2, 3/A, C, S, and 4. The transponder will respond to Level 1 Mode S interrogations.		
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TRANSMITTER EQUIPMENT CHARACTERISTICS			
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) RT-1722B/APX-113(V) Interrogator (See Remarks)		2. MANUFACTURER'S NAME (U) BAE SYSTEMS (See Remarks)	
3. TRANSMITTER INSTALLATION (U) F-16 Aircraft		4. TRANSMITTER TYPE (U) Pulsed	
5. TUNING RANGE (U) 1030 MHz		6. METHOD OF TUNING (U) Synthesizer	
7. RF CHANNELING CAPABILITY (U) None		8. EMISSION DESIGNATOR(S) (U) 6M00M1D (U) 7M50M1D	
9. FREQUENCY TOLERANCE (U) 194 ppm			
10. FILTER EMPLOYED (X one) (U) ☒ a. YES ☐ b. NO			
11. SPREAD SPECTRUM (X one) (U) ☐ a. YES ☒ b. NO		12. EMISSION BANDWIDTH (X and complete as applicable) ☐ CALCULATED ☒ MEASURED	
13. MAXIMUM BIT RATE (U) 500 Kbps		a. -3 dB (U) 1.54 MHz (U) 1.86 MHz	
14. MODULATION TECHNIQUES AND CODING (U) Pulse Position Modulation		b. -20 dB (U) 5.36 MHz (U) 7.37 MHz	
		c. -40 dB (U) 21.8 MHz (U) 24.6 MHz	
		d. -60 dB (U) 62.8 MHz (U) 81.8 MHz	
		e. -OC-BW (U) 8.08 MHz (U) 10.4 MHz	
		15. MAXIMUM MODULATION FREQUENCY (U) NA	
16. PRE-EMPHASIS (X one) (U) ☐ a. YES ☒ b. NO		17. DEVIATION RATIO (U) NA	
19. POWER		18. PULSE CHARACTERISTICS	
(U) a. MEAN 0.6 W 2.25 W -2.4 W -9.0 W		a. RATE (U) 300 pps (U) 1800 pps -1200 pps -7200 pps	
(U) b. PEP 2500 W 2500 W		b. WIDTH (U) 0.8 us (U) 0.5 us	
20. OUTPUT DEVICE (U) Silicon Bipolar Junction Transistors		c. RISE TIME (U) 0.08 us (U) 0.08 us	
		d. FALL TIME (U) 0.09 us (U) 0.09 us	
		e. COMP RATIO (U) NA (U) NA	
		21. HARMONIC LEVEL	
22. SPURIOUS LEVEL (U) -73 dB		a. 2ND (U) -80 dBc or less	
23. FCC TYPE ACCEPTANCE NO. (U) NA		b. 3RD (U) -80 dBc or less	
		c. OTHER (U) -80 dBc or less	
24. REMARKS (U)			
1. RT-1722B/APX-113 (V) Combined Interrogator-Transponder (CIT). BAE SYSTEMS P/N 1003001G-5X. 2. BAE SYSTEMS Communication, Navigation, Identification and Reconnaissance. 8. 6M00M1D is for SIF Modes 1, 2, 3/A,C interrogations (0.8 us pulsewidth) 7M50M1D is for Mode 4 interrogations (0.5 us pulse width) 10. A custom built filter specifically designed for IFF is used. It is a 3 section low pass, 7 section high pass filter. It has 2 dB in-band insertion loss, with 55 dB attenuation from 2 GHz to 4.5 GHz. 18a. SIF maximum mode rate of 1200 pps set the maximum interrogations per second at 400. The Mode 4 maximum rate of 7200 pps allows up to 200 interrogations per second.			
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TRANSMITTER EQUIPMENT CHARACTERISTICS		
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) RT-1722B/APX-113(V) Transponder (See Remarks)		2. MANUFACTURER'S NAME (U) BAE SYSTEMS (See Remarks)
3. TRANSMITTER INSTALLATION (U) F-16 Aircraft		4. TRANSMITTER TYPE (U) Pulsed
5. TUNING RANGE (U) 1090 MHz		6. METHOD OF TUNING (U) Synthesizer
7. RF CHANNELING CAPABILITY (U) None		8. EMISSION DESIGNATOR(S) (U) 7M00M1D (U) 6M90M1D
9. FREQUENCY TOLERANCE (U) 459 ppm		
10. FILTER EMPLOYED (X one) (U) ☒ a. YES ☐ b. NO		
11. SPREAD SPECTRUM (X one) (U) ☐ a. YES ☒ b. NO		12. EMISSION BANDWIDTH (X and complete as applicable) ☐ CALCULATED ☒ MEASURED
13. MAXIMUM BIT RATE (U) 690Kbps		a. -3 dB (U) 2.14 MHz (U) 1.23 MHz b. -20 dB (U) 8.47 MHz (U) 6.67 MHz c. -40 dB (U) 27.26 MHz (U) 24.33 MHz d. -60 dB (U) 65.0 MHz (U) 59.6 MHz e. -OC-BW (U) 10.12 MHz (U) 9.8 MHz
14. MODULATION TECHNIQUES AND CODING (U) Pulse Coded Modulation		15. MAXIMUM MODULATION FREQUENCY (U) NA
16. PRE-EMPHASIS (X one) ☐ a. YES ☒ b. NO		17. DEVIATION RATIO (U) NA
19. POWER		18. PULSE CHARACTERISTICS
(U) a. MEAN 0.20 W 0.425 W -4.05W -3.5W		a. RATE (U) 900pps (U) 1.7kpps -18 kpps -7 kpps
(U) b. PEP 500 W 500 W		b. WIDTH (U) 0.45 us (U) 0.5 us -1.0 us
20. OUTPUT DEVICE (U) Silicon Bipolar Junction Transistors		c. RISE TIME (U) 0.095 us (U) 0.095 us
		d. FALL TIME (U) 0.14 us (U) 0.14 us
		e. COMP RATIO (U) NA (U) NA
		21. HARMONIC LEVEL
22. SPURIOUS LEVEL (U) -73 dB		a. 2ND (U) -80 dBc or less
23. FCC TYPE ACCEPTANCE NO. (U) NA		b. 3RD (U) -80 dBc or less
		c. OTHER (U) -80 dBc or less
24. REMARKS		
(U) 1. RT-1722B/APX-113(V) combined Interrogator-Transponder (CIT). BAE SYSTEMS P/N 1003001G-5X. 2. BAE SYSTEMS Communication, Navigation, Identification and Reconnaissance. 8. 7M00M1D is for SIF Modes 1, 2, 3/A, C, and Mode 4 replies. 6M90M1D is for Mode S replies. 10. A custom built filter specifically designed for IFF is used. It is a 3 section low pass, 7 section high pass filter. It has 2 dB in-band insertion loss, with 55 dB attenuation from 2 GHz to 4.5 GHz. 18a. 3.6 Kpps is max pulse rate for Mode 4. 7.0 pps is max pulse rate for Mode S. 18 Kpps is max pulse rate for Modes 1, 2, 3/A, C.		
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RECEIVER EQUIPMENT CHARACTERISTICS					
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) RT-1722B/APX-113(V) Interrogation Receiver			2. MANUFACTURER'S NAME (U) BAE SYSTEMS (See Remarks)		
3. RECEIVER INSTALLATION (U) F-16 Aircraft			4. RECEIVER TYPE (U) Single Conversion Superheterodyne		
5. TUNING RANGE (U) 1030 MHz			6. METHOD OF TUNING (U) Synthesizer		
7. RF CHANNELING CAPABILITY (U) None			8. EMISSION DESIGNATOR(S) (U) 6M00M1D (U) 6M90M1D (U) 7M50M1D		
9. FREQUENCY TOLERANCE (U) 194 ppm					
10. IF SELECTIVITY a. -3 dB	1ST (U) 8.2 MHz	2ND (U) NA	3RD (U) NA	11. RF SELECTIVITY (X and complete as applicable) ☐ CALCULATED ☒ MEASURED	
b. -20 dB	13 MHz	NA	NA	a. -3 dB (U) 16 MHz	
c. -60 dB	19.8 MHz	NA	NA	b. -20. dB (U) 27 MHz	
				c. -60 dB (U) 62 MHz	
12. IF FREQUENCY a. 1ST (U) 60 MHz				d. PRESELECTION TYPE (U) Fixed Cavity	
b. 2ND (U) NA				13. MAXIMUM POST DETECTION FREQUENCY (U) NA	
c. 3RD (U) NA				14. MINIMUM POST DETECTION FREQUENCY (U) NA	
15. OSCILLATOR TUNED a. ABOVE TUNED FREQUENCY	1ST (U)	2ND (U)	3RD (U)	16. MAXIMUM BIT RATE (U) 500 kbps	
b. BELOW TUNED FREQUENCY	X			17. SENSITIVITY a. SENSITIVITY (U) -76 dBm	
c. EITHER ABOVE OR BELOW TUNED FREQUENCY				b. CRITERIA (U) 14 dB S/N ratio	
18. DE-EMPHASIS (X one) (U) ☐ a. YES ☒ b. NO				c. NOISE FIG (U) 8 dB	
				d. NOISE TEMP (U) NA Kelvin	
19. IMAGE REJECTION (U) 92 dB				20. SPURIOUS REJECTION (U) 92 dB	
21. REMARKS (U) 1. RT-1722B/APX-113(V) Combined Interrogator-Transponder (CIT). BAE SYSTEMS P/N 1003001G-5X. 2. BAE SYSTEMS Communication, Navigation, Identification and Reconnaissance.					
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RECEIVER EQUIPMENT CHARACTERISTICS					
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) RT-1722B/APX-113(V) Reply Receiver				2. MANUFACTURER'S NAME (U) BAE SYSTEMS (See Remarks)	
3. RECEIVER INSTALLATION (U) F-16 Aircraft				4. RECEIVER TYPE (U) Single Conversion Superheterodyne	
5. TUNING RANGE (U) 1090 MHz				6. METHOD OF TUNING (U) Synthesizer	
7. RF CHANNELING CAPABILITY (U) None				8. EMISSION DESIGNATOR(S) (U) 6M00M1D (U) 6M90M1D (U) 7M00M1D	
9. FREQUENCY TOLERANCE (U) 459 ppm				11. RF SELECTIVITY (X and complete as applicable) ☐ CALCULATED ☒ MEASURED	
10. IF SELECTIVITY a. -3 dB	1ST (U) 11 MHz	2ND (U) NA	3RD (U) NA	a. -3 dB (U) 12 MHz	
b. -20 dB	14.5 MHz	NA	NA	b. -20. dB (U) 26 MHz	
c. -60 dB	23.5 MHz	NA	NA	c. -60 dB (U) 60 MHz	
12. IF FREQUENCY a. 1ST (U) 76 MHz				d. PRESELECTION TYPE (U) Fixed Cavity	
b. 2ND (U) NA				13. MAXIMUM POST DETECTION FREQUENCY (U) NA	
c. 3RD (U) NA				14. MINIMUM POST DETECTION FREQUENCY (U) NA	
15. OSCILLATOR TUNED		1ST (U)	2ND (U)	16. MAXIMUM BIT RATE (U) 690 Kbps	
a. ABOVE TUNED FREQUENCY	X			17. SENSITIVITY	
b. BELOW TUNED FREQUENCY				a. SENSITIVITY (U) -84 dBm	
c. EITHER ABOVE OR BELOW TUNED FREQUENCY				b. CRITERIA (U) 12 dB S/N ratio	
18. DE-EMPHASIS (X one) ☐ a. YES ☒ b. NO				c. NOISE FIG (U) 7.4 dB	
19. IMAGE REJECTION (U) 94 dB				d. NOISE TEMP (U) NA Kelvin	
20. SPURIOUS REJECTION (U) 94 dB					
21. REMARKS (U) 1. RT-1722B/APX-113(V) Combined Interrogator-Transponder (CIT). BAE SYSTEMS P/N 1003001G-5X. 2. BAE SYSTEMS Communication, Navigation, Identification and Reconnaissance.					
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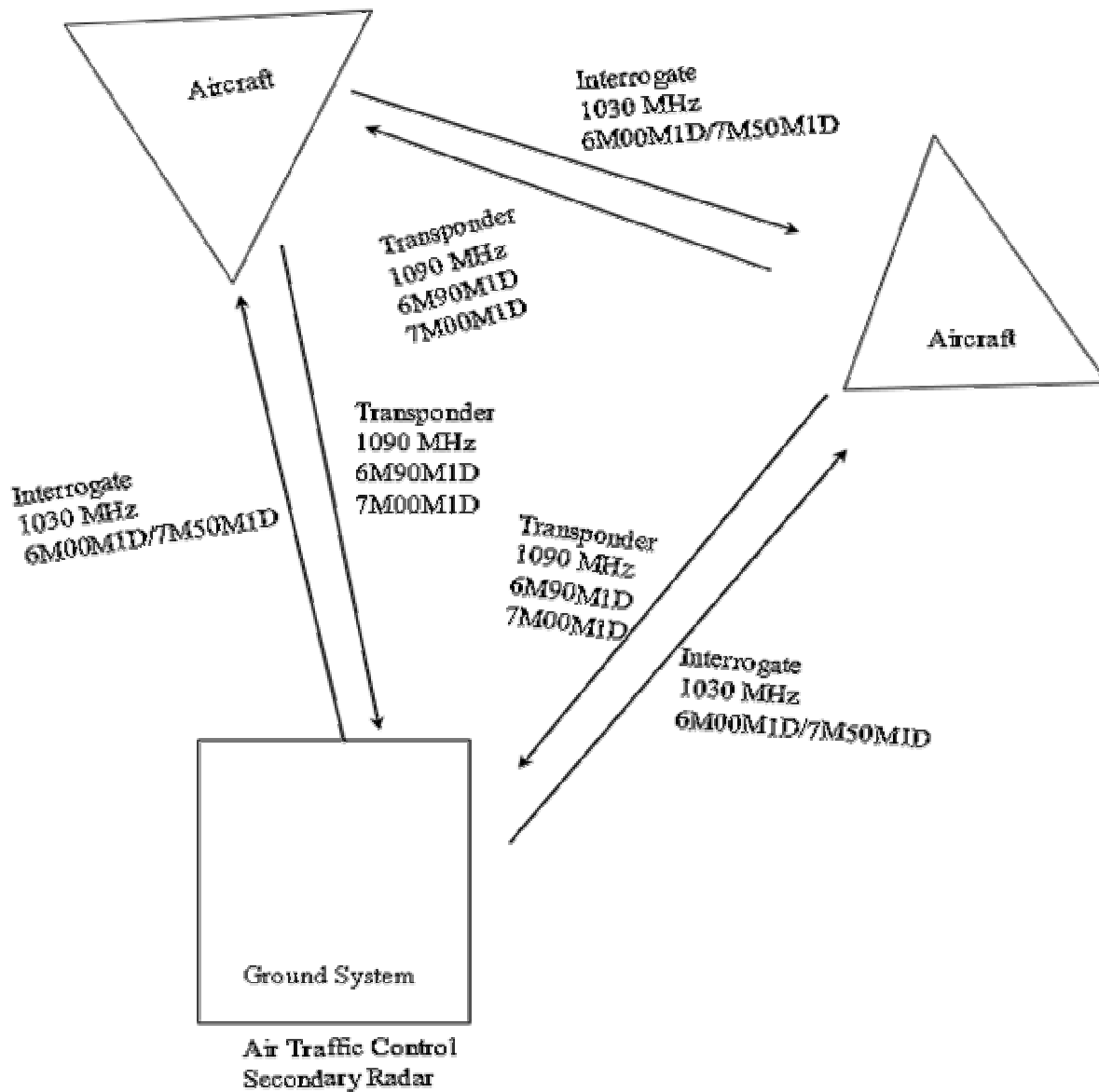
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RECEIVER EQUIPMENT CHARACTERISTICS					
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) RT-1722B/APX-113(V) Lower Antenna Reply Receiver				2. MANUFACTURER'S NAME (U) BAE SYSTEMS (See Remarks)	
3. RECEIVER INSTALLATION (U) F-16 Aircraft				4. RECEIVER TYPE (U) Single Conversion Superheterodyne	
5. TUNING RANGE (U) 1090 MHz				6. METHOD OF TUNING (U) Synthesizer	
7. RF CHANNELING CAPABILITY (U) None				8. EMISSION DESIGNATOR(S) (U) 6M00M1D (U) 6M90M1D(U) 7M00M1D	
9. FREQUENCY TOLERANCE (U) 459 ppm					
10. IF SELECTIVITY a. -3 dB		1ST (U) 11 MHz	2ND (U) NA	11. RF SELECTIVITY (X and complete as applicable) ☐ CALCULATED ☒ MEASURED	
b. -20 dB		14.5 MHz	NA	a. -3 dB (U) 11 MHz	
c. -60 dB		23.5 MHz	NA	b. -20. dB (U) 23 MHz	
				c. -60 dB (U) 38 MHz	
				d. PRESELECTION TYPE (U) Fixed Cavity	
12. IF FREQUENCY a. 1ST (U) 76 MHz				13. MAXIMUM POST DETECTION FREQUENCY (U) NA	
b. 2ND (U) NA				14. MINIMUM POST DETECTION FREQUENCY (U) NA	
c. 3RD (U) NA					
15. OSCILLATOR TUNED		1ST (U)	2ND (U)	16. MAXIMUM BIT RATE (U) 690 Kbps	
a. ABOVE TUNED FREQUENCY		X		17. SENSITIVITY	
b. BELOW TUNED FREQUENCY				a. SENSITIVITY (U) -82 dBm	
c. EITHER ABOVE OR BELOW TUNED FREQUENCY				b. CRITERIA (U) 12 dB S/N ratio	
18. DE-EMPHASIS (X one) ☐ a. YES ☒ b. NO				c. NOISE FIG (U) 9.4 dB	
				d. NOISE TEMP (U) NA Kelvin	
19. IMAGE REJECTION (U) 100 dB				20. SPURIOUS REJECTION (U) 94 dB	
21. REMARKS (U) 1. RT-1722B/APX-113(V) Combined Interrogator-Transponder (CIT). BAE SYSTEMS P/N 1003001G-5X. 2. BAE SYSTEMS Communication, Navigation, Identification and Reconnaissance.					
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ANTENNA EQUIPMENT CHARACTERISTICS	
1. ☐ a. TRANSMITTING ☐ b. RECEIVING ☒ c. TRANSMITTING AND RECEIVING	
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) AS-4349/APX-113(V) Antenna #1	3. MANUFACTURER'S NAME (U) BAE SYSTEMS
4. FREQUENCY RANGE (U) 1020 MHz - 1100 MHz	5. TYPE (U) Electronically Scanned Linear Array
6. POLARIZATION (U) Vertical	7. SCAN CHARACTERISTICS
8. GAIN	a. TYPE (U) Horizontal
a. MAIN BEAM	b. VERTICAL SCAN (U) NA
(U) (See Remarks)	(1) MAX ELEV (U) NA
b. 1ST MAJOR SIDE LOBE	(2) MIN ELEV (U) NA
(U) (See Remarks)	(3) SCAN RATE (U) NA
9. BEAMWIDTH	c. HORIZONTAL SCAN (U) Electronically
a. HORIZONTAL	(1) SECTOR SCANNED (See Remarks) (U)
(U) 30 deg	(2) SCAN RATE (U) 25-90 scans per minute
b. VERTICAL	d. SECTOR BLANKING (X one) ☐ (1) YES ☒ (2) NO
(U) 35 deg	
10. REMARKS (U) 2. The C-12371/APX-113 (V), 1003002G Beam-Forming Network (BFN) provides beam steering for the phased array antennas and does not generate RF emissions. 7c.(1). +/- 60 degrees around aircraft centerline. 8a. +11.4 dBi @ 1030 MHz @ +6 degree beam position +10.9 dBi @ 1090 MHz @ -6 degree beam position 8b. -3.6 dBi @ 1030 MHz @ +6 degree beam position -4 dBi @ 1090 MHz @ -6 degree beam position 10. This page describes the interrogator antenna subsystem, consisting of a group of 4 AS-4349 Fuselage Mounted Array elements (Line Replaceable units) and phase matched coaxial cable assemblies installed as a linear array on the upper surface of the aircraft.	
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ANTENNA EQUIPMENT CHARACTERISTICS		
1. ☐ a. TRANSMITTING ☒ b. RECEIVING ☐ c. TRANSMITTING AND RECEIVING		
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) AS-4350/APX-113(V), Antenna #2	3. MANUFACTURER'S NAME (U) BAE SYSTEMS	
4. FREQUENCY RANGE (U) 1080 MHz - 1100 MHz	5. TYPE Conformal Cavity - Backed Slot (U)	
6. POLARIZATION (U) Vertical	7. SCAN CHARACTERISTICS	
8. GAIN	a. TYPE (U) Fixed	
a. MAIN BEAM	b. VERTICAL SCAN (U) NA	
(U) (See Remarks)	(1) MAX ELEV (U) NA	
b. 1ST MAJOR SIDE LOBE	(2) MIN ELEV (U) NA	
(U) (See Remarks)	(3) SCAN RATE (U) NA	
9. BEAMWIDTH	c. HORIZONTAL SCAN (U) NA	
a. HORIZONTAL	(1) SECTOR SCANNED (U) NA	
(U) (See Remarks)	(2) SCAN RATE (U) NA	
b. VERTICAL	d. SECTOR BLANKING (X one) ☐ (1) YES ☒ (2) NO	
(U) (See Remarks)		
10. REMARKS (U) 8a. 7 dBi @ 1090 MHz @ 0 degree azimuth and -20 degree elevation. 8b. 2.1 dBi @ 1090 MHz @ +/- 125 degree azimuth and -50 degree elevation. 9a. 80 degree @ -50 degree elevation angles. 9b. 55 degree @ +/- 45 degree azimuth angles. 10. This page describes the Lower Interrogator Antenna, installed on the lower surface of the aircraft.		
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GENERAL CONTINUATION PAGE		
Mode - 4 Mode 4 does not run continuously. It is operator selectable (pilot or technician) and has to be enabled to reply (transpond) to off-board interrogations. However, mode 4 can be turned off and will not reply to interrogations. The operator has to command interrogations by pushing a button. A burst of less than 450 interrogations over a 2-second period is performed when the pilot initiates mode 4. Mode 4 is used for ground based tests at Lockheed Martin Aeronautics (LM Aero) facility at Fort Worth, Texas. During the development phase of the program, there will be a limited number of flight operations using Mode 4 at the LM Aero facility in Fort Worth, TX. LM Aero will coordinate directly with local FAA officials on a case by case basis any time Mode 4 is used for ground or flight test operations. Ground based IFF (SIF and Mode 4) test time at the LM Aero facility averages two to three hours per month (this includes transponder replies to interrogations). However, most transponder tests are conducted with the AN/APM-424 or similar test set directly connected to the AN/APX-113 Combined Interrogator/Transponder (CIT). The operator commands mode 4 over-the-air interrogations, as needed. These are intermittent transmissions of short duration amounting to approximately 10% of total test time. This means mode 4 over-the-air transmissions at LM Aero are estimated to be 0.3 hours per month. All modes, including mode 4, are selectable by the operator and can be enabled or disabled as needed.		
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AN/APX-113(V) Advanced IFF System Version 50



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NTIA GENERAL INFORMATION		
1. APPLICATION TITLE (U) AN/APX-113(V) IFF Interrogator-Transponder Set		
2. SYSTEM NOMENCLATURE (U) AN/APX-113(V) IFF Interrogator-Transponder Set		
3. STAGE OF ALLOCATION ☐ a. STAGE 1 CONCEPTUAL ☐ b. STAGE 2 EXPERIMENTAL ☒ c. STAGE 3 DEVELOPMENTAL ☐ d. STAGE 4 OPERATIONAL		
4. FREQUENCY REQUIREMENTS a. FREQUENCY(IES) (U) 1030 MHz b. EMISSION DESIGNATORS (U) (See Remarks) 1090 MHz (See Remarks)		
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS. (U) IFF Combined Interrogator-Transponder. Interrogator to identify other friendly aircraft equipped with IFF transponders. (WARTIME USE) (X One) ☒ a. YES ☐ b. NO		
6. INFORMATION TRANSFER REQUIREMENTS (U) 500 Kbps Interrogator/1000 Kbps Transponder		
7. ESTIMATED INITIAL COST OF THE SYSTEM (U) \$200K per aircraft		
8. TARGET DATE FOR		
a. APPLICATION APPROVAL (U) 12/1/2003	b. SYSTEM ACTIVATION (U) 12-07-03	c. SYSTEM TERMINATION (U) 2020+
9. SYSTEM RELATIONSHIP AND ESSENTIALITY (U) Identification of friendly aircraft.		
10. REPLACEMENT INFORMATION (U) None		
11. RELATED ANALYSIS AND/OR TEST DATA (U) 25		
12. NUMBER OF MOBILE UNITS (U) 80		
13. GEOGRAPHICAL AREA FOR		
a. STAGE 2 (U) NA		
b. STAGE 3 (U) (See Remarks)		
c. STAGE 4 (U) US&P, United Arab Emirates (See Remarks)		
14. LINE DIAGRAM (U) See Page(s) 11		15. SPACE SYSTEMS (U) See Page(s) NA
16. TYPE OF SERVICE(S) FOR STAGE 4 (U) Aeronautical Radionavigation		17. STATION CLASS(ES) FOR STAGE 4 (U) NR
18. REMARKS (U) 4. Interrogation function transmits SIF (6M00M1D) and Mode 4 (7M50M1D) challenges on 1030 MHz, receive SIF & Mode 4 replies on 1090 MHz. Transponder function receives SIF (6M00M1D), Mode 4 (7M00M1D), and Mode S (6M90M1D) interrogations on 1030 MHz and responds on 1090 MHz. 4a. [-----1030 MHz-----] [-----1090 MHz-----] 4b. [6M00M1D, 7M50M1D] [6M90M1D, 7M00M1D]		
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13b. TX, OK, AR, LA, NM (Holloman AFB), AZ, CA (Edwards AFB), and parts of Gulf of Mexico. Most flight tests will be staged out of Fort Worth, TX and Holloman AFB with some excursions to Eglin AFB, the Gulf of Mexico and China Lake. 13c. This is a Foreign Military Sales version. The system will be periodically ground tested at the Lockheed Martin (Fort Worth) facility. The system will be used in the US&P for aircraft sell-off and ferry flights out of the country. For the purpose of RF Allocations, paths are defined as follows: 1) Holloman AFB: Texas, New Mexico 2) Tucson: Texas; New Mexico and Arizona 3) Edwards AFB & China Lake: Texas, New Mexico, Arizona, California 4) Eglin AFB: Texas, Louisiana, Mississippi, Alabama, Florida 5) Fort Worth to overseas: Texas, Oklahoma, Arkansas, Missouri, Kentucky Indiana, Ohio, Pennsylvania, New York, Massachusetts, New Hampshire, Maine 6) Tucson to overseas: Arizona, New Mexico and then pick up the Fort Worth route above. 19. AN/APX-113 (V) will operate with all military and commercial Mark X and Mark XII equipments of all services and civilian aviation. This system uses interrogator modes 1, 2, 3/A, C, and 4 and transponder modes 1, 2, 3/A, C, S, and 4. The transponder will respond to Level 1 Mode S interrogatons.	
CLASSIFICATION UNCLASSIFIED	J/F 12/TBD