

UNCLASSIFIED	
SECURITY SUMMARY & SPECIAL HANDLING REQUIREMENTS	
The Application Title is : RPS-42 UAS Detection Radar The System Name is : RPS-42 Radar	
The overall classification of this application is : UNCLASSIFIED Refer to your Security Manual for further guidance.	
The Application Level Special Handling is : F Not releasable to foreign nationals and not releasable outside the US Government IAW Section 552 (b)(1) of Title 5 US Code.	
DOWNGRADING INSTRUCTIONS	J/F 12/10810
	CLASSIFICATION UNCLASSIFIED
Special Handling Instruction : F	

APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION	CLASSIFICATION UNCLASSIFIED	DATE 1/31/2014	J/F 12/10810
			PAGE 2
DOD GENERAL INFORMATION			
TO (U) Defense Information Systems Agency ATTN: Navy and Marine Corps Spectrum Center P.O. Box 549 Ft. Meade, MD 20755-0549		FROM (U) Naval Surface Warfare Center Dahlgren Division 6149 Welsh Road, Suite 203 Dahlgren VA 22448-5130	
1. APPLICATION TITLE (U) RPS-42 UAS Detection Radar			
2. SYSTEM NOMENCLATURE (U) RPS-42 Radar			
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) 3300.000 MHz - 3400.000 MHz b. EMISSION DESIGNATORS			
5. TARGET STARTING DATE FOR SUBSEQUENT STAGES			
a. STAGE 2		b. STAGE 3	
c. STAGE 4			
6. EXTENT OF USE			
7. GEOGRAPHICAL AREA FOR			
a. STAGE 2			
b. STAGE 3			
c. STAGE 4 (U) United States & Possessions - Polygon			
8. NUMBER OF UNITS			
a. STAGE 2		b. STAGE 3 (U) 2	
c. STAGE 4			
9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT (U) 2			
10. OTHER J/F 12 APPLICATION ID(S) TO BE ☐ a. SUPERSEDED ☐ b. RELATED		11. IS THERE ANY OPERATIONAL REQUIREMENT AS DESCRIBED IN THE INSTRUCTIONS FOR PARAGRAPH 11? ☐ a. YES ☐ b. NO ☐ c. NAVAIL	
12. NAMES AND TELEPHONE NUMBERS (See Data Overflow Page)			
(U) PROGRAM MANAGER			
13. REMARKS (U) (U) Warning for Pulse Duty Cycle: the radar interleaves pulses of different pulse lengths and PRIs with in burst			
DOWNGRADING INSTRUCTIONS Special Handling Instruction : F			J/F 12/10810 CLASSIFICATION UNCLASSIFIED

CLASSIFICATION UNCLASSIFIED		PAGE 3
DOD DATA OVERFLOW PAGE		
12. NAMES AND TELEPHONE NUMBERS		
Cont. (U)		
Ron Stapleton Comm: 540-653-2895 DSN: 249-2895		
Cont. (U) PROJECT ENGINEER		
Kurt Kral Comm: 540-653-5143 DSN: 249-5143		
DOWNGRADING INSTRUCTIONS		J/F 12/10810
Special Handling Instruction : F		CLASSIFICATION UNCLASSIFIED

APPLICATION FOR FOREIGN SPECTRUM SUPPORT		CLASSIFICATION UNCLASSIFIED	PAGE 4
FOREIGN COORDINATION GENERAL INFORMATION			
1. APPLICATION TITLE (U) RPS-42 UAS Detection Radar			
2. SYSTEM NOMENCLATURE (U) RPS-42 Radar			
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) 3300.000 MHz - 3400.000 MHz b. EMISSION DESIGNATORS			
5. PROPOSED OPERATING LOCATIONS OUTSIDE US&P (U) United States & Possessions			
6. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS (See Data Overflow Page) (U) The RPS-42 radar is a radiolocation system and will not be used for radio navigation. The RPS-42 UAS Detection Radar Stage 4 will not be used for separating aircraft (manned or unmanned). It is a solid state, phased array pulse Doppler radar. The radar system can incorporate up to four			
7. INFORMATION TRANSFER REQUIREMENTS (U) Software defined pulse-Doppler radar providing many combinations of wavefrom / PRF/PW/ integration interval.			
8. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT (U) 2			
9. REPLACEMENT INFORMATION (U) Not Applicable			
10. LINE DIAGRAM None		11. SPACE SYSTEMS	
12. PROJECTED OPERATIONAL DEPLOYMENT DATE (U) 12/1/2017			
13. REMARKS (U) (U) Warning for Pulse Duty Cycle: the radar interleaves pulses of different pulse lengths and PRIs with in burst			
DOWNGRADING INSTRUCTIONS Special Handling Instruction : F		J/F 12/10810	
		CLASSIFICATION UNCLASSIFIED	

CLASSIFICATION UNCLASSIFIED		PAGE 5
FOREIGN COORDINATION DATA OVERFLOW PAGE		
6. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS Cont. (U) independent and interchangeable radar panels, each covering 90 degrees in azimuth and 70 degrees in elevation. Hemispherical coverage is achieved by the simultaneous operation of four panels.		
DOWNGRADING INSTRUCTIONS Special Handling Instruction : F		J/F 12/10810 CLASSIFICATION UNCLASSIFIED

CLASSIFICATION UNCLASSIFIED		PAGE 6	
TRANSMITTER EQUIPMENT CHARACTERISTICS			
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) MHR Radar Transmitter		2. MANUFACTURER'S NAME (U) RADA ELECTRONIC INDUSTRIES INC.	
3. TRANSMITTER INSTALLATION (U) Tripod or vehicle-mounted		4. TRANSMITTER TYPE (U) Pulse Doppler Radar	
5. TUNING RANGE (U) 3300.000 - 3400.000 MHz		6. METHOD OF TUNING (U) Digital Synthesizer	
7. RF CHANNELING CAPABILITY (U) 10.000 kHz Increments		8. EMISSION DESIGNATORS (U) 11M0M1N (U) 14M7M1N (U) 17M6M1N (See Data Overflow Page)	
9. FREQUENCY TOLERANCE (U) 0.1 ppm		12. EMISSION BANDWIDTH ☒ CALCULATED ☐ MEASURED	
10. FILTER EMPLOYED (U) LC Bandpass		a. -3 dB (U) 4800 kHz (U) 6400 kHz	
11. SPREAD SPECTRUM ☐ a. YES ☒ b. NO		b. -20 dB (U) 11000 kHz (U) 14700 kHz	
13. MAXIMUM BIT RATE		c. -40 dB (U) 21600 kHz (U) 21600 kHz	
14. MODULATION TECHNIQUES AND CODING Coded Pulse Radar		d. -60 dB (U) 68300 kHz (U) 68300 kHz	
16. PRE-EMPHASIS ☐ a. YES ☐ b. NO		e. OC-BW (U) 11600 kHz (U) 15400 kHz	
19. POWER		15. MAXIMUM MODULATION FREQUENCY	
a. MEAN		17. DEVIATION RATIO	
b. PEP (U) 328 W		18. PULSE CHARACTERISTICS (See Data Overflow Page)	
c. CARRIER		a. RATE (U) 153000 pps (U) 77000 pps	
20. OUTPUT DEVICE (U) Field Effect Transistor		b. WIDTH (U) 0.000650 ms (U) 0.000130 ms	
22. SPURIOUS LEVEL (U) -70.0 dB		c. RISE TIME (U) 0.0000400 ms (U) 0.0000400 ms	
23. FCC TYPE ACCEPTANCE NO. (U) NA		d. FALL TIME (U) 0.0000400 ms (U) 0.0000400 ms	
24. REMARKS (U)		e. COMP RATIO	
(U) RF CHANNELING CAPABILITY: Any 10 channels can be programmed for use in field. The 10 kHz channel's center frequency separation is provided to allow avoidance of interfering signals.		21. HARMONIC LEVEL	
(U) FILTER EMPLOYED: Filters employed are ceramic with inherent antenna bandwidth.		a. (U) -70.0 dB	
(U) EMISSION BANDWIDTH: Emission bandwidth shown indicates worst-case expected under SW control of pulse width. Pulse width is chosen based on expected target scenario. Pulse rise and fall times pertain to pulse edges and represent worst-case values.		b. (U) -70.0 dB	
		c. (U) -70.0 dB	
CLASSIFICATION UNCLASSIFIED		J/F 12/10810	

TRANSMITTER DATA OVERFLOW PAGE

8. EMISSION DESIGNATORS

(U) 21M5M1N
(U) 4M40M1N
(U) 8M80M1N

(U) 3M70M1N
(U) 5M50M1N

(U) 43M0M1N
(U) 7M30M1N

12. EMISSION BANDWIDTH

-3.00 dB (U) 7700 kHz
-20.0 dB (U) 17600 kHz
-40.0 dB (U) 21600 kHz
-60.0 dB (U) 68300 kHz
Calculated
OC-BW (U) 18500 kHz

-3.00 dB (U) 12800 kHz
-20.0 dB (U) 21500 kHz
-40.0 dB (U) 21600 kHz
-60.0 dB (U) 68300 kHz
Calculated
OC-BW (U) 22600 kHz

-3.00 dB (U) 1600 kHz
-20.0 dB (U) 3700 kHz
-40.0 dB (U) 4400 kHz
-60.0 dB (U) 22000 kHz
Calculated
OC-BW (U) 3900.0 kHz

-3.00 dB (U) 19100 kHz
-20.0 dB (U) 43000 kHz
-40.0 dB (U) 43200 kHz
-60.0 dB (U) 68300 kHz
Calculated
OC-BW (U) 45200 kHz

-3.00 dB (U) 1920 kHz
-20.0 dB (U) 4400 kHz
-40.0 dB (U) 5200 kHz
-60.0 dB (U) 25000 kHz
Calculated
OC-BW (U) 4600.0 kHz

-3.00 dB (U) 2400 kHz
-20.0 dB (U) 5500 kHz
-40.0 dB (U) 6600 kHz
-60.0 dB (U) 30000 kHz
Calculated
OC-BW (U) 5800.0 kHz

-3.00 dB (U) 3200 kHz
-20.0 dB (U) 7300 kHz
-40.0 dB (U) 8800 kHz
-60.0 dB (U) 36000 kHz
Calculated
OC-BW (U) 7700.0 kHz

-3.00 dB (U) 4000 kHz
-20.0 dB (U) 8800 kHz
-40.0 dB (U) 10400 kHz
-60.0 dB (U) 32000 kHz
Calculated
OC-BW (U) 9200.0 kHz

18. PULSE CHARACTERISTICS

a. RATE

(U) 19200 pps

(U) 15400 pps

b. WIDTH

(U) 0.00520 ms

(U) 0.00650 ms

c. RISE TIME

(U) 0.0000400 ms

(U) 0.0000400 ms

d. FALL TIME

(U) 0.0000400 ms

(U) 0.0000400 ms

e. COMP RATIO

a. RATE

(U) 12800 pps

(U) 61538 pps

b. WIDTH

(U) 0.00780 ms

(U) 0.00163 ms

c. RISE TIME

(U) 0.0000400 ms

(U) 0.0000400 ms

d. FALL TIME

(U) 0.0000400 ms

(U) 0.0000400 ms

e. COMP RATIO

a. RATE

(U) 51000 pps

(U) 38000 pps

b. WIDTH

(U) 0.00195 ms

(U) 0.00260 ms

c. RISE TIME

(U) 0.0000400 ms

(U) 0.0000400 ms

d. FALL TIME

(U) 0.0000400 ms

(U) 0.0000400 ms

e. COMP RATIO

a. RATE

(U) 30700 pps

(U) 25600 pps

b. WIDTH

(U) 0.00325 ms

(U) 0.00390 ms

c. RISE TIME

(U) 0.0000400 ms

(U) 0.0000400 ms

d. FALL TIME

(U) 0.0000400 ms

(U) 0.0000400 ms

e. COMP RATIO

TRANSMITTER DATA OVERFLOW PAGE

24. REMARKS

(U) MODULATION TECHNIQUES AND CODING: Transmission is bi-phase Barker Code modulated pulse. The shortest pulse uses a Barker code of length 2. The longest pulse a Barker code of length 13. Intermediate length Barker codes may also be used.

(U) Pulse Rate: each emission has a range of possible pulse repetition rates that vary from less a few thousand pps to a maximum of 160000 pps. These are specified for each emission designator.

CLASSIFICATION UNCLASSIFIED				PAGE 9	
RECEIVER EQUIPMENT CHARACTERISTICS					
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) MHR Radar Receiver			2. MANUFACTURER'S NAME (U) RADA ELECTRONIC INDUSTRIES INC.		
3. RECEIVER INSTALLATION (U) Tripod or vehicle-mounted			4. RECEIVER TYPE (U) Superheterodyne Pulse Doppler Radar		
5. TUNING RANGE (U) 3300.000 - 3400.000 MHz			6. METHOD OF TUNING (U) Digital Synthesizer		
7. RF CHANNELING CAPABILITY (U) 10.000 kHz Increments			8. EMISSION DESIGNATORS (See Data Overflow Page) (U) 11M0M1N (U) 14M7M1N (U) 17M6M1N		
9. FREQUENCY TOLERANCE (U) 0.1 ppm			11. RF SELECTIVITY		
			☐ CALCULATED ☒ MEASURED		
10. IF SELECTIVITY	1st (U)	2nd (U)	3rd (U)	a. -3 dB (U) 600000 kHz	
(See Data Overflow Page) a. -3 dB	(U) 10000 kHz	(U) 5000 kHz	(U) 5000 kHz	b. -20 dB (U) 1600000 kHz	
b. -20 dB	(U) 30000 kHz	(U) 10000 kHz	(U) 10000 kHz	c. -60 dB (U) 3200000 kHz	
c. -60 dB	(U) 50000 kHz	(U) 20000 kHz	(U) 20000 kHz	d. Preselection Type (U) Bandpass filter	
12. IF FREQUENCY				13. MAXIMUM POST DETECTION FREQUENCY	
a. 1st (U) 675.0000 MHz					
b. 2nd (U) 140.0000 MHz				14. MINIMUM POST DETECTION FREQUENCY	
c. 3rd (U) 140.0000 MHz					
15. OSCILLATOR TUNED	1st	2nd	3rd	16. MAXIMUM BIT RATE	
a. ABOVE TUNED FREQUENCY					
b. BELOW TUNED FREQUENCY	(U) X			17. SENSITIVITY (See Data Overflow Page)	
c. EITHER ABOVE OR BELOW THE FREQUENCY				a. SENSITIVITY (U) -141 dBm	
				b. CRITERIA (U) 13 (U) S/N - Signal to Noise Ratio (dB)	
18. DE-EMPHASIS				c. NOISE FIG (U) 3.00 dB	
☐ a. YES ☐ b. NO				d. NOISE TEMP (U) 289 K	
19. IMAGE REJECTION (U) 80.0 dB				20. SPURIOUS REJECTION (U) 80.0 dB	
INTERMOD REJECTION : (U) 80.0 dB					
21. REMARKS (U)					
(U) RECEIVER INSTALLATION: Antenna assembly houses transmitter, receiver, and processor.					
(U) RF CHANNELING CAPABILITY: Tuning resolution is 10 kHz (center frequency). Channel selection is simultaneous with the transmitter and is computer controlled.					
(U) RF SELECTIVITY: Preselection is aided by the antenna selectivity.					
CLASSIFICATION UNCLASSIFIED				J/F 12/10810	

CLASSIFICATION UNCLASSIFIED		PAGE 10	
RECEIVER DATA OVERFLOW PAGE			
8. EMISSION DESIGNATORS			
(U) 21M5M1N	(U) 3M70M1N	(U) 43M0M1N	
(U) 4M40M1N	(U) 5M50M1N	(U) 7M30M1N	
(U) 8M80M1N			
10. IF SELECTIVITY			
3.00 dB (U) 10000 kHz	3.00 dB (U) 5000 kHz	3.00 dB (U) 10000 kHz	
20.0 dB (U) 30000 kHz	20.0 dB (U) 10000 kHz	20.0 dB (U) 30000 kHz	
60.0 dB (U) 50000 kHz	60.0 dB (U) 20000 kHz	60.0 dB (U) 50000 kHz	
Measured	Measured	Measured	
3.00 dB (U) 5000 kHz	3.00 dB (U) 10000 kHz	3.00 dB (U) 5000 kHz	
20.0 dB (U) 10000 kHz	20.0 dB (U) 30000 kHz	20.0 dB (U) 10000 kHz	
60.0 dB (U) 20000 kHz	60.0 dB (U) 50000 kHz	60.0 dB (U) 20000 kHz	
Measured	Measured	Measured	
3.00 dB (U) 10000 kHz	3.00 dB (U) 5000 kHz	3.00 dB (U) 10000 kHz	
20.0 dB (U) 30000 kHz	20.0 dB (U) 10000 kHz	20.0 dB (U) 30000 kHz	
60.0 dB (U) 50000 kHz	60.0 dB (U) 20000 kHz	60.0 dB (U) 50000 kHz	
Measured	Measured	Measured	
3.00 dB (U) 5000 kHz	3.00 dB (U) 10000 kHz	3.00 dB (U) 5000 kHz	
20.0 dB (U) 10000 kHz	20.0 dB (U) 30000 kHz	20.0 dB (U) 10000 kHz	
60.0 dB (U) 20000 kHz	60.0 dB (U) 50000 kHz	60.0 dB (U) 20000 kHz	
Measured	Measured	Measured	
3.00 dB (U) 10000 kHz	3.00 dB (U) 5000 kHz	3.00 dB (U) 10000 kHz	
20.0 dB (U) 30000 kHz	20.0 dB (U) 10000 kHz	20.0 dB (U) 30000 kHz	
60.0 dB (U) 50000 kHz	60.0 dB (U) 20000 kHz	60.0 dB (U) 50000 kHz	
Measured	Measured	Measured	
3.00 dB (U) 5000 kHz	3.00 dB (U) 10000 kHz	3.00 dB (U) 5000 kHz	
20.0 dB (U) 10000 kHz	20.0 dB (U) 30000 kHz	20.0 dB (U) 10000 kHz	
60.0 dB (U) 20000 kHz	60.0 dB (U) 50000 kHz	60.0 dB (U) 20000 kHz	
Measured	Measured	Measured	
12. IF FREQUENCY			
(U) 675.0000 MHz	(U) 140.0000 MHz	(U) 675.0000 MHz	
(U) 140.0000 MHz	(U) 675.0000 MHz	(U) 140.0000 MHz	
(U) 675.0000 MHz	(U) 140.0000 MHz	(U) 675.0000 MHz	
(U) 140.0000 MHz	(U) 675.0000 MHz	(U) 140.0000 MHz	
(U) 675.0000 MHz	(U) 140.0000 MHz	(U) 675.0000 MHz	
(U) 140.0000 MHz	(U) 675.0000 MHz	(U) 675.0000 MHz	
17. SENSITIVITY			
a. SENSITIVITY	(U) -141 dBm		
b. CRITERIA	(U) 13 (U) S/N - Signal to Noise Ratio (dB)		
c. NOISE FIGURE	(U) 3.00 dB		
d. NOISE TEMPERATURE	(U) 289 K		
a. SENSITIVITY	(U) -141 dBm		
b. CRITERIA	(U) 13 (U) S/N - Signal to Noise Ratio (dB)		
c. NOISE FIGURE	(U) 3.00 dB		
d. NOISE TEMPERATURE	(U) 289 K		
CLASSIFICATION UNCLASSIFIED		J/F 12/10810	

RECEIVER DATA OVERFLOW PAGE

17. SENSITIVITY (continued)

- | | |
|----------------------|---|
| a. SENSITIVITY | (U) -141 dBm |
| b. CRITERIA | (U) 13 (U) S/N - Signal to Noise Ratio (dB) |
| c. NOISE FIGURE | (U) 3.00 dB |
| d. NOISE TEMPERATURE | (U) 289 K |
| | |
| a. SENSITIVITY | (U) -141 dBm |
| b. CRITERIA | (U) 13 (U) S/N - Signal to Noise Ratio (dB) |
| c. NOISE FIGURE | (U) 3.00 dB |
| d. NOISE TEMPERATURE | (U) 289 K |
| | |
| a. SENSITIVITY | (U) -141 dBm |
| b. CRITERIA | (U) 13 (U) S/N - Signal to Noise Ratio (dB) |
| c. NOISE FIGURE | (U) 3.00 dB |
| d. NOISE TEMPERATURE | (U) 289 K |
| | |
| a. SENSITIVITY | (U) -141 dBm |
| b. CRITERIA | (U) 13 (U) S/N - Signal to Noise Ratio (dB) |
| c. NOISE FIGURE | (U) 3.00 dB |
| d. NOISE TEMPERATURE | (U) 289 K |
| | |
| a. SENSITIVITY | (U) -141 dBm |
| b. CRITERIA | (U) 13 (U) S/N - Signal to Noise Ratio (dB) |
| c. NOISE FIGURE | (U) 3.00 dB |
| d. NOISE TEMPERATURE | (U) 289 K |
| | |
| a. SENSITIVITY | (U) -141 dBm |
| b. CRITERIA | (U) 13 (U) S/N - Signal to Noise Ratio (dB) |
| c. NOISE FIGURE | (U) 3.00 dB |
| d. NOISE TEMPERATURE | (U) 289 K |
| | |
| a. SENSITIVITY | (U) -141 dBm |
| b. CRITERIA | (U) 13 (U) BER - Bit Error Rate |
| c. NOISE FIGURE | (U) 3.00 dB |
| d. NOISE TEMPERATURE | (U) 289 K |

21. REMARKS

(U) OSCILLATOR TUNED: The local oscillator is 675 MHz below the operating frequency.

CLASSIFICATION UNCLASSIFIED		PAGE 12	
ANTENNA EQUIPMENT CHARACTERISTICS			
1. ☐ a. TRANSMITTING ☐ b. RECEIVING ☒ c. TRANSMITTING AND RECEIVING			
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. (U) MHR Radar Antenna		3. MANUFACTURER'S NAME (U) RADA ELECTRONIC INDUSTRIES INC.	
4. FREQUENCY RANGE (U) 3300.000 - 3400.000 MHz		5. TYPE (U) Phased-array	
6. POLARIZATION (U) Vertical		7. SCAN CHARACTERISTICS	
8. GAIN		a. TYPE	
a. MAIN BEAM (U) 22.0 dBi		b. VERTICAL SCAN (U) Electronic Scan Sector	
b. 1st MAJOR SIDE LOBE		(1) Max Elev (U) 75.0 degrees	
		(2) Min Elev (U) 0.000 degrees	
		(3) Scan Rate (U) 30.0 scans/min (U) 35.0 degrees/sec	
		c. HORIZONTAL SCAN	
9. BEAMWIDTH		(1) Sector Scanned (U) 90.0 degrees	
a. HORIZONTAL (U) 15.0 degrees		(2) Scan Rate	
b. VERTICAL (U) 15.0 degrees		d. SECTOR BLANKING ☐ (1) YES ☐ (2) NO	
10. REMARKS (U) (U) VERTICAL SCAN: Scan rate is nominal; scanning is pseudo-random in order and is affected by the radar processor sensing a target. SECTOR BLANKING: Blanking can be set by computer during setup based upon the environment and target scenario. (U) MAIN BEAM GAIN: Gain and beamwidths shown are at boresight direction. Exhibits cosine gain fall-off and beam broadening with off-boresight steering angle. 1st MAJOR SIDE LOBE: The first major sidelobe is -17 dB relative to the main beam.			
CLASSIFICATION UNCLASSIFIED		J/F 12/10810	

APPLICATION FOR SPECTRUM REVIEW	CLASSIFICATION UNCLASSIFIED	PAGE 13
NTIA GENERAL INFORMATION		
1. APPLICATION TITLE (U) RPS-42 UAS Detection Radar		
2. SYSTEM NOMENCLATURE (U) RPS-42 Radar		
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) 3300.000 MHz - 3400.000 MHz b. EMISSION DESIGNATORS		
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS (WARTIME USE) (U) ☐ a. YES ☒ b. NO (U) The RPS-42 radar is a radiolocation system and will not be used for radio navigation. The RPS-42 UAS Detection Radar Stage 4 will not be used (See Data Overflow Page)		
6. INFORMATION TRANSFER REQUIREMENTS (U) Software defined pulse-Doppler radar providing many combinations of waveform / PRF/PW/ integration interval.		
7. ESTIMATED INITIAL COST OF THE SYSTEM (U) \$ 600000		
8. TARGET DATE FOR		
a. APPLICATION APPROVAL (U) 9/1/2014	b. SYSTEM ACTIVATION (U) 12/1/2017	c. SYSTEM TERMINATION (U) 3/1/2026
9. SYSTEM RELATIONSHIP AND ESSENTIALITY (See Data Overflow Page) (U) The RPS 42 radar is a radiolocation system composed of an active, electronically-steered array (AESAs) antenna and a compact software-defined radar which together provide detection and		
10. REPLACEMENT INFORMATION (U) Not Applicable		
11. RELATED ANALYSIS AND/OR TEST DATA		
12. NUMBER OF UNITS (U) 25		
13. GEOGRAPHICAL AREA FOR		
a. STAGE 2		
b. STAGE 3		
c. STAGE 4 (U) United States & Possessions - Polygon		
14. LINE DIAGRAM None	15. SPACE SYSTEMS	
16. TYPES OF SERVICE(S) FOR STAGE 4 Radiodetermination	17. STATION CLASS(ES) FOR STAGE 4 MR	
18. REMARKS TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 7M30M1N TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 8M80M1N TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 11M0M1N TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 14M7M1N TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 17M6M1N TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 3M70M1N TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 4M40M1N		
DOWNGRADING INSTRUCTIONS Special Handling Instruction : F		J/F 12/10810 CLASSIFICATION UNCLASSIFIED

APPLICATION FOR SPECTRUM REVIEW	CLASSIFICATION UNCLASSIFIED	PAGE 14
NTIA GENERAL INFORMATION		
TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 5M50M1N TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 21M5M1N TX (U) MHR Radar Transmitter, RX (U) MHR Radar Receiver, (U) 328 W Peak, (U) 3300.000 MHz - 3400.000 MHz (U) 43M0M1N		
DOWNGRADING INSTRUCTIONS		J/F 12/10810
Special Handling Instruction : F		CLASSIFICATION UNCLASSIFIED

CLASSIFICATION UNCLASSIFIED		PAGE 15
NTIA DATA OVERFLOW PAGE		
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS Cont. (U) for separating aircraft (manned or unmanned). It is a solid state, phased array pulse Doppler radar. The radar system can incorporate up to four independent and interchangeable radar panels, each covering 90 degrees in azimuth and 70 degrees in elevation. Hemispherical coverage is achieved by the simultaneous operation of four panels.		
9. SYSTEM RELATIONSHIP AND ESSENTIALITY Cont. (U) track of moving platforms. The radar system hands off target detection/track information to command and control and sensor management systems via an Ethernet interface.		
DOWNGRADING INSTRUCTIONS Special Handling Instruction : F		J/F 12/10810
		CLASSIFICATION UNCLASSIFIED

CLASSIFICATION UNCLASSIFIED		PAGE 16
FULL RECORD PRINT FOR RPS-42 RADAR		
Application Title (U) RPS-42 UAS Detection Radar		
System Name (Nomenclature) (U) RPS-42 Radar	Stage (U) 4 - Operational	
Coord. ID/Coord. Num. J/F 12/10810	NTIA Certified (U) No	
Agency (U) N - Department of the Navy	Date Of Import 8/17/2017 9:55:04 PM (GMT)	
Overall Security Unclassified	Date/Time Last Mod. 11/21/2017 11:02:32 PM (GMT)	
GEOGRAPHIC AREAS FOR STAGE 4 (U) United States & Possessions Location Type : (U) Polygon		
Control Numbers:	Predefined Trunking? (U) No	
REFERENCES Type : Previous Certification Ref. To Cert. : True Ref. ID : 20418/3 Ref. Title : N - RPS-42 UAS Detection Radar - 3 - Unapproved - J/F 12 Ref. Org. : (U) N Ref. Date : 9/19/2017 Ref. Is Class. : False		
SYSTEM INFORMATION System Description: (U) The RPS-42 radar is a radiolocation system and will not be used for radio navigation. The RPS-42 UAS Detection Radar Stage 4 will not be used for separating aircraft (manned or unmanned). It is a solid state, phased array pulse Doppler radar. The radar system can incorporate up to four independent and interchangeable radar panels, each covering 90 degrees in azimuth and 70 degrees in elevation. Hemispherical coverage is achieved by the simultaneous operation of four panels.		
System Relationship and Essentiality: (U) The RPS 42 radar is a radiolocation system composed of an active, electronically-steered array (AESA) antenna and a compact software-defined radar which together provide detection and track of moving platforms. The radar system hands off target detection/track information to command and control and sensor management systems via an Ethernet interface.		
ATTACHMENTS		
File Name (U) N_Req_RPS42 UAS Detection Radar_St 3.pdf	SPS Number	Date of Attachment 7/29/2014
CLASSIFICATION UNCLASSIFIED		

FULL RECORD PRINT FOR RPS-42 RADAR

TARGET DATES

System Termination: (U) 3/1/2026

System Activation: (U) 12/1/2017 **System Approval:** (U) 9/1/2014

NSEP Use: (U) No

ITU Waiver: (U) No

Number Of Units: (U) 25

National Coord. Required?	Yes
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Num. Units in Same Environment: (U) 2

Number Of Units Per Stage:	Stage 3	(U) 2
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Estimated Cost of the System: (U) \$ 600000

Replacement Information:
(U) Not Applicable

Remark(s)	(U)
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(U) Warning for Pulse Duty Cycle: the radar interleaves pulses of different pulse lengths and PRIs with in burst

STATIONS

Station Name : (U) RPS-42 Radar

Transmitters

Nomenclature : (U) MHR Radar Transmitter

Receivers

Nomenclature : (U) MHR Radar Receiver

Antennas

Nomenclature : (U) MHR Radar Antenna

Station Name : (U) Unmanned Aircraft System - Generic

TRANSMITTER EQUIPMENT CHARACTERISTICS

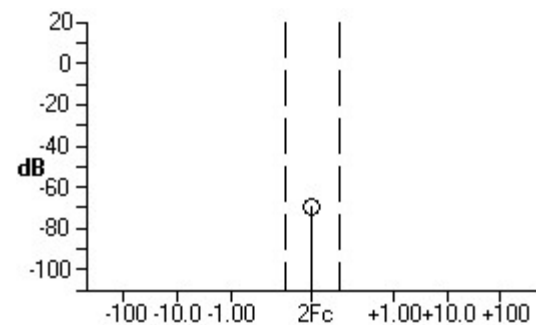
Nomenclature: (U) MHR Radar Transmitter**Manufacturer:** (U) RADA ELECTRONIC INDUSTRIES INC.**NTIA Approval Status:** (U) Unapproved**Coordination ID:** J/F 12**Date of Import:** 8/17/2017 9:55:04 PM (GMT)**Date/Time Last Mod.:** 11/21/2017 11:02:32 PM (GMT)**Fcc Acc. Number:** (U) NA**Radar/Comm:** (U) Radar**Model Name:** (U) MHR Radar Transmitter**Output Device:** (U) Field Effect Transistor**Tuning Method:** (U) Digital Synthesizer**Supp. of Harmonics:** (U) Yes**Freq. Stability:** (U) 0.1ppm**Tx Type:** (U) Pulse Doppler Radar**Tx Installation(s)**
(U) Tripod or vehicle-mounted**Filter Type**
(U) LC Bandpass

POWER

Power Type: Peak Envelope**Upper Limit:** (U) 328 W

2ND HARMONIC CURVE

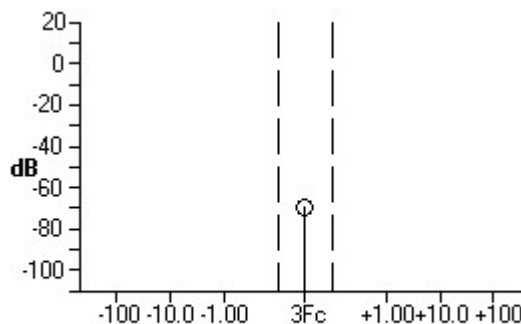
(UNCLASSIFIED)

Atten.
-70.0 dB**Offset (Fo)**
0.00000 kHz

TRANSMITTER EQUIPMENT CHARACTERISTICS

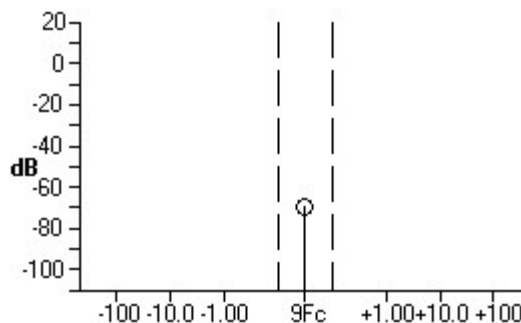
3RD HARMONIC CURVE

(UNCLASSIFIED)

Atten.
-70.0 dB**Offset (Fo)**
0.00000 kHz

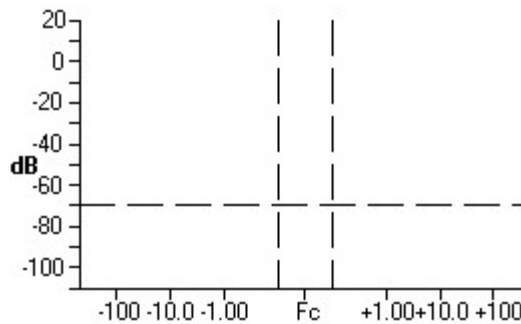
OTHER HARMONIC CURVE

(UNCLASSIFIED)

Atten.
-70.0 dB**Offset (Fo)**
0.00000 kHz

SPURIOUS EMISSION CURVE

(UNCLASSIFIED)

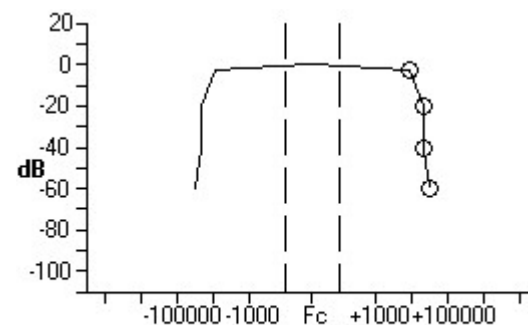
Maximum Spurious Emission**Atten.**
-70.0 dB

FREQUENCIES

EMISSION DESIGNATORS

FUNDAMENTAL CURVE

(UNCLASSIFIED)



TRANSMITTER EQUIPMENT CHARACTERISTICS

PULSE CHARACTERISTICS

Pulse Repetition Rate:	(U) 153000 pps
Pulse Rise Time:	(U) 0.0000400 ms
Pulse Fall Time:	(U) 0.0000400 ms
Pulse Width:	(U) 0.000650 ms

EMISSION DESIGNATORS

Em. Designator: (U) 21M5M1N

Necessary BW:	(U) 21500 kHz
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Radar/Communications: (U) Radar

Measured/Calculated: (U) Calculated

Occupied Bandwidth: (U) 22600 kHz

Pulse Rep. Rate Lower Limit: (U) 19500 pps

Pulse Rep. Rate Upper Limit: (U) 160000 pps

Pulse Duration Lower Limit: (U) 0.000100 ms

Pulse Duration Upper Limit: (U) 0.00130 ms

Spread Spectrum:	No
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Radar Type:	(U) Coded Pulse Radar
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FUNDAMENTAL CURVE

(UNCLASSIFIED)

Meas/Calc: Calculated

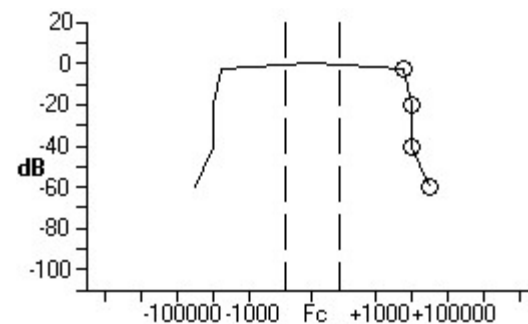
<u>Level</u>	<u>Offset (Fo)</u>
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-3.00 dB 6400.0 kHz

-20.0 dB 10750 kHz

-40.0 dB 10800 kHz

-60.0 dB 34150 kHz



TRANSMITTER EQUIPMENT CHARACTERISTICS

PULSE CHARACTERISTICS

Pulse Repetition Rate:	(U) 77000 pps
Pulse Rise Time:	(U) 0.0000400 ms
Pulse Fall Time:	(U) 0.0000400 ms
Pulse Width:	(U) 0.000130 ms

EMISSION DESIGNATORS

Em. Designator: (U) 5M50M1N

Necessary BW:	(U) 5500.0 kHz
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Radar/Communications: (U) Radar

Measured/Calculated: (U) Calculated

Occupied Bandwidth: (U) 5800.0 kHz

Pulse Rep. Rate Lower Limit: (U) 4900 pps

Pulse Rep. Rate Upper Limit: (U) 160000 pps

Pulse Duration Lower Limit:	(U) 0.000400 ms
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Pulse Duration Upper Limit: (U) 0.00520 ms

Spread Spectrum:	No
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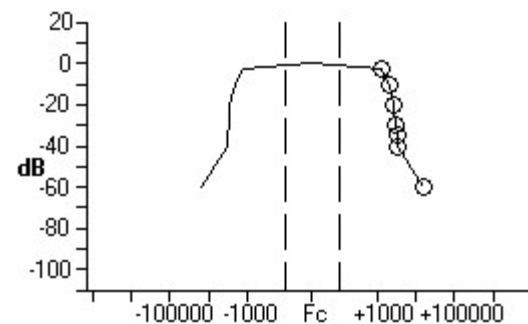
Radar Type:	(U) Coded Pulse Radar
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FUNDAMENTAL CURVE

(UNCLASSIFIED)

Meas/Calc: Calculated

<u>Level</u>	<u>Offset (Fo)</u>
-3.00 dB	1200.0 kHz
-10.0 dB	2100.0 kHz
-20.0 dB	2750.0 kHz
-30.0 dB	3000.0 kHz
-35.0 dB	3150.0 kHz
-40.0 dB	3300.0 kHz
-60.0 dB	15000 kHz



PULSE CHARACTERISTICS

Pulse Repetition Rate:	(U) 19200 pps
Pulse Rise Time:	(U) 0.0000400 ms
Pulse Fall Time:	(U) 0.0000400 ms
Pulse Width:	(U) 0.00520 ms

EMISSION DESIGNATORS

Em. Designator: (U) 4M40M1N

Necessary BW:	(U) 4400.0 kHz
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Radar/Communications: (U) Radar

Measured/Calculated: (U) Calculated

Occupied Bandwidth: (U) 4600.0 kHz

Pulse Rep. Rate Lower Limit: (U) 3900 pps

Pulse Rep. Rate Upper Limit: (U) 160000 pps

Pulse Duration Lower Limit:	(U) 0.000500 ms
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Pulse Duration Upper Limit: (U) 0.00650 ms

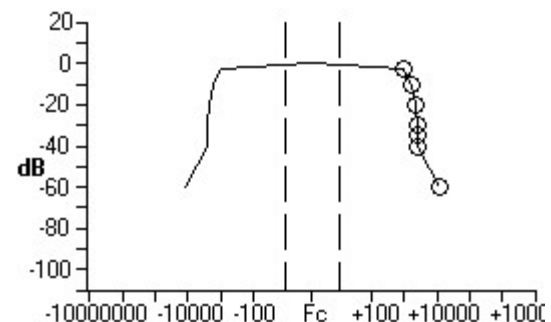
Spread Spectrum:	No
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Radar Type:	(U) Coded Pulse Radar
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FUNDAMENTAL CURVE

(UNCLASSIFIED)

Level	Offset (Fo)
-3.00 dB	960.00 kHz
-10.0 dB	1700.0 kHz
-20.0 dB	2200.0 kHz
-30.0 dB	2400.0 kHz
-35.0 dB	2500.0 kHz
-40.0 dB	2600.0 kHz
-60.0 dB	12500 kHz



TRANSMITTER EQUIPMENT CHARACTERISTICS

PULSE CHARACTERISTICS

Pulse Repetition Rate:	(U) 15400 pps
Pulse Rise Time:	(U) 0.0000400 ms
Pulse Fall Time:	(U) 0.0000400 ms
Pulse Width:	(U) 0.00650 ms

EMISSION DESIGNATORS

Em. Designator: (U) 3M70M1N

Necessary BW:	(U) 3700.0 kHz
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Radar/Communications: (U) Radar

Measured/Calculated: (U) Calculated

Occupied Bandwidth: (U) 3900.0 kHz

Pulse Rep. Rate Lower Limit: (U) 3255 pps

Pulse Rep. Rate Upper Limit: (U) 160000 pps

Pulse Duration Lower Limit:	(U) 0.000600 ms
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Pulse Duration Upper Limit: (U) 0.00780 ms

Spread Spectrum:	No
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Radar Type:	(U) Coded Pulse Radar
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FUNDAMENTAL CURVE

(UNCLASSIFIED)

Meas/Calc: Calculated

<u>Level</u>	<u>Offset (Fo)</u>
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-3.00 dB 800.00 kHz

-10.0 dB 1380.0 kHz

-20.0 dB 1850.0 kHz

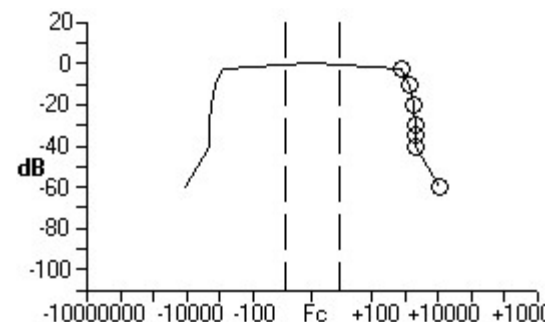
-30.0 dB 2000.0 kHz

-35.0 dB 2100.0 kHz

-40.0 dB 2200.0 kHz

-60.0 dB 11000 kHz

00.0 gD 11000 RHE



TRANSMITTER EQUIPMENT CHARACTERISTICS

PULSE CHARACTERISTICS

Pulse Repetition Rate:	(U) 12800 pps
Pulse Rise Time:	(U) 0.0000400 ms
Pulse Fall Time:	(U) 0.0000400 ms
Pulse Width:	(U) 0.00780 ms

EMISSION DESIGNATORS

Em. Designator: (U) 17M6M1N

Necessary BW:	(U) 17600 kHz
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Radar/Communications: (U) Radar

Measured/Calculated: (U) Calculated

Occupied Bandwidth: (U) 18500 kHz

Pulse Rep. Rate Lower Limit:	(U) 15600 pps
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Pulse Rep. Rate Upper Limit: (U) 160000 pps

Pulse Duration Lower Limit:	(U) 0.000125 ms
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Pulse Duration Upper Limit: (U) 0.00163 ms

Spread Spectrum:	No
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Radar Type:	(U) Coded Pulse Radar
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FUNDAMENTAL CURVE

(UNCLASSIFIED)

Meas/Calc: Calculated

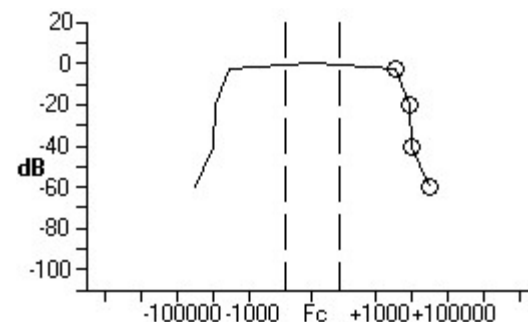
<u>Level</u>	<u>Offset (Fo)</u>
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-3.00 dB 3850.0 kHz

-20.0 dB 8800.0 kHz

-40.0 dB 10800 kHz

-60.0 dB 34150 kHz



TRANSMITTER EQUIPMENT CHARACTERISTICS

PULSE CHARACTERISTICS

Pulse Repetition Rate:	(U) 61538 pps
Pulse Rise Time:	(U) 0.0000400 ms
Pulse Fall Time:	(U) 0.0000400 ms
Pulse Width:	(U) 0.00163 ms

EMISSION DESIGNATORS

Em. Designator: (U) 14M7M1N

Necessary BW:	(U) 14700 kHz
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Radar/Communications: (U) Radar

Measured/Calculated: (U) Calculated

Occupied Bandwidth: (U) 15400 kHz

Pulse Rep. Rate Lower Limit:	(U) 13000 pps
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Pulse Rep. Rate Upper Limit: (U) 16000 pps

Pulse Duration Lower Limit:	(U) 0.000150 ms
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Pulse Duration Upper Limit: (U) 0.00195 ms

Spread Spectrum:	No
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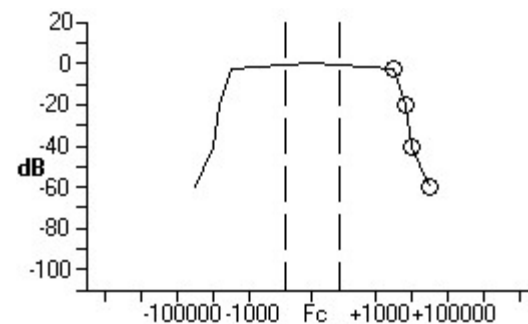
Radar Type:	(U) Coded Pulse Radar
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FUNDAMENTAL CURVE

(UNCLASSIFIED)

Meas/Calc: Calculated

<u>Level</u>	<u>Offset (Fo)</u>
-3.00 dB	3200.0 kHz
-20.0 dB	7350.0 kHz
-40.0 dB	10800 kHz
-60.0 dB	34150 kHz



TRANSMITTER EQUIPMENT CHARACTERISTICS

PULSE CHARACTERISTICS

Pulse Repetition Rate:	(U) 51000 pps
Pulse Rise Time:	(U) 0.0000400 ms
Pulse Fall Time:	(U) 0.0000400 ms
Pulse Width:	(U) 0.00195 ms

EMISSION DESIGNATORS

Em. Designator: (U) 11M0M1N

Necessary BW:	(U) 11000 kHz
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Radar/Communications: (U) Radar

Measured/Calculated: (U) Calculated

Occupied Bandwidth: (U) 11600 kHz

Pulse Rep. Rate Lower Limit: (U) 9700 pps

Pulse Rep. Rate Upper Limit: (U) 160000 pps

Pulse Duration Lower Limit:	(U) 0.000200 ms
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Pulse Duration Upper Limit: (U) 0.00260 ms

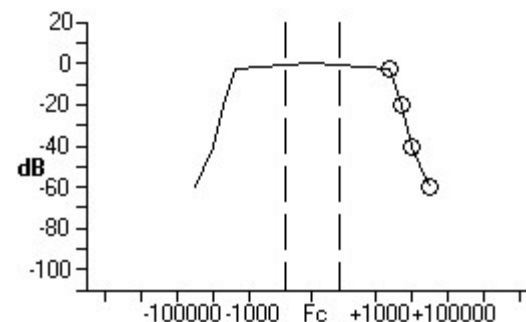
Spread Spectrum:	No
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Radar Type:	(U) Coded Pulse Radar
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FUNDAMENTAL CURVE

(UNCLASSIFIED)

<u>Level</u>	<u>Offset (Fo)</u>
-3.00 dB	2400.0 kHz
-20.0 dB	5500.0 kHz
-40.0 dB	10800 kHz
-60.0 dB	34150 kHz



TRANSMITTER EQUIPMENT CHARACTERISTICS

PULSE CHARACTERISTICS

Pulse Repetition Rate:	(U) 38000 pps
Pulse Rise Time:	(U) 0.0000400 ms
Pulse Fall Time:	(U) 0.0000400 ms
Pulse Width:	(U) 0.00260 ms

EMISSION DESIGNATORS

Em. Designator: (U) 8M80M1N

Necessary BW:	(U) 8800.0 kHz
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Radar/Communications: (U) Radar

Measured/Calculated: (U) Calculated

Occupied Bandwidth: (U) 9200.0 kHz

Pulse Rep. Rate Lower Limit: (U) 7800 pps

Pulse Rep. Rate Upper Limit: (U) 160000 pps

Pulse Duration Lower Limit:	(U) 0.000250 ms
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Pulse Duration Upper Limit: (U) 0.00325 ms

Spread Spectrum:	No
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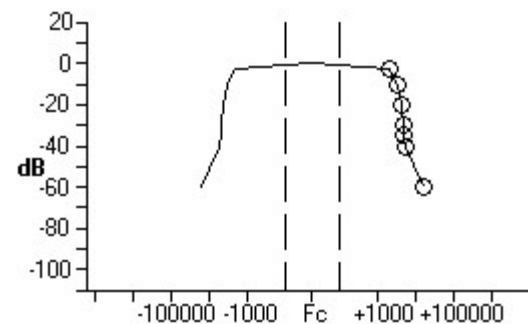
Radar Type:	(U) Coded Pulse Radar
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FUNDAMENTAL CURVE

(UNCLASSIFIED)

Meas/Calc: Calculated

<u>Level</u>	<u>Offset (Fo)</u>
-3.00 dB	2000.0 kHz
-10.0 dB	3300.0 kHz
-20.0 dB	4400.0 kHz
-30.0 dB	4800.0 kHz
-35.0 dB	5000.0 kHz
-40.0 dB	5200.0 kHz
-60.0 dB	16000 kHz



TRANSMITTER EQUIPMENT CHARACTERISTICS

PULSE CHARACTERISTICS

Pulse Repetition Rate: (U) 30700 pps
Pulse Rise Time: (U) 0.0000400 ms
Pulse Fall Time: (U) 0.0000400 ms
Pulse Width: (U) 0.00325 ms

EMISSION DESIGNATORS

Em. Designator: (U) 7M30M1N

Necessary BW: (U) 7300.0 kHz

Radar/Communications: (U) Radar

Measured/Calculated: (U) Calculated

Occupied Bandwidth: (U) 7700.0 kHz

Pulse Rep. Rate Lower Limit: (U) 6510 pps

Pulse Rep. Rate Upper Limit: (U) 160000 pps

Pulse Duration Lower Limit: (U) 0.000300 ms

Pulse Duration Upper Limit: (U) 0.00390 ms

Spread Spectrum: No

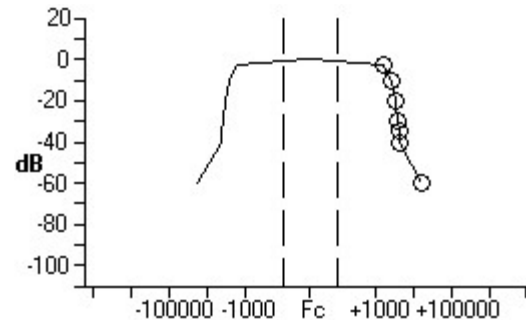
Radar Type: (U) Coded Pulse Radar

FUNDAMENTAL CURVE

(UNCLASSIFIED)

Meas/Calc: Calculated

Level	Offset (Fo)
-3.00 dB	1600.0 kHz
-10.0 dB	2800.0 kHz
-20.0 dB	3650.0 kHz
-30.0 dB	4000.0 kHz
-35.0 dB	4200.0 kHz
-40.0 dB	4400.0 kHz
-60.0 dB	18000 kHz



CLASSIFICATION UNCLASSIFIED	PAGE 30
TRANSMITTER EQUIPMENT CHARACTERISTICS	
PULSE CHARACTERISTICS	
Pulse Repetition Rate: (U) 25600 pps Pulse Rise Time: (U) 0.0000400 ms Pulse Fall Time: (U) 0.0000400 ms Pulse Width: (U) 0.00390 ms	
Remark(s) (U) (U) MODULATION TECHNIQUES AND CODING: Transmission is bi-phase Barker Code modulated pulse. The shortest pulse uses a Barker code of length 2. The longest pulse a Barker code of length 13. Intermediate length Barker codes may also be used. (U) RF CHANNELING CAPABILITY: Any 10 channels can be programmed for use in field. The 10 kHz channel's center frequency separation is provided to allow avoidance of interfering signals. (U) FILTER EMPLOYED: Filters employed are ceramic with inherent antenna bandwidth. (U) EMISSION BANDWIDTH: Emission bandwidth shown indicates worst-case expected under SW control of pulse width. Pulse width is chosen based on expected target scenario. Pulse rise and fall times pertain to pulse edges and represent worst-case values. (U) Pulse Rate: each emission has a range of possible pulse repetition rates that vary from less a few thousand pps to a maximum of 160000 pps. These are specified for each emission designator.	
CLASSIFICATION UNCLASSIFIED	

RECEIVER EQUIPMENT CHARACTERISTICS

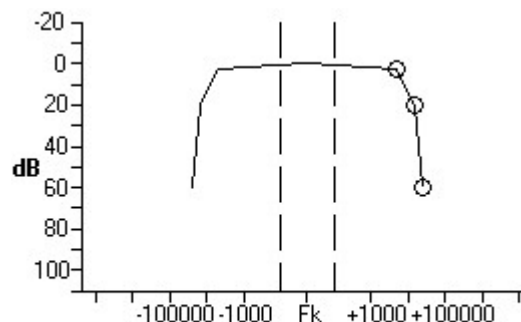
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 675.0000 MHz

Atten.	Offset (Fo)
3.00 dB	5000.0 kHz
20.0 dB	15000 kHz
60.0 dB	25000 kHz



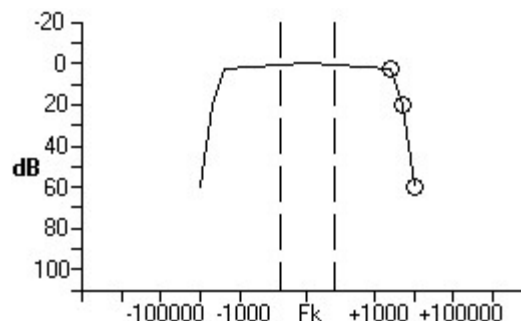
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 140.0000 MHz

Atten.	Offset (Fo)
3.00 dB	2500.0 kHz
20.0 dB	5000.0 kHz
60.0 dB	10000 kHz



EMISSION DESIGNATORS

Em. Designator: (U) 21M5M1N

Sensitivities

Sensitivity: (U) -141 dBm
 Necessary BW: (U) 21500 kHz
 Perf. Value: (U) 13
 Noise Figure: (U) 3.00 dB
 Noise Temp. (U) 289 K
 Spur. Reject (U) 80.0 dB
 Intermod. Reject: (U) 80.0 dB
 Adj. Channel Sel.:
 Perf. Crit.: (U) S/N - Signal to Noise Ratio (dB)

RECEIVER EQUIPMENT CHARACTERISTICS

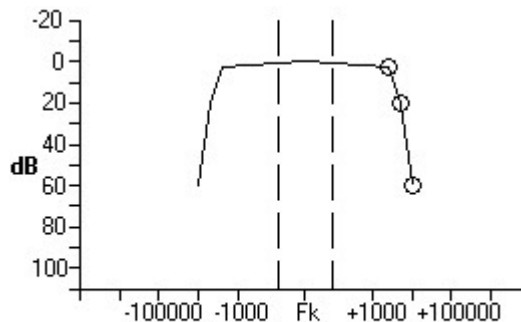
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 140.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	2500.0 kHz
20.0 dB	5000.0 kHz
60.0 dB	10000 kHz



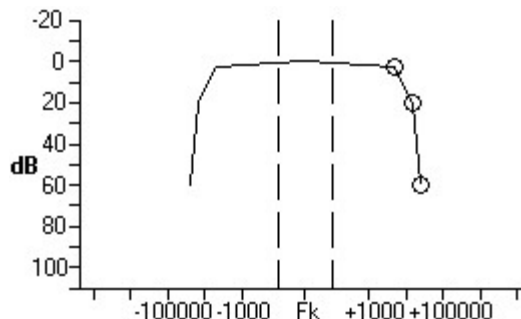
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 675.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	5000.0 kHz
20.0 dB	15000 kHz
60.0 dB	25000 kHz



EMISSION DESIGNATORS

Em. Designator: (U) 8M80M1N

Sensitivities

Sensitivity: (U) -141 dBm
Necessary BW: (U) 8800.0 kHz
Perf. Value: (U) 13
Noise Figure: (U) 3.00 dB
Noise Temp. (U) 289 K
Spur. Reject (U) 80.0 dB
Intermod. Reject: (U) 80.0 dB
Adj. Channel Sel.:
Perf. Crit.: (U) BER - Bit Error Rate

RECEIVER EQUIPMENT CHARACTERISTICS

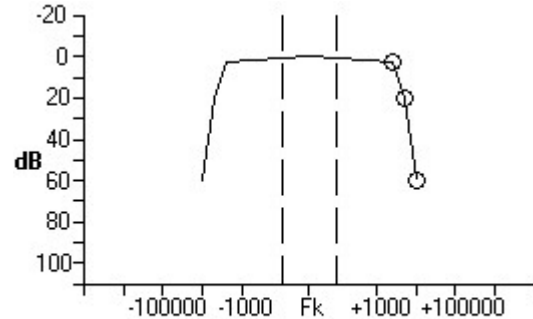
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 140.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	2500.0 kHz
20.0 dB	5000.0 kHz
60.0 dB	10000 kHz



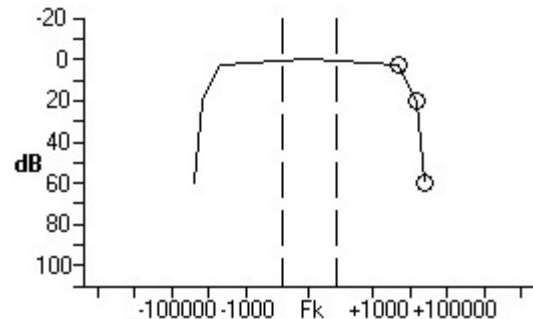
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 675.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	5000.0 kHz
20.0 dB	15000 kHz
60.0 dB	25000 kHz



EMISSION DESIGNATORS

Em. Designator: (U) 5M50M1N

Sensitivities

Sensitivity: (U) -141 dBm

Necessary BW: (U) 5500.0 kHz

Perf. Value: (U) 13

Noise Figure: (U) 3.00 dB

Noise Temp. (U) 289 K

Spur. Reject (U) 80.0 dB

Intermod. Reject: (U) 80.0 dB

Adj. Channel Sel.:

Perf. Crit.: (U) S/N - Signal to Noise Ratio (dB)

RECEIVER EQUIPMENT CHARACTERISTICS

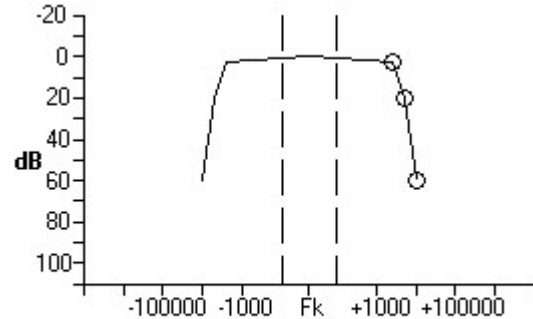
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 140.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	2500.0 kHz
20.0 dB	5000.0 kHz
60.0 dB	10000 kHz



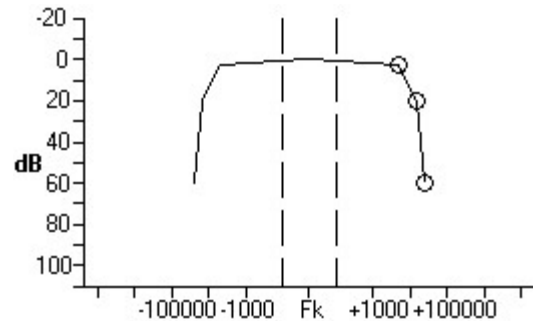
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 675.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	5000.0 kHz
20.0 dB	15000 kHz
60.0 dB	25000 kHz



EMISSION DESIGNATORS

Em. Designator: (U) 11M0M1N

Sensitivities

Sensitivity: (U) -141 dBm
Necessary BW: (U) 11000 kHz
Perf. Value: (U) 13
Noise Figure: (U) 3.00 dB
Noise Temp. (U) 289 K
Spur. Reject (U) 80.0 dB
Intermod. Reject: (U) 80.0 dB
Adj. Channel Sel.:
Perf. Crit.: (U) S/N - Signal to Noise Ratio (dB)

RECEIVER EQUIPMENT CHARACTERISTICS

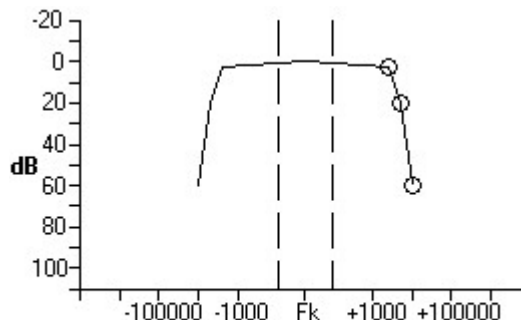
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 140.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	2500.0 kHz
20.0 dB	5000.0 kHz
60.0 dB	10000 kHz



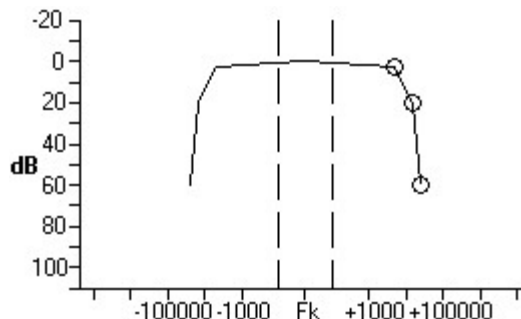
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 675.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	5000.0 kHz
20.0 dB	15000 kHz
60.0 dB	25000 kHz



EMISSION DESIGNATORS

Em. Designator: (U) 14M7M1N

Sensitivities

Sensitivity: (U) -141 dBm
Necessary BW: (U) 14700 kHz
Perf. Value: (U) 13
Noise Figure: (U) 3.00 dB
Noise Temp. (U) 289 K
Spur. Reject (U) 80.0 dB
Intermod. Reject: (U) 80.0 dB
Adj. Channel Sel.:
Perf. Crit.: (U) S/N - Signal to Noise Ratio (dB)

RECEIVER EQUIPMENT CHARACTERISTICS

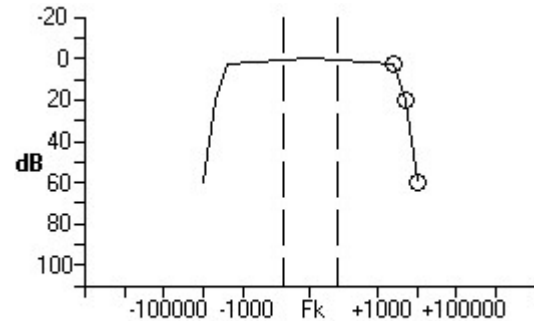
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 140.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	2500.0 kHz
20.0 dB	5000.0 kHz
60.0 dB	10000 kHz



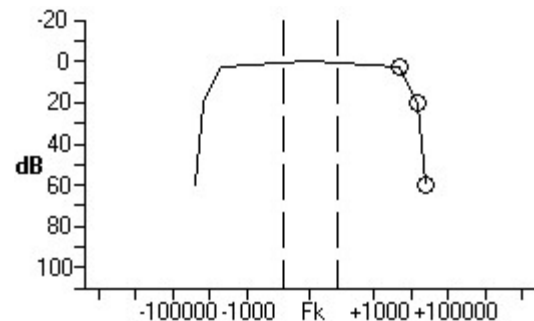
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 675.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	5000.0 kHz
20.0 dB	15000 kHz
60.0 dB	25000 kHz



EMISSION DESIGNATORS

Em. Designator: (U) 17M6M1N

Sensitivities

Sensitivity: (U) -141 dBm

Necessary BW: (U) 17600 kHz

Perf. Value: (U) 13

Noise Figure: (U) 3.00 dB

Noise Temp. (U) 289 K

Spur. Reject (U) 80.0 dB

Intermod. Reject: (U) 80.0 dB

Adj. Channel Sel.:

Perf. Crit.: (U) S/N - Signal to Noise Ratio (dB)

RECEIVER EQUIPMENT CHARACTERISTICS

IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

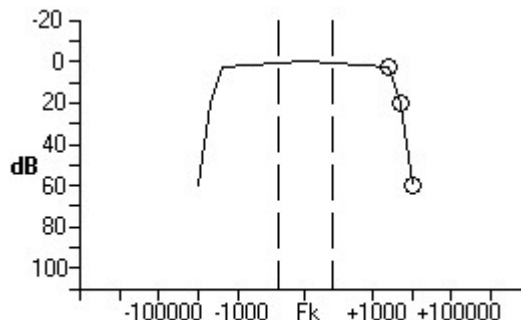
IF Freq. (Fk): 140.0000 MHz

Atten. Offset (Fo)

3.00 dB 2500.0 kHz

20.0 dB 5000.0 kHz

60.0 dB 10000 kHz



IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

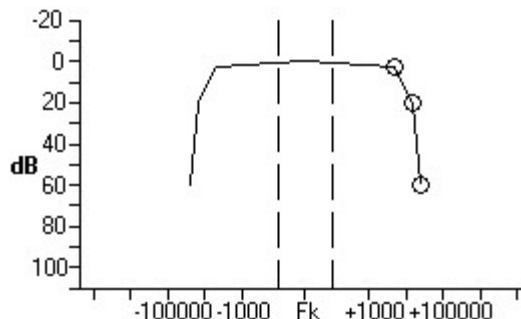
IF Freq. (Fk): 675.0000 MHz

Atten. Offset (Fo)

3.00 dB 5000.0 kHz

20.0 dB 15000 kHz

60.0 dB 25000 kHz



EMISSION DESIGNATORS

Em. Designator: (U) 3M70M1N

Sensitivities

Sensitivity: (U) -141 dBm

Necessary BW: (U) 3700.0 kHz

Perf. Value: (U) 13

Noise Figure: (U) 3.00 dB

Noise Temp. (U) 289 K

Spur. Reject (U) 80.0 dB

Intermod. Reject: (U) 80.0 dB

Adj. Channel Sel.:

Perf. Crit.: (U) S/N - Signal to Noise Ratio (dB)

RECEIVER EQUIPMENT CHARACTERISTICS

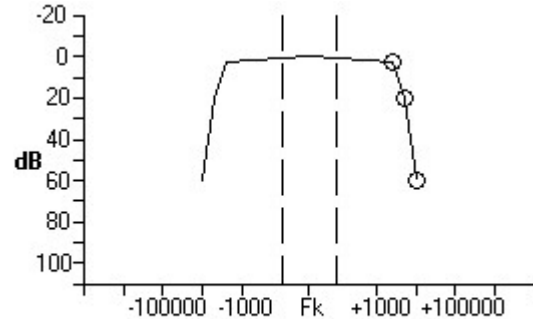
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 140.0000 MHz

Atten.	Offset (Fo)
3.00 dB	2500.0 kHz
20.0 dB	5000.0 kHz
60.0 dB	10000 kHz



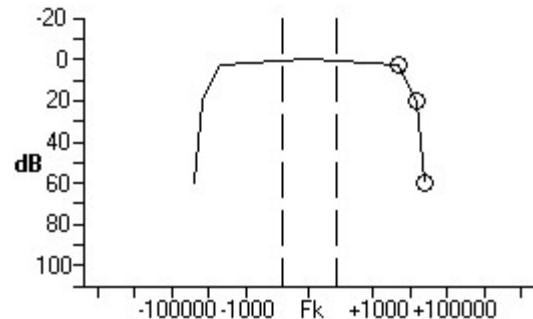
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 675.0000 MHz

Atten.	Offset (Fo)
3.00 dB	5000.0 kHz
20.0 dB	15000 kHz
60.0 dB	25000 kHz



EMISSION DESIGNATORS

Em. Designator: (U) 4M40M1N

Sensitivities

Sensitivity: (U) -141 dBm

Necessary BW: (U) 4400.0 kHz

Perf. Value: (U) 13

Noise Figure: (U) 3.00 dB

Noise Temp. (U) 289 K

Spur. Reject (U) 80.0 dB

Intermod. Reject: (U) 80.0 dB

Adj. Channel Sel.:

Perf. Crit.: (U) S/N - Signal to Noise Ratio (dB)

RECEIVER EQUIPMENT CHARACTERISTICS

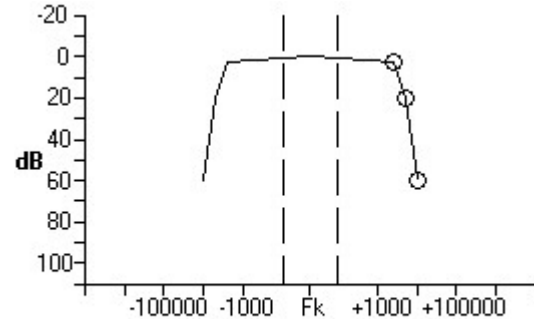
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 140.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	2500.0 kHz
20.0 dB	5000.0 kHz
60.0 dB	10000 kHz



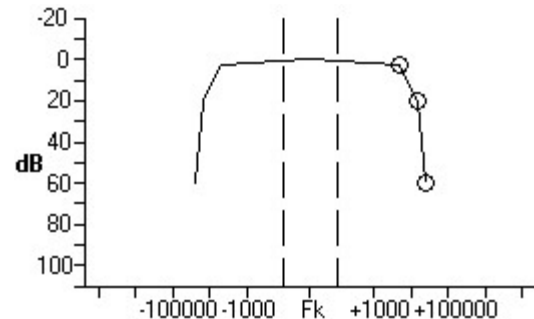
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 675.0000 MHz

<u>Atten.</u>	<u>Offset (Fo)</u>
3.00 dB	5000.0 kHz
20.0 dB	15000 kHz
60.0 dB	25000 kHz



EMISSION DESIGNATORS

Em. Designator: (U) 7M30M1N

Sensitivities

Sensitivity: (U) -141 dBm

Necessary BW: (U) 7300.0 kHz

Perf. Value: (U) 13

Noise Figure: (U) 3.00 dB

Noise Temp. (U) 289 K

Spur. Reject (U) 80.0 dB

Intermod. Reject: (U) 80.0 dB

Adj. Channel Sel.:

Perf. Crit.: (U) S/N - Signal to Noise Ratio (dB)

RECEIVER EQUIPMENT CHARACTERISTICS

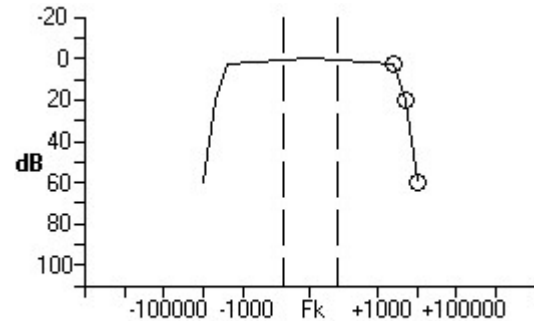
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 140.0000 MHz

Atten.	Offset (Fo)
3.00 dB	2500.0 kHz
20.0 dB	5000.0 kHz
60.0 dB	10000 kHz



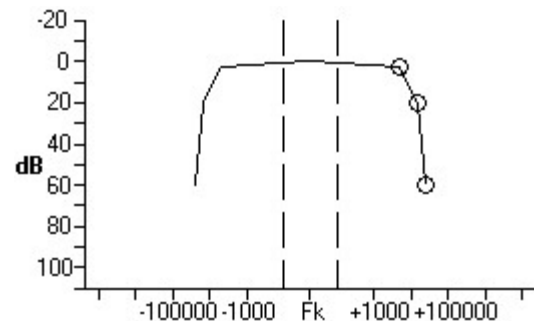
IF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

IF Freq. (Fk): 675.0000 MHz

Atten.	Offset (Fo)
3.00 dB	5000.0 kHz
20.0 dB	15000 kHz
60.0 dB	25000 kHz

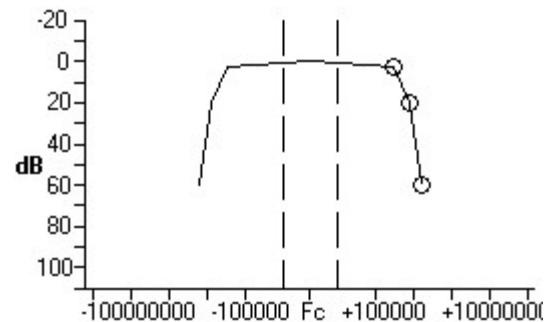


RF SELECTIVITY CURVE

(UNCLASSIFIED)

Measured/Calculated: Measured

Atten.	Offset (Fo)
3.00 dB	300000 kHz
20.0 dB	800000 kHz
60.0 dB	1600000 kHz



CLASSIFICATION	UNCLASSIFIED	PAGE 42
RECEIVER EQUIPMENT CHARACTERISTICS		
Remark(s) (U) (U) RECEIVER INSTALLATION: Antenna assembly houses transmitter, receiver, and processor. (U) RF CHANNELING CAPABILITY: Tuning resolution is 10 kHz (center frequency). Channel selection is simultaneous with the transmitter and is computer controlled. (U) RF SELECTIVITY: Preselection is aided by the antenna selectivity. (U) OSCILLATOR TUNED: The local oscillator is 675 MHz below the operating frequency.		
CLASSIFICATION	UNCLASSIFIED	

CLASSIFICATION UNCLASSIFIED		PAGE 43
ANTENNA EQUIPMENT CHARACTERISTICS		
Nomenclature: (U) MHR Radar Antenna	Manufacturer: (U) RADA ELECTRONIC INDUSTRIES INC.	
NTIA Approval Status: (U) Unapproved	Coordination ID: J/F 12	
Date of Import: 8/17/2017 9:55:04 PM (GMT)	Date/Time Last Mod.: 10/2/2017 1:40:11 AM (GMT)	
Model Name: (U) MHR Radar Antenna	Antenna Type: (U) Phased-array	
Antenna Category: Phased Array		
FREQUENCIES		
Lower Frequency Limit: (U) 3300.000 MHz Upper Frequency Limit: (U) 3400.000 MHz		
ANTENNA CHARACTERISTICS		
Polarization: (U) Vertical	Atten. Rel/Act:	
Vert. Min. Elev.: (U) 0.000 degrees	Vert. Max. Elev.: (U) 75.0 degrees	
Num. Main Beam:	Num. Elements: (U) 109	
BEAMWIDTH		
Horizontal: (U) 15.0 degrees	Vertical: (U) 15.0 degrees	
SCAN CHARACTERISTICS		
Vertical Scan Type: (U) Electronic Scan Sector	Vertical Scan Rate: (U) 30.0 /min	
	Vertical Scan Speed: (U) 35.0 /sec	
GAIN		
Main Beam: (U) 22.0 dBi		
Degrees of Scan: (U) 90.0 degrees		
Remark(s) (U) (U) VERTICAL SCAN: Scan rate is nominal; scanning is pseudo-random in order and is affected by the radar processor sensing a target. SECTOR BLANKING: Blanking can be set by computer during setup based upon the environment and target scenario.		
CLASSIFICATION UNCLASSIFIED		

CLASSIFICATION UNCLASSIFIED		PAGE 44
ANTENNA EQUIPMENT CHARACTERISTICS		
Cont. (U) MAIN BEAM GAIN: Gain and beamwidths shown are at boresight direction. Exhibits cosine gain fall-off and beam broadening with off-boresight steering angle. 1st MAJOR SIDE LOBE: The first major sidelobe is -17 dB relative to the main beam.		
CLASSIFICATION UNCLASSIFIED		

COMPLIANCE CHECK REPORT

System Name: (U) RPS-42 Radar**NTIA General NTIA-Gen-0036, Page: 16****Severity: WARNING****Description:**

This Unapproved Location does not have a Map Layer, i.e., it is not displayed on the map. To add it to the map, right-click on the [Location] node and choose "Display/Edit on Map". On the map screen, pick a suitable layer in the Location Layer combo box in the upper right corner and click OK.

Transmitter (U) MHR Radar Transmitter**NTIA General NTIA-Gen-0029, Page: 18****Severity: WARNING****Description:**

The Manufacturer is not listed in the pre-defined manufacturer table. Make sure this is a valid new manufacturer and not a variation of an existing manufacturer or a mis-spelling before sending this Certification to NTIA.

Receiver: (U) MHR Radar Receiver**NTIA General NTIA-Gen-0030, Page: 31****Severity: WARNING****Description:**

The Manufacturer is not listed in the pre-defined manufacturer table. Make sure this is a valid new manufacturer and not a variation of an existing manufacturer or a mis-spelling before sending this Certification to NTIA.

Antenna: (U) MHR Radar Antenna**NTIA General NTIA-Gen-0033, Page: 43****Severity: WARNING****Description:**

The Manufacturer is not listed in the pre-defined manufacturer table. Make sure this is a valid new manufacturer and not a variation of an existing manufacturer or a mis-spelling before sending this Certification to NTIA.

Table of Contents For (U) RPS-42 Radar

1. (U) Security Page
2. (U) DoD Page
4. (U) Foreign Coordination Page
- 1494 Transmitter Pages
 6. (U) MHR Radar Transmitter
- 1494 Receiver Pages
 9. (U) MHR Radar Receiver
- 1494 Antenna Pages
 12. (U) MHR Radar Antenna
13. (U) NTIA Page
16. (U) Full Record Print
- Detail Transmitters
 18. (U) MHR Radar Transmitter
- Detail Receivers
 31. (U) MHR Radar Receiver
- Detail Antennas
 43. (U) MHR Radar Antenna
45. (U) Compliance Check Report