

APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION		CLASSIFICATION UNCLASSIFIED	DATE	J/F 12 No.
				Page No.
DOD GENERAL INFORMATION				
TO Blackstone Army Airfield Blackstone VA 23824		FROM Propagation Research Associates, LLC 1275 Kennestone Circle, Suite 100 Marietta GA 30066		
1. APPLICATION TITLE Localized Autonomous Navigation, Position, and Timing (LANPaT)				
2. SYSTEM NOMENCLATURE LANPaT				
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):		9.5 GHz		
b. EMISSION DESIGNATOR(S):		12M5Q7DEC		
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: Blackstone Army Airfield				
c. STAGE 4:				
8. NUMBER OF UNITS				
a. STAGE 2		b. STAGE 3 1		c. STAGE 4
9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT				
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 OTHER J/F 12 APPLICATION NUMBER(S) TO BE a. SUPERSEDED J/F 12/ b. RELATED J/F 12/			11.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. NAvail	
12. NAMES AND TELEPHONE NUMBERS				
a. PROGRAM MANAGER Hamish Malin		(1) COMMERCIAL PHONE	(2) DSN	
b. PROJECT ENGINEER		(1) COMMERCIAL PHONE	(2) DSN	
13. REMARKS				
DOWNGRADING INSTRUCTIONS		CLASSIFICATION UNCLASSIFIED		J/F 12 No.
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INSTRUCTIONS FOR COMPLETING DD FORM 1494
"APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION"

GENERAL INFORMATION

CLASSIFICATION: This form must be classified in accordance with appropriate agency security directions. Downgrading instructions must be indicated. The highest classification for each item or subitem as required must be indicated by a (U), (C), or (S) alongside the item or sub-item title, for classified applications.

APPLICATION PURPOSE: This is an application for development or procurement of equipment with RF emitters. It is not a frequency assignment request for operation of RF emitters. Funds must not be obligated prior to the approval of an application for frequency allocation.

DATA REQUIREMENT: All applicable data items shall be submitted for all stages. Estimated values or ranges of values may be submitted for Stage 1 and 2 in the absence of calculated or measured values and shall be annotated (EST). Values for Stages 3 and 4 should be measured.

STANDARDS: Technical parameters of the application will be evaluated against the appropriate DoD, National and International EMC standards.

REMARKS ITEMS: Use the remarks item located at the bottom of each page of the form to amplify or clarify the entries. Add continuation pages as required.

ABBREVIATIONS:

Hertz	Hz	microseconds	usec
kilohertz	kHz	decibel	dB
megahertz	MHz	dB isotropic	dB <i>i</i>
gigahertz	GHz	pulses per second	pps
milliwatt	mW	parts per million	ppm
watt	W	peak envelope power	PEP
nanoseconds	nsec	not applicable	NA
National	NTIA	not available	NAvail
Telecommunications & Information Administration		occupied bandwidth	OC-BW

HOW TO ASSEMBLE THE FORM:

FOR US COORDINATION:

1. DoD General Information Page
2. Transmitter Page(s)
3. Receiver Page(s)
4. Antenna Page(s)
5. Line Diagram(s)
6. Space Systems Data, if applicable
7. Continuation Page(s) (cross reference pages)
8. NTIA General Information Page

FOR FOREIGN COORDINATION: If this form is used to obtain foreign national frequency supportability comments, see the instructions on the back of the Foreign Coordination General Information Page.

DOD GENERAL INFORMATION PAGE

ITEM 1 - Application Title. Enter the Government nomenclature of the equipment, or the manufacturer's name and model number, and a short descriptive title.

ITEM 2 - System Nomenclature. Enter the nomenclature of the system for which this equipment is a subsystem, e.g., PATRIOT or Global Positioning System.

ITEM 3 - Stage of Allocation. Mark the appropriate block using the following NTIA definitions.

Stage 1 - Conceptual. The initial planning effort has been completed, including proposed frequency bands and other available characteristics.

Stage 2 - Experimental. The preliminary design has been completed, and radiation, using test equipment or preliminary models, may be required.

Stage 3 - Developmental. The major design has been completed, and radiation may be required during testing.

Stage 4 - Operational. Development has been essentially completed, and final operating constraints or restrictions required to assure compatibility need to be identified.

ITEM 4 - Frequency Requirements.

a. Enter the required frequency band(s). For equipment designed to operate only at a single frequency, enter this frequency. Indicate units, e.g., kHz, MHz, or GHz.

b. Enter the emission designator(s) including the necessary bandwidth for each designator, as described in Chapter 9 of the NTIA Manual e.g., 40M0PON. Identify each mode as hopping or non-hopping, e.g. 64M0F3E (Hopping). Enter in Item 13, "Remarks," any other information pertinent to frequency requirements, such as minimum frequency separation or special relationships involving multiple discrete frequencies.

ITEM 5 - Target Starting Date for Subsequent Stages. Enter proposed date of application submission for each subsequent stage.

ITEM 6 - Extent of Use. Describe extent of use that will apply to Stage 4, e.g., continuous or intermittent. If intermittent, provide information including the expected number of hours of operation per day or other appropriate time period; scheduling capability; and any conditions governing the times of intermittent use, e.g., used only during terminal guidance phase, used only as required for calibration of test range equipment.

ITEM 7 - Geographical Area. Enter geographical location(s) or area(s) of use for this and subsequent stage(s), e.g., Gilfillan Plant, Los Angeles, California, and White Sands Missile Range, New Mexico (Stage 2); US&P (Stage 3); US&P, NATO Countries and Korea (Stage 4). Provide geographical coordinates (degrees, minutes, seconds) if available.

ITEM 8 - Number of Units. Enter total number of units planned for the stage review requested and the subsequent stages.

ITEM 9 - Number of Units Operating Simultaneously in the Same Environment. Enter maximum number of these units planned to be operating simultaneously in the same environment during Stage 4 use.

ITEM 10 - Other J/F 12 Application Number(s). Mark appropriate block(s) and enter J/F 12 number(s) for superseded and/or related application(s).

ITEM 11 - Operational Requirement. If this equipment will operate with the same or similar equipment used by other US Military Services, DoD Components, US Government Agencies or Allied Nations, mark "Yes," and specify in Item 13, "Remarks," the Services, Agencies or countries (to include the country's services).

ITEM 12 - Self explanatory.

ITEM 13 - Remarks. Use this item to amplify or clarify any of the information provided above.

CLASSIFICATION UNCLASSIFIED		PAGE	
TRANSMITTER EQUIPMENT CHARACTERISTICS			
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. LANPaT Illuminator Array, LNPT-01		2. MANUFACTURER'S NAME Propagation Research Associates, LLC	
3. TRANSMITTER INSTALLATION 4 High Power Amplifiers mounted on an aluminum plate		4. TRANSMITTER TYPE Multi-Channel Illuminator	
5. TUNING RANGE 9.5 GHz		6. METHOD OF TUNING N/A	
7. RF CHANNELING CAPABILITY:		8. EMISSION DESIGNATOR(S)	
a. Lowest channel/frequency N/A		12M5Q7DEC	
b. Tuning increments N/A			
c. Number of channels N/A			
d. Number of frequencies required for operation 1			
e. Minimum Frequency Separation N/A			
9. FREQUENCY TOLERANCE SDR Data Sheet Frequency Stability-DRO		12. EMISSION BANDWIDTH (<i>x and complete as applicable</i>)	
10. FILTER EMPLOYED (<i>X one</i>)		☒ CALCULATED ☐ MEASURED	
☒ a. Yes ☐ b. No		a. -3 dB 12.5 MHz	
11. SPREAD SPECTRUM (<i>X one</i>)		b. -20 dB 150 MHz	
☒ a. Yes ☐ b. No		c. -40 dB 300 MHz	
13. MAXIMUM BIT RATE 12.5 Mbits/sec		d. -60 dB 1.5 GHz	
14. MODULATION TECHNIQUES AND CODING Direct Sequence		e. OC-BW 250MHz	
15. MODULATION FREQUENCY		☒ a. Maximum ☐ b. Minimum	
16. PRE-EMPHASIS (<i>X one</i>)		☐ a. Yes ☒ b. No	
17. DEVIATION RATIO 0.000657		18. PULSE CHARACTERISTICS	
19. POWER (<i>X one</i>) ☐ a. MEAN ☒ b. PEP		a. RATE 20 kHz	
20W		b. WIDTH 20 usec	
20. OUTPUT DEVICE GaN Amplifier		c. RISE TIME	
22. SPURIOUS LEVEL		d. FALL TIME	
23. FCC TYPE ACCEPTANCE NO. N/A		e. COMP RATIO 250:1	
24. NAVSTAR GPS BAND MEASUREMENT		21. HARMONIC LEVEL	
a. GPS WIDEBAND EMISSION LEVEL (1164-1240 MHz): dBw/MHz		a. 2ND -70 dB	
b. GPS WIDBAND EMISSION LEVEL (1559-1610 MHz): dBw/MHz		b. 3RD	
c. GPS NARROWBAND EMISSION LEVEL (1164-1240 MHz): dBw		c. OTHER	
d. GPS NARROWBAND EMISSION LEVEL (1559-1610 MHz) : dBw			
e. PULSE SYSTEMS			
25. REMARKS			
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TRANSMITTER EQUIPMENT CHARACTERISTICS			
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. Doppler Test Target, PRA-DTT-01		2. MANUFACTURER'S NAME Propagation Research Associates, Inc.	
3. TRANSMITTER INSTALLATION Ground with elevated antenna		4. TRANSMITTER TYPE Repeater	
5. TUNING RANGE 9.5 GHz		6. METHOD OF TUNING None	
7. RF CHANNELING CAPABILITY:		8. EMISSION DESIGNATOR(S)	
a. Lowest channel/frequency 9.5 GHz		700MXXXX	
b. Tuning increments N/A			
c. Number of channels 1			
d. Number of frequencies required for operation 1			
e. Minimum Frequency Separation			
9. FREQUENCY TOLERANCE 3 ppm		12. EMISSION BANDWIDTH (<i>x and complete as applicable</i>)	
10. FILTER EMPLOYED (<i>X one</i>) ☒ a. Yes ☐ b. No		☒ CALCULATED ☐ MEASURED	
11. SPREAD SPECTRUM (<i>X one</i>) ☐ a. Yes ☒ b. No		a. -3 dB 12.5 MHz	
		b. -20 dB 175 GHz	
		c. -40 dB 300 MHz	
		d. -60 dB 1.5 GHz	
		e. OC-BW 250 MHz	
13. MAXIMUM BIT RATE 12.5 Mbits/sec		15. MODULATION FREQUENCY ☒ a. Maximum ☐ b. Minimum	
14. MODULATION TECHNIQUES AND CODING Direct Sequence		16. PRE-EMPHASIS (<i>X one</i>) ☐ a. Yes ☒ b. No	
17. DEVIATION RATIO 0.000657		18. PULSE CHARACTERISTICS	
19. POWER (<i>X one</i>) ☐ a. MEAN ☒ b. PEP		a. RATE 20 kHz	
20W		b. WIDTH 20 usec	
		c. RISE TIME	
		d. FALL TIME	
		e. COMP RATIO 250:1	
20. OUTPUT DEVICE		21. HARMONIC LEVEL	
22. SPURIOUS LEVEL		a. 2ND -70 dB	
23. FCC TYPE ACCEPTANCE NO.		b. 3RD	
		c. OTHER	
24. NAVSTAR GPS BAND MEASUREMENT			
a. GPS WIDEBAND EMISSION LEVEL (1164-1240 MHz): dBw/MHz			
b. GPS WIDBAND EMISSION LEVEL (1559-1610 MHz): dBw/MHz			
c. GPS NARROWBAND EMISSION LEVEL (1164-1240 MHz): dBw			
d. GPS NARROWBAND EMISSION LEVEL (1559-1610 MHz) : dBw			
e. PULSE SYSTEMS			
25. REMARKS Repeats signal transmitted by the Data Link Illuminator and implements a 24 dB amplifier and 20 dB horn antenna for signal amplification and implements an optical delay line to induce a 2 km range increase.			
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INSTRUCTIONS FOR COMPLETING DD FORM 1494
"APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION"
TRANSMITTER EQUIPMENT CHARACTERISTICS PAGE

ITEM 1 - Nomenclature, Manufacturer's Model No. Enter the Government assigned alphanumeric equipment designation. If above is not available, enter the manufacturer's model number, e.g., MIT 502, and complete Item 2. If above is not available, enter a short descriptive title, e.g., ATS-6 telemetry transmitter.

ITEM 2 - Manufacturer's Name. Enter the manufacturer's name if available. If a manufacturer's model number is listed in Item 1, this item must be completed.

ITEM 3 - Transmitter Installation. List specific type(s) of vehicle(s), ship(s), plane(s) or building(s), etc., where the transmitter(s) will be installed.

ITEM 4 - Transmitter Type. Enter the generic class of the transmitter, e.g., Frequency Scan, Scan While Track Radar, Monopulse Tracker, AM or FM Communications.

ITEM 5 - Tuning Range. Enter the frequency range through which the transmitter is capable of being tuned, e.g., 225-400 MHz. For equipment designed to operate only at a single frequency, enter this frequency. Indicate units, e.g., kHz, MHz or GHz.

ITEM 6 - Method of Tuning. Enter the method of tuning, e.g., crystal, synthesizer or cavity. If the equipment is not readily tunable in the field, indicate in Item 25, "Remarks," the complexity of tuning. Include complexity factors such as skill levels involved, major assemblies involved, time required, and location (factory or depot) where equipment is to be tuned.

ITEM 7 - RF Channeling Capability.

- a. Lowest channel/frequency: Proposed Definition - The lowest tuned frequency of the transmitter frequency band(s) at which the transmitter is capable of operating.
- b. Tuning increments: Proposed Definition - The frequency separation between tuned frequencies for equipment with uniformly-spaced step-tuned capability.
- c. Number of channels: Proposed Definition - For uniformly spaced channels, enter the center frequency of the first channel and channel spacing.
- d. Number of frequencies required for operation: Proposed Definition - Enter the number of frequencies required for nominal operation.
- e. Minimum Frequency Separation: Proposed Definition - The required frequency separation between the different radio sets operated at one transmitter or receiver location

ITEM 8 - Emission Designator(s). Enter the emission designator(s) including the necessary bandwidth for each designator as described in Chapter 9 of the NTIA Manual, e.g., 16K0F3E. For systems with a frequency hopping mode as well as a non-hopping mode enter the emission designators for each mode. Identify each mode as hopping or non-hopping.

ITEM 9 - Frequency Tolerance. Enter the frequency tolerance, i.e., the maximum departure of a transmitter from its assigned frequency after normal warm-up time has been allowed. Indicate the units in parts per million (ppm) for all emission types except single sideband which shall be indicated in Hertz (Hz).

ITEM 10 - Filter Employed. Mark the appropriate block. Provide the characteristics of any filter used in Item 24, "Remarks."

ITEM 11 - Spread Spectrum. Mark the appropriate block. If "Yes," see instructions for Item 14.

ITEM 12 - Emission Bandwidth. Enter the emission bandwidths for which the transmitter is designed at the -3, -20, and -60 dB levels and the occupied bandwidth. The bandwidth at -40 dB shall also be entered for pulse radar transmitters. The emission bandwidth is defined as that appearing at the antenna terminals and includes any significant attenuation contributed by filtering in the output circuit or transmission lines. Values of emission bandwidth specified should be indicated as calculated or measured by marking the appropriate block. Indicate units used, e.g., Hz, kHz or MHz. Note that the Occupied Bandwidth (Item 12.e.) is defined as the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5% of the

total mean power radiated.

ITEM 13 - Maximum Bit Rate. Enter the maximum information bit rate for digital equipment, in bits per second. If spread spectrum is used, enter the bit rate after encoding.

ITEM 14 - Modulation Techniques and Coding. Describe in detail the modulation and/or coding techniques employed. For complex modulation schemes such as direct sequence spread spectrum, frequency hopping, frequency agile, etc., enter full details in Item 25, "Remarks."

ITEM 15 - Modulation Frequency. - a. Maximum - For frequency or phase modulated transmitter enter the maximum modulation or baseband frequency. This frequency is assumed to be the frequency at -3 dB point on the high frequency side of the modulator response curve. Indicate the units, e.g., Hz, kHz or MHz. b. Minimum - Enter lowest frequency in the baseband modulating signal when analog modulation is employed.

ITEM 16 - Pre-emphasis. For frequency or phase modulated transmitters mark the appropriate block to indicate whether pre-emphasis is available.

ITEM 17 - Deviation Ratio. For frequency or phase modulated transmitter enter the deviation ratio computed with the formula

$$\text{Deviation Ratio} = \frac{\text{Maximum Frequency Deviation}}{\text{Maximum Modulation Frequency}}$$

ITEM 18 - Pulse Characteristics. For pulse modulated transmitters:

- a. Enter the pulse repetition rate in pulses per second (pps).
- b. Enter the pulse width at the half voltage levels in microseconds (usec).
- c. Enter the pulse rise time in microseconds (usec). This is the time duration for the leading edge of the voltage pulse to rise from 10% to 90% of its peak amplitude.
- d. Enter the pulse fall time in microseconds (usec). This is the time duration for the trailing edge of the voltage pulse to fall from 90% to 10% of its peak amplitude.
- e. Enter the maximum pulse compression ratio, if applicable.

ITEM 19 - Power. Enter the mean power delivered to the antenna terminals for all AM and FM emissions, or the peak envelope power (PEP) for all other classes of emissions. If there are any unique situations such as interrupted CW, provide details in Item 24, "Remarks." Indicate the units, e.g., W or kW.

ITEM 20 - Output Device. Enter a description of the device used in the transmitter output stage, e.g., ceramic diode, reflex klystron, transistor or TWT.

ITEM 21 - Harmonic Level. Enter the harmonic level in dB relative to the fundamental of the 2nd and 3rd harmonics. Enter in Item c. the relative level in dB of the highest powered harmonic above the 3rd.

ITEM 22 - Spurious Level. Enter the maximum value of spurious emission in dB relative to the fundamental which occurs outside the -60 dB point on the transmitter fundamental emission spectrum (Item 12) and does not occur on a harmonic of the fundamental frequency.

ITEM 23 - FCC Type Acceptance No. Enter the FCC type acceptance number if applicable

ITEM 24 - NAVSTAR GPS Band Measurement. Federal agencies requesting Spectrum Certification for systems operating in the 390-413 MHz, and 960-1710 MHz frequency bands must provide measurements of the emission levels generated in the frequency bands used by the Navstar Global Positioning System. Provide measurements in wideband and narrowband
a. GPS WIDEBAND EMISSION LEVEL (1164-1240 MHz): dBW/MHz
b. GPS WIDEBAND EMISSION LEVEL (1559-1610 MHz): dBW/MHz
c. GPS NARROWBAND EMISSION LEVEL (1164-1240 MHz): dBW
d. GPS NARROWBAND EMISSION LEVEL (1559-1610 MHz) : dBW
e. For Pulse Systems, provide measurements of the temporal characteristics of the emissions in the 1164.45-1188.45MHz, 1215.6-1239.6MHz and 1563.42-1587.42MHz band

ITEM 25 - Remarks. Use this item to amplify or clarify any of the information provided above.

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RECEIVER EQUIPMENT CHARACTERISTICS					
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. LANPaT Illuminator Receiver, LNPT-01			2. MANUFACTURER'S NAME Propagation Research Associates, LLC		
3. RECEIVER INSTALLATION Transmit Array Sturcture			4. RECEIVER TYPE Heterodyne		
5. TUNING RANGE 9.49-9.51 GHz			6. METHOD OF TUNING Synthesizer		
7. RF CHANNELING CAPABILITY:			8. EMISSION DESIGNATOR(S)		
a. Lowest channel/frequency 9.5 GHz			12M5Q7DEC		
b. Tuning increments N/A					
c. Number of channels 1					
d. Number of frequencies required for operation 1					
e. Minimum Frequency Separation N/A					
9. FREQUENCY TOLERANCE 7 ppm			11. RF SELECTIVITY (<i>X and complete as applicable</i>)		
10. IF SELECTIVITY	1ST	2ND	3RD	☒ CALCULATED ☐ MEASURED	
a. -3 dB	130 MHz	210 MHz	350 MHz	a. -3 dB 160 MHz	
b. -20 dB				b. -20 dB 2120 MHz	
c. -60 dB				c. -60 dB 3600 MHz	
12. IF FREQUENCY				d. PRESELECTION TYPE	
a. 1ST 250 MHz				13. MAXIMUM POST DETECTION FREQUENCY 6.25 MHz	
b. 2ND				14. MINIMUM POST DETECTION FREQUENCY N/A	
c. 3RD				16. MAXIMUM BIT RATE 12.5 Mbits/sec	
15. OSCILLATOR TUNED	1ST	2ND	3RD	17. SENSITIVITY	
a. ABOVE TUNED FREQUENCY	X			a. SENSITIVITY -70	dBm
b. BELOW TUNED FREQUENCY				b. CRITERIA 12 dB SINAD	
c. EITHER ABOVE OR RELOW TUNED FREQUENCY				c. NOISE FIG 3.9	dB
18. DE-EMPHASIS (<i>X one</i>)				d. NOISE TEMP 290	Kelvin
☐ a. Yes ☒ b. No				20. SPURIOUS REJECTION 70	
19. IMAGE REJECTION 70				23. CONDUCTED UNDESIRE EMISSIONS (dBm) N/A	
21. ADJACENT CHANNEL SELECTIVITY (dB) N/A		22. INTERMODULATION REJECTION LEVEL (dB) 60			
24. REMARKS					
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RECEIVER EQUIPMENT CHARACTERISTICS					
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. NSI Projection Receiver, NSI-PR-01			2. MANUFACTURER'S NAME nou-Systems, Inc.		
3. RECEIVER INSTALLATION Ground and Drone			4. RECEIVER TYPE Heterodyne		
5. TUNING RANGE 9.49-9.51 GHz			6. METHOD OF TUNING Synthesizer		
7. RF CHANNELING CAPABILITY:			8. EMISSION DESIGNATOR(S)		
a. Lowest channel/frequency 9.5GHz			12M5Q7DEC		
b. Tuning increments 0					
c. Number of channels 1					
d. Number of frequencies required for operation 1					
e. Minimum Frequency Separation 0					
9. FREQUENCY TOLERANCE 3 ppm			11. RF SELECTIVITY (<i>X and complete as applicable</i>)		
10. IF SELECTIVITY	1ST	2ND	3RD	☒ CALCULATED ☐ MEASURED	
a. -3 dB	60 MHz			a. -3 dB 60 MHz	
b. -20 dB	120 MHz			b. -20 dB 2120 MHz	
c. -60 dB	220 MHz			c. -60 dB 3600 MHz	
12. IF FREQUENCY				d. PRESELECTION TYPE	
a. 1ST 1.96 GHz				13. MAXIMUM POST DETECTION FREQUENCY	
b. 2ND				12.5 MHz	
c. 3RD				14. MINIMUM POST DETECTION FREQUENCY	
				N/A	
15. OSCILLATOR TUNED	1ST	2ND	3RD	16. MAXIMUM BIT RATE	
a. ABOVE TUNED FREQUENCY	X			17. SENSITIVITY	
b. BELOW TUNED FREQUENCY					
c. EITHER ABOVE OR RELOW TUNED FREQUENCY					
18. DE-EMPHASIS (<i>X one</i>)				a. SENSITIVITY -80 dBm	
☐ a. Yes ☒ b. No				b. CRITERIA 12 dB SINAD	
				c. NOISE FIG 3.6 dB	
				d. NOISE TEMP 290 Kelvin	
19. IMAGE REJECTION			20. SPURIOUS REJECTION		
70			70		
21. ADJACENT CHANNEL SELECTIVITY (dB)		22. INTERMODULATION REJECTION LEVEL (dB)		23. CONDUCTED UNDESIRE EMISSIONS (dBm)	
N/A				N/A	
24. REMARKS					
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RECEIVER EQUIPMENT CHARACTERISTICS					
1. NOMENCLATURE, MANUFACTURER'S MODEL NO. Doppler Test Target - DTT-01			2. MANUFACTURER'S NAME Propagation Research Associates, LLC		
3. RECEIVER INSTALLATION Ground			4. RECEIVER TYPE Repeater		
5. TUNING RANGE N/A			6. METHOD OF TUNING N/A		
7. RF CHANNELING CAPABILITY:			8. EMISSION DESIGNATOR(S)		
a. Lowest channel/frequency 9.5 GHz			700MXXXXX		
b. Tuning increments N/A					
c. Number of channels 1					
d. Number of frequencies required for operation 1					
e. Minimum Frequency Separation N/A					
9. FREQUENCY TOLERANCE 7.5 GHz			11. RF SELECTIVITY (<i>X and complete as applicable</i>)		
10. IF SELECTIVITY	1ST	2ND	3RD	☐ CALCULATED ☒ MEASURED	
a. -3 dB	7.5 GHz			a. -3 dB 12.5 MHz	
b. -20 dB	10 GHz			b. -20 dB 175 MHz	
c. -60 dB	20 GHz			c. -60 dB 400 MHz	
12. IF FREQUENCY				d. PRESELECTION TYPE	
a. 1ST 3.6 GHz				13. MAXIMUM POST DETECTION FREQUENCY	
b. 2ND				12 GHz	
c. 3RD				14. MINIMUM POST DETECTION FREQUENCY	
				500 MHz	
15. OSCILLATOR TUNED	1ST	2ND	3RD	16. MAXIMUM BIT RATE	
a. ABOVE TUNED FREQUENCY				N/A	
b. BELOW TUNED FREQUENCY	X			17. SENSITIVITY	
c. EITHER ABOVE OR BELOW TUNED FREQUENCY				a. SENSITIVITY N/A dBm	
18. DE-EMPHASIS (<i>X one</i>) ☐ a. Yes ☒ b. No				b. CRITERIA	
				c. NOISE FIG dB	
				d. NOISE TEMP Kelvin	
19. IMAGE REJECTION -70 dB				20. SPURIOUS REJECTION	
21. ADJACENT CHANNEL SELECTIVITY (dB) N/A		22. INTERMODULATION REJECTION LEVEL (dB) N/A		23. CONDUCTED UNDESIRE EMISSIONS (dBm)	
24. REMARKS The DTT-01 mixes the incoming signal down to the first RF that is input to an optical carrier to create a time delay equivalent to about 2km of range. Also induces Doppler modulation on the signal to emulate a moving target.					
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INSTRUCTIONS FOR COMPLETING DD FORM 1494
"APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION"
RECEIVER EQUIPMENT CHARACTERISTICS PAGE

ITEM 1 - Nomenclature, Manufacturer's Model No. Enter the Government assigned alphanumeric equipment designation. If above is not available, enter the manufacturer's model number, e.g., MIT 502, and complete Item 2. If above is not available, enter a short descriptive title, e.g., GPS Receiver, Director Station RX.

ITEM 2 - Manufacturer's Name. Enter the manufacturer's name if available. If a manufacturer's model number is listed in Item 1, this item must be completed.

ITEM 3 - Receiver Installation. List specific type(s) of vehicle(s), ship(s), plane(s) or building(s), etc., where the receiver(s) will be installed.

ITEM 4 - Receiver Type. Enter the generic class, e.g., Dual Conversion Superheterodyne or Homodyne.

ITEM 5 - Tuning Range. Enter the frequency range through which the receiver is capable of being tuned, e.g., 225-400 MHz. For equipment designed to operate only at a single frequency, enter this frequency. Indicate units, e.g., kHz, MHz or GHz.

ITEM 6 - Method of Tuning. Enter the method of tuning, e.g., crystal, synthesizer or cavity. If the equipment is not readily tunable in the field, indicate in Item 23, "Remarks," the complexity of tuning. Include complexity factors such as skill levels involved, major assemblies involved, time required, and location (factory or depot) where equipment is to be tuned.

ITEM 7 - RF Channeling Capability.

- a. Lowest channel/frequency: Proposed Definition - The lowest tuned frequency of the transmitter frequency band(s) at which the transmitter is capable of operating.
- b. Tuning increments: Proposed Definition - The frequency separation between tuned frequencies for equipment with uniformly-spaced step-tuned capability.
- c. Number of channels: Proposed Definition - For uniformly spaced channels, enter the center frequency of the first channel and channel spacing.
- d. Number of frequencies required for operation: Proposed Definition - Enter the number of frequencies required for nominal operation.
- e. Minimum Frequency Separation: Proposed Definition - The required frequency separation between the different radio sets operated at one transmitter or receiver location

ITEM 8 - Emission Designator(s). Enter the emission designator(s) including the necessary bandwidth(s) for each designator, e.g., 16K0F3E. For systems with a frequency hopping mode as well as a non-hopping mode enter the emission designators for each mode.

ITEM 9 - Frequency Tolerance. Enter the frequency tolerance, i.e., the maximum departure of a receiver from its assigned frequency after normal warm-up time has been allowed. Indicate the units in parts per million (ppm) for all emission types except single sideband which shall be indicated in Hertz (Hz).

ITEM 10 - IF Selectivity. Enter the bandwidth for each IF stage at the -3, -20 and -60 dB levels. Indicate units, e.g., kHz or MHz.

ITEM 11 - RF Selectivity. Enter the bandwidth at the -3, -20 and -60 dB levels. The RF bandwidth includes any significant attenuation contributed by filtering in the input circuit or transmission line. Values of RF bandwidths specified should be indicated as calculated or measured by marking the appropriate block. Indicate units, e.g., kHz or MHz. Enter

the preselection type, e.g., tunable cavity.

ITEM 12 - IF Frequency. Enter the tuned frequency of the first, second and third IF stages. Indicate units, e.g., kHz or MHz.

ITEM 13 - Maximum Post Detection Frequency. Enter the maximum post detection frequency. This is the nominal frequency at the -3 dB point on the high frequency side of the receiver base band. Indicate units, e.g., kHz or MHz.

ITEM 14 - Minimum Post Detection Frequency. For multichannel FM systems enter the minimum post detection frequency. This is the nominal frequency at the -3 dB point on the low frequency side of the receiver base band. Indicate units, e.g., kHz or MHz.

ITEM 15 - Oscillator Tuned. Mark the appropriate block to indicate the location of the 1st, 2nd and 3rd oscillator frequencies with respect to the associated mixer input signal.

ITEM 16 - Maximum Bit Rate. Where applicable, enter the maximum bit rate (bps) that can be used. If spread spectrum is used, enter the bit rate after encoding. Describe any error detecting/correcting codes in Item 23, "Remarks."

ITEM 17 - Sensitivity.

- a. Enter the sensitivity in dBm.
- b. Specify criteria used, e.g., 12 dB SINAD (Signal to Interference plus Noise and Distortion).
- c. If the receiver is used with terrestrial systems, enter the receiver noise figure in dB.
- d. If the receiver is used with space or satellite earth stations, enter the receiver noise temperature in Kelvin.

ITEM 18 - De-emphasis. For frequency or phase modulated receivers mark the appropriate block to indicate whether de-emphasis is available.

ITEM 19 - Image Rejection. Enter the image rejection in dB. Image rejection is the ratio of the image frequency signal level required to produce a specified output, to the desired signal level required to produce the same output.

ITEM 20 - Spurious Rejection. Enter the spurious rejection in dB. Enter the single level of spurious rejection that the receiver meets or exceeds at all frequencies outside the -60 dB IF bandwidth. Spurious rejection is the ratio of a particular out-of-band frequency signal level required to produce a specified output, to the desired signal level required to produce the same output.

ITEM 21 - Adjacent Channel Selectivity. A ratio in (dB) that compares signal strength received against a similar signal on another frequency.

ITEM 22 - Intermodulation Rejection Level. A measure of RF input threshold before intermodulation products occurs (expressed in dB).

ITEM 23 - Conducted Undesired Emissions. Those undesired signals generated in the receiver and leaving the receiver by way of the receiving transmission line. Only required when employing wideband Fixed, Land, Mobile, or portable transmitters in the Fixed or Mobile service between 29.7 and 50, 162 and 174, or 406.1 and 420 MHz (expressed in dBm).

ITEM 24 - Remarks. Use this item to amplify or clarify any of the information provided above

CLASSIFICATION UNCLASSIFIED		PAGE
ANTENNA EQUIPMENT CHARACTERISTICS		
1. ☐ a. TRANSMITTING ☐ b. RECEIVING ☒ c. TRANSMITTING AND RECEIVING		
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. LANPaT Illuminator Antenna, PE 9856-20		3. MANUFACTURER'S NAME Pasternack
4. FREQUENCY RANGE 8.2-12.4 GHz		5. TYPE Five Horn Antennas mounted on a structure- four transmit horns and one receive horn. The structure is scanned in az and el.
6. POLARIZATION Vertical		7. SCAN CHARACTERISTICS
8. GAIN		a. TYPE Vertical and horizontal (Mechanical)
a. MAIN BEAM 20 dB and 81.2 deg		b. VERTICAL SCAN
b. 1ST MAJOR SIDE LOBE AND ANGULAR DISPLACEMENT - 13.24 dB		(1) MAX ELEV 90
		(2) MIN ELEV 0
		(3) SCAN RATE 8 deg/sec
9. BEAMWIDTH		c. HORIZONTAL SCAN
a. HORIZONTAL 26.5 deg		(1) SECTOR SCANNED N/A
b. VERTICAL 26.1 deg		(2) SCAN RATE 15 deg/sec
		d. SECTOR BLANKING (x one)
		☐ a. Yes ☒ b. No
10. REMARKS The antenna is mounted on an array structure that rotates in azimuth and elevation. The antenna itself does not scan only the array structure. One antenna is used for receive and four antennas are used for transmit.		
CLASSIFICATION UNCLASSIFIED		J/F 12 No. Reset Page

CLASSIFICATION UNCLASSIFIED		PAGE
ANTENNA EQUIPMENT CHARACTERISTICS		
1. ☐ a. TRANSMITTING ☒ b. RECEIVING ☐ c. TRANSMITTING AND RECEIVING		
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. NSI Projection Receiver Antenna, PE WAN090-10		3. MANUFACTURER'S NAME Pasternack
4. FREQUENCY RANGE 8.2-12.4 GHz		5. TYPE Horn
6. POLARIZATION Linear		7. SCAN CHARACTERISTICS
8. GAIN		a. TYPE N/A
a. MAIN BEAM 10 dBi		b. VERTICAL SCAN
b. 1ST MAJOR SIDE LOBE AND ANGULAR DISPLACEMENT - 13.24 dB and 168.4 deg		(1) MAX ELEV
		(2) MIN ELEV
		(3) SCAN RATE
9. BEAMWIDTH		c. HORIZONTAL SCAN
a. HORIZONTAL 52.1		(1) SECTOR SCANNED
		(2) SCAN RATE
b. VERTICAL 51.6		d. SECTOR BLANKING (x one)
		☐ a. Yes ☐ b. No
10. REMARKS The NSI Projection receiver/antenna is mounted on a platform (e.g, drone, vehicle) that can be moving but the antenna is fixed to the platform.		
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CLASSIFICATION UNCLASSIFIED		PAGE
ANTENNA EQUIPMENT CHARACTERISTICS		
1. ☐ a. TRANSMITTING ☐ b. RECEIVING ☒ c. TRANSMITTING AND RECEIVING		
2. NOMENCLATURE, MANUFACTURER'S MODEL NO. Doppler Test Target Antenna, PE 9856-20		3. MANUFACTURER'S NAME Pasternack
4. FREQUENCY RANGE 8.2-12.4 GHz		5. TYPE Horn
6. POLARIZATION Linear		7. SCAN CHARACTERISTICS
8. GAIN		a. TYPE N/A
a. MAIN BEAM 20 dB		b. VERTICAL SCAN
b. 1ST MAJOR SIDE LOBE AND ANGULAR DISPLACEMENT -13.26 dBi and 81.2 deg		(1) MAX ELEV
		(2) MIN ELEV
		(3) SCAN RATE
9. BEAMWIDTH		c. HORIZONTAL SCAN
a. HORIZONTAL 26.5 deg		(1) SECTOR SCANNED
		(2) SCAN RATE
b. VERTICAL 26.1 deg		d. SECTOR BLANKING (x one)
		☐ a. Yes ☒ b. No
10. REMARKS The Doppler Target Generator uses two antennas. One is used for receive and one is used for transmit.		
CLASSIFICATION UNCLASSIFIED		J/F 12 No. Reset Page

INSTRUCTIONS FOR COMPLETING DD FORM 1494
"APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION"
ANTENNA EQUIPMENT CHARACTERISTICS PAGE

ITEM 1 - Function. Mark the appropriate block to indicate the type of function the antenna performs. For multi-antenna system, use one page for each antenna.

ITEM 2 - Nomenclature, Manufacturer's Model No. Enter the Government assigned alphanumeric equipment designation. If above is not available, enter the manufacturer's model number, e.g., DS6558, and complete Item 3. If above is not available, enter a short descriptive title, e.g., ATS-6 telemetry antenna.

ITEM 3 - Manufacturer's Name. Enter the manufacturer's name if available. If a manufacturer's model number is listed in Item 2, this item must be completed.

ITEM 4 - Frequency Range. Enter the range of frequencies for which the antenna is designed. Indicate units, e.g., kHz or MHz.

ITEM 5 - Type. Enter the generic name or describe general technical features, e.g., Horizontal Log Periodic, Cassegrain with Polarization Twisting, Whip, Phased Array or Conformal Array.

ITEM 6 - Polarization. Enter the polarization; if circular, indicate whether it is right or left hand.

ITEM 7 - Scan Characteristics.

a. If this antenna scans, enter the type of scanning, e.g., vertical, horizontal, vertical and horizontal.

b. (1) Enter the maximum elevation angle in degrees (positive or negative referenced to the horizontal) that the antenna can scan.

(2) Enter the minimum elevation angle in degrees (positive or negative referenced to the horizontal) that the antenna can scan.

(3) Enter the vertical scan rate in scans per minute.

c. (1) Enter the angular scanning range in scans per minute.

(2) Enter the horizontal scanning rate in scans per minute.

d. Indicate if antenna is capable of sector blanking. If yes, enter details in item 10, "Remarks."

ITEM 8 - Gain.

a. Enter the maximum gain in dBi.

b. Enter the nominal gain of the first major side lobe of the main beam in dBi and the angular displacement from the main beam in degrees.

ITEM 9 - Beamwidth. Enter the 3 dB beamwidth in degrees.

ITEM 10 - Remarks. Use this item to describe any unusual characteristics of the antenna, particularly as they relate to the assessment of electromagnetic compatibility. Use this item to amplify or clarify any of the information provided above.

APPLICATION FOR SPECTRUM REVIEW		CLASSIFICATION UNCLASSIFIED		DATE		PAGE	
NTIA GENERAL INFORMATION							
1. APPLICATION TITLE							
2. SYSTEM NOMENCLATURE							
3. STAGE OF ALLOCATION (<i>X one</i>)							
☐ a. STAGE 1 - CONCEPTUAL ☐ b. STAGE 2 - EXPERIMENTAL ☐ c. STAGE 3 - DEVELOPMENTAL ☐ d. STAGE 4 - OPERATIONAL							
4. FREQUENCY REQUIREMENTS							
a. FREQUENCY(IES):							
b. EMISSION DESIGNATOR(S):							
5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS				(NSEP USE) (<i>X one</i>)		☐ a. YES ☐ b. NO	
6. INFORMATION TRANSFER REQUIREMENTS							
7. ESTIMATED INITIAL COST OF THE SYSTEM							
8. TARGET DATE FOR							
a. APPLICATION APPROVAL			b. SYSTEM ACTIVATION			c. SYSTEM TERMINATION	
9. SYSTEM RELATIONSHIP AND ESSENTIALITY							
10. REPLACEMENT INFORMATION							
11. RELATED ANALYSIS AND TEST DATA							
12. NUMBER OF MOBILE UNITS							
13. GEOGRAPHICAL AREA FOR							
a. STAGE 2:							
b. STAGE 3:							
c. STAGE 4:							
14. LINE DIAGRAM (<i>See Page(s)</i>)		Attach Diagram		15. SPACE SYSTEMS (<i>X and complete SPACE SYSTEMS DATA field if applicable</i>) ☐ Yes ☐ No			
16. TYPE OF SERVICE(S) FOR STAGE 4				17. STATION CLASS(ES) FOR STAGE 4			
18. REMARKS							
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APPLICATION FOR SPECTRUM REVIEW LINE DIAGRAM	CLASSIFICATION UNCLASSIFIED	DATE	PAGE
NTIA GENERAL INFORMATION			
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LINE DIAGRAM			
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INSTRUCTIONS FOR COMPLETING DD FORM 1494
"APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION"
NTIA GENERAL INFORMATION PAGE

ITEM 1 - Application Title. Enter the Government nomenclature of the equipment, or the manufacturer's name and model number, and a short descriptive title.

ITEM 2 - System Nomenclature. Enter the nomenclature of the system for which this equipment is a subsystem, e.g., PATRIOT or Global Positioning System.

ITEM 3 - Stage of Allocation. Mark appropriate block.

ITEM 4 - Frequency Requirements.

a. Enter the required frequency bands. For equipment designed to operate only at a single frequency, enter this frequency. Indicate units, e.g., kHz, MHz, or GHz.

b. Enter the emission designators including the necessary bandwidth for each designator, as described in Chapter 9 of the NTIA Manual e.g., 40M0PON.

Enter in Item 18, "Remarks," any other information pertinent to frequency requirements, such as minimum frequency separation for full duplex links or repeaters; or special relationships involving multiple discrete frequencies.

ITEM 5 - Purpose of System, Operational and System Concepts. Enter a summary description of the function of the system or subsystem, e.g., collect and disseminate meteorological data using satellite techniques; transmission of radar data for air traffic control; a remote control of ATC radars; provide for the transmission and reception of digital voice and data by means of LOS or tropo modes of propagation; provide navigational signal from which a broad spectrum of users are able to derive navigation data. Also include information on operational and system concepts. Mark whether the system has a wartime function.

ITEM 6 - Information Transfer Requirements. Enter the required character rate, data rates, circuit quality, reliability, etc.

ITEM 7 - Estimated Initial Cost of the System. This item is for information to show the general size and complexity of the system. It is not intended to be a determining factor in system review. For Stage 2 enter research cost, for Stage 3 enter development cost, for Stage 4 enter unit cost of equipment and expected number of equipments/systems to be procured.

ITEM 8 - Target Date. For the stage review requested, enter the appropriate dates. Funds must not be obligated prior to the approval of this application. If foreign coordination is not required, then approximately one year must be allowed for application approval. If foreign coordination is required, approximately two years must be allowed for application approval.

ITEM 9 - System Relationship and Essentiality. Enter the essentiality and a statement of the relationship between the proposed system and the operational function it is intended to support.

ITEM 10 - Replacement Information. Identify existing system(s) which may be replaced by the proposed system. State any known additional frequency requirements.

ITEM 11 - Related Analysis and/or Test Data. Identify reports that can be made available documenting previous EMC studies, predictions, analyses, or prototype EMC testing that are relevant to the assessment of the system under review.

ITEM 12 - Number of Units. (For mobile systems) - Self explanatory.

ITEM 13 - Geographical Area. Enter geographical location(s) or area(s) of use for this and subsequent stage(s), e.g., Gilfillan Plant, Los Angeles, California, and White Sands Missile Range, New Mexico (Stage 2); US&P (Stage 3); US&P, NATO Countries and Korea (Stage 4). Provide geographical coordinates (degrees, minutes, seconds) if available.

ITEM 14 - Line Diagram. Enter the page number of the line diagram(s). Attach as another page the line diagram showing the links, direction of transmissions, frequency band(s), and associated equipment with J/F 12 numbers.

ITEM 15 - Space Systems. Enter the page number of the space system data. Attach as another page the space system data as described in the NTIA Manual, Paragraph 8.3.7. Data Requirement.

ITEM 16 - Type of Service(s) for Stage 4. Enter the appropriate type of service(s) that applies or will apply to the equipment in the operational stage (Stage 4), as described in Chapter 6, Table of Services, Station Classes, and Stations of the NTIA Manual. If the service is not in accordance with the allocation tables full justification must be entered.

ITEM 17 - Station Class(es) for Stage 4. Enter the appropriate station class(es) as described in Chapter 6 of the NTIA Manual.

ITEM 18 - Remarks. Use this item to amplify or clarify any of the information provided above

APPLICATION FOR FOREIGN SPECTRUM SUPPORT		CLASSIFICATION UNCLASSIFIED		DATE		PAGE	
FOREIGN COORDINATION GENERAL INFORMATION							
1. APPLICATION TITLE							
2. SYSTEM NOMENCLATURE							
3. STAGE OF ALLOCATION (<i>X one</i>)							
☐ a. STAGE 1 - CONCEPTUAL ☐ b. STAGE 2 - EXPERIMENTAL ☐ c. STAGE 3 - DEVELOPMENTAL ☐ d. STAGE 4 - OPERATIONAL							
4. FREQUENCY REQUIREMENTS							
a. FREQUENCY(IES):							
b. EMISSION DESIGNATOR(S):							
5. PROPOSED OPERATING LOCATIONS OUTSIDE US&P							
6. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS							
7. INFORMATION TRANSFER REQUIREMENTS							
8. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT							
9. REPLACEMENT INFORMATION							
10. LINE DIAGRAM (<i>See Page(s)</i>)		Attach Diagram		11. SPACE SYSTEMS (<i>X and complete SPACE SYSTEMS DATA field if applicable</i>)			
				☐ Yes ☐ No			
12. PROJECTED OPERATIONAL DEPLOYMENT DATE							
13. REMARKS							
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APPLICATION FOR FOREIGN SPECTRUM SUPPORT LINE DIAGRAM	CLASSIFICATION UNCLASSIFIED	DATE	PAGE
LINE DIAGRAM			
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INSTRUCTIONS FOR COMPLETING DD FORM 1494
"APPLICATION FOR EQUIPMENT FREQUENCY ALLOCATION"
FOREIGN COORDINATION GENERAL INFORMATION PAGE

NOTES

1. For equipment intended to be operated outside the US&P foreign disclosure authority is required to coordinate and obtain radio frequency spectrum support from those countries where this equipment may operate. Action must be initiated to obtain foreign disclosure authority in accordance with Military Department regulations and policies for the release of appropriate data to the proposed host nations.

2. Do not complete this page unless you are preparing a foreign coordination version of the DD Form 1494. A foreign coordination version of this form is treated as a completely separate document from a US coordination version, and in general the information content will be different.

3. Frequency allocation processing for US coordination can be initiated without submitting a foreign coordination version of the DD Form 1494. In any case, submission of the US coordination version should not be delayed simply because a foreign coordination version has not been completed.

HOW TO ASSEMBLE THE APPLICATION FOR FOREIGN SPECTRUM SUPPORT:

1. Foreign Coordination General Information Page(s).
2. Transmitter Equipment Characteristics Page(s).
3. Receiver Equipment Characteristics Page(s).
4. Antenna Equipment Characteristics Page(s).
5. Continuation Page(s).

FOREIGN COORDINATION GENERAL INFORMATION PAGE

ITEM 1 - Application Title. Enter the Government nomenclature of the equipment, or the manufacturer's name and model number, and a short descriptive title.

ITEM 2 - System Nomenclature. Enter the nomenclature of the system for which this equipment is a subsystem, e.g., PATRIOT or Global Positioning System.

ITEM 3 - Stage of Allocation. Mark the appropriate block.

ITEM 4 - Frequency Requirements.

a. Enter the required frequency band(s). For equipment designed to operate only at a single frequency, enter this frequency. Indicate units, e.g., kHz, MHz, or GHz.

b. Enter the emission designator(s) including the necessary bandwidth for each designator, as described in Chapter 9 of the NTIA Manual e.g., 40M0PON.

Enter in Item 13, "Remarks," any other information pertinent to frequency requirements, such as minimum frequency separation or special relationships involving multiple discrete frequencies.

ITEM 5 - Proposed Operating Locations Outside US&P.

Enter host nations, locations or areas of use. Provide geographical coordinates (degrees, minutes, seconds) if available.

ITEM 6 - Purpose of System, Operational and System Concepts.

Enter a summary description of the function of the system or subsystem, e.g., collect and disseminate meteorological data using satellite techniques; transmission of radar data for air traffic control; a remote control of ATC radars; provide for the transmission and reception of digital voice and data by means of LOS or tropo modes of propagation; provide navigational signal from which a broad spectrum of users are able to derive navigation data. Also include information on operational and system concepts.

ITEM 7 - Information Transfer Requirements. Enter the required character rate, data rates, circuit quality, reliability, etc.

ITEM 8 - Number of Units Operating Simultaneously in the Same Environment. Enter maximum number of these units which will be operating simultaneously in the same environment, during Stage 4 use.

ITEM 9 - Replacement Information. Identify the existing equipment/system(s) and associated frequency assignments to be replaced by the proposed equipment system(s) where applicable.

ITEM 10 - Line Diagram. Enter the page number of the line diagram(s). Attach as another page the line diagram showing the links, direction of transmissions, frequency band(s), and associated equipment.

ITEM 11 - Space System. Enter the page number of the space system data. Attach as another page the space system data as described in the NTIA Manual, Paragraph 8.3.7. Data Requirements.

ITEM 12 - Projected Operational Deployment Date. Self explanatory.

ITEM 13 - Remarks. Use this item to amplify or clarify any of the information provided above