

## Airborne Radar Spec Sheet

### Diagram

Radar-Air Station *	Radar-Air1
Target Station	Target1
* Link the Radar-Air Station to the Target Station after dragging them to the diagram	

### Classification/Handling/CUI

Field	Value
Handling Instructions	UUI
Business Identifiable Information (BII)	No

### Airborne Radar Transmitter

Field	Value
Nomenclature	AN/APY-10 Transmitter
Type of Nomenclature	Government
Model Name and Number	
Manufacturer	Raytheon Co. or Raytheon Manufacturing Co.
Potential Platform	
Transmitter Type	Radar
Output Device	
FCC Type Acceptance No.	NA
<b>Mode 1</b>	
<b>Radar Transmitter Frequency Emission Designator</b>	
Emission Designator	537MQ3N
Mode Name	
<b>Radar Transmitter Frequency</b>	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz
Tuning Steps	5 MHz
Minimum Separation	10 MHz
Num of Frequencies Required	68
Method of Tuning	Synthesizer Crystal Controlled
<b>Radar Transmitter Frequency Emission Designator Modulation RF Fundamental Curve</b>	
-3 dB Bandwidth / (Frequency Offset)	248.5 MHz
-20 dB Bandwidth / (Frequency Offset)	268.5 MHz
-40 dB Bandwidth / (Frequency Offset)	396.5 MHz
-60 dB Bandwidth / (Frequency Offset)	745 MHz
Measured or Calculated	Measured
<b>Radar Transmitter Power</b>	
Power Type	Peak
Power Upper Limit	50 kW
Radar Type	FM Pulse
<b>Radar Transmitter Frequency Emission Designator Modulation (Pulse Parameters)</b>	
Pulse Width	5 us
Pulse Repetition Rate	2.027 kPPS
Pulse Rise Time	100 ns
Pulse Fall Time	100 ns
Pulse Compression Ratio	2500
Chirp Frequency Shift	500 MHz
Number of Radar Subpulses	
Pulse Duty Cycle	1.01 (use the calculator button)
Max Radar Processing Gain	

Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm
<b>Radar Transmitter Harmonics</b>	
2nd Harmonic	-52.2 dB
3rd Harmonic	-41 dB
Other Harmonic	NAvail
<b>Radar Transmitter Spurious Emission Curve</b>	
Spurious Level Attenuation	-100 dB
<b>Mode 2</b>	
<b>Radar Transmitter Frequency Emission Designator</b>	
Emission Designator	117MQ3N
Mode Name	
<b>Radar Transmitter Frequency</b>	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz
Tuning Steps	5 MHz
Minimum Separation	10 MHz
Num of Frequencies Required	68
Method of Tuning	Synthesizer Crystal Controlled
<b>Radar Transmitter Frequency Emission Designator Modulation RF Fundamental Curve</b>	
-3 dB Bandwidth / (Frequency Offset)	50 MHz
-20 dB Bandwidth / (Frequency Offset)	58.5 MHz
-40 dB Bandwidth / (Frequency Offset)	135 MHz
-60 dB Bandwidth / (Frequency Offset)	510 MHz
Measured or Calculated	Measured
<b>Radar Transmitter Power</b>	
Power Type	Peak
Power Upper Limit	50 kW
Radar Type	FM Pulse
<b>Radar Transmitter Frequency Emission Designator Modulation (Pulse Parameters)</b>	
Pulse Width	10.02 us
Pulse Repetition Rate	387 PPS
Pulse Rise Time	100 ns
Pulse Fall Time	100 ns
Pulse Compression Ratio	1000
Chirp Frequency Shift	99.8 MHz
Number of Radar Subpulses	
Pulse Duty Cycle	0.39 (use the calculator button)
Max Radar Processing Gain	
Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm
<b>Radar Transmitter Harmonics</b>	
2nd Harmonic	-52.2 dB
3rd Harmonic	-41 dB
Other Harmonic	NAvail
<b>Radar Transmitter Spurious Emission Curve</b>	
Spurious Level Attenuation	-100 dB
<b>Mode 3</b>	
<b>Radar Transmitter Frequency Emission Designator</b>	
Emission Designator	607MQ3N
Mode Name	
<b>Tuning Range</b>	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz

Tuning Steps	5 MHz
Minimum Separation	10 MHz
Num of Frequencies Required	68
Method of Tuning	Synthesizer Crystal Controlled
<b>Radar Transmitter Frequency Emission Designator Modulation RF Fundamental Curve</b>	
-3 dB Bandwidth / (Frequency Offset)	293.5 MHz
-20 dB Bandwidth / (Frequency Offset)	303.5 MHz
-40 dB Bandwidth / (Frequency Offset)	396.5 MHz
-60 dB Bandwidth / (Frequency Offset)	815 MHz
Measured or Calculated	Measured
<b>Radar Transmitter Power</b>	
Power Type	Peak
Power Upper Limit	50 kW
Radar Type	FM Pulse
<b>Radar Transmitter Frequency Emission Designator Modulation (Pulse Parameters)</b>	
Pulse Width	23.65 us
Pulse Repetition Rate	228.33 kPPS
Pulse Rise Time	100 ns
Pulse Fall Time	100 ns
Pulse Compression Ratio	11825
Chirp Frequency Shift	500 MHz
Number of Radar Subpulses	
Pulse Duty Cycle	0.54 (use the calculator button)
Max Radar Processing Gain	
Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm
<b>Radar Transmitter Harmonics</b>	
2nd Harmonic	-52.2 dB
3rd Harmonic	-41 dB
Other Harmonic	NAvail
<b>Radar Transmitter Spurious Emission Curve</b>	
Spurious Level Attenuation	-100 dB
<b>Mode 4</b>	
<b>Radar Transmitter Frequency Emission Designator</b>	
Emission Designator	650MQ3N
Mode Name	
<b>Radar Transmitter Frequency</b>	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz
Tuning Steps	5 MHz
Minimum Separation	10 MHz
Num of Frequencies Required	68
Method of Tuning	Synthesizer Crystal Controlled
<b>Radar Transmitter Frequency Emission Designator Modulation RF Fundamental Curve</b>	
-3 dB Bandwidth / (Frequency Offset)	305 MHz
-20 dB Bandwidth / (Frequency Offset)	325 MHz
-40 dB Bandwidth / (Frequency Offset)	545 MHz
-60 dB Bandwidth / (Frequency Offset)	1025 MHz
Measured or Calculated	Measured
<b>Radar Transmitter Power</b>	
Power Type	Peak
Power Upper Limit	50 kW
Radar Type	FM Pulse
<b>Radar Transmitter Frequency Emission Designator Modulation (Pulse Parameters)</b>	

Pulse Width	13.6 us
Pulse Repetition Rate	909 PPS
Pulse Rise Time	100 ns
Pulse Fall Time	100 ns
Pulse Compression Ratio	2500
Chirp Frequency Shift	662 MHz
Number of Radar Subpulses	
Pulse Duty Cycle	1.24 (use the calculator button)
Max Radar Processing Gain	
Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm
<b>Radar Transmitter Harmonics</b>	
2nd Harmonic	-52.2 dB
3rd Harmonic	-41 dB
Other Harmonic	NAvail
<b>Radar Transmitter Spurious Emission Curve</b>	
Spurious Level Attenuation	-100 dB
<b>Mode 5</b>	
<b>Radar Transmitter Frequency Emission Designator</b>	
Emission Designator	10M3Q3N
Mode Name	
<b>Radar Transmitter Frequency</b>	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz
Tuning Steps	5 MHz
Minimum Separation	10 MHz
Num of Frequencies Required	68
Method of Tuning	Synthesizer Crystal Controlled
<b>Radar Transmitter Frequency Emission Designator Modulation RF Fundamental Curve</b>	
-3 dB Bandwidth / (Frequency Offset)	263 MHz
-20 dB Bandwidth / (Frequency Offset)	420 MHz
-40 dB Bandwidth / (Frequency Offset)	950 MHz
-60 dB Bandwidth / (Frequency Offset)	1750 MHz
Measured or Calculated	Measured
<b>Radar Transmitter Power</b>	
Power Type	Peak
Power Upper Limit	50 kW
Radar Type	FM Pulse
<b>Radar Transmitter Frequency Emission Designator Modulation (Pulse Parameters)</b>	
Pulse Width	10.02 us
Pulse Repetition Rate	387 PPS
Pulse Rise Time	100 ns
Pulse Fall Time	100 ns
Pulse Compression Ratio	50
Chirp Frequency Shift	5 MHz
Number of Radar Subpulses	
Pulse Duty Cycle	0.394 (use the calculator button)
Max Radar Processing Gain	
Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm
<b>Radar Transmitter Harmonics</b>	
2nd Harmonic	-52.2 dB
3rd Harmonic	-41 dB
Other Harmonic	NAvail

Radar Transmitter Spurious Emission Curve	
Spurious Level Attenuation	-100 dB

Radar Receiver	
Field	Value
Nomenclature	AN/APY-10 Transmitter
Type of Nomenclature	Government
Manufacturer	
Model Name and Number	Raytheon Co. or Raytheon Manufacturing Co.
Potential Platform	
Receiver Type	Double Conversion Superheterodyne
Local Oscillator Radiation	
Conducted Emission Level	
FCC Type Acceptance No.	NA
Mode 1	
Radar Receiver Frequency Emission Designator	
Emission Designator	537MQ3N
Mode Name	
Radar Receiver Frequency	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz
Tuning Increment (Steps)	5 MHz
Minimum Separation	10 MHz
# of Frequencies Required for Operation	68
Tuning Method (Method of Tuning)	Synthesizer Crystal Controlled
Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm
Radar Receiver Frequency Emission Sensitivity	
Sensitivity (Level in dBm)	-78.6
Performance Criteria (Criteria Type)	S/N - Signal to Noise Ratio
Performance Value (Criteria Level)	9
Noise Figure (in dB)	4.5
Noise Temperature (in K)	527.3 (use the calculator button if data field is empty)
Radar Receiver Frequency Emission Sensitivity IF Selectivity Curve	
1st Stage	
3 db Bandwidth / (Frequency Offset)	120 mHz
20 db Bandwidth / (Frequency Offset)	265 mHz
60 db Bandwidth / (Frequency Offset)	275 mHz
Measured or Calculated	Measured
IF Frequency	500 MHz
2nd Stage	
3 db Bandwidth / (Frequency Offset)	150 mHz
20 db Bandwidth / (Frequency Offset)	250 mHz
60 db Bandwidth / (Frequency Offset)	485 mHz
Measured or Calculated	Measured
IF Frequency	1.795 GHz
Radar Receiver Frequency RF Selectivity Curve	
3 db Bandwidth / (Frequency Offset)	600 MHz
20 db Bandwidth / (Frequency Offset)	1100 MHz
60 db Bandwidth / (Frequency Offset)	3300 MHz
Measured or Calculated	Measured
Image Rejection Level (in dB)	50
Spurious Rejection Level (in dB)	60

Intermod Rejection Level (in dB)	60
<b>Mode 2</b>	
<b>Radar Receiver Frequency Emission Designator</b>	
Emission Designator	10M3Q3N
Mode Name	
<b>Radar Receiver Frequency</b>	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz
Tuning Increment (Steps)	5 MHz
Minimum Separation	10 MHz
# of Frequencies Required for Operation	68
Tuning Method (Method of Tuning)	Synthesizer Crystal Controlled
Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm
<b>Radar Receiver Frequency Emission Sensitivity</b>	
Sensitivity (Level in dBm)	-93.4
Performance Criteria (Criteria Type)	S/N - Signal to Noise Ratio
Performance Value (Criteria Level)	9
Noise Figure (in dB)	4.5
Noise Temperature (in K)	527.3 (use the calculator button if data field is empty)
<b>Radar Receiver Frequency Emission Sensitivity IF Selectivity Curve</b>	
<b>1st Stage</b>	
3 db Bandwidth / (Frequency Offset)	100 mHz
20 db Bandwidth / (Frequency Offset)	175 mHz
60 db Bandwidth / (Frequency Offset)	300 mHz
Measured or Calculated	Measured
IF Frequency	500 MHz
<b>2nd Stage</b>	
3 db Bandwidth / (Frequency Offset)	150 mHz
20 db Bandwidth / (Frequency Offset)	250 mHz
60 db Bandwidth / (Frequency Offset)	485 mHz
Measured or Calculated	Measured
IF Frequency	1.795 GHz
<b>Radar Receiver Frequency RF Selectivity Curve</b>	
3 db Bandwidth / (Frequency Offset)	600 MHz
20 db Bandwidth / (Frequency Offset)	1100 MHz
60 db Bandwidth / (Frequency Offset)	3300 MHz
Measured or Calculated	Measured
Image Rejection Level (in dB)	50
Spurious Rejection Level (in dB)	60
Intermod Rejection Level (in dB)	60
<b>Mode 3</b>	
<b>Radar Receiver Frequency Emission Designator</b>	
Emission Designator	117MQ3N
Mode Name	
<b>Radar Receiver Frequency</b>	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz
Tuning Increment (Steps)	5 MHz
Minimum Separation	10 MHz
# of Frequencies Required for Operation	68
Tuning Method (Method of Tuning)	Synthesizer Crystal Controlled
Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm

<b>Radar Receiver Frequency Emission Sensitivity</b>	
Sensitivity (Level in dBm)	-78.6
Performance Criteria (Criteria Type)	S/N - Signal to Noise Ration
Performance Value (Criteria Level)	9
Noise Figure (in dB)	4.5
Noise Temperature (in K)	527.3 (use the calculator button if data field is empty)
<b>Radar Receiver Frequency Emission Sensitivity IF Selectivity Curve</b>	
<b>1st Stage</b>	
3 db Bandwidth / (Frequency Offset)	120 mHz
20 db Bandwidth / (Frequency Offset)	265 mHz
60 db Bandwidth / (Frequency Offset)	275 mHz
Measured or Calculated	Measured
IF Frequency	500 MHz
<b>2nd Stage</b>	
3 db Bandwidth / (Frequency Offset)	150 mHz
20 db Bandwidth / (Frequency Offset)	250 mHz
60 db Bandwidth / (Frequency Offset)	485 mHz
Measured or Calculated	Measured
IF Frequency	1.795 GHz
<b>Radar Receiver Frequency RF Selectivity Curve</b>	
3 db Bandwidth / (Frequency Offset)	600 MHz
20 db Bandwidth / (Frequency Offset)	1100 MHz
60 db Bandwidth / (Frequency Offset)	3300 MHz
Measured or Calculated	Measured
Image Rejection Level (in dB)	50
Spurious Rejection Level (in dB)	60
Intermod Rejection Level (in dB)	60
<b>Mode 4</b>	
<b>Radar Receiver Frequency Emission Designator</b>	
Emission Designator	607MQ3N
Mode Name	
<b>Radar Receiver Frequency</b>	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz
Tuning Increment (Steps)	5 MHz
Minimum Seperation	10 MHz
# of Frequencies Required for Operation	68
Tuning Method (Method of Tuning)	Synthesizer Crystal Controlled
Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm
<b>Radar Receiver Frequency Emission Sensitivity</b>	
Sensitivity (Level in dBm)	-78.6
Performance Criteria (Criteria Type)	S/N - Signal to Noise Ration
Performance Value (Criteria Level)	9
Noise Figure (in dB)	4.5
Noise Temperature (in K)	527.3 (use the calculator button if data field is empty)
<b>Radar Receiver Frequency Emission Sensitivity IF Selectivity Curve</b>	
<b>1st Stage</b>	
3 db Bandwidth / (Frequency Offset)	120 mHz
20 db Bandwidth / (Frequency Offset)	265 mHz
60 db Bandwidth / (Frequency Offset)	275 mHz
Measured or Calculated	Measured
IF Frequency	500 MHz
<b>2nd Stage</b>	

3 db Bandwidth / (Frequency Offset)	150 mHz
20 db Bandwidth / (Frequency Offset)	250 mHz
60 db Bandwidth / (Frequency Offset)	485 mHz
Measured or Calculated	Measured
IF Frequency	1.795 GHz
<b>Radar Receiver Frequency RF Selectivity Curve</b>	
3 db Bandwidth / (Frequency Offset)	600 MHz
20 db Bandwidth / (Frequency Offset)	1100 MHz
60 db Bandwidth / (Frequency Offset)	3300 MHz
Measured or Calculated	Measured
Image Rejection Level (in dB)	50
Spurious Rejection Level (in dB)	60
Intermod Rejection Level (in dB)	60
<b>Mode 5</b>	
<b>Radar Receiver Frequency Emission Designator</b>	
Emission Designator	650MQ3N
Mode Name	
<b>Radar Receiver Frequency</b>	
Lowest Tuned Frequency	9350 MHz
Highest Tuned Frequency	10.15 GHz
Tuning Increment (Steps)	5 MHz
Minimum Separation	10 MHz
# of Frequencies Required for Operation	68
Tuning Method (Method of Tuning)	Synthesizer Crystal Controlled
Frequency Stability (Tolerance)	28.5
Frequency Stability (Tolerance) Units	ppm
<b>Radar Receiver Frequency Emission Sensitivity</b>	
Sensitivity (Level in dBm)	-78.6
Performance Criteria (Criteria Type)	S/N - Signal to Noise Ratio
Performance Value (Criteria Level)	9
Noise Figure (in dB)	4.5
Noise Temperature (in K)	527.3 (use the calculator button if data field is empty)
<b>Radar Receiver Frequency Emission Sensitivity IF Selectivity Curve</b>	
<b>1st Stage</b>	
3 db Bandwidth / (Frequency Offset)	120 mHz
20 db Bandwidth / (Frequency Offset)	265 mHz
60 db Bandwidth / (Frequency Offset)	275 mHz
Measured or Calculated	Measured
IF Frequency	500 MHz
<b>2nd Stage</b>	
3 db Bandwidth / (Frequency Offset)	150 mHz
20 db Bandwidth / (Frequency Offset)	250 mHz
60 db Bandwidth / (Frequency Offset)	485 mHz
Measured or Calculated	Measured
IF Frequency	1.795 GHz
<b>Radar Receiver Frequency RF Selectivity Curve</b>	
3 db Bandwidth / (Frequency Offset)	600 MHz
20 db Bandwidth / (Frequency Offset)	1100 MHz
60 db Bandwidth / (Frequency Offset)	3300 MHz
Measured or Calculated	Measured
Image Rejection Level (in dB)	50
Spurious Rejection Level (in dB)	60
Intermod Rejection Level (in dB)	60



Radar Antenna	
Antenna - Aperture	
Field	Value
Nomenclature	Airborne Radar Antenna
Type of Nomenclature	Commercial
Model Name and Number	
Manufacturer	Raytheon Co. or Raytheon Manufacturing Co.
Antenna Category	Aperture
Antenna Type	Parabolic
Antenna Lower Frequency Limit	9350 MHz
Antenna Upper Frequency Limit	10.15 GHz
Antenna Main Beam Gain (in dBi)	33
Front to Back Ratio (dB)	
Polarization	Horizontal linear
Antenna Horizontal Beamwidth (degrees)	3.1
Antenna Vertical Beamwidth (degrees)	4.2
Scan Characteristics	
Vertical	
Type of Nomenclature	Tracker
Min Elevation Angle (degrees)	-20
Max Elevation Angle (degrees)	10
Scan Rate	
Scan Speed	
Horizontal	
Type of Nomenclature	Mechanical Steerable
Sector (degrees)	360
Sector Blanking	Yes
Sidelobe Attenuations and Positions	
1st Vertical Sidelobe Attenuation (dB)	25
1st Vertical Sidelobe Position (degrees)	6
1st Horizontal Sidelobe Attenuation (dB)	35
1st Horizontal Sidelobe Position (degrees)	4

NTIA General Information - Part 1	
Field	Value
Nomenclature	AN/APY-10 Transmitter
Type of Nomenclature	Government
Previously Certified SPS Number	

STATIONS	
Station 1	
Field	Value
Station Name	Radar-Air1
Station Description	Radar-Air1
Equipment Associated with Station*	
Station Transmitters	AN/APY-10 Transmitter
Sation Receivers	AN/APY-10 Receiver
Station Antenna	AN/APY-10 Antenna
* You must add equipment to the station prior to navigating to Link/Selected Mode page	
Station 2	
Field	Value

Station Name	Target1
Station Description	Target1
<b>Equipment Associated with Station*</b>	
*The Target is a generic station so you cannot add equipment	

Link Information: Airborne Radar to Target	
Field	Value
Transmitter	AN/APY-10 Transmitter
Transmitter Antennas	Airborne Radar Antenna (check box)
Coupling Loss (dB)	0
Frequencies: Service/Station Classes	Aeronautical Radionavigation / Surveillance Radar / ALS
Identify Frequencies	- Select the 9350 - 9500 MHz frequency range (check box) - Select the 9500 MHz - 10.15 GHz frequency range (check box)
Out-of-band Justification	7.18 Military Telemetry and Terrestrial Telecommand in Radiolocation Bands (select 'Policies', then select the check box)
Emission /Power	AN/APY-10 Transmitter Select all Emission Designators (check all boxes)

NTIA General Information - Part 2	
Field	Value
Stage of System Review	3 - Developmental
Target Application Approval Date	2026-02-02
Target Date for System Activation	2026-06-02
Target Date for System Termination	2026-02-02
System Description	System provides surface search, synthetic & inverse synthetic aperture radar (SAR/INSAR) functions, primary search and weather avoidance, long range detection and classification of ships by producing recognizable images of target vessels. Also provides periscope detection, high altitude maritime surveillance and multiple target tracking through track-while-scan signal processing.
Additional Comments	N/A
NSEP Use	Yes
Information Transfer Requirement	Pulse compression radar pulses and pulse-to-pulse frequency hopping.
Estimated Initial Cost (\$)	69,925,000
Number of Units	3
System Relationship and Essentiality	Required for search and weather avoidance, long range detection and classification of ships.
Replacement Information	N/A
ITU Waiver	No

Full Record Print
Once completed, send your <b>Full Record Print</b> and <b>Training Survey</b> to jbreman.ctr@ntia.gov to receive credit for participating in the training program.