

UNCLASSIFIED		
SECURITY SUMMARY & SPECIAL HANDLING REQUIREMENTS		
<p>The title of this application is : FAA COMMON AIR ROUTE SURVEILLANCE RADAR (CARSR)</p> <p>The overall classification of this application is : UNCLASSIFIED</p>		
<p>Refer to your Security Manual for further guidance.</p>		
<p>The Application Level Special Handling is : A</p> <p>Approved for public release; distribution is unlimited (DoD Directive 5230.24)</p>		
DOWNGRADING INSTRUCTIONS		
<p>Special Handling Instruction : A</p>		
CLASSIFICATION		
UNCLASSIFIED		

FULL RECORD PRINT FOR FAA Common Air Route Surveillance Radar (CARSR)

Selected Frequencies

(U) 1240.0 MHz - (U) 1350.0 MHz

System Name : (U) FAA Common Air Route Surveillance Radar (CARSR)**(Nomenclature)****Stage** : (U) 4 - Operational**Agency** : (U) FAA - Federal Aviation Administration**NTIA Certified** : (U) No**Overall Security** : Unclassified**Date/Time Last Mod.** : 5/7/2008 12:02:06 PM (GMT)**System Description** : (U) see attachment**Target Date(s)****System Approval** : (U) 9/30/2008**System Activation** : (U) 9/30/2008**System Termination** : (U) 9/30/2028**NSEP Use** : (U) Yes**ITU Waiver** : (U) No**Control Numbers**

SPS- 16492/1

Source Documents

- (U) SPS - 16492/1 FAA Common Air Route Surveillance Radar (CARSR) Certification Application 5/7/2008

Geographic Areas for Stage 4**City, State/Country** : (U) USP (US & POSS)**Location Type** : (U) Polygon of 12868 points**Number Of Units** : (U) 65**Estimated Initial Cost of the System** : (U) \$3000000**System Essentiality**

(U) see attachment

Replacement Information

(U) see attachment

Stations**Station Name** : (U) Radar**Transmitters**

(U) FAA CARSR Transmitter

Receivers

(U) FAA CARSR Receiver

Antennas

(U) FAA CARSR ARSR-1/2 Antenna

(U) FAA CARSR FPS Series Antenna

Station Name : (U) Target - Generic

Link

(U) Radar

(U) Target

Station Class : ALS

Transmitter	:	(U) FAA CARSR Transmitter
Tx Antenna	:	(U) FAA CARSR ARSR-1/2 Antenna
Receiver	:	(U) FAA CARSR Receiver
Rx Antenna	:	(U) FAA CARSR ARSR-1/2 Antenna

Frequency

(U) 1240.0 MHz - (U) 1350.0 MHz

(U) 1240.0 MHz - (U) 1350.0 MHz

Em. Des

(U) 2M40Q3N

(U) 2M90Q3N

Power

Peak (U) 60000 W

Peak (U) 60000 W

Notes

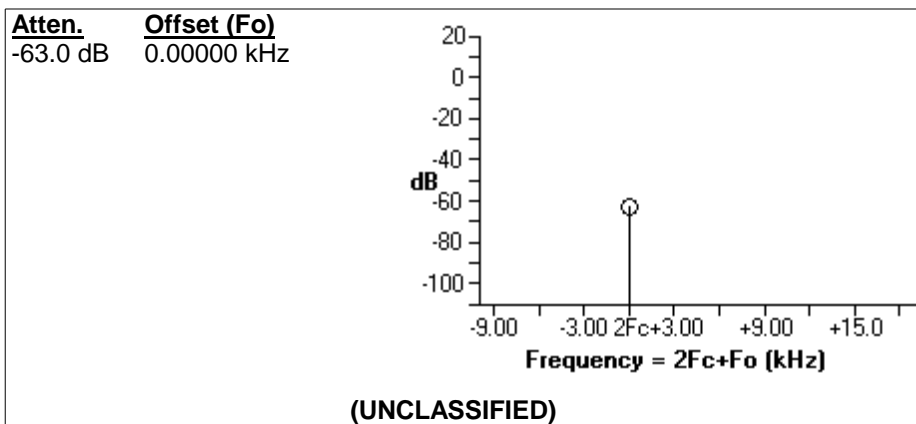
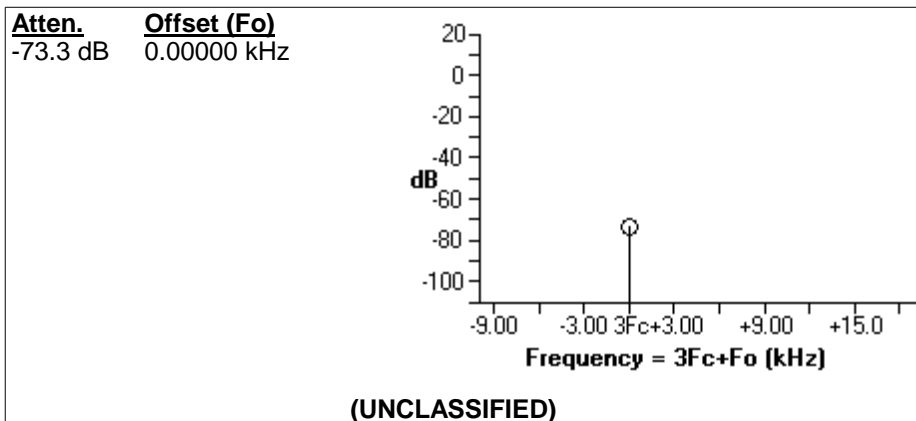
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TRANSMITTER FAA CARSR Transmitter

Nomenclature : (U) FAA CARSR Transmitter
Manufacturer : (U) RAYTHEON CO. OR RAYTHEON MANUFACTURING CO.
Model Name : (U) L8 Transmitter Group PLH355958-1
NTIA Approval Status : (U) Unapproved
Date/Time Last Mod. : 4/28/2008 8:15:52 PM (GMT)
Coordination ID : (U) J/F 12
Freq. Stability : (U) 0.5 ppm
Output Device : (U) Transistor
Tuning Method : (U) Crystal Controlled Synthesizer
Radar/Comm : (U) Radar
Supp. of Harmonics : (U) Yes

Figure 1 - 2nd Harmonic Curve (U)**Figure 2 - 3rd Harmonic Curve (U)**

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Figure 3 - 4th Harmonic Curve (U)

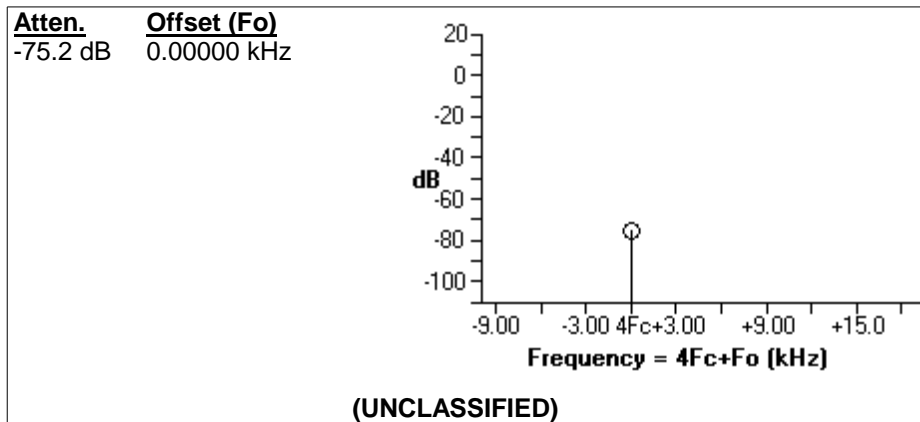
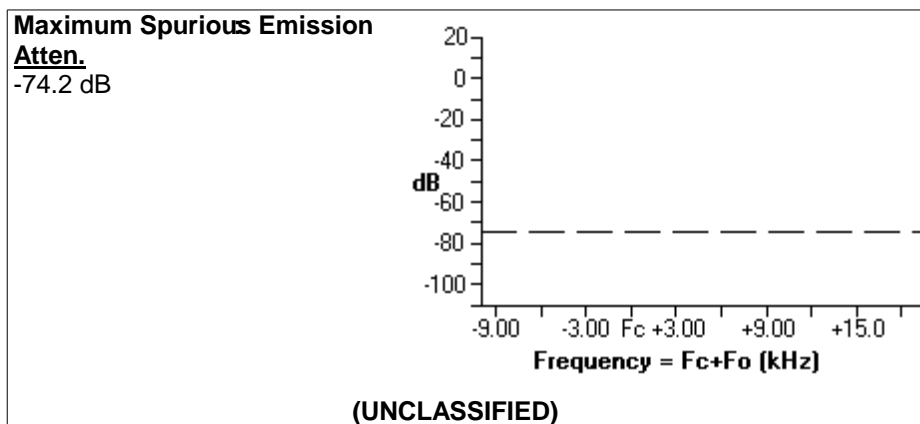


Figure 4 - Spurious Emission Curve (U)

Frequencies

Tuned Frequency : (U) 1215.0 MHz - 1350.0 MHz
 Tuning Increment : (U) 100.00 kHz
 # Freq Req. : (U) 4
 Min. Separation : (U) 26.000 MHz
 Em. Designator : (U) 2M40Q3N
 Necessary BW : (U) 2400.0 kHz

Modulation - 2M40Q3N

Radar/Communications : (U) Radar
 Radar Type : (U) FM Pulse Radar
 Pulse Repetition Rate : (U) 319 pps
 Pulse Rise Time : (U) 0.00204 ms
 Pulse Fall Time : (U) 0.00100 ms
 Pulse Width : (U) 0.120 ms
 Pulse Duty Cycle : (U) 7.500 %
 Pulse Comp. Ratio : (U) 143

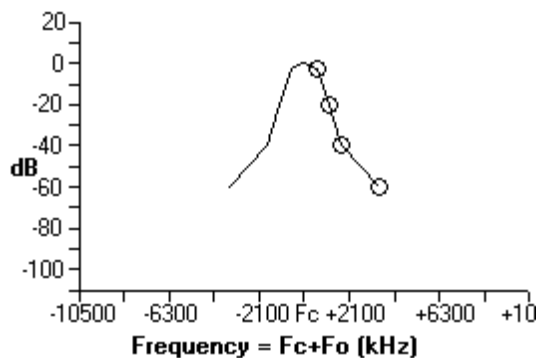
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Pulse Freq. Deviation : (U) 4000.0 kHz
 Radar Processing Gain : (U) 7.90 dB
 Spread Spectrum : No
 Pulse Width : (U) 0.120

Figure 5 - Fundamental Curve (U)

Meas/Calc : Measured

Level	Offset (Fo)
-3.00 dB	600.00 kHz
-20.0 dB	1200.0 kHz
-40.0 dB	1750.0 kHz
-60.0 dB	3500.0 kHz



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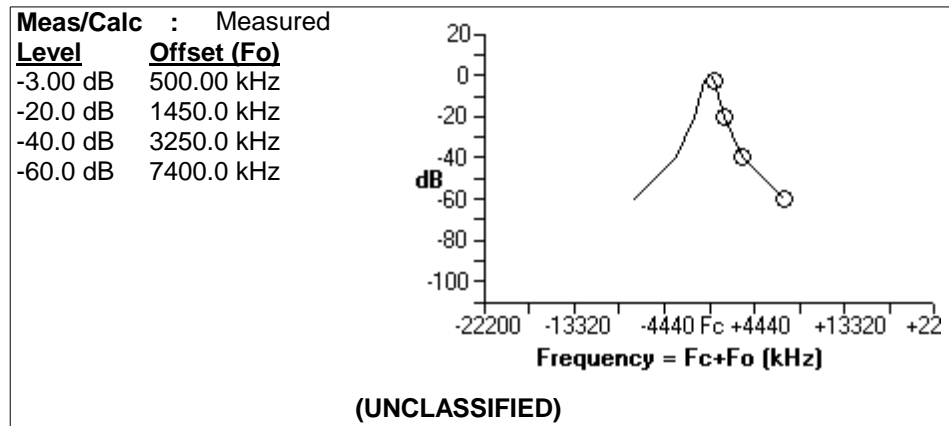
Em. Designator : (U) 2M90Q3N
 Necessary BW : (U) 2900.0 kHz

Modulation - 2M90Q3N

Radar/Communications : (U) Radar
 Radar Type : (U) FM Pulse Radar
 Pulse Repetition Rate : (U) 319 pps
 Pulse Rise Time : (U) 0.00208 ms
 Pulse Fall Time : (U) 0.000880 ms
 Pulse Width : (U) 0.0220 ms
 Pulse Duty Cycle : (U) 1.400 %
 Pulse Comp. Ratio : (U) 42.1
 Pulse Freq. Deviation : (U) 3500.0 kHz
 Radar Processing Gain : (U) 6.40 dB
 Spread Spectrum : No
 Pulse Width : (U) 0.0220

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Figure 6 - Fundamental Curve (U)



Powers

Power Type : Peak Envelope
Upper Limit : (U) 60000 W

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RECEIVER FAA CARSR Receiver

Nomenclature : (U) FAA CARSR Receiver
Manufacturer : (U) RAYTHEON CO. OR RAYTHEON MANUFACTURING CO.
Model Name : (U) SSR/DMTI Electronics PLH397008-1
NTIA Approval Status : (U) Unapproved
Date/Time Last Mod. : 4/28/2008 8:39:21 PM (GMT)
Coordination ID : (U) J/F 12
Freq. Stability : (U) 0.5 ppm
Image Reject : (U) 70.0dB
Oscillator Tuned : (U) Above
Tuning Method : (U) Crystal Controlled Synthesizer
Cond. Undesired Em. : (U) -70.0dBm

Frequencies

Tuned Frequency : (U) 1215.0 MHz - 1350.0 MHz

Tuning Increment : (U) 100.00 kHz

Sensitivities

Em. Designator : (U) 2M40Q3N
Necessary BW : (U) 2400.0 kHz
Perf. Crit. : (U) Other
Perf. Value : (U) 78
Sensitivity : (U) -107 dBm
Noise Fig. : (U) 3.20 dB
Noise Temp. : (U) 316 K
Spur. Reject : (U) 70.0 dB
Intermod. Reject : (U) 60.0 dB
Adj. Channel Sel. : (U) 70.0 dB

Figure 7 - IF Selectivity Curve (U)

IF Freq. (Fk) : 32.590 MHz

Meas/Calc : Measured

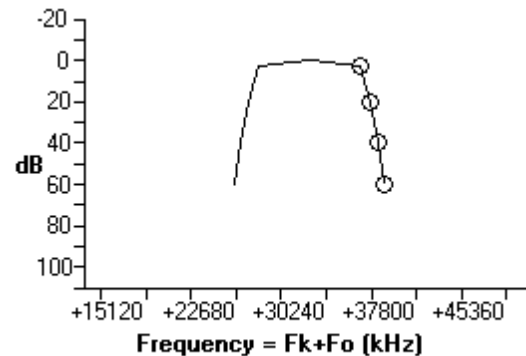
Atten. **Offset (Fo)**

3.00 dB 4200.0 kHz

20.0 dB 5050.0 kHz

40.0 dB 5700.0 kHz

60.0 dB 6300.0 kHz



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Sensitivities

Em. Designator : (U) 2M90Q3N
Necessary BW : (U) 2900.0 kHz
Perf. Crit. : (U) Other
Perf. Value : (U) 78
Sensitivity : (U) -107 dBm
Noise Fig. : (U) 3.20 dB
Noise Temp. : (U) 316 K

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Spur. Reject : (U) 70.0 dB
Intermod. Reject : (U) 60.0 dB
Adj. Channel Sel. : (U) 70.0 dB

Figure 8 - IF Selectivity Curve (U)

IF Freq. (Fk) : 27.410 MHz

Meas/Calc : Measured

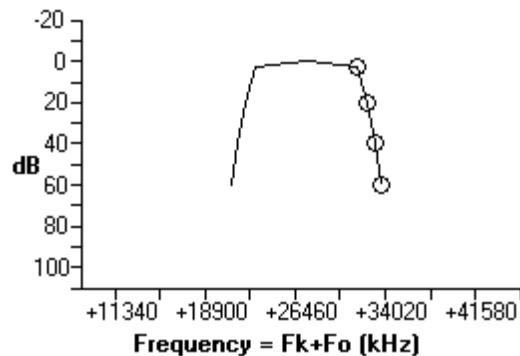
Atten.	Offset (Fo)
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3.00 dB	4200.0 kHz
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20.0 dB	5050.0 kHz
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40.0 dB	5700.0 kHz
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60.0 dB	6300.0 kHz
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Figure 9 - RF Selectivity Curve (U)

Meas/Calc : Measured

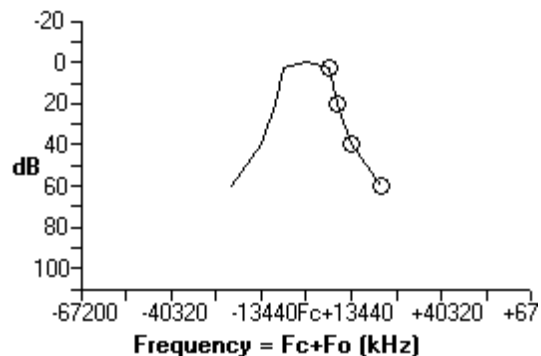
Atten.	Offset (Fo)
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3.00 dB	6800.0 kHz
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20.0 dB	9500.0 kHz
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40.0 dB	13500 kHz
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60.0 dB	22400 kHz
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FULL RECORD PRINT FOR FAA Common Air Route Surveillance Radar (CARSR)

ANTENNA FAA CARSR FPS Series Antenna

Nomenclature : (U) FAA CARSR FPS Series Antenna
Antenna Code : Aperture
Manufacturer : (U) RAYTHEON CO. OR RAYTHEON MANUFACTURING CO.
Model Name : (U) LRR Antenna AS-1561
NTIA Approval Status : (U) Unapproved
Date/Time Last Mod. : 3/20/2008 2:18:19 PM (GMT)
Coordination ID : (U) J/F 12
Lower Freq. Limit : (U) 1215.0 MHz
Upper Freq. Limit : (U) 1400.0 MHz
Polarization : (U) Right Hand Circular
Main Beam Gain : (U) 35.0 dBi
1st Horz. Sidelobe Atten. : (U) 35.0 dB
1st Vert. Sidelobe Atten. : (U) 30.0 dB
Atten. Rel/Act : (U) Relative dB
Gain Fr. to Bk. : (U) 30.0 dB
Horz. Beamwidth : (U) 1.30 degrees
Vert. Beamwidth : (U) 5.34 degrees
Horz. Scan Type : (U) 360 Degrees Rotating
Horz. Scan Rate : (U) 5.00 scans/min
Capable of Blanking : (U) Yes
Horz. Scan Type : (U) 360 Degrees Rotating
Vert. Scan Type : (U) Fixed

FULL RECORD PRINT FOR FAA Common Air Route Surveillance Radar (CARSR)

ANTENNA FAA CARSR ARSR-1/2 Antenna

Nomenclature : (U) FAA CARSR ARSR-1/2 Antenna
Antenna Code : Aperture
Manufacturer : (U) RAYTHEON CO. OR RAYTHEON MANUFACTURING CO.
Model Name : (U) LRR Antenna FA-7172
NTIA Approval Status : (U) Unapproved
Date/Time Last Mod. : 3/20/2008 2:18:05 PM (GMT)
Coordination ID : (U) J/F 12
Lower Freq. Limit : (U) 1215.0 MHz
Upper Freq. Limit : (U) 1400.0 MHz
Polarization : (U) Right Hand Circular
Main Beam Gain : (U) 34.0 dBi
1st Horz. Sidelobe Atten. : (U) 35.0 dB
1st Vert. Sidelobe Atten. : (U) 30.0 dB
Atten. Rel/Act : (U) Relative dB
Gain Fr. to Bk. : (U) 30.0 dB
Horz. Beamwidth : (U) 1.20 degrees
Vert. Beamwidth : (U) 3.70 degrees
Horz. Scan Type : (U) 360 Degrees Rotating
Horz. Scan Rate : (U) 5.00 scans/min
Capable of Blanking : (U) Yes
Horz. Scan Type : (U) 360 Degrees Rotating
Vert. Scan Type : (U) Fixed