

UNCLASSIFIED		
SECURITY SUMMARY & SPECIAL HANDLING REQUIREMENTS		
<div>The title of this application is : ASDE-X SMR</div> <div>The overall classification of this application is : UNCLASSIFIED</div>		
<div>Refer to your Security Manual for further guidance.</div>		
<div><div>The Application Level Special Handling is : A</div><div>Approved for public release; distribution is unlimited (DoD Directive 5230.24)</div></div>		
<div>Security Information</div> <div>Special Handling Instruction: A</div>		
CLASSIFICATION		
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FULL RECORD PRINT FOR ASDE-X SMR

Requested Frequencies

(U) 9036.0 MHz - (U) 9164.0 MHz

System Name : (U) ASDE-X SMR
Agency : (U) FAA - Federal Aviation Administration
Approval Status : (U) Unapproved
Date/Time Last Mod. : 12/5/2006 3:25:00 PM (GMT)
System Description : (U) See attached cover letter.
Stage : (U) 4 - Operational
War Emergency Use? : (U) Yes
ITU Waiver : (U) No
Overall Security : Unclassified
Source Documents
• (U) SPS - SPS-12550 Certification of Spectrum Support Stage 2 11/7/2000

Requested Locations

City, State/Country : (U) USP (US & POSS)
Location Type : (U) Polygon of 12868 points

Estimated Initial Cost of the System (U) \$450000

System Essentiality or Replacement
(U) See attached cover letter.

Stations

Station Name : (U) Radar
Radar Type : (U) Land

Transmitters

Nomenclature : (U) ASDE-X SMR Tx
Manufacturer : (U) RAYTHEON CO. OR RAYTHEON MANUFACTURING CO.
Model Name : (U) SMR Tx
Approval Status : (U) Unapproved
Date/Time Last Mod. : 12/5/2006 3:25:00 PM (GMT)
Coordination ID : (U) J/F 12
Freq. Stability : (U) 1000000 Hz
Output Device : (U) Transistor
Tuning Method : (U) PLL Synthesizer
Radar/Comm : (U) Radar
Supp. of Harmonics : (U) No

Figure 1 - 3rd Harmonic Curve (U)

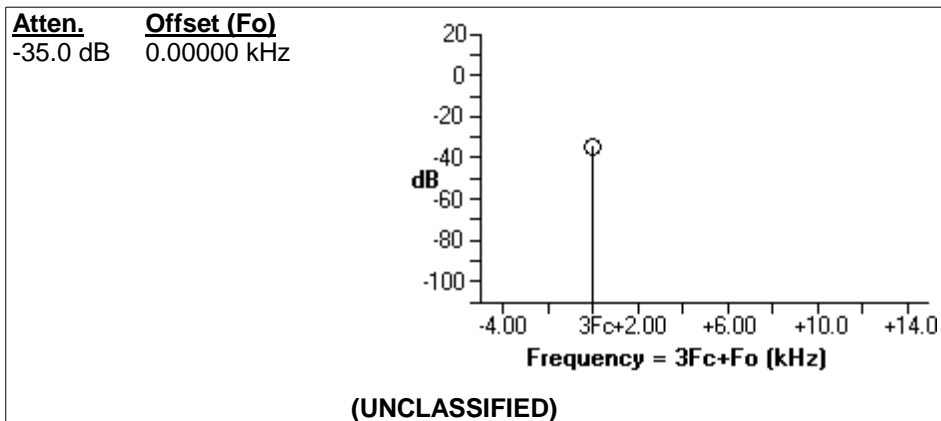


Figure 2 - 4th Harmonic Curve (U)

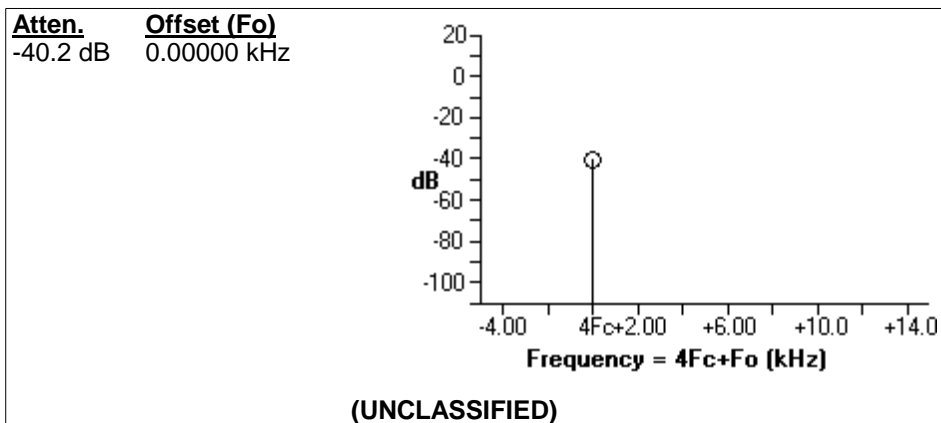


Figure 3 - 2nd Harmonic Curve (U)

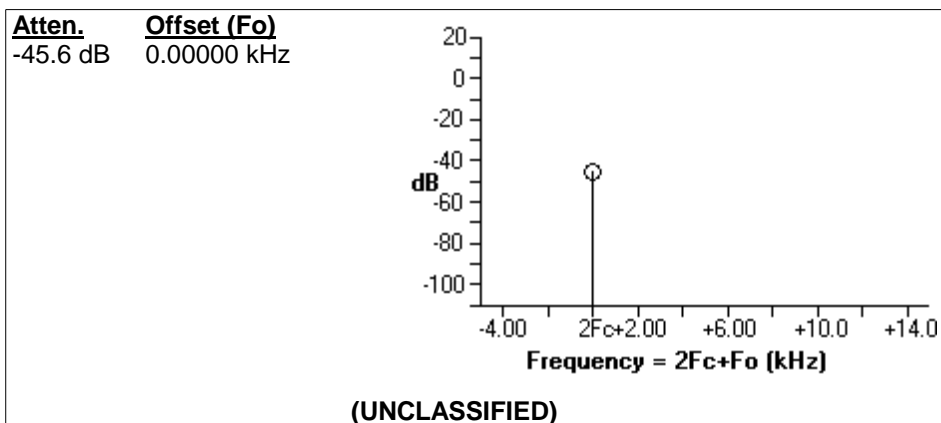
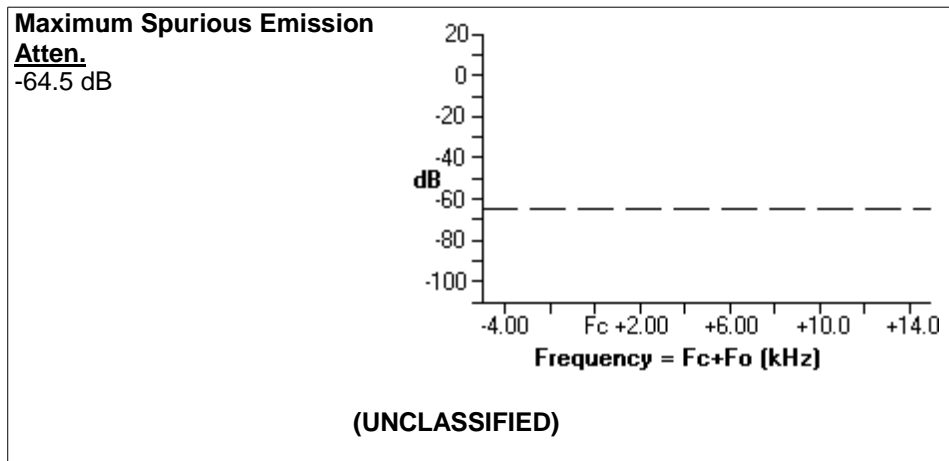


Figure 4 - Spurious Emission Curve (U)



Frequencies

Tuned Frequency : (U) 9036.0 MHz - 9164.0 MHz

Tuning Increment : (U) 1000.0 kHz

Freq Req. : (U) 4

Min. Separation : (U) 39.000 MHz

Em. Designator : (U) 70M3P0N

Necessary BW : 70300 kHz

Modulation

Radar/Comm : (U) Radar

Spread Spectrum : No

Radar Type : (U) Non-FM Pulse Radar with Frequency Hopping

Pulse Rep. Rate : (U) 4096 pps

Pulse Rise Time : (U) 0.0000156 ms

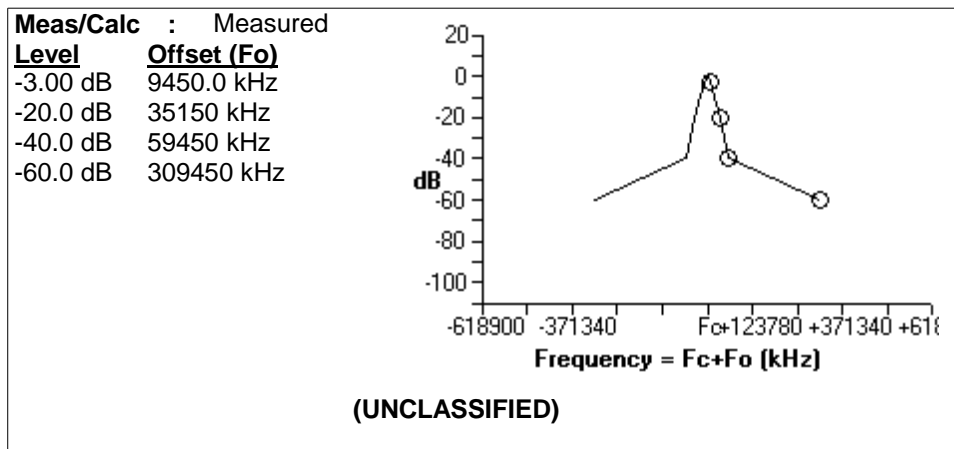
Justification : (U) Short rise time needed for range resolution.

Pulse Fall Time : (U) 0.0000175 ms

Pulse Width : (U) 0.0000366 ms

Pulse Duty Cycle : (U) 0.0000

Figure 5 - Fundamental Curve (U)



Em. Designator : (U) 54M1Q3N

Necessary BW : 54100 kHz

Modulation

Radar/Comm : (U) Radar
Spread Spectrum : No
Radar Type : (U) FM Pulse Radar with Frequency Hopping
Pulse Rep. Rate : (U) 4096 pps
Pulse Rise Time : (U) 0.0000818 ms
Justification : (U) Short rise time required for range resolution.
Pulse Fall Time : (U) 0.0000611 ms
Pulse Width : (U) 0.00358 ms
Pulse Duty Cycle : (U) 2.000
Pulse Duty Cycle : (U) 2.000
Pulse Comp. Dev. : (U) 50000
Radar Gain : (U) 23.0

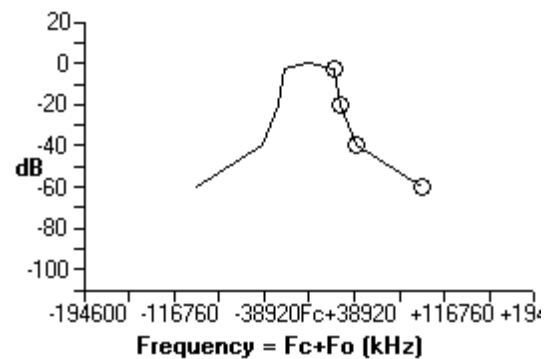
Figure 6 - Fundamental Curve (U)**Meas/Calc** : Measured**Level** **Offset (Fo)**

-3.00 dB 21600 kHz

-20.0 dB 27050 kHz

-40.0 dB 40550 kHz

-60.0 dB 97300 kHz

**(UNCLASSIFIED)****Powers**

Power : Peak Env. (U) 64.6 W
Power : Peak Env. (U) 69.2 W

Receivers

Nomenclature : (U) ASDE-X SMR Rx
Manufacturer : (U) RAYTHEON CO. OR RAYTHEON MANUFACTURING CO.
Model Name : (U) SMR Rx
Approval Status : (U) Unapproved
Date/Time Last Mod. : 12/5/2006 3:25:00 PM (GMT)
Coordination ID : (U) J/F 12
Freq. Stability : (U) 1000000 Hz
Image Reject : (U) 76.3dB
Oscillator Tuned : (U) Below
Tuning Method : (U) PLL Synthesizer

Frequencies**Tuned Frequency** : (U) 9036.0 MHz - 9164.0 MHz**Tuning Increment** : (U) 1000.0 kHz**IF Sensitivities**

Em. Designator : (U) 70M3P0N
Necessary BW : 70300 kHz
Perf. Crit. : (U) S/N - Signal to Noise Ratio (dB)
Perf. Value : (U) 10
Sensitivity : (U) -95.2 dBm

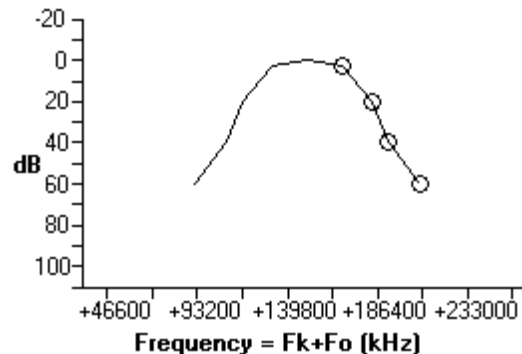
Noise Fig. : (U) 5.56 dB
 Spur. Reject : (U) 42.2 dB
 Adj. Channel Sel. : (U) 20.0 dB

Figure 7 - IF Selectivity Curve (U)

IF Freq. (Fk) : 150.00 MHz

Meas/Calc : Measured

Atten.	Offset (Fo)
3.00 dB	18000 kHz
20.0 dB	33300 kHz
40.0 dB	41750 kHz
60.0 dB	58250 kHz



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IF Sensitivities

Em. Designator : (U) 54M1Q3N

Necessary BW : 54100 kHz

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

Perf. Value : (U) 10

Sensitivity : (U) -96.2 dBm

Noise Fig. : (U) 5.56 dB

Spur. Reject : (U) 41.5 dB

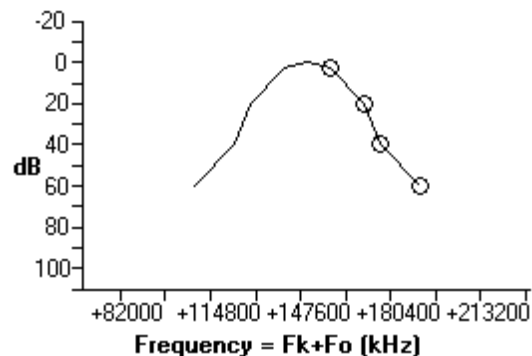
Adj. Channel Sel. : (U) 40.0 dB

Figure 8 - IF Selectivity Curve (U)

IF Freq. (Fk) : 150.00 MHz

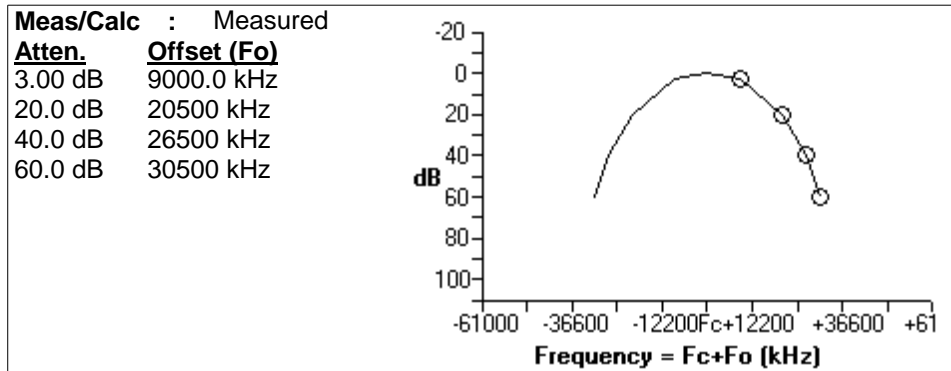
Meas/Calc : Measured

Atten.	Offset (Fo)
3.00 dB	8200.0 kHz
20.0 dB	20600 kHz
40.0 dB	26550 kHz
60.0 dB	41000 kHz



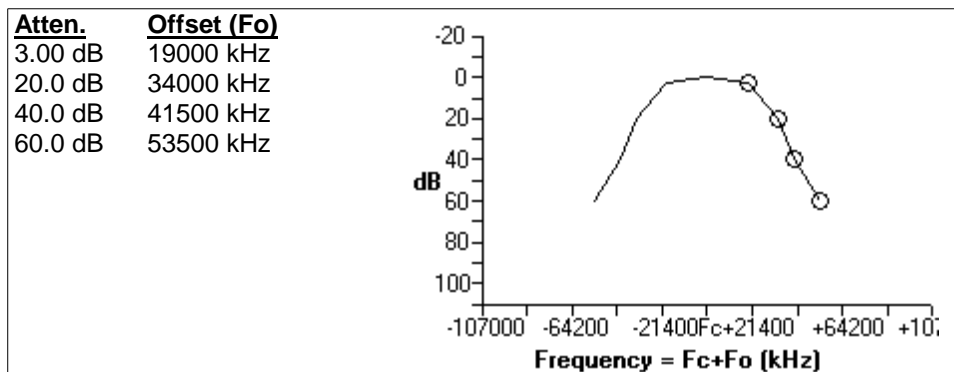
(UNCLASSIFIED)

Figure 9 - RF Selectivity Curve (U)



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Figure 10 - RF Selectivity Curve (U)



(UNCLASSIFIED)

Antennas

Nomenclature	: (U) EASAT Antenna
Antenna Type	: Linear
Manufacturer	: (U) EASAT
Model Name	: (U) EA6501 Linear Array
Approval Status	: (U) Unapproved
Date/Time Last Mod.	: 12/5/2006 3:25:00 PM (GMT)
Coordination ID	: (U) J/F 12
Lower Freq. Limit	: (U) 9000.0 MHz
Upper Freq. Limit	: (U) 9200.0 MHz
Polarization	: (U) Right Hand Circular
Main Beam Gain	: (U) 35.0 dBi
1st Horz. Sidelobe Level	: (U) 9.00 dB
1st Vert. Sidelobe Level	: (U) 20.0 dB
Atten. Rel/Act	: (U) Actual dBi
Horz. Beamwidth	: (U) 0.350 degrees
Vert. Beamwidth	: (U) 17.7 degrees

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Station Name : (U) Surface Target - Generic															
<div><div><div>Link</div><div><div>Transmitting Station</div><div>Radar</div></div><div><div>Receiving Station</div><div>Surface Target</div></div></div><div><div>Radio Service : Radiodetermination</div><div>Station Class : ALS</div><div>Equipment Combination</div><div><div>Transmitter : ASDE-X SMR Tx</div><div>Tx Antenna : EASAT Antenna</div><div>Receiver : ASDE-X SMR Rx</div><div>Rx Antenna : EASAT Antenna</div></div><div>Requested Modes</div><table><thead><tr><th>Frequency</th><th>Em. Des</th><th>Power</th><th>Notes</th></tr></thead><tbody><tr><td>(U) 9036.0 MHz - (U) 9164.0 MHz</td><td>(U) 54M1Q3N</td><td>Peak (U) 69.2 W</td><td>PRI</td></tr><tr><td>(U) 9036.0 MHz - (U) 9164.0 MHz</td><td>(U) 70M3P0N</td><td>Peak (U) 64.6 W</td><td>PRI</td></tr></tbody></table></div></div>				Frequency	Em. Des	Power	Notes	(U) 9036.0 MHz - (U) 9164.0 MHz	(U) 54M1Q3N	Peak (U) 69.2 W	PRI	(U) 9036.0 MHz - (U) 9164.0 MHz	(U) 70M3P0N	Peak (U) 64.6 W	PRI
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Line Diagram: ASDE-X SMR

