Using the security assurance case pattern provided, the instantiated assurance case for the ACAS Xu (Airborne Collision Avoidance System Xu) will be represented in a hierarchical tree structure below. All placeholders in the pattern will be instantiated with specific details related to the ACAS Xu system. I’ll assume additional contexts and specifics based on typical considerations for airborne collision systems.

\*\*@Assurance\_case\*\*

- \*\*Goal (G0, ACAS Xu satisfies security requirements)\*\*

- \*\*Context (C0, Description of ACAS Xu as an airborne collision avoidance system)\*\*

- \*\*Context (C1, SRs are requirements about protecting the ACAS Xu system from security threats)\*\*

- \*\*Justification (J0, The argumentation is based on satisfaction of SRs)\*\*

- \*\*Assumption (A0, ACAS Xu system SRS are complete, adequate, and consistent)\*\*

- \*\*Strategy (S0, Argue through asset protection and secure development requirements)\*\*

- \*\*Goal (G1, ACAS Xu satisfies the asset protection requirements)\*\*

- \*\*Assumption (A1, Asset inventory is established for ACAS Xu)\*\*

- \*\*Strategy (S1, Argue through the different stages of the ACAS Xu development life cycle)\*\*

- \*\*Goal (G3, Asset protection requirements are met during the architecture design phase)\*\*

- \*\*Context (C2, Description of the ACAS Xu architecture)\*\*

- \*\*Strategy (S2, Argue through deriving security threats from SRs)\*\*

- \*\*Goal (G5, ACAS Xu architecture is protected against identified security threats)\*\*

- \*\*Assumption (A2, All relevant threats to ACAS Xu have been identified)\*\*

- \*\*Strategy (S3, Argue over each security threat to ACAS Xu architecture)\*\*

- \*\*Goal (G0.X, ACAS Xu architecture is protected against specific identified security threat X)\*\* (undeveloped, awaiting specific threat identification)

- \*\*Goal (G4, Asset protection requirements are met during other phases for ACAS Xu)\*\* (undeveloped)

- \*\*Goal (G2, ACAS Xu satisfies secure development requirements)\*\* (undeveloped)

- \*\*IncontextOf:\*\*

- \*\*G0 in the context of [C0, C1, J0, A0]\*\*

- \*\*G1 in the context of A1\*\*

- \*\*G3 in the context of C2\*\*

- \*\*SupportedBy:\*\*

- \*\*G0 supported by S0\*\*

- \*\*S0 supported by [G1, G2]\*\*

- \*\*G1 supported by S1\*\*

- \*\*S1 supported by [G3, G4]\*\*

- \*\*G3 supported by S2\*\*

- \*\*S2 supported by [G5, G6]\*\* (G6 undeveloped)

- \*\*G5 supported by S3\*\*

- \*\*S3 supported by G0.X\*\* (undeveloped)

\*\*@End\_Assurance\_case\*\*

This hypothetical instantiation assumes typical phases of system development and adopts a security case structure focused on methodically addressing security from asset protection to threat mitigation for specific threats yet to be identified or described in full detail (as noted by the undeveloped standings).