System Requirements

Requirement ID	Description
SYS_1	The ATC shall display a plan view of the airspace every 5 seconds showing the current position of each aircraft.
SYS_2	The ATC shall check all aircraft in the airspace for seperation constraint violations at currentTime + n (in seconds) Where n is an integer parameter.
SYS_3	The controller shall be able to change the parameter n at runtime to react to the degree of congestion in space.
SYS_4	The ATC shall signal an audio or visual alarm if a safety violation is found or or if a safety violation is found within 3 minutes.
SYS_5	The ATC shall store a detailed log file of the history of the airspace every 30 seconds.
SYS_6	The ATC shall store the operator requests and operator commands in a log file.

Radar System Requirements

Requirement ID	Description
RDR_SYS_1	The PSR shall emit a pulsed beam of ultra-high frequency radio waves in a circle from a rotating antenna to illuminate any object in the airspace
RDR_SYS_2	The SSR shall emit interrogation signals to any illuminated object by the PSR
RDR_SYS_3	The SSR shall receive reply signals to the interrogation signals from aircraft transponders
RDR_SYS_4	The PSR shall forward positional data obtained from illuminated objects to the Computer System
RDR_SYS_5	The SSR shall forward interrogation signal replies to the Computer System after they are received from the aircraft's transponder

Radar HLRs

Requirement ID	Description	Traceability	Comments
RDR_HLR_1	The PSR shall perform 12 scans of the airspace per minute. Note: Antenna speed is assumed to be 12 RPM.	RDR_SYS_1	A minimum of 12 scans of the entire airspace provide enough positional data to satisfy the constraint on the update of the flat view display (every 5 seconds)
RDR_HLR_2	The PSR shall emit 10 pulses per degree of rotation.	RDR_SYS_1	
RDR_HLR_3	When a reflected pulse is received (i.e., an object is illuminated), the PSR shall record the current angle of rotation and the distance of the illuminated object relative to the radar's location.	RDR_SYS_1	
RDR_HLR_4	When a reflected pulse is received (i.e., an object is illuminated), the SSR shall send an interrogation signal to the illuminated object.	RDR_SYS_2	
RDR_HLR_5	When an interrogation signal is received, the Aircraft Transponder shall send a reply signal to the SSR with the following information: – Flight ID – Flight Level (FL) – Speed – Position	RDR_SYS_2 RDR_SYS_3	
RDR_HLR_6	When a reply to an interrogation signal is received from an aircraft transponder, the SSR shall record the Flight ID, Flight Level (FL), Speed and Position for the aircraft.	RDR_SYS_3	
	When positional data of an illuminated object is recorded, the PSR shall forward the data to the Computer System.		
	When a reply to an interrogation signal is received from an aircraft transponder, the SSR shall record the Flight ID, Flight Level (FL), Speed and Position for the aircraft.		

Definitions

Term	Definition
Illuminated objects	Objects in the airspace that refelcted some energy fromthe radar emiited beam
interogation signals	Signals send from the SSR to the illuminated objects.

Acronyms

Term	Definition
ATC	Air Traffic Controller
ATCS	Air Traffic Control System
PSR	Primary Surveilance Radar
SSR	Secondary Surveilance Radar