SKYRADAR-STCA-041: Suppression of STCA conflicts due to NTZ processing
SSS: ATCS-SSS-REQ-005855
Derived status partially
Derived rationale Alert inhibition on approach with NOZ and NTZ Areas
Safety impact false
Verification method Test
Verification level RL
(SDS rules HLR_10) [cmats_snp] Partial derivation shall be avoided
SKYRADAR shall flag STCA conflicts as suppressed for tracks located in NOZ if:
• The associated NTZ area is active, and
• The status of the NTZ areas manager is equal to OPERATIONAL, and
• The heading gap between each aircraft and the runway axis is lower than CSP: MAX_DELTA_HEADING, and
• The current distance between the aircraft is kept above VSP: MinimalDistance known as safety distance, and
• Each track is located within a different NOZ associated with an offline defined "parallel approach pair" of
runways, and
• The "parallel approach pair" is in INDEPENDENT mode, and
• The flag STCA_PARALLEL_APP_FPL_CHECK_FLAG is set to false or the runway of each track's coupled
FPL (if assigned) matches the runway linked to the NOZ where the track is located.

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SKYRADAR-MSAW-025: Generation of Minimum Safe Altitude Warning alerts
SSS: ATCS-SSS-REQ-006142
Derived status partially
Derived rationale Terrain clearance monitoring for approach and departure operations
Safety impact true
Verification method Test
Verification level RL
(SDS rules HLR_15) [cmats_snp] Partial derivation shall be avoided
SKYRADAR shall generate MSAW (Minimum Safe Altitude Warning) alerts for tracks if ALL of the following conditions are met:
• The MSAW system status is equal to OPERATIONAL, and
• The track altitude is below the MSA (Minimum Safe Altitude) threshold defined for the current sector, and
• The track is in APPROACH or DEPARTURE flight phase, and
• The track vertical speed indicates descent or level flight (not climbing above VSP: MIN_CLIMB_RATE), and
• The track is located within a monitored airspace zone where MSAW is active, and
• The track has valid altitude data with quality indicator equal to HIGH or MEDIUM, and
• The flag MSAW_EMERGENCY_OVERRIDE is set to false or the track's transponder squawk code is NOT in the emergency range (7500, 7600, 7700).

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SKYRADAR-RVSM-033: Generation of RVSM Non-Approval Alerts
SSS: ATCS-SSS-REQ-006500
Derived status partially
Derived rationale RVSM compliance monitoring for flight operations in reduced vertical separation airspace
Safety impact true
Verification method Test
Verification level RL
(SDS rules HLR_12) [cmats_snp] Partial derivation shall be avoided
SKYRADAR shall generate RVSM (Reduced Vertical Separation Minimum) Non-Approval alerts for tracks if ALL of the following conditions are met:
• The RVSM monitoring system status is equal to OPERATIONAL, and
• The track flight level is within RVSM airspace range (between CSP: RVSM_MIN_FL and CSP: RVSM_MAX_FL), and
• The track RVSM approval status indicator is set to NOT_APPROVED or UNKNOWN, and
• The track altitude source quality indicator is equal to HIGH or MEDIUM, and
• The track is located within an RVSM designated airspace zone where monitoring is active, and
• The track flight plan indicates IFR (Instrument Flight Rules) operation, and
• The flag RVSM_EMERGENCY_EXCEPTION is set to false or the track's transponder squawk code is NOT in the emergency range (7500, 7600, 7700).

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SKYRADAR-ARR-044: Time-Based Arrival Sequencing Optimization
SSS: ATCS-SSS-REQ-007125
Derived status partially
Derived rationale Automated arrival sequencing with time-based separation for traffic flow optimization
Safety impact false
Verification method Test
Verification level RL
(SDS rules HLR_18) [cmats_snp] Partial derivation shall be avoided
SKYRADAR shall automatically adjust arrival sequence positions for tracks if ALL of the following conditions are met:
• The AMAN (Arrival Manager) system status is equal to OPERATIONAL, and
• The track is in ARRIVAL flight phase with valid time-to-threshold prediction, and
• The track is located within the Extended Terminal Maneuvering Area (E-TMA) boundary defined for the arrival airport, and
• The calculated arrival delay is greater than CSP: AMAN_MIN_DELAY_THRESHOLD (typically 120 seconds), and
• The track has an assigned arrival runway with active AMAN sequencing enabled, and

• The potential sequence position change would not violate minimum time-based separation with preceding or following traffic (VSP: TBS_MIN_SEPARATION_TIME).

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SKYRADAR-WV-045: Wake Vortex Separation Reduction Monitoring
SSS: ATCS-SSS-REQ-007240
Derived status partially
Derived rationale Dynamic wake turbulence separation reduction based on atmospheric conditions and aircraft characteristics
Safety impact true
Verification method Test
Verification level RL
(SDS rules HLR_22) [cmats_snp] Partial derivation shall be avoided
SKYRADAR shall generate wake vortex separation infringement alerts for track pairs if ALL of the following conditions are met:
• The wake vortex monitoring system status is equal to OPERATIONAL, and
• Both tracks are in APPROACH or DEPARTURE flight phase on the same runway or parallel runways separated by less than CSP: WV_PARALLEL_RWY_DISTANCE (typically 760 meters), and
• The leading aircraft wake turbulence category is HEAVY or SUPER and the following aircraft category is at least two categories lower (per ICAO RECAT standards), and
• The measured separation distance between the two tracks is below the dynamic wake vortex separation minimum calculated based on current meteorological conditions (crosswind component, temperature, humidity from VSP: WEATHER_DATA_SOURCE), and
• Both tracks have valid position and altitude data with quality indicator equal to HIGH, and
• The flag WV_TIME_BASED_MODE is set to true and the time-based separation is below VSP: WV_MIN_TIME_SEPARATION, or the flag is set to false and the distance-based separation is below VSP: WV_MIN_DISTANCE_SEPARATION, and
• The flag WV_EMERGENCY_OVERRIDE is set to false or neither track's transponder squawk code is in the emergency range (7500, 7600, 7700).

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SKYRADAR-RNP-046: RNP Approach Containment Monitoring
SSS: ATCS-SSS-REQ-007355
Derived status partially
Derived rationale Monitoring of Required Navigation Performance approach path containment and precision for advanced procedure compliance
Safety impact true
Verification method Test
Verification level RL
(SDS rules HLR_25) [cmats_snp] Partial derivation shall be avoided
SKYRADAR shall generate RNP (Required Navigation Performance) containment violation alerts for tracks if ALL of the following conditions are met:

• The RNP monitoring system status is equal to OPERATIONAL, and
• The track is executing an RNP approach procedure with approach type indicator set to RNP or RNP_AR (Authorization Required), and
• The track flight plan indicates the aircraft RNP capability value is adequate for the published procedure (aircraft RNP value ≤ procedure required RNP value from CSP: RNP_PROCEDURE_DATABASE), and
• The track lateral deviation from the published RNP approach path exceeds the RNP containment limit (deviation > 2 × RNP value for more than VSP: RNP_DEVIATION_TIME_THRESHOLD seconds), and
• The track is located within the RNP procedure coverage volume defined in the approach chart (typically final approach segment beyond FAF), and
• The track GNSS integrity status indicator is equal to AVAILABLE with horizontal protection level (HPL) less than the alert limit for the RNP value, and
• The flag RNP_VISUAL_OVERRIDE is set to false or the track has not reported visual conditions with the runway in sight to ATC.

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SKYRADAR-CPDLC-047: CPDLC Message Timeout and Reversion Alerts
SSS: ATCS-SSS-REQ-007470
Derived status partially
Derived rationale Controller-Pilot Data Link Communications timeout monitoring and voice reversion alerting for safety-critical clearances
Safety impact true
Verification method Test
Verification level RL
(SDS rules HLR_28) [cmats_snp] Partial derivation shall be avoided
SKYRADAR shall generate CPDLC message timeout alerts and trigger voice communication reversion for tracks if ALL of the following conditions are met:
• The CPDLC system status is equal to OPERATIONAL, and
• The track has an active CPDLC connection with logon status set to CONNECTED and data authority is CURRENT, and
• A CPDLC uplink message of type CLEARANCE or INSTRUCTION has been transmitted to the aircraft with message status equal to SENT, and
• The elapsed time since message transmission exceeds the response timeout threshold defined in CSP: CPDLC_RESPONSE_TIMEOUT (typically 60 seconds for clearances, 30 seconds for time-critical instructions), and
• No CPDLC downlink response (WILCO, UNABLE, STANDBY, or ROGER) has been received from the aircraft for the pending message, and
• The message criticality level is set to HIGH or SAFETY_CRITICAL requiring mandatory acknowledgment, and
• The flag CPDLC_VOICE_BACKUP_ENABLED is set to true and the controller position has active voice communication capability with frequency assigned to the track's current sector.

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SKYRADAR-DMAN-048: Departure Sequence Slot Compliance Monitoring
SSS: ATCS-SSS-REQ-007585
Derived status partially
Derived rationale Automated departure sequence monitoring and Target Off-Block Time (TOBT) compliance for flow management optimization
Safety impact false
Verification method Test
Verification level RL
(SDS rules HLR_31) [cmats_snp] Partial derivation shall be avoided
SKYRADAR shall generate departure sequence slot violation alerts for tracks if ALL of the following conditions are met:
• The DMAN (Departure Manager) system status is equal to OPERATIONAL, and
• The track has an assigned Target Take-Off Time (TTOT) with departure sequence position allocated by DMAN, and
• The track is in DEPARTURE_GROUND or DEPARTURE_TAXI flight phase with valid ground position data, and
• The calculated actual take-off time prediction exceeds the assigned TTOT by more than CSP: DMAN_SLOT_TOLERANCE (typically +/- 5 minutes), and
• The departure runway assigned to the track has active DMAN sequencing enabled with current departure demand exceeding VSP: DMAN_ACTIVATION_THRESHOLD (typically 8 departures per hour), and
• The track departure route or initial departure fix matches one of the DMAN managed flow constraint points defined in CSP: DMAN_REGULATED_ROUTES.