ID	Category	Test Case Description	Purpose	Test Environment (OTA/Cabled)	Status	Phase	Notes
		SAS - CBSD Interface Testing					
SAS-01	SAS	CBSD Registration - SAS authenticates CBSD and the connectivity is secure (TLS based)	Verify successful CBSD registration with SAS over the secure link	OTA	Passed	E2E	CBSD successfully authenticates/registers to SAS Server (TLS based) SAS Server:- Federated Reference :- eNodeB logs
SAS-02	SAS	CBSD SpectrumInquiry - CBSD successfully receives spectrumInquireyResponse from SAS	Verify successful spectrum inquiry and response on SAS interface	OTA	Passed	E2E	CBSD successfully sends spectrum Inquiry and receives response from SAS server (TLS based). SAS Server:- Federated Reference :- eNodeB logs
SAS-03	SAS	CBSD Grant - CBSD start transmission on granted channel and other attributes by SAS	Demonstrate that CBSD uses the granted channel along with other attributes as granted by SAS	OTA	Passed	E2E	CBSD successfully sends grant request and receives grant response from SAS Server (TLS based) and starts transmission on granted channel. SAS Server:- Federated Reference :- eNodeB logs
SAS-04	SAS	CBSD supports heartbeat procedure	Validate successful heartbeat procedure between CBSD and SAS	OTA	Passed	E2E	CBSD successfullyperforms heartbeat procedure after channel is granted based on heartbeat interval (TLS based). SAS Server:- Federated Reference :- eNodeB logs
SAS-05	SAS	CBSD Relinquishment - support for grant relinquishment procedure	Validate CBSD grant relinquishment procedure	OTA	Passed	E2E	CBSD successfully sends relinquishment request and receives response from SAS server (TLS based). SAS Server:- Federated Reference :- eNodeB logs
SAS-06	SAS	CBSD Deregistration - support for grant deregistration procedure	Validate CBSD grant deregistration procedure	OTA	Passed	E2E	CBSD successfully sends deregistration request and receives response from SAS server (TLS based) Reference :- eNodeB logs
SAS-07	SAS	Grant Renewal - CBSD send heartbeat Request with grant Renew set before the grant expires	Validate the grant renewal prior to expiry	OTA	Passed	E2E	CBSD successfully sends grantRenew in Heartbeat request before the grant expiry timer. SAS Server:- Federated Reference :- eNodeB logs
SAS-08	SAS	Grant Suspension - CBSD stop transmission when SAS send SUSPENDED_GRANT within 60 seconds after time transmitExpireTime expires	Verify that CBSD stops transmission when the SAS suspends the grant within specified time	OTA	Passed	E2E	CBSD stops transmission in few seconds after reaching transmit Expiry time while grant was suspended. SAS Server :- SpiderCloud SAS Simulator Reference :- eNodeB logs
SAS-09	SAS	Heartbeats following Grant Suspension - CBSD keep sending Heartbeats during the suspension	Verify that CBSD continue to sent heartbeat after grant suspension	OTA	Passed	E2E	After grant suspension from SAS, CBSD continues transmitting until transmit timer expires, sending heartbeats (one fourth of the regular heartbeat interval). SAS Server :- SpiderCloud SAS Simulator Reference :- eNodeB logs
SAS-10	SAS	Grant Resume - CBSD resume transmission when SAS clear the suspension	Verify that CBSD comes back into service when grant suspension is removed by SAS	OTA	Passed	E2E	CBSD continuous transmission until transmission expiry timer and after grant resume, the heartbeat interval is back to same as configured within grant response. SAS Server :- SpiderCloud SAS Simulator Reference :- eNodeB logs
SAS-11	SAS	Heartbeat Failure - CBSD stop transmission when link between device and SAS is broken	Verify that CBSD stops transmission when SAS does not respond to heartbeat message	OTA	Passed	E2E	CBSD stops transmission after reaching transmit expiry timer and eventually relinquishes and derigisters after Heartbeat failure attempts. SAS Server:- Federated Reference :- eNodeB logs
SAS-12	SAS	Self-Healing for SAS connection, CBSD recover automatically upon the abnormal conditions - Grant termination from SAS - Grant conflict from SAS - Requested spectrum is unavailable	Validate CBSD self recovery under the specified scenarios	OTA	Passed	E2E	CBSD does self-recovery by sending relinquishment and de-registration messages for following abnormal conditions from SAS : - Grant Termination :- SAS sends grant termination in heartbeat response to CBSD with response code of 500 and CBSD sends dergistration - Grant conflict :- SAS sends grant conflict message in grant response with response code of "401" and CBSD sends deregistration SAS Server:- Federated Reference :- eNodeB logs
		Basic B48 Tests					
PERF-01	RAN-Performance	Verify UE average attach time and success rate	Demonstrate attach performance	OTA	Passed	IODT	Average Attach time = 292.8ms, Attach success rate was 100% (10 iterations)
PERF-02	RAN-Performance	Paging latency and success rate	Demonstrate paging performance	OTA	Passed	IODT	Average Paging latency = 551.1ms, Paging success rate was 100% (10 iterations)

PERF-03	RAN-Performance	U-plane latency when Ping PDN with different ping sizes e.g. 32, 512, and 1518 bytes at cell center, middle and edge	Verify user plane latency under different RF conditions and packet size	OTA	Passed	IODT	Average Ping latency (ms) for 32 byte(CC/CM/CE) = 32.75/32.52/32.57ms Average Ping latency for 512 byte(CC/CM/CE) = 42.67/42.37/48.02ms Average Ping latency for 1518 byte(CC/CM/CE) = 49.92/55.34/45.02ms
PERF-04	RAN-Performance	UE DL TCP throughput at cell center	Check throughput at cell center	OTA	Passed	IODT	RF conditions:- UE at CC (RSRP reported by UE is ~ -65dBm) Traffic Duration:- 180 seconds Peak Throughput : 74.2M Average Throughput : 72.9M
PERF-05	RAN-Performance	UE DL TCP throughput at cell middle	Check throughput at cell middle	OTA	Passed	IODT	RF conditions:- UE at CM (RSRP reported by UE is ~ -95dBm) Traffic Duration:- 180 seconds Peak Throughput : 73.5M Average Throughput : 70.7M
PERF-06	RAN-Performance	UE DL TCP throughput at cell edge	Check throughput at cell edge	OTA	Passed	IODT	RF conditions:- UE at CE (RSRP reported by UE is ~ -112dBm) Traffic Duration:- 180 seconds Peak Throughput : 43.9M Average Throughput : 39.2M
PERF-07	RAN-Performance	UE UL TCP throughput at cell center	Check throughput at cell center	OTA	Passed	IODT	RF conditions:- UE at CC (RSRP reported by UE is ~ -65dBm) Traffic Duration:- 180 seconds Peak Throughput : 18.4M Average Throughput : 17.6M
PERF-08	RAN-Performance	UE UL TCP throughput at cell middle	Check throughput at cell middle	OTA	Passed	IODT	RF conditions:- UE at CM (RSRP reported by UE is ~ -95dBm) Traffic Duration:- 180 seconds Peak Throughput : 15.8M Average Throughput : 15.5M
PERF-09	RAN-Performance	UE UL TCP throughput at cell edge	Check throughput at cell edge	OTA	Passed	IODT	RF conditions:- UE at CE (RSRP reported by UE is ~ -112dBm) Traffic Duration:- 180 seconds Peak Throughput : 3.34M Average Throughput : 2.62M
PERF-10	RAN-Performance	UE DL UDP throughput at cell center	Check throughput at cell center	OTA	Passed	IODT	RF conditions:- UE at CC (RSRP reported by UE is ~ -65dBm) Traffic Duration:- 180 seconds Peak Throughput : 75.4M Average Throughput : 74.3M
PERF-11	RAN-Performance	UE DL UDP throughput at cell middle	Check throughput at cell middle	OTA	Passed	IODT	RF conditions:- UE at CM (RSRP reported by UE is ~ -95dBm) Traffic Duration:- 180 seconds Peak Throughput : 74.5M Average Throughput : 72.2M
PERF-12	RAN-Performance	UE DL UDP throughput at cell edge	Check throughput at cell edge	OTA	Passed	IODT	RF conditions:- UE at CE (RSRP reported by UE is ~ -95dBm) Traffic Duration:- 180 seconds Peak Throughput : 46M Average Throughput : 39.4M
PERF-13	RAN-Performance	UE UL UDP throughput at cell center	Check throughput at cell center	OTA	Passed	IODT	RF conditions:- UE at CC (RSRP reported by UE is ~ -65dBm) Traffic Duration:- 180 seconds Peak Throughput : 18.3M Average Throughput : 18.3M
PERF-14	RAN-Performance	UE UL UDP throughput at cell middle	Check throughput at cell middle	OTA	Passed	IODT	RF conditions:- UE at CM (RSRP reported by UE is ~ -95dBm) Traffic Duration:- 180 seconds Peak Throughput : 18.3M Average Throughput : 18.3M
PERF-15	RAN-Performance	UE UL UDP throughput cell edge	Check throughput at cell edge	OTA	Passed	IODT	RF conditions:- UE at CE (RSRP reported by UE is ~ -112dBm) Traffic Duration:- 180 seconds Peak Throughput : 2.57M Average Throughput : 2.18M
PERF-16	RAN-Performance	UE Bi-dir TCP throughput at cell center	Check throughput at cell center	OTA	Passed	E2E	RF conditions:- UE at CC (RSRP reported by UE is ~ -65dBm) Traffic Duration:- 180 seconds Peak Throughput (DL/UL): 73.2M/10.4M Average Throughput (DL/UL) : 71.1M/8.78M
PERF-17	RAN-Performance	UE Bi-dir UDP throughput at cell center	Check throughput at cell center	OTA	Passed	E2E	RF conditions:- UE at CC (RSRP reported by UE is ~ -65dBm) Traffic Duration:- 180 seconds Peak Throughput (DL/UL) : 75.4M/18.8M Average Throughput (DL/UL) : 73.8M/18.7M
PERF-18	RAN-Performance	Single UE TCP downlink peak throughput, with different DL/UL ratio (FC2) at cell center	Check throughput using FC2	OTA	Passed	IODT	RF conditions:- UE at CC (RSRP reported by UE is ~ -67dBm) Traffic Duration:- 180 seconds Peak Throughput : 103M Average Throughput : 102M

PERF-19	RAN-Performance	Single UE TCP uplink peak throughput, with different DL/UL ratio (FC2) at cell center	Check throughput using FC2	OTA	Passed	IODT	RF conditions:- UE at CC (RSRP reported by UE is ~ -67dBm) Traffic Duration:- 180 seconds Peak Throughput : 8.43M Average Throughput : 8.34M
PERF-20	RAN-Performance	Single UE UDP downlink peak throughput, with different DL/UL ratio (FC2) at cell center	Check throughput using FC2	OTA	Passed	IODT	RF conditions:- UE at CC (RSRP reported by UE is ~ -67dBm) Traffic Duration:- 180 seconds Peak Throughput : 105M Average Throughput : 104M
PERF-21	RAN-Performance	Single UE UDP uplink peak throughput, with different DL/UL ratio (FC2) at cell center	Check throughput using FC2	OTA	Passed	IODT	RF conditions:- UE at CC (RSRP reported by UE is ~ -67dBm) Traffic Duration:- 180 seconds Peak Throughput : 8.79M Average Throughput : 8.71M
PERF-22	RAN-Performance	Demonstrate use of 2x2 MIMO by CBSD using RRC logs (TM3 and rank indicator 2 in use)	Check CBSD uses TM3/RI2 under good conditions	OTA	Passed	IODT	Verified the RN uses TM3 mode and RI 2 from UE logs (RRC logs) and SN logs
PERF-23	RAN-Performance	Peak and average TCP DL Cell throughput with multiple UEs e.g. one UE each at cell center, middle and edge	Check aggregate cell throughput with multiple UE under different RF conditions	OTA	Passed	E2E	UE at CC (RSRP = -70dBm) :- 33.9M (Peak) / 23.9M (Avg) UE at CM (RSRP = -100dBm) :- 28.5M (Peak) / 21.9M (Avg) UE at CE (RSRP = -119dBm) :- 18M (Peak) / 8.71M (Avg) **Aggregate Cell Throughput :- 63.62M (Peak)/54.51M (Avg)**
PERF-24	RAN-Performance	Peak and average TCP UL Cell throughput with multiple UEs e.g. one UE each at cell center, middle and edge	Check aggregate cell throughput with multiple UE under different RF conditions	OTA	Passed	E2E	UE at CC (RSRP = -70dBm) :- 7.08M (Peak) / 6.1M (Avg) UE at CM (RSRP = -100dBm) :- 6.97M (Peak) / 6.1M (Avg) UE at CE (RSRP = -119dBm) :- 2.81M (Peak) / 1.88M (Avg) **Aggregate Cell Throughput :- 15.17M (Peak)/14.08M (Avg)**
PERF-25	RAN-Performance	Peak and average UDP DL Cell throughput with multiple UEs e.g. one UE each at cell center, middle and edge	Check aggregate cell throughput with multiple UE under different RF conditions	OTA	Passed	E2E	UE at CC (RSRP = -70dBm) :- 39.1M (Peak) / 25M (Avg) UE at CM (RSRP = -100dBm) :- 35.1M (Peak) / 24.5M (Avg) UE at CE (RSRP = -119dBm) :- 24M (Peak) / 8.38M (Avg) **Aggregate Cell Throughput :- 62.6M (Peak)/57.88M (Avg)**
PERF-26	RAN-Performance	Peak and average UDP UL Cell throughput with multiple UEs e.g. one UE each at cell center, middle and edge	Check aggregate cell throughput with multiple UE under different RF conditions	OTA	Passed	E2E	UE at CC (RSRP = -70dBm) :- 5.96M (Peak) / 5.83M (Avg) UE at CM (RSRP = -100dBm) :- 6.1M (Peak) / 5.51M (Avg) UE at CE (RSRP = -119dBm) :- 4.61 (Peak) / 4.17M (Avg) **Aggregate Cell Throughput :- 15.88M (Peak)/15.51M (Avg)**
PERF-27	RAN-Performance	CBSD allocates resources based on bearer type GBR versus non-GBR - multiple Ues with a mix of GBR/non-GBR bearers	Verify support for QoS under multiuser environment	OTA	Passed	E2E	
PERF-28	RAN-Performance	CBSD fairly share resources based on non-GBR identical QoS profile	Verify CBSD fairly share resources between users with similar QoS profile	OTA	Passed	E2E	Avg UE-1 (RSRP= -71dBm) = 35.7 Mbps Avg UE-2 (RSRP= -67dBm)= 37.8 Mbps **Aggregate Throughput = 73.5 Mbps**
PERF-29	RAN-Performance	Inter CBSD Handover Latency and Success Rate on same SN	Demonstrate Inter CBSD on same SN based HO performance	OTA	Passed	E2E	Average Handover latency = 63.9ms, Handover success rate was 100% (10 iterations)
PERF-30	RAN-Performance	AMPR Functionality test	Demonstrate AMPR performance on UE power control when UE is at CE	OTA	Passed	E2E	Verified UE logs :- A-MPR confiugration sent correctly in SIB2 to the UE with value 27 for band-48 based on 3GPP spec Rel 14. (SIB2 info :- "additionalSpectrumEmission 27").
		Coverage Tests					
COV-01	RAN-Coverage	Link curve - UL TCP throughput versus RSRP and mark RSRP for 256 kbps and 6 mbps UL on the curve	Verify throughput performance under changing RF conditions	OTA	Passed	E2E	Plot link curve for UL TCP traffic with RF conditions varying from RSRP between -65 and -140dBm RSRP for UE at 6 Mbps :- ~ -118dBm RSRP for UE at 256Kbps :- ~ - 137dBm (Reference :- eNodeB logs and UE Throughput vs RSRP graph)
COV-02	RAN-Coverage	Link curve - UL UDP throughput versus RSRP and mark RSRP for 256 kbps and 6 mbps UL on the curve	Verify throughput performance under changing RF conditions	OTA	Passed	E2E	Plot link curve for UL UDP traffic with RF conditions varying from RSRP between -85 and -140 dBm RSRP for UE at 6 Mbps :- ~ -127dBm RSRP for UE at 256Kbps :- ~ - 139dBm (Reference :- eNodeB logs and UE Throughput vs RSRP graph)
		RAN-Mobility					
MOB-01	RAN-Mobility	Inter CBSD (same SN) Intra-frequencyHandover	CBSD support for Inter-freq Handover on same SN	OTA	Passed	E2E	Verified from SN log – Event:A3 triggered and Intra-freq X1 Handover between source Cell and target Cell is successful. (Reference :- eNodeB logs)
MOB-02	RAN-Mobility	Inter CBSD (same SN) Inter-frequency Handover	CBSD support for Intra-freq Handover on same SN	OTA	Passed	E2E	Verified from SN log – Event:A5 triggered and Inter-freq X1 Handover between source Cell and target Cell is successful. (Reference :- eNodeB logs)
MOB-03	RAN-Mobility	Idle mode Intra-frequency cell reselection - UE camps on the best cell	IMCR procedure verification	OTA	Passed	E2E	Verified Intra-freq IMCR by UE releasing due to inactivity timer (set to small value) and triggering cell reselection on Target Cell doing periodic TAU. (Reference :- eNodeB and Wireshark logs)

MOB-04	RAN-Mobility	Idle mode Inter-frequency cell reselection - UE camps on the best cell	IMCR procedure verification	OTA	Passed	E2E	Verified Inter-freq IMCR by UE releasing due to inactivity timer (set to small value) and triggering cell reselection on Target Cell doing periodic TAU. (Reference :- eNodeB and Wireshark logs)
MOB-05	RAN-Mobility	Call admission control (CAC) by Allocation and Retention Priority (ARP) during handover, low priority user gets pre-empted on the target cell to accommodate high priority user.	Demonstrate the support for ARP during HO	OTA	Passed	E2E	Verified from SN logs:- Lower priority UE (UE-1) on the target cell is preempted when a higher priority UE (UE-2) does a Handover to the Target cell loaded with max users (Note:- System was configured with User limit of 1) (Reference:- eNodeB logs)
MOB-06	RAN-Mobility	Verify TAU (tracking area update) procedure	Verify support for TAU procedure	OTA	Passed	E2E	Verified from SN/Wireshark logs:- UE initiates TAU while performing Handover to target cell (different TACs configured on Source and Target Cell) (Reference:- eNodeB/Wireshark logs)
MOB-07	RAN-Mobility	Radio Link Failure when UE goes out of coverage and RRC Re-establishment	Verify that UE goes out of coverage and reestablishes on the target cell	OTA	Passed	E2E	UE performs RRC Re-establishment successfully on Target Cell while going out of coverage from Source Cell. (Reference :- eNodeB logs)
GAA Co-existence							
GAA-01	GAA	Multiple CBSDs on common channel assignment	Verify all the CBSDs can acquire same channel	OTA	Passed	E2E	Verified 3 CBSDs granted with same channel by SAS as configured on SN (i.e. EARFCN - 56540)
GAA-02	GAA	Multiple CBSDs on different channel assignment	Verify all the CBSDs can acquire different channels	OTA	Passed	E2E	Verified 3 CBSDs granted with different channel as configured on SN (i.e. CBSD-1:- EARFCN - 56540, CBSD-2 :- 56340, CBSD-3 :- 56640)
RAN-Access							
RA-01	RAN-Access	Spectrum Support - verify CBRS (B48) channel bandwidth (3550 to 3700 MHz) supported by CBSD	Verify CBSD supported bandwidth	OTA	Passed	IODT	8 to 10 channels
RA-02	RAN-Access	UE registration and Initial attach (IMSI based) and attach time	Successful UE authentication and IMSI based attach	OTA	Passed	IODT	UE registered to the N/W (IMSI based) Attach Time = 469 ms
RA-03	RAN-Access	UE registration and attach (GUTI based) and attach time	Successful UE authentication and GUTI based attach. Difference in time between IMSI and GUTI based attach.	OTA	Passed	IODT	UE registered to the N/W (GUTI based) Attach Time = 239 ms
RA-04	RAN-Access	UE initial attach failure for UE not in HSS (not provisioned)	Non-provisioned/un-authorized UE is not allowed on the system	OTA	Passed	IODT	UE attach failure due to EMM_CAUSE_11 (PLMN Not allowed)
RA-05	RAN-Access	Service Request procedure when the UE need data service, attach with data transfer	Validate basic connection set up with successful data transfer	OTA	Passed	IODT	UE goes through service request procedure after Paging the UE in IDLE state.
RA-06	RAN-Access	Quality of service (QoS) for GBR bearer - GBR bearer gets priority over non GBR. CBSD maintain guaranteed throughput for GBR bearer while lowering resource allocation to non-GBR bearer.	Validate QoS management based on bearer type	OTA	Passed	IODT	UE: QCOM MTP TDD Cell Config :- FC2/SS4 Scenario-1:- 3UEs (1 GBR and 2 non-GBR) UE1: GBR 55Mbps/5Mbps UE2 and UE3: Non-GBR Offered traffic:- 100Mbps/10Mbps on each UE Data received on UE1 = ~54.5Mbps/~4.8Mbps UE2 = ~22Mbps/~2Mbps UE3 = ~20Mbps/~2Mbps Scenario-2:- 3UE (2GBR and 1 non-GBR) UE1: GBR 50Mbps/4Mbps UE2: GBR 50Mbps/4Mbps UE3: Non-GBR Offered traffic:- 100Mbps/10Mbps on each UE Data received on UE1 = ~49.5Mbps/3.8Mbps UE2 = ~49.5Mbps/3.8Mbps UE3 = ~2Mbps/0.1Mbps
RA-07	RAN-Access	UE detach - UE initiated, all RAN/EPC resources are correctly released	Verify that on UE detach all end to end bearer are removed.	OTA	Passed	IODT	UE successfully detaches releasing all the resources correctly.
RA-08	RAN-Access	UE detach - MME initiated, all RAN/EPC resources are correctly released	Verify that on UE detach all end to end bearer are removed.	OTA	Passed	IODT	UE successfully detaches with all the resources released when detach is initiated from the MME

RA-09	RAN-Access	UE detach - HSS initiated, all RAN/EPC resources are correctly released	Verify that on UE detach all end to end bearer are removed.	OTA	Passed	IODT	UE successfully detaches with all the resources released when detach is initiated from the HSS
RA-10	RAN-Access	UE detach - PDN initiated, all RAN/EPC resources are correctly released	Verify that on UE detach all end to end bearer are removed.	OTA	Passed	IODT	UE successfully detaches with all the resources released when detach is PDN initiated
RA-11	RAN-Access	UE RRC Connected to RRC Idle mode transition due to user inactivity (RRC connection release due to inactivity timer expiry)	Verify that CBSD releases the radio bearer when the inactivity timer expires	OTA	Passed	IODT	UE transitions to RRC IDLE due to inactivity timer (i.e. UE Inactivity timer = 2 secs)
RA-12	RAN-Access	Demonstrate UE power control mechanism (TS 36.213, section 5.1) e.g. ability to configure SIB1 p_max, SIB2 powerRampingStep, preambleInitialReceivedTargetPower, preambleTransMax	Verify that CBSD parameters are be changed to control UE power	OTA	Passed	E2E	* SCW closed loop power control adjusts power of UEs dynamically. These attributes are not operator configurable. TPC commands are snet to UE to adjust UE's power (Reference:- eNodeB and UE logs)
RA-13	RAN-Access	Verify TAU (tracking area update) due to timer expiry (T3412)	Verify the TAU procedure is successful following T3412 timer expiry	OTA	Passed	IODT	UE did successful TAU after T3412 (30 secs) expiry.
RA-14	RAN-Access	Call admission control (CAC) by number of UEs per CBSD, limiting the number of connected users on a CBSD.	Demonstrate call admission control (CAC)	OTA	Passed	E2E	Allowed users per configuration was set to 1. 1st UE was attached successfully and 2nd UE was rejected due to Admission control failure (Reference :- eNodeB logs)
RA-15	RAN-Access	Call admission control (CAC) by number of UEs per cell, limited the number of users per cell in a multi-cell CBSD	Demonstrate call admission control (CAC)	OTA	Passed	E2E	Allowed users per configuration was set to 1. 1st UE was attached successfully on both the CBSDs and 2nd UE was rejected due to Admission control failure try to camp on both CBSDs (Reference :- eNodeB logs)
RA-16	RAN-Access	Call admission control (CAC) by Allocation and Retention Priority (ARP) during attach - in case of congestion high priority (ARP=1) are admitted by pre-empting a low priority user.	Demonstrate call admission control (CAC)	OTA	Passed	E2E	Low priority UE was pre-empted by high priority UE based on ARP. (Reference :- eNodeB logs)
RA-17	RAN-Access	CBSD availability - CBSD can stay operational and process traffic for extend period (24 hrs)	Validate CBSD operational stability	OTA	Passed	E2E	Validated CBSD stability by attaching UE with traffic for 24 hours. (Reference :- UE and SpiderNet logs)
RA-18	RAN-Access	Demonstrate CBSD load handling and maximum users supported	CBSD capacity and stability under high load	Cabled	Passed	E2E	Test with 128 UEs with UDP Bi-directional traffic (DL ~ 70 Mbps, UL ~ 8 Mbps) on single CBSD configured with TDD Frame config 2 (FC2) for 12+ hours (Note:- Test was performed using TM500)
		RAN-OAM					
OAM-01	RAN-OAM	Software upgrade - verify CBSD software upgrade/downgrade procedure using EMS for a single/multiple CBSDs	Demonstrate CBSD software upgrade and rollback procedure for single and multiple CBSDs.	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-02	RAN-OAM	FM: CBSD alarm reporting (report/clear)	Demonstrate alarm reporting function	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-03	RAN-OAM	PM: CBSD performance counter reporting for accessibility, retainability and performance measurement	Demonstrate performance reporting function	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-04	RAN-OAM	CM: Ability to display and update CBSD configuration	Demonstrate ability to view and update CBSD configuration	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-05	RAN-OAM	CM: Ability to display and update CBSD configuration globally (for a cluster or at a system level)	Demonstrate ability to make cluster/system wide changes	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-06	RAN-OAM	Ability to lock/unlock/reset cell/CBSD/backhaul ports etc	Verify ability to remotely manage CBSD	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-07	RAN-OAM	CBSD loss of backhaul (S1 interface) and recovery	Verify CBSD recovers from backhaul loss	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-08	RAN-OAM	CBSD loss of power and recovery	Demonstrate CBSD automatically recovers from power loss	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-09	RAN-OAM	CBSD replacement due to hardware failure	Demonstrate process to replace CBSD	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-10	RAN-OAM	Kill switch - ability to turn off transmission on all CBSDs	Verify the capability to turn transmission off on all operational CBSDs	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
OAM-11	RAN-OAM	Demonstrate availability of configuration and performance management data on NBI (north bound interface) for OSS integration	Demonstrate that EMS supports NBI for CM/FM/Inventory management	OTA	Passed	E2E	Reference :- SpiderNet screenshots/logs
		RAN-SON					

SON-01	RAN-SON	Demonstrate PnP (CBSD integration) process	Verify the end to end integration process to add new CBSDs		Passed	IODT	The small cells (CBSDs) will automatically connect to the Services Node and perform authentication, software download, and IPSec tunnel establishment. Additional aspects such as automatic PCI assignment, automatic power assignment and automatic Neighbor relations are planned
SON-02	RAN-SON	Initial power and channel assignment is based on SAS grant	Verify that operational CBSD uses the channel and power granted by SAS		Passed	IODT	Initial power and channel for the cell assigned successfully based on the grant procedure between the CBSD and SAS
SON-03	RAN-SON	Demonstrate availability of PCMD and call trace functionality for analytics and troubleshooting	Verify that CBSD/EMS supports call trace and PCMD data generation	OTA	Passed	E2E	Verified the CPER logs/reports for UE call trace generated by the SN. (Reference :- CPER logs)

Phase	Test Cases	Not Executed	Executed	Passed	Failed
IODT	34	0	34	34	0
E2E	51	0	51	51	0