परीक्षण अनुसूची और परीक्षण प्रक्रिया

सं: टीईसी xxxxx:2022 (Rev 1.0)

TEST SCHEDULE & TEST PROCEDURE

No.: TEC/ xxxxx:2022 (Rev 1.0)

सब्सक्राइबर मैनेजमेंट सिस्टम (एसएमएस)

**Subscriber Management System (SMS)**

ISO 9001:2015

दूरसंचार अभियांत्रिकी केंद्र

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# Foreword

Telecommunication Engineering Centre (TEC) is the technical arm of Department of Telecommunications (DOT), Government of India. Its activities include:

- Framing of TEC Standards for Generic Requirements for a Product/ Equipment, Standards for Interface Requirements for a Product/Equipment, Standards for Service Requirements & Standard document of TEC for Telecom Products and Services

- Formulation of Essential Requirements (ERs) under Mandatory Testing and Certification of Telecom Equipment (MTCTE)

- Field evaluation of Telecom Products and Systems

- Designation of Conformity Assessment Bodies (CABs)/Testing facilities

- Testing & Certification of Telecom products

- Adoption of Standards

- Support to DoT on technical/ technology issues

For the purpose of testing, four Regional Telecom Engineering Centers (RTECs) have been established which are located at New Delhi, Bangalore, Mumbai, and Kolkata.

# Abstract

This Test Guide enumerates detailed test schedule and test procedure for evaluating requirements of Subscriber Management System (SMS) as specified in Schedule-IX of Telecom Regulatory Authority of India (TRAI) Notification dated 11-06-2021.

# Contents

## A. History Sheet

| S. No. | TSTP No. | Equipment/Interface | Remarks |
|---|---|---|---|
| 1. | TEC xxxx:2022 (Rel. 1.0) | TSTP for Subscriber Management System (SMS) | Mar'2022 |

# B. Introduction

Considering the need for developing an overarching framework for standardization, certification and testing of various components of the addressable systems in television broadcasting i.e. Conditional Access System (CAS) and Subscriber Management System (SMS), Telecom Regulatory Authority of India (TRAI) notified "The Telecommunication (Broadcasting and Cable) Services Interconnection (Addressable Systems) (Third Amendment) Regulations, 2021" on 11-06-2021. These Regulations specify the mandatory as well as the desirable requirements of CAS and SMS (Schedule-IX); seek compliance by distributors of television channels by deploying such CAS and SMS which conform to these requirements; and ask such distributors to get their CAS and SMS tested and certified within the stipulated timelines.

TRAI further designated Telecommunication Engineering Centre (TEC) DoT as the Testing and Certification Agency for CAS and SMS used for Broadcasting and Cable TV services as per order dated 21-09-2021.

This Test Guide, prepared as per exhaustive consultations with stakeholders, enumerates detailed test schedule and test procedure for evaluating requirements of Subscriber Management System (SMS) as specified in Schedule-IX of Telecom Regulatory Authority of India (TRAI) Notification dated 11-06-2021

## C. General Information: *(to be filled by testing team)*

| S. No. | General Information | Details | |
|---|---|---|---|
| 1 | Name and Address of the Applicant | | |
| 2 | Date of Registration | | |
| 3 | Name and No. of Specifications against which the approval sought (Schedule-IX of TRAI Notification dated 11-06-2021) | | |
| 4 | Details of Equipment | | |
| | Type of Equipment | Model No. | Serial No. |
| (i) | | | |
| (ii) | | | |
| … | | | |
| … | | | |
| … | | | |
| 5 | Any other relevant Information:- | | |
| … | | | |
| … | | | |

## D. Testing Team: *(to be filled by testing team)*

| S No. | Name | Designation | Organization | Signature |
|---|---|---|---|---|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |

## E. List of the Test Instruments: *(to be filled by testing team)*

| S No. | Name of the test instrument | Make /Model *(to be filled by testing team)* | Validity of calibration *(to be filled by testing team)* |
|---|---|---|---|
| 1 | | | dd/mm/yyyy |
| 2 | | | |
| … | | | |
| … | | | |
| … | | | |
| … | | | |

## F. Equipment Configuration Offered: *(to be filled by testing team)*

### (a) <Equipment/product name> Configuration:

| S No. | Item | Details | Remarks |
|-------|------|---------|---------|
|       |      |         |         |
|       |      |         |         |

*Relevant information like Software version, Server details, ports, interfaces, size, etc. may be filled as applicable for the product.*

### (b) <Other equipment name> Configuration:

| S No. | Item | Details | Remarks |
|-------|------|---------|---------|
|       |      |         |         |
|       |      |         |         |
|       |      |         |         |

*Relevant information like Software version, Server details, ports, interfaces, size, etc. may be filled as applicable for the product.*

## G. Equipment/ System Manuals: *(to be filled by testing team)*

*Availability of Maintenance manuals, Installation manual, Repair manual, User Manual etc.***(Y/N)**

# H. Test Lab Requirements and General Test Setup:

## (a) Test Lab Requirement:

1. Server for the SMS installation (required only if SMS provider is not providing SMS server).
2. Backup SMS server (optional)
3. Standard CAS
4. CAS Server
5. STB compatible with the CAS
6. EMM generator,
7. ECM Generator
8. Live Channels Streams,
9. Multiplexer
10. Up convertors
11. SAS server
12. Networking Switches/ routers
13. Firewall.
14. NTO Document with NCF regulations
15. SMS Server with all the mentioned Interfaces
16. Application (simulated or actual DPO/ LCO Panels) allowing subscribers to choose their channels/ bouquets, etc. (Web interface/ Desktop app/ Mobile app).
17. NDA to be signed by SMS, CAS providers with Test Lab.

## (b) General Test Setup:

1. Set up of channels, CAS server, encryption of channels, integration of CAS with multiplexer and EMM generator, connect multiplexer to STB with the up convertor, connect up convertor to STB, connect the SMS to the SAS server which is connected to CAS.
2. Create users, Create Subscribers, Create a targeted set of Paired STBs and VCs
3. List of APIs provided by CAS and SMS
4. Prepare Data with all the live Command Activities that will hit CAS.
5. Have some wrong dummy data with fields 1b(i) till 1b(iv). (To test results of unsynchronized Data.)
6. Have some correct data with fields 1b(i) till 1b(iv) from CAS. (To test results of unsynchronized Data.)

# I. Clause-wise Test Procedure and Results Expected:

### a. Subscriber Management System Mandatory Requirements (as per Schedule-IX notified by TRAI on 11-06-2021)

| Clause No | Requirement | Test Procedure | Test Results Expected |
|---|---|---|---|
| 1 | **Synchronization of the data of both CAS and SMS:** | | |
| 1a | (a) CAS and SMS data shall be synchronized with each other. There shall be a facility to trace data mismatch between CAS and SMS on periodic basis, to be made available during audits. | Activate and deactivate some STBs/ Viewing Cards (VCs) from SMS. Get unsynchronised data; trigger the synchronisation process. Get synchronised data; trigger the synchronisation process. | 1. Feature to trigger the synchronisation process is available.<br><br>2. This feature generates mismatch reports for both negative (mismatch) and positive (match) cases. |
| 1b | (b) SMS shall have a provision to generate synchronization report, with date and time, with the minimum fields as listed below:<br><br>(i) STB No.<br>(ii) VC No. (Or in case of card-less CAS, chip ID or virtual card number of the STB)<br>(iii) Product Code pertaining to à-la-carte channels and bouquets available on the platform<br>(iv) Start Date of entitlement<br>(v) End Date of entitlement<br>(vi) Status of card (Active/ Inactive) | Same as for clause 1(a) above. | Synchronisation report as per the requirements of the clause is generated. |
| 1c | (c) The file output of CAS shall be processed by SMS system to compare and generate a 100% match or mismatch error report. | Take CAS data as a CSV/ Excel file. Input this file to SMS and generate a synchronisation report. Test it for both positive and negative scenarios. | 1. SMS can process file output of CAS.<br><br>2. SMS can generate 100% match or mismatch error report. |
| 2 | **Channel/ Bouquet management:**<br><br>SMS shall support the following essential requirements: | Create à-la-carte channels, broadcaster's bouquets , platform's own bouquets , their tariffs, | |

| 2a | (a) Create and manage all channels and bouquets along with the relevant details such as name, tariff, broadcaster, or DPO bouquet, etc. | Create different products with all the given parameters to test. Check the reports in SMS and see the changes made are reflected or not. | There should be no exception and the reports show all changes with date, time stamp and user id. |
|---|---|---|---|
| 2b | (b) Manage changes in the channel/ bouquet, as may be required, from time to time. | Make changes in the created bouquets, add/ delete channels from the list. Check the reports in SMS and see the changes made are reflected or not. | There should be no exception and the reports show all changes with date , time stamp and user id. |
| 2c | (c) Link the products' IDs for à-la-carte channels and bouquets (Single and Bulk) created in CAS with the product information being managed in SMS, for smooth working of SMS and CAS integration. | 1. Update the CAS product IDs in the test channels/ bouquets configured for clauses 2(a) and 2(b) above. 2. Use bulk update feature to update Product IDs on all the products. | The reports in SMS should reflect the changes made and there should be no exception. All changes should have date, time stamp and user id. |
| 2d | (d) Management of historical Data of Product name, i.e., Broadcasters (name), maximum retail price (MRP), distributor retail price (DRP). | Modify the details on different dates for same product. Include the TRAI NTO.x regulation of per channel rate and bouquet rate and content rate. Check each case with all combinations. Check the historical changes done on all the parameters like channels, pricing, bouquet, DRP, MRP. | The report should give the chorological changes done , with time and date stamp and user signatures at the time of changes. |
| 3 | **Network Capacity Fee (NCF) Policy Creation**: SMS shall support all Network Capacity Fee related requirements mandated by the applicable tariff order. | 1. Check the availability of the NCF parameters. 2. Add and delete a few channels in the NCF package, check the price change. 3. Check its implementation in Subscriber Billing. 4. Take Point of all the validations related to NCF calculation from TRAI NTO.x regulations. Check each point. | 1. Feature to manage NCF Policies with all its parameters is available. 2. The reports on NCF are as desired with all the parameters (the number of TV channels, name and the prices). 3. Resultant Billing Reports are as expected. |

| 4 | **Bill/ Invoice Generation**: SMS shall be capable of generating proper subscriber bill/ invoice with explicit details of NCF charges, Pay Channels charges (with clear itemized details of à-la-carte channel cost and bouquet costs), rental charges for STB (if any), other applicable charges, including Goods and Services Tax (GST). | Check previously raised invoices. Check if the billing is on per day basis. Generate invoices for the targeted subscribers for Prepaid, Post-paid and Advanced Paid Subscriptions. Also generate invoices with and without taxes, invoices with and without NCF. Check each component mentioned in the clause requirement. | SMS should generate proper subscriber bill/ invoice with explicit details as per clause requirements such as NCF fee, pay channel charges, itemised billing for the pay channels à-la-carte and bouquet, GST and any other charges. The invoice should show the start date and end date and the same should tally with the subscriber entitlement dates on the cards and end date in the SMS. |
|---|---|---|---|
| 5 | **Password Policy Creation for Users**: SMS shall have a defined password policy, with minimum length criteria and composition (upper and lower-case characters, numeric, alphabets or special characters), forced password changes or any other appropriate mechanisms or combinations thereof. | Password policy to be checked for: 1. minimum length criteria 2. composition - upper and lower-case characters 3. composition - numeric 4. composition - alphabets 5. composition - special characters 6. forced password changes Change password of an existing user with & without qualifying password policy criteria. | The password should meet all the policy requirements |
| 6 | **Management of Logs:** | | |
| 6a | (a) SMS shall have the facility to provide user detail logs with the ID of users on each login event. | 1. Keep a note of all the logins and logouts done by various users. 2. Fetch the Login Logout Report and verify it with the information noted. | 1. Verification should match 100%. 2. The logs cannot be deleted or modified. |
| 6b | (b) SMS shall have the provision of generating the user activity log report to enable tracking users' work history. It shall not be allowed to delete the records from the log. | 1. Keep a note of all the Activities done on SMS. 2. Fetch the Log Report and verify it with the information noted. 3. Scan the whole SMS for the feature of editing the logs. | 1. The reports should be able to give the user working history and changes done. 2. The logs cannot be deleted or modified. |
| 6c | (c) All logs shall be stamped with date and time and the system shall not allow | Access logs of the SMS and check that the logs are not editable by any process. | 1. All log reports should have time stamp, date stamp and user id with it. |

| | | | 2. There is no feature to modify, alter or delete the logs. |
| | | | 3. All the logs are exported in un-editable format. |
| 6d | (d) The logs shall be maintained for a period as specified in Schedule III or at least two audit cycles, whichever is later. | 1. Check the history of logs maintained in the SMS and check if they meet the requirement of Schedule III. | 1. Logs are as per schedule III. |
| | | | 2. Logs contain Date & Time Stamp with User-id. |
| | | 2. Take out random reports of the logs and verify the date, timestamp, user-id login. | 3. No way to modify the logs. |
| | | | 4. Delete or purge option, if any, is only for the logs older than 2 years or as described in Schedule III. |
| | | 3. Check if there is an option of auto delete. Change the SMS Server dates and perform activities and then verify if the data is auto deleted of 2yrs of period. | |
| 7 | **Channel subscription report:** SMS shall be able to provide the total counts of monthly subscribers of channels including both à la carte and bouquet subscriptions. | 1. Add and Modify the Subscription data and keep a note of all the modifications. | SMS should generate the channel subscription report. |
| | | 2. Fetch the reports (all combinations of à-la-carte, bouquet both of broadcaster and DPO) and compare the numbers derived from the above-noted data. | There should be no variance during comparison. |
| | | 3. Compare the SMS report with the CAS data. | |
| 8 | **SMS Database and tables:** | | |
| 8a | (a) There shall not be any active unique subscriber outside the database tables. | Check the database, does it exist on one server or multiple servers, does it has a backup server, how frequently data is synchronised between backup and main, is data stored in cloud; generate random reports of the active subscribers, de-active subscribers, blacklisted cards/ STB. | Check the random reports and there should not be any exception of any VC or STB missing in any data report of active/ deactivate subs, blacklisted cards or whitelisted cards. |
| 8b | (b) SMS shall not provide an option to split SMS database | Run the query on the SMS database to check if there is way to split the database, or | No such way is found to split the data to maintain it on the |

| | or for creation of more than one instance. | can the database be maintained in multiple servers, run the query through the SMS UI. Check through the SMS server if there are multiple databases or multiple tables.<br><br>*Note: The testing agency will check through the UI and SMS server if any database split has been enabled. However by having admin rights, whether the database is split later, may also be checked at actual deployed site or during regular audits.* | multiple tables/ databases/ servers. |
|---|---|---|---|
| 8c | (c) SMS shall have the provision to enable or disable channel (à-la-carte channel or bouquet of channels) selection by subscribers either through website or an application through interface provided by the distributor platform operator. | 1. Check if the SMS is capable of accepting inputs through the interface of the application (simulated or actual DPO/ LCO Panels) allowing subscribers to choose their channels/ bouquets, etc. (Web interface/ Desktop app/ Mobile app).<br><br>2. Login as a subscriber in the application and select à-la-carte channels and bouquets. Check if the selections are reflected in the SMS. | 1. The SMS should have provision to interface with the DPO/ LCO application/ web interface.<br><br>2. The changes done as subscriber from all the three modes, web interface, desktop app and mobile app should reflect in the SMS and also be in CAS and should be done instantaneously. If any delay, the same should be noted along with the exception. |
| 8d | (d) SMS shall be capable of capturing the following information required for audit or otherwise:<br><br>(i) Bouquet à-la-carte status change history<br>(ii) Bouquet composition change history<br>(iii) Change in status of connection (primary to secondary and vice versa) | 1. Make changes in test channels à-la-carte and Bouquet composition configured for clause 2(a) above.<br><br>2. Designate a set of STB as primary and few secondary, then change the sequence in the same STB.<br><br>3. Check the history reports maintained in the SMS for all the changes done as required for clauses 8d(i) to 8d(iii). | No historical data is missing in the history reports. |

| 9 | **Firewall Access:**<br><br>SMS shall be accessed through a Firewall. | Firewall of the SMS server OS may be enabled; or, SMS server may be placed behind external firewall. Check that access to SMS is restricted through VPN or a limited IP addresses and all other ports are closed.<br><br>*Note: The DPO might use the firewall of the SMS server OS or a perimeter firewall. Restricted access to SMS through firewall may also be checked at actual deployed site or during regular audits.* | SMS should be accessible only through Firewall. |
|---|---|---|---|
| 10 | **STB-VC pairing:**<br><br>STB and VC shall be paired from the SMS to ensure security of channel. | 1. On a STB that supports VC, pair STB-VC from the SMS. Activate channels on the STB/ VC. Check that the channels are available from STB.<br><br>2. Insert the activated VC in some other STB. Check if the channels are available from that STB.<br><br>3. Insert some other VC in the activated STB. Check if the channels are available from the STB.<br><br>4. Depair the STB-VC from SMS. Check if the channels are available from the STB. | 1. The SMS should perform pairing and depairing of STB and VC.<br><br>2. The channels should be activated on the paired STB-VC.<br><br>2. The channels should not be available when the STB or the VC are interchanged. |
| 11 | **SMS-STB addressability:**<br><br>The SMS shall be capable of individually addressing subscribers, for the purpose of generating the reports, on channel by channel and STB by STB basis. | Take the report of a few subscribers, it should be triggered with parameters like channel reports, STB reports i.e. details of channels active on the targeted STBs, and also details of STBs active for the targeted channels. Compare with the reports from CAS. | The SMS should generate channel-wise and STB-wise reports. These reports should tally with the reports from CAS. |

### b. Subscriber Management System Desirable Requirements (as per Schedule-IX notified by TRAI on 11-06-2021)

| Clause No | Requirement | Test Procedure | Test Results Expected |
|---|---|---|---|
| 1 | **Data Verification:** SMS should have the facility to carry out auto-reconciliation of channels/ à-la-carte and all bouquets with their respective ID created in SMS with CAS configuration, and the variance report should be available in the system with logs. | 1. Trigger Auto Reconciliation Option in SMS. 2. Do some direct entries in CAS to create a mismatch in SMS and CAS. 3. Check Reports for both Match and Mismatch of Data. | SMS should generate correct Mismatch and Match Reports. |
| 2 | **SMS Reports:** SMS should have a provision of generating the following reports pertaining to STB/ VC: | 1. Check the availability of each report for clauses from 2(a) to 2(g) 2. Prepare data for each report. 3. Generate each report and reconcile with CAS for clauses 2a, 2b, 2d, 2e, 2f and 2g. For the point 2c, reconcile with the stock ledger of store. | Feature available and generating reports for clauses from 2(a) to 2(g) as expected. |
| 2a | (a) White list of STB/ VC along with active/ inactive status | | |
| 2b | (b) Faulty STB/ VC - repairable and beyond repairable | | |
| 2c | (c) Warehouse fresh stock | | |
| 2d | (d) In stock at local cable operator (LCO) end | | |
| 2e | (e) Blacklist | | |
| 2f | (f) Deployed with activation status | | |
| 2g | (g) Testing/ demonstration STB/ VC with location | | |
| 3 | **Audit-related requirements:** SMS should have the capability to capture below-mentioned information that may be required for audit and otherwise: | | Resultant report is as desired. For 3(a) to 3(d). |
| 3a | **a. Subscriber related:** | | |
| 3a(i) | (i) Subscriber contact details change history | 1. Change the contact details of a subscriber on different dates. | |

| | | 2. Check the effect in the Subscriber Contact Details History Report. | |
|---|---|---|---|
| 3a(ii) | (ii) Connection count history | 1. Create and activate and deactivate some subscribers on different dates.<br><br>2. Check the connection count report is effected or is it showing only the current count.<br><br>3. If MSO has implemented multiple CAS, extract the report for each CAS date-wise. | |
| 3a(iii) | (iii) Transition of connection between Disconnected/Active/Temporary Disconnected | 1. Move the connection of one subscriber from one state to another (Active/ Temporary Disconnected/ Disconnected).<br><br>2. Check the report for its history with date. | |
| 3a(iv) | (iv) Subscription change history | 1. Change the subscription of Bouquet and à-la-carte of one connection on different dates.<br><br>2. Check the report which shows subscription history of the connection. | |
| 3b | **b. LCO related:** | | |
| 3b(i) | (i) LCO Contact details change history | 1. Change the contact details on different dates.<br><br>2. Check the report that shows the change history of the data. | |
| 3b(ii) | (ii) LCO and DPO sharing change history | 1. Change the Sharing policy on different dates.<br><br>2. Do a billing/ Renewal/ activation of the subscription. This activity should include the product on which the sharing was changed.<br><br>3. Check the report that shows the change history of the data. | |
| 3c | **c. Product (Bouquet/ à-la-carte channel) related:** | | |
| 3c(i) | (i) Broadcaster à-la-carte relation | 1. Change Broadcaster à-la-carte data on different dates. | |

| | | 2. Check the report that shows the change history of the data. | |
|---|---|---|---|
| 3c(ii) | (ii) Bouquet name change history | 1. Change bouquet name data on different dates.<br><br>2. Check the report that shows the change history of the data. | |
| 3c(iii) | (iii) À la carte name change history | 1. Change à-la-carte name data on different dates.<br><br>2. Check the report that shows the change history of the data. | |
| 3c(iv) | (iv) Bouquet à-la-carte channel rate change history | 1. Change bouquet à-la-carte channel rate data on different dates. Also check on renewal and subscription screens.<br><br>2. Check the report that shows the change history of the data. | |
| 3d | **d. STB/ Smartcard related:** | | |
| 3d(i) | (i) Change in location history | 1. Change location of a STB/ subscriber on different dates.<br><br>2. Check the report that shows the change history of the data. | |
| 3d(ii) | (ii) Change in status (Active/ Damaged/ Repaired) | 1. Change status of a STB/ subscriber on different dates.<br><br>2. Check the report that shows the change history of the data. | |
| 4 | **User Authentication:**<br><br>SMS should have the capability to authenticate its subscribers through registered mobile number (RMN) through one-time password (OTP) system. | Check that the SMS generates OTP during following activities:<br>1. Registration of Mobile number<br>2. Connection activation<br>3. Subscription Change<br><br>Completion of these activities will depend on the OTP verification. | 1. SMS generates OTP.<br><br>2. Activities mentioned in test procedure completed successfully with OTP and failed without OTP verification. |
| 5 | **Miscellaneous:**<br><br>SMS should have the provision to support the following miscellaneous requirements: | | |
| 5a | (a) List of à-la-carte channels and bouquets, digital headend (DHE) and Zone-wise: Provision to support/ manage Zone/ Sub-Headend-wise list | 1. Create digital headend (DHE) and Zone. | 1. Functionality is available.<br><br>2. The filter is working as expected. |

| | | | |
|---|---|---|---|
| | | of à-la-carte channels and bouquets, in sync with the list available in CAS. | 2. Mark the products that need to be visible under a specific DHE/ Zone.<br><br>3. Check if the products are available for use as per their respective DHE/ zone. | |
| 5b | (b) Revenue Sharing Between DPO and LCO: Provision to define and calculate DPO and LCO revenue share separately for distribution fee as well as for NCF, as per the agreement executed between them, with the option to maintain historical information can be very useful and is desirable. | 1. Define Revenue Sharing Between DPO and LCO for Bouquets.<br><br>2. Define Revenue Sharing Between DPO and LCO for NCF.<br><br>3. Do changes in the policies on different dates.<br><br>4. Generate Bills after each change to verify the effect of changes on its calculation.<br><br>5. Check the Detailed Sharing report of all the monthly transactions. | 1. Functionality is available.<br><br>2. All the said tests results were as expected. |
| 5c | (c) LCO invoicing with GST: Provision to generate invoicing under multiple GST registration numbers of LCO's and to comply with GST invoicing norms as applicable. | 1. Provision to generate GST Invoice for LCOs is available.<br><br>2. Verify the calculations and invoice format as per GST Norms. | Both tests ran as expected. |
| 5d | (d) Product (à-la-carte channels and bouquets)-wise Renewal and Reversal setting for the Subscriber Account: Provision to allow renewal of a product to a subscriber after the expiry date of a product, and provision to auto-calculate and refund the amount to a subscriber if he discontinues a product midterm. These requirements may be configurable on selective products, as required by the DPOs as per their business plans. | 1. Mark a product A to be Auto-Renewable.<br><br>2. Mark a product C to be Manually-Renewable.<br><br>3. Mark a product B to be Refundable on a pro-rata basis.<br><br>4. Mark a product D to be non-refundable.<br><br>5. Subscribe to products A and B on some connections.<br><br>6. Wait for the expiry date of products A and C.<br><br>7. Discontinue products B and D on any one of the connections before their expiry date. | 1. Product A will be auto renewed for the next cycle.<br><br>2. Product C will be unsubscribed.<br><br>3. There will be a refund entry for Product B based on the remaining days of expiry.<br><br>4. No refund will be there for product D. |

| | | | |
|---|---|---|---|
| 5e | (e) Product (à-la-carte channels and bouquets)-wise Reversal setting for LCO Account: Provision to calculate and refund the amount due to LCO, if he or the subscriber discontinues a product midterm. | All the tests mentioned for clause 5(d) above should be tested for LCO. | Test Results should be same as mentioned for clause 5(d) above. |
| 5f | (f) Product (à-la-carte channels and bouquets) Tenure-wise LCO and Subscriber Discount Scheme/Free Days Scheme: Provision to create Discount Scheme and Free-day scheme for LCO and Subscriber, based on the duration (Tenure) of the product subscription. | 1. Create Discount Policies based on Tenure for LCO.<br><br>2. Create Discount Policies based on Tenure for Subscriber.<br><br>3. Give subscriptions on one of the connection. | Subscriptions discount days should get added automatically. |
| 5g | (g) Calendar/Activity Scheduling: Provision to auto-schedule activities like STB activation/deactivation, à-la-carte channels and bouquets addition/removal, channel/bouquet composition modification, etc. | Check the provision to auto-schedule activities for future executions of:<br><br>1. Connection activation/ deactivation<br><br>2. à-la-carte channels and bouquets addition/ removal<br><br>3. channel/ bouquet composition modification | 1. Provision is available.<br><br>2. The scheduled activity got executed successfully on the given date. |
| 5h | (h) Bulk Channel/ Bouquet Management: Provision to perform bulk activity of à-la-carte channels and bouquets addition and removal on all or a designated group of STBs. | 1. Select all or a group of active STBs/VCs.<br><br>2. Select a channel and/ or a bouquet to add it to all the above selected STBs/ VCs.<br><br>3. Add the product as a bulk operation.<br><br>4. Similarly, select a channel and/ or a bouquet to remove it from all the above selected STBs/ VCs.<br><br>5. Remove the product as a bulk operation. | 1. In addition to the process of selecting one STB/ VC at a time and add or remove the product, the feature of bulk operation is available.<br><br>2. The result of the feature is as expected. |
| 5i | (i) Token-number-based reports: Provision to download multiple generated reports with the help of token number, such as audit reports with different intervals. | 1. Generate the report.<br><br>2. The report process gives a token number and goes in the background*.<br><br>3. Go to the centralized screen to check the status of the generated report. Download the report. | 1. Feature of downloading multiple generated reports with the help of token number is available.<br><br>2. The result of the feature is as expected. |

| | | *Check if the feature of background worker for Reports is available. There may be different ways to implement it. One of the implementation logic can be that the report is generated and uploaded to a centralized location and can be downloaded from there later. Its importance is when we have big data for a report e.g. audit reports. | |
|---|---|---|---|
| 5j | (j) <u>Third-Party Integration:</u> Provision to support integration with relevant third-party systems, such as, payment gateway integrations, interactive voice response (IVR) Integrations, SMS Gateway Integrations, etc. | Check whether the SMS has been integrated with:<br>(i) payment gateway<br>(ii) interactive voice response (IVR)<br>(iii) SMS Gateway<br>(iv) email Gateway<br>(v) any other third-party systems. | Record the details of third-party systems with which the SMS has been integrated. |
| 5k | (k) <u>Bill payment and reconciliation feature:</u> Provision for bill payment and reconciliation (in case a DPO is running service in post-paid mode). | Generate bills for various STBs. Enter payment details for a few STBs. Generate reports for outstanding bills and paid bills. | Verification of reports done successfully. |
| 5l | (l) <u>Generation of Reports:</u> Provision to generate the following reports for operational purpose: | 1. Prepare fresh data concerning the report to be tested for each of the clause from 5l(i) to 5l(iv).<br><br>2. Extract the corresponding report and verify it with the activity done and data prepared. | Verification of reports done successfully for clauses from 5l(i) to 5l(iv). |
| 5l(i) | (i) All, selective and single boxes' current status with their first-time activation date. | | |
| 5l(ii) | (ii) Total number of à-la-carte channels and bouquets and STB expiring detail till given future date on the dashboard, according to the permission. | | |
| 5l(iii) | (iii) Today's fresh activation count, de-activation count, re-activation count, à-la-carte channels and bouquets addition/ removal count on dashboard, according to the permission. | | |

| | | | |
|---|---|---|---|
| 5l(iv) | (iv) Total active and inactive subscriber's details with multiple criteria (network-wise, à-la-carte channels and bouquets-wise, state-city wise and broadcaster-wise). | | |
| 6 | **After-Sales Service Support**:<br><br>The required software and hardware support should be available to the distributor of the television channels' installations from the SMS vendor's support teams located in India. The support should be such as to ensure the SMS system with 99.99% uptime and availability. The systems should have sufficient provisions for backup systems to ensure quality of service and uptime: | 1. Check if SMS vendor's support teams are located in India. Record details of the local office address, contact details, names of team members, etc.<br><br>2. Check the Service agreements and SLAs with the service providers and if they ensure 99.99% uptime. | 1. Record details of the support teams located in India.<br><br>2. Agreements have provision of required uptime. |
| | Explanation 1: | | |
| 6(i) | (i) The requirement for hardware support should be applicable, only if the hardware is directly or indirectly provided by the SMS vendor. | Check if the hardware is directly or indirectly provided by the SMS vendor or is it from a third party supplier. Check if the support agreement is in place. | To be recorded. |
| 6(ii) | (ii) The actual service-level arrangement for the system support shall be governed by the mutual agreement/ SLA between the service provider, i.e., SMS vendor and the customer (DPO). | SLAs, if available, to be checked and details of service level guarantee to be recorded. | To be recorded. |
| 6(iii) | (iii) The signatories to the said agreement may mutually choose lenient/ stringent service-level guarantee. | SLAs, if available, to be checked and details of service level guarantee to be recorded. | To be recorded. |

## J. Summary of Test Results: *(to be filled by testing team)*

**GR/IR No.:** *Schedule-IX of TRAI Notification dated 11-06-2021*

**TSTP No.:** *TEC xxxx:2022 (Rev. 1.0)*

**Equipment name & Model No._____**

| Clause No. | Compliance (Complied/Not Complied/ Submitted/Not Submitted/Not Applicable) | Remarks / Test Report Annexure No. |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

**Date:**

**Place:**

**Signature & Name of TEC testing Officer /**

***\* Signature of Applicant / Authorized Signatory***

*\* Section J as given above is also to be submitted by the Applicant/ Authorised signatory as part of in-house test results alongwith <mark>Form-A</mark>. The Authorised signatory shall be the same as the one for <mark>Form 'A'</mark>.*

# K. Annexure *(to be filled by testing team)*

**(Please provide the clause wise test procedure for specific Lab tests)**

# L. List of Abbreviations

| Abbreviation | Expanded Form |
|---|---|
| CAS | Conditional Access System |
| CSV | Comma Separated Value |
| DHE | Digital Headend |
| DPO | Distribution Platform Operator |
| DRP | Distributor Retail Price |
| ECM | Entitlement Control Message |
| EMM | Entitlement Management Message |
| GST | Goods and Services Tax |
| IVR | Interactive Voice Response |
| LCO | Local Cable Operator |
| MRP | Maximum Retail Price |
| NCF | Network Capacity Fee |
| NDA | Non-Disclosure agreement |
| NTO | Non-Technical Objective |
| OTP | One-Time Password |
| RMN | Registered Mobile Number |
| SAS | Subscriber Authorization System |
| SLA | Service-Level Arrangement |
| SMS | Subscriber Management System |
| STB | Set Top Box |
| TEC | Telecommunication Engineering Centre |
| TRAI | Telecom Regulatory Authority of India |
| TSTP | Test Schedule & Test Procedure |