**ANEXA 12**

**LA ACORDUL STANDARD DE INTERCONECTARE AL TELEKOM ROMANIA MOBILE**

**SCENARIILE TELEKOM ROMANIA MOBILE PENTRU TESTELE**

**DE INTERCONECTARE**

#### Preambul:Partile agreaza ca pentru testele de comutatie si semnalizare aferente interconectarii intre Telekom Romania Mobile si Operator sunt aplicabile numai scenariile de teste prezentate in prezenta Anexa 12 la Acordul de Interconectare intre Telekom Romania Mobile si Operator.

#### Inaintea efectuarii testelor este imperativ ca fiecare Parte sa comunice celeilate Parti, prin intermediul postei electronice, numerele de telefon din reteaua proprie de la care se vor efectua aceste teste si sa stabileasca de comun acord cu cealalta Parte data/datele, ora de inceput si de sfarsit aferenta fiecarei date in parte, precum si perioada de timp, in zile consecutive sau cu indicarea exacta a datelor aferente efectuarii testelor. Fiecare Parte va efectua apeluri de test numai de la numerele alocate special pentru teste din reteaua proprie, comunicate expres, in scris si prealabil celeilate Parti, si in niciun caz de la alte numere de telefon.

#### Partile sunt de acord ca pentru efectuarea unor scenarii diferite de test, in afara celor mentionate in prezenta Anexa 12 la Acordul de Interconectare intre Telekom Romania Mobile si Operator, Partile vor agrea (prin intermediul postei electronice sau prin fax) noile scenarii de test, cu indicarea exacta a datei/datelor, orei de inceput si de sfarsit aferenta fiecarei date in parte, precum si perioada de timp in zile consecutive sau cu indicarea exacta a datelor aferente, daca nu sunt zile consecutive, afectata efecturarii acestor teste. De asemenea, este imperativ ca fiecare Parte sa comunice prin intermediul postei electronice numerele de telefon din reteaua proprie de la care va efectua testele. De asemenea si in acest caz, fiecare Parte va efectua apeluri de test numai de la numerele alocate special pentru teste din reteaua proprie, comunicate expres si in prealabil celeilalte Parti, si in niciun caz de la alte numere de telefon.

#### Inaintea lansarii comerciale a serviciilor aferente interconectarii intre Telekom Romania Mobile si Operator, precum si inaintea lansarii unor noi servicii pe care Partile agreaza sa le lanseze dupa lansarea comerciala a serviciilor aferente interconectarii intre Parti convenite la data semnarii Acordului de Interconectare dintre Telekom Romania Mobile si Operator, Partile vor deschide legaturile de interconectare pentru aceste servicii numai pe perioada testelor, urmand ca deschiderea comerciala a acestor servicii sa aiba loc la data stabilita in scrisoarea de lansare comerciala care va fi semnata de catre ambele Parti.

#### Partile inteleg si sunt de acord ca va fi exceptata de la tarifare si implicit nu va fi facturata contravaloarea traficului aferent serviciilor de interconectare realizat de catre Parti, inainte de lansarea comerciala a respectivelor servicii de interconectare, in scopul efectuarii testelor agreate in prealabil de Parti conform prevederilor prezentei Anexe 12 la Acordul de Interconectare intre Telekom Romania Mobile si Operator.

Partile agreeaza ca traficul efectuat de catre Parti pentru eventuale teste suplimentare, ce vor fi realizate numai cu acordul prealabil al ambelor Parti si cu respectarea intocmai a procedurii aferente testelor descrisa mai sus, in conditiile in care sunt efectuate pentru un serviciu de interconectare deja lansat comercial intre Parti, va fi tarifat prin includerea contravalorii acestuia in factura lunara a serviciilor de interconectare intre Parti.

#### In scopul evitarii oricarui dubiu, in cazul nerespectarii (i) scenariilor de test, a (ii) perioadei, a intervalului orar ori a datei/datelor afectate testelor, astfel cum acestea au fost agreate in prealabil de Parti, sau (iii) in cazul in care traficul aferent scenariilor de test este originat de la (a) alte numere de telefon decat cele din reteaua Partii care efectueaza testele si/sau (b) terminat la alte numere de telefon decat cele din reteaua celeilalte Parti si/sau (c) numere de telefon necomunicate pentru teste conform procedurii mentionate mai sus in prezenta Anexa 12, respectivul trafic nu va fi in nici un caz considerat drept trafic efectuat pentru testare. In consecinta, Partea in a carei retea a fost terminat un asemenea trafic este indreptatita sa tarifeze celeilalte Parti contravaloarea acestui trafic, in conformitate cu tarifele agreate in prezentul Acord de Interconectare dintre Telekom Romania Mobile si Operator.

***Data:***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Sub. No. Telekom Romania Mobile – TKRM1:***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Sub. No. Operator – OPR1:***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Sub. No. Telekom Romania Mobile – TKRM2:***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Sub. No. Operator - OPR2:***

***\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***

***Pentru respectarea semnificatiei depline a termenilor tehnici a fost pastrata denumirea originala a scenariilor de test, in limba engleza.***

***A. Teste aferente interconectarii la nivel TDM***

***1.Testele de comutatie (vezi Nota):***

|  |  |  |
| --- | --- | --- |
| TEST ITEMS | **PASS/ FAIL** | **COMMENTS** |
| Basic Call | | |
| Make a call from TKRM1 to OPR1.  Verify speech connection and disconnect the call. |  |  |
| Make a call from OPR1 to TKRM1.  Verify speech connection and disconnect the call. |  |  |
| Call Forwarding to other OPERATOR (OPR) | | |
| MS has Call Forward unconditional (CFU) |  |  |
| Give TKRM1 Call Forwarding service.  Activate Call Forwarding for TKRM1, CFU to OPR1.  Make a call from TKRM2 to TKRM1. The call is forwarded to OPR1.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM1. |  |  |
| Give OPR1 Call Forwarding service.  Activate Call Forwarding for OPR1, CFU to TKRM1.  Make a call from TKRM2 to OPR1. The call is forwarded to TKRM1.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR1. |  |  |
| Give TKRM1 Call Forwarding service.  Activate Call Forwarding for TKRM1, CFU to OPR1.  Make a call from OPR2 to TKRM1. The call is forwarded to OPR1.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM1. |  |  |
| Give OPR1 Call Forwarding service.  Activate Call Forwarding for OPR1, CFU to TKRM1.  Make a call from OPR2 to OPR1. The call is forwarded to TKRM1.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR1. |  |  |
| MS has Call Forward Conditional | | |
| MS has Call Forward on no reply (CFNRY) | | |
| Give TKRM1 Call Forwarding service.  Activate Call Forwarding for TKRM1, CFNRYto OPR1.  Make a call from TKRM2 to TKRM1. The call is forwarded to OPR1.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM1. |  |  |
| Give OPR1 Call Forwarding service.  Activate Call Forwarding for OPR1, CFNRY to TKRM1.  Make a call from TKRM2 to OPR1. The call is forwarded to TKRM1.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR1. |  |  |
| Give TKRM1 Call Forwarding service.  Activate Call Forwarding for TKRM1, CFNRY to OPR1.  Make a call from OPR2 to TKRM1. The call is forwarded to OPR1.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM1. |  |  |
| Give OPR1 Call Forwarding service.  Activate Call Forwarding for OPR1, CFNRY to TKRM1.  Make a call from OPR2 to OPR1. The call is forwarded to TKRM1.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR1. |  |  |
| MS has Call Forward on busy (CFB) | | |
| Give TKRM1 Call Forwarding service.  Activate Call Forwarding for TKRM1, CFB to OPR1.  Make a call from TKRM2 to TKRM1. The call is forwarded to OPR1.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM1. |  |  |
| Give OPR1 Call Forwarding service.  Activate Call Forwarding for OPR1, CFB to TKRM1.  Make a call from TKRM2 to OPR1. The call is forwarded to TKRM1.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR1. |  |  |
| Give TKRM1 Call Forwarding service.  Activate Call Forwarding for TKRM1, CFB to OPR1.  Make a call from OPR2 to TKRM1. The call is forwarded to OPR1.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM1. |  |  |
| Give OPR1 Call Forwarding service.  Activate Call Forwarding for OPR1, CFB to TKRM1.  Make a call from OPR2 to OPR1. The call is forwarded to TKRM1.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR1. |  |  |
| MS has Call Forward for „ATTACH” mobile | | |
| Give TKRM1 Call Forwarding service.  Activate Call Forwarding for TKRM1 to OPR1.  Make a call from TKRM2 to TKRM1. The call is forwarded to OPR1.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM1. |  |  |
| Give OPR1 Call Forwarding service.  Activate Call Forwarding for OPR1 to TKRM1.  Make a call from TKRM2 to OPR1. The call is forwarded to TKRM1.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR1. |  |  |
| MS has Call Forward for „DETACH” mobile | | |
| Give TKRM1 Call Forwarding service.  Activate Call Forwarding for TKRM1 to OPR1.  Make a call from TKRM2 to TKRM1. The call is forwarded to OPR1.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM1. |  |  |
| Give OPR1 Call Forwarding service.  Activate Call Forwarding for OPR1 to TKRM1.  Make a call from TKRM2 to OPR1. The call is forwarded to TKRM1.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR1. |  |  |
| MS has Multiple Unconditional Call Forwarding | | |
| Call Forwarded for two times | | |
| Give OPR1 Call Forwarding service.  Give TKRM1 Call Forwarding service.  Activate Call Forwarding for OPR1 to TKRM1.  Activate Call Forwarding for TKRM1 to OPR2.  Make a call from TKRM2 to OPR1. The call is forwarded to TKRM1 and after that to OPR2.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR1.  Remove call forwarding service for TKRM1. |  |  |
| Give TKRM1 Call Forwarding service.  Give OPR1 Call Forwarding service.  Activate Call Forwarding for TKRM1 to OPR1.  Activate Call Forwarding for OPR1 to TKRM2.  Make a call from OPR2 to TKRM1. The call is forwarded to OPR1 and after that to TKRM2.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM1.  Remove call forwarding service for OPR1. |  |  |
| Call Forwarded for two times on the first number | | |
| Give OPR2 Call Forwarding service.  Give TKRM1 Call Forwarding service.  Activate Call Forwarding for OPR2 to TKRM1.  Activate Call Forwarding for TKRM1 to OPR1.  Make a call from OPR1 to OPR2. The call is forwarded to TKRM1 and after that to OPR1.  Verify speech connection and disconnect the call.  Remove call forwarding service for OPR2.  Remove call forwarding service for TKRM1. |  |  |
| Give TKRM2 Call Forwarding service.  Give OPR1 Call Forwarding service.  Activate Call Forwarding for TKRM2 to OPR1.  Activate Call Forwarding for OPR1 to TKRM1.  . The call is forwarded to OPR1 and after that to TKRM1.  Verify speech connection and disconnect the call.  Remove call forwarding service for TKRM2.  Remove call forwarding service for OPR1. |  |  |
| Calling a subscriber with CBIC (Call Barring Incoming Call) | | |
| Provide CBIC to TKRM1.  Make a call from OPR1 to TKRM1.  Verify that the service is active.  Remove CBIC for TKRM1. |  |  |
| Provide CBIC to OPR1.  Make a call from TKRM1 to OPR1.  Verify that the service is active.  Remove CBIC for OPR1. |  |  |
| Call Forwarding to VMS | | |
| MS has Call Forward unconditional (CFU) to VMS | | |
| Provide CFU to TKRM1.  Give TKRM1 SMS subscription.  TKRM1 activates the CFU services by MS procedures.  Verify that the service is active.  OPR1 sets up a call to TKRM1, OPR1 is redirected to TKRM1's voice mailbox, OPR1 leaves a message.  The service center will send an SMS message to TKRM1 telling that he has received voice mail.  Remove CFU from TKRM1. |  |  |
| MS has Call Forward on no reply (CFNRY) to VMS | | |
| Provide CFNRY to TKRM1.  TKRM1 activates the CFNRY services by MS procedures.  Verify that the service is active.  OPR1 sets up a call to TKRM1, TKRM1 does not answer the call, OPR1 is redirected to TKRM1's voice mailbox, OPR1 leaves a message.  The service center will send an SMS message to TKRM1 telling that he has received voice mail.  Remove CFNRY from TKRM1. |  |  |
| MS has Call Forward on busy (CFB) to VMS | | |
| Provide CFB to TKRM1.  TKRM1 activates the CFB services by MS procedures.  Verify that the service is active.  Set up a call between TKRM1 and TKRM2, verify speech connection.  OPR1 sets up a call to TKRM1, OPR1 is redirected to TKRM1 voice mailbox, OPR1 leaves a message.  Disconnect the call between TKRM1 and TKRM2.  The service center will send an SMS message to TKRM1 telling that he has received voice mail.  Remove CFB from TKRM1. |  |  |
| Call Forward on not reachable (CFNR) to VMS | | |
| Provide CFNRC to TKRM1.  TKRM1 activates the CFNRC services by MS procedures.  Verify that the service is active.  Switch off TKRM1.  OPR1 sets up a call to TKRM1, since TKRM1 is not reachable, OPR1 is forwarded to TKRM1 voice mailbox, OPR1 leaves a message.  Switch on TKRM1.  The service center will send an SMS message to TKRM1 telling that he has received voice mail.  Remove CFNRC from TKRM1. |  |  |
| SMS test | | |
| SMS MT/MO: TKRM1 -> OPR1.  Check that the MSs receives the correct message. |  |  |
| Fax test | | |
| Make a fax call from TKRM1 to OPR1.  Make a fax call from OPR1 to TKRM1.  Check that the MSs receives the correct fax call. |  |  |
| Data test | | |
| Make a data call from TKRM1 to OPR1.  Make a data call from OPR1 to TKRM1.  Check that the MSs receives the correct data call. |  |  |

Nota: *Testele de comutatie* sunt teste ce permit: verificarea conexiunii intre operatori, verificarea calitatii convorbirii precum si verificarea rutarii. De asemenea aceste teste sunt necesare pentru verificarea taxarii intre operatori, fiind teste agreate de ambele parti.

*Testele de comutatie* nu sunt reglementate de catre ITU-T insa ele au corespondenta in *Tetele de semnalizare* (serviciile suplimentare SS7), teste ce sunt conforme cu:  **White Book 1993** (Recomandarile ITU-T Q.731, Q.732, Q.733 si Q.737).

***2.Testele de semnalizare:***

**Level 2 - Signaling link tests (Q.781)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test number** | **Test case** | **Required** | **Remarks** |
|  |  |  |  |
| **1** | **Link status control** |  |  |
| 1.1 | Initialisation (Power-up) | X |  |
| 1.2 | Timer 2 | X |  |
| 1.5 | Normal alignment - correct procedure (FISU) | X |  |
| 1.19 | Set emergency while in “not aligned state“ | X |  |
| 1.21 | Both ends set emergency | X |  |
| 1.25 | Deactivation during initial alignment | X |  |
| 1.29 | Deactivation during link in service | X |  |
| 1.32 | Deactivation during the proving period | X |  |
| **3** | **Transmission failure** |  |  |
| 3.5 | Link in service (break Tx path) | X |  |
| **8** | **Transmission and reception control (Basic)** |  |  |
| 8.1 | MSU transmission and reception | X |  |

## 

**Level 3 - Signaling network management tests (Q.782)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Test number** | **Test case** | **Required** | **Remarks** |
|  |  |  |  |
| **1** | **Signaling link management** |  |  |
| 1.1 | First signaling link activation | X |  |
| 1.2 | Signaling linkset deactivation | X |  |
| 1.3 | Signalling linkset activation | X | 2 links are required |
| **2** | **Signaling message handling** |  |  |
| 2.4 | Load sharing within a linkset |  |  |
| 2.4.1 | All links available | X | 2 links are required |
| 2.5 | Load sharing between linksets |  |  |
| 2.5.1 | Between two linksets | X | 2 linksets are required |
| **3** | **Changeover** |  |  |
| 3.1 | Changeover initiated at one side of a linkset (COO <–> COA) | X | 2 links are required |
| **4** | **Changeback** |  |  |
| 4.1 | Changeback within a linkset | X | 2 links are required |
| **7** | **Management inhibiting** |  |  |
| 7.1.1 | Inhibition of a link - Available link | X | 2 links are required |
| 7.1.2 | Inhibition of a link - Unavailable link | X | 2 links are required |
| **12** | **Signaling link tests** |  |  |
| 12.1 | After activation of a link | X | 2 links are required |

**Level 4 - ISUP compatibility tests (Q.784.1)**

| **Test number** | **Test case** | **Required** | **Remarks** |
| --- | --- | --- | --- |
|  |  |  |  |
| **1.** | **Circuit supervision and signaling supervision** |  |  |
| 1.2 | Reset of circuits |  |  |
| 1.2.1 | RSC received on an idle circuit | X |  |
| 1.2.2 | RSC sent on an idle circuit | X |  |
| 1.2.3 | RSC received on a locally blocked circuit | X |  |
| 1.2.4 | RSC received on remotely blocked circuit | X |  |
| 1.2.5 | Circuit group reset received | X |  |
| 1.2.6 | Circuit group reset sent | X |  |
| 1.2.7 | Circuit group reset received on remotely blocked circuits | X |  |
| 1.3 | Blocking of circuits |  |  |
| 1.3.1 | Circuit group blocking/unblocking |  |  |
| 1.3.1.1 | CGB and CGU received | X |  |
| 1.3.1.2 | CGB and CGU sent | X |  |
| 1.3.2 | Circuit blocking/unblocking |  |  |
| 1.3.2.1 | BLO received | X |  |
| 1.3.2.2 | BLO sent | X |  |
| 1.3.2.3 | Blocking from both ends; removal of blocking from one end | X |  |
| **2.** | **Normal call setup – ordinary speech calls** |  |  |
| 2.1 | Both way circuit selection |  |  |
| 2.1.1 | IAM sent by controlling SP | X |  |
| 2.2 | Called address sending |  |  |
| 2.2.1 | En bloc operation | X |  |
| 2.3 | Successful call setup |  |  |
| 2.3.1 | Ordinary call (with various indications in ACM) | X |  |
| 2.3.2 | Ordinary call (with ACM, CPG and ANM) | X |  |
| 2.3.5 | Blocking and unblocking during a call (initiated) | X |  |
| 2.3.6 | Blocking and unblocking during a call (received) | X |  |
| **3.** | **Normal call release** |  |  |
| 3.1 | Calling party clears before address complete | X |  |
| 3.2 | Calling party clears before answer | X |  |
| 3.3 | Calling party clears after answer | X |  |
| 3.4 | Called party clears after answer | X |  |
| 3.6 | Suspend and resume initiated by a calling party | X |  |
| 3.7 | Suspend and resume initiated by a called party | X |  |
| **4.** | **Unsuccessful call setup** |  |  |
| 4.1 | Validate a set of known causes for release  User busy (17)  No user responding (18)  No circuit available (34) | X |  |
| **5.** | **Abnormal situations during a call** |  |  |
| 5.2 | Timers |  |  |
| 5.2.2 | T9: waiting for ANM | X |  |

Level 4 - User-network-interface to user-network-interface compatibility test specifications for ISDN, non-ISDN and undetermined accesses interworking over international ISUP (Q.788)

|  |  |  |  |
| --- | --- | --- | --- |
| **Test number** | **Test case** | **Required** | **Remarks** |
| **1** | ISUP/ISDN Basic Call Control |  |  |
| 1.1 | Successful call set-up |  |  |
| 1.1.1 | Basic Call set-up (BC) | X |  |
| 1.2 | Normal call release |  |  |
| 1.2.1 | Calling party clears before answer | X |  |
| 1.2.2 | Calling party clears after answer | X |  |
| 1.2.3 | Called party clears after answer | X |  |
| 1.3 | Unsuccessful call set-up |  |  |
| 1.3.1 | All circuits busy at the destination network | X |  |
| 1.3.2 | Dialling of an unallocated number | X |  |
| 1.3.4 | Calling to a busy subscriber | X |  |
| 1.3.5 | Address incomplete | X |  |
| 1.4 | Abnormal situation during call |  |  |
| 1.4.2 | No answer from the called party (T9/Q.764 expiration) | X |  |
| **2** | ISUP/ISDN Call Control with supplementary services |  |  |
| 2.1 Calling Line Identification (CLI) | | | |
| 2.1.1 | CLIP – network provided, without calling party subaddress | X |  |
| 2.1.3 | CLIP – user provided, verified and passed | X |  |
| 2.1.5 | CLIR – network provided, without calling party subaddress | X |  |
| 2.1.7 | CLIR – user provided, verified and passed | X |  |
| 2.1.8 | CLIR – network provided, not verified |  |  |
| 2.6 Call Forwarding Busy (CFB) | | | |
| 2.6.1 | Call Forwarding Busy (network determined) – full notification |  |  |
| 2.6.2 | Call Forwarding Busy (network determined) – no notification |  |  |
| 2.6.3 | Call Forwarding Busy (user determined) – full notification |  |  |
| 2.6.4 | Call Forwarding Busy (user determined) – Unsuccessful |  |  |
| 2.7 Call Forwarding No Reply (CFNR) | | | |
| 2.7.1 | Call Forwarding No Reply (option A, late release) – full notification |  |  |
| 2.7.2 | Call Forwarding No Reply (option A, late release) – no notification |  |  |
| 2.7.3 | Call Forwarding No Reply (option B, immediate release) – full notification |  |  |
| 2.7.4 | Call Forwarding No Reply (option A, late release) – Unsuccessful |  |  |
| 2.7.5 | Call Forwarding No Reply (option B, immediate release) – Unsuccessful |  |  |
| 2.8 Call Forwarding Unconditional (CFU) | | | |
| 2.8.1 | Call Forwarding Unconditional – Successful – full notification |  |  |
| 2.8.2 | Call Forwarding Unconditional – Successful – no notification |  |  |
| 2.8.3 | Call Forwarding Unconditional – Unsuccessful |  |  |
| 2.10 Call Waiting (CW) | | | |
| 2.10.1 | Call Waiting successful |  |  |
| 2.10.2 | Call Waiting rejection |  |  |
| 2.10.3 | Call Waiting ignored |  |  |
| 2.11 Call Hold (HOLD) | | | |
| 2.11.1 | Hold and Retrieve during waiting for ANM |  |  |
| 2.11.2 | Hold call and clear before Retrieve during waiting for ANM |  |  |
| 2.11.3 | Hold and Retrieve during active phase |  |  |
| 2.11.4 | Hold during active phase; served user clears call during held state |  |  |
| 2.11.5 | Hold during active phase; non-served user clears call during held state |  |  |
| 2.13 Conference Calling (CONF) | | | |
| 2.13.1 | Establishment of a conference and termination of the conference |  |  |
| 2.13.2 | Isolation, Reattachment and Disconnection of one party of the conference |  |  |
| 2.13.3 | Splitting and Adding of a party |  |  |
| 2.13.4 | Floating of a conference (explicit request) |  |  |
| 2.13.5 | Call clearing by served user when floating is allowed |  |  |

The test cases are described in the ITU-T Recommendations Q.781, Q.782, Q.784.1 and Q.788.

***B. Teste aferente interconectarii la nivel IP***

***1.Testele de conectivitateTestarea interfetelor de 1Gbps si 10Gbps***

* **Teste nivel fizic**:

Prioritar testarii interfetelor si comunicarii intre echipamantele partenerilor se va seta viteza interfetei la 1Gbps ( respectiv 10Gbps), modul duplex si se vor verifica nivelurile de semnal RX si TX sa se incadreze in plaja specificata de standardul de interfata ales.

* **Teste nivel Ethernet**:

Se va verifica ca in ambele capete ale linkului dintre parteneri, interfata sa fie ridicata atat la nivel fizic cat si la nivel Ethernet.

* **Teste nivel IP:**

Se va testa conectivitatea Ipv4 folsosind protocolul ICMP.

Conectivitatea se verifica cu utilitarul PING. Se trimit 100 pachete ICMP cu adresa IPv4 sursa a POI-ului Telekom Romania Mobile si se asteapta raspunsul de la echipamentul Operatorului/Beneficiarului. Utilitarul PING se va rula intre adresele IP ale Telekom Romania Mobile si cele ale Operatorului, atat pentru cele de semanlizare (SIP) cat si pentru cele de voce (RTP). In acest fel se verifica cele doua cai de comunicatie intre Telekom Romania Mobile si Operator si se stabileste daca aceste legaturi sunt conforme cu cerintele minime pentru oferirea de servicii de voce si fax peste o conexiune IP.

Se vor folosi pachete avand dimensiunea maxima conform MTU agreat.

De asemenea, se vor testa parametrii de calitate ai conexiunii ( Delay, jitter si pachet Loss).

Se verifica ca nu sunt pierderi de pachete pe interfata cu partenerul.

Daca linkul direct intre parteneri se va configura folosind pachete de tip 802.1Q sau daca se folosesc mai multe echipamente in cadrul aceluiasi PoI ( ex: media, semanlizare) se vor reface aceste teste pentru fiecare VLAN sau combinatie sursa-destinatie.

Valorile obtinute trebuie sa se incadreze in urmatoarele limite pentru a permite furnizarea de servicii de voce si fax pe support IP:

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Good** | **Average** | **Poor** |
| Packet loss ratio | 0.01% | 0.1% | 5% |
| Delay (round-trip delay) | 5 ms | 50 ms | 200 ms |
| Jitter | 1 ms | 10 ms | 40 ms |

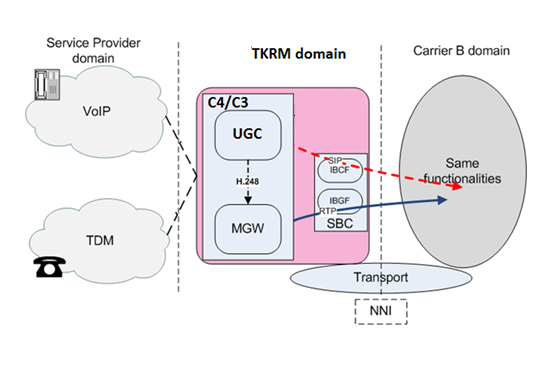
**Packet loss ratio:** reprezinta raportul intre numarul de pachete PING trimise si cel receptionat.

**Delay (round-trip delay):** Intarzierea, reprezinta timpul scurs de la transmiterea pachetului PING si pana la primirea raspunsului de la Operatorul cu care se realizeaza interconectarea.

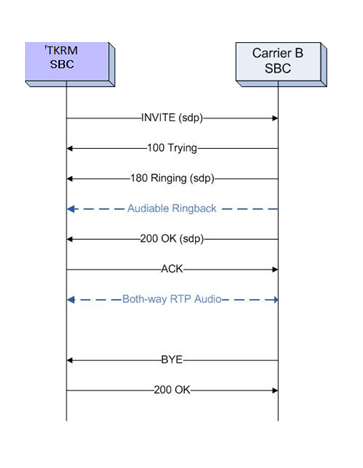
**Jitter:** reprezinta unitatea de timp cu care variaza intarzierea.

***2.Testele protocolului***

Diagrama de mai jos descrie configuratia sumara necesara a fi utilizata intre Telekom Romania Mobile si Operator pentru testele de interoperabilitate. Intre cei doi operatori se vor schimba detaliile tehnice de conectare sub forma de “template de configurare” care va contine toate detaliile tehnice necesare pentru a configura interfata NNI si a permite rutarea apelurilor de voce si fax si date.



Mai jos este un exemplu de “basic SIP call flow”:



Mesajele SIP suportate, sunt:

* **INVITE**—indica faptul ca un user sau un serviciu este invitat sa participe intr-o sesiune/apel [IETF RFC3261(17)].
* **ACK**—Indica, cererea a fost cu success procesata [IETF RFC3261(17)].
* **CANCEL**—termina orice cerere care este in asteptare dar nu termina o sesiune/apel care a fost déjà acceptat [IETF RFC3261(17)].
* **BYE**—termina o sesiune/apel si poate fi trimisa atat de apelant cat si de apelat. [IETF RFC3261(17)]
* **OPTIONS**—cerinta pentru capabilitatile unui SIP server. [IETF RFC3261(17)]
* **UPDATE –**  descris in IETF RFC3311[81], poate fi folosit cu acordul bilateral
* **INFO -** descris in IETF RFC2976[82], poate fi folosit cu acordul bilateral
* **PRACK -** descris in IETF RFC3262[83], poate fi folosit cu acordul bilateral

Urmatoarele tipuri de raspunsuri sunt utilizate in SIP:

* SIP 1xx—Informational responses
* SIP 2xx—Successful responses
* SIP 3xx—Redirection responses
* SIP 4xx—Client failure responses
* SIP 5xx—Server failure responses
* SIP 6xx—Global failure responses

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Signaling tests** | **Sens TKRM-Operator** | **Telekom B/A** | **OperatorA/B** | **Observatii** |
| **Calling party go on hook / Called party go on hook** | **>** | **X** | **X** | **prefered codec** |
| **<** | **X** | **X** | **prefered codec** |
| **Address incomplete** | **>** | **X** | **X** | **SIP:484** |
| **<** | **X** | **X** | **SIP:484** |
| **User busy** | **>** | **X** | **X** | **SIP:486** |
| **<** | **X** | **X** | **SIP:486** |
| **No answer** | **>** | **X** | **X** | **SIP:480** |
| **<** | **X** | **X** | **SIP:480** |
| **Unalocated number** | **>** | **X** | **X** | **SIP:404** |
| **<** | **X** | **X** | **SIP:404** |
| **Call saturation or No route to destination** | **>** | **X** | **X** | **SIP:503** |
| **<** | **X** | **X** | **SIP:503** |
| **DTMF** | **>** | **X** | **X** | **RFC2833** |
| **<** | **X** | **X** | **RFC2833** |
| **Fax transmission** | **>** | **X** | **X** |  |
| **<** | **X** | **X** |  |
| **Checking SIP OPTIONS** | **>** | **X** | **X** |  |
| **<** | **X** | **X** |  |

***3.Testele de rutare (baza testelor de taxare)***

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Routing tests (for Billing )** | **Sens TKRM-Operator** | **Telekom B/A** | **Operator A/B** | **Observatii** |
| Long call duration - over 30 min one call | > | X | X |  |
| < | X | X |  |
| Calls originated from both networks towards all type of numbers (Geographical (0ZABPQMCDU, 0ZAB9%)), Non-geographical (037%), Green Numbers (0800%), PPC (080%), VAS (090%) if case, Other services if necessary (e.g: CSC=16XY) in order to check if the B Number is correctly sent/received using Routing Number (using one of the NP Method: ACQ or OR). | > | X | X |  |
| < | X | X |  |
| CLI correctly presented | > | X | X |  |
| < | X | X |  |
| The loadsharing configuration was correctly configured (calls must be sent from each Operator IP towards each IP of Telekom Romania Mobile and for both directions) | > | X | X |  |
| < | X | X |  |
| The correctness of Call Record Records in both networks (CDRs Billing comparison) | > | X | X |  |
| < | X | X |  |

Nota: *Testele de interconectare*  sunt teste ce permit: verificarea conexiunii intre operatori, verificarea calitatii convorbirii precum si verificarea rutarii. De asemenea aceste teste sunt necesare pentru verificarea taxarii intre operatori, fiind teste agreate de ambele parti.

**Telekom Romania Mobile Operator**

**Communications S.A.**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_