Prose LI – Announcing UE and Monitoring UE scnarios

**Group A: Announcement UE is not roaming**

Scenario 1: Monitoring UE is also non-roaming. PLMN of Announcement UE and Monitoring UE are the same.

Scenario 2: Monitoring UE is also non-roaming. PLMN of Announcement UE and Monitoring UE are different.

Scenario 3: Monitoring UE is roaming. PLMN of Announcement UE and VPLMN of monitoring UE are the same.

Scenario 4: Monitoring UE is roaming. PLMN of Announcement UE and VPLMN of monitoring UE are different.

Scenario 5: Monitoring UE is roaming. PLMN of Announcement UE and HPLMN of monitoring UE are the same.

**Group B: Announcement UE is roaming**

Scenario 1: Monitoring UE is non-roaming. VPLMN of Announcement UE and PLMN of Monitoring UE are the same.

Scenario 2: Monitoring UE is non-roaming. VPLMN of Announcement UE and PLMN of Monitoring UE are different.

Scenario 3: Monitoring UE is roaming. VPLMN of Announcement UE and VPLMN of monitoring UE are the same. HPLMN of Announcement UE and HPLMN of monitoring UE are the same.

Scenario 4: Monitoring UE is roaming. VPLMN of Announcement UE and VPLMN of monitoring UE are the same. HPLMN of Announcement UE and HPLMN of monitoring UE are different.

Scenario 5: Monitoring UE is roaming. VPLMN of Announcement UE and VPLMN of monitoring UE are different. HPLMN of Announcement UE and HPLMN of monitoring UE are the same.

Scenario 5: Monitoring UE is roaming. VPLMN of Announcement UE and VPLMN of monitoring UE are different. HPLMN of Announcement UE and HPLMN of monitoring UE are different.

**Group A: Announcement UE is not roaming.**

Scenario 1: Monitoring UE is also not roaming

Announcement UE and Monitoring UE are in the same network. Both are targets.



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| 1. Ann-UE gets the code from DDNMF. **xIRI generated (DDNMF) for target Ann-UE.** 2. Ann-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF for authorization (w/ the code). 4. DDNMF responds to the Mon-UE with the authorization success. 5. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE gets the code from DDNMF. 2. ANN-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF (HPLMN) for authorization (w/ the code). **xIRI generated (DDNMF) for target Mon-UE.** 4. DDNMF (HPLMN) responds to the Mon-UE with the authorization success. **xIRI generated (DDNMF) for target Mon-UE.** 5. Mon-UE and Ann-UE have ProSe connection. |

Scenario 2: Monitoring UE is also not roaming.

Announcement UE and Monitoring UE are in the different networks. Both are targets.



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| 1. Ann-UE gets the code from DDNMF-1**. xIRI generated (DDNMF-1) for target Ann-UE.** 2. Ann-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF-2 for authorization (w/ the code). 4. DDNMF-2 interacts with the DDNMF-1 to confirm. 5. DDNMF-2 responds to the Mon-UE with the authorization success. 6. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE gets the code from DDNMF-1. 2. Ann-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF-2 for authorization (w/ the code). **xIRI generated (DDNMF-2) for target Mon-UE.** 4. DDNMF-2 interacts with the DDNMF-1 to confirm. **xIRI generated (DDNMF-2)for target Mon-UE.** 5. DDNMF-2 responds to the Mon-UE with the authorization success. **xIRI generated (DDNMF-2) for target Mon-UE.** 6. Mon-UE and Ann-UE have ProSe connection. |

Scenario 3: Monitoring UE is roaming.

VPLMN (Monitoring UE) is same as Announcement UE’s PLMN.

Both are targets (Mon-UE is a target in HPLMN and VPLMN).



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| 1. Ann-UE gets the code from DDNMF-1. **xIRI generated (DDNMF-1) for target Ann-UE.** 2. Ann-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF-2 for authorization (w/ the code). 4. DDNMF-2 interacts with the DDNMF-1 to confirm. 5. DDNMF-2 responds to the Mon-UE with the authorization success. 6. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE gets the code from DDNMF-1. 2. Ann-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF-2 for authorization (w/ the code). **xIRI generated (DDNMF-2) for target Mon-UE.** 4. DDNMF-2 interacts with the DDNMF-1 to confirm. **xIRIs generated (DDNMF-2, DDNMF-1) for target Mon-UE.** 5. DDNMF-2 responds to the Mon-UE with the authorization success. **xIRI generated (DDNMF-2) for target Mon-UE.** 6. Mon-UE and Ann-UE have ProSe connection. |

Scenario 4: Monitoring UE is roaming.

VPLMN is different from Announcement UE’s PLMN.

Both are targets (Mon-UE is a target in HPLMN and VPLMN).



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| 1. Ann-UE gets the code from DDNMF-1. **xIRI generated (DDNMF-1) for target Ann-UE.** 2. Ann-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF-2 for authorization (w/ the code). 4. DDNMF-2 interacts with the DDNMF-1 to confirm. 5. DDNMF-2 responds to the Mon-UE with the authorization success. 6. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE gets the code from DDNMF-1. 2. Ann-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF-2 for authorization (w/ the code). **xIRI generated (DDNMF-2) for target Mon-UE.** 4. DDNMF-2 interacts with the DDNMF-1 to confirm. **xIRIs generated (DDNMF-2) for target Mon-UE.** 5. DDNMF-2 responds to the Mon-UE with the authorization success. **xIRI generated (DDNMF-2) for target Mon-UE.** 6. Mon-UE and Ann-UE have ProSe connection. |

Scenario 5: Monitoring UE is roaming.

HPLMN (Mon-UE) and PLMN of Announcement UE are the same.

Both are targets (Mon-UE is a target in HPLMN and VPLMN).



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| 1. Ann-UE gets the code from DDNMF. **xIRI generated (DDNMF) for target Ann-UE.** 2. Ann-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF for authorization (w/ the code). 4. DDNMF responds to the Mon-UE with the authorization success. 5. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE gets the code from DDNMF. 2. Ann-UE announces to the Mon-UE with the code. 3. Mon-UE requests the DDNMF for authorization (w/ the code). **xIRI generated (DDNMF) for target Mon-UE.** 4. DDNMF responds to the Mon-UE with the authorization success. **xIRI generated (DDNMF) for target Mon-UE.** 5. Mon-UE and Ann-UE have ProSe connection. |

**Group B: Announcement UE is roaming.**

Scenario 1: Monitoring UE is not roaming

VPLMN (Ann-UE) and PLMN (Mon-UE) are the same. Both are targets (Ann-UE is target in VPLMN and HPLMN)



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| 1. Ann-UE requests for the code from DDNMF-1. **xIRI generated (DDNMF-1) for target Ann-UE.** 2. DDNMF-1 interacts with the DDNMF-2 for authorization. **xIRI generated (DDNMF-1, DDNMF-2) for target Ann-UE.** 3. DDNMF-1 responds to Ann-UE with the code. **xIRI generated (DDNMF-1) for target Ann-UE.** 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-2 for authorization (w/ the code). 6. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE requests for the code from DDNMF-1. 2. DDNMF-1 interacts with the DDNMF-2 for authorization. 3. DDNMF-1 responds to Ann-UE with the code. 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-2 for authorization (w/ the code). **xIRI generated (DDNMF-2) for target Mon-UE.** 6. Mon-UE and Ann-UE have ProSe connection. |

Scenario 2: Monitoring UE is not roaming

VPLMN (Ann-UE) and PLMN (Mon-UE) are different networks. Both are targets (Ann-UE is target in VPLMN and HPLMN)



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| 1. Ann-UE requests for the code from DDNMF-1. **xIRI generated (DDNMF-1) for target Ann-UE.** 2. DDNMF-1 interacts with the DDNMF-2 for authorization. **xIRI generated (DDNMF-1, DDNMF-2) for target Ann-UE.** 3. DDNMF-1 responds to Ann-UE with the code. **xIRI generated (DDNMF-1) for target Ann-UE.** 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-3 for authorization (w/ the code). 6. DDNMF-3 interacts with the DDNMF-2 to confirm. 7. DDNMF-3 responds to Mon-UE with the authorization. 8. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE requests for the code from DDNMF-1. 2. DDNMF-1 interacts with the DDNMF-2 for authorization. 3. DDNMF-1 responds to Ann-UE with the code. 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-3 for authorization (w/ the code). **xIRI generated (DDNMF-3) for target Mon-UE.** 6. DDNMF-3 interacts with the DDNMF-2 to confirm. **xIRI generated (DDNMF-3) for target Mon-UE.** 7. DDDNMF-3 responds to the Mon-UE with the authorization. **xIRI generated (DDNMF-3) for target Mon-UE.** 8. Mon-UE and Ann-UE have ProSe connection. |

Scenario 3: Monitoring UE is roaming.

VPLMN of Mon-UE and Ann-UE are the same, HPLMN of Mon-UE and Ann-UE are the same.

Both are targets (Mon-UE, Ann-UE are targets in HPLMN and VPLMN).



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| 1. Ann-UE requests for the code from DDNMF-1. **xIRI generated (DDNMF-1) for target Ann-UE.** 2. DDNMF-1 interacts with the DDNMF-2 for authorization. **xIRI generated (DDNMF-1, DDNMF-2) for target Ann-UE.** 3. DDNMF-1 responds to Ann-UE with the code. **xIRI generated (DDNMF-1) for target Ann-UE.** 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-1 for authorization (w/ the code). 6. DDNMF-1 interacts with the DDNMF-2 to confirm. 7. DDNMF-1 responds to Mon-UE with the authorization. 8. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE requests for the code from DDNMF-1. 2. DDNMF-1 interacts with the DDNMF-2 for authorization. 3. DDNMF-1 responds to Ann-UE with the code. 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-1 for authorization (w/ the code). **xIRI generated (DDNMF-1) for target Mon-UE.** 6. DDNMF-1 interacts with the DDNMF-2 to confirm. **xIRI generated (DDNMF-1, DDNMF-2) for target Mon-UE.** 7. DDNMF-1 responds to the Mon-UE with the authorization. **xIRI generated (DDNMF-1) for target Mon-UE.** 8. Mon-UE and Ann-UE have ProSe connection. |

Scenario 4: Monitoring UE is roaming.

VPLMN of Mon-UE and Ann-UE are the same, HPLMN of Mon-UE and Ann-UE are different.

Both are targets (Mon-UE, Ann-UE are targets in HPLMN and VPLMN).



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| 1. Ann-UE requests for the code from DDNMF-1. **xIRI generated (DDNMF-1) for target Ann-UE.** 2. DDNMF-1 interacts with the DDNMF-2 for authorization. **xIRI generated (DDNMF-1, DDNMF-2) for target Ann-UE.** 3. DDNMF-1 responds to Ann-UE with the code. **xIRI generated (DDNMF-1) for target Ann-UE.** 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-3 for authorization (w/ the code). 6. DDNMF-3 interacts with the DDNMF-2 to confirm. 7. DDNMF-3 responds to Mon-UE with the authorization. 8. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE requests for the code from DDNMF-1. 2. DDNMF-1 interacts with the DDNMF-2 for authorization. 3. DDNMF-1 responds to Ann-UE with the code. 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-3 for authorization (w/ the code). **xIRI generated (DDNMF-3) for target Mon-UE.** 6. DDNMF-3 interacts with the DDNMF-2 to confirm. **xIRI generated (DDNMF-3, DDNMF-2) for target Mon-UE.** 7. DDNMF-3 responds to the Mon-UE with the authorization. **xIRI generated (DDNMF-3) for target Mon-UE.** 8. Mon-UE and Ann-UE have ProSe connection. |

Scenario 5: Monitoring UE is roaming.

HPLMN (Mon-UE) and HPLMN (Ann-UE) are the same. VPLMN (Mon-UE) and VPLMN (Ann-UE) are different.

Both are targets (Mon-UE and Ann-UE are targets in the respective HPLMN and VPLMN).



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| 1. Ann-UE requests for the code from DDNMF-1. **xIRI generated (DDNMF-1) for target Ann-UE.** 2. DDNMF-1 interacts with the DDNMF-2 for authorization. **xIRI generated (DDNMF-1, DDNMF-2) for target Ann-UE.** 3. DDNMF-1 responds to Ann-UE with the code. **xIRI generated (DDNMF-1) for target Ann-UE.** 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-1 for authorization (w/ the code). 6. DDNMF-1 interacts with the DDNMF-2 to confirm. 7. DDNMF-1 responds to Mon-UE with the authorization. 8. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE requests for the code from DDNMF-1. 2. DDNMF-1 interacts with the DDNMF-2 for authorization. 3. DDNMF-1 responds to Ann-UE with the code. 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-1 for authorization (w/ the code). **xIRI generated (DDNMF-1) for target Mon-UE.** 6. DDNMF-1 interacts with the DDNMF-2 to confirm. **xIRI generated (DDNMF-1) for target Mon-UE.** 7. DDNMF-1 responds to the Mon-UE with the authorization. **xIRI generated (DDNMF-1) for target Mon-UE.** 8. Mon-UE and Ann-UE have ProSe connection. |

Scenario 6: Monitoring UE is roaming.

HPLMN (Mon-UE) and HPLMN (Ann-UE) are different. VPLMN (Mon-UE) and VPLMN (Ann-UE) are different.

Both are targets (Mon-UE and Ann-UE are targets in the respective HPLMN and VPLMN).



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| 1. Ann-UE requests for the code from DDNMF-1. **xIRI generated (DDNMF-1) for target Ann-UE.** 2. DDNMF-1 interacts with the DDNMF-2 for authorization. **xIRI generated (DDNMF-1, DDNMF-2) for target Ann-UE.** 3. DDNMF-1 responds to Ann-UE with the code. **xIRI generated (DDNMF-1) for target Ann-UE.** 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-3 for authorization (w/ the code). 6. DDNMF-3 interacts with the DDNMF-2 to confirm. 7. DDNMF-3 responds to Mon-UE with the authorization. 8. Mon-UE and Ann-UE have ProSe connection. | 1. Ann-UE requests for the code from DDNMF-1. 2. DDNMF-1 interacts with the DDNMF-2 for authorization. 3. DDNMF-1 responds to Ann-UE with the code. 4. ANN-UE announces to the Mon-UE with the code. 5. Mon-UE requests the DDNMF-3 for authorization (w/ the code). **xIRI generated (DDNMF-3) for target Mon-UE.** 6. DDNMF-3 interacts with the DDNMF-2 to confirm. **xIRI generated (DDNMF-3) for target Mon-UE.** 7. DDNMF-3 responds to the Mon-UE with the authorization. **xIRI generated (DDNMF-3) for target Mon-UE.** 8. Mon-UE and Ann-UE have ProSe connection. |