LTE to 3G circuit switched fallback

1: Initial UE Message [Attach request, PDN connectivity request]
   - attach type = Combined EPS/IMSI attach

2: Downlink NAS Transport [Authentication request]
   - MME authenticates the UE

3: Uplink NAS Transport [Authentication response]
   - UE responds to the authentication request

4: Downlink NAS Transport [Security mode command]
   - MME establishes NAS security

5: Uplink NAS Transport [Security mode complete]

6: Downlink NAS Transport [ESM information request]
   - Exchange additional parameters as security has been established

7: Uplink NAS Transport [ESM information response]

8: Location Update Request
   - Update the UE location in the 3G network

9: Location Update Response
   - MSC acknowledges the location update

10: Initial Context Setup Request
    - Attach accept (Combined EPS/IMSI Attach)
    - Activate default EPS bearer context request
    - Activated dedicated EPS bearer context request
    - attach result = Combined EPS/IMSI attach,
      3G Location area identifier (MCC, MNC, LAC),
      3G TMSI

11: Initial Context Setup Response

12: Uplink NAS Transport [Attach complete, Attach default EPS bearer context accept]

13: Uplink NAS Transport [Activate dedicated EPS bearer context accept]

14: UE Context Release Request
    - UE initiates an Extended service request to signal to the 4G network that the UE is invoking the CSFB procedure

15: UE Context Release Command

16: UE Context Release Complete

The UE registers with the network with an attach type of Combined EPS/IMSI attach. This signals to the network that the UE supports circuit switched callback (CSFB).

The attach is successfully completed. The network signals to the UE that it has performed a Combined EPS/IMSI attach. The UE is attached to LTE for data and a 3G network for voice. The message also signals the Location Area Identifier and TMSI in the 3G circuit switched network.

The network has also triggered the setup a default bearer and a dedicated bearer.

eNodeB responds to the Initial context setup.

UE responds back with attach accept and default bearer establishment accept.

The dedicated bearer has also been setup at the UE.

UE initiates an Extended service request to signal to the 4G network that the UE is invoking the CSFB procedure.
Signal to the 4G network that the UE wishes to fall back for a circuit switched call.

The MME signals to the UE that CS fall back is required. The message also notifies the UE about the 3G location area that needs to be used in 3G access for the voice call.

Release the 4G LTE session has the UE is going to transition to a 3G UMTS network.

UE initiates a tracking area update after moving back to the 4G network.