

H2000 Handover Failure due to clock syn mode difference

1. Issue Description

There is no handover signal between two H2000 eNodeBs.

It only shows handover preparation failure when disable the adminstate manually.

Source node: .31

.60.1.32	10.60.1.81	S1AP	1354	10.60.1.32	HandoverRequired [RadioNetwork-cause=s1-intra-system-handover-triggered]
.60.1.81	10.60.1.31	SCTP	1494	10.60.1.81	DATA (Message Fragment)
.60.1.81	10.60.1.31	S1AP	1450	10.60.1.83	7 HandoverRequest [RadioNetwork-cause=s1-intra-system-handover-triggered]
.60.1.31	10.60.1.81	S1AP	198	10.60.1.31	HandoverRequestAcknowledge
.60.1.81	10.60.1.32	S1AP	182	10.60.1.81	HandoverCommand, RRCConnectionReconfiguration
.60.1.31	10.60.1.81	S1AP	90	10.60.1.31	UEContextReleaseRequest [RadioNetwork-cause=failure-in-radio-interface]
.60.1.31	10.60.1.81	S1AP/NAS-EPS	186	10.60.1.31	InitialUEMessage, Tracking area update request
.60.1.31	10.60.1.81	S1AP	86	10.60.1.31	UEContextReleaseComplete
.60.1.32	10.60.1.81	S1AP	90	10.60.1.32	UEContextReleaseRequest [RadioNetwork-cause=tS1relocoverall-expiry]
.60.1.81	10.60.1.31	S1AP	86	10.60.1.81	UEContextReleaseCommand [Misc-cause=unspecified]
.60.1.81	10.60.1.32	S1AP	106	10.60.1.81	HandoverPreparationFailure [Misc-cause=unspecified]

Target node: .32

291	309.595152	10.60.1.32	10.60.1.81	SCTP	102 HEARTBEAT_ACK
292	312.2659215	10.60.1.31	10.60.1.32	SCTP	60 ADAPT
293	312.2655519	10.60.1.81	10.60.1.32	S1AP	602 HandoverRequest [RadioNetwork-cause=s1-intra-system-handover-triggered]
294	312.2655953	10.60.1.81	10.60.1.32	SCTP	1494 DATA (Message Fragment)
295	312.2655984	10.60.1.32	10.60.1.81	SCTP	62 SACK
296	312.265998	10.60.1.81	10.60.1.32	S1AP	906 HandoverRequest [RadioNetwork-cause=s1-intra-system-handover-triggered]
297	312.266017	10.60.1.81	10.60.1.32	SCTP	1494 DATA (Message Fragment)
298	312.266035	10.60.1.32	10.60.1.81	SCTP	62 SACK
299	312.266042	10.60.1.81	10.60.1.32	S1AP	186 HandoverRequest [RadioNetwork-cause=s1-intra-system-handover-triggered]
300	312.407077	10.60.1.32	10.60.1.81	S1AP	214 HandoverRequestAcknowledge
301	312.509533	10.60.1.81	10.60.1.32	SCTP	62 SACK
302	312.609302	10.60.1.32	10.60.1.81	S1AP	390 HandoverRequestAcknowledge, HandoverRequestAcknowledge
303	312.810630	10.60.1.81	10.60.1.32	SCTP	62 SACK
304	316.266147	10.60.1.81	10.60.1.32	SCTP	102 HEARTBEAT
305	316.266186	10.60.1.32	10.60.1.81	SCTP	102 HEARTBEAT_ACK
306	317.433350	10.60.1.81	10.60.1.32	S1AP	86 UEContextReleaseCommand [Misc-cause=unspecified]
307	317.557727	10.60.1.32	10.60.1.81	S1AP	102 UEContextReleaseComplete
308	317.633212	10.60.1.81	10.60.1.32	S1AP	102 UEContextReleaseCommand [Misc-cause=unspecified]
309	317.634467	10.60.1.81	10.60.1.32	S1AP	86 UEContextReleaseCommand [Misc-cause=unspecified]

2. Troubleshooting procedure

2.1 Configuration check

Measurement and neighbour configuration is confirmed fine.

Device.Services.FAPService.1.CellConfig.LTE.RAN.Mobility.ConnMode

- └ EUTRA
 - └ MeasureCtrl
 - └ A1MeasureCtrl
 - └ A2MeasureCtrl
 - └ A3MeasureCtrl
 - A3MeasureCtrl.1**
 - A3MeasureCtrl.2
 - └ A4MeasureCtrl
 - └ A5MeasureCtrl
 - └ PeriodMeasCtrl
 - └ IRAT
 - └ B1MeasureCtrl
 - └ B2MeasureCtrl
 - └ X_D837BE_GERAN

Enable	<input checked="" type="checkbox"/> Enable	boolean
A3Offset	<input type="text" value="0"/>	int([-30:30])
Hysteresis	<input type="text" value="2"/>	unsignedInt([0:30])
MaxReportCells	<input type="text" value="4"/>	unsignedInt([1:8])
MeasurePurpose	<input type="text" value="1"/>	unsignedInt([1:100])
ReportAmount	<input type="text" value="0"/>	unsignedInt
ReportOnLeave	<input type="checkbox"/> Enable	boolean
ReportInterval	<input type="text" value="10240"/>	unsignedInt
ReportQuantity	<input type="text" value="both"/>	string
TimeToTrigger	<input type="text" value="320"/>	unsignedInt
TriggerQuantity	<input type="text" value="RSRP"/>	string

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- NeighborList
- NeighborListInUse
- IdleMode
- ConnMode
- Debug
- Factory
- HeMS
- Network
- Performance
- Security

```

Device.Services.FAPService.1.CelConfig.LTE.RAN.NeighborList
├─ LTECell
│ └─ LTECell.1
│   ├── X_D837BE_PLMNLst2
│   │ └─ X_D837BE_PLMNLst2.1
│   └─ InterRATCell
│     ├── UMTS
│     ├── GSM
│     ├── CDMA2000
│     └─ X_D837BE_NR
          
```

Enable	<input checked="" type="checkbox"/> Enable	boolean
Alias	<input type="text" value="cpe-LTECell1"/>	string(64)
MustInclude	<input checked="" type="checkbox"/> Enable	boolean
PLMNID	<input type="text" value="72499"/>	string(6)
CID	<input type="text" value="100"/>	unsignedInt([1:268435455])
EUTRACarrierARFCN	<input type="text" value="39500"/>	unsignedInt([0:65535])
PhyCellID	<input type="text" value="1"/>	unsignedInt([0:503])
QOffset	<input type="text" value="0"/>	int
CIO	<input type="text" value="0"/>	int
RSTxPower	<input type="text" value="0"/>	int([-60:50])
Blacklisted	<input type="checkbox"/> Enable	boolean
TAC	<input type="text" value="1"/>	unsignedInt([0:65535])

2.2 clock synchronization check

The current synmode Source node is **GPS** and the neighbour eNodeB is **freerun**. There is 2 hours time gap.

- Information
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- Switch
- Debug
- Factory
- HeMS
- Network
- Performance
- Security
- Synchronization
- Upgrade
- Access Control
- Data Model

Synchronization

GPS

PTP//

Sync Setting:

CurrentSyncMode	GPS
SyncStatus	Success
SuccessTime	2023-10-17T19:31:17.658Z
SyncSwitchEnable	<input checked="" type="checkbox"/> Enable
SyncMode1	GPS
SyncMode2	GPS
SyncMode3	GPS
SyncFailureHandling	Ignored
TimingCorrectionOffset	<input type="text" value="0"/>

3. Solution

Modify the “Syncmode” from freerun to GPS and enable the switch “SyncSwitchEnable”.

Make sure the GPS clock status is success after modify the clock mode and reboot.

Handover Test Success:

459	435.663462	10.60.1.32	10.60.1.31	X2AP	694	HandoverRequest, MasterInformationBlock (SFN=18), SystemInformationBlockType1 51B2
460	435.703847	10.60.1.31	10.60.1.32	X2AP	218	HandoverRequestAcknowledge, RRCConnectionReconfiguration
461	435.713607	10.60.1.32	10.60.1.31	SCTP	1514	SACK DATA (Message Fragment)
462	435.713655	10.60.1.32	10.60.1.31	X2AP	194	HandoverRequest, MasterInformationBlock (SFN=18), SystemInformationBlockType1 51B2
463	435.713680	10.60.1.31	10.60.1.32	SCTP	62	SACK
464	435.723777	10.60.1.32	10.60.1.31	X2AP	102	S1StatusTransfer
465	435.763798	10.60.1.31	10.60.1.32	X2AP	218	HandoverRequestAcknowledge, RRCConnectionReconfiguration
466	435.703403	10.60.1.32	10.60.1.31	X2AP	118	S1StatusTransfer
467	435.823802	10.60.1.31	10.60.1.81	S1AP	146	PathSwitchRequest
468	435.839444	10.60.1.81	10.60.1.31	S1AP	170	PathSwitchRequestAcknowledge
469	435.853895	10.60.1.31	10.60.1.32	X2AP	98	UEContextRelease
470	435.853844	10.60.1.31	10.60.1.81	S1AP	162	PathSwitchRequest
471	435.854842	10.60.1.81	10.60.1.31	SCTP	62	SACK
472	435.875467	10.60.1.81	10.60.1.31	S1AP	154	PathSwitchRequestAcknowledge