

TSG-RAN Working Group 1 meeting #9  
Dresden, Germany  
November 30 – December 3, 1999

**TSGR1#9(99)k28**

**Agenda item:** AH 16

**Source:** Ericsson

**Title:** CR 25.215-020: Correction of SFN-SFN observed time difference

**Document for:** Decision

---

The definition of  $T_m$  in the measurement “SFN-SFN observed time difference” in TS 25.215 has the wrong sign. This CR corrects that.



### 5.1.11 CFN-SFN observed time difference

Definition	<p>The CFN-SFN observed time difference to cell is defined as: <math>OFF \times 38400 + T_m</math>, where:</p> <p><math>T_m = T_{RxSFN} - (T_{UETx} - T_0)</math>, given in chip units with the range [0, 1, ..., 38399] chips</p> <p><math>T_{UETx}</math> is the time when the UE transmits an uplink DPCCCH/DPDCH frame.</p> <p><math>T_0</math> is defined in TS 25.211 section 7.1.3.</p> <p><math>T_{RxSFN}</math> is time at the beginning of the next received neighbouring P-CCPCH frame after the time instant <math>T_{UETx} - T_0</math> in the UE. If the next neighbouring P-CCPCH frame is received exactly at <math>T_{UETx} - T_0</math> then <math>T_{RxSFN} = T_{UETx} - T_0</math> (which leads to <math>T_m = 0</math>).</p> <p>and</p> <p><math>OFF = (CFN_{Tx} - SFN) \bmod 256</math>, given in number of frames with the range [0, 1, ..., 255] frames</p> <p><math>CFN_{Tx}</math> is the connection frame number for the UE transmission of an uplink DPCCCH/DPDCH frame at the time <math>T_{UETx}</math>.</p> <p><math>SFN</math> = the system frame number for the neighbouring P-CCPCH frame received in the UE at the time <math>T_{RxSFN}</math>.</p>
Applicable for	Connected Inter, Connected Intra
Range/mapping	Time difference is given with the resolution of one chip with the range [0, ..., 9830399] chips.

### 5.1.12 SFN-SFN observed time difference

Definition	<p><b>Type 1:</b></p> <p>The SFN-SFN observed time difference to cell is defined as: <math>OFF \times 38400 + T_m</math>, where:</p> <p><math>T_m = T_{RxSFNj} - T_{RxSFNi}</math>, given in chip units with the range [0, 1, ..., 38399] chips</p> <p><math>T_{RxSFNj}</math> is the time at the beginning of a received neighbouring P-CCPCH frame from cell j.</p> <p><math>T_{RxSFNi}</math> is time at the beginning of the next received neighbouring P-CCPCH frame from cell i after the time instant <math>T_{RxSFNj}</math> in the UE. If the next neighbouring P-CCPCH frame is received exactly at <math>T_{RxSFNj}</math> then <math>T_{RxSFNj} = T_{RxSFNi}</math> (which leads to <math>T_m = 0</math>).</p> <p>and</p> <p><math>OFF = (SFN_j - SFN_i) \bmod 256</math>, given in number of frames with the range [0, 1, ..., 255] frames</p> <p><math>SFN_j</math> = the system frame number for downlink P-CCPCH frame from cell j in the UE at the time <math>T_{RxSFNj}</math>.</p> <p><math>SFN_i</math> = the system frame number for the P-CCPCH frame from cell i received in the UE at the time <math>T_{RxSFNi}</math>.</p> <p><b>Type 2:</b></p> <p>The relative timing difference between cell j and cell i, defined as <math>T_{CPICHRxj} - T_{CPICHRxi}</math>, where:</p> <p><math>T_{CPICHRxj}</math> is the time when the UE receives one CPICH slot from cell j</p> <p><math>T_{CPICHRxi}</math> is the time when the UE receives the CPICH slot from cell i that is closest in time to the CPICH slot received from cell j</p>
Applicable for	<p><b>Type 1:</b> Idle, Connected Intra</p> <p><b>Type 2:</b> Idle, Connected Intra, Connected Inter</p>
Range/mapping	<p><b>Type 1:</b> Time difference is given with a resolution of one chip with the range [0, ..., 9830399] chips.</p> <p><b>Type 2:</b> Time difference is given with a resolution of 0.5 chip with the range [-1279, ..., 1280] chips.</p>