



Serial Time Code Formats



Serial Time Code Formats

Possibilities

- 1. IRIG Serial Time Code Format - IRIG Standard 200-98**
- 2. Norme Française NF S87-500**
- 3. Homebrew Version based on IRIG standard**



Serial Time Code Formats

@ CERN

in use: IRIG B 122

Amplitude modulated on a 1kHz carrier

time frame interval of 1 second

bite rate of 100 pps (1bit per 10 ms)

standard jitter: ≤ 1 percent of the carrier frequency $\rightarrow \leq 10 \mu\text{s}$

aimed accuracy of receiver: $\leq 500 \text{ ns}$



Serial Time Code Formats

IRIG B Time Code Words

74 bit time code + 15 index-bit + 10 bit position-identifiers + 1 reference-bit = 100 bit

- **BCD Time-of-Year Code Word**

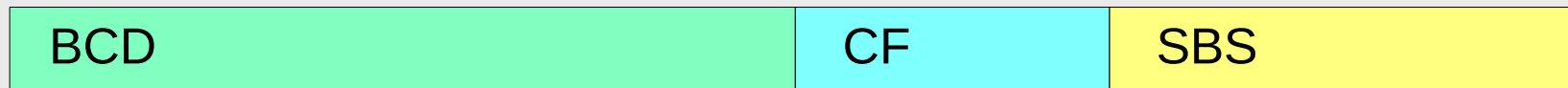
30 bit information about **days, hours, minutes** and **seconds**

- **CF Control Function**

27 bit for control functions, **not used**

- **SBS Seconds-of-Day (straight binary second)**

17 bit of SB seconds-of-day, **not used**





Serial Time Code Formats

Norme Française - Complete

69 bit time code + 20 index-bit + 10 bit position-identifiers + 1 reference-bit = 100 bit

based on IRIG standard

- **BCD Time-of-Year Code Word**

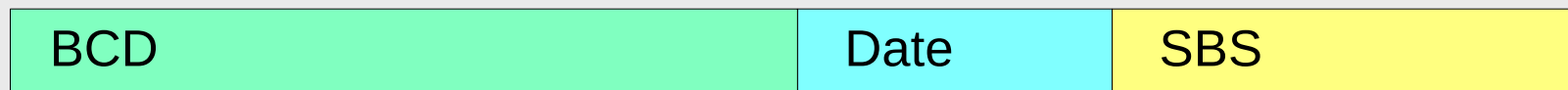
33 bit information about **days, hours, minutes, seconds** and **day-of-week**

- **Date**

19 bit for **year** (last two digits), **month** and **day-of month**

- **SBS Seconds-of-Day (straight binary second)**

17 bit of SB seconds-of-day





Serial Time Code Formats

CERN Homebrew

55 bit time code + 34 index-bit + 10 bit position-identifiers + 1 reference-bit = 100 bit

based on IRIG standard

- **BCD Time-of-Year Code Word**

30 bit information about **days, hours, minutes** and **seconds** (like IRIG B)

- **SBS Seconds-of-Year** (straight binary second)

25 bit SB second-of-year

BCD	SBS
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Serial Time Code Formats

IRIG B Time Code

- + international standard
- no information about year
no seconds-of-year

Norme Française

- + information about year
- no second-of-year, but possible to re-calculate due to year information
no international standard

CERN Homebrew

- + everything we need
- not standard