



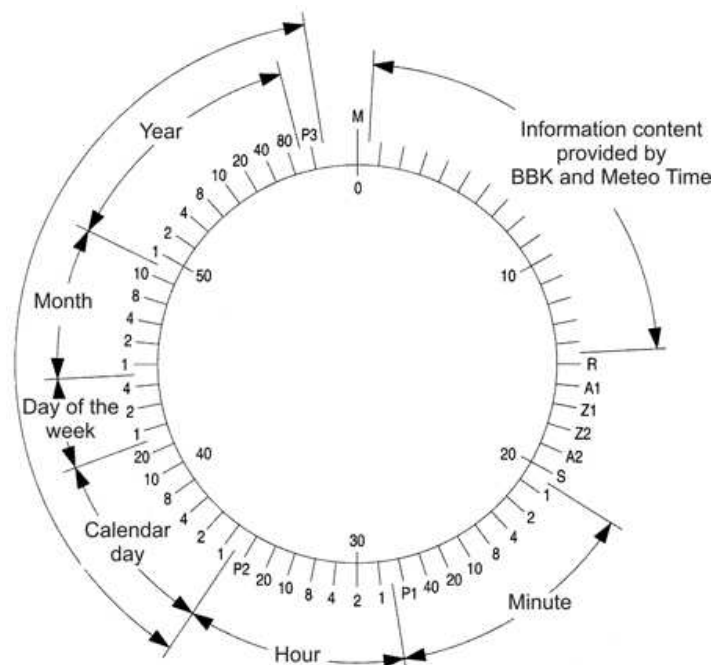
DCF-77 Timecode

TEKRON
INTERNATIONAL

DCF77 Time Code

The transmission of the numerical values for minute, hour, day, weekday, month and year are BCD-encoded (Binary Coded Decimal format) through the pulse duration modulation of the second marks. A second mark with duration 0.1s encodes a binary 0 and a duration of 0.2s encodes 1. The order of encoding is shown in the following diagram [replaced by a table in this translation]. The three test bits P1, P2 and P3 extend the 3 major sections of the time code (7 bits for minutes, 6 bits for the hour and 22 bits for the date, including the week day number) to maintain an even count of 1's.

The second marks No. 17 and 18 indicate the time system for the transmitted time codes. In the case of transmission of MEZ, mark 18 has a duration of 0.2s and mark 17 a duration of 0.1s. If MESZ is being transmitted, this is reversed. Furthermore, an approaching transition from MEZ to MESZ or back is announced by extending mark 16 from 0.1 to 0.2s for one hour prior to the changeover.



Encoding Scheme

Mark number(s)	Encodes (01.s=0, 0.2s=1)
0	Minute, always 0 (0.1s)
1-14	Reserved
15	0=Normal antenna, 1=backup antenna
16	1=Approaching change from MEZ to MESZ or back
17,18	Time zone 0,1=MEZ; 1,0=MESZ
19	The leap second is encoded in this bit one hour prior to occurrence.
20	Start bit for encoded time, always 1
21-27	1, 2, 4, 8, 10, 20, 40 Minutes (mark 21=1 minute)
28	P1 maintains even parity for marks 21-28
29-34	1,2,4,8,10,20 Hours (mark 29=1 hour)
35	P2 maintains even parity for marks 29-35
36-41	Day in month (1, 2, 4, 8, 10, 20)
42-44	Day in week (1,2,4)
45-49	Month number (1, 2, 4, 8, 10)
50-57	Year (1, 2, 4, 8, 10, 20, 40, 80)
58	P3 maintains even parity for marks 36-58 There is no mark transmitted for the 59th second.

The data transmitted represents the time at the moment of the first pulse of the next message.