FlexRay Frame Data Packets Format for Wireshark to capture

Packet description

The general layout of a data packet is shown in Figure 1. Each of the frames is containing a measurement header and a FlexRay frame. The measurement header is generated by a measurement device and precedes the FlexRay frame. The FlexRay frame consists of a frame header and the frame payload (see Figure 2). The frame payload has a variable length of 0 to 254 bytes.

Header information of measurement device

2 bytes	Type	Error Flags

Payload information of a FlexRay frame

5 bytes	Frame Header
0…254 bytes	Frame Payload

Figure 1: General data packet layout

Measurement Header

Type Information

7	6	5	4	3	2	1	0
CS	TI6	TI5	TI4	TI3	TI2	TI1	TI0

TI[0..6] – Type Index …	0x01: FlexRay Frame
	0x02: FlexRay Symbol
CS - Channel Selection …	Selection between Channel A (0) or Channel B (1)

Error Flags

7	6	5	4	3	2	1	0
-	-	FIDERR	FESERR	FCRCERR	HCRCERR	TSSVIOL	CODERR

CODERR – Coding error… indicates if a Frame Start Sequence Error (FSSERR) or a Byte Start Sequence error (BSSERR) occurred

TSSVIOL – TSS violation

HCRCERR – Header CRC error

FCRCERR – Frame CRC error

FESERR – Frame End Sequence error

FIDERR – Frame ID Error … indicates whether or not an invalid frame ID (0) was received

FlexRay Frame

Frame Header

15	**14**	**13**	**12**	**11**	**10**	**9**	**8**
-	PPI	NFI	SFI	STFI	FID10	FID9	FID8
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
FID7	FID6	FID5	FID4	FID3	FID2	FID1	FID0

FID [0..10] - Frame ID … Values between 1 and 2047

Frame ID 0 is an invalid frame ID! (FID Error)

STFI – Startup frame indicator indicates whether or not a frame is a STARTUP frame

STFI = “0” -> frame is not a startup frame

STFI = “1” -> frame is a startup frame

A startup frame must always be a sync frame!

SFI - Sync frame indicator … indicates whether or not the frame is a SYNC frame

SFI = “0” -> no receiving node shall consider the frame for synchronization

SFI = “1” -> all receiving nodes shall use the frame for synchronization

NFI - Null frame indicator … indicates whether or not the frame is a NULL frame

NFI = “0” -> payload segment contains no valid data

NFI = “1” -> payload segment contains data

PPI - Payload preamble indicator

23	22	21	20	19	18	17	16
PL6	PL5	PL4	PL3	PL2	PL1	PL0	HCRC10
15	14	13	12	11	10	9	8
HCRC9	HCRC8	HCRC7	HCRC6	HCRC5	HCRC4	HCRC3	HCRC2
7	**6**	**5**	**4**	**3**	**2**	**1**	**0**
HCRC1	HCRC0	CC5	CC4	CC3	CC2	CC1	CC0

CC[0..5] - Cycle count … Values between 0 and 63

HCRC[0..10] – Header CRC … Values between 0 and 2047

PL[0..6] - Payload length in words (2 bytes) … Values between 0 and 127

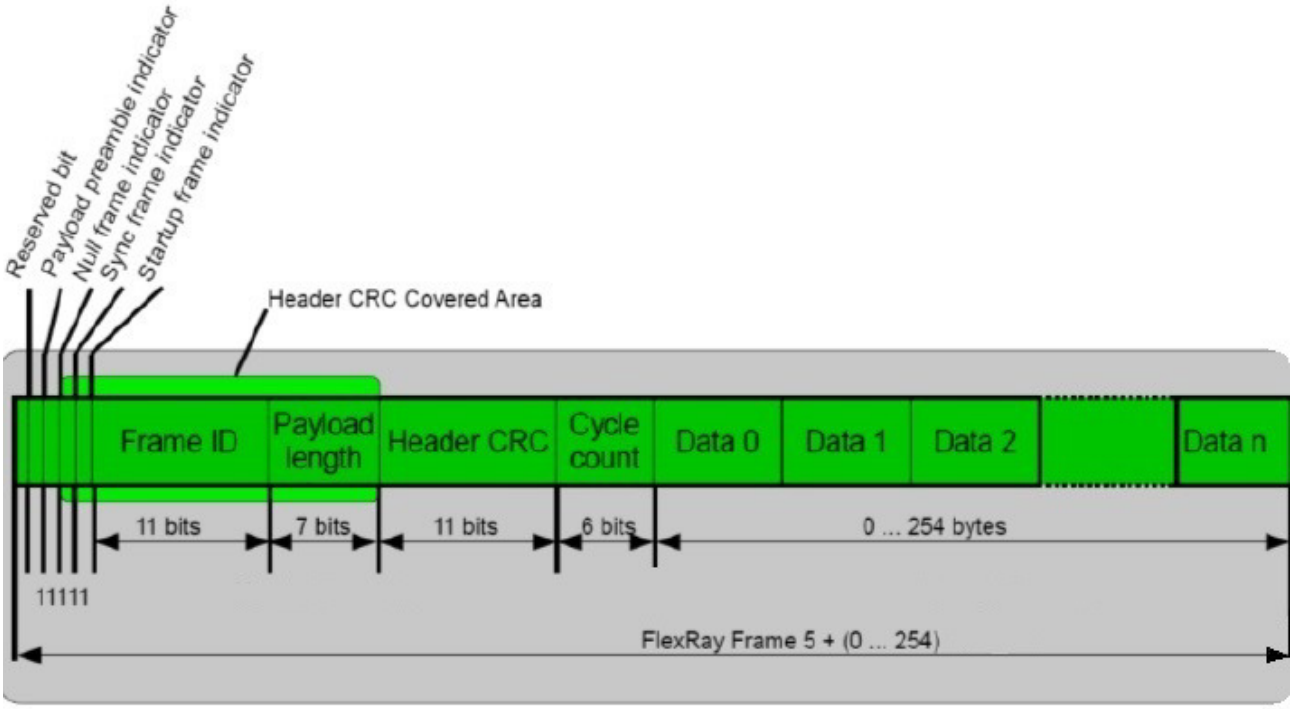

Figure 2: FlexRay Frame Format