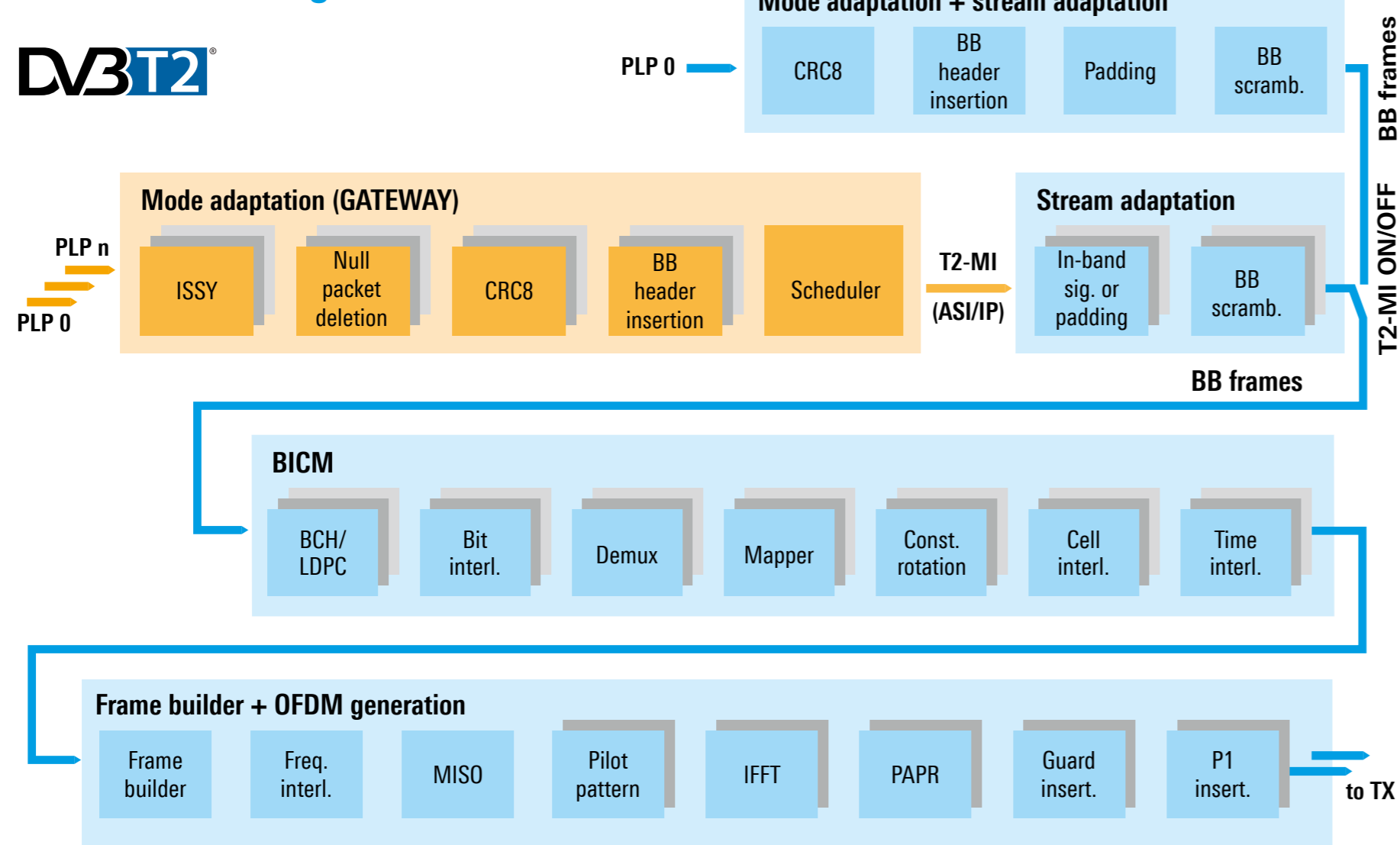


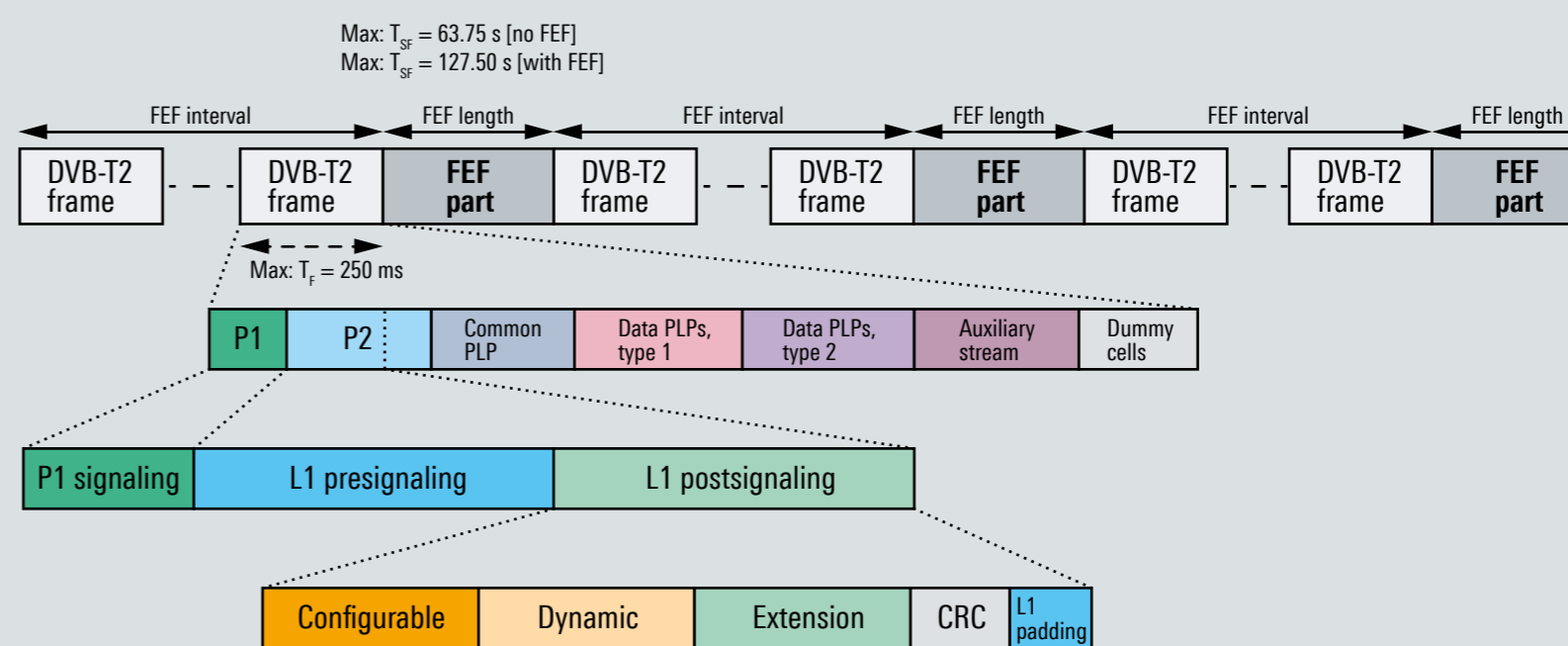
DVB-T2: Technical overview

DVB-T2 block diagram

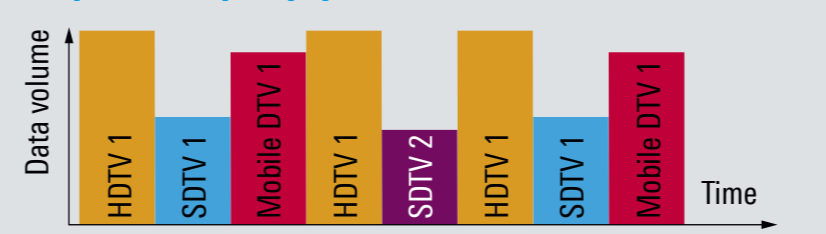


DVB-T2 frame structure

The DVB-T2 frame structure consists of superframes that are divided into two or more T2 frames of several OFDM symbols. A superframe may carry T2 frames and FEF parts. The T2 frame always begins with a P1 preamble symbol, followed by one or more P2 preamble symbols carrying L1 signaling data and followed by a configurable number of data symbols carrying the data of the PLPs.

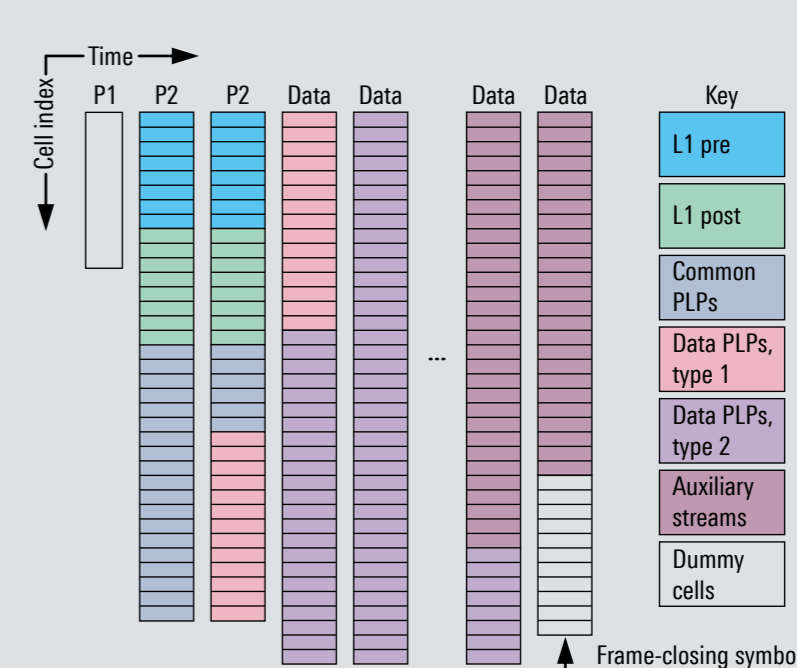


Physical layer pipes (PLPs)

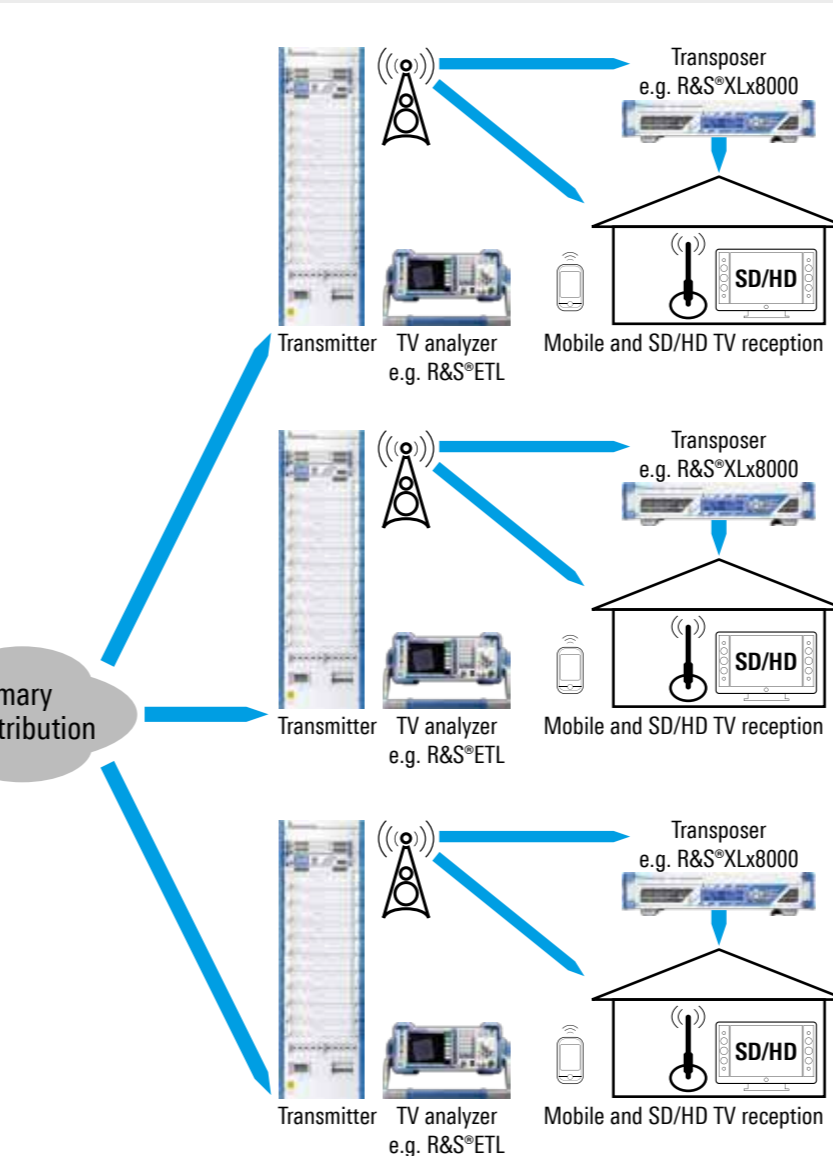
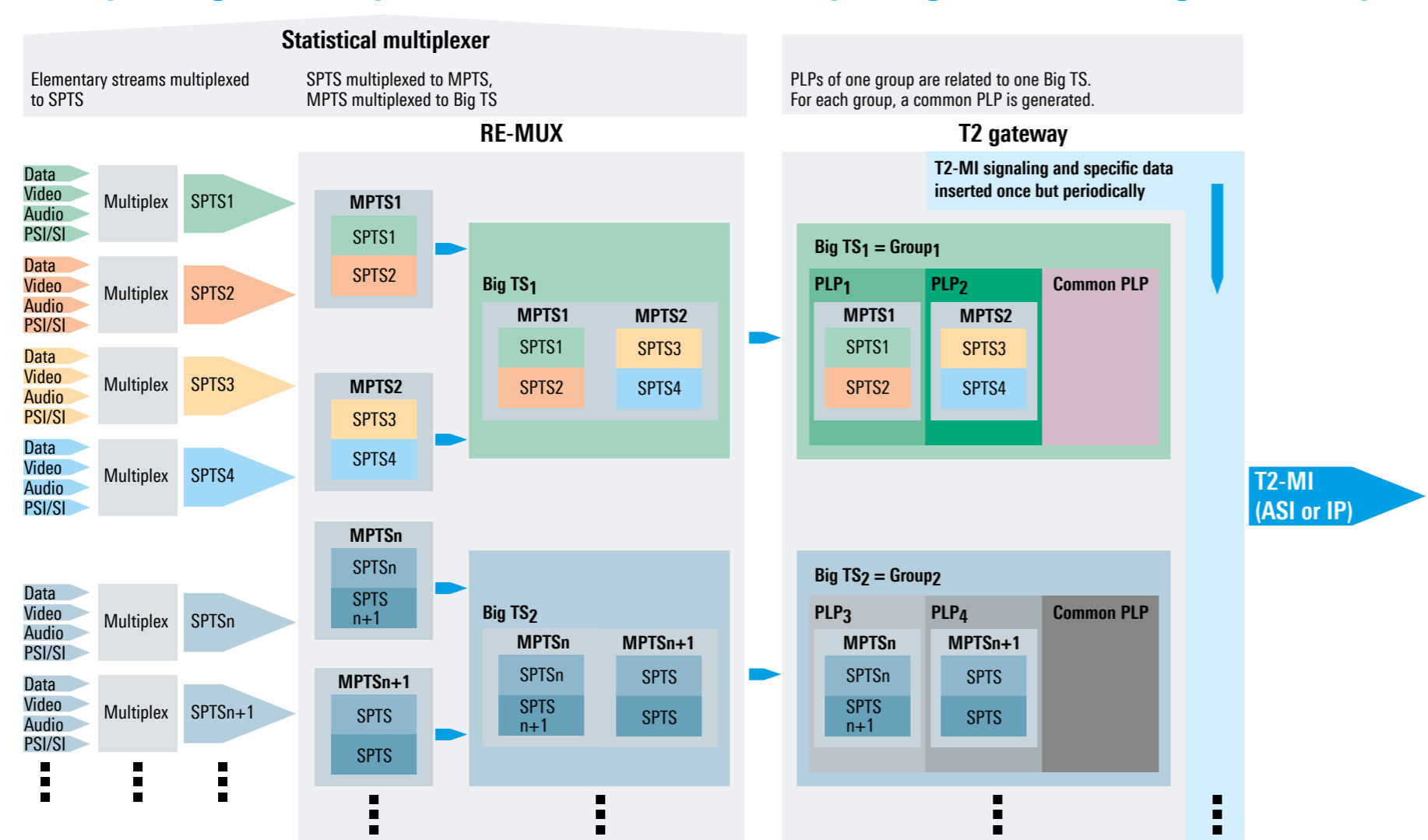


T2 frame structure

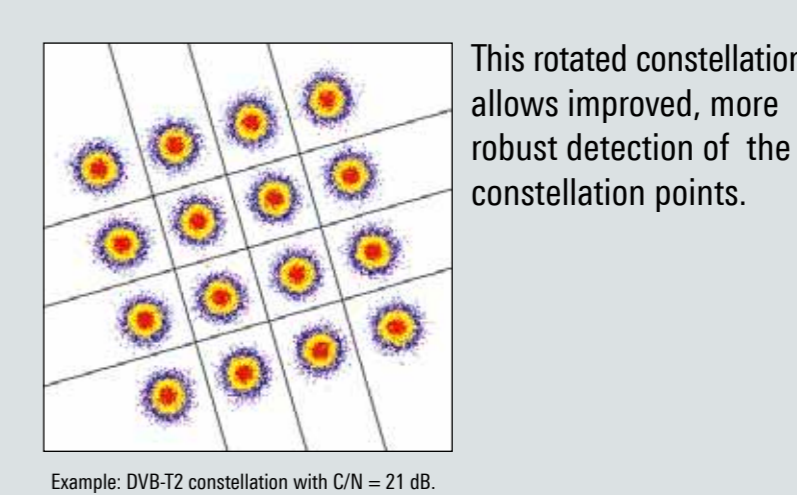
The P1 and P2 symbols and the parallel PLPs are combined into a T2 frame in the frame builder.



Multiplexing of transport streams (TS) and composing of a T2-MI signal (example)



16QAM constellation after rotation



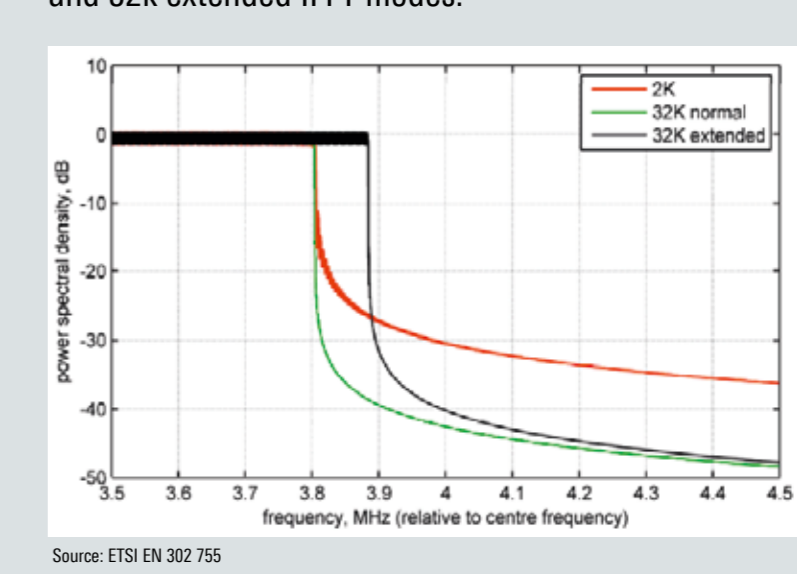
Parameter (OFDM parameter)	1K mode	2K mode	4K mode	8K mode	16K mode	32K mode
Number of carriers K_{used} (normal carrier mode)	853	1705	3409	6817	13633	27265
Duration T_{SF}	1024 T	2048 T	4096 T	8192 T	16384 T	32768 T
Duration T_{T2}	112	224	448	896	1792	3584
Carrier spacing $1/T_{T2}$ (Hz) ^{2,3}	8929	4464	2232	1116	558	279
Spacing between carriers ² K_{used} and $K_{used} - 1$ (Hz) ¹	n/a	7.61 MHz	7.61 MHz	7.61 MHz	7.61 MHz	7.61 MHz
Elementary period as a function of bandwidth:						
Bandwidth	1.7 MHz	5 MHz	6 MHz	7 MHz	8 MHz	10 MHz ⁴
Elementary period T	71/131 μ s	7/40 μ s	7/48 μ s	1/8 μ s	7/64 μ s	7/80 μ s

¹ Values for 8 MHz channels. ² This value is used in the definition of the pilot sequence in both normal and extended carrier mode. ³ Numeric values in italics are approximate values. ⁴ This configuration is only intended for professional applications and is not expected to be supported by domestic receivers.

FFT size	Guard interval								
	1/128	1/32	1/16	19/256	1/8	19/128	1/4		
SISO	32k, 32k ext	PP7	PP4 PP6	PP2 PP8 PP4	PP2 PP8 PP4	PP2 PP8 PP4	PP2 PP8 PP4	PP2 PP8 PP4	n/a
	16k, 16k ext	PP7	PP4 PP6	PP2 PP8 PP4	PP2 PP8 PP4	PP2 PP8 PP4	PP2 PP8 PP4	PP2 PP8 PP4	PP1 PP8
	8k, 8k ext	PP7	PP4 PP6	PP2 PP8 PP4	PP2 PP8 PP4	PP2 PP8 PP4	PP2 PP8 PP4	PP2 PP8 PP4	PP1 PP8
	4k, 2k	n/a	PP7 PP4	PP4 PP6	n/a	PP2 PP8	n/a	PP2 PP8	PP1
1k	n/a	n/a	PP4 PP6	n/a	PP2 PP8	n/a	PP2 PP8	PP1	
MISO	32k, 32k ext	PP8 PP4 PP6	PP4 PP6	PP8 PP8 PP8	PP8 PP8 PP8	n/a	n/a	n/a	n/a
	16k, 16k ext	PP8 PP4 PP6	PP4 PP6	PP8 PP8 PP8	PP8 PP8 PP8	PP1	PP1	n/a	n/a
	8k, 8k ext	PP8 PP4 PP6	PP4 PP6	PP8 PP8 PP8	PP8 PP8 PP8	PP1	PP1	PP8	n/a
	4k, 2k	n/a	PP4 PP6	PP3	n/a	PP1	n/a	PP1	n/a
1k	n/a	n/a	PP3	n/a	PP1	n/a	PP1	n/a	

DVB-T2 spectrum

If a large number of OFDM carriers are used, the spectrum falls sharply toward the band edge. This effect is utilized by DVB-T2 with the 8k extended, 16k extended and 32k extended IFFT modes.



Selection of Rohde & Schwarz solutions for DVB-T2

The advertisement displays a selection of Rohde & Schwarz solutions for DVB-T2, including:

- R&S*DVMS digital TV monitoring system family**
- R&S*SFC compact modulator**
- R&S*EFL340 portable TV test receiver**
- R&S*XL8000 transposer MFN and SFN solutions for DVB-T2**
- R&S*SFE100 test transmitter R&S*SFU broadcast test system**
- R&S*SFE broadcast tester**
- R&S*ETL TV analyzer**
- Full range of Rohde & Schwarz DVB-T2 transmitters (DVB-T2 exiters)**
- R&S*THU9 transmitter (19" Rack, full height)**

www.rohde-schwarz.com/technology/dvb-t2

