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Title:

ETSI TM4 3-11GHz standards

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Venue:

Base Document:

Purpose:

Inform IEEE 802.16 about the ETSI 3-11GHz standards

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ETSI 3-11GHz standards

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Contents

- General parameters
- Jersey meeting: TDMA enhancements

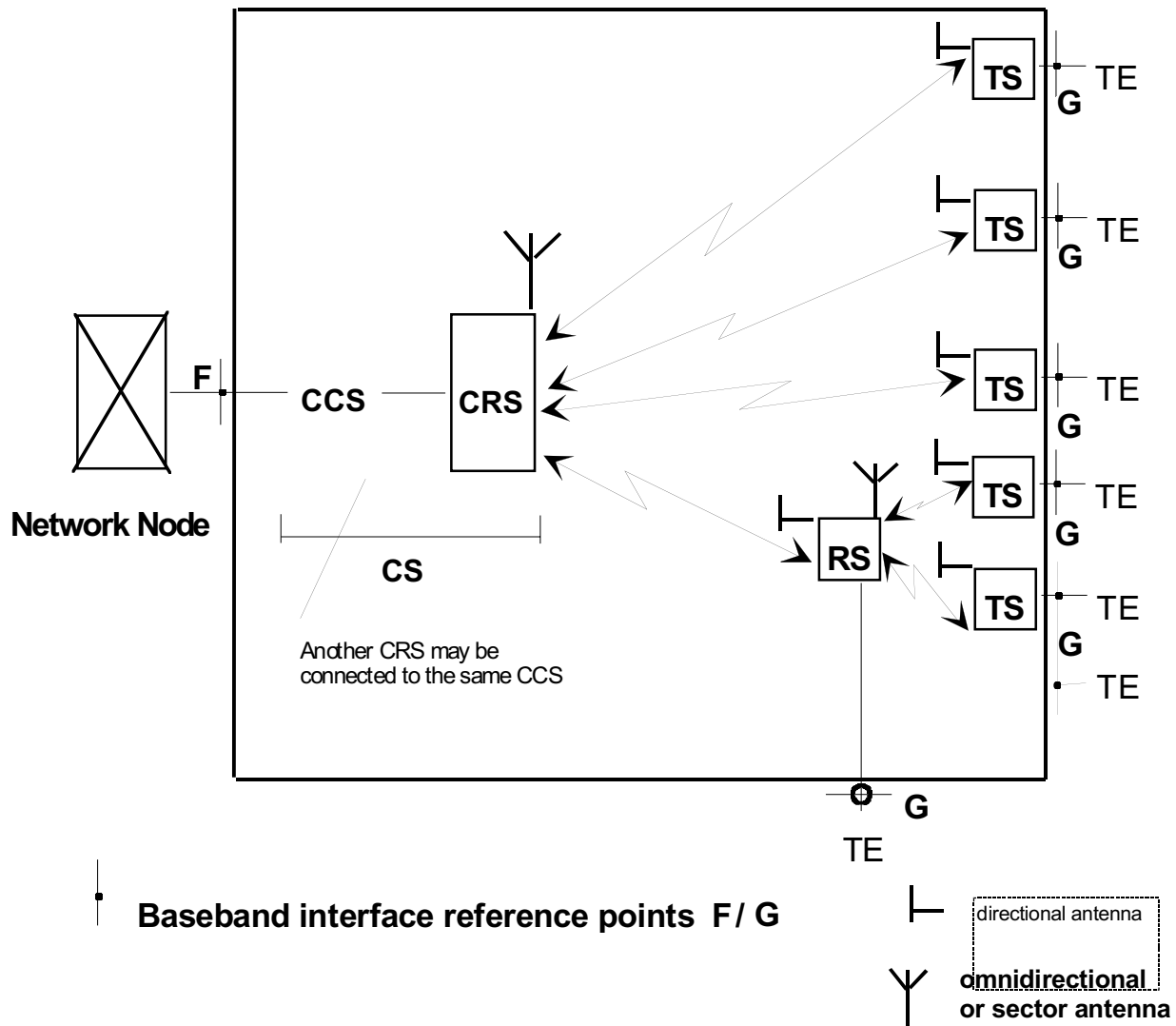
What standards?

- Digital P-MP Systems
 - TDMA - EN 301 021
 - FDMA - EN 301 080
 - DS-CDMA - EN 301 124
 - FH-CDMA - EN 301 253
 - CDMA/TDMA - EN 301 744
- Antenna
 - EN 301 085
- Conformance testing EN 301 126

Parameters

- Now unified under “Generic Wording” draft
- Parameters type
 - System Architecture
 - System Parameters
 - Capacity
 - Performance
 - Voice requirements, etc.
 - Radio
 - Access method specific
 - Interfaces
 - Power supplies

Block Diagram



ETSI proprietary diagram

Frequencies

Frequency band	Band limits	Recommendation
3,5 GHz	3 410 MHz to 3 600 MHz	CEPT ERC Recommendation T/R 14_03
3,7 GHz	3 600 MHz to 4 200 MHz	CEPT ERC Recommendation T/R 12_08
10,5 GHz	10,15 GHz to 10,3 GHz paired with 10,50 GHz to 10,65 GHz	CEPT ERC Recommendation T/R 12_05

Channel Spacing

- Generally:
 - 1.75, 3.5, 7, 14, 28MHz
- In DS-CDMA: also 5,10,15MHz
- In CDMA/TDMA: 24MHz

Capacity

- Defined as gross bit rate in newer standards
- Minimum requirement: 1bit/s/Hz
- Related to channel spacing in most of the standards
- Related to modulation states
- DS-CDMA: related also to Terminal Station number

Transmitter characteristics

- Tx power range
- Spectrum masks
 - Generally: defined for 1.75, 3.5, 7, 14, 28MHz
- Spurious emissions
 - CEPT/ERC Recommendation 74-01
 - Starts at 250% of channel spacing

Receiver characteristics

- Input level range
- Spurious emissions
 - CEPT/ERC Recommendation 74-01
- BER performance
 - General eq.:
For BER = 10^{-3} : $(-93 + 10\log_{10}[\text{gross bit rate Mbit/s}])$ dBm;
For BER = 10^{-6} : $(-89 + 10\log_{10}[\text{gross bit rate Mbit/s}])$ dBm.
 - For DS-CDMA: as function of TS number also
- Co-channel and adjacent channel interference sensitivity
 - BER degradation or RSL degradation approaches

Actual Values

- Lets take a look at the documents....

Unpublished yet TDMA enhancements – Dec. 1999

- Type C: to support DECT
 - Low bit-rate
 - Lower receive sensitivities
 - Same mask as type A
- Type D: to support 64QAM
 - 3 bit/s/Hz
 - new mask

Unpublished yet TDMA enhancements – June 2000

- High coexistence – HC type
 - 1 bit/s/Hz, but better (3-4dB) sensitivity
 - New mask
 - Co-channel and adjacent channel better parameters
- OFDM
 - 1,2,3 bits/s/Hz with same sensitivities, co-channel and adjacent channel immunity as QAM
 - New masks