

ETTC 2015

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COFDM Parameters for Standardisation

COFDM

- COFDM is a frequency-division multiplexing (FDM) scheme used as a digital multi-carrier modulation method
- Large number of closely spaced orthogonal sub-carrier signals are used to carry data[1] on several parallel data streams or channels.
- Each sub-carrier is modulated with a conventional modulation scheme (such as quadrature amplitude modulation or phase-shift keying) at a low symbol rate, maintaining total data rates similar to conventional single-carrier modulation schemes in the same bandwidth

Source Wikipedia

Why do we talk about OFDM?

- **Today: OFDM is widely used in communications standards**

- **Wireless:**

- Mobile telephony: LTE, LTE+, WiMAX
 - Mobile networking: IEEE802.11a/g/n
 - Broadcasting: DVB-T, DVB-H, DAB, DRM
 - ATM data links: L-DACS1, AeroMACS

- **Wired:**

- Power-Line-Communication
 - Broadcasting: DVB-C2



COFDM parameters

- Bandwidth
- Number of subcarriers
- Intercarrier spacing
- Constellation
- Guard interval
- Frame length
- Synchronization : pilots
- Coding

IEEE STANDARDS ASSOCIATION

IEEE

IEEE Standard for Information technology—
Telecommunications and information exchange between systems
Local and metropolitan area networks—
Specific requirements

Part 11: Wireless LAN Medium Access Control (MAC) and Physical Layer (PHY) Specifications

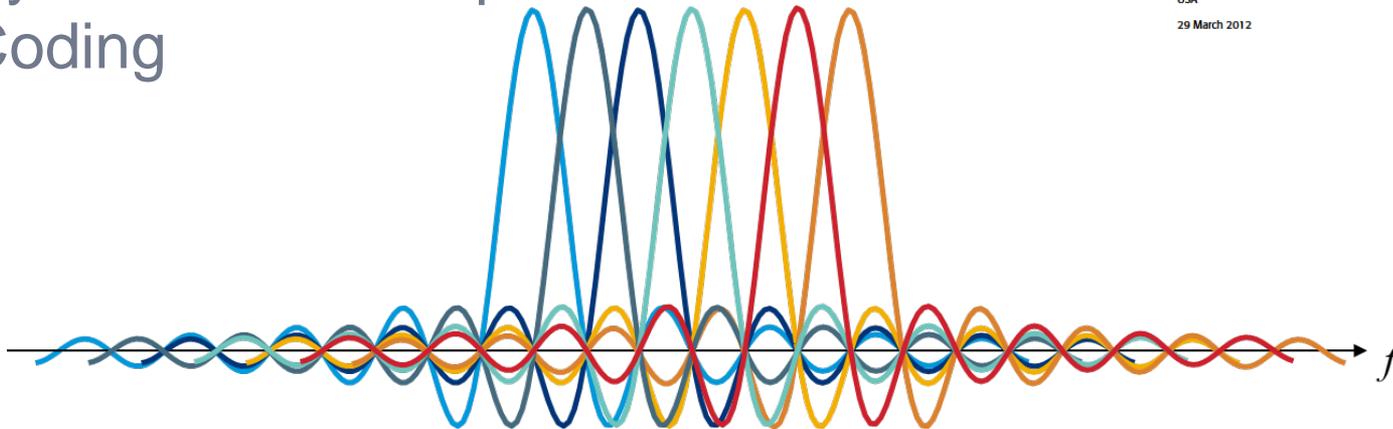
IEEE Computer Society

Sponsored by the
LAN/MAN Standards Committee

IEEE
3 Park Avenue
New York, NY 10016-5997
USA

IEEE Std 802.11™-2012
(Revision of
IEEE Std 802.11-2007)

29 March 2012



COFDM : standard ?

- AIRBUS COFDM parameters configuration :
 - Adapted to aeronautical channel
 - Doppler : up to 1000 km/h
 - Multipath existing on Toulouse Airport
- The development has been made by **ZODIAC DATA SYSTEMS**
- The results are **CONFIDENTIEL INDUSTRIE**
- Zodiac Data Systems must be included in the process

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COFDM for Telemetry : a standard ?

