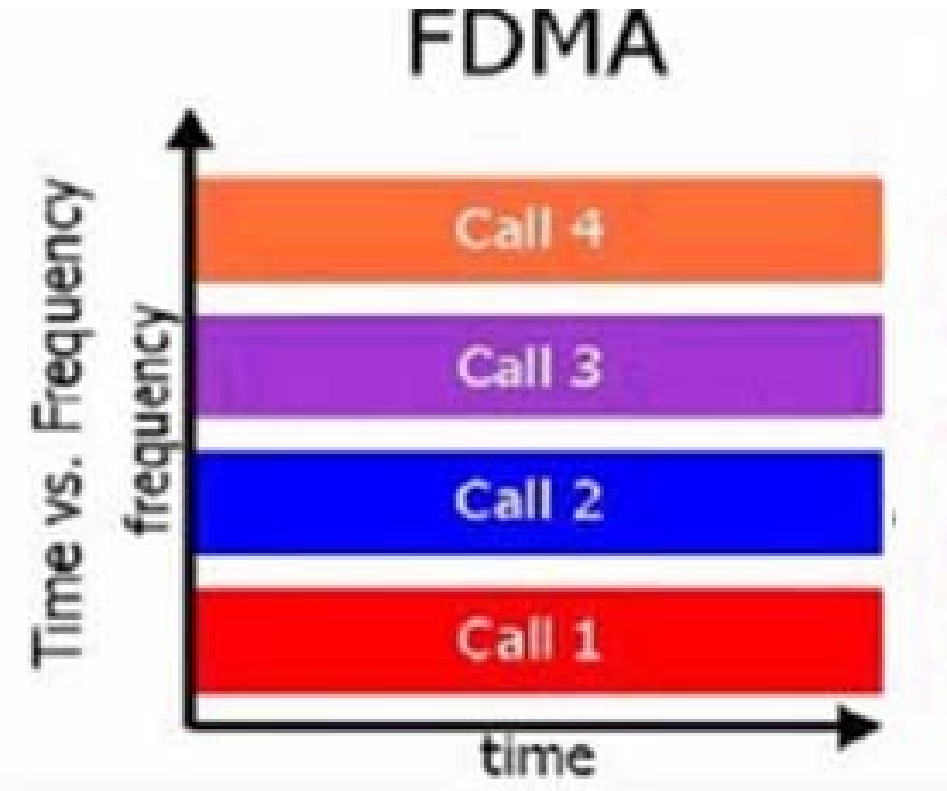
FDMA
Frequency Division Multiple Access

CDMA
Code Division Multiple Access

# FDMA

## Frequency Division Multiple Access



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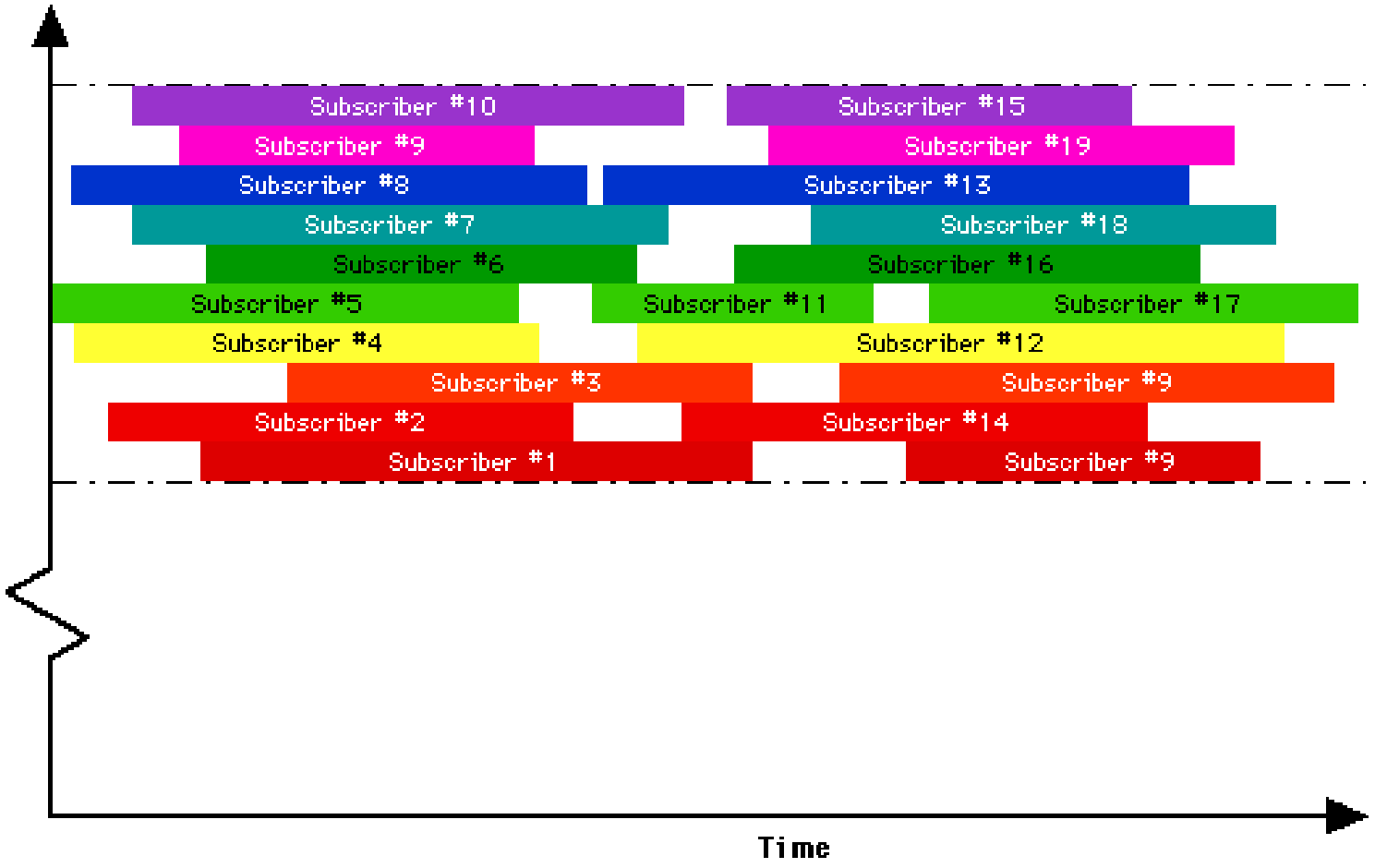

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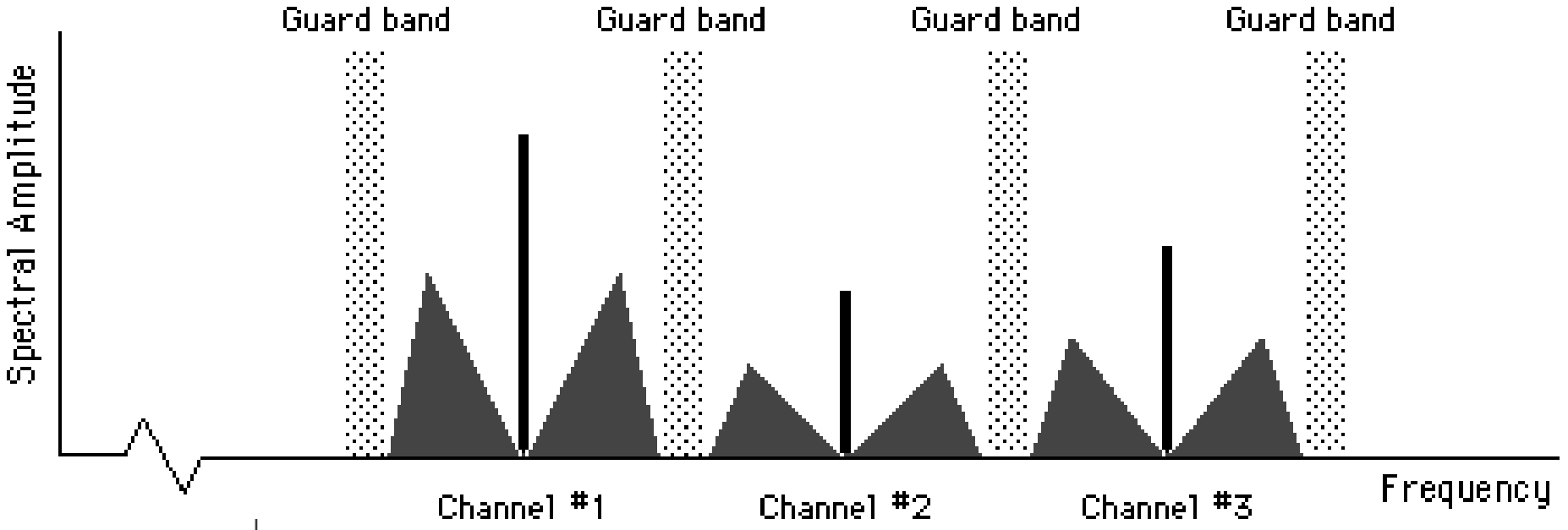


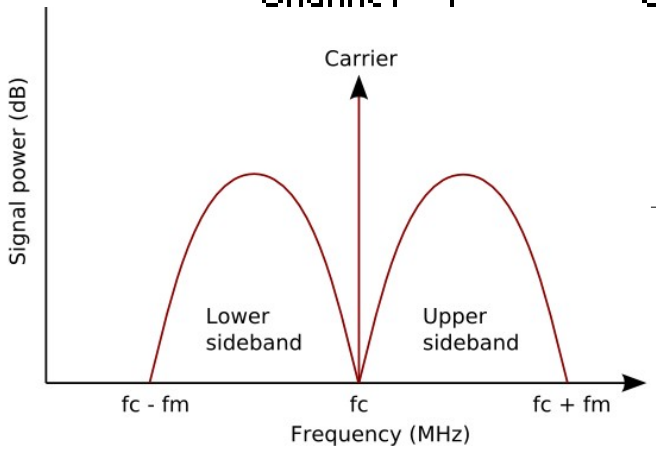


sideband
= wstęga

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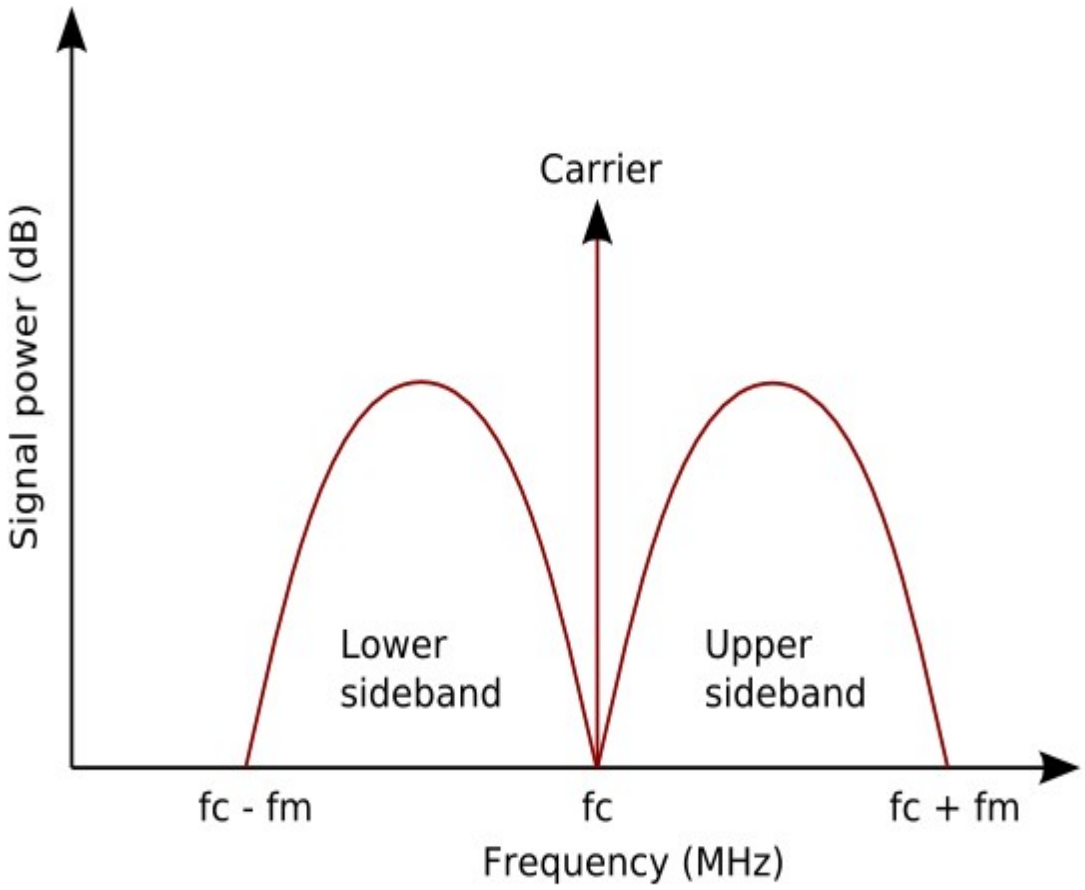
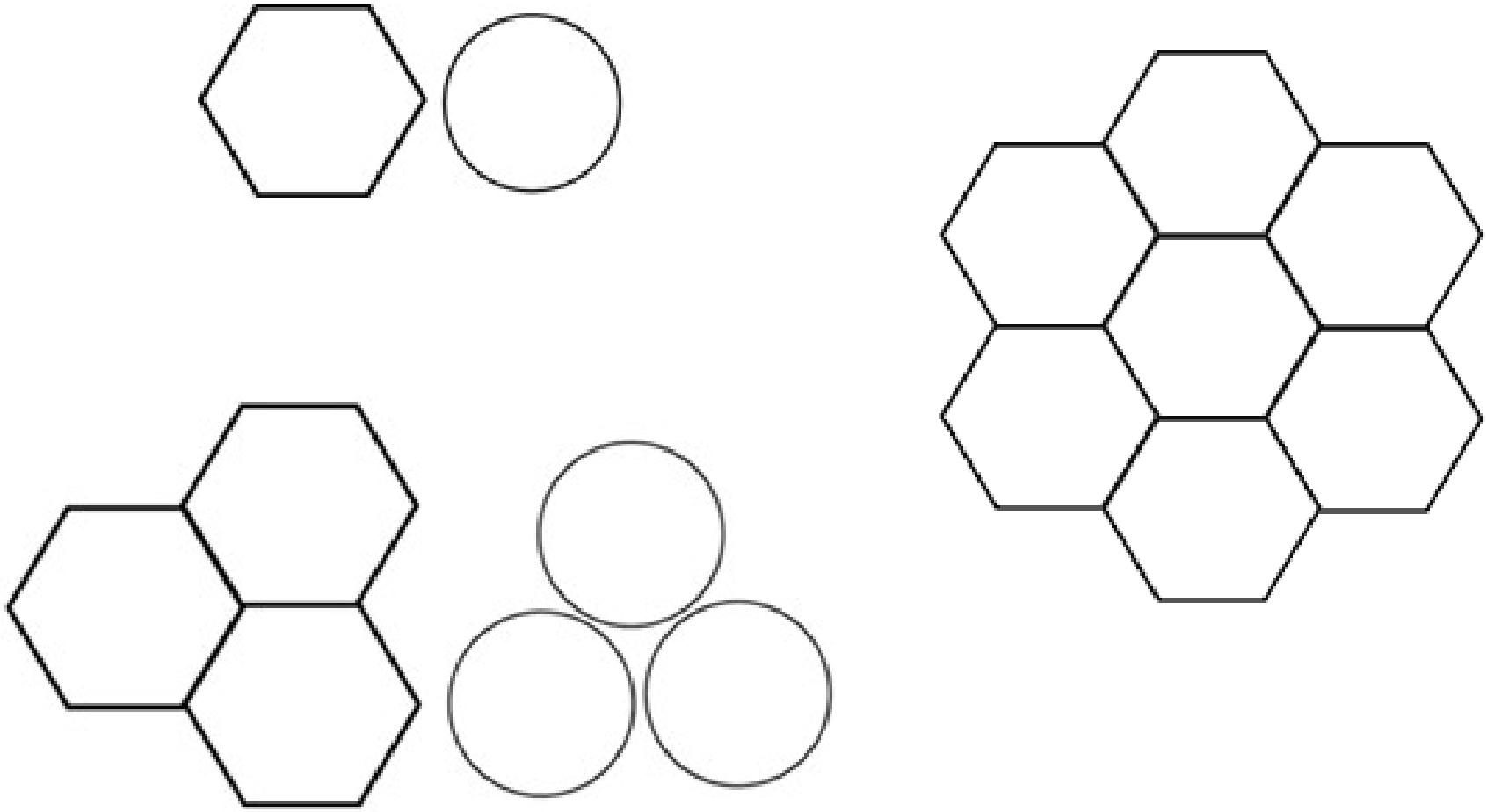



carrier
= fala nośna

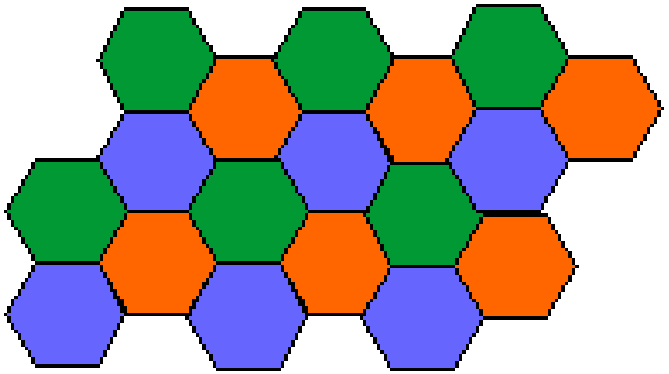
wstęgi wynikają z modulacji fali nośnej *(patrz Fourier)*

sideband
= wstęga

# reprezentacja komórek - sześcioboki

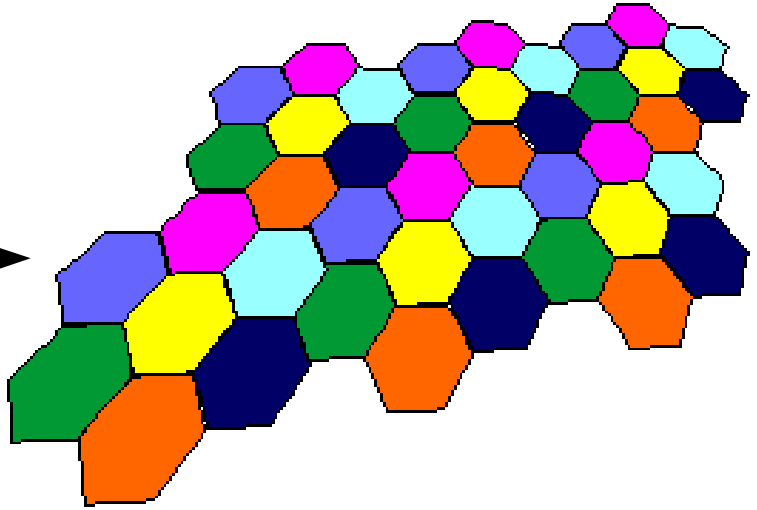


# schematy ponownego wykorzystania częstotliwości *(frequency re-use)*

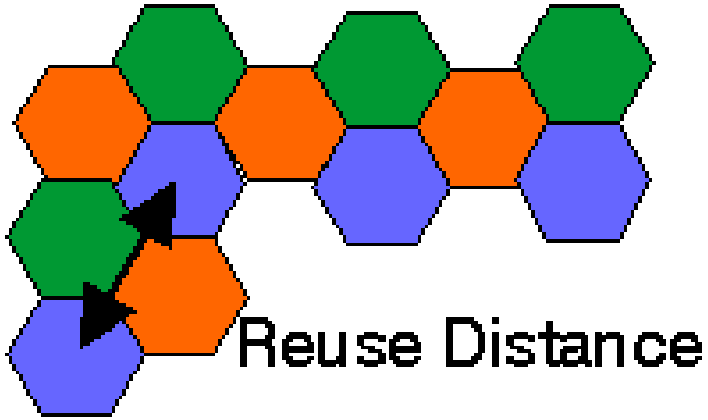


3 zestawy częstotliwości

7 zestawów częstotliwości



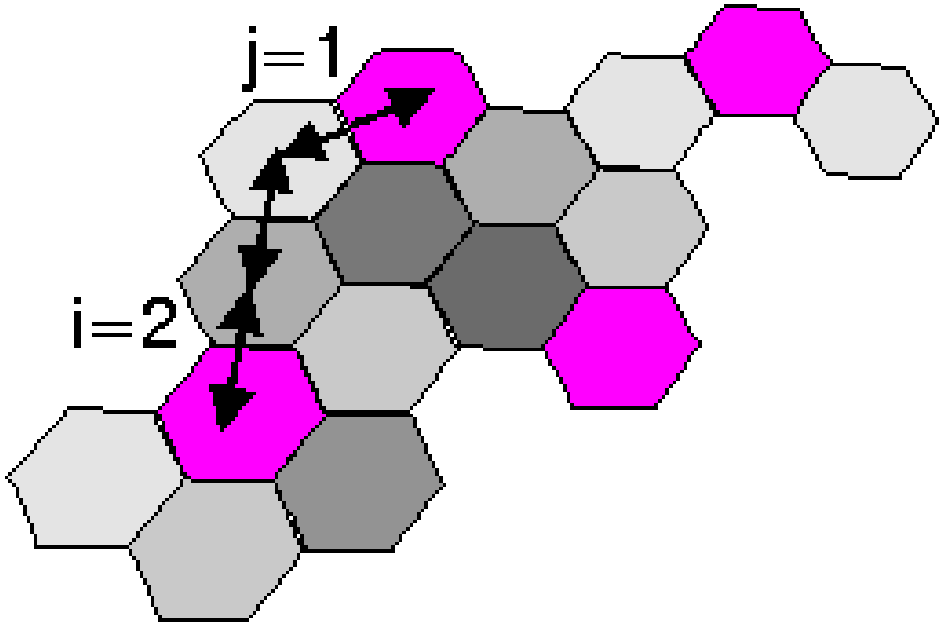
# schematy ponownego wykorzystania częstotliwości *(frequency re-use)*




$$D = R\sqrt{3N},$$

odległość — promień komórki — liczba komórek w grupie

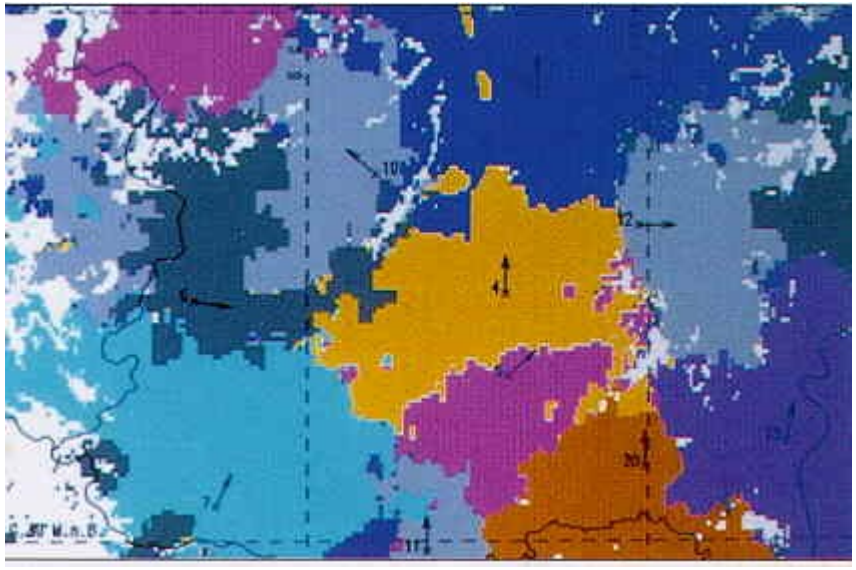
schematy ponownego wykorzystania częstotliwości
*(frequency re-use)*

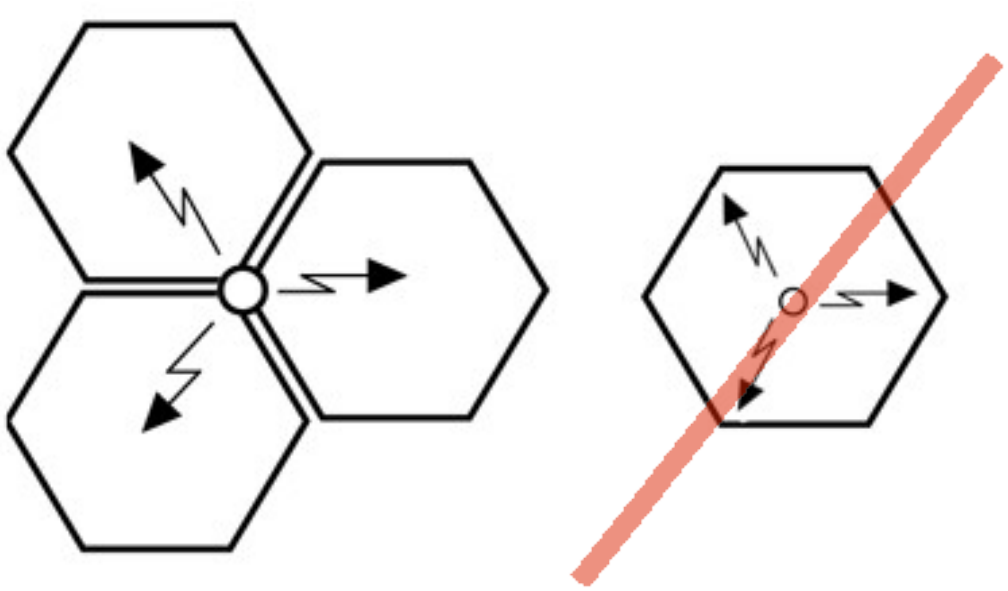



rozmiar grupy *(cluster size)*

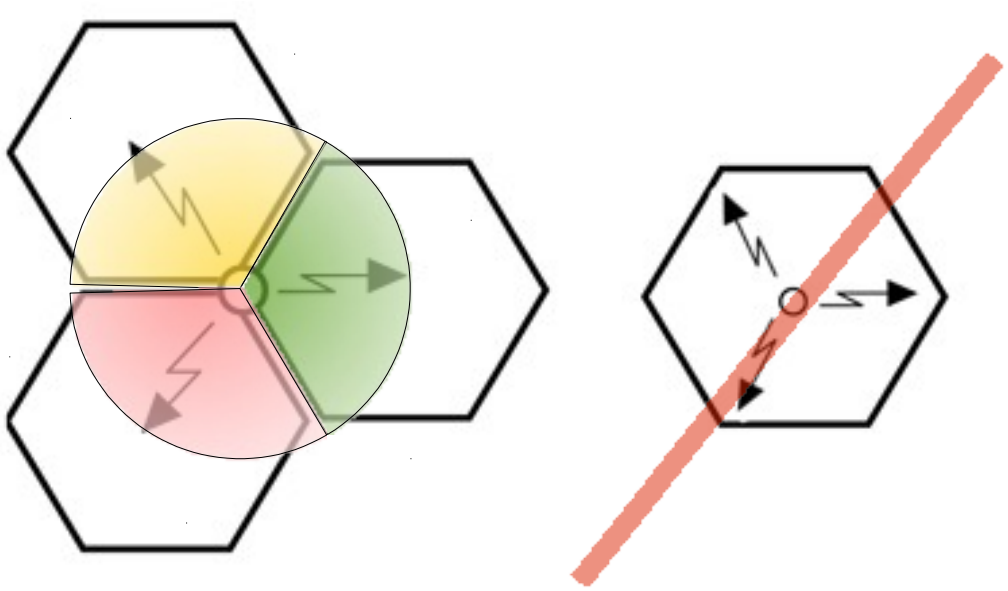
$$C = i^2 + ij + j^2$$

# schematy ponownego wykorzystania częstotliwości *(frequency re-use)*





maszt stoi na połączeniu 3 komórek,
nie na środku



maszt stoi na połączeniu 3 komórek,
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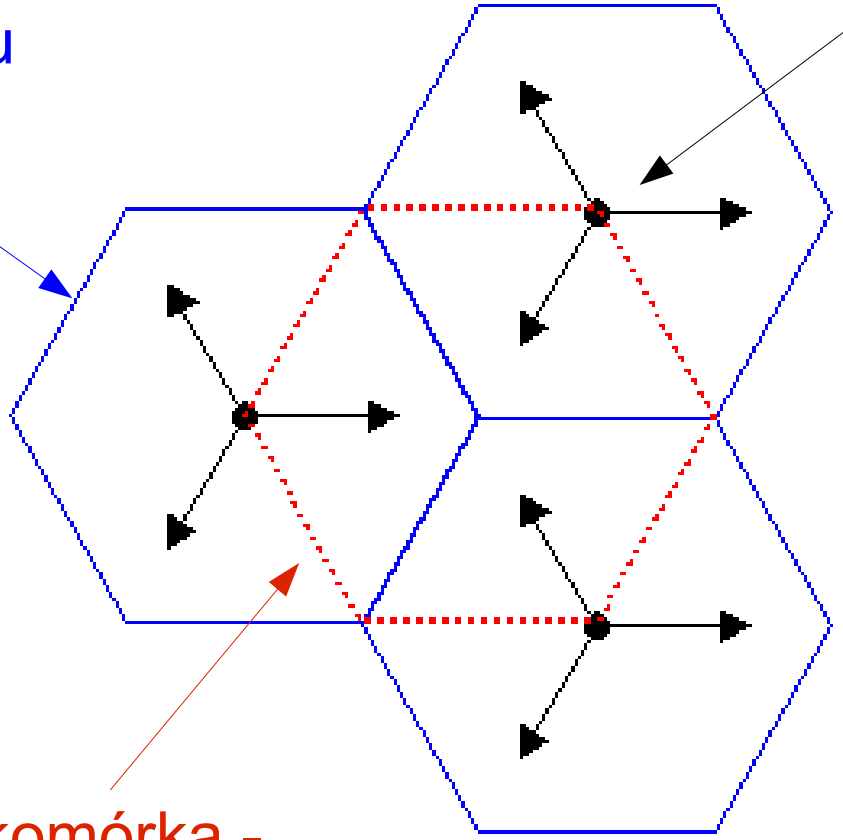
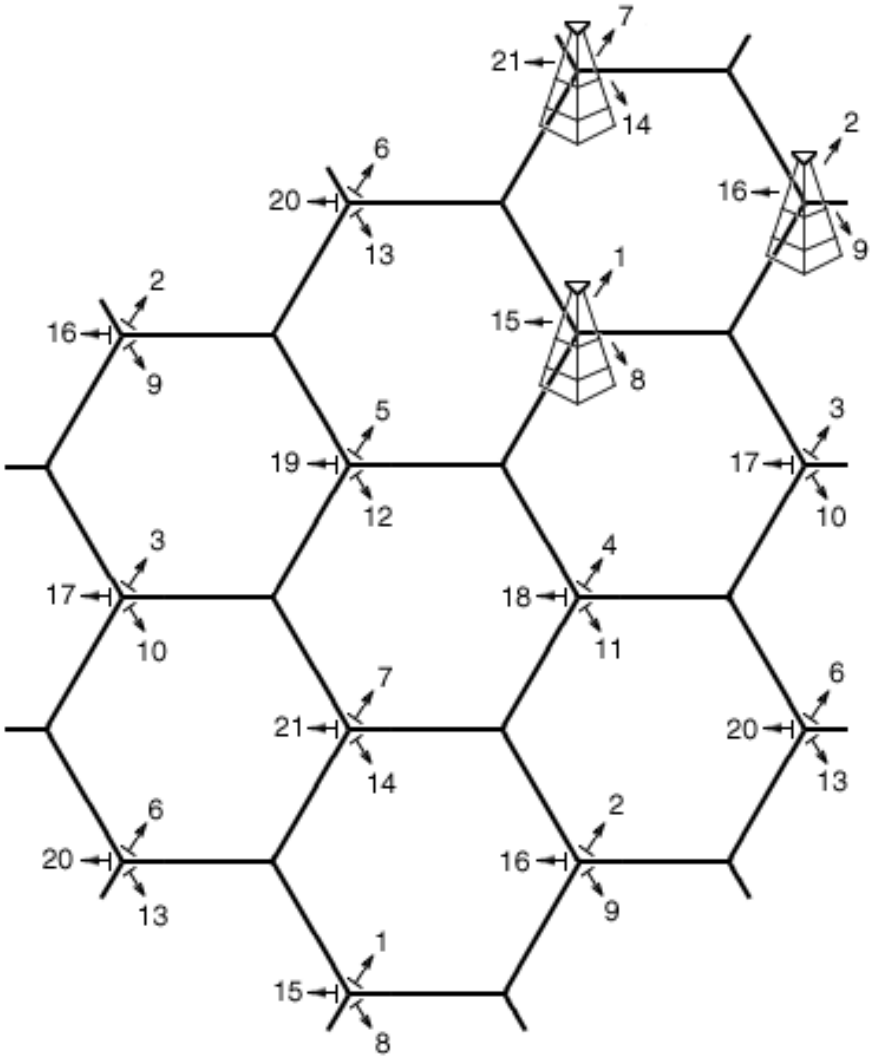
zasięg masztu

maszt z 3-ma antenami



komórka - 3 maszty

# ponowne wykorzystanie częstotliwości *(frequency re-use)*



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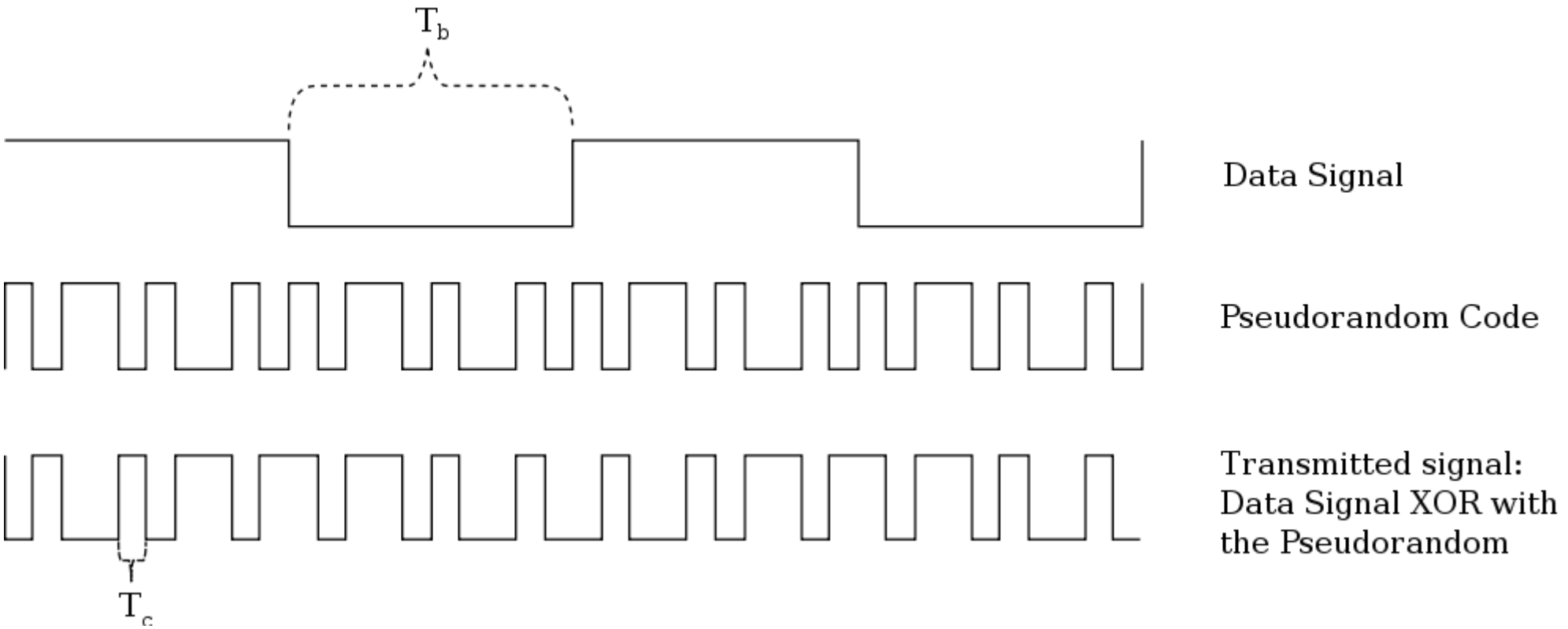

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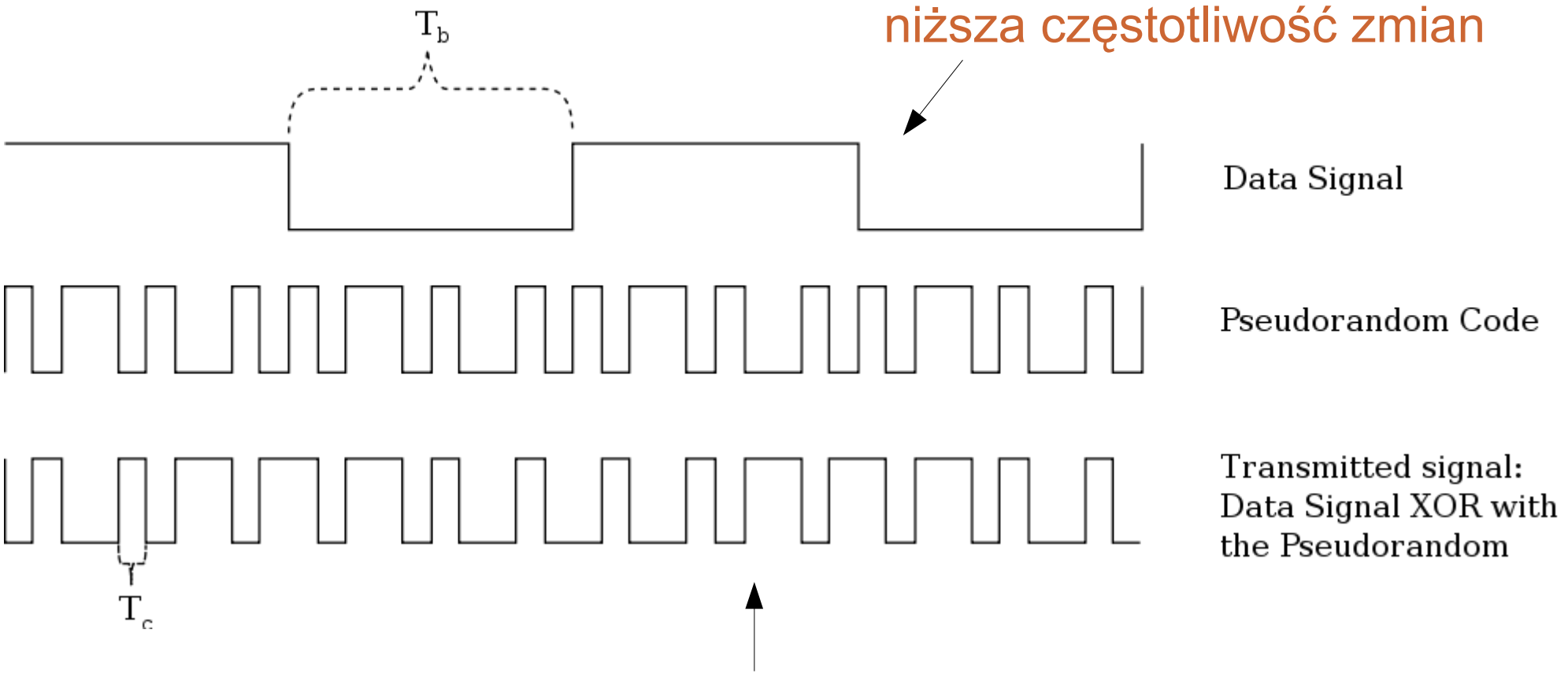


wyższa częstotliwość zmian → szersze pasmo

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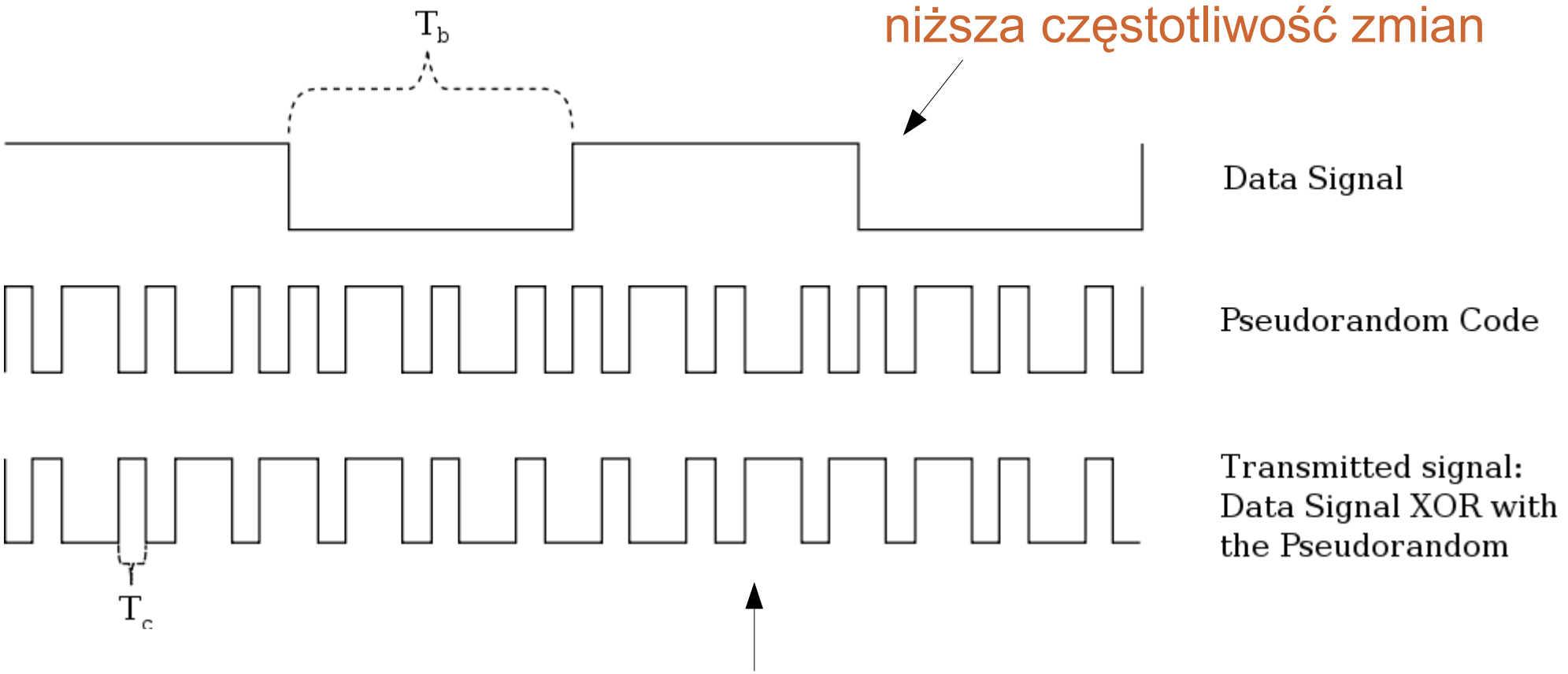


wyższa częstotliwość zmian → szersze pasmo

spread-spectrum

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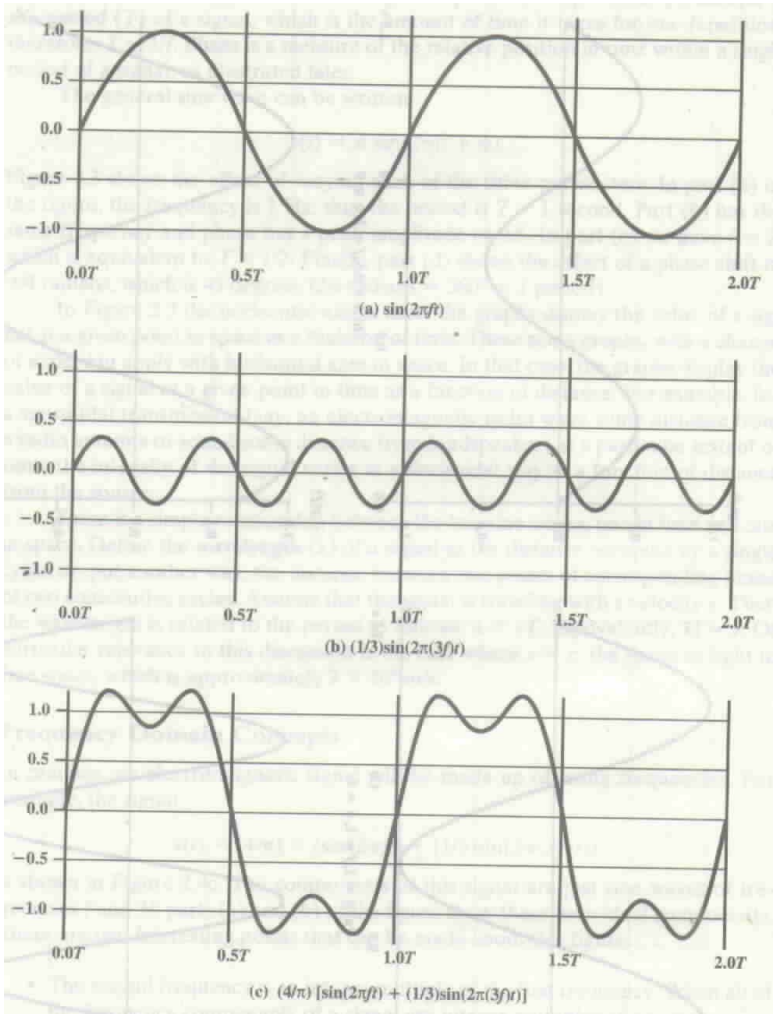


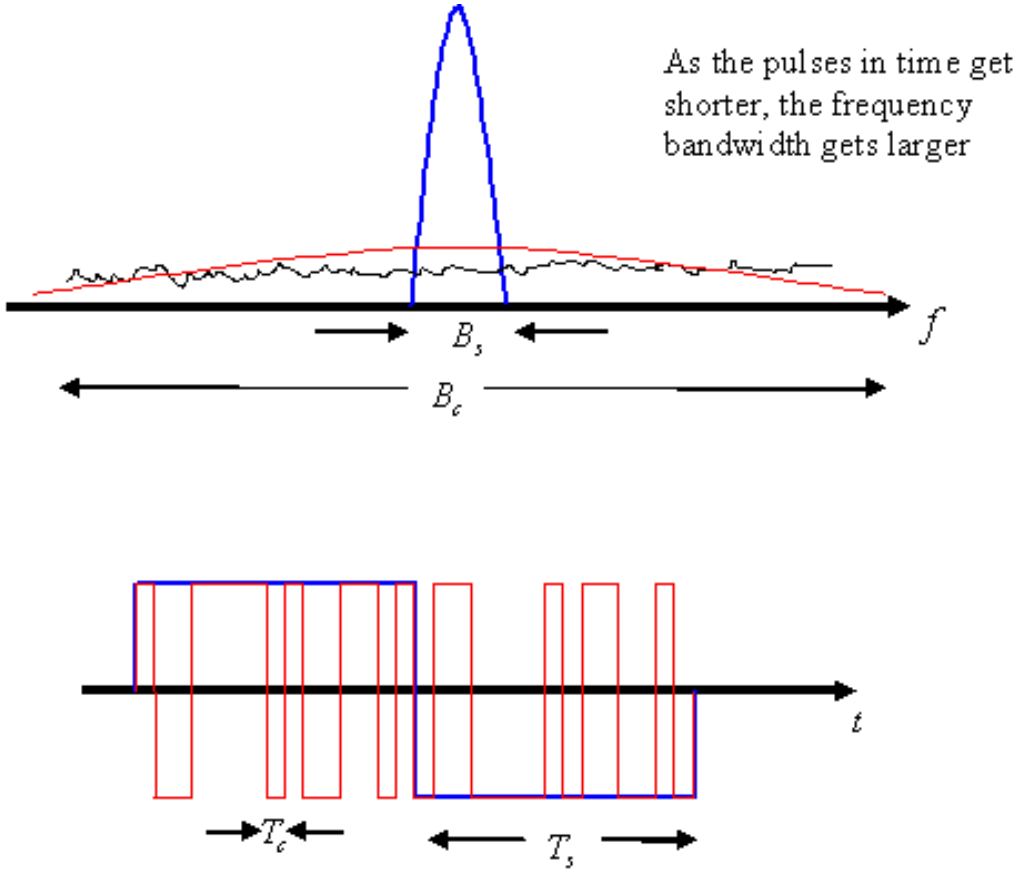


spread-spectrum

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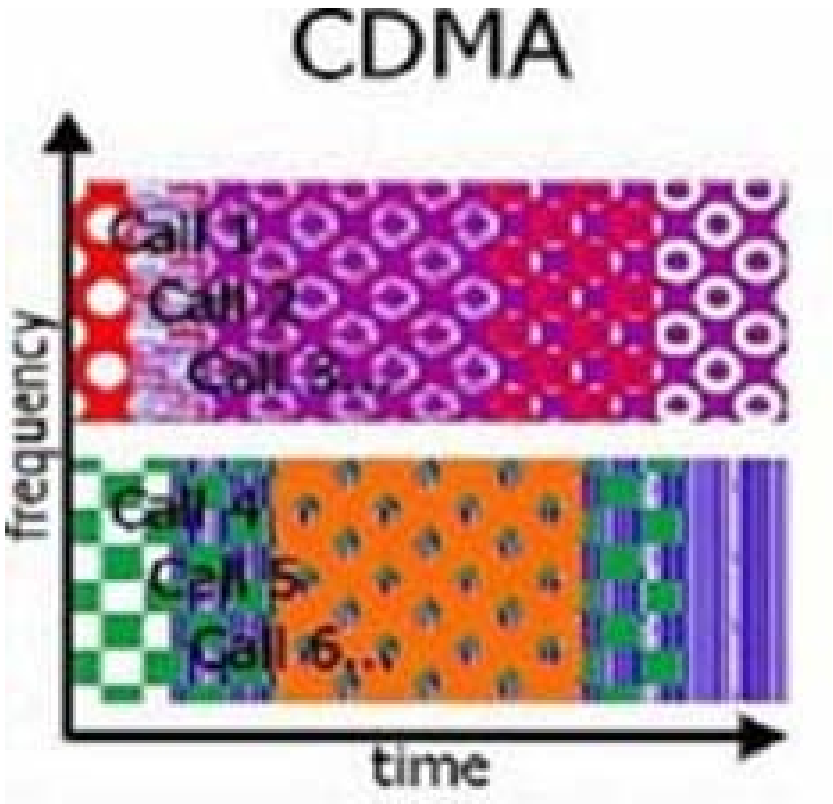

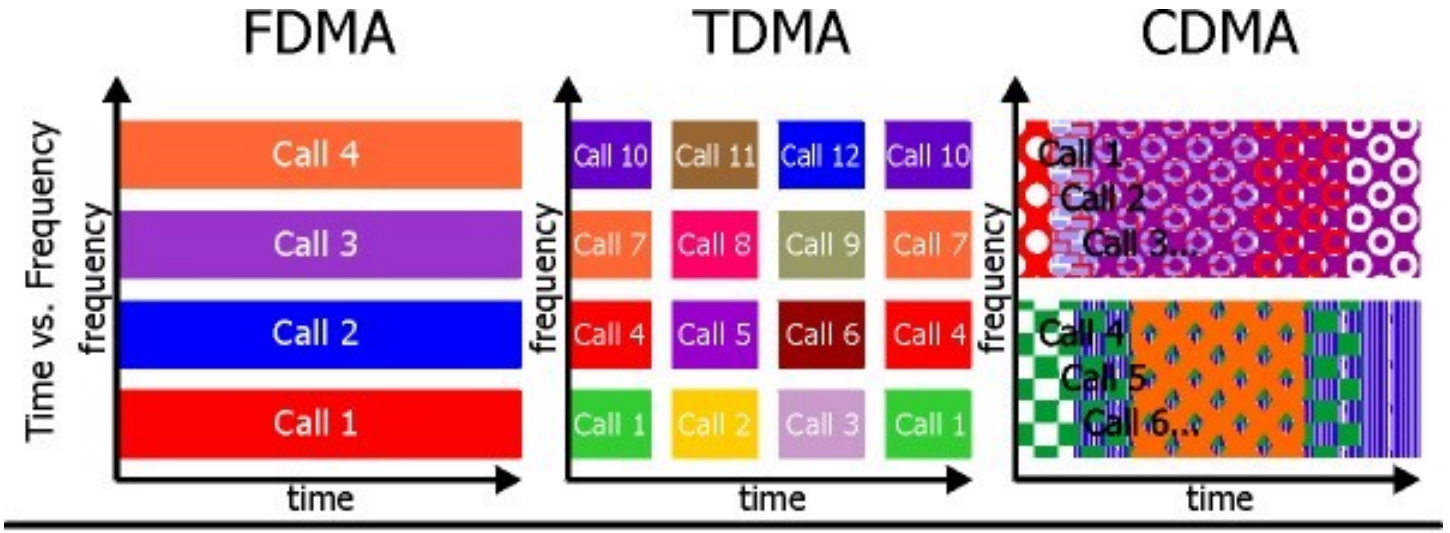


| Conversation Analogy | Everyone talks in a different room to prevent interference. Since the conversation can't be heard from another room, it can be filtered from the other by going to the other room. | Within each room, everyone takes turns talking to prevent interference. Within each room, one person is talking at once, so they must talk fast to say everything. | Everyone speaks a different language at the same time in the same room. Since each language is unique, one may be filtered from another. |
|---|---|---|---|