



ECMF™ series portfolio overview

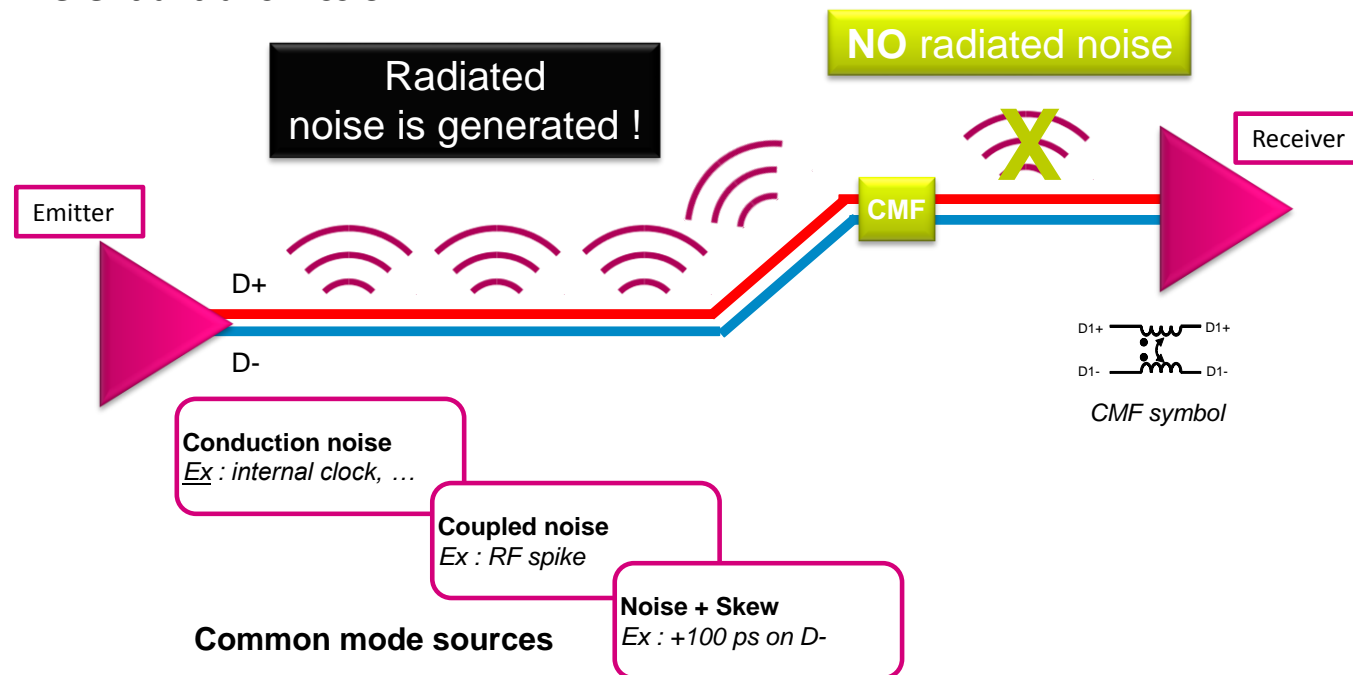
Common-mode filters embedding ESD protection

Purpose of common-mode filtering

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- When subjected to common-mode noise, high-speed differential lines generate **unwanted radiated noise**.
- **Common-mode filters** prevent differential lines from radiating and **interfering** with other RF signals nearby.

Differential transmission

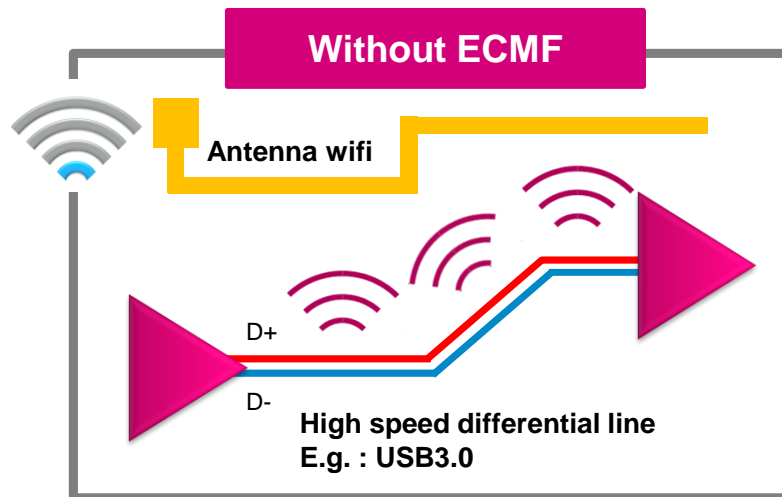


Troubleshooting antenna desense

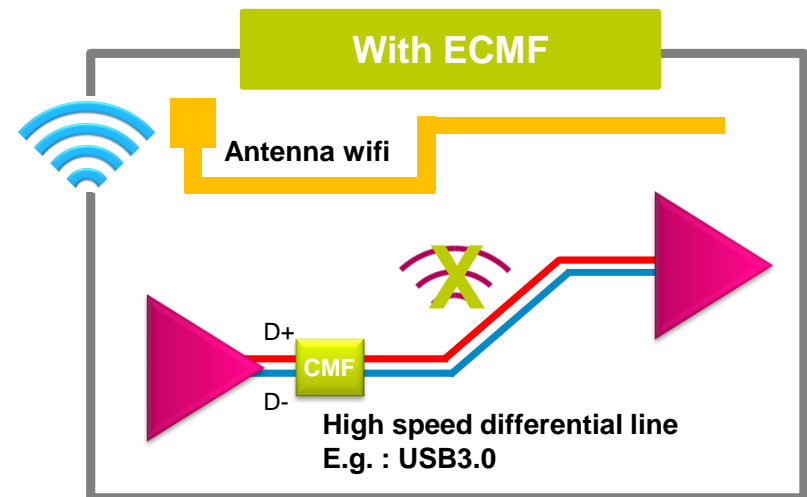
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- The sensitivity of reception antennas is degraded by radiated noise from high-speed data lines when there is:
 - Proximity between the 2 elements
 - Radiated common-mode noise at the antennas reception frequency spectrum
- By eliminating radiated common-mode noise, ECMF™ preserves the antenna sensitivity.

Example with Wi-Fi antenna / USB 3.0 port:



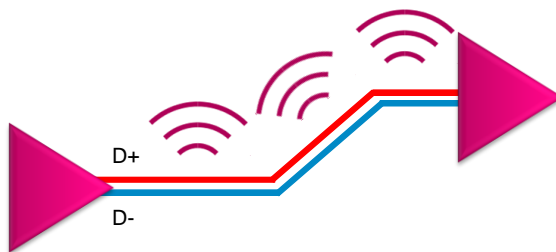
**Degraded sensitivity
Loss of connection**



Sensitivity preserved

When you have to implement high-speed lines in your RF system, you need to think CMF

High-speed lines



- MIPI
- SATA
- HDMI
- DisplayPort
- USB 2.0
- USB 3.1

CMF



Avoid desense

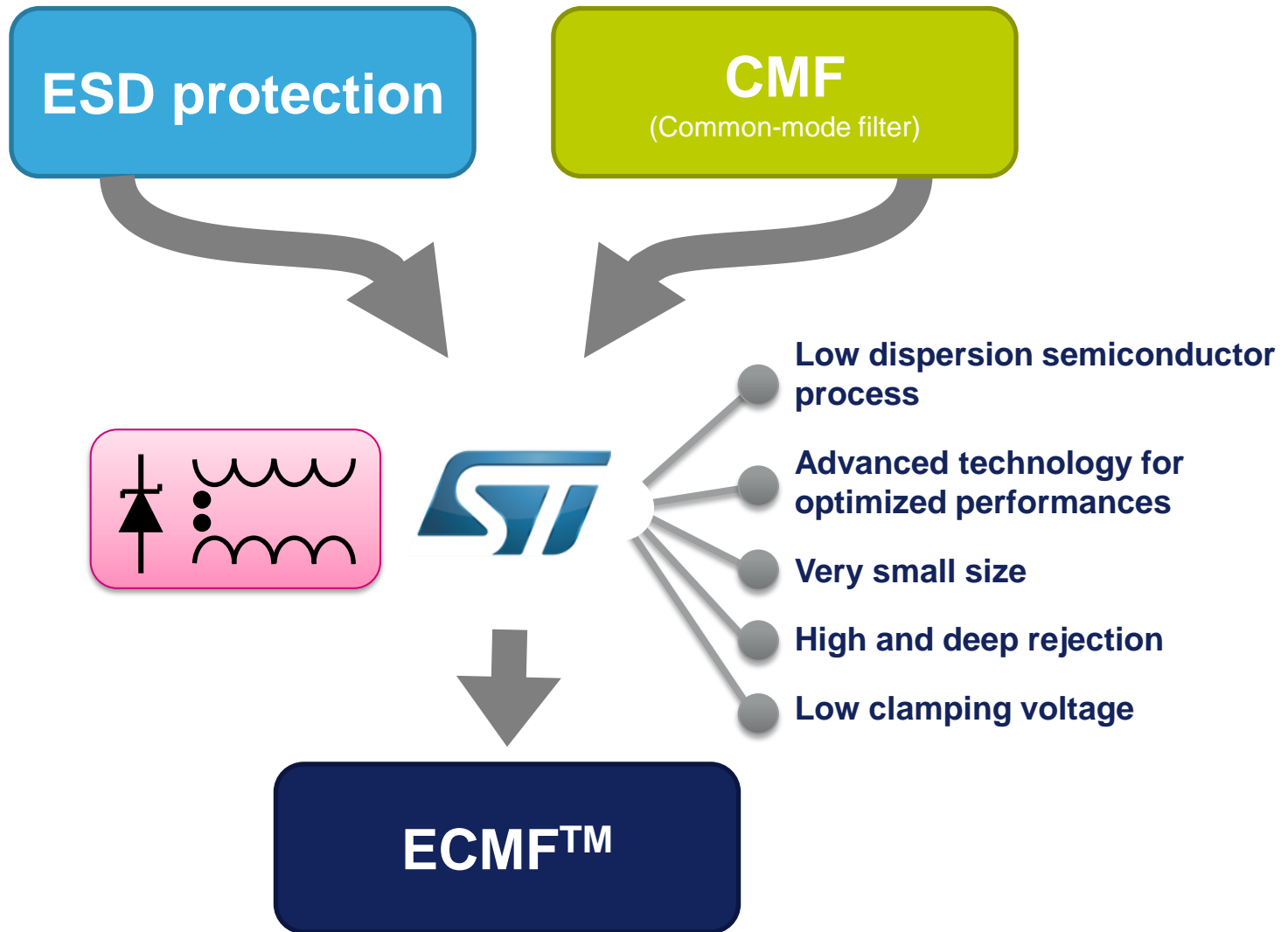
Antenna



- Wi-Fi
- Bluetooth
- GPS
- WCDMA
- LTE
- Sub-GHz
- ZigBee

... With integrated ESD protection

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Selection guide – ECMF™

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DIFFERENTIAL BANDWIDTH

complies with the following standards

Speed Class 1

- MIPI D-PHY (DSI & CSI)
- USB 2.0, MHL 2.0
- HDMI 1.4
- DisplayPort™
- SATA

Speed Class 2

- Speed Class 1 interfaces
- MIPI M-PHY (DSI & CSI)
- USB 3.0
- USB 3.1
- HDMI 2.0

Part number	Number of lanes			Peak rejection frequency (> -20 dB) (GHz)				Z _{CC21} @ 100 MHz (Ω)	Speed class		Package type	Package size X × Y (mm)
	1	2	3	0.7-0.9	1.5	1.8-2.4	5		I	II		
ECMF02-2BF3	●			●	●			14	●		Flip-Chip	0.83 x 1.23
ECMF02-4CMX8	●			●	●			16	●		μQFN-8L	1.20 x 2.50
ECMF02-2HSMX6	●			●	●	●	●	50		●	μQFN-6L	1.50 x 1.70
ECMF02-2AMX6	●			●	●			16	●		μQFN-6L	1.50 x 1.70
ECMF02-3HSM6	●			●				30		● (*)	μQFN-6L	1.35 x 1.60
ECMF04-4HSM10		●		●				30		● (*)	μQFN-10L	1.35 x 2.60
ECMF04-4HSWM10		●			●	●		30		●	μQFN-10L	1.35 x 2.60
ECMF04-4AMX12		●		●	●			16	●		μQFN-12L	1.50 x 3.30
ECMF06-6HSM16			●	●				30		● (*)	μQFN-16L	1.35 x 4.10
ECMF06-6AM16			●	●	●	●		15	●		μQFN-16L	1.35 x 3.30



Thank you