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Harmonics and interference cannot be avoided when HVDC LCC technology (**L**ine-commutated **C**urrent-sourced **C**onverter) is implemented. This affects the quality of the AC voltage between the transformer and the converter. The transformer is permanently exposed to voltage drops, transient signals, overshoots and the resulting harmonics. These effects must be taken into account when designing the transformer, since the harmonics, for example, manifest themselves in additional losses.

The harmonics and interference depend on the operating condition and the HVDC system design. In case of at the AC grid connection point the grid code with respect to acceptable THD cannot be kept due to harmonics additional measures like e. g. filters are necessary.

To avoid harmonics, HVDC VSC (Self-commutated **V**oltage-**S**ourced **C**onverter) in combination with MMC technology (**M**odular **M**ultilevel **C**onverter) is the better choice. LCC technology uses thyristors as valves. They have only a switch-on capability. VSC technology uses IGBTs as valves. The main advantage of IGBTs is that they have both a switch-on and switch-off capability. In combination with the multilevel converter (MMC) it is possible to implement many intermediate circuits. This reduces the magnitude of the voltage jumps to a very low level. The AC voltage generated in this way looks like a "digital" sine wave. With this technology, the harmonics and distortions are reduced to a minimum and are typically lower than required for AC networks. However, the selection of this converter technology depends on various other criteria (e. g. loss production) as well.