01010111 ....

| Generate bit sequence | → | Represent bit information as a symbolic information | → | Binary to decimal for MQAM | → | MPAM Mapping | → | RRC filter | → | Up conversion | $s(t)$ |

Hilbert Transformer → $\hat{s}(t)$ → $\oplus$ → $s_a(t) = s(t) + i \cdot \hat{s}(t)$ → Real / Imag

$s(t)$

LASER

IQ modulator

Phase Shift

0°

90°

$\oplus$

$\hat{s}(t)$

Fiber Loop

$A_s(t)$

SSB Optical Signal

$s(t)$: *modulated signal*
$\hat{s}(t)$: Hilbert transform of s(t)
$s_a(t)$: *Analytical signal*
$A_s(t)$: *Single Sideband (SSB) signal*