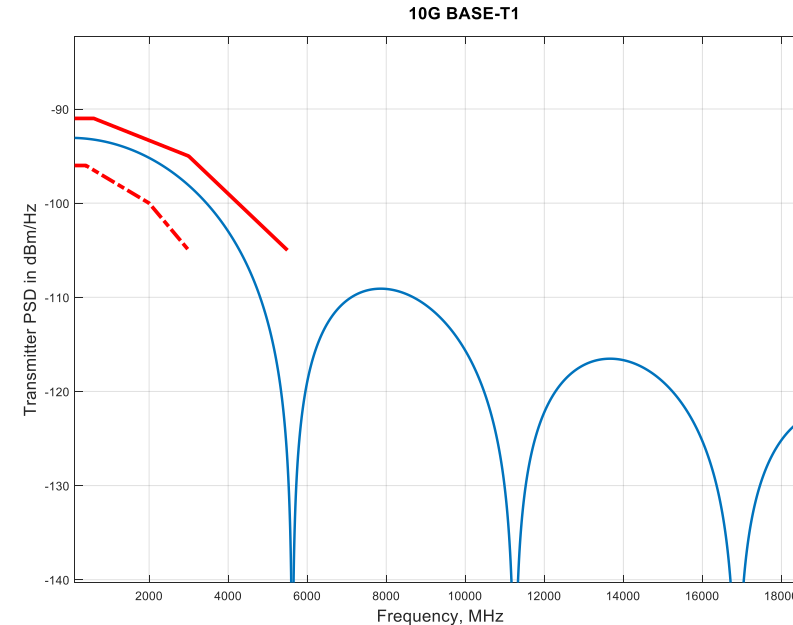
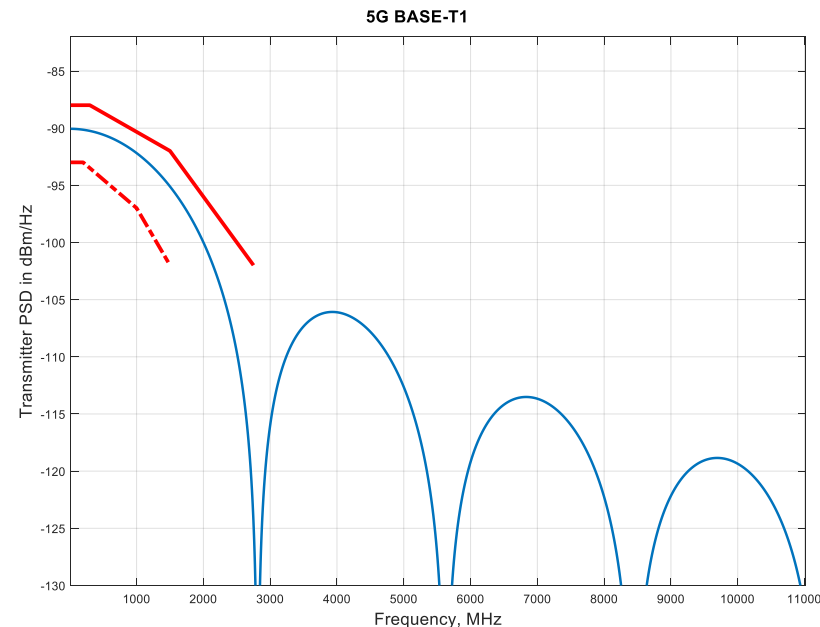
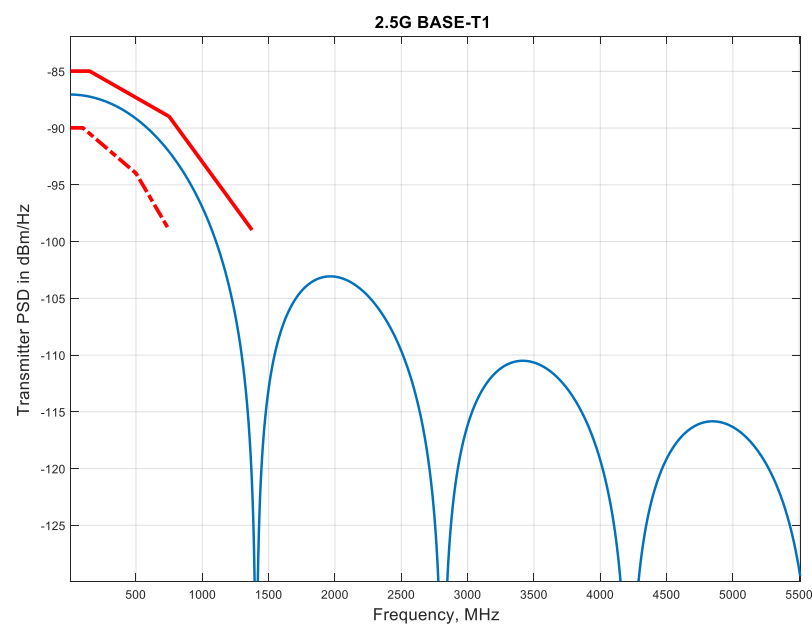


Transmitter PSD Masks

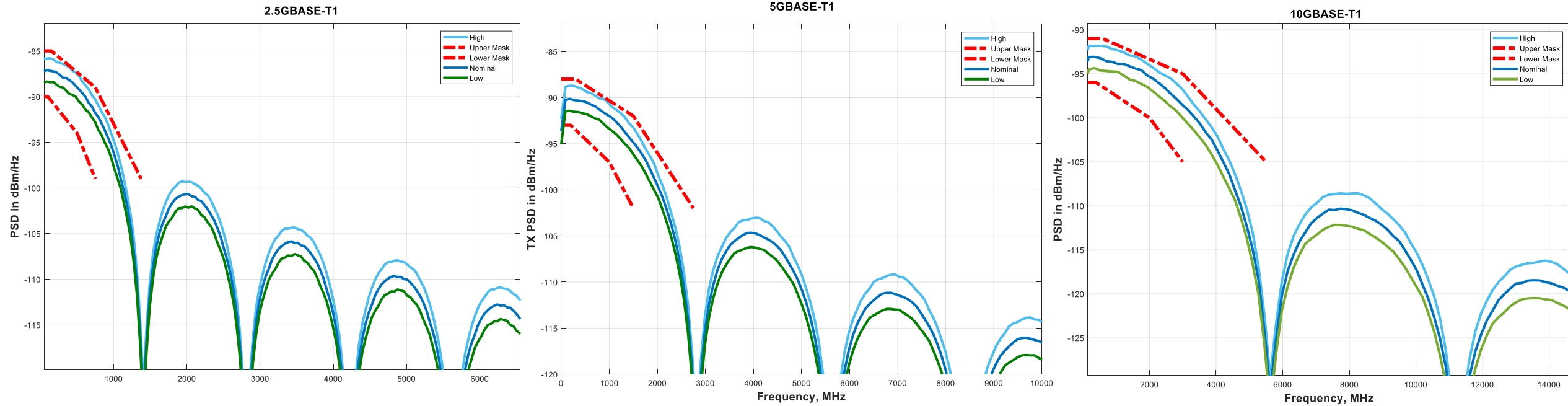
Kadir Dinc
Tom Souvignier

Analytical: 2.5G, 5G, 10G Transmit Power Spectral Density



- Test Mode 5
- Transmitter output 1V peak to peak differential signal
- 100 Ω termination

Simulated: 2.5G, 5G, 10G Transmit Power Spectral Density



- 100 Ω load
- Termination resistance variation +/- 20%
- Analog voltage variation +/- 5%
- Capacitance varied between 0.5pF to 1.5pF

2.5G, 5G, 10G Transmit Power Spectral Density Masks

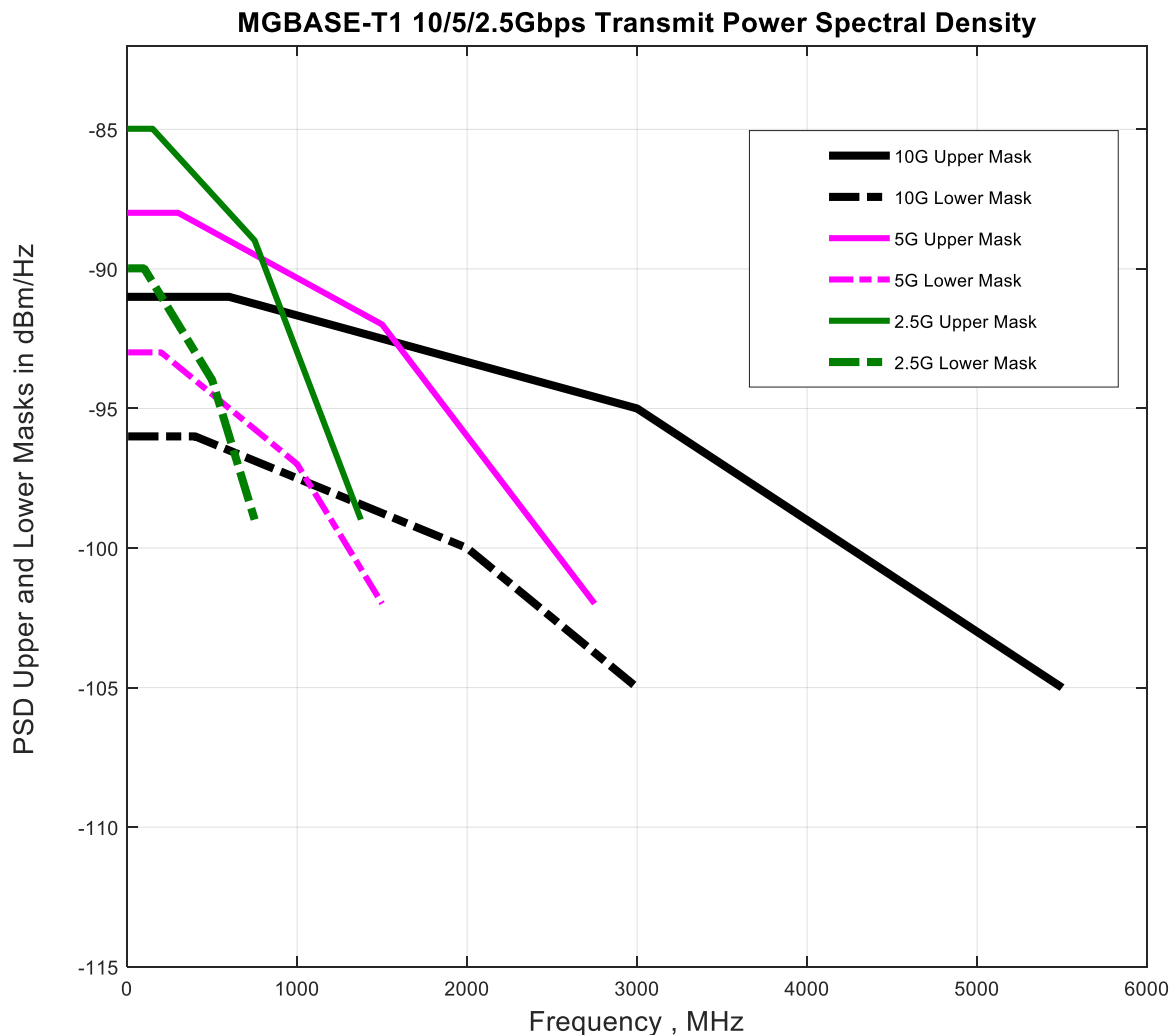


Fig.1 Transmitter Upper and Lower Masks

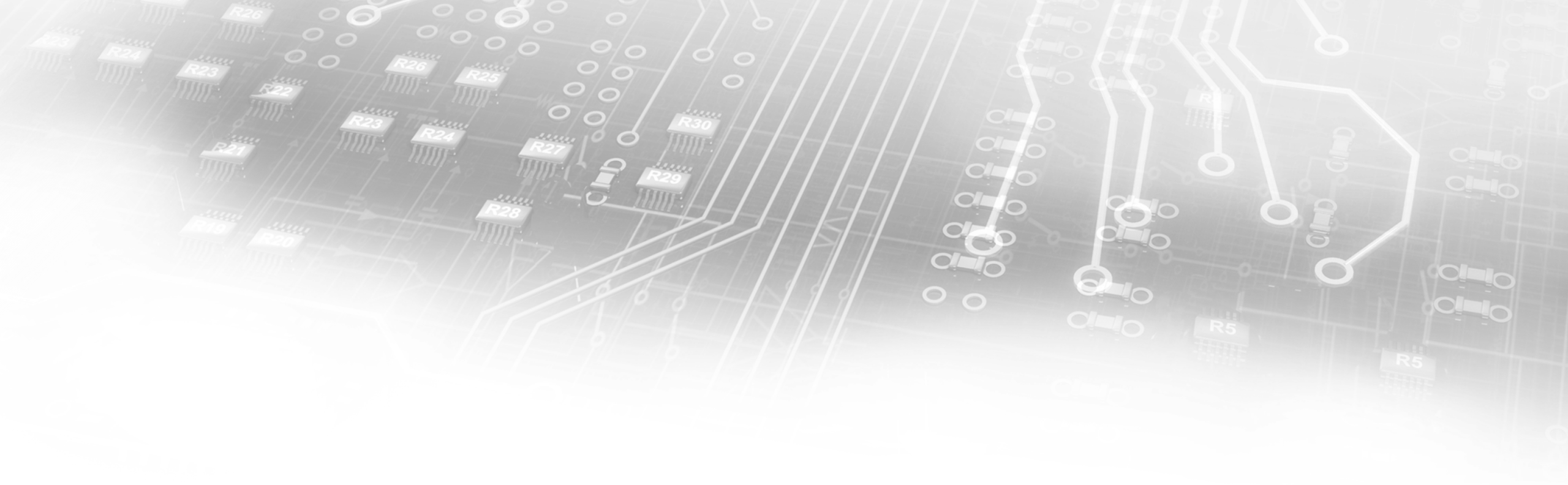
Upper PSD(f) = $-91 - K$ dBm/Hz $0 < f \leq 600 * S$
 $-90 - K - \frac{f}{600 * S}$ dBm/Hz $600 * S < f \leq 3000 * S$
 $-83 - K - \frac{f}{250 * S}$ dBm/Hz $3000 * S < f \leq 5500 * S$

Lower PSD(f) = $-96 - K$ dBm/Hz $5 < f \leq 400 * S$
 $-95 - K - \frac{f}{400 * S}$ dBm/Hz $400 * S < f \leq 2000 * S$
 $-90 - K - \frac{f}{200 * S}$ dBm/Hz $2000 * S < f \leq 3000 * S$

f in MHz, $K = 10 * \log_{10}(S)$, and parameter S is used for scaling:

- $S = 0.25$ for 2.5GBASE-T1
- $S = 0.5$ for 5GBASE-T1
- $S = 1$ for 10GBASE-T1

In Test mode 5, the transmit power shall be lower than 3 dBm measured into a 100 Ω and shall be between the upper and lower masks specified in above Equation. The masks are shown graphically in Fig. 1.



THANK YOU

