

# Update on PSD Mask Proposal for 802.3dm

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# Contributors

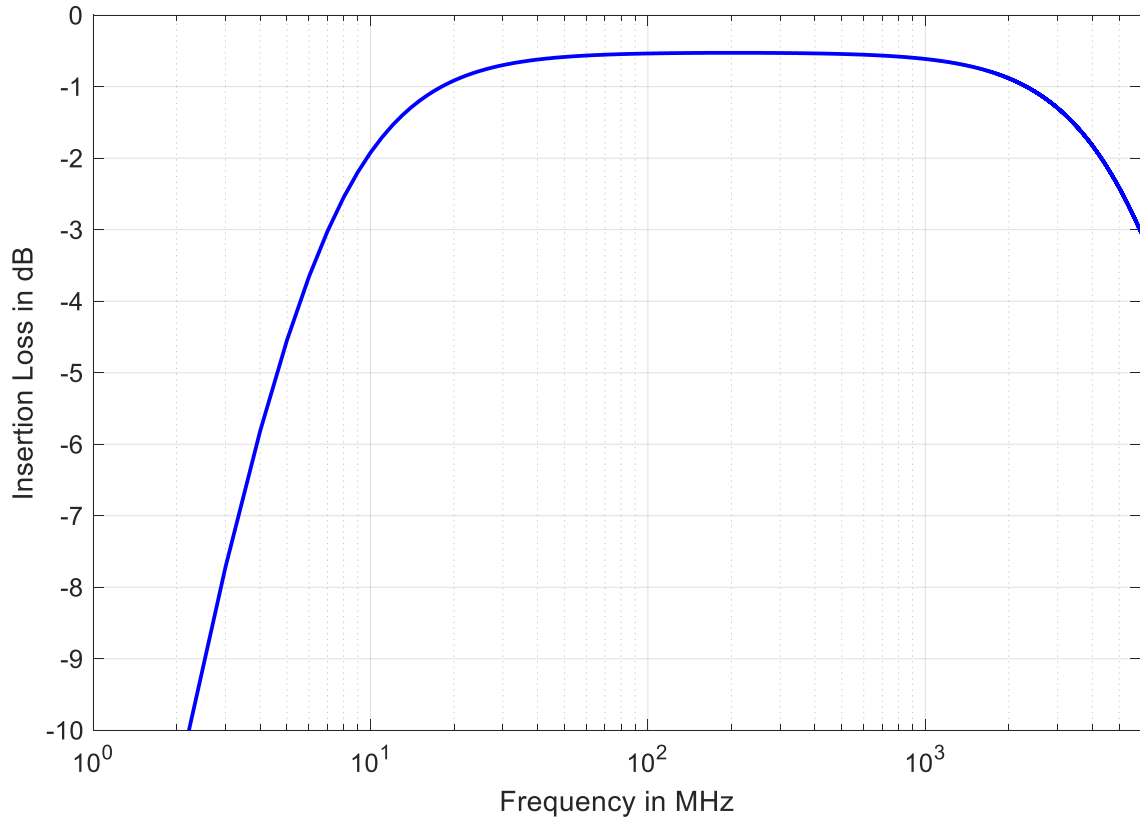
- Mehdi Kilani, Broadcom
- Kambiz Vakilian, Broadcom

# Forewords

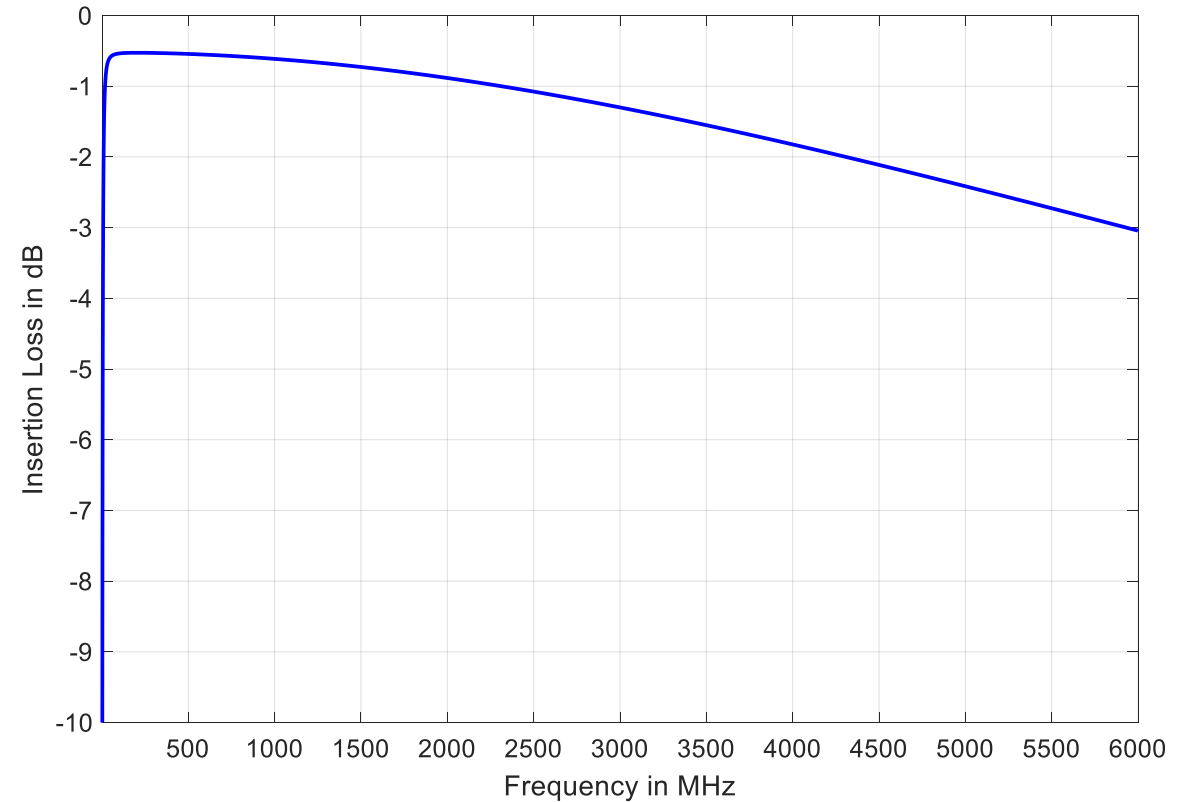
- There is an MDI Insertion Loss associated with the previously approved MDI RL Limit.
- The transmit PSD plots are shown for a typical 2.5Gbps, 5.0Gbps and 10Gbps transmitter with MDI IL applied.
- It was verified that the PSD limits proposed in the previous cycle<sup>1</sup> still holds when MDI IL is applied to the transmit signal.
- The Upper PSD MASK for 10Gbps transmitters relaxed by 1dB to accommodate 1.2Vppd transmitters.

# MDI Insertion Loss

MDI IL, Logarithmic scale



MDI IL, Linear scale



- There is an MDI Insertion Loss associated with the MDI RL limit that was approved by the task force. Typical transmit PSD is shown next to include MDI IL.

# Transmitter Power Spectral Density, 2.5Gbps

- The PSD is specified for differential termination of  $100\Omega$  and a typical  $0.7V_{ppd}$  transmitter. For Single ended signaling terminated with  $50\Omega$ , PSD is lower by 3dB.

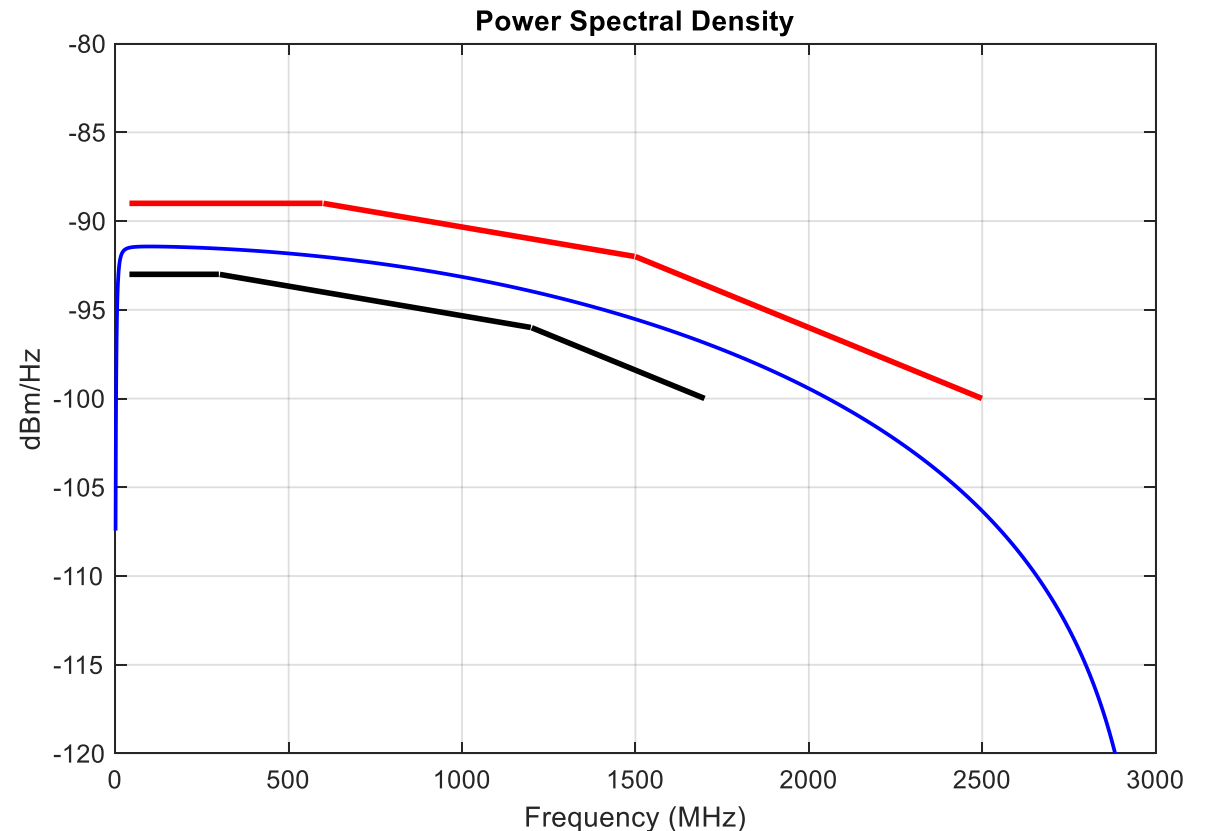
- For 2.5Gbps operation (PAM2 w/3Gsps):**

## Upper PSD MASK in dBm/Hz

-89	$40\text{MHz} < f < 600\text{MHz}$
$-87-f(\text{MHz})/300$	$600\text{MHz} < f < 1500\text{MHz}$
$-80-f(\text{MHz})/125$	$1500\text{MHz} < f < 2500\text{MHz}$

## Lower PSD Mask in dBm/Hz

-93	$40\text{MHz} < f < 300\text{MHz}$
$-92-f(\text{MHz})/300$	$300\text{MHz} < f < 1200\text{MHz}$
$-86.4-f(\text{MHz})/125$	$1200\text{MHz} < f < 1750\text{MHz}$



# Transmitter Power Spectral Density, 5.0Gbps

- The PSD is specified for differential termination of  $100\Omega$  and a typical  $1.0V_{ppd}$  transmitter. For Single ended termination of  $50\Omega$ , PSD is lower by 3dB.

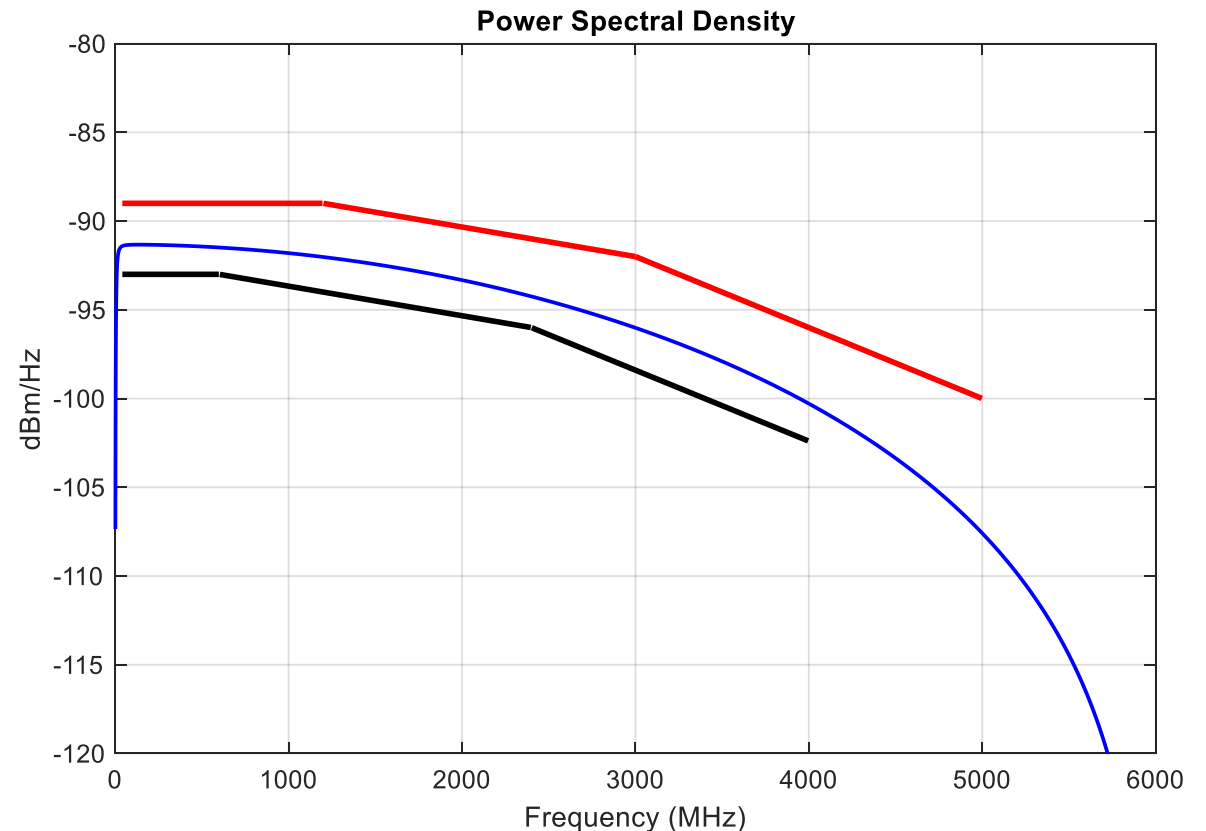
- For 5Gbps operation (PAM2 w/6Gsp):**

Upper PSD MASK in dBm/Hz

-89	$40\text{MHz} < f < 1200\text{MHz}$
$-87-f(\text{MHz})/600$	$1200\text{MHz} < f < 3000\text{MHz}$
$-80-f(\text{MHz})/250$	$3000\text{MHz} < f < 5000\text{MHz}$

Lower PSD Mask in dBm/Hz

-93	$40 < f < 600\text{MHz}$
$-92-f(\text{MHz})/600$	$600\text{MHz} < f < 2400\text{MHz}$
$-86.4-f(\text{MHz})/250$	$2400\text{MHz} < f < 3500\text{MHz}$



# Transmitter Power Spectral Density, 10Gbps

- The PSD is specified for differential termination of  $100\Omega$ . and a typical  $1.0V_{ppd}$  transmitter with allowance for up to  $1.2V_{ppd}$ . For Single ended termination of  $50\Omega$ , PSD is lower by 3dB.

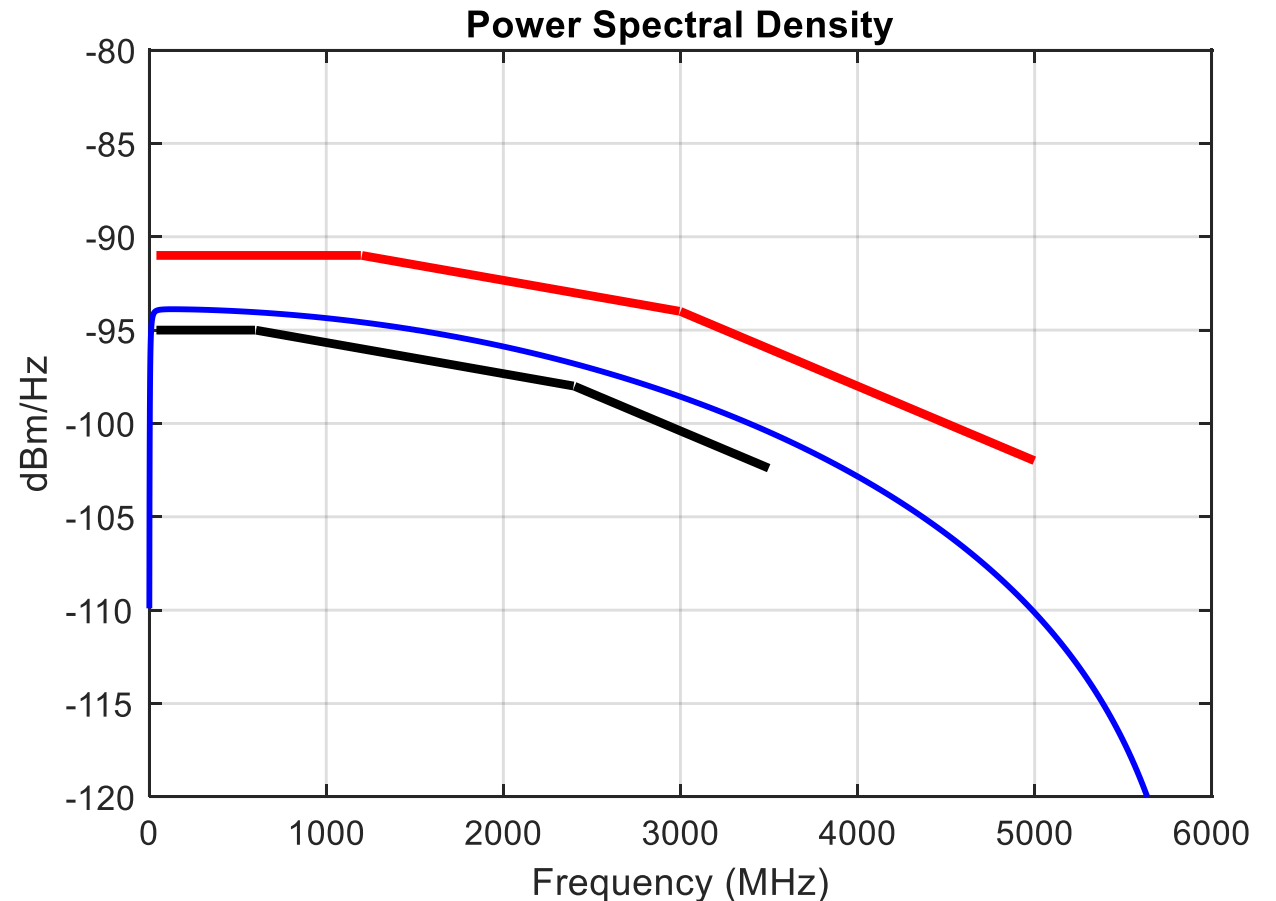
- For 10Gbps operation (PAM4 w/6Gsps):**

Upper PSD MASK in dBm/Hz

-91	$40\text{MHz} < f < 1200\text{MHz}$
$-89 - f(\text{MHz})/600$	$1200\text{MHz} < f < 3000\text{MHz}$
$-82 - f(\text{MHz})/250$	$3000\text{MHz} < f < 5000\text{MHz}$

Lower PSD Mask in dBm/Hz

-95	$40\text{MHz} < f < 600\text{MHz}$
$-94 - f(\text{MHz})/600$	$600\text{MHz} < f < 2400\text{MHz}$
$-88.4 - f(\text{MHz})/250$	$2400\text{MHz} < f < 3500\text{MHz}$



Thank you!