Relation between Average Power (AVP) and Optical Modulation Amplitude (OMA)

Referring to Subcause 58.7.6:

$$OMA=2P_{mean}\frac{ER-1}{ER+1}, \qquad ER=\frac{P_1}{P_0}$$

$$P_{mean}=OMA\frac{ER+1}{2(ER-1)}$$

$$AVP=10\lg(P_{mean})=10\lg(OMA)+10\lg[\frac{ER+1}{2(ER-1)}]$$

For ER=∞(∞dB), $AVP=10\lg(OMA)+10\lg[\frac{1}{2}]=10\lg(OMA)-3.01dB$

For ER=8(9dB), $AVP=10\lg(OMA)+10\lg[\frac{9}{14}]=10\lg(OMA)-1.92dB$

For ER=4(6dB), $AVP=10\lg(OMA)+10\lg[\frac{5}{6}]=10\lg(OMA)-0.79dB$

Calculation results in the Table following:

OMA (dBm)		0	1.92	2.92	3.92	6.92
AVP (dBm)	ER=∞	-3.01	-1.09	-0.09	0.91	3.91
	ER=8	-1.92	0	1	2	5
	ER=4	-0.79	1.13	2.13	3.13	6.13

Hence, Figure91-5 is incorrect. The correct figure should be as below:

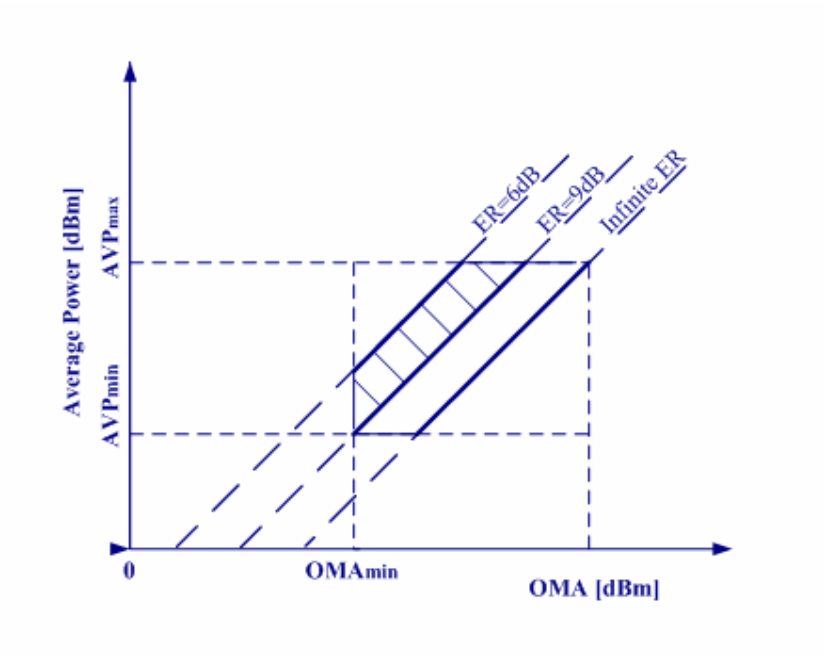

Figure 91-5—Relaxed PR-D type PMD specifications

Comment on Subclause 91.4.1, page 26, Line 4-31

“illustrated in Figure 91-5 for a compliant transmitter. Note that the OMA min and AVEmin are calculated for the ER=9dB. The transmitter specifica tions are further relaxed by allowing lower ER=6dB while maintaining the OAMmin and AVEmin constant. Shaded area indicates compliant part.”

Question are:

1) Term "AVEmin" seems undefined;
2) Figure 91-5 is incorrect;
3) There is no shaded area in Figure 91-5.

Propose to change the text above into "illustrated in Figure 91-5 for a compliant transmitter. Note that the OMAmin and AVPmin are calculated for ER=9dB. The transmitter specifications are further relaxed by allowing lower ER=6dB while maintaining the OAMmin and AVPmin constant, where AVPmin represents the Average launch power (min) as in Table 91-5. Shaded area in Figure 91-5 indicates the compliant part".

Figure 91-5 is changed as shown above.