Electronic Supplementary Information for

Excited state absorption: a key phenomenon for the improvement of biphotonic based optical limiting at telecommunication wavelengths.

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Open-aperture Z-scan traces of compound **1**–**3** corresponding to some data points in Fig. 5 and the corresponding plots of two-photon absorbance against the incident power are presented in Figs. S1–S6.

List of figures

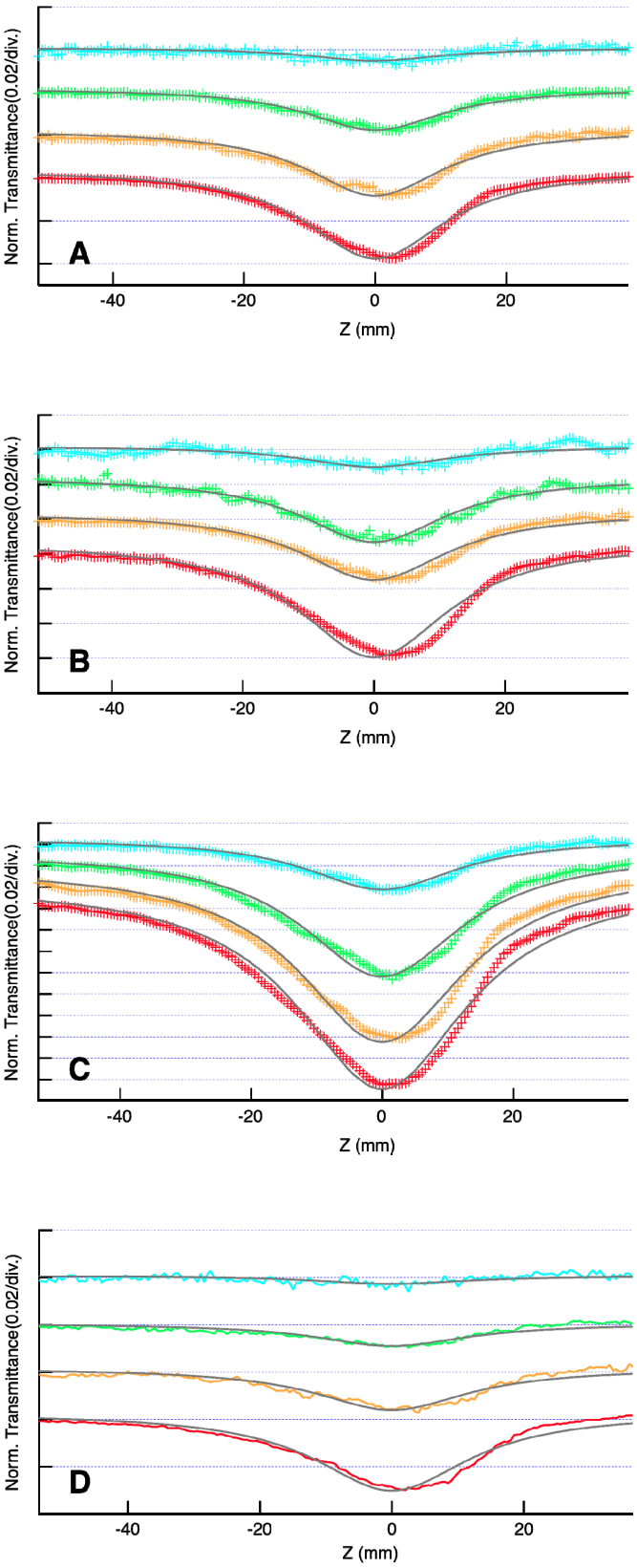


Figure S1. Open-aperture Z-scan traces of **1** in dichloromethane (+) at various wavelengths and with incident powers (from top to bottom): at 1280 nm with incident powers of 0.10, 0.30, 0.46, and 0.61 mW (**A**), at 1360 nm with incident powers of 0.11, 0.31, 0.37, and 0.65 mW (**B**), at 1590 nm with incident powers of 0.15, 0.40, 0.60, and 0.75 mW (**C**), and at 1520 nm with incident powers of 0.05, 0.14, 0.24, and, 0.37 mW (**D**). The baselines are shifted by one division (0.02) for readability. The solid lines are curve fits based on Eqs. 3 and 4 in the text (Experimental section). The concentrations were 4.8 mM for all. Rayleigh ranges were 12.5, 13.2, 13.6, and 14.0 mm for **A**, **B**, **C**, and **D**, respectively.

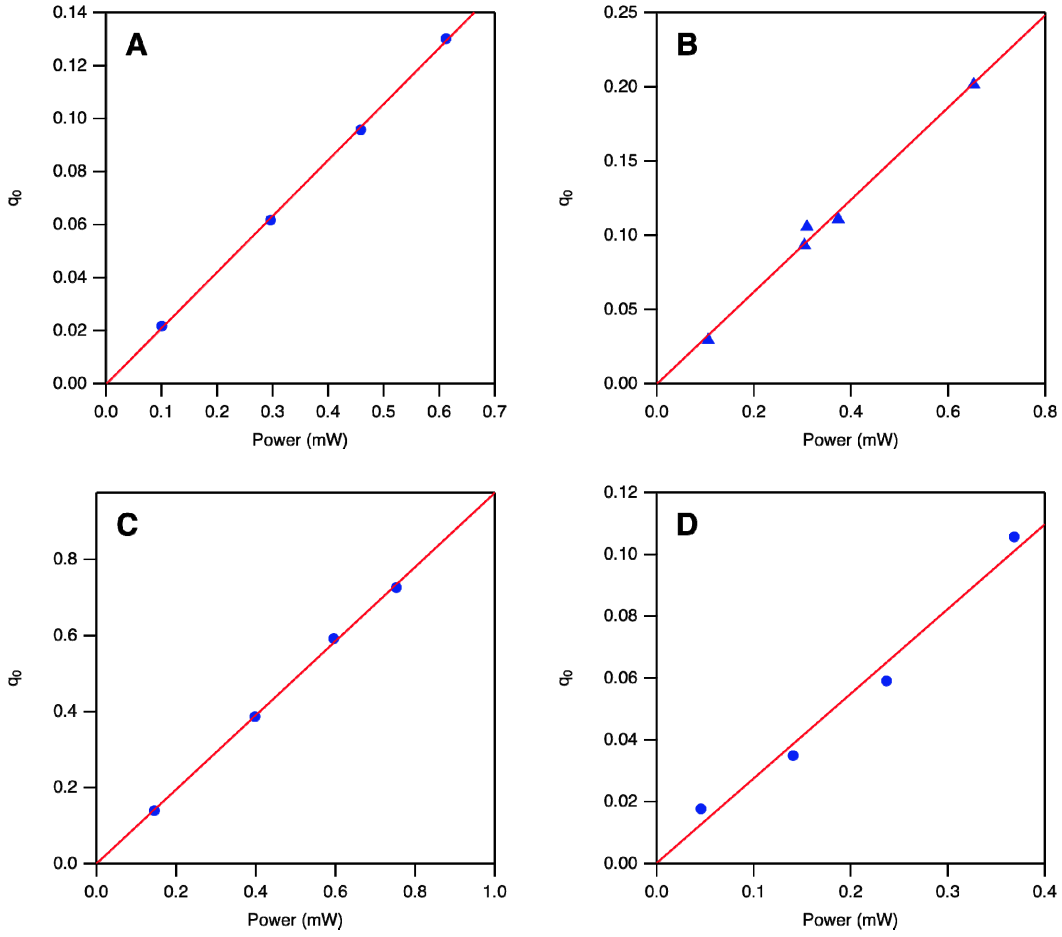
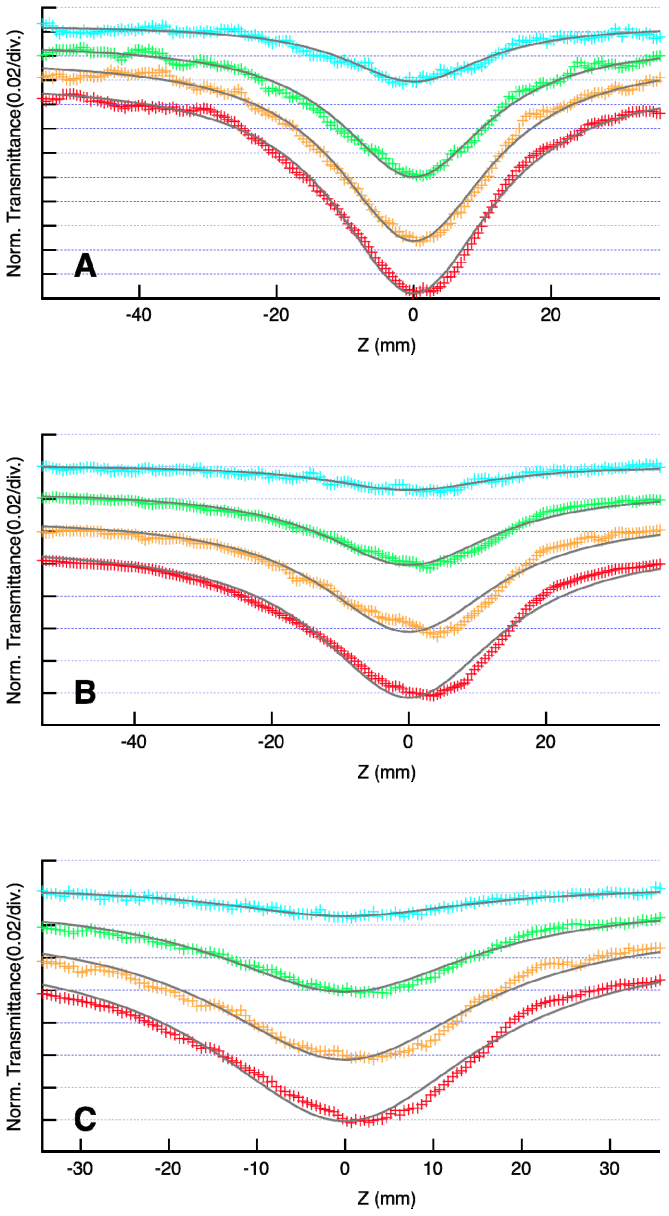


Figure S2. Plots of two-photon absorbance q_0 of **1** in dichloromethane against the incident power at various wavelengths: 1280 nm (**A**), 1360 nm (**B**), 1590 nm (**C**), and 1520 nm (**D**). The q_0 values were obtained by the curve fits in Fig. S1. The lines are

linear fits to the data points.



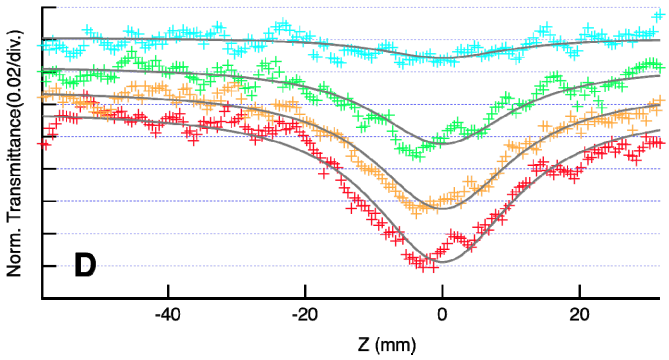
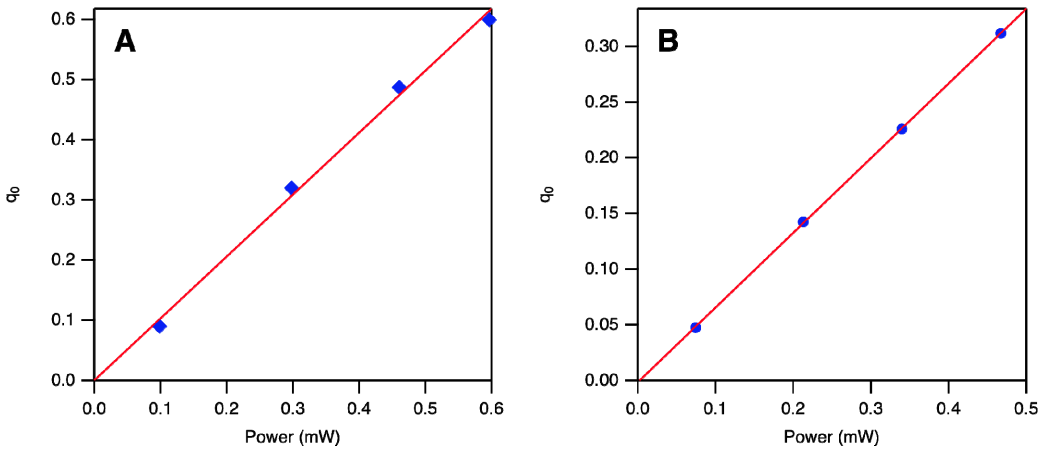


Figure S3. Open-aperture Z-scan traces of **2** in dichloromethane (+) at various wavelengths and with incident powers (from top to bottom): at 1405 nm with incident powers of 0.10, 0.30, 0.46, 0.60 mW (**A**), at 1520 nm with incident powers of 0.07, 0.21, 0.34, and 0.47mW (**B**), at 1590 nm with incident powers of 0.05, 0.17, 0.27, and 0.37 mW (**C**), and at 1680 nm with incident powers of 0.11, 0.36, 0.57, and 0.77 mW (**D**). The baselines are shifted by one division (0.02) for readability. The solid lines are curve fits based on Eqs. 3 and 4 in the text (Experimental section). The concentrations were 4.4 mM for **A**–**C** and 4.6 mM for **D**. Rayleigh ranges were 12.0, 14.8, 16.9, and 11.7 mm for **A**, **B**, **C**, and **D**, respectively.



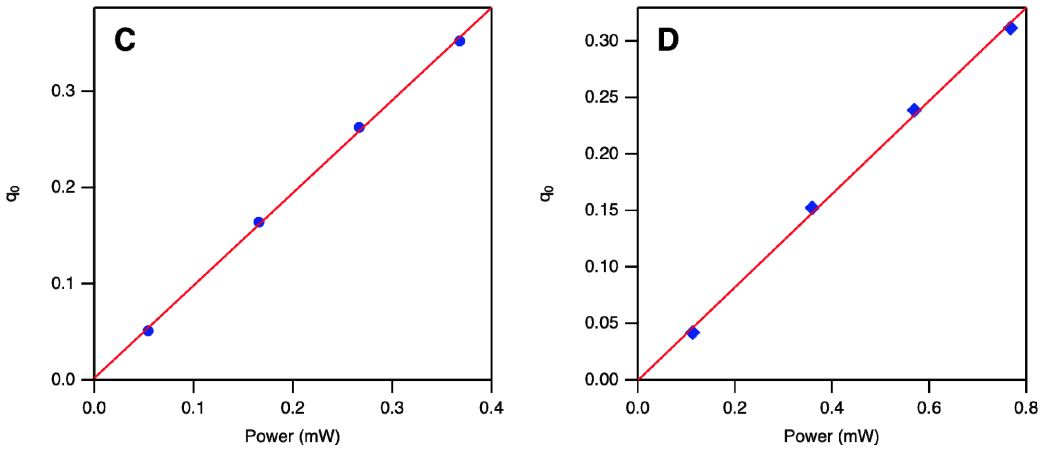
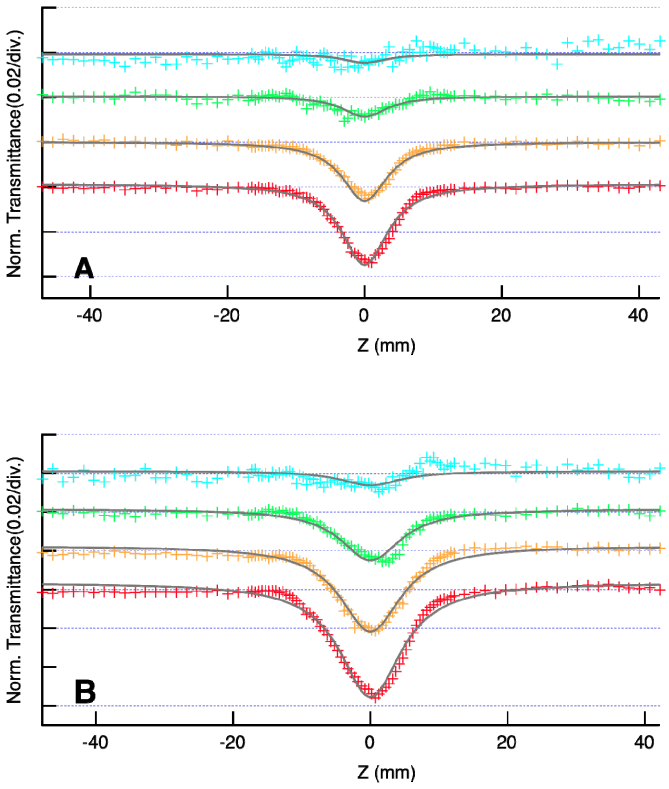


Figure S4. Plots of two-photon absorbance q_0 of **2** in dichloromethane against the incident power at various wavelengths: 1405 nm (**A**), 1520 nm (**B**), 1590 nm (**C**), and 1680 nm (**D**). The q_0 values were obtained by the curve fits in Fig. S3. The lines are linear fits to the data points.



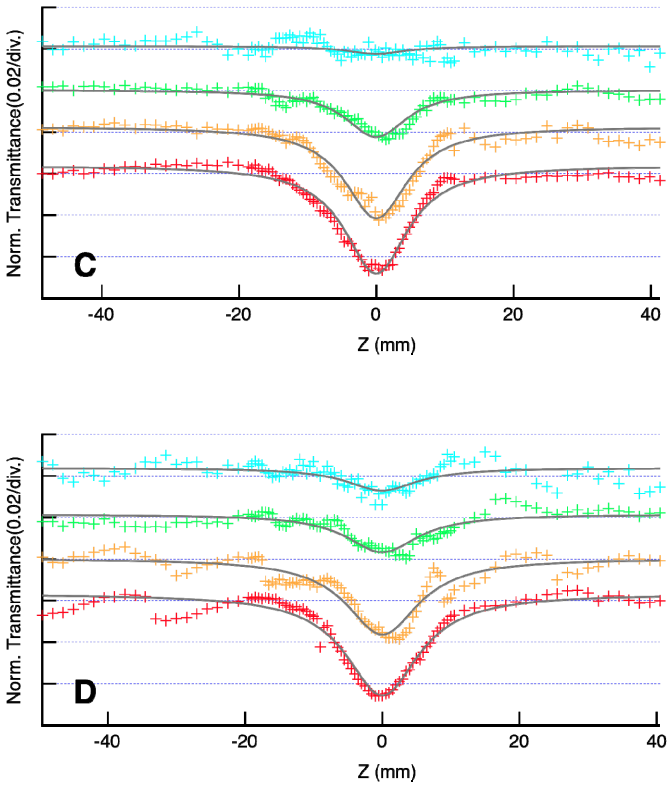


Figure S5. Open-aperture Z-scan traces of **3** in dichloromethane (+) at various wavelengths and with incident powers (from top to bottom): at 1240 nm with incident powers of 0.17, 0.47. 0.75, and 0.97 mW (**A**), at 1340 nm with incident powers of 0.15, 0.43, 0.65, and 0.87mW (**B**), at 1445 nm with incident powers of 0,14, 0.41, 0.63, and 0.80 mW (**C**), at 1550 nm with incident powers of 0.15, 0.45, 0.63, and 0.86 mW (**D**). The baselines are shifted by one division (0.02) for readability. The solid lines are curve fits based on Eqs. 3 and 4 in the text (Experimental section). The concentrations were 2.4 mM for all. Rayleigh ranges were 3.9, 5.3, 5.4, and 6.3 mm for **A**, **B**, **C**, and **D**, respectively.

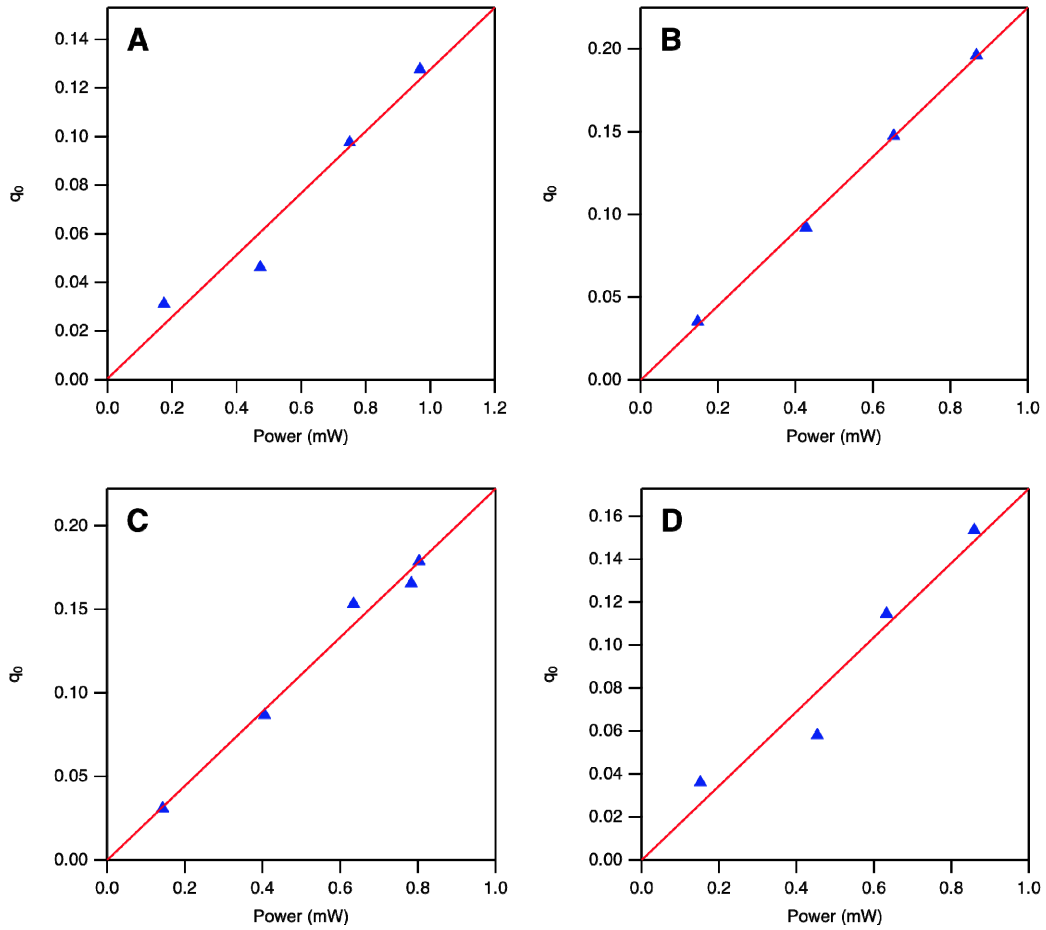


Figure S6. Plots of two-photon absorbance q_0 of **3** in dichloromethane against the incident power at various wavelengths: 1240 nm (**A**), 1340 nm (**B**), 1445 nm (**C**), and 1550 nm (**D**). The q_0 values were obtained by the curve fits in Fig. S5. The lines are linear fits to the data points.