Controlling the CC2590

There are four digital control pins (PAEN, EN, HGM, and RXTX) on the CC2590 controls the state the chip is in. Table 8.1 below shows the control logic when connecting the CC2590 to a CC2541 device.

PAEN	EN	RXTX	HGM	Mode of Operation
0	0	NC	X	Power Down
0	1	NC	0	RX LGM
0	1	NC	1	RX HGM
1	0	NC	X	TX
1	1	NC	X	Not allowed

Table 8.1 Control Logic for Connecting the CC2590 to a CC2541 Device

The CC2541 – CC2590EM reference design from TI uses three of the CC2541 GPIO pins on the CC2541 to control the CC2590. The I/O pins used is shown in Figure 8.1.

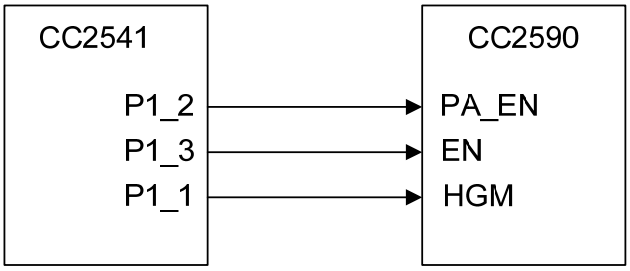

Figure 8.1 CC2541-CC2590 Interconnect

When using the configuration used in the CC2541 – CC2590EM reference design, the registers listed in Table 8.2 need to be changed from the recommended CC2541 settings to control the CC2590 and give optimum performance. The new recommended values are listed in Table 8.2.

CC2541 REGISTER	ADDRESS	RECCOMMENED VALUE
RFC_OBS_CTRL0	0x61EB	0x68
RFC_OBS_CTRL1	0x61EC	0x6A
TXPOWER	0x6186	0xE1
OBSSEL1	0x6244	0xFB
OBSSEL3	0x6247	0xFC
P1DIR	0xFD	0x02

Table 8.2 New Recommended Register Settings for the CC2541 - CC2590 combination

All the recommended register CC2541 settings when including the CC2590 are automatically implemented in SmartRF Studio when checking the Range Extender box. SmartRF Studio is available on the TI website www.ti.com.