

Device Network – Channel Selection

Each Pulse Pro system hosts a Personal Area Network (PAN) which is used to communicate wirelessly with Pulse Pro end devices (dispense meters, Pump Air Control [PAC's], Tank Level Monitors [TLM's]). This PAN is referred to as the Device Network in Pulse Pro. It operates in the 2.4GHz frequency band and is further broken into 15 usable channels. These channels are numbered 11 through 25, spaced 5 MHz apart, starting with Channel 11 centered at 2.405GHz. See **Figure 1** below for details.

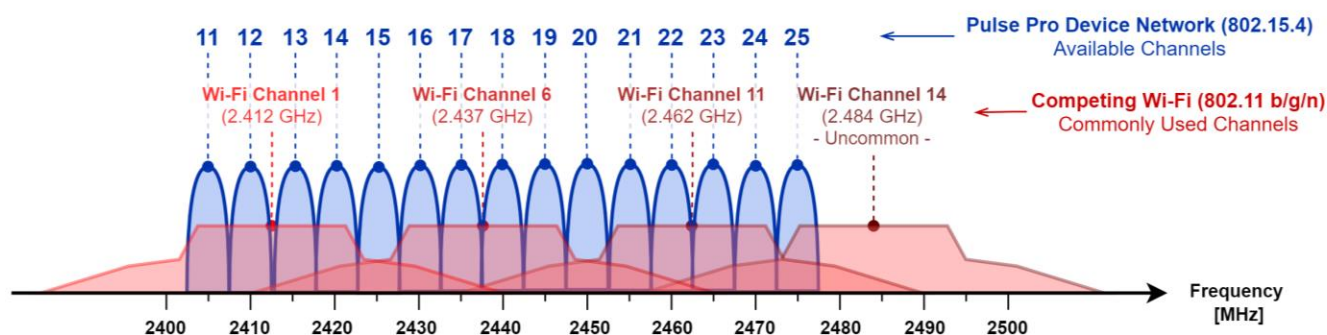


Figure 1 - Device Network Channels

In general, the small infrequent Pulse network packets are not affected by Wi-Fi. However, best practice would be to configure the Device Network to avoid/limit any possible interference. This is accomplished by configuring the **Device Network** under the **Settings > Application Settings > Network Settings** menu of the Pulse web interface (**Figure 2**). On this page you can choose the Channel Selection best fits your specific RF environment. A list of the Channel Selection options, as well as what channels are permitted for the selection, can be found in **Table 1**.

The screenshot shows the 'Device Network' configuration page. A note states: 'Note: If you change Production Network ID, all devices must be re-registered.' The 'HUB Name' field contains 'Pulse HUB'. The 'Device Network' field contains the ID '1805189345781867' with a 'Reset Default' button next to it. The 'Channel Selection' dropdown menu is highlighted with a red box and currently shows 'WIFI CHANNEL 14'. Below this, it says 'Remaining Network Capacity: 20'. A 'Save' button is located at the bottom right of the form.

Figure 2 - Device Network Configuration

When the Pulse PAN is built (each time the HUB is booted or taken out of discovery mode), the system will scan the permitted channel list from your selection and decide which channel is the best fit. The Pulse system will then use this channel for communication until the next time the PAN needs to be built again.

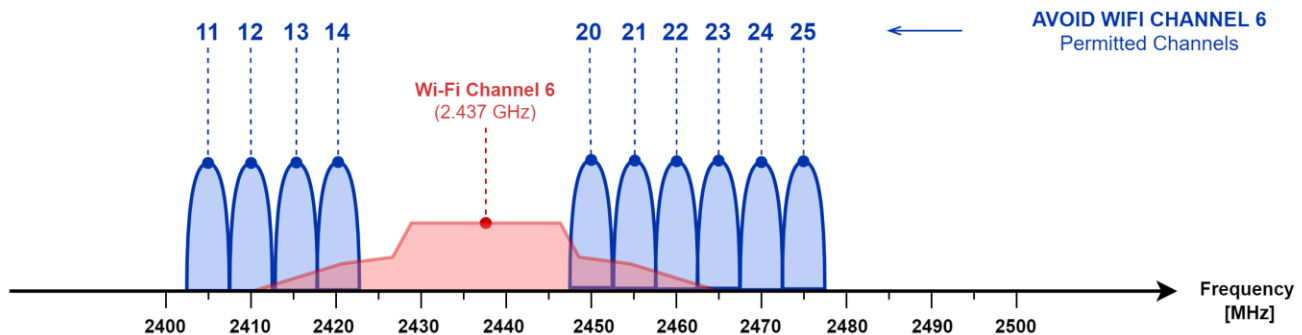
CHANNEL SELECTION OPTIONS	Pulse Pro Network – Permitted Channel List (IEEE 802.15.4)														
	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
WIFI CHANNEL 14															X
ALL CHANNELS	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
WIFI CHANNEL 1	X	X	X	X											
WIFI CHANNEL 6					X	X	X	X	X						
WIFI CHANNEL 11										X	X	X	X	X	
AVOID COMMON WIFI					X					X					X
AVOID WIFI CHANNEL 1					X	X	X	X	X	X	X	X	X	X	X
AVOID WIFI CHANNEL 6	X	X	X	X						X	X	X	X	X	X
AVOID WIFI CHANNEL 11	X	X	X	X	X	X	X	X	X						X
FORCE CHANNEL 11	X														
FORCE CHANNEL 12		X													
FORCE CHANNEL 13			X												
FORCE CHANNEL 14				X											
FORCE CHANNEL 15					X										
FORCE CHANNEL 16						X									
FORCE CHANNEL 17							X								
FORCE CHANNEL 18								X							
FORCE CHANNEL 19									X						
FORCE CHANNEL 20										X					
FORCE CHANNEL 21											X				
FORCE CHANNEL 22												X			
FORCE CHANNEL 23													X		
FORCE CHANNEL 24														X	
FORCE CHANNEL 25															X

Table 1 - Channel Selection Options

Example 1:

Q.) A Pulse Pro system is to be installed in a workshop that has multiple Wi-Fi routers operating on Wi-Fi channel 6. What Pulse Network Channel Selection should be chosen?

A.) While the default selection of 'WIFI CHANNEL 14' will avoid interference with the existing Wi-Fi (by using PAN channel 25), a better solution could be to select 'AVOID WIFI CHANNEL 6'. This would allow the Pulse system to scan channels 11-14 and 20-25, to decide which channel is the best fit (Shown in the diagram below).



Example 2:

Q.) A Pulse Pro system is to be installed in a dealership that has multiple Wi-Fi access points operating on Wi-Fi channel 6 and Wi-Fi channel 11. What Pulse Network Channel Selection should be chosen?

A.) Once again, while the default selection of 'WIFI CHANNEL 14' will avoid interference with the existing Wi-Fi (by using PAN channel 25), a better solution could be to select 'BETWEEN COMMON WIFI'. This would allow the Pulse system to scan channels 15, 20, and 25 to decide which channel is the best fit (Shown in the diagram below).

