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| Philips Specific Requirements |

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| Meets Requirement | Answer | Message | Category |
| No | No | Has channel 144 been eliminated on APs supporting Philips devices? | 5 GHz Band |
| No | No | Does RSSI meet Philips requirement of -67dBm or stronger? | 5 GHz Band |
| No | No | Does SNR meet Philips requirement of 25dB or stronger? | 5 GHz Band |
| No | No | Is primary channel separation a minimum of 20dB per Philips 802.11 requirements? | 5 GHz Band |
| No | No | Are two or less APs on the primary channel at or above -82dBm per Philips 802.11 requirements? | 5 GHz Band |
| No | No | Is WPA2 or WPA2/3 Transistion Mode configured on APs supporting Philips devices? | Security |
| No | No | Is the SSID supporting Philips devices, broadcasting ? (Mandatory if DFS channels are in use) | SSID |

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| Recommendation(s) | Finding(s) |
| Remove channel 144 from use on APs supporting Philips Healthcare devices | Channels 144 is available for use on APs suppporting Philips devices. Philips Healthcare devices do not support channel 144 and will be unable to associate with APs assigned this channel, causing the device to disconnect from the network |
| Reconfigure the network per recommedations within this report to acheive -67 dBm RSSI | RSSI requirements for Philips Healthcare 802.11 networks do not meet the -67 dBm threshold in all areas |
| Reconfigure the network per recommedations within this report to acheive 25 dB SNR | SNR requirements for Philips Healthcare 802.11 networks do not meet the 25 dB threshold in all areas |
| Reconfigure channel assignment or AP power levels as recommended within this report | Co-Channel separation does not meet the required level of 20 dB |
| Reconfigure channel assignment or AP power levels as recommended within this report | More than two APs on the primary channel at -82 dBm or stronger were detected over a majority of the scope area |
| Reconfigure SSID for WPA2 only or WPA2/3 Transition Mode | WPA3 only security is not compatible with Philips Healthcare devices. These devices will be unable to associate with the assigned SSID |
| Unhide (Broadcast) the SSID supporting Philips Healthcare devices | A Hidden SSID is not recommended and this SSID must be broadcast if DFS channels are available for use on APs supporting Philips Healthcare devices |

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| Best Practice #1 – Band Usage Make 5 GHz the primary band and use 2.4 GHz for best effort applications |

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| Meets Requirement | Answer | Message | Category |
| No | No | Are business critical applications limited to 5 GHz band with unique SSIDs? | Primary Applications |
| No | No | Are Best Effort and IoT applications limited to 2.4 GHz band with unique SSIDs? | Secondary Applications |
| Yes | No | Are any SSIDs shared across both 2.4 and 5 GHz bands? | SSID Bands |

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| Recommendation(s) | Finding(s) |
| SSIDs used by Life/Business critical applications should be configured on the 5 GHz band, only | Business-critical applications are not limited to the 5 GHz band. This can cause slow performance and negatively impact roaming if 5 GHz capable clients connect to the 2.4 GHz band |
| SSIDs used by non-critical applications should be configured on the 2.4 GHz band, only | Non-critical applications are not limited to the 2.4 GHz band. This can cause congestion on the 5 GHz band and degrade the performance of critical applications |

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| Best Practice #2 – 2.4 GHz Channels Use only channels 1, 6, and 11 in the 2.4 GHz band |

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| Meets Requirement | Answer | Message | Category |
| No | No | Is the 2.4 GHz network configured on non-overlapping channels 1, 6, and 11 only? | 2.4 GHz Band |

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| Recommendation(s) | Finding(s) |
| Reconfigure controller to allow only channels 1, 6, or 11 for use by access points | Channels other than 1, 6, or 11 are in use on the 2.4 GHz band. These channels overlap the preferred channels and cause Adjacent Channel Interference (ACI). This can increase retries and CRC error rates |

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| Best Practice #3 – 5 GHz Channels Use all 5 GHz channels that are supported by client devices |

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| Meets Requirement | Answer | Message | Category |
| No | No | Are 5 GHz UNII-1 channels available for use and device compatibility verified? | 5 GHz Band |
| No | No | Are 5 GHz UNII-2a channels available for use and device compatibility verified? | 5 GHz Band |
| No | No | Are 5 GHz UNII-2c channels available for use and device compatibility verified? | 5 GHz Band |
| No | No | Are 5 GHz UNII-3 channels available for use and device compatibility verified? | 5 GHz Band |
| No | No | Is Channel 165 (UNII-3) available for use and device compatibility verified? (20 MHz ) | 5 GHz Band |

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| Recommendation(s) | Finding(s) |
| Enable UNII-1 channels for use by devices. Verify client devices are compatible with all channels selected in this band | UNII-1 channels (36-48) are not available for use in the 5 GHz band. This limits the number of channels available for use by devices, which can increase Co-Channel Interference (CCI) |
| Enable UNII-2a channels for use by devices. Verify client devices are compatible with all channels selected in this band. Monitor the system for DFS Channel Change events to determine if any of these channels are continually affected by radar. Remove specific channels within this band, if nescesary | UNII-2a channels (52-64) are not available for use in the 5 GHz band. This limits the number of channels available for use by devices, which can increase Co-Channel Interference (CCI) |
| Enable UNII-2c channels for use by devices. Verify client devices are compatible with all channels selected in this band. Monitor the system for DFS Channel Change events to determine if any of these channels are continually affected by radar. Remove specific channels within this band, if nescesary | UNII-2c channels (100-144) are not available for use in the 5 GHz band. This limits the number of channels available for use by devices, which can increase Co-Channel Interference (CCI) |
| Enable UNII-3 channels for use by devices. Verify client devices are compatible with all channels selected in this band | UNII-3 channels (149-161) are not available for use in the 5 GHz band. This decreases the number of channels available for use by devices, which can increase Co-Channel Interference (CCI) |
| Enable UNII-3 channel 165 for use by devices. Verify client devices are compatible with channel 165 | UNII- 3 channel 165 is not available for use in the 5 GHz band. This limits the number of channels available for use by devices, which can increase Co-Channel Interference (CCI) |

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| Best Practice #4 – Basic Rates Disable all lower rates unless required |

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| Meets Requirement | Answer | Message | Category |
| No | No | Are 2.4 GHz Lowest Mandatory Rates limited to 12 and/or 24 Mbps? (1, 2, 5.5, 6, 9, 11 disabled) | 2.4 GHz Band |
| No | No | Are 5 GHz Lowest Mandatory Rates limited to 12 and/or 24 Mbps? (6/9 disabled) | 5 GHz Band |
| No | No | Is 6 Mbps eliminated from 5 GHz Mandatory Data Rates? | 5 GHz Band |
| Yes | No | Is 12 Mbps eliminated from 5 GHz Mandatory Data Rates? | 5 GHz Band |

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| Recommendation(s) | Finding(s) |
| Reconfigure Mandatory data rates to include 12 and/or 24 Mbps, only | 2.4 GHz Lowest Mandatory data rates are not limited to 12 and/or 24 Mbps. These data rates are required to be supported by all wireless devices. |
| Reconfigure Mandatory data rates to include 12 and/or 24 Mbps, only | 5 GHz Mandatory data rates are not limited to 6, 12, and/or 24 Mbps. These data rates are required to be supported by all wireless devices |
| Disable 6 Mbps as a Mandatory Basic Rate | 6 Mbps data rate is set as a Mandatory data rate for the 5 GHz band. This can negatively impact performance |

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| Best Practice #5 – Channel Bonding Use bonded channels (40/80 MHz), when needed, in 5 GHz band only |

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| Meets Requirement | Answer | Message | Category |
| No | No | Are 20 MHz channels in use on the 2.4 GHz band? | 2.4 GHz Band |
| No | No | Are 20 MHz channels in use on the 5 GHz band? | 5 GHz Band |
| Yes | No | Are 40 MHz channels in use on the 5 GHz band? | 5 GHz Band |
| Yes | No | Are 80 MHz channels in use on the 5 GHz band? | 5 GHz Band |
| Yes | No | Is DBS (Dynamic Bandwidth Selection) in use on the 5 GHz band? | 5 GHz Band |

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| Recommendation(s) | Finding(s) |
| Reconfigure 2.4 GHz channels for 20 MHz wide channels, only | 40 MHz bonded channels are in use on the 2.4 GHz band. This limits the number of available channels and increases channel reuse |
| Reconfigure 5 GHz channel width to 20 MHz wide channels, only | Bonded channels are in use on the 5 GHz band. The use of channel bonding reduces the number of available channels and increases channel reuse. Required data rates can be achieved utilizing lower channel bonding |

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| Best Practice #6 – Supported Rates Base your target RSSI/SNR levels on client/application requirements |

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| Meets Requirement | Answer | Message | Category |
| No | No | Does 2.4 GHz RSSI meet target threshold of -72 dBm? | 2.4 and 5 GHz Bands |
| No | No | Does 2.4 GHz SNR meet threshold of 20 dB? | 2.4 GHz Band |

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| Recommendation(s) | Finding(s) |
| Reconfigure the network to acheive -72 dBm RSSI in all areas | Target RSSI requirement for clients or applications are not met. This can negatively impact performance |
| Reconfigure the network to acheive 20 dB SNR in all areas | Target SNR requirement for clients or applications are not met. This can negatively impact performance |

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| Best Practice #7 – Interference Reduce co-channel interference threshold to minimum possible levels |

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| Meets Requirement | Answer | Message | Category |
| No | No | Is co-channel interference nominal in 2.4 GHz band? | 2.4 GHz Band |

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| Recommendation(s) | Finding(s) |
| Decrease power and/or disable 2.4 GHz radios as needed, to minimize CCI | Co-Channel Interference was detected in the 2.4 GHz band |

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| Best Practice #8 – SSIDs Limit the number of SSIDs per radio and justify any use of "hidden" SSIDs |

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| Meets Requirement | Answer | Message | Category |
| No | No | Are 3 or less unique SSIDs in use on 2.4 GHz radios? | 2.4 GHz Band |
| No | No | Are 4 or less unique SSIDs in use on 5 GHz radios? | 5 GHz Band |
| No | No | Are all SSIDs in the WLAN being broadcast? (not hidden) | SSIDs |

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| Recommendation(s) | Finding(s) |
| Reduce the number of SSIDs in use on 2.4 GHz radios. This can be accomplished by either eliminating SSIDs from use or assigning SSIDs only to radios in areas where they are required by devices | More than 3 SSIDs are in use on the 2.4 GHz band. This increases overhead traffic and can cause poor performance |
| Reduce the number of SSIDs in use on 5 GHz radios. This can be accomplished by either eliminating SSIDs from use or assigning SSIDs only to radios in areas where they are required by devices | More than 4 SSIDs are in use on the 5 GHz band. This increases overhead traffic and can cause poor performance |
| Reconfigure SSIDs to be broadcast, whenever possible | Hidden SSIDs are in use on the network. This requires clients to probe for the network, instead of being able to discover it passively, which increases overhead traffic. SSIDs should only be hidden if in use by devices that are in static locations and do not require roaming |

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| Best Practice #9 – Security Avoid the use of TKIP, WEP, or None as encryption methods |

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| Meets Requirement | Answer | Message | Category |
| No | No | Is AES/CCMP encryption in use on all SSIDs? | Authentication and Roaming |
| Yes | No | Is TKIP encryption in use on any SSIDs? (only justified if 54 Mbps max is acceptable) | Authentication and Roaming |
| Yes | No | Is WEP encryption in use on any SSIDs? | Authentication and Roaming |
| No | No | Is Pre-Shared Key (PSK) or 802.1x authentication in use on all SSIDs? | Authentication and Roaming |
| No | No | Is an open SSID only used for Guest Wi-Fi access? | Authentication and Roaming |
| No | No | Is 802.11r (Fast Transition) disabled OR configured in Adaptive Mode, only? | Authentication and Roaming |

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| Recommendation(s) | Finding(s) |
| Reconfigure security on all SSIDs to utilize AES/CCMP security | AES/CCMP encryption is not in use on all SSIDs. This can create security issues |
| Reconfigure SSIDs to use PSK or 802.1x for authentication | Pre-Shared Key (PSK) or 802.1x authentication is not in use on all SSIDs. This can cause security issues |
| Reconfigure SSIDs to use PSK or 802.1x for authentication | Unsecured SSID is present. This can cause security issues |
| Disable 802.11r or use 802.11r Adaptive Mode | 802.11r is enabled or in Non-Adaptive mode. This can cause issues with some devices that do not support it |

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| Best Practice #10 – Infrastructure Verify correct operations of WLAN Controller and infrastructure support |

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| Meets Requirement | Answer | Message | Category |
| No | No | Is the wireless controller on stable software? | Controller and Infrastructure |
| No | No | Are APs properly mounted? | Controller and Infrastructure |
| No | No | Are APs on the same software version as controller? | Controller and Infrastructure |
| No | No | Are AP power levels configured at or below client device capability? | Controller and Infrastructure |

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| Recommendation(s) | Finding(s) |
| Upgrade Wireless LAN Controller to the latest stable firmware that is compatible with the models of APs in use | Wireless LAN Controller is not on a stable firmware version. This can result in poor performance and configuration of devices |
| Remount APs as close to center of intended coverage area, but at least 4 feet from obstructions or interferers | APs are not properly mounted. Improper mounting can cause poor signal strength in parts of the intended coverage area and connectivity issues when clients move into those areas |
| Upgrade AP images to same version as WLC, unless advised otherwise by controller manufacturer | APs are not on the same version as WLC. This can result in poor performance and configuration. |
| Reconfigure AP power ranges to within client capabilities using RRM TPC or manual power assignments | AP power levels are higher than client device capabilities. This can cause client devices to be unable to communicate with APs |