2023-2024 Wi-Fi Event Checklist

6 Weeks Before the Event		
Pre-Event Planning		
Task	**Date Complete**	**Notes**
Designate/recruit a Wi-Fi expert to assist with event planning and to help on tournament day.		
Provide designated Wi-Fi expert with the appropriate training documents.		
Wi-Fi expert should visit event site at least one week prior to event.		
At Least 4 Weeks Before the Event		
Consult with Venue IT Staff		
Review the proposed dates and times for the FIRST Tech Challenge event.		
Can all Wi-Fi networks in the venue (that would affect the rooms used by the event) be turned off for the FIRST Tech Challenge event?		
Does the IT staff have any guidelines or restrictions on FIRST Tech Challenge-related wireless networks operating in the venue? (For example: Are there any venue restrictions that would prevent you from operating a wireless network for the FTC Scoring and local FTC Live system?)		
Will there be an active guest Wi-Fi network to access the Internet at the venue? If so, what is the SSID/name and what are the login credentials for the guest network.		
Is the IT team aware of any WiFi Suppressors/Blockers (such as Cisco's Air Marshal technology) present at the venue that would prevent the robots' wireless networks from operating properly? If so, these suppressors will need to be turned off for the event.		
Can the IT staff designate a venue IT staff member to be the primary point of contact that can be available for questions/support prior to and during the event?		

At Least 4 Weeks Before the Event		
Conduct a Wireless Survey of the Venue		
Task	**Date Complete**	**Notes**
List all Wi-Fi networks by channel for the bands that you plan to use for your event (2.4 and/or 5GHz).		
If feasible, measure non-802.11 wireless activity in these bands.		
Visually check for potential sources of interference (such as access points, wireless audio/visual equipment, Bluetooth devices, microwave ovens, etc.) in these bands.		
At Least 4 Weeks Before the Event		
Test Wi-Fi Connectivity at the Venue		
Use driver station/robot controller (DS/RC) pair to measure ping times on the Wi-Fi channels that are being considered for use by the teams during the event.		
Use DS/RC pair to see if Wi-Fi suppression is present (test on different channels). Note that if a Wi-Fi suppressor is present, the DS/RC pair might have difficulty staying connected.		
Examine the ping times between the DS/RC devices at various points in the venue.		
If feasible, test an actual robot in driver-controlled mode to check for latency and reliability of connection.		
At Least 4 Weeks Before the Event		
Determine how to distribute Teams over available wireless channels		
How many teams will be participating at the *FIRST* Tech Challenge event?		
How many clean non-overlapping wireless channels will be available at the *FIRST* Tech Challenge event?		
Does the number of teams per channel exceed 20 on 2.4GHz or 40[1] on 5GHz? If so, consider distributing teams across multiple channels.		

---

[1] This recommendation was based on Wi-Fi interference testing on 5GHz using several RC-DS pairs (56 pairs of devices).

Will there be a *FIRST* Robotics Competition event running at the same time? If so, coordinated with the FRC organizers to pick non-conflicting Wi-Fi Channels.		

At Least 1 Week Before the Event		
Provide attendees with guidelines for wireless activity for the event.		
Task	**Date Complete**	**Notes**
Except for the teams' robot controllers and driver stations, all Wi-Fi devices should be turned off when in or near the venue.		
Other wireless devices (including Bluetooth-enabled devices) should be turned off when in or near the venue.		
Teams, spectators, and volunteers are not permitted to operate their own wireless access points anywhere in the venue.		
Intentionally disrupting the wireless control network for a *FIRST* Tech Challenge robot is ungracious behavior and subject to major penalties under the game rules.		
If requiring that the teams be distributed over multiple Wi-Fi channels, assign each team their operating channel.		