

# USB Wireless EMI Training

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# Introduction

- Wireless mice are not functioning well with USB 3.0 when adjacent ports are active
- To address this issue OEM hosts, hubs and devices must be configured to shield EMI caused by SuperSpeed signaling and undergo compatibility testing
- Test labs should begin testing as soon as possible.
- Initially we will waive failures for limited grace period
- Official email will be sent from USB-IF once grace period has expired

# Tools

- For Device Testing:
  - Antec NSK Case with front USB 3.0 ports
  - Intel DZ77SL-50K Motherboard
  - Logitech M305 Mouse
- For Host Testing:
  - Team S112 Thumb Drive
  - Logitech M305 Mouse



Antec NSK Case with Front USB 3.0 Ports



Team S112 Thumb Drive



Logitech M305 Wireless Mouse



Intel DZ77SL-50K Motherboard

# Setup

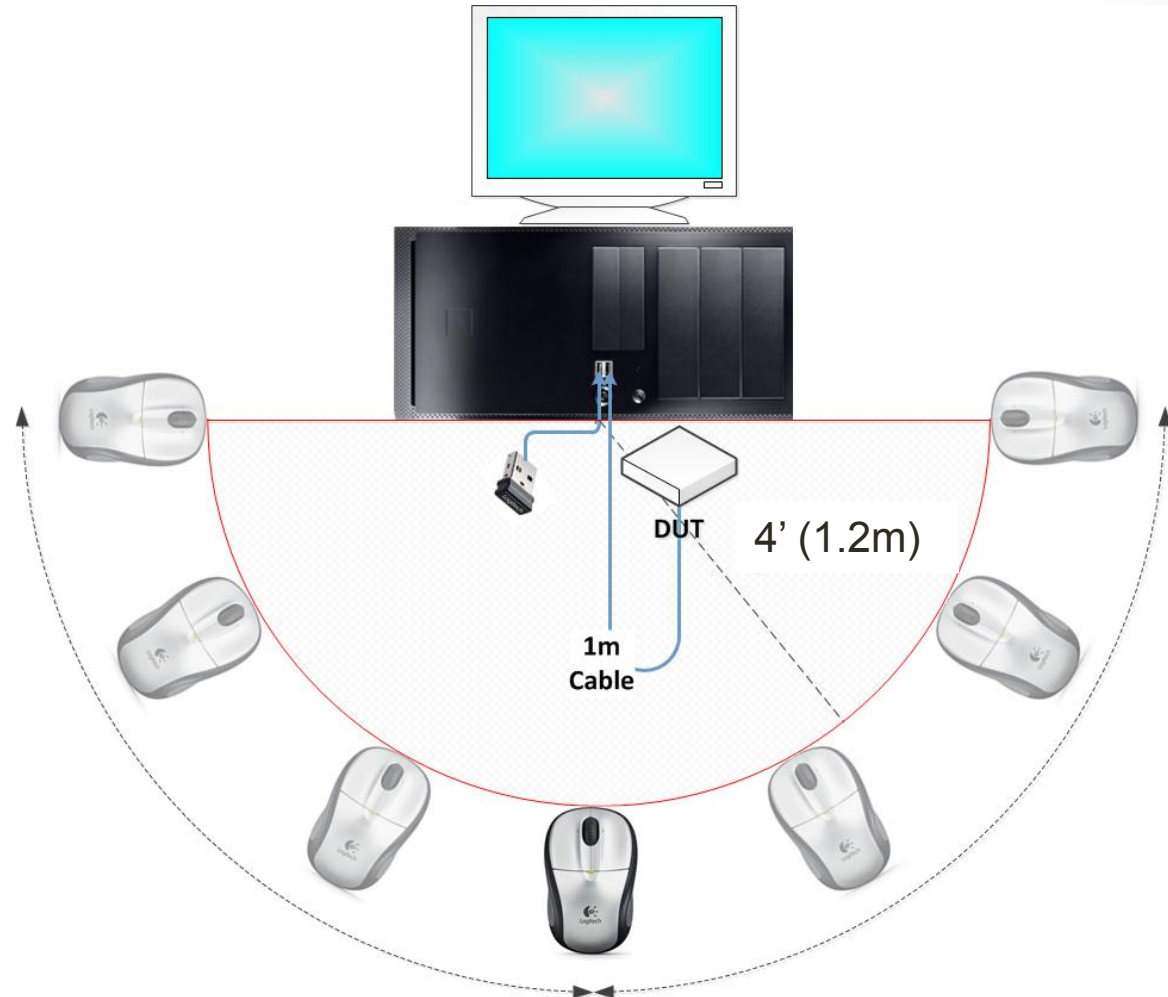
- Be sure area used for testing is clear of other devices that may interfere with wireless signal
- First Attach DUT (for device testing) or Thumb Drive (for host/hub testing)
- Note that if the DUT or thumb drive go into U1, U2 or U3 SuperSpeed signaling will be inactive thus invalidating the test. Be sure DUT is operating at SuperSpeed and is constantly active while testing.
- Next place mouse at maximum distance from the USB port as specified for that configuration
- Attach wireless dongle. Mouse should sync with dongle and function without being moved closer to the dongle.
- MS paint can be used to determine whether or not mouse can draw on screen with left button depressed



Example Setup

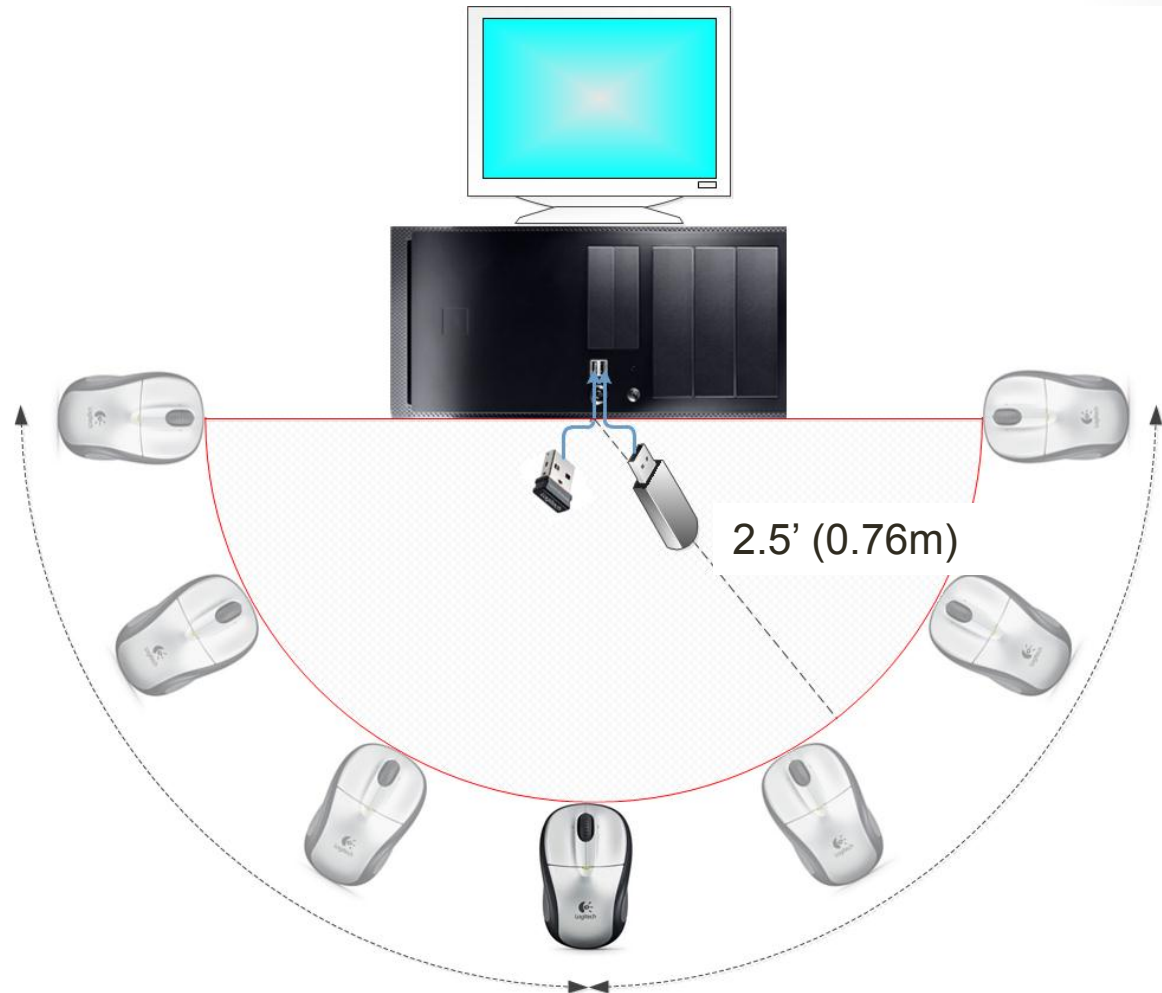
# Device/Hub US Test

- Set PC on side so USB 3.0 front ports are down
- Attach wireless dongle and DUT using 1 meter cable to front USB 3.0 ports.
- Set DUT close to USB ports.
- Keep mouse 4 feet (1.2m) from host, move back and fourth in half circle as shown with left button depressed.
- Repeat test swapping DUT and dongle ports



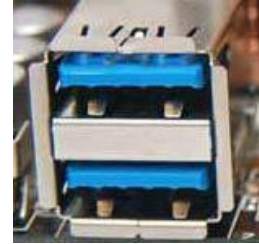
# Device Test – Dongles/Captive Cable

- Set PC on side so USB 3.0 front ports are down
- Attach wireless dongle and DUT to front USB 3.0 ports.
- Keep mouse 2.5 feet (0.76m) from host, move back and fourth in half circle as shown with left button depressed.
- Repeat test swapping DUT and dongle ports



# Host/Hub DS Test

- Downstream facing ports come in a variety of different port styles:
  - Stacked
  - Side by Side
  - Stacked with another interface
- If a port has another interface it must be active along with other ports during testing.



Stacked Ports



Side by Side Ports



Stacked with another interface

# Host/Hub Test

- Set Host/Hub in normal use position.
- Attach wireless dongle and DUT to one set of Adjacent USB 3.0 ports.
- Move mouse back and fourth in half circle as shown with left button depressed.
- Keep mouse distance from host as shown below:
  - Stacked and Stacked with interface: 2.5 feet (0.76m)
  - Side by Side: 4 feet (1.2m)
- Repeat test for all adjacent ports

