**Test Assertions for VVSG 1.1, Volume 1, Section 7.7.4**

**September 23, 2016**

**VVSG 1.1, Vol 1, Requirement 7.7.4:** **Protecting the Wireless Path**

If wireless communications are used, then the following capabilities **shall** exist in order to mitigate the effects of a denial of service (DoS) attack:

1. The voting system **shall** be able to function properly throughout a DoS attack, since the DoS attack may continue throughout the voting period.
2. The voting system **shall** function properly as if the wireless capability were never available for use.
3. Alternative procedures or capabilities **shall** exist to accomplish the same functions that the wireless communications capability would have done.
4. If infrared is being used, the shielding **shall** be strong enough to prevent escape of the voting system signal, as well as strong enough to prevent infrared saturation jamming.

**Discussion:** Since infrared has the line-of-sight property, securing the wireless path can be accomplished by shielding the path between the communicating devices with an opaque enclosure. However, this is only practical for short distances. This shielding would also help prevent accidental eye damage from the infrared signal.

**Test Assertions**

**TA774-1:** IF wireless communications are used THEN there SHALL exist, but not be limited to, the following capabilities:

**TA774a-1:** The voting system SHALL be able to function properly throughout a DoS attack.

**TA774a-1-1:** Such functionality SHALL include, but not be limited to, the ability to cast, store (record), tabulate, and report votes and vote tabulations.

**TA774b-1:** The voting system SHALL function properly, throughout a DoS attack, in such a way that what voters see and what they have to do doesn’t change (i.e., the voter experience does not change).

**TA774c-1:** EITHER alternative procedures AND/OR alternate capabilities (e.g., fallback procedures and/or capabilities) SHALL exist to accomplish the same functions that the wireless communications capability would have done.

**TA774d-1:** IF infrared is being used THEN, the shielding SHALL be strong enough to prevent escape of the voting system signal.

**TA774d-2:** IF infrared is being used THEN, the shielding SHALL be strong enough to prevent infrared saturation jamming.

**TA774d-3:** IF infrared is being used THEN securing the wireless path MAY be accomplished by shielding the path between the communicating devices with an opaque enclosure.