

UNITED STATES DISTRICT COURT  
DISTRICT OF MASSACHUSETTS

MASSACHUSETTS BAY  
TRANSPORTATION AUTHORITY

Plaintiff

v.

ZACK ANDERSON, et al.

Defendants

Civil Action No. \_\_\_\_\_

**DECLARATION OF GARY FOSTER**

1. I am the Chief Technology Officer for the plaintiff, Massachusetts Bay Transportation Authority ("MBTA").

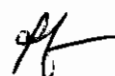
2. I have held this position since January 28, 2008. My duties include responsibility for the network and system software and hardware employed in the Automated Fare Collection System, including the CharlieTicket and CharlieCard systems. My duties also include collaboration with business partners to assure security measures, encryption structures, and other safeguards employed in these Fare Media systems are operationally.

3. I make this declaration based on my personal knowledge and a review of MBTA business records concerning the matters set out below.

**Security Features Of The CharlieTicket And CharlieCard Passes**

4. The Fare Media system contains features to preserve system integrity and security.

5. For example, the CharlieCard chip contains both open and MBTA proprietary encryption.



6. The MBTA CharlieCard pass is built upon a so-called "MIFARE Classic 1K" card. There have been attacks on the security of MIFARE Classic cards, that have been publicized and that purport to be successful.

7. The MBTA, through its vendors, has commissioned, developed, and included MBTA proprietary security systems and technology on the CharlieCard, to substantially enhance existing security present on the out-of-the-box MIFARE Classic 1K card. Therefore, issues with underlying MIFARE Classic cards are not at issue.

8. It is extremely important to maintain the security and integrity of the Fare Media systems. With an insecure, compromised system, even basic revenue controls, to name one example, become significantly challenging.

9. Included in the Exhibits, as Exhibit 5, is a document entitled "Schematic Illustrating the MBTA's Fare Media System." This Schematic provides a fair and accurate general description of the components of the MBTA's in-station Automated Fare Collection System, including the MBTA's CharlieCard and CharlieTicket Fare Media.

#### **The Initial Announcement**

10. On July 30, a vendor responsible for components of the Automated Fare Collection System notified the MBTA of its discovery of an Internet posting that advertised a presentation at the upcoming DEFCON 16 "hackers" conference. This email included a copy of the "Initial Announcement" identified in the Complaint. A true and accurate copy of the email provided to me with this notice is included as Exhibit 1.

11. This Initial Announcement raised a number of concerns.

12. First, the Initial Announcement specifically targets the MBTA and its computerized Fare Media systems. Second, the Initial Announcement suggests that MIT Undergrads have wholly compromised the CharlieCard system. Third, in the Initial

Announcement, the MIT Undergrads promise to provide to attendees at their presentation "free subway rides for life." Fourth, the Initial Announcement advertises the connection between the authors and MIT, and suggests an endorsement or other approval of the presentation. Finally, the MIT Undergrads claim that they will provide software tools to allow others to "break" the MBTA's CharlieCard and CharlieTicket system.

### **The DEFCON Conference**

13. The Initial Announcement presented concerns, in addition, due to the forum the MIT Undergrads had chosen. The Announcement indicated that the MIT Undergrads would present this information at DEFCON 16.

14. According to information published by DEFCON, the DEFCON Conference, taking place this year at the Riviera Hotel & Casino in Las Vegas, Nevada, is "one of the oldest continuous hacker conventions around, and also one of the largest." I have included as Exhibit 2 a true and accurate copy of the FAQs that contain this information. *See* <https://www.defcon.org/html/links/dc-faq/dc-faq.html>.

15. Organizers state that the Conference is anticipated to draw 5,000 to 7,000 attendees, and that "technology and hacking is the core" of the Conference. *See id.*

16. The 2008 DEFCON Conference begins on Friday, August 8, and the MIT Undergrads are scheduled to give their "The Anatomy of a Subway Hack" presentation at 1:00 on Sunday, August 10, 2008. I have included as Exhibit 3 a copy of the DEFCON schedule, available at the DEFCON site, showing this timing.

### **The MIT Undergrads' Response To The MBTA's Requests**

17. After discovering the Initial Announcement and the threat it posed, we worked with law enforcement to arrange a meeting with the MIT Undergrads to discuss their intentions, and to present our concerns.

18. This meeting took place on August 5, 2008. I understand from the MBTA's representative at this meeting, Sergeant Sullivan, that the meeting was attended by the MIT Undergrads, by their Professor, Ron Rivest, and MIT counsel.

19. The MBTA has requested through MIT Professor Ron Rivest that the MIT Undergrads provided a copy of the materials the MIT Undergrads plan to present at the DEFCON Conference.

20. The MIT Undergrads have not provided this information.

21. After this August 5 meeting, the Initial Announcement was revised to read in relevant part as follows (for convenience, the "Revised Announcement"). I have included as Exhibit 4 a copy of this Revised Announcement.

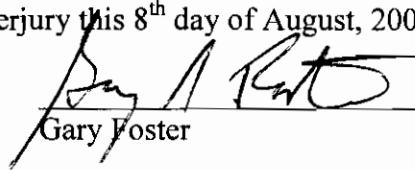
22. The Revised Announcement does not alleviate the MBTA's concerns.

23. Like the Initial Announcement, the Revised Announcement (i) targets the MBTA and its specific Fare Media systems by name; (ii) claims that the CharlieCard system has been "completely" broken by the authors' attacks; (iii) continues to suggest endorsement and approval by MIT; and (iv) continues to promise the release of software tools and demonstrations to allow others to duplicate the attacks.

24. The MIT Undergrads' actions have caused the MBTA to expend substantial funds to respond to the threat they present. Due to the defendants' failure to provide information reasonably requested by the MBTA, the MBTA is concerned about improper ridership based on the defendants' activities. In addition, the MBTA is uncertain as to the level of threat the MIT Undergrads' activities in fact pose.

25. If what the MIT Undergrads claim is true, then their presentation at DEFCON – or indeed any disclosure before the MBTA and its vendors have had an opportunity to correct the alleged flaws -- will inflict significant damage, unless the requested relief is granted.

Signed under the penalties of perjury this 8<sup>th</sup> day of August, 2008.

  
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Gary Foster

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