UNITED STATES DISTRICT COURT

NORTHERN DISTRICT OF CALIFORNIA

THE MAGNAVOX COMPANY, a corporation, and SANDERS ASSOCIATES, INC., a corporation,

Plaintiffs,

v.

ACTIVISION, INC., a corporation,

Defendant.

AND RELATED CROSS-ACTION.

No. C-82-5270-CAL

FINDINGS OF FACT

The issues in this case, other than damages, were tried to this court sitting without a jury and were submitted. The court has reviewed all of the exhibits admitted into evidence, and has heard and reviewed the testimony of the witnesses.[1] The court now makes the following findings of facts.

I. PARTIES AND CLAIMS

1. This case concerns United States Letters Patent Re. 28,507 (hereinafter called "the '507 patent").

[1] The court denies defendant's motion to strike the testimony of Dr. Alvin Star and overrules defendant's objection to plaintiff's proposed exhibits Nos. 132, 228 and 229.

VII. DEFENDANT'S CLAIM OF THE INVALIDITY OF THE '507 PATENT

58. The principal items of prior art relied upon by Activision to establish the alleged invalidity of the '507 patent are: (1) a demonstration of a pool game at the University of Michigan in 1954; (2) a demonstration of a tennis game by Mr. William A. Higinbotham at the Brookhaven National Laboratories, Upton, New York, in 1957; (3) a computer game known as "Space War" first developed by Stephen Russell and others at the Massachusetts Institute of Technology in 1962; (4) U.S. Patent 2,847,661 to Charles F. Althouse; (5) U.S. Patent 3,135,815 to Fritz Spiegel; (6) the scene generator developed by General Electric Company and sold to the National Aeronautics and Space Administration and delivered to the N.A.S.A. Johnson Manned Space Flight Center, Houston, Texas, in 1964, and subsequently updated in late 1967; (7) a demonstration of a pool game developed by John Drumheller at the Fall 1966 Joint Computer Conference; (8) a demonstration of a pool game developed by personnel of RCA Corporation at the occasion of the 25th anniversary of the David Sarnoff Research Center in 1967; and (9) the early television game development work done at Sanders by Ralph Baer and disclosed in U.S. Patent 3,728,480. Each is described in more detail hereafter.

1. The Michigan Pool Game

59. In 1954, a pool game was developed and demonstrated at a computer conference at the University of Michigan. The Michigan pool game was implemented with the

one-of-a-kind MIDSAC computer and an x-y, point plotting cathode ray tube display. It could be played by two persons viewing the display. The view on the screen was that of a pool table, seen from the top down. There was a circular figure representing a cue ball at one end of the display, and 15 "balls" in a triangular "rack" at the other. The sides of the table and pockets were drawn on the face of the cathode ray tube using a grease pencil. When the cue ball hit an object ball, the object ball would move in a direction and with a speed approximately proportional to the speed and direction of the cue ball. The Michigan pool game generated a player controlled cue stick, the cue ball, and the 15 object balls. The players could move the cue stick on the face of the cathode ray tube and change the direction in which it was pointing. The player pushed a button to start the cue ball moving, and it then moved in the direction the cue stick was pointing. The cue stick could be located anywhere on the screen when the player pushed his button. There was no need for the cue stick to be coincident with, or anywhere near, the cue ball to initiate motion of the cue ball.

60. The MIDSAC computer was custom developed at the University of Michigan under a military classified contract. The computer was never completed in that it never successfully performed its intended function. The x-y display device used with the MIDSAC computer for the pool game demonstration may also have been a custom made device. The MIDSAC computer cost between one-half and one million dollars at the time it was

developed. The MIDSAC computer consisted of eight equipment racks, each rack being 30 inches wide, 15 inches deep, and approximately 6 to 8 feet high.

61. The Michigan pool game has no teaching of certain of the important elements of the asserted '507 claims and did not use a raster scan.

2. The Higinbotham Tennis Game

62. In 1958 William A. Higinbotham developed a video tennis game for an open house at the Brookhaven National Laboratories in Upton, New York. Thousands of people, including school children, visited Brookhaven and saw the game being played. Some actually played the game. Higinbotham's video tennis game was played on a laboratory oscilloscope, x-y, point plotting cathode ray tube display. The tennis game could be played by two persons, each of whom had a hand control including a knob and a button. The view on the screen was that of a tennis court, seen from the perspective of one standing on the sidelines. The "net" was a vertical line in the middle of the screen, and a horizontal baseline was also generated. The ball was displayed, but no symbol representing a racquet or player was shown. When a player pushed his button, if the ball was on his side of the screen, the ball would reverse direction and move with a direction controlled by the player. The player controlled the direction of the ball with his knob. The tennis game contained electronic analog circuitry which generated voltages controlling the