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The Akai Quarter-Inch Video System, Briefly

When considering the brief history of video and its many incarnations, it is important to keep in mind that technology has no incentive to settle or become standard, as human use for it depends on context and changes with time. This is especially true of technologies created to record and document an audio and visual experience, which became available for the first time in the late 1899s, and were in great demand. Any existing or preexisting audio or video tape format could be examined in this light, but for the purpose of this paper, I will discuss the Akai quarter-inch video format, which was put to use during a short window of time in the 1970's and 80's for a variety of reasons, but most importantly for it's portability. In discussing the Akai Electric Company itself, the context in which the quarter-inch format was produced, the specific products released, their varying technologies, usage and eventual obsolescence, it is possible to gain an overview of the Akai quarter-inch video system and its place in the history of video.

Founded in 1929, The Akai Electric Company of Japan managed over the years to mutate with the market and is still in existence three quarters of a century after its inception. Akai began producing quarter-inch open reel audio and video devices as early as 1967, but came to prominence in the early 1980's for its "GX" series open reel audio recorders which were known for their stability. Akai created a pro-audio division in 1984 known as "Akai Professional", which produced best-selling electronic instruments, including sequencers, synthesizers and samplers [Wikipedia]. At a time when portable audio and video were just emerging, every company except

Akai was using comparatively bulky three-quarter or half-inch tape. Working on a smaller scale, the Akai Company, through its use of quarter-inch as a familiar tape size, was able to deliver a video recording system that was drastically more portable and therefore desirable to consumers.

Giving an extremely compact history of preexisting video formats (especially specifics about prior or competing portable systems) should shed light on the market into which Akai quarter-inch systems were released and clarify the demand for the format itself. Although electronic images had been transmitted quite commonly with the advent of television in 1948, they were only documented on film kinescope recordings. In 1956, Ampex created the two-inch quadraplex (or "quad") video system that made use of magnetic tape that could finally produce "broadcast quality" recordings of television (albeit at broadcaster prices) [Armes]. Over time, videotape formats decreased in size with the release of one-inch tape in 1960 for "industrial use" and half-inch video in 1965 by Sony for use in its portapak (marketed as portable at 66 lbs.) video system [Experimental TV Center]. Although smaller tape size compromised image quality and resolution, it was advantageous in that lower cost, physically lighter devices could be managed by broadcasters or home movie makers alike. At the same time, reel-to-reel video tape recorders were becoming commercially available, such as the Ampex VR-800 video tape recorder in 1961 and Sony's half-inch VTR in 1963. Audiocassette tapes were introduced in 1963 by Phillips, who sold their "compact cassettes" to be used with portable audio systems like the Norelco Carry-Corder. Videocassette technology was first available starting as early as in 1972, cycling through different tape widths until finally settling into its

most popular incarnation as a half-inch (primarily) VHS format [Schoenherr]. With the introduction of cassette systems and portable video (or "portapak") systems, smaller news stations, public broadcasters, schools, amateur media makers and middle-class consumers were able for the first time to access portable recording technology for their own specific purposes. However, from the time it arrived on the market in 1969 until the release of the Betamax camcorder in 1980 [Schoenherr], Akai's quarter-inch video system presented a distinctly different set of possibilities from all other formats on the market, as it was the least expensive and most portable option available to consumers.

The Akai quarter-inch format was released in 1969 with the introduction of the VT-700 Video Recorder Deck (which did *not* include a camera or monitor) [LabGuy's World]. This deck made use of 10.5" reels of quarter-inch audio reel-to-reel magnetic tape that were affordable (around $3.00 each) and already in wide circulation at the time [The Washington Post]. Like all subsequent decks, it could also record or play Akai's more stable, proprietary quarter-inch format metal tapes, which were suggested by the manufacturer. Containing about 4,500 feet of tape, each reel was able to accommodate about 80-90 minutes of video. Tape could be erased and reused. Due to it's narrow width, the tape ran at a speed of 11 ips, which was significantly faster than the half-inch format systems with which it competed [labguy]. The VT-700 was upright and its vertically oriented reels are placed one on top of the other, overlapping only slightly to save space. This feature is repeated in future, more compact and decks.

On the heels of the VT-700 came a full “portapack” setup of Akai quarter-inch equipment also released in 1969 known as the Akai VTS-100, which included the VT-100 VTR deck, VTC-100 “vidicon” camera (10 to 40mm, f1.8 zoom lens) and the VM-100 monitor or “sidecar” [LabGuy’s World]. Weighing-in at a mere 20 lbs and costing only $995, the Akai quarter-inch system was lighter and less expensive than competing formats (such as Sony’s $1,500, 30 lb. half-inch system), making portable video accessible to a much wider variety of users [The Washington Post]. The Akai portapack set used 5” overlapping reels that were able to contain approximately 1,100 feet of tape, producing approximately 20 minutes of video. Fully equipped for production, recording and viewing, the system excluded the usage of other forms of electronic media, as it did not incorporate audio or video inputs for dubbing or recording. In order to meet this need, Akai released the VTS-100 Television Receiver Module, a deck which used single-frame advance and audio and video inputs [LabGuy’s World]. Akai manufactured at least five additional quarter-inch portapack-style systems including the VT-110, the VT-115, the VT-120, the VT-150 and the VT-160, all of which used audio and video inputs and single-frame advance. The VT-150 was the first system capable of recording in color [LabGuy’s World] a technology that was built upon in the following model, the VT-160, which was able to record a signal of a higher bandwidth due to the integration in 1974 of helical scan technology to the Akai quarter-inch system [SMPTE Journal]. Akai was virtually the only company to produce quarter-inch video systems until Funai/Technicolor and Fisher-Price (Pixelvision) released a cassette systems in 1984 and 1988 [Langille]

Starting in the mid-1970's, Akai also produced half-inch video systems, including the VT-300 and VT-350, which weighed about 30 lbs [LabGuy's World].

Portable video systems such as these changed the way visual media was consumed and distributed in the United States during the 1970's and 1980's. In 1974, Michael Murray, a former employee of a public broadcasting station, argued that portapaks had a great impact on the way some Americans saw themselves. Helping a group of 13 year-old boys East Harlem to produce videos, Murray was struck by the reaction of the boy's relatives to seeing their own family members on a television set. The television, explains Murray, in its reception of network broadcasting, was a place for celebrity images and matters of national concern to be displayed. Once depicted onscreen, the young video artists were converted by grandparents, aunts, uncles and cousins to "instant celebrities" [Murray]. Portapaks were rented out at public libraries, such as the Port Washington Public Library on Long Island, the Cattaraugus-Chautauqua Public Library in Jamestown, and the Donnell Library in New York City [Hill]. Some public schools started to find ways to fit video production facilities into their budgets, setting aside approximately $10,000 to start up programs to enlighten their students [Murray]. Public Broadcasters and local news stations used portable video extensively once it became available. KTUL, for example, a local television station in Tulsa, Oklahoma used Akai quarter-inch systems in addition to 16 mm and Super 8 setups [Reid]. Home video and amateur movie makers also used the Akai quarter-inch systems, leaving their descendants with the unenviable task of transferring images created on what is now a totally obsolete format onto something that can be seen in the future [Hullverson].

Manufacture of Akai quarter-inch systems seems to have ceased with the VT-160 setup in 1982. At this time competing technologies, specifically Beta camcorders (released in 1980), were taking over the market. Akai, too, was meeting with some success in its release of a variety of electronic music instruments, including several analog synthesizers such as the Akai AX-80, the Akai AX-60 and AX-73, which sold well [Wikipedia]. It was at this time that Akai shifted its focus to "Akai Professional", the division of the company that was created in 1984 to act as a brand name in the release of electronic instruments only. Functional quarter-inch decks and portapak-style Akai systems can still be found used for low prices, though their parts and connectors can be difficult to come by [LabGuy's World].

During its brief stint as a popular video format, Akai quarter-inch supplied an extremely wide variety of consumers with the technology to record moving images at will. Such records, it can be argued, serve to empower those who create and possess them. The continual movement of electronics manufactures toward spy-camera sized video systems and incorporation of A/V recording devices into all kinds of gadgetry stands as a testament to consumer desire for this potential creative power. The reel-to-reel video systems of yore may seem totally unwieldy by today's standards, but could be seen as a tiny candle of hope lit from a past that would greatly envy the pixilated, jerky video that can be made, for example, on nearly any cellular telephone available for purchase today.