

# The story of Channel 1

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On 80 million TV sets and half as many CATV set-tops for as long as most people can remember, the dial begins with Channel 2. So what happened to Channel 1?

## What happened and why

As we sit in our easy chairs with a remote control scanning up to 54 channels of high-quality CATV channels, it is hard to envision the first mechanical television monsters of the late '20s with motors and mirrors and disks that started our industry. In 1933, RCA was the first to rid the TV set of motors and gears and mirrors and successfully demonstrate an all-electric TV system. RCA's W2XBS experimental TV transmitter sent the first TV signals from the Empire State Building at approximately 42 MHz, which later became the mysterious Channel 1, although not yet numbered as such.

A year later in 1934, Congress adopted the Communications Act, which established a new federal agency, the FCC, to control the rapidly developing radio and television technology and address the widespread interference between ship communications and early radio broadcasting. In its first year, the FCC moved all new radio experimentation to frequencies above 110 MHz and allocated television to two bands, 42-56 MHz and 60-80 MHz. There were still no channel numbers associated with either of these bands yet.

The depression was at its worst in these years and progress was slow for television. But by 1936, others were joining RCA's TV pioneering efforts, but with their own non-compatible all-electronic systems. The FCC held standards hearings and decided that bandwidth should be universally 6 MHz (RCA's was only 2 MHz), but declined to establish any line or frame rate recommendations. In 1937, Philco gave the first convincing demonstration of a superior working TV system that is the foundation of today's TV system, although the audio was AM modulation since Major Armstrong had not yet invented FM.

Finally in 1938, the FCC reaffirmed two separate TV allocations totalling 19 television numbered channels, each channel with a bandwidth of 6 MHz—and RCA's 42-48 MHz Empire State Building transmitter was refitted and soon officially licensed as the first TV Channel 1.

The TV industry was happy with the FCC's 19 TV channels but had hoped for a continuous TV band in order to reduce the costs of tuner design. Nonetheless, TV flourished, and at the opening of the New York World's Fair on

April 30, 1939, RCA demonstrated its commercial TV system to the world with a telecasted address by the president of the United States, and declared that its Empire State Building TV free Radio City Music Hall programming would continue as a public service. In the same year, all large New York department stores offered as many as nine different TV models with screen sizes from 5 to 14 inches and costing \$189 to \$600. Early sales success prompted RCA newspaper ads announcing the "arrival of television," despite a growing tide against RCA's 441-line system in favor of either Philco's 605-line system or DuMont's 625-line system.

In addition, at UA's now famous Alpine tower site in Alpine, N.J., perched on the high Hudson River bluffs overlooking the New York City skyline, Major Edwin Armstrong had developed FM modulation. Its superior transmission quality spurred many enthusiastic experimental FM transmitters between 42.6 and 43.4 MHz—the low end of Channel 1. Within one year the FCC had over 100 applications for the new FM technology, which it could not process because of the lack of frequencies and harmful interference with TV Channel 1. In March 1940 the FCC gave in to growing FM technology enthusiasts and assigned the continuous band of frequencies between 42 and 50 MHz. FM radio broadcasting began on our Channel 1 on Jan. 1, 1941.

And there went Channel 1! But the story of Channel 1 is hardly over. The TV channels were *renumbered* with Channel 1 now assigned 50-56 MHz (roughly the previous Channel 2 spot) and all the remaining channels shifted up similarly. Needless to say, the TV industry was not happy over the loss of Channel 1 or the reduction from a 19- to 18-channel allotment. The changes in channel frequencies caused most TV broadcasters to go off the air for months to complete extensive transmitter changes. The receiver industry and public confusion that followed resulted in a loss of public trust and a near collapse of an already slowly developing commercial TV industry.

As the TV broadcasters rebounded, they forcibly petitioned the FCC to approve and adopt into its rules a final set of TV standards in order to avoid a possibility of future interruption of television service and obsolescence of public television receivers and public confusion and loss of confidence.

The National Television Standards Committee, NTSC, was quickly formed, and in April 1941 today's NTSC 525-line, interlace, 6 MHz bandwidth, vestigial AM video, FM audio TV standard was adopted and is still in use.

One of the first stations to be once again refitted and go on the air opening day with the

new NTSC format was RCA's old W2XBS (now licensed WNBT) transmitting on the new Channel 1 from the Empire State Building. By spring of 1942, only three stations—two in New York and one in Philadelphia—were in full operation, transmitting to 10,000 NTSC television receivers. Then the war came and all new television broadcast approvals were halted by the Defence Communication Board and existing stations were limited to just four hours of transmission per week—all devoted to war-related activities.

The war effort as we know brought about an extraordinary leap in communications technology. As the war ended, frequencies once thought to be only experimental, like the TV band, were now in tremendous demand. The FCC was faced with a monumental task. The entire spectrum allocations and uses had to be totally re-examined and revised. Hearings began in September 1944 and the FCC was quickly attacked by TV interests who felt they had waited long enough and should be given ample spectrum to develop. But there were so many other new users of the spectrum to be accommodated that ultimately in June 1945 the FCC was forced to *reduce* TV's allocation from 18 to 13 channels and move the entire FM radio band from 42-50 MHz to 88-106 MHz (later increased to today's 88-108 MHz), which obsoleted 500,000 home FM receivers! All TV channels were shared with the just developing two-way mobile radio services.

Our TV Channel 1 was still around but moved back to approximately the same 42 MHz spot it had occupied from 1938 to 1940. But, its use was greatly restricted—it could only be assigned as a community channel and limited to 1,000 watts (other TV channels were allowed 50,000 watts).

Even with reduced TV channels and sharing with mobile radios, the TV boom was on. The FCC received many more TV applications than its 13-channel, 400-station allotment plan (one TV station for each major population density area) could accommodate. To provide for more stations, the FCC threw away its "safety factor" of minimum mileage between co-channel and adjacent channel assignments, and by the end of 1947 nearly 175,000 TV receivers were in use selling for an average of \$375.

But interference began to develop as a result of too closely spaced TV stations and rapidly increasing mobile services, sharing the same bands. Finally, in 1948 the FCC declared that TV and mobile services could no longer share frequencies and a new exclusive space had to be found for the mobile service.

On June 14, 1948, our TV Channel 1 was deleted from the allocation plan and its frequencies were assigned exclusively to the mobile services. The FCC decided not to renumber the TV channels. Since 1948, TV receivers have started with Channel 2.

And that's what happened to Channel 1!