To: Clay T. Whitehead; Susan Burgess
From: Wendell Bartnick
Date: April 3, 2007
Re: General Order 40 reallocation rationale

Question

What factors did the Federal Radio Commission consider when reallocating almost every existing assignment when it issued General Order 40?

Short Answer

In General Order 40, the Federal Radio Commission ("FRC") changed almost every existing assignment by adjusting their power level, location, or frequency. The FRC attempted to balance a number of factors while creating its reallocation plan. First, the Davis Amendment to the Radio Act of 1927, which required the Federal Radio Commission to reallocate, required the FRC to equalize the number of assignments and broadcast station's total power levels in each of the five zones covering the country.[1] Along with the five zones, the Davis Amendment also required the FRC to consider an area's population.[2] Second, the FRC continued to follow its goal of decreasing interference and attacked interference as a technical problem to be solved.[3] Third, related to decreasing interference, the FRC weighed the quality of the technology used by the license holder.[4] Fifth, the FRC did not want to terminate any of the existing assignments.[5] Fourth, the FRC seemed to look at a station's popularity when determining

[1] ROBERT W. MCCHESNEY, TELECOMMUNICATIONS, MASS MEDIA, AND DEMOCRACY: THE BATTLE FOR THE CONTROL OF U.S. BROADCASTING, 1928-1935, at 21 (1993); Thomas W. Hazlett, *The Rationality of U.S. Regulation of the Broadcast System*, 33 J.L. & ECON. 133, 161, 168 (1990).
[2] 1928 Fed. Radio Comm'n 2d Ann. Rep. 11, [hereinafter "1928 REPORT"], *available at* http://www.fcc.gov/mb/audio/decdoc/annual_reports.html.
[3] *Id.* at 12-13, 17; MCCHESNEY, *supra* note 1, at 22, 25.
[4] 1928 REPORT, *supra* note 2, at 11.
[5] *Id.* at 218.

its new assignment.[6] Sixth, the FRC did not want to disrupt the clear channels previously assigned to the high-powered national stations.[7] Finally, the FRC did not want to make drastic changes to the assignments affecting many people, so these people could still easily find their old station.[8] Importantly, a discussion limited to General Order 40 leaves out much of the background that explains why the FRC acted as it did and the actual effects of General Order 40; and that background is discussed in much more detail below in the Long Answer.

Long Answer

Prior To Radio Act of 1927

Before the Radio Act of 1927, anyone could request and receive a radio license from the Department of Commerce ("DOC").[9] The government could not deny a citizen's right to access spectrum or give exclusive rights to a part of the spectrum to one entity because spectrum was considered a public good.[10] Without spectrum access denials by the government, broadcasters increased their spectrum use. The increased use led to increased interference problems. Additionally, the government could not limit the power levels used by broadcasters.[11] The limits on technology were the only limits on a station's power level which was another key contributor to interference.[12] For example, the size of the antenna was one major determinate of power.[13] As an antenna increased in size and other technology improved, the power levels of stations rose, causing

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[6] MCCHESNEY, *supra* note 1, at 24.
[7] 1928 REPORT, *supra* note 2, at 17.
[8] *Id.* at 216.
[9] Hugh G.J. Aitken, *Allocating the Spectrum: The Origins of Radio Regulation*, 35 TECH. & CULTURE 686, 688 (1994).
[10] *Id.*; Hazlett, *supra* note 1, at 133, 135 (1990).
[11] *See* Aitken, *supra* note 9, at 692.
[12] *Id.*
[13] *Id.*

interference.[14] Very wide broadcast signals were a third cause of interference because signals spilled over onto other frequencies.[15]

To combat this interference, Congress passed the Radio Act of 1912 ("1912 Act"). The 1912 Act resulted in moving amateurs to a different spectrum area so that they would not interfere with government and commercial use.[16] Also, new technology improvements, like the use of vacuum tubes, helped solve other interference problems.[17] These improvements caused most people to think the minimal regulations under the 1912 Act were enough.[18]

But the 1920's broadcast explosion changed this view.[19] The 1920s saw many more people who wanted to broadcast to a wide range of people, not just point-to-point communication as before.[20] The DOC attempted to fix the problem by dedicating a single frequency and then an entire frequency band to these broadcasters.[21] These frequencies were chosen away from the amateur, commercial, and government frequencies to avoid interference, but the broadcast stations multiplied faster than the available channels creating more interference problems as the number of stations increased.[22] In September 1921, three stations broadcasted, in December of 1922 there were 576 broadcast stations, and in February 1927, there were 716 broadcast stations.[23] The power levels of the broadcasts also increased due to technological improvements; the

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[14] *Id.*
[15] *Id.*
[16] *Id.* at 691.
[17] *Id.* at 693.
[18] *Id.* at 693-4.
[19] *Id.* at 693.
[20] *Id.*
[21] *Id.* at 694-5.
[22] *Id.* at 694-5.
[23] MARVIN R. BENSMAN, THE BEGINNING OF BROADCAST REGULATION IN THE TWENTIETH CENTURY 154 (2000); Hazlett, *supra* note 1, at 140.

power levels increased from a normal broadcast level of 250 watts to where many stations broadcasted at 500-1000 watts.[24] Two stations planned to broadcast at 5,000 watts and RCA stated they could broadcast at 50,000 watts.[25]

In the early and mid 1920s, a significant portion of the stations, around one third, were operated by nonprofit organizations like religious groups, civic organizations, labor unions, and colleges and universities.[26] Between 1921 and 1925, colleges and universities received 176 licenses, with 128 stations surviving until at least 1925.[27] The other nonprofit groups combined had approximately the same number of licenses.[28] During this same time, even the for-profit stations weren't "professional" broadcasters; they were newspapers, department stores, power companies, car dealerships, etc.[29] These unprofessional, for-profit stations had about half of the total licenses, and the stations were used to improve the publicity and reputation of owners' primary businesses.[30] In 1926, only 4.3% of US stations were labeled as "commercial broadcasters", but soon, huge corporations, including RCA, GE, AT&T, and Westinghouse, dominated radio communication, as many nonprofit broadcasters quit broadcasting due to lack of funds.[31] RCA established the first network, NBC, in late 1926.[32] CBS was created in 1927.[33] These two networks and their affiliates quickly dominated broadcasting.[34]

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[24] Aitken, *supra* note 9, at 695.
[25] *Id.*
[26] MCCHESNEY, *supra* note 1, at 14-15.
[27] *Id.*
[28] *Id.*
[29] *Id.* at 14-15
[30] *Id.*
[31] *Id.* at 12, 15.
[32] *Id.* at 14.
[33] *Id.*
[34] *Id.*

During this time, the DOC seemed to be able to at least regulate the location and frequencies where licensees broadcasted which allowed the DOC to prevent some broadcast interference.[35] For example, the DOC tried to keep the area near the Canadian border free from powerful U.S. stations to avoid interference and possible diplomatic problems.[36] However, the court in *U.S. v. Zenith Radio Corp.*[37] took away even this limited power.[38] The court case plus a subsequent attorney general's opinion on the subject resulted in the DOC taking a nearly complete hands-off approach to spectrum allocation, creating what some view as "chaos" where interference problems increased with no solution in sight.[39] For example, within six months, 200 new broadcasters began operation and many did not respect the others' frequencies.[40]

Radio Act of 1927

To fix these interference problems, Secretary of Commerce Herbert Hoover thought the only solution was strong regulation and Congress passed the Radio Act of 1927 ("1927 Act") which granted the federal government the right to deny access to the spectrum for the first time.[41] However, no one believed government ownership or complete control of broadcasting was the answer.[42] The National Association of Broadcasters ("NAB") and the commercial broadcasters were highly involved in drafting the 1927 Act.[43] Contrastingly, educators and other nonprofit broadcasters played almost

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[35] Aitken, *supra* note 9, at 702.
[36] *Id.* at 704.
[37] *U.S. v. Zenith Radio Corp.*, 12 F.2d 614 (N.D. Ill. 1926).
[38] Aitken, *supra* note 9, at 702.
[39] BENSMAN, *supra* note 23, at 154; Aitken, *supra* note 9, at 706.
[40] MCCHESNEY, *supra* note 1, at 14.
[41] BENSMAN, *supra* note 23, at 183; Aitken, *supra* note 9, at 689.
[42] MCCHESNEY, *supra* note 1, at 14.
[43] *Id.* at 17.

no role, though they did support the 1927 Act to fix the abundant interference problems.[44] Virtually everyone saw the 1927 Act as an emergency solution to the recent interference problems.[45]

The 1927 Act created the Federal Radio Commission ("FRC"), giving it the ability to assign frequency rights based on what the FRC thought would further "the public interest, convenience, or necessity," a highly general guideline.[46] Early versions of the 1927 Act attempted to favor nonprofit broadcasters, but specific language was rejected because legislators felt that mandate was implicit in the term "public interest, convenience, or necessity."[47] The FRC quickly identified a number of problems they would act to fix: 1) stations frequency jumped, 2) no separation between channels existed, 3) U.S. signals invaded Canada, 4) many new stations continually entered an already crowded situation, and 5) incumbent stations continued to increase their power output.[48] The FRC also identified two ways it could serve the public interest: 1) distribute stations evenly along the dial, and 2) license only stations that demonstrated a capacity to serve the public.[49] With these problems and goals in mind, the FRC, in the end, reassigned nearly every station.[50]

The FRC held a number of hearings on how best to regulate broadcasting to prevent the interference problems.[51] The FRC got most of their suggestions from

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[44] *Id.*
[45] *Id.*
[46] Radio Act of 1927 § 9; MCCHESNEY, *supra* note 1, at 18; Hazlett, *supra* note 1, at 136.
[47] MCCHESNEY, *supra* note 1, at 33.
[48] 1927 Fed. Radio Comm'n Ann. Rep. 10-11, [hereinafter "1927 REPORT"], *available at* http://www.fcc.gov/fcc-bin/assemble?docno=270701.
[49] *Id.* at 11.
[50] *Id.* at 9.
[51] MCCHESNEY, *supra* note 1, at 19.

commercial broadcasters, radio manufacturers, and other commercial enterprises.[52] The broadly held sentiment in these hearings was that the success of broadcasting meant removing small and unimportant stations.[53] When assigning spectrum, the FRC chose to employ a market success standard of public interest.[54] The market success standard favored applicants with better technical equipment, adequate financial resources, skilled personnel, and the ability to provide continuous service; in essence, the advantages that commercial broadcasters had over nonprofit broadcasters.[55] One scholar feels the process was highly political where the FRC grandfathered rights for major broadcasters, and eliminated many of the smaller stations and all new entry into the broadcast market.[56] Another scholar said, "[t]he beneficiaries of the ad hoc allocation process were the largest stations, generally affiliated with the networks, while the smaller and nonprofit broadcasters continued to struggle to survive."[57]

The FRC implemented the initial government-determined allocation by terminating all licenses on June 1, 1927.[58] On that date, the new allocations went into effect where the FRC granted temporary sixty-day licenses starting on June 15, 1927.[59] During the sixty days, stations could request a hearing to complain about their assignment and they had to show how their requested assignments were in the public interest.[60]

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[52] *Id.* at 19.
[53] MCCHESNEY, *supra* note 1, at 19.
[54] Hazlett, *supra* note 1, at 157.
[55] *Id.* at 157-58.
[56] *Id.* at 154, 168.
[57] MCCHESNEY, *supra* note 1, at 20.
[58] 1927 REPORT, *supra* note 40, at 15.
[59] *Id.*
[60] *Id.*

Between July 1, 1927 and March 18, 1928, the FRC held 51 hearings from broadcasters who wanted better assignments.[61]

According to the FRC, this allocation test proved to do well in the large cities, but poorly in rural areas.[62] The rural area listeners reported much more heterodyne interference on their stations.[63] Heterodyne interference occurs when two stations operate on the same frequency and one is running a little off frequency, causing the broadcast of an audible tone on those stations.[64] The FRC responded by reallocating assignments a number of times and only granted 60-day licenses to give the FRC the continued flexibility to do adjust the assignments.[65] The FRC reallocated assignments in Zone 5 in November 1927 and again in March 1928 due to interference problems.[66] The FRC reallocated in other zones in December 1927.[67]

One scholar noted the FRC's solution accomplished the following:[68]

- Gave de facto property rights to the incumbent licensees using a "priority in use rule",
- Did not renew 83 licensees in July 1927,
- Reduced power and time assignments to nonprofit organizations, and
- Awarded enhanced power assignments (up to 50k watts) to some large broadcasters, generally network affiliated

While the FRC seemed pleased with its success, not everyone shared its view. First, some members of Congress charged the FRC with discriminating against the

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[61] 1928 REPORT, *supra* note 2, at 9.
[62] *Id.* at 8.
[63] *Id.*
[64] KNLS English Service, http://www.knls.org/English/trascripts/dxdef02.htm#Heterodyne.
[65] 1928 REPORT, *supra* note 2, at 8.
[66] *Id.* at 9-10.
[67] *Id.* at 8.
[68] Hazlett, *supra* note 1, at 167-68.

southern states when it assigned stations.[69] As a result, the FRC tried to give more assignments to southern stations (32 new stations were added) and 47 northern stations voluntarily gave up their licenses between March 1927 and June 1928.[70]

Second, the number of nonprofit broadcasters was decreasing rapidly. In 1924, 151 stations were licensed to colleges and universities, and in September 1928 there were only around seventy.[71] Rather than help nonprofits, when possible the FRC attempted to create clear channels for high-powered stations broadcasting nationwide.[72] Of the first twenty-five channels set aside for clear channels, twenty-three were given to NBC affiliates.[73] Congress had mixed feelings on these FRC actions as some felt the public interest was served best by the content diversity of the network affiliates, while others were unsatisfied with the sharp decline in the role of nonprofit broadcasting.[74] Those unhappy with the increasing dominance of the networks called for legislation to require the FRC to break-up the network dominance, reduce the maximum power allowances so less capitalized stations could compete, and to turn over more of the prime clear channels to nonprofit broadcasters.[75] Much of this effort failed, but Congress did succeed in passing the Davis Amendment. [76]

Davis Amendment in 1928 – General Order 40

Congress enacted the Davis Amendment in March 1928.[77] The Davis Amendment ordered the FRC to allocate an "equitable" number of broadcast licenses to

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[69] 1928 REPORT, *supra* note 2, at 10.
[70] *Id.* at 11.
[71] Hazlett, *supra* note 1, at 164-65.
[72] MCCHESNEY, *supra* note 1, at 20-21.
[73] *Id.*
[74] *Id.*
[75] *Id.* at 21.
[76] *Id.*
[77] *Id.*

each of the nation's five zones on the claim that the South and West was being cheated out of its fair share of radio stations.[78] This new requirement implicitly attacked the network domination which was highly concentrated on the eastern seaboard.[79] The FRC changed its sole focus from achieving better radio reception and working to achieve "fair, efficient, and equitable radio service" required in the 1927 Act to achieving an equal allocation of licenses based on geographic location (the 5 zones) and population.[80] Congress directed that the FRC could accomplish this task by: 1) granting or refusing license applications or renewals, 2) changing periods of operation time, and 3) increasing or decreasing station power.[81]

The FRC acknowledged that Congress did not define the meaning of public interest, convenience, or necessity in the Act of 1927 or the Davis Amendment.[82] So the FRC interpreted it to mean that the FRC should strive 'to bring about the best possible broadcasting reception with the best technical equipment."[83] First, the FRC held a number of hearings which included mostly engineers, and allowed them to present plans to the FRC for implementing the Davis Amendment.[84] These engineers were mostly employed by the government, radio manufacturers, or commercial broadcasters, which coincided with the FRC's "harmonious and extensive relationship" with NBC, CBS, and the NAB.[85] Their primary recommendation was to create a large number of high-powered clear channels "upon which only one station operates" nationally and also to create a number of regional channels that several broadcasters could use

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[78] MCCHESNEY, *supra* note 1, at 21; Hazlett, *supra* note 1, at 161, 168.
[79] MCCHESNEY, *supra* note 1, at 21.
[80] 1928 REPORT, *supra* note 2, at 11.
[81] *Id.*
[82] MCCHESNEY, *supra* note 1, at 25.
[83] 1928 REPORT, *supra* note 2, at 11.
[84] *Id.* at 12-13; MCCHESNEY, *supra* note 1, at 22.
[85] MCCHESNEY, *supra* note 1, at 22-23.

simultaneously.[86] As a corollary, the engineers suggested that if the FRC could not reduce the number of small broadcasters to create the clear channels, those broadcasters should be forced to share the same channels.[87] This coincided with networks' and large commercials broadcasters' priorities, since they could best take advantage of this reallocation.[88] The FRC also asked major radio editors which stations were the most popular in their communities.[89] Contrastingly, the FRC had little contact with nonprofit broadcasters, public interest groups with an interest in broadcast policy, or even members of Congress.[90]

The FRC decided to discontinue licensing portable broadcasting stations and terminated the licenses of the 13 existing portable broadcast stations since they created many interference problems.[91] Then the FRC identified 164 stations which were doubtful to retain their license without a showing of how their continued operation would serve the public interest, convenience, or necessity.[92] In late August 1928, only 81 of those stations remained unscathed, as 62 of the station licenses were terminated, mostly in the Midwest, and 12 were reduced in power.[93]

Finally, the reallocation plan based on the mandate of the Davis Amendment occurred with the issuance of General Order 40 on August, 30, 1928.[94] One key conclusion the FRC made was to not abolish any of the existing stations beyond what had

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[86] *Id.* at 22, 24.
[87] *Id.* at 24.
[88] *Id.*
[89] *Id.*
[90] *Id.* at 23.
[91] 1928 REPORT, *supra* note 2, at 14.
[92] *Id.*
[93] *Id.* at 16. Nine more were also affected in other ways. *Id.*
[94] *Id.* at 17. General Order 40 is located in the 1928 Report's Appendix A.

already been terminated.[95] The important component of the implementation plan instead was to create limits on national, regional, and local channels in each of the 5 regions of the country.[96] Each zone would have a maximum of 8 national clear channels, 7 regional channels (between 500 and 1000 watts), and 30 local channels (50-100 watts).[97] Beyond these, 6 channels were set aside for stations greater than 100 watts for use in all zones and 5 channels for stations less than 1000 watts for use in all zones, and 4 channels were set aside for use by stations with greater than 5000 watts for use in two or more zones.[98] The FRC felt this created excellent radio reception on 80% of the channels.[99] The reallocation altered 94% of the broadcasters' prior frequency assignments.[100] The unaffected 6% were network affiliates already situated on existing clear channels.[101]

The new assignments from this reallocation were announced on September 10, 1928, to go into effect on November 11, 1928 and regulated frequency, power, and hours of operation.[102] There were some revisions to the plan during October, but everything went into effect in November as planned.[103] The statement by the commission pursuant to General Order 40 stated that the commission believed the plan provided an improved standard of radio reception generally, and also distributed the broadcast channels, powers, and periods of time on the air equally among the five zones.[104] A chief engineer looked at the allocation and found that: 1) allocation of frequencies and of stations assignments to the individual states were closely proportional to population, 2) aggregate power levels

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[95] *Id.* at 218.
[96] *Id.* at 17.
[97] *Id.*
[98] *Id.*
[99] *Id.*
[100] MCCHESNEY, *supra* note 1, at 25.
[101] 1928 REPORT, *supra* note 2, at 17.
[102] *Id.* at 18.
[103] *Id.*
[104] *Id.* at 214.

were nearly equal among the five zones, and 3) the assignments were only approximately equalized since the zone with the most had 155 assignments and the zone with the least had 106 assignments.[105] In addition, the choice of new frequencies was largely influenced by the previous frequencies.[106] For example, the high-powered stations were placed at certain frequencies because listeners were accustomed to hearing regional-service stations at those frequencies.[107]

Post General Order 40

Pursuant to General Order 40, the FRC assigned licenses for three month periods, giving the FRC the ability to adjust the assignments.[108] Any broadcaster could challenge the assignment during the 3 months and the FRC would allocate the majority of the hours to stations it deemed most worthy.[109] Most of the challengers were commercial broadcasters who challenged nonprofit broadcasters for their air-time.[110] The commercial broadcasters usually won these challenges because the FRC favored general public service broadcasters rather than the nonprofit stations it described as "propaganda stations."[111] This resulted in the hours going to commercial stations, often affiliated with one of the two networks.[112]

Most nonprofit broadcasters found themselves in a vicious cycle where the FRC lowered their hours and power by assigning them to well-capitalized commercial broadcasters, which made it that much more difficult for the nonprofit broadcasters to get

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[105] *Id.* at 217-18.
[106] *Id.* at 216.
[107] *Id.*
[108] *See* MCCHESNEY, *supra* note 1, at 25.
[109] *Id.*
[110] *Id.* at 26.
[111] *Id.* at 28.
[112] *Id.*

the money necessary to be successful. [113] Without money, the nonprofit broadcasters could not expand or spend the money to defend against the commercial broadcasters challenges to their air-time every three months. [114] This was the scenario for most of the educational and nonprofit stations that went off the air in the late 1920's and early 1930s. [115]

While the FRC didn't explicitly terminate the nonprofit assignments, the net effect of their actions resulted in a significant decline in the number of nonprofit stations.[116] In the year following the implementation of General Order 40, one hundred fewer stations were on the air.[117] Educational stations declined from ninety-five in 1927 to less than half that in 1930.[118] The overall number of nonprofit broadcasters declined from 200 in 1927 to 65 in 1934 and nearly all had low power.[119] By 1934, nonprofit broadcasters made up only 2% of US broadcast time.[120]

Unsurprisingly, after the General Order 40 reallocation and ensuing challenges, the nationwide networks took off. NBC and CBS combined to have forty-four stations in 1927 (6.4%).[121] Within 4 years, they combined for 30% of the stations.[122] All but three of the forty clear channels were soon owned or affiliated with the two networks and approximately one half of the remaining 70% of the stations were low-power independent broadcasters operating with limited hours and shared frequencies.[123] Within 2 years of

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[113] *Id.* at 25, 31.
[114] *Id.*
[115] *Id.*
[116] *Id.* at 30-31.
[117] *Id.* at 26.
[118] *Id.* at 30.
[119] *Id.* at 30-31.
[120] *Id.* at 31.
[121] *Id.* at 29.
[122] *Id.*
[123] *Id.*

the General Order 40 implementation, the average independent station had a power of 566 watts, while NBC's stations averaged over 10k watts.[124]

[124] *Id.*