



IEEE

Broadcast Technology

The technologies to deliver information and entertainment
to audiences worldwide, at home and on the go

*A New Breed of 'Franken
FM's' Take to the Air – p. 12*

*BMSM Conference Goes
'live' in 2022 – p. 5*

President's Message

Ralph Hogan, BTS President



It is my sincere hope that everyone is having an enjoyable summer. Travel is continuing to increase across the globe, and some Covid-19 restrictions have been relaxed, allowing for more accessible domestic and international travel.

As BTS president, I have attended several face-to-face meetings so far in 2022.

These included the NAB Show 2022 in Las Vegas, NV, that was held April 23–27, with the attendance about 50 percent of the 2019 numbers; the IEEE International Symposium on Broadband Multimedia Systems and Broadcasting in Bilbao, Spain, June 15–17, where the attendance was about the same as 2019; and the IEEE Technical Activities Board meeting in Seattle, Washington, June 24–25, which was down in attendance due to bad weather on the U.S. east coast causing cancellation of many flights to the west.

Most of these meetings still have virtual components due to reduced budgets and travel restrictions. Even so,

the trend is that more and more people are attending these meetings in person. There are several additional in-person trips planned before the end of the year, the IBC show in Amsterdam, the Netherlands, Sept. 9–12, and the IEEE Broadcast Symposium in Florida (USA), Nov. 8–10. If the trend continues, there will be even more such meetings in 2023. Many members are ready to start traveling again and meeting with their colleagues.

The second IEEE BTS Pulse webinar of 2022 was presented July 12–14. The webinar covered 5G production, distribution, and the future. Excellent presenters provided examples of what is being accomplished now, and can be done shortly, in the 5G space for broadcast production and distribution to the consumer. This is an exciting time for broadcasters to be able to add additional tools to their arsenal. The technology of 5G is just getting started, and 6G+ is on the horizon. Some equipment to take advantage of this technology is not available yet, but should be in the next year. Since technology is moving so quickly, it is hard to keep up with future advances before the current equipment is fully developed. You can find this webinar available on the IEEE BTS Resource Center to learn more about this topic.

The Broadcast Technology Society Awards Committee is soliciting nominations for the 2022 IEEE Jules Cohen Award for Outstanding Broadcast Engineering.

The award was established in 2015 to recognize a broadcast engineer exemplifying outstanding work in the field of broadcasting that meets the following criteria:

- Integrity and professionalism
- Quality and thoroughness of the candidate's work
- Extent and reach of the work
- Commitment to client success

If you know of someone worthy of this honor, you can find the nomination form and eligibility criteria on the Broadcast Technology Society website, <https://bts.ieee.org/awards.html>.

The winner is provided with a Plaque, \$500 award, and complimentary registration at all future Broadcast Symposiums. If you have questions about this award contact, Peter Symes p.d.symes@ieee.org, BTS Awards Chair.

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Cover: Sometimes controversial 'Franken FMs' have been around in the United States for decades, and while the 2021 move to end all analog TV broadcasts was expected to be their death knell, a new type of hybrid Ch. 6 TV/FM ATSC 3.0 has now arisen, powered by the ATSC 3.0 broadcast standard. The cover shows the antenna installation at New York City's 'FM6', WNYZ-LD.

Cover photo courtesy of Clarence Beverage

From The Editor

July 1 – A Very Significant Date In U.S. Television; (NextGen) TV's Arrival In The Home

By James E. O'Neal, Editor-in-Chief,
BTS Life Member



As I write this, the United States has just celebrated its birthday, July 4th—its Independence Day, or the formal end of its existence as a British colony in 1776, almost 250 years ago. There's another July date that, while not quite so profound as the birth of a nation, is still rather significant. That date is July 1, 1941.

It's not celebrated or well-remembered, but perhaps it should be. It was on that date that television "came of age," at least here in the United States. While it's true that scheduled broadcasting of sorts had begun two years earlier with coverage of the opening ceremonies at the 1939-1940 New York World's Fair, the station that did the single-camera remote pickup, W2XBS, was operating with an "experimental" license (designated by the "X" following the radio district number in the call sign), as were the handful of other fledgling U.S. TV stations. The governmental regulatory body, the Federal Communications Commission, or FCC, did not, and would not, allow commercialization of television at this point. This was due basically to lack of agreement on operational standards for such a system. It seemed that there were then (in the United States, at least) almost as many ideas about TV standards as the number of entities experimenting with it. The Radio Corporation of America (RCA), which had the largest footprint in television at this time, opted for 441 interlaced lines and 60 fields, transmitted with vestigial sideband modulation and AM sound. Another early player, General Electric (GE), was in agreement with RCA in most areas, but commonality of standards more or less stopped there. Zenith opted for something like 605 lines, while DuMont and Philco favored an "open architecture" that would allow broadcasters to use whatever line and field combinations (as high as 800 lines) that would fit into the 6-MHz channels that an industry group had, in 1936, persuaded the FCC to authorize for television. (The idea behind the "anything goes" concept espoused by DuMont and Philco was to allow broadcasters to vary the "standard" depending on what was being televised; i.e., a studio drama with little movement might benefit from a lower frame rate and a greater number of lines, while sports action would be better captured with a high frame rate and lower resolution. It would be up to the TV set owner to sort things out with the controls on his or her receiver.) CBS, with its television development program under the leadership of Peter Goldmark, argued that

The top document is a station identification card for WNBT. It features the call letters 'WNBT' in a large, stylized font. Below it, it reads '50-56 MEGACYCLES—NO 1 CHANNEL', 'NATIONAL BROADCASTING COMPANY', 'A Radio Corporation of America Service', and 'RCA BUILDING • RADIO CITY, N. Y.'. The word 'TELEVISION' is written vertically on the left side, and 'STATION' is at the top.

The bottom document is a rate card titled 'NBC Television Station WNBT RATES' and 'EFFECTIVE JULY 1, 1941'. It is divided into sections: 'COMMISSIONS AND DISCOUNTS' and 'MISCELLANEOUS'. The 'COMMISSIONS AND DISCOUNTS' section states: 'A 15% commission will be allowed on gross billings to recognized advertising agencies on:' followed by a list: 1 Transmission charges, 2 Program facilities charges, 3 Program production charges. (as such charges are classified on reverse side.) The 'MISCELLANEOUS' section contains seven numbered items: 1 This rate card is only for the information of advertisers and is not to be regarded as an offer by the National Broadcasting Company. 2 No periods are sold in bulk for resale. 3 Advertisers cooperating in group broadcasts are required to make individual contracts with the National Broadcasting Company subject to card rates and regulations. 4 These facilities are available subject to prior contracts and commitments of the National Broadcasting Company. 5 Programs and the use thereof by others are subject to the policies and approval of the National Broadcasting Company. 6 No cash discounts. Bills due and payable when rendered. 7 Rates are subject to change without notice.

From the Christopher H. Sterling collection

Television's first-ever rate card was available on 'day one' of television's commercialization. New York's newly-licensed WNBT offered rates between \$195 and \$270 for an hour of prime-time broadcast, depending on what facilities were used. (This charge also included an hour's rehearsal with cameras for each 15 minutes aired.)