Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of:	)	
	)	
Amendment of Parts 73 and 74 of the	)	
Commission's Rules to Establish Rules for	)	MB Docket No. 03-185
Digital Low Power Television and Television	)	
Translator Stations	)	
	)	
Update of Parts 74 of the Commission's	)	
Rules Related to Low Power Television and	)	MB Docket No. 22-261
Television Translator Stations	)	

COMMENTS OF
THE NATIONAL TELEVISION ASSOCIATION

The National Television Association ("NTA") (formerly the National Translator Association) hereby files its comments in the above-captioned proceeding. The substance of these comments is set forth in the attached Statement prepared by the President and specified members of the Board of Directors of NTA.

The NTA opposes the requirement for translator stations to purchase equipment and retrofit their technical facilities to meet proposed station identification requirements. As noted in the Statement, 18 years ago the Commission decided that digital translators would not be subject to a station identification requirement. Consequently, virtually all translator transmitters were constructed by manufacturers, sold to and installed by licensees, and operated without the capability to insert station ID into the translator's primary channel. The alternative system for translator station identification is to have the originating station broadcast the ID. But it is not a requirement, and many primary stations do not identify their translator(s). With the proposed new requirement, translators must retrofit their transmitters, at the cost of many thousands of dollars,

if they can even get parts. Many of the most popular translator manufacturers are no longer in business.

For the past 18 years, there has been no requirement that translator stations be able to be identified. NTA is aware of no problem that has come up in those 18 years that would have been resolved by the station IDing as proposed. This is simply bureaucratic overreach to solve a problem that does not exist. We urge the Commission not to adopt this portion of the proposed revision of the Rules.

The NTA believes the best option for dealing with the power in in the horizontal and vertical polarization issue is to allow any combination of polarizations needed as long as neither polarization exceeds the licensed power in the major lobe(s) or beam.

The NTA's position regarding geographic position is that translators and LPTV stations not be held to higher standards of geographic location or the ability to make minor corrections to location than are full-service television broadcast stations. The change to NAD-83 should not require any station to file an application to modify facilities.

Respectfully submitted,

NATIONAL TELEVISION
ASSOCIATION

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COMMENTS

1. INTRODUCTION

The National Television Association ("NTA") is a non-profit service organization that represents TV and FM translator operators, many in the Inter-Mountain West. NTA's historic purpose, the preservation of free over-the-air broadcast signals to every home, remains vital and in the national interest, even as new technologies have fostered many new types of program delivery.

Participation in this docket includes significant input from NTA member stations that could be impacted by the proposals in this Sixth Notice of Proposed Rulemaking ("*Notice*"). Among other things, NTA is concerned that required identification of digital television translator stations is not supported in the *Notice*, nor anywhere in the public record in this proceeding, and could adversely affect translator station licensees and the communities they serve. Specifically, the proposal involving input of the translator call sign into the "short channel name" in the Program System and Information Protocol (PSIP)) portion of the translator output signal would require many station licensees to purchase new digital translators and/or other external equipment. This outcome could prove cost-prohibitive, particularly in small rural communities and for operators who operate dozens if not hundreds of translators. This could result in cessation of station operation and the loss of free over-the-air television service.

In the paragraphs that follow, including the supporting statements of television translator licensees, NTA discusses this and other issues in the *Notice* and offers its recommendations.

II. BACKGROUND ON STATION IDENTIFICATION

The issue of digital television translator station identification was first raised in the Commission's Notice of Proposed Rulemaking in this proceeding (Notice of Proposed Rulemaking in Docket MB 03-185, 2003, *Initial Notice*). Therein the Commission noted that international radio regulations provide that radio transmissions "should be capable of being identified either by identification of signals or *by other means* (emphasis supplied) containing information such as station location and call sign" (see Article 19 at ITU RR 19.1, 19.4, 19.16, 19.17). The *Initial Notice* proposed that DTV broadcast stations should be permitted to identify translators rebroadcasting their signals and provided means for so doing (Section 74.783 of the Commission's Rules). It sought comment on the content and means of identification for heterodyne translators that alter only the TV channel and amplitude of the broadcast signal. It also sought comment on the technical means and related costs of inserting information into the digital bit stream of so-called regenerative translators, translators that decode the digital broadcast signal to the bitstream level and correct for errors in the bit stream. In response, the Commission received few comments and little useful information. The NTA opposed translator identification as being costly. It suggested that the translator output signal would contain sufficient information to identify a DTV broadcast station, thereby satisfying international station identification requirements.

It its 2004 Report and Order in this proceeding (*Report and Order*), the Commission concluded: "We cannot at this time establish identification requirements for digital LPTV and TV translator stations...The record lacks sufficient technical and cost information from which to develop standards for this purpose. We do not wish to impose requirements that could now be cost prohibitive for licensees of translators and LPTV stations, thereby discouraging their conversion

to digital operations." The Commission acknowledged "it may be possible to insert a station's call sign into a regenerative translator or, alternatively, a PSIP generator [but] we have no information in this record on the practical utility of this approach for station identification." It planned to revisit this issue in a future proceeding.

III. ISSUES CONCERNING THE NTA RAISED IN THE *NOTICE*

A. THE COMMISSION SHOULD NOT HAVE IN ITS RULES A STATION IDENTIFICATION REQUIREMENT FOR DIGITAL TELEVISION TRANSLATOR STATIONS.

1. The proposed alternative to identify a digital translator by inserting its call sign in the "Short Channel Name" in its PSIP data would be cost-prohibitive, confusing to viewers and counter to the interests of DTV broadcasters.

Many, if not most, television translators are identified by their DTV primary stations. The NTA supports and encourages this means of voluntary identification as useful to both viewers of translator stations and their primary stations. However, numerous translators are not identified in this manner. As examples, NTA is aware that DTV stations in the Denver DMA do not identify translators other than the ones they own. Some DTV stations in Salt Lake City, Utah, Albuquerque, New Mexico, and Bozeman and Missoula, Montana, do not identify translators that rebroadcast their programming. (DTV stations are not required to identify translator stations.) As proposed in the *Notice*, these and other similarly situated translators would be required to insert their call signs in the PSIP Short Channel Name.

As noted, the Commission's 2004 *Report and Order* permitted digital translator heterodyne signal rebroadcasts. An unknown number of digital translator stations operate in this manner, largely because of the lower cost of this technology compared to regenerative translators.

Heterodyne translators by their nature have no capability for insertion of any information, including call signs, into the digital bit stream. Such stations where not identified by primary DTV stations would need too be replaced with regenerative translators with this capability, at a cost of thousands or tens of thousands of dollars depending on the number of translators serving a community and the translator output power. The NTA is concerned that where station licensees are financially unable to afford new translators, free over-the-air television service would be lost in such communities.

A good example here is translator use in Alaska. Alaska Public Television operates about 125 heterodyne translators in very small and remote communities. Under the Commission's PSIP identification alternative, unless identified by DTV primary stations, these translators would have to be replaced at great cost.

The NTA is also concerned about the financial and practical burdens of the PSIP alternative on those translator stations using the more sophisticated and robust digital regenerative technology. In the eighteen years since the Commission's digital *Report and Order*, digital translator service has evolved under various approaches. Some stations, particularly the early adopters, purchased digital exciters, including so-called transcoders, to be used together with other existing translator components, for example, frequency converters and power amplifiers. Other stations purchased completely functional digital translators. The NTA does not know to what extent these approaches were followed. What is known is that the different approaches have differing capabilities with respect to allowance for message insertion into the digital bit stream. For instance, some translators have input ports for adding external channel encoders. In order to meet the requirements of the PSIP station identification alternative, translator station licensees would be required to purchase encoders and any necessary related equipment. NTA is aware that such

equipment allowing message insertion into the digital bit stream is available, some at a cost of thousands of dollars. Typical communities served by digital translators have five or more stations. Thus, purchase of the necessary external equipment for call sign insertion could be cost prohibitive and result in either noncompliance with the identification rule or loss of television service.

Many digital translators that do not have entry ports for external devices would need to be replaced by translators designed to allow call sign insertion. The NTA is greatly concerned that this significant cost would have little benefit to viewers of the translators. A good example is translator operations in Montana. See attached Statement, at Exhibit 1, of Charles J. Cannaliato, owner and operator of Canyon TV. He has installed, maintained, or otherwise engineered 35 translator sites involving a total of 143 TV translators located across the state. Almost all of these currently use the Larcan 8VSB Transcoder, which cannot insert data into the PSIP of the received signal. (Larcan no longer exists.) These translators are unable to meet the Commission's alternative PSIP proposal. If not identified by their DTV primary stations, all but sixteen of these translators would need to be replaced at a cost between $4,000 and $10,000 for each translator. He estimates a total cost between a staggering $508,000 and $1,270,000. These estimates do not include installation costs. He concludes that many of the communities he serves would not be able to afford new digital translator equipment.

See also at Exhibit 1 the attached statements filed on behalf of SW CO TV Translator Association, MP Electronics, RF Systems, LLC, and San Juan County. It is characteristic for nonprofit translator operators to have numerous stations because of the sparse populations and vast distances covered. Any cost is greatly magnified due to the sheer numbers of translator stations involved.

In addition to the incurred costs are the practical difficulties of meeting the PSIP identification alternative. Most translator licensees are not trained technicians and have little or no knowledge of the internal workings of their equipment. They must depend on field representatives of their equipment manufacturers or other outside maintenance personnel. We are aware that several formerly prominent translator manufacturers no longer exist, the use of whose equipment is widespread. As a result of these factors, NTA fears that many station operators would struggle to identify and install needed equipment to meet the PSIP identification alternative, again leading to the possibility of loss of television service to their communities. There also may be physical barriers to the installation of new equipment such as limited rack space for new larger and complex translators. Further, gaining access to some of the remote sites could pose difficulties, particularly in the mountainous western states during winter months.

Finally, the NTA submits that the PSIP identification alternative would be confusing to viewers and not in the best interests of the primary DTV stations responsible for the programming. NTA understands that the translator call sign (for example K20AA) on a TV viewer's screen would replace that of the primary station. NTA believes the primary stations would prefer that viewers see their call signs rather than the more unfamiliar translator call signs. In the event of complaints about programming or related service, translator viewers would want to make their views known to the DTV primary station, not the translator operator. The PSIP alternative could also contribute to reception problems. Confusion could result where viewers discern that the channel number embedded in the translator call sign is different from the channel identified by the primary station. This concern has already arisen as reported by an NTA member who is also employed by a full service (i.e., primary) TV station. A primary station in the Reno, Nevada, market formerly operated on analog channel 5 and was assigned channel 15 as its DTV

channel. Over the course of the DTV transition, the primary station received hundreds of calls from viewers inquiring why their VHF antennas did not work well with the UHF DTV channel. Yet, under PSIP, this station continued to identify its DTV service under its VHF channel (PSIP was designed to facilitate "channel branding" to enable familiar television viewing.) Using PSIP, translator viewers would tune to channel 5 to watch the DTV service physically transmitted on channel 15 and rebroadcast on the translator output channel. Now imagine the confusion that could arise if viewers also observed on their TV screens the additional channel number of a translator. This type of situation would worsen in cases where television service is delivered through a chain of interconnected translators. This would involve multiple output channels and embedded call signs in the translator PSIP data in addition to the primary station PSIP.

The required inclusion of unique transport stream identification numbers (TSID) in the digital translator PSIP could cause problems with modern television rating practices. NTA understands that rating services use TSID as an identifier to determine what viewers are watching. TSID is a unique number issued to each originating station and is inserted into the station's PSIP data. Requiring translators to have their own unique TSID could confound the ability of rating entities to accurately determine a station's viewing audience, especially in small rural TV locations. Television ratings are of major importance to the success of DTV stations and such reporting inaccuracies could be detrimental to the stations.

Another alternative approach to identify digital TV translators would involve frequency or phase shift keying of the translator's call sign onto the suppressed carrier of the DTV signal, similar to what was done with analog translators. This approach would not work because digital signals are sensitive to instabilities in the frequency of the carrier signal, whether a carrier is pre-

sent, vestigial, or suppressed. Such keying would create a disturbance that would show up as significant jitter in the demodulated signal. This jitter would contribute to bit errors, and under marginal signal conditions, cause the receiver to lose lock during station ID transmissions. Further, the electronics necessary to do such frequency shift keying to the otherwise highly stable carrier oscillator in translator equipment would not be trivial, and likely expensive to implement. It will likely require return of the equipment to the manufacturer for installation. As noted before, several prominent manufacturers of this equipment are out of business (Larcan, Axcera, and Emcee to name a few).

For the above reasons, the PSIP/TSID identification alternative, and more generally, any technical digital translator station identification requirement, would be burdensome to many translator-served communities, possibly resulting in the loss of free over-the-air television service. The NTA submits that the public interest would not be served thereby.

2. The Commission's proposed rules for identification of digital translator stations are unnecessary. As the NTA commented earlier in this proceeding, digital translators can be identified by other means.

The NTA again points out that many digital translators are identified by their associated primary DTV broadcast stations. Primary stations normally visually indicate the translator call sign and station location at prescribed times during the broadcast day. We submit that viewers can readily obtain sufficient information about translators not identified by primary stations, including contact information for station ownership and maintenance. Viewers typically know the name and location of the primary station. All translator licensees are required by law to enter into a retransmission consent agreement with the DTV stations whose signal it rebroadcasts.

Thus, useful contact information about a translator in a particular community is on file at its primary station. Thus, in the event of a translator outage or malfunction, viewers have the means to identify and contact appropriate translator owners and/or maintenance personnel.

Secondly, most television translators serve small rural communities, often isolated from DTV stations by mountainous terrain. These communities are generally close knit; most people are known in the community, including the person or people responsible for the operation and maintenance of the translators, again directly facilitating the resolution of translator malfunctions or other concerns. In this regard, the NTA very much doubts that screen display of the translator call sign will be useful to its viewers. Rather, viewers would directly contact the person in the community known to be responsible for the translators. This has been the experience of the NTA membership. Programming complaints go to the primary station while signal outage complaints go to the translator operator.

Other resources are available in the event the translator station licensee or maintenance technician is unknown in the community. Data bases, including the Commission's licensing data base, can be searched by the translator community and output channel, to facilitate identification of the translator ownership. Triangulation methods can easily be used to find the location of a malfunctioning or unlicensed translator, particularly as translators are often located in prominent locations often shared with other known radio equipment. The NTA once again submits that these various means of station identification satisfy the "other means" criteria in the international regulations.

Perhaps the strongest reasons for not establishing formal identification regulations for digital translators is the lack of related problems or significant issues over the 18 years since the adoption of the 2004 *Report and Order*, which did not require such regulations. The NTA is not

aware of any instances in which the absence of a station identification requirement for digital television translators has been problematic.

B. THE NTA BELIEVES THE BEST OPTION FOR DEALING WITH THE POWER IN THE HORIZONTAL AND VERTICAL POLARIZATION AS PROPOSED IN SECTION 74.735 IS TO ALLOW ANY COMBINATION OF POLARIZATIONS NEEDED AS LONG AS NEITHER POLARIZATION EXCEEDS THE LICENSED POWER IN THE MAJOR LOBE(S) OR BEAM.

At significantly lower powers, there should be loose or no limits to the power in the cross polarization exceeding the dominant polarization.

Historically, transmitting antennas used in television service have been designed to transmit in the horizontal polarity, and radiate more or less in the horizontal plane. This was codified in the rules to be the dominant polarity because most TV receive antennas in the early days were outdoor antennas of horizontal polarity. In urban markets, and areas close to the transmitter, so-called 'rabbit ears' antennas were and still are commonly used. These antennas are rarely horizontal polarity only, as many of them can be placed in a wide variety of positions that can be anywhere between horizontal and vertical polarity. This was recognized by broadcasters towards the end of the analog era, especially when the much higher transmitter power needed to add a vertical component to the signal became practical and economical. Elliptical polarity (Vertical power typically less than horizontal power) and circular polarization (Vertical power = horizontal power) began to be used more and more, with the effect being to minimize problems with the

random polarity afforded by 'rabbit ears' antennas. This also helped with reception where reflection off of terrain or man-made structures caused polarity inversion. This is especially problematic in dense urban areas where indoor antennas are very commonly used.

This practice of using elliptical or circular polarization continued into the digital era, where a similar positive effect on reception was noted. Circular polarization helps minimize the effect of signal reflections by creating a more uniform polarization environment at the receive antenna location and maximizing the chances that a clean, reflection free signal could be received by the antenna/ This is something that was especially important for ATSC 1.0's 8VSB modulation format. Then, ATSC Mobile/Handheld came along, colloquially called ATSC 2.0 , which contained enhancements that mitigated much of the reflection problem that existed with ATSC 1.0. ATSC 2.0 was intended to be received with small portable receivers which had suboptimal antennas for the wavelengths used in television broadcasting. For this service, the use of elliptical or circular polarization helped to create a higher 'power density,' which exists in most possible orientations of the receive antenna and made handheld reception practical. This, provided with using a higher ERP, created a scenario where all people wishing to receive the ATSC signals benefitted. Such a combination of techniques was used for the translator system installed in Schurz, Nevada. Elliptical polarization combined with substantial power (for the small community served, still only 30 watts digital average TPO) resulted in excellent receivability of the signals. There has been just one complaint of reception problems in this community in ten years.

Furthermore, there is an installation where the engineer who designed the system purposely chose vertical polarity for transmit for an installation near Mink Creek, Idaho. This is a very mountainous area and a lot of the signals there are received by viewers from reflections off

the mountains. In many cases, signals that are reflected off of an object will invert their polarity, so the vertically transmitted signal would be horizontal polarity at the receivers. This scheme worked in practice, with the citizens of the community being able to receive the signal with conventional indoor and outdoor antennas.

As ATSC 3.0 begins to become common, it is anticipated that, once again, portable devices will be one of the principal ways this signal will be received. There is still a desire that the Next Gen TV signal be receivable with 'rabbit ears' antennas in an indoor environment, something that will benefit viewers in dense urban environments, one of the most important TV markets for over-the-air reception. ATSC 3.0's resistance to multipath (reflection) interference, combined with the receive advantages offered by the use of elliptical or circular polarization will ensure that this signal can be successfully received by the maximum number of households or individuals under the maximum range of conditions. This may involve the more common employment of novel antenna schemes, something that LPTV and translator operators have been particularly good at employing over the years.

FCC Rule §73.682(a)(14) specifies that "...the licensed effective radiated power of the vertically polarized component may not exceed the licensed effective radiated power of the horizontally polarized component." As the NAB noted in their comments, this is a pretty generic rule, and it makes sense in a historic and a regulatory context. Historic because horizontal polarity has always been the dominant polarity in the broadcast television service. Regulatory in the sense that, if this rule did not exist, it might be possible to specify a legally permitted power in the horizontal polarity and run a much higher power in the vertical polarity.

Under the proposal, §74.735 would be modified to read: "(c) The limits in paragraph (b) of this section apply to the effective radiated powers in the horizontally polarized plane. For either omnidirectional or directional antennas, where the ERP values of the vertically and horizontally polarized components are not of equal strength, the ERP limits shall apply to the horizontal polarization, and the vertical ERP shall not exceed the horizontal ERP in any direction. * * *" This language has the effect of putting detailed and significant limitations on the design of the antenna to ensure that this rule would not be violated in practice. This becomes more problematic because changes in other parts of § 74.735 require that detailed tables and graphs of horizontal and vertical power need to be supplied for the antenna (so-called 'Matrix patterns') to show that the provisions of § 74.735(c) are being complied with. Why this is required for LPTV and translators, but not in §73.682(a)(14), suggests regulatory overreach or at least inconsistency. Let's examine the reasons why this is so, and why this may actually be an obsolete requirement.

The classical way of generating elliptical or circular polarization is to employ two dipole antennas, with their feeds close together and their dipoles orthogonal to each other. The RF power is then fed (or received from) the dipoles such that they are driven 90 degrees out of electrical phase. The combination of the physical radiation from the crossed dipoles and the electrical phase delay results in a field where the E and H plane of the electromagnetic wave is rotating. This rotating field interacts well with plane polarized receive antennas and makes their orientation much less critical. If the power applied to the dipoles is equal, the resulting scheme is called circular polarization. If the powers are different, it is called elliptical polarization. Elliptical polarization can have either the horizontal or the vertical polarization to be dominant, but in most television service cases, the signal in the horizontal plane is dominant.

In practical antennas, there is some point in the 3D pattern of the antenna that has the maximum gain and would therefore radiate the maximum ERP. No antenna exists that has equal gain in all directions. Even so-called omnidirectional antennas typically used in television service are omnidirectional (or nearly so) in the azimuth plane (ignoring any beam tilt), but have significant gain in the elevation pattern. It is fairly easy for an antenna manufacturer to ensure that, at this point of maximum ERP, the power from the vertical component of a circular polarized antenna is equal to or less than the horizontal component. If retained as a rule, this is the point that the FCC should be most concerned about, as it reflects as it were, the 'main beam' or 'major lobe' (there is sometimes more than one major lobe) of the antenna's radiation pattern.

But what happens when one moves away in the antenna's 3Dpattern from this point of maximum radiation? Recall that the circular polarization is created by fields from two orthogonal dipole antennas or an equivalent radiating structure. Like any antenna, dipole antennas do not radiate equally well in all directions. In fact, a dipole antenna in free space has a gain of 2.15 dB (power gain of 1.64) over that hypothetical antenna that radiates equally well in all directions. On a dipole in free space, the major lobe can be thought of as a donut, with the dipole antenna pointing up through the hole. So there is very little signal off the ends of the dipole and maximum signal at any point at a right angle to the dipole. This is most certainly an unsymmetrical radiation pattern. Practical structures built for real world antennas almost always have the lowly dipole antenna at the core of their design from a physics standpoint and will exhibit a highly unsymmetrical pattern.

If you then take two dipole antennas and mount them at right angles to each other, and furthermore, feed them 90 degrees out of phase, is the overall radiation pattern of this assemblage likely to be uniform? Extremely unlikely. The structure of a practical antenna very likely contains multiples of crossed dipoles, parasitic elements, and other things to increase gain and modify the radiation pattern. As stated earlier, it is quite possible to adjust the power ratio at the point in the overall antenna pattern that represents maximum horizontal polarity gain. But what happens as you move away from the point of highest gain?

It can be expected with reasonably careful design, that the vertical gain (and therefore ERP) will be equal to or less then the horizontal gain over the parts of the antenna with maximum radiation. This can probably be maintained down to the half power point (.5 of maximum gain) without a great deal of difficulty. But as you get closer and closer to the points of minimum radiation of the antenna, it is more and more likely that you are going to encounter places where the vertical gain exceeds the horizontal gain, due to the asymmetry of the radiation of the crossed radiators (or whatever scheme is being used in the antenna to emulate that effect).

As the power gain of an antenna decreases, so does the field intensity of the radiated signal in that direction. Although a little radiation can go a long way, the radiation in the low gain regions of the typical antenna used in television service is many times less than the peak gain. So although it is important in the major lobe(s) or main beam of the antenna for the vertical gain to match or be less than the horizontal gain, is there a problem if the vertical gain exceeds the horizontal gain in a direction where the overall gain is only 10 percent of peak? It seems to us that a requirement that the vertical gain be equal to or less than the horizontal gain in all directions (and needing to be proved with matrix tables) is not realistic in real world practice. This is especially

true of the goal is to be fully circularly polarized where the horizontal and vertical ERPs will be equal at the point of maximum gain.

So if the FCC wants to still maintain this power match condition in the main beam or major lobe(s), trying to enforce a requirement that at no other point in the pattern of the antenna should the vertical gain exceed the horizontal gain is not, in practice, practicable. Like many other types of antennas licensed by the FCC, a 'mask' is needed. We would propose something like this: Vertical gain must equal or be less than horizontal gain down to the horizontal polarity pattern (not to be confused with the azimuth pattern) half power point. Vertical gain may exceed horizontal gain by no more than 10 percent between areas of the pattern below the half power point down to the ten percent power point. Below the ten percent power point, vertical gain could exceed horizontal gain by no more than 30 percent.

LPTV and TV translators typically operate at low powers compared to most full service broadcasters. They typically operate with limited budgets and employ little or no full time engineering staff. They are typically serving smaller communities or populations of people who are underserved for over-the-air broadcast services. They are doing this with much less sophisticated antennas than a full service broadcaster would use (and those big antennas cannot likely make vertical power equal to or less than horizontal power in their nulls, either!). To place on these small broadcasters such a stringent requirement as has been discussed above, and not also require full service broadcasters to do the same represents a double standard. At minimum, the Commission might adopt instead of its proposed language, this language proposed by the NAB: "(c)The limits in paragraph (b) of this section apply to the effective radiated power in the horizontally polarized plane. For either omnidirectional or directional antennas, where the ERP values of the

vertically and horizontally polarized components are not of equal strength, the ERP limits shall apply to the horizontal polarization, and the vertical ERP shall not intentionally exceed the horizontal ERP in any direction." (The word 'deliberately' might be a better word here than 'intentionally.') The next option would be the idea proposed above, of a mask that allows for the unavoidable places where vertical gain would exceed horizontal gain as you get closer and closer to a pattern null. But there is another possible way to do this, that might make the most sense for the small broadcaster or translator operator having to adopt a creative approach in covering their market with a decent signal. How about eliminating the power match requirement completely outside the point of maximum gain?

How would this work as a rule? Maybe something like this: Imagine a scenario like the one mentioned earlier in these comments, where a vertically polarized antenna is the most appropriate choice. In applying for the license. The applicant would choose a dominant polarization. The gain or ERP on the other polarization would have to be less than or equal to the gain or ERP of the dominant polarization, at the point(s) of maximum gain in the 3D pattern. The gain of the other polarization would then have to match the dominant polarization within a mask, such as the one proposed earlier. This would allow maximum flexibility for the LPTV/translator broadcaster to choose an antenna system matching their unique, and often quite different from the full service broadcaster's, requirements. It would allow manufacturers of antennas designed for LPTV and translator use some freedom in not having to build their antennas to a stringent matching of the horizontal and vertical patterns. It would cost less to make these antennas, and the broadcaster would save money over the cost of an antenna that had to meet stringent (and likely needless) requirements for horizontal/vertical balance.

C. CORRECTING ANTENNA LOCATION COORDINATES: THE NTA's POSITION IS THAT TRANSLATORS AND LPTV NOT BE HELD TO HIGHER STANDARDS OF GEOGRAPHIC LOCATION OR THE ABILITY TO MAKE MINOR CORRECTIONS TO LOCATION THAN ARE FULL SERVICE BROADCAST STATIONS.

Once again, here is a place where LPTV/translator operators are being required to be held to higher standards than are full service broadcasters. For many years, it has been possible for a broadcaster to make an informal application to correct small errors in latitude and longitude (and maybe ground elevation) of an antenna. The need for this ability to make small adjustments without hassle is necessary for a number of reasons:

First, there has been a tremendous change in mapping technology in the last 30 years. In the early days, one used a USGS topo map to determine the coordinates of an antenna support structure. Or a professional surveyor could be hired to determine the coordinates. Although a surveyor is likely to give you trustworthy coordinates, the other, older mapping methods commonly used can have significant errors if not done with the utmost care. To complicate this, the FCC has changed the coordinate system they are using from NAD 27 (used on the old USGS 7.5 minute topo maps) to NAD83.

Second. the FCC eventually converted every broadcaster's coordinates to NAD83. As the NAB mentioned in their comments, these conversions were not always accurate. The onus for the correction of these coordinates for some reason, falls on the broadcaster, even if they were not the source of the error.

Third, although the equipment and online resources we have today (ignoring for the moment, professional survey equipment and its trained operator) can be surprisingly accurate, a

broadcaster has to understand how to properly use all the equipment and techniques at their disposal. Otherwise, it is easy to think you measured the right coordinates, and then you later found out that you weren't even close.

In the NPRM, the FCC says:

"OET Bulletin No. 69 (OET Bulletin) provides guidance on the use of Longley-Rice methodology for evaluating TV service coverage and interference in accordance with the Commission's rules. When the LPTV/translator stations were authorized for digital transmission in 2004, the rules permitted the use of the OET Bulletin, as opposed to contour analysis. Because the most precise antenna location provides the most accurate results when using the OET Bulletin, the staff has consistently required a minor modification application for all antenna relocations, and the industry has routinely submitted such minor modification applications."

The reasoning behind this is questionable. It's hard to imagine anyone would argue that the process in the OET bulletin gives a better, more realistic prediction of coverage than plotting on paper maps. The OET bulletin algorithm is also used in the TVStudy software. But consider the magnitude of the change being discussed here. Part 73 allows for a discrepancy of three seconds to be corrected, a maximum of around 400 feet. Part 74 allows 500 feet. Although it can be adjusted, the default cell size for calculating coverage in TVStudy is 1 km on a side. That's approximately 3,900 feet. The allowable correction is 500 feet maximum, or 12.8 percent of a cell's side. Unless there is a drastic change in altitude over that 500 feet (which would likely trigger a minor change, anyway), it is hard to imagine that moving 500 feet is going to materially affect a Longley-Rice study. We challenge the Commission to show broadcasters examples of where a coordinate correction resulted in a significant change to a Longley-Rice study.

Rather having to file a minor change to move your antenna 20 feet, or adjust a small error in coordinates, LPTV and translator owners should be able to continue to use an informal procedure, such as letter notifications, just like their full service counterparts. This less expensive procedure would greatly facilitate compliance and result in a more accurate Commision license data base.

III. CONCLUSIONS

The NTA concludes that it has demonstrated that the Commission should not impose rules for mandatory digital translator station identification, but rather encourage voluntary identification by primary DTV stations. The potential costs and other burdens of the alternative PSIP related means of identification substantially outweigh its benefits. Use of the PSIP Short Channel Name and the related TSID for purposes of station identification should not be adopted into the Commission's Rules.

The NTA believes that the best option for dealing with the power in the horizontal and vertical polarization planes would be to allow any combination of polarizations needed, so long as neither polarization exceeds the licensed power in the major lobe(s) or beam.

The NTA's position with respect to correcting antenna location coordinates is that TV translators and LPTV stations ought not to be held to higher standards of geographic location or the ability to make minor corrections to location than are full service broadcast stations.

Respectfully submitted,

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Wayne Johnson, Vice President
Keith Larson, Board Member
Timothy Stoffel, Board Member

EXHIBIT 1

Statement of Charles J. Cannaliato, Owner of Canyon TV

Letter of Stanley K. Eubanks, Chairman of the Board of Southwest Colorado TV Translator Association

Letter of Reggie and Michael Parsons, Owners of MP Electronics

Letter of Edward Lake, Owner of RF Systems LLC

Letter of Wayne Johnson on behalf of San Juan County TV

Statement of Charles J. Cannaliato

As the owner and operator of Canyon TV, this is to certify that I am a consulting engineer in western Montana that has installed, maintained, or engineered 35 TV translator sites across the State. These sites represent 143 TV translators accounting for less than one-half of over three hundred translators across the State. Almost all of these 143 translators are currently using Larcan 8VSB Transcoders which cannot insert data into the PSIP of the received signal. Thus, they are unable to transmit a "short name" of their station ID; they rebroadcast the entire PSIP data of the originating station. In other words, the proposed rule making would require them to replace their Larcan 8VSB Transcoders. The following is a list of these translators:

Baker, MT: K04IH-D, K08IP-D, K13OW-D, K27LT-D
Basin, MT: K09BG-D, K11LA-D
Big Sandy, MT: K10BK-D, K13OQ-D, K19JQ-D
Boulder, MT: K08KT-D, K13KP-D, K27CD-D, K36CX-D
Chinook, MT: K18KT-D, K22LD-D, K24KU-D
Circle, MT: K14AG-D, K16GP-D, K18CR-D
Conrad, MT: K16KB-D, K18KM-D, K23LX-D, K25MZ-D
Culbertson, MT: K34GY-D
Denton, MT: K10RC-D, K12RE-D
Corem, Hungry Horse, Martin City, West Glacier, MT: K05FC-D, K07IT-D, K10LH-D, K12LU-D
East Butte TV: K32NN-D, K33PR-D, K34PM-D, K35OF-D, K36DK-D
Ekalaka, MT: K07EQ-D, K09BE-D, K13LN-D
Fort Peck, MT: K22MN-D, K24MV-D, K26NS-D, K31NS-D, K33ON-D, K35NF-D, K36OC-D
Four Buttes, MT: K31MJ-D
Glasgow, MT: K07JG-D, K09HY-D, K11IA-D, K13IB-D, K13AR-D, K16AZ-D, K18BN-D, K20JS-D
Philipsburg, MT: K15KW-D, K17JS-D, K25LF-D, K30KY-D
Drummond, MT: K20KL-D, K22MI-D, K26KA-D, K35JT-D
Hinsdale, MT: K05IZ-D, K07DI-D, K10JK-D, K13JO-D, K22MJ-D
Hot Springs, MT: K05AH-D, K11IL-D, K42JA-D, K45DQ-D
Libby, MT: K16KZ-D, K18KD-D, K22KS-D, K24KJ-D, K26LM-D, K30MJ-D
Plains, MT: K05GM-D, K07CH-D, K08OY-D, K11JP-D, K21CA-D, K31KQ-D, K34PQ-D
Malta, MT: K07IC-D, K09JG-D, K11IH-D, K13GP-D
Plentywood, MT: K28OB-D
Plevna, MT: K03HD-D, K09IV-D, K13WT-D
Plevna School District: K17OB-D, K23DJ-D, K24DD-D, K34DP-D
Polaris, MT: K07OC-D, K09MY-D
Poplar, MT: K05KK-D, K13PZ-D, K15KR-D, K17MS-D, K22KY-D
Scobey, MT: K03DP-D, K13MA-D, K26PD-D
Sula, MT: K03IA-D, K05ML-D, K09YT-D
Swan Hill TV: K05MW-D, K12LO-D, K14NI-D, K21KA-D, K24ID-D, K33OH-D
Sweet Grass, MT: K25NJ-D, K28KO-D, K30MW-D
Thompson Falls, MT: K04QV-D, K07FL-D, K09FQ-D, K11FQ-D, K36BW-D, K17MQ-D, K21MW-D, K23NP-D, K25OS-D
Townsend, MT: K04QX-D, K07EJ-D, K11WM-D, K13KH-D
Trout Creek, etc.: K06QF-D, K08OZ-D, K10QH-D, K12QT-D, K13ZN-D, K15IY-D
Wolf Point, MT: K04GF-D, K06AV-D, K13FP-D, K19JR-D, K25HO-D, K27JQ-D, K29FS-D

Of the 143 TV Translators listed above, only 16 have exciters/processors that can modify PSIP data. Taking these 16 units into account and using numbers supplied by equipment manufacturers, these sites would have to expend $4,000 to $10,000 for each translator. The

manufacturers, these sites would have to expend $4,000 to $10,000 for each translator. The combined amount would cost between $508,000 and $1,270,000. Many of these communities would have to go dark because they would not be able to afford the equipment. Furthermore, these estimates do not include installation, programming, or maintenance.

Respectfully submitted,

Charles J. Cannaliato, Owner
Canyon TV
200 Evans Avenue
Missoula, MT 59801

SW CO TV TRANSLATOR ASSOCIATION

PO BOX 1570
CORTEZ, CO 81321

October 18th, 2022

RE: MB Docket No. 03-185
MB Docket No. 22-261

We wish to comment on the following revision of § 74.783 specifically (1)

Revise § 74.783 to read as follows:

§ 74.783 Station identification.

(a) Each low power TV and TV translator station not originating local programming as defined by §74.701(h) must transmit its station identification as follows:

(1) By transmitting the call sign in the short channel name field of the Program and System and Information Protocol (PSIP) (or its ATSC 3.0 equivalent) for at least one stream on the station;

(2) By arranging for the primary station, whose signal is being rebroadcast, to identify the translator station by transmitting an easily readable visual presentation or a clearly understandable aural presentation of the translator station's call letters and location. Two such identifications shall be made between 7 a.m. and 9 a.m. and 3 p.m. and 5 p.m. each broadcast day at approximately one-hour intervals during each time period. Television stations which do not begin their broadcast day before 9 a.m. shall make these identifications in the hours closest to these time periods at the specified intervals.

PSIP is a unique product initiated by the conversion to digital broadcasting. The idea that a full power broadcast station can appear on a viewers television at the same channel designation regardless of that viewer being directly line of site to the full power, or by virtue of being carried on a tv translator hundreds of miles away from the full power station is unique. Full power stations have created channel branding for their broadcast product throughout their DMA.

The idea of interrupting the broadcast stream and modifying the PSIP and the TSID to identify the translator will bring confusion to viewers across the DMA of a broadcast station. In one community it would be seen on channel 14, another channel 24, and another channel 36, rather than virtually being seen on the virtual channel of the originating station.

Cost will figure into implementing this rule if the originating station is unable to comply with (2). We estimate that modifying the front ends of our existing translators which cannot be modified, will run more than $175,000. As a tax supported entity formed solely for supplying tv translator service, this would create a hardship for our organization and the taxpayers of the district.

We would encourage the FCC to strike (1) from the station identification revision.

Thank you

Stanley K Eubanks
Chairman of the Board
Southwest Colorado TV
Translator Association

MP ELECTRONICS

390 S 500 E MONROE, UT 84754

435-979-3727

RE: MB DOCKET NO. 03-185
MB DOCKET NO. 22-261

We are aware of the NPRM introduced from the FCC, specifically section § 74.783 Station Identification.

MP Electronics maintains tv translator systems in South Central Utah. Here are the number of translators for each county.

Sevier County	35
Wayne County	28
Western Kane County	25
Garfield County	30
Piute County	18
Sanpete County	23
Juab County	6
Total	165

All these translators are owned by individual counties. If we take the minimum necessary for converting the front ends of the existing translators of $4,000 each, the cost of $660,000 would put an undue burden on each county's operations.

These counties have seen their revenues and budgets decreasing over the past decade, and such an unfunded mandate to modify the translators for ID purposes could severely affect each county's ability to continue offering free over the air translator tv service.

We question why such a mandate is necessary when the PSIP currently identifies each station. Changing the PSIP is likely to confuse the public and not accomplish any goodwill for the viewer.

Sincerely,

Reggie and Michael Parsons
Owners

October 18th, 2022

RF Systems LLC

323 W. 4th Ave.
Yuma, CO 80759

970-425-3952

RE: MB Docket No. 03-185
MB Docket No. 22-261

RF Systems LLC maintains a TV translator system made up of 3 local county government entities. These are Logan County Colorado, Washington County Colorado, and Region One Translator Association, which is itself a government entity made up of three county governments, Yuma, Phillips, and Sedgwick Counties.

The system operates 81 translators in total. We estimate to insert local TSIP and modify the PSIP for each translator would cost at minimum $362,880 for the entire system. This number far exceeds the normal operating budgets of these entities. They operate on a limited budget provided by taxpayer funds. For instance, Region One Translator Association has the largest budget and only sees an annual revenue from county contributions and rent of $164,000, the majority of which is consumed by normal operating expenses.

This change would put an unusually high burden on the citizens of this rural part of north eastern Colorado, who fund county government operations. It is unlikely to provide any benefit to the viewers as they associate their channels with the primary stations call sign..

Sincerely,

Edward Lake
Owner
October 17, 2022

SAN JUAN
COUNTY

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Phone: (435) 587-3223
sanjuancountytv@sanjuancounty.org

MB Docket No. 22-261
MB Docket No. 03-185

San Juan County TV operates an extensive tv translator system in the SE corner of the State of Utah. San Juan County currently has a population of less than 15,000 residents and encompasses almost 8,000 square miles. Almost half the residents are Native American, and the Navajo Nation encompasses the lower portion of San Juan County.

Many residents depend on the translators the county operates for their only news and entertainment source.

If the translators that SJ County operate are required to upgrade and begin modifying the PSIP and the TSID data for each translator to transmit the call sign, the cost for the county would exceed $200,000.

We do not have the budget to be able to undertake modifying all the translators the county operates. The implementation of modifying the translators within our system would create a financial hardship for our county.

Please reconsider this unfunded mandate and the implications on rural communities across the western United States that operate translator systems.

Thank you

Wayne Johnson
Technician
San Juan County TV