

Before the
Federal Communications Commission
Washington, D.C. 20554

RECEIVED

APR 27 1998

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Proposal for the Creation of the)
Low Power FM (LPFM) Broadcast Service)

RM- 9242

To: The Commission

COMMENTS ON PETITION FOR RULEMAKING

Saga Communications, Inc., ("Saga") by its attorneys, pursuant to Section 1.405 of the Commission's Rules, hereby respectfully submits its comments on the above-captioned Petition for Rulemaking (the "Petition") filed by TRA Communications Consultants, Inc. ("TRA") on February 19, 1998.¹ In regard thereto, it is stated as follows:

I. The Initiation of Multiple Low Power FM Stations will Decimate the Service FM Translator Stations are Presently Providing to the Public.

In its Petition, at ¶7 TRA laments the fact that TRA as a licensee of a secondary service LPTV station now sees its investment "threatened with displacement by digital television." TRA concludes that "it is imperative that a 'primary service' class license be created to prevent this from happening in the future to owners who invest their life savings into building a LPFM station." At ¶23 of the Petition TRA suggests that such a "primary service" LPFM station should have "a minimum power level of 50 watts (ERP) and a maximum power level of 3 kilowatts (ERP). . . ."

Nothing in the Petition suggests that TRA proposes to divide the FM band available to LPFM stations between reserved and non-reserved channels, as the FM band presently is divided

¹The Commission has established April 27, 1998, as the last date for the filing of Comments and May 26, 1998, as the last date for filing Reply Comments.

No. of Copies rec'd
List ABCDE

024
MMS

by the FCC in authorizing full-power FM stations. Of the 100 FM channels (Channels 201-300), Channels 201-220 are reserved for noncommercial educational stations. 47 C.F.R. §73.202(a)

FM translator frequencies are similarly divided between reserved noncommercial channels (Channels 201-220) and commercial FM channels (Channels 221-300) - 47 C.F.R. §74.1202. The maximum power level for an FM translator station is 250 watts - 47 C.F.R. §74.1235. The FCC reports that as of March 31, 1998, there are 2,928 licensed FM translator and booster stations.² These 2,928 licensed stations each represent a large capital investment on the part of their licensees. These 2,928 stations provide service to a large number of Americans.

While TRA laments that it will lose its low power television station (LPTV) license because it is a secondary licensee, TRA makes no mention of the potential loss of these 2,928 FM translator stations to their licensees, nor of the loss of the service these translators are providing to their listening audience. As with low power television stations, FM translator stations are secondary service licensees. Section 74.1203 of the Commission's rules provides that any such secondary service FM translator "will not be permitted to continue to operate if it causes any actual interference to:

- (a) the transmission of any authorized broadcast stations...."

In the Petition at ¶23, TRA proposes that the FCC classify LPFM stations as broadcast stations that "will receive protection as primary-service stations ... out to their actual 1 mV/m (60 dBu) contour." Thus, pursuant to Section 74.1203(a) of the rules, upon commencement of operation of a low power FM station, if it is found that such LPFM station receives interference from any one of the 2,928 existing FM translator stations, whether that translator is a non-commercial or a commercial one, that translator "will not be permitted to continue to operate..."

² *Broadcast Station Totals as [of] March 31, 1998*, FCC 83005, released April 22, 1998.

The service the translator provides to the public will cease and the translator licensee will find itself with a useless broadcast facility.

It is not easy to find an available channel that can be used for an FM translator station that meets all the FCC's spacing requirements because of the great number of full powered FM stations presently operating. If that channel can be used for an FM translator station, it can probably be used for a low power FM station. The FM translator cannot be used to originate programming and if the ownership restrictions set forth in ¶¶57-58 of the TRA Petition were adopted by the Commission the FM translator licensee would not be qualified to be a low power FM station licensee.

It is obvious that if the Commission adopts the TRA Petition in the form proposed it opens up to potential LPFM applicants the one hundred channels now occupied, not only by full powered FM stations, but also by FM translator licensees, whether they are noncommercial or commercial licensees. The final result would be virtually the wholesale destruction of the 2,928 FM translators presently operating. Any potential low power FM applicant would know that all he had to do to find a channel for a new low power FM station is to check the FCC's data base to find the nearest FM translator station to the proposed city of license. If the FCC grandfathered existing FM translator stations to protect them against future low power FM station it would largely make the proposed LPFM service worthless because of lack of available FM frequencies on which to operate. In short, the result of effectuation of the TRA Petition will be a trade-off of existing secondary service FM translator stations for new low power FM stations. TRA's Petition does not supply sufficient reason for the FCC to authorize the wholesale destruction of FM translator licensees for the dubious proposition that there is a greater need for low power FM stations.

II. The Listening Public is Better Served by Fewer Stations With a Clear Signal Than by More Stations Delivering a Poor Signal.

In the case of any new telecommunications service that is proposed, there are always two issues to be resolved.

- A. First, is the proposed service economically viable?
- B. Second, can the proposed service be provided in such a manner that it adds greater service to the general public without causing harmful interference to digital receivers?

A. Is the Proposed Service Economically Viable?

Generally, the issue of whether in reality a proposed new telecommunications service is economically viable is not a consideration in the FCC process. Historically, as long as the proposed service promises to be one that is useful to the general public, then that is the FCC's only consideration. Whether the proposed service is useful enough to the general public that it proves economically viable is the essence of the free enterprise system, which rewards the entrepreneur who provides a service the public desires and punishes the entrepreneur that offers a service that few desire.

It is not so long ago that the FCC saw bright promise in a number of services which soon proved not to be economically viable. For example: (1) Subscription television service, (2) Forty channel citizens band radios, (3) The digital electronic message service, (4) Multi point microwave service--the so-called wireless cable, and (5) Interactive video (IVDS).

None of these services has proved viable to date. Saga foresees another foray by the Commission into this now familiar territory--a trip that can and should be avoided. Thus, a determination as to whether the low power FM stations are economically viable should a pre-

condition before these micro stations are created in accordance with analog interference criteria, only to transmit in the digital mode.

Before the FCC authorizes the creation of a plethora of new low power FM stations that may cause more harm than good, an experimental station should be tried by TRA. If TRA is certain of the need for low power FM stations and certain that they will not cause harmful interference, particularly in the light of the advent of new digital receivers, then Section 74.101 of the FCC's rules provides for the authorization of an experimental station which would develop empirical evidence to support that hypothesis. Until such tests are completed and evaluated, the FCC should withhold issuance of a notice of proposed rule making.

B. Would the Proposed Service be Detrimental to Digital Receivers?

Had TRA's Petition been submitted at the time that the Commission considered BC Docket 80-90³ to add the new subclasses of FM channel allotments (e.g. C1's), then the technical considerations set forth in ¶¶ 28-44 of the Petition might be valid. However, those technical considerations, including therein the interference protection calculations, were created in a world in which analog was the sole media for broadcast transmission. Since 1983 when the Report & Order in BC Docket 80-90 was adopted, the media of broadcast transmission has been evolving from an analog to a digital one. That which is true as to interference considerations in the world of analog transmission appears to be very different than that which is true in the world of digital transmission.

³*Modification of FM Broadcast Station Rules to Increase the Availability of FM Broadcast Assignments*, 94 FCC 2d 152 (1983) (Docket 80-90).

There is rapidly proceeding the development of technology which will allow the broadcast industry to broadcast and the general public to receive broadcast signals digitally in the AM/FM bands, on existing radio channels. For example, USA Digital Radio⁴ is:

[B]uilding AM and FM receivers that receive analog, digital, all digital; you can change stations on them, decide whether you want to listen to analog or digital.

* * * * *

All digital systems, whether they come from Eureka, USA Digital or anybody else, including cell phones, all experience drop outs. We are not used to it and we don't like that. We have intentionally delayed the digital, so that when an outage occurs, the digital and analog outages do not occur at the same time.

Neither the FCC nor TRA can say at this time whether the interference effects of transmitting in the digital mode is the same as it is when transmitting in the analog mode. If the interference proves to be greater than low powered FM stations will provide little in the way of new service and much in the way of reducing FM service the public is already receiving.

III. New Digital Transmission Technical Standards Must be Developed Before Low Power FM Stations are Authorized.

It is axiomatic that protection of the existing service provided by FCC licensees to their listening public is a cornerstone of the *Communications Act*.⁵ This is true not only from the plain language of the *Act*,⁶ but also the line of cases that have interpreted the *Act*, since the natal case of *FCC v. NBC, Inc. (KOAI)*, 319 U.S. 239 (1943).

The basic FM separation standards were adopted in 1963 when the FM table of allotments was first adopted:

⁴Source: Radio World's issue of March 18, 1998, copy attached.

⁵The *Communications Act of 1934, as amended*, 47 U.S.C. § 151 *et seq.* (the "*Act*").

⁶See, 47 U.S.C. § 316.

These rules consider interference protection to be determined solely by the separation, power, and antenna height limitations. They do not recognize concepts such as protected and interfering contours for individual stations. The distance separations provide protection from co-channel and first adjacent channel interference within a 'primary' service range.⁷

The FCC has announced that it plans to consider shortly an FM technical streamlining *Notice of Proposed Rulemaking* in which "broadcasters will have an opportunity to comment on alternative interference protection models"⁸ It thus appears that the FCC is preparing to review those 1963 technical separation standards in light of improvements in receiver design.

However, one of the improvements in receiver design that has become standard in even the cheapest radio is Automatic Frequency Control (AFC). The function of the AFC unit is to cause the receiver to accept the signals of the stronger station, while simultaneously rejecting the signals of a weaker co-channel or adjacent channel station. In cases where the signals are of nearly equivalent strength, the AFC unit keeps switching from one station to the other producing what is commonly referred to as the "picket fence effect."⁹ The effect is most pronounced in car radios. The normal result is that because of the annoying sound, the listener changes stations, so neither station is received.

In light of this proposed rulemaking, it would be obviously inconsistent for the FCC to recognize, on one hand that it is time for a review of the FM technical standards and on the other hand to initiate a rulemaking to authorize Low Power FM micro stations without knowing what interference such stations can produce when broadcasting in the digital mode. The FCC has

⁷See, *Docket 80-90* at 161.

⁸See, *Thunderbolt Broadcasting Company*, FCC 98-29, Released April 1, 1998, n.6.

⁹The sound is much like the sound produced when a child runs past a picket fence with a stick bouncing along the pickets.

learned that transmission of information in the digital mode can produce unanticipated interference results. For example, common carrier microwave stations and satellite earth stations share common spectrum. The frequency band 6.525-6.875 MHz was shared by the fixed common carrier microwave licensees, the fixed private operational microwave (OFS) licensees and the fixed satellite licensees pursuant to former Section 21.701 of the FCC's Rules. In the late 1980's, the major common carriers using large amounts of microwave spectrum in this band for nationwide long distance service began to convert their stations from an analog to a digital mode. Initially, because these stations previously had been frequency coordinated and no interference was anticipated, it was believed that no new interference would occur simply because of this change from analog to digital. Therefore, the FCC permitted the conversion simply by filing a notification letter, rather than filing a formal application and going through the frequency coordination process again.

It was soon discovered that the interference resulting from transmission in the digital, rather than the analog mode, caused interference to receive-only earth stations serving CATV systems. Thus, the FCC's Common Carrier Bureau instructed any carrier wishing to convert a microwave radio from an analog to a digital mode that they had to file an application to modify the license and conduct a frequency coordination study. Such interference did not occur when these common carrier stations transmitted in the analog mode, even though exactly the same frequencies were utilized. Thus, it became apparent that the effect of digital transmission could produce interference, when exactly the same spectrum broadcast in the analog mode produced no such adverse results.

This same anomaly recently occurred when a television station began broadcasting in the DTV mode and caused interference to medical telemetry systems.¹⁰ Again, this interference was unanticipated. Now over the next few years, the radio manufacturing industry is going to produce radios for sale to the general public which receive the same spectrum whether that spectrum is transmitted in the analog mode, the digital mode or both. Yet at this time, no one knows what the interference effect will be as a result of digital FM operations.

Clearly, the degree of a different interference effect caused by digital operation is something the FCC should and must determine before it authorizes the creation of low power FM micro stations. It would not promote the public interest in the more “efficient . . . distribution of radio service” as mandated by Section 307(b) of the *Act* if the result of the institution of the proposed low power FM micro stations was to create a greater cumulative interference effect. The result of such a cumulative effect could be that many, if not most people, will receive less clear reception service, particularly with car radios, than they receive now. A proposed rulemaking to study interference will introduce empirical evidence addressing that fact.

V. Conclusion.

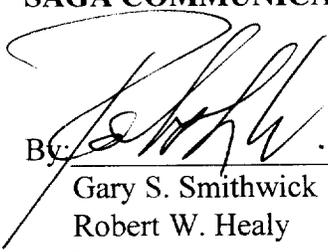
The TRA Petition seeks to have the proposed low power FM stations classified as “primary” broadcast stations. As such, any existing “secondary” broadcast station, such as an FM translator station, must cease operation if it causes interference to a new LPFM station. The only large pool of FM channels that would be readily available to LPFM stations is already occupied by FM translator stations. Thus, effectuation of TRA’s proposal will largely result in the substitution of LPFM service for the service now provided by FM translator stations.

¹⁰See, *Joint Statement of The Federal Communications Commission and The Food and Drug Administration Regarding Avoidance of Interference Between Digital Television and Medical Telemetry Devices*, released March 25, 1998.

Moreover, the TRA Petition is largely based on the assumption that the proposed low power FM stations will provide a viable service without the detrimental effect of increased interference. However, at this time, the FM radio service presently being provided to the American people is on the cusp of the revolutionary change from analog to digital transmission. TRA's reliance on interference predications based on the 1963 interference standards used in the creation of the FM Table of Allotments is misplaced. Certainly, the FCC's proposed rulemaking to update interference criteria should be completed before the TRA proposal for the creation of a Low Power FM Broadcast Service should be considered.

Respectfully submitted,

SAGA COMMUNICATIONS, INC.

By:  

Gary S. Smithwick
Robert W. Healy
Its Attorneys

Smithwick & Belendiuk, P.C.
1990 M Street, N.W.
Suite 510
Washington, D.C. 20036
202-785-2800

April 27th, 1998

Walden: 'This Is the Future of Radio'

E. Glynn Walden, director of engineering for CBS Radio, believes in the future of digital radio.

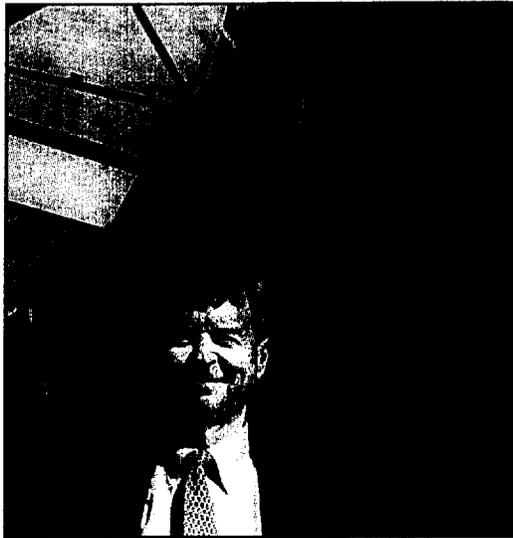
Walden, 53, is a co-founder of USA Digital Radio, which is developing technology to allow the industry to broadcast digitally, in the AM/FM bands, on existing radio channels. This in-band, on-channel effort is funded by CBS Corp. and Gannett Co.

He talked with RW Editor Paul J. McLane and News Editor/Washington Bureau Chief Leslie Stimson.

RW: Are you spending all of your time on DAB?

Walden: I'm doing two jobs. I am the director of engineering for CBS, and I do digital radio.

The company likes the fact that I am straddled between two worlds. They want a broadcaster here; so do these folks (at USADR). They want someone who understands not only the technical business, but the whole broadcasting business, and also



Glynn Walden

receiver manufacturers.

RW: This is your schedule for the foreseeable future?

Walden: This is not a project, it is an ongoing business. You need to look at

See WALDEN, page 17 ►

Walden of USADR

► WALDEN, continued from page 1
that, when you talk to other people who might be interested in digital audio. We're in the digital radio business.

The world is going digital. We are going to make (DAB) optimized for broadcasting and for our listeners. If we don't do that, we have nothing.

We're going to be in business for a long time. We have to train people to convert radio stations to digital. We have 10 years of implementation issues.

We've got to be there, supporting transmitter and receiver manufacturers, for years to come. We have to be supporting the overall scheme of making this transition from a world of analog to digital.

Integrated receivers

RW: What's new in your DAB work here?

Walden: We are building AM and FM receivers that receive analog, digital, all-digital; you can change stations on them, decide whether you want to listen to analog or digital. It's a complete system, one common receiver. We have completed the design and we are now implementing it in hardware. We are not building just one system, but multiple systems.

It is not going to be like before, when you had an AM demonstration and an FM demonstration. This is a radio that picks up all the modes. You can listen to that radio, and decide whether you want to listen to AM or FM, analog or digital.

You can't make up your mind to listen to all-digital (at this point in the receiver testing), because we're going to have a limited amount of time we can do all-digital (testing). Not too many broadcast stations are going to let us turn off their analog so that we can test all-digital. But we hope that we can get some off-the-air time on a weekend, overnights, to do some testing.

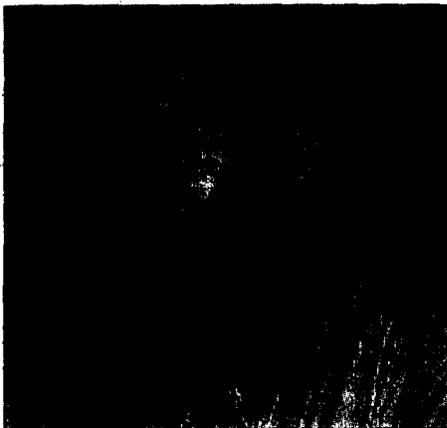
RW: If the National Radio Systems Committee said, "Now that Digital Radio Express has an IBOC proposal, we want to have one-track testing between DRE and USADR," would you participate?

Walden: No. I've been burned by the EIA before, I've been burned by the test process before. It was a circus. We have real scientific work going on here, and we are not going to get involved with committees and stuff. We have a job to do to develop broadcasting for the next century. It is being funded by broadcasters, and we intend on testing the system

get testing in a place like Las Vegas.

RW: How actively are the transmitter and receiver makers involved?

Walden: We are working with a transmitter manufacturer, and we have the first draft of a transmitter spec done. We have a meeting here... with a manufacturer of antennas and diplexers about what kind of specifications we need in bandwidth.



We have two meetings scheduled with transmitter manufacturers, and have ... more to schedule. We have met with a couple of receiver manufacturers and we have had ongoing interest with several over the years. ... We learned some interesting things from them. First of all, our system is cheaper to implement than Eureka. We learned that some manufacturers like to produce their own chips, and others like to have chips made available to them.

Receiver manufacturers are starting to pay attention because IBOC is starting to look a lot more feasible, and they don't want to be caught out in the cold.

RW: You don't intend to manufacture?

Walden: No, we are in the broadcasting business, and we will be licensing technology. We are not in the manufacturing business.

IBOC in 2000

RW: When are we going to be able to hear IBOC digital radio in our cars?

Walden: The current plan calls for receivers to be available for Christmas in the year 2000, the first commercially produced receivers. ...

All the radios until some point are going to receive both (analog and digital). Probably the first DAB radios will be in the after-markets. These will be the Pioneers, Aiwas, Sonys ... That is where

RW: So how much will that be?

Walden: I don't know; the exciter could run anywhere from \$15,000 to \$35,000, maybe \$50,000. I don't think it will be that much. But if I go to a radio station in Alabama that has a 20-year-old AM transmitter, he has a \$150,000 price tag to get started, because he has got to have a transmitter. The guys who can afford it the least are the guys for whom it will cost the most.

That was an AM station I talked about. Right now, if I were looking at converting an FM station — I'm talking about a new transmitter for every station. I don't know what the cost is; \$30,000, \$25,000 just for the transmitter. Then I have got to buy a combiner, I have got to buy a new STL and I have got to buy an exciter, because the STLs are going to be too hissy, too much noise, and I have got to have this DAB transmitter to run along right now with my analog transmitter.

The manufacturers are going to produce a transmitter that transmits both digital and analog simultaneously in the same transmitter. Hopefully, it is one

Walden on Ka Group Buys, &

Chris Walden is a busy man. He spent the past week at the USADR facility north of Baltimore, returning home to Southern New Jersey each Friday.

Walden manages his regular job of digital radio engineering for CBS Radio, which has been a resource to the company's managers and its engineers in the past. During his interview with RW, he discussed radio trends and his role at CBS.

Radio engineering is still a job that who signs off on equipment.

CBS will operate the stations as autonomously as possible. The general manager most likely gets recommendations from the engineer, and only with strong support from the manager of the station are purchases approved ... (But) anything that has any real value attached to it has to go to headquarters to be approved.

On whether local engineers have the power to make deals with manufacturers directly:

Sure. You make a deal, you get your

High Hopes at USA Digital Radio

► WALDEN, continued from page 17
this program, he has continued to defend this program, and he's telling us, "Get it done. Get it done, and when are you going to get it done?"

There have been some tough negotiations recently, and he has stood very firm behind this program.

RW: *Negotiations with whom?*

Walden: Negotiations with outside parties. You have to realize that slight nuances in how you develop the system can have positive and negative effects on various constituencies. A company coming in from the outside to develop DAB might have an interest in making the data part the strongest element, and having the audio as nice, or secondary. We're not producing a system without data, but

**'I can walk into
KYW, and for the cost
of an exciter, convert
KYW to DAB.'**

our emphasis is on broadcasting.

RW: *Has it really been proven that the listener with the car radio really is going to hear a difference?*

Walden: Oh, absolutely. We did focus groups and I will tell you that the results are outstanding.

RW: *How did you do the focus groups?*

Walden: We played FM and then played what DAB would be in the car. The percentage of people that would buy the radio for the improvements on

AM were astronomical. We were surprised, because the receiver manufacturers have consistently said that the buyers would pay nothing for AM improvement.

The future of radio

RW: *The focus groups were listening to computer-simulated IBOC ...*

Walden: Yes, and they were hearing real FM, with multipath. ... We did broadcaster focus groups too, to see what broadcasters needed.

We have a specification for the engineers working on the project that reads, "This is a difficult task, but be aware of what you are doing. You are affecting the future of broadcasting for the next century."

RW: *What is your reaction to the CEMA DAB report that said of the nine systems tested, only Eureka-147 was viable?*

Walden: Eureka was a miserable failure in San Francisco (in 1996 tests). Twenty percent of the time the receiver was muted. ... It can work, but to claim that the only winner was Eureka is absurd. All they've got to do is admit that it takes a lot of transmitters to make Eureka work. But to say that S band is not a good system ...

(Eureka) is a cellular system. Eureka works if the transmitters are not separated by more than, I think, 12 kilometers.

RW: *Part of the USADR approach is time diversity backup, meaning the system will allow new digital radios to fade to analog rather than just cut out when you're on the edge of the digital signal. That is desirable, except now the system requires that the analog signal be delayed.*

Walden: It doesn't require that it be delayed, but it enhances the performance of both the analog and the digital by delaying it five seconds.

When you're driving along listening to digital, you've got to look out the rear window to see what caused a problem, because all digital systems have some delay. You can optimize your system for the shortest delay possible, which means that with interruptions the system will restore more quickly, but there will be time outages.

All digital systems, whether they come from Eureka, USA Digital or anybody else, including cell phones, all experience drop outs. We are not used to it and we don't like that. We have intentionally delayed the digital, so when an outage occurs, the digital and analog outages do not occur at the same time.

RW: *It's going to be harder to listen to a game on a radio, while in a stadium.*

Walden: All digital systems have delay and they are going to be on the order of one second, three-quarters of a second. We can't make it zero, so we are going to take advantage of this delay problem, exaggerate it and make the system more robust.

You can't expect people to live with muted radios.

PAC and 96 kbps

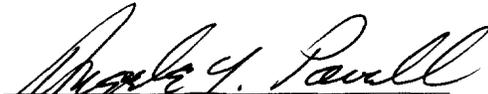
RW: *Why did USADR switch algorithms from MPEG-2 MUSICAM to Lucent's PAC?*

Walden: For the same reason that DRE

CERTIFICATE OF SERVICE

I, Angela Y. Powell, a secretary in the law offices of Smithwick & Belendiuk, P.C., certify that on this 27th day of April, 1998, copies of the foregoing were mailed, postage prepaid, to the following:

Mr. J. Rodger Skinner, Jr.
President
TRA Communications Consultants, Inc.
6431 NW 65th Terrace
Pompano Beach, FL 33067-1546


Angela Y. Powell