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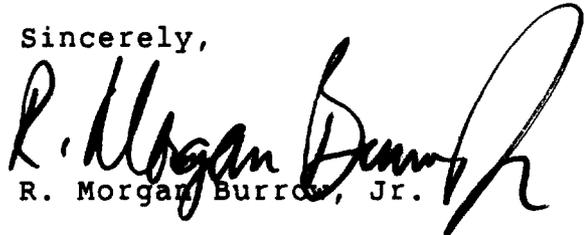
Secretary
Federal Communications Commission
1919 M Street, N. W., Room 222
Washington, D. C. 20554

DOCKET FILE COPY ORIGINAL

Dear Sir:

Enclosed is an original and five (5) copies of my comments in the
Docket 94-130 (Unattended Broadcast Operations) proceeding.

Sincerely,


R. Morgan Burrow, Jr.

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Before the
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Federal Communications Commission

Washington, D. C. 20554

In the Matter of:)
Notice of Proposed Rulemaking)
Amendment of Parts 73 & 74 of the)
Commission's Rules to Permit)
Unattended Operation of Broadcast)
Stations and Update Station Control)
and Monitoring Requirements)

DOCKET FILE COPY ORIGINAL

MM Docket No. 94-130

COMMENTS of R. Morgan Burrow, Jr., P. E.

1. R. Morgan Burrow, Jr., a consulting engineer whose qualifications are known to the Federal Communications Commission hereby submits his comments relevant to the topics discussed in the Notice of Proposed Rulemaking. The comments submitted herein are strictly those of the writer and do not express the views of any employer, engineer, station licensee, or any other concerned organization or individual. Any agreement with other parties is strictly a coincidence.
2. Unattended Operation is a Byproduct of Modern Technical Advances Commercially Available in Communications Equipment.

This Notice of Proposed Rulemaking is appropriate in light of beneficial technical advances and features available in broadcast equipment of modern design and manufacture. To the majority of broadcasters, this docket should be a priority agenda item at the Commission while Docket 93-177 should be tabled indefinitely.

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While the concept of Automated Transmitter Systems ("ATS") has been around for a number of years, readings from equipment manufacturers' catalogs indicate the manufacturers are able and willing to furnish products that are capable of providing reliable service in unattended operating mode. In light of today's technology incorporating inexpensive personal computers, changes to the Commission's rules allowing unattended operation for qualified facilities are overdue.

3. The Restricted Radiotelephone Permit without any Examination for basic knowledge of communications regulations makes it worthless and should be abandoned.

The demise of the Third Class Radiotelephone, which required an examination of basic regulations in Elements 1 and 2, and minimal technical knowledge in Element 9, was replaced by a "mail order" restricted operator card during the 1980's requiring no examination. The \$35 fee for the Restricted Radiotelephone permit essentially amounts to purchase of a "broadcast work permit" which serves no other useful purpose. This commenter believes the Restricted Radiotelephone Permit should be abandoned for general domestic broadcast "on air" work.

This commenter does favor some type of certification or licensing of those who repair or perform measurements on transmitting equipment, whether it be a Federal or private program, with the caveat that anyone who ever held a Second or First Class FCC radiotelephone operator license be "grandfathered" into any such program.

4. Establish Minimum Technical Standards for Unattended Operation: A Blanket Grant of Unattended Operation Authorization is Unacceptable.

Docket 94-120 permits the Commission an opportunity to improve compliance by requiring stations proposing unattended operation to pass a battery of tests (essentially amounting to equipment performance measurement requirements presently on the books) administered by qualified station technical personnel or a

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technical service.

The FCC should look to automobile inspection and titling regulations run by the states as a model for writing unattended operation regulations. The purpose of automobile inspections in the states is to take the worst of "junkers" cars off the road. In a similar manner, "junkers" broadcast stations should not be permitted unattended operation. A similar concern was raised in the Docket 93-177 comments concerning AM directional antennas where a computer study could "substitute" for proof measurements on a poorly maintained facility; this in this commenter's opinion is unacceptable.

Besides improving compliance by "taking junkers off the road", the unattended operation rules should be developed using "tried and true" methodology derived from earlier regulations permitting remote control of transmitter facilities and the more recent ATS regulations. This commenter suggests that the Commission not adopt a blanket order allowing all stations to operate in an unattended mode. The Commission should write its regulations to allow those stations that comply fully with their technical authorizations (no technical STA's) to operate in unattended mode and require other stations that are not in full compliance to repair their facilities and clear STA problems prior to receiving unattended operation authority.

Unfortunately, it is a well known fact that the FCC has neither the manpower nor resources at this time to inspect all broadcast and/or other communication facilities adequately, even over a period of years. In other words, the FCC's Field Operations Bureau apparently has little or no resources and/or money to enforce the regulations the FCC writes. It is for this reason this commenter favors retention of antenna proof measurements and monitor point requirements for directional AM stations so that a limited method of external verification is possible.

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This commenter suggests as one possible remedy to resource/manpower problems in the Field Operations Bureau "privatization" of broadcast station inspections with the Commission assigning the inspections to qualified engineering firms by random lottery with any conflicts resolved by "another roll of the dice". The FCC statement of work itself could be based on official procedure with a FCC-specified format for the deliverable report. The FCC's contract or statement of work could also include a document containing authority for the Commission's contractor to enter the station and conduct an inspection and measurements. In addition, the statement of work should also contain legal language (similar to clauses in state automobile regulations concerning drunk drivers) that refusal by the station or its licensee to permit the Commission's contractor to conduct the inspection and/or make specified measurements would result in immediate suspension of the station license.

5. Stations must qualify for unattended operation by demonstration of compliance with technical standards presently in effect.

This commenter believes that the unattended operation regulations should require stations proposing unattended operation to conduct and meet technical standards that are presently incorporated in the "equipment performance measurements" requirements for new or substantially modified stations. Station conformance with minimal standards is essential to minimize interference since unattended operation will involve some response time for notification and diagnosis of technical problems. There is absolutely no sense for the Commission to issue blanket authority permitting unattended operation that would essentially allow stations with transmission and/or monitoring facilities in poor condition or other state of disrepair to operate in unattended mode and aggravate an existing situation with interference as the end result.

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This commenter supports qualification for unattended operation. Facilities should qualify for unattended operation by submitting minimal documentation the station complies fully with FCC technical requirements - the documentation may be as simple as a sworn, signed, and dated receipt prepared by the individual or business that performed the prerequisite measurements. Detailed results of the measurements could be retained in station files but available for examination on request by the FCC staff.

Stations in reasonably good condition that meet or exceed the minimum technical standards should be permitted to utilize unattended operation promptly. Other stations operating under special temporary authority ("STA") or in various states of disrepair would need to repair their facilities and submit a receipt or other documentation of compliance as required by existing regulations to qualify for unattended operation. Cost benefits to licensees resulting from unattended operation should be realized only after individual facilities have demonstrated compliance with the Commission's technical regulations and good engineering practice. In other words, if a licensee cares so little about a facility to run a noncompliant operation, unattended operation and cost savings therefrom should not be that licensee's reward.

6. Minimum Technical Qualifications for unattended operation should be service specific.

This commenter favors any reliable and stable method of interconnecting ATS or remote control equipment to transmitting or monitoring apparatus. Specifically, this commenter favors elimination of the 100 foot restriction on extension meters in Section 73.1550(a)(2).

This commenter favors Commission emphasis on the integrity of the transmitted signal. However, it is difficult (with perhaps the exception of certain AM stations) to monitor in the field for

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items such as overpower operation. Reputable station or contract engineering services would probably perform routine checks of carrier frequency and modulation level when checking transmitting equipment. However, some broadcasters (generally more than one days' drive from a FCC field office) could care less about the integrity of the transmitted signal and do nothing until the transmitter goes off the air. It is for this reason that regular measurement requirements be incorporated in the FCC regulations to establish a case of "repeated and willful violation ..." for those few who care so little about their transmitter facilities.

The measurement requirements, coupled with "privatization" of broadcast inspections, would probably reduce present interference levels greatly; the increased probability of an inspection and fine would be an incentive for licensees of non-compliant facilities to repair and comply with FCC regulations.

General technical requirements should be specified for all of the services (i.e. AM, FM, TV, translators [TV & FM]) with service-specific subparts.

7. Standards applicable to all facilities:

Traceability and Labelling: Critical station instrumentation (i.e. radio final stage voltmeters, ammeters, power meters, modulation monitors, AM antenna monitors, r.f. ammeters) shall be calibrated within three years of commencement of unattended operation. A label indicating the name of the calibration service, the initials of who performed the calibration, and the date tested shall be affixed to the instrument or calibrated device. The calibration sheet data sheet shall be maintained in station records.

Defective instruments must be repaired or replaced by instruments of similar or better accuracy under valid calibration.

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Calibration Cycle Required: Instruments used by an individual or service to calibrate broadcast transmission equipment instrumentation shall be under a valid calibration cycle by the equipment manufacturer or reputable instrument calibration service using NIST-traceable standards. Under no circumstances shall damaged instruments or instruments not calibrated within three years of the date of the broadcast measurements be used to calibrate broadcast transmission instrumentation.

Receipt Required: The individual or service performing measurements on a broadcast facility preparing to operate in unattended mode shall furnish the station licensee a sworn, signed receipt detailing the services provided and a compliance check-off list for required technical items. The original, signed receipt and check-off list shall accompany a licensee's request to operate a broadcast station in unattended mode.

Alterations: Tubes or other devices installed in transmitting equipment and incorporated in the tests shall remain in service to the natural end of their service life.

In other words, installing a good set of tubes or other devices for "test" purposes in a transmitter and then immediately removing them following the tests and substituting used or otherwise imperfect devices for everyday operation is unacceptable. A regulation of this type may be difficult to enforce; however, its presence in the regulations may discourage this often-found situation.

In the real world, spurious, harmonic, and/or distortion and noise measurements made during an inspection may "flush out" those that routinely "alter" their equipment for proof.

7.1 Instruments used to determine transmitter output or operating power.

Instruments used to determine transmitter output or operating power shall be calibrated by the manufacturer or a reputable service at intervals not to exceed three years and more frequently if damage by lightning or other causes is suspected. The calibration accuracy must be maintained for multirange or multiscale instruments displaying operating power or used to determine it.

7.2 Instruments used to determine modulation level and/or operating frequency.

Instruments used to determine modulation level shall be calibrated by the manufacturer or a reputable service using the manufacturer-recommended test procedure or equivalent procedure resulting in a calibration accuracy equal or better than the manufacturer's published specifications. Modulation and/or frequency determination equipment shall be calibrated at intervals not to exceed three years and more often if damage due to lightning or other causes is suspected.

7.3 New Equipment:

New equipment or new replacement instruments shall be exempt from the calibration requirement for three years unless damage to the new instrument is suspected.

8. Specific Requirements for FM, TV, and Translators (FM, TV, & LPTV)

The following procedures must be performed on the station's transmitting equipment to be utilized for unattended operation.

8.1 Facilities using Indirect Method to determine Operating Power:

The final radio stage voltage and ammeters shall be calibrated every three years and more often if damage is suspected.

Non-removable digital indicating devices in transmitting equipment shall be checked by comparison across the range of the instrument to another recently calibrated digital indicating device having a minimum accuracy equal to the device being tested. Details on performing this specific test should be referred to the transmitter manufacturer's maintenance documentation.

8.2 Facilities using "ThruLine" (tm Bird Electronics) or other direct power indication devices:

The power indication equipment shall be calibrated by the manufacturer or a reputable service across the range of the instrument utilizing equipment and procedures acceptable to produce calibration accuracy equal or better than the instrument manufacturer's minimum standards. The calibration shall be done at intervals not to exceed three years and more often if damage to the instrument is suspected.

9. FM Broadcast Stations

The following tests must be made prior to issuance of authorization for unattended operation.

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9.1 Signal Purity: A FM broadcast station must certify that the emitted signal meets the FCC's requirements for signal purity and bandwidth as observed on a suitable analyzer of recent calibration. The signal shall be examined both unmodulated and under high level program modulation conditions with all audio processing devices and subcarriers enabled. (Reference Section 73.317)

9.2 Audio Performance: Prior to the issuance of unattended operation authorization, a FM broadcast station must certify that audio performance measurements have been made in accordance with the Commission's regulations. (Reference Sections 73.297, 73.319, 73.322.)

10. Television Broadcast Stations:

Prior to issuance of unattended operation authorization, a TV broadcast station must certify that visual and aural performance measurements have been made in accordance with the Commission's regulations (Reference Section 73.682, 73.687, and/or any new HDTV transmission standards).

These characteristics shall be checked at intervals not to exceed three years.

10.1 Composite Signal; Occupied Bandwidth: The bandwidth and characteristics of the transmitted television signal shall comply with Commission regulations as observed on a spectrum analyzer of recent calibration at nominal operating power using standard test signals.

10.2 Video Component: The video component of the transmitted signal shall comply with Commission and/or accepted industry standards using industry standard test signals as observed on standard waveform and/or vector monitors of recent calibration.

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10.3 Aural Component: The aural component of the transmitted signal shall comply with the Commission's frequency response, signal-to-noise, and stereo (if applicable) standards.

11. FM & TV Translators; LPTV

11.1 Signal Purity: The signal purity (including harmonic and spurious emissions) and bandwidth of FM and TV translators shall be checked using a suitable spectrum analyzer at intervals not to exceed three years.

11.2 Video and Audio Transmission Standards: The visual and aural transmission characteristics of LPTV facilities shall meet the criteria of Section 74.750 and accepted industry transmission standards for audio and/or video response. These characteristics shall be checked using appropriate instrumentation and standard test signals at intervals not to exceed three years.

11.3 Class D Stations: The signal purity of Class D FM stations shall be checked using a suitable spectrum analyzer of recent calibration at intervals not to exceed three years. The audio and stereo characteristics including frequency response, signal to noise ratio shall be checked at intervals not to exceed three years.

12. Specific Requirements for AM Broadcast Stations:

12.1 Power Indicating Devices:

General: Instruments used to indicate the quantity of RF power delivered to the antenna or directional antenna common point shall be calibrated by the manufacturer or a reputable service at intervals not to exceed three years, and more often if damage from lightning or other sources is suspected.

The impedance bridge or other device used to make the measurements must be calibrated within three years of the measurements by the manufacturer or a reputable service equipped with facilities to calibrate the device to its manufacturer's published accuracy. The calibration date of instruments used to make the measurements shall be recorded in station records by the individual or service making the measurements.

12.2 Directional Antenna Monitor and Sample System:

Approved Sample Systems: Stations not using an approved sample system should be excluded from receiving authority to operate in unattended mode.

Antenna Monitor - The antenna monitor shall be calibrated once every three years by the manufacturer or a reputable service to original equipment accuracy standards and more frequently if lightning or other damage is suspected.

Sample Lines - Sample lines shall be checked for equal length or compliance with the station's individual authorization using a time domain reflectometer or other suitable test prior to commencing unattended operation.

Sampling Elements: - Sample loops shall be visually examined at least once every three years. The integrity and condition of the sample element, insulators, connectors, and hardware shall be noted. Defective sample elements shall be repaired or replaced with an identical unit.

Toroidal sampling transformers shall be checked at least once every three years by comparison of antenna monitor indication to an identical new sampling transformer of similar manufacture or a similar calibrated unit maintained for test purposes.

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Antenna Current Ammeters: R.F. ammeters used to measure antenna current in directional antenna systems shall be subject to a three year calibration cycle.

Field Intensity Meters: Field intensity meters used for A.M. monitor point and proof measurements shall be calibrated every three years by the equipment manufacturer or a reputable service to the manufacturer's specifications.

13. **Trouble Conditions and Shutdown:** This commenter favors a graduated time table for shutdown of a broadcast facility depending on the trouble diagnosed by the automatic telemetry equipment at the transmitter site. The above schedule assumes the chief operator or technical service is unable to correct the problem(s) within the allotted time period. The regulations should also explicitly permit use of the experimental period (12 midnight-6 AM local time) when on-air tests are required to diagnose and/or clear a problem.

a. AM Broadcast Stations

1. Overmodulation 125-150 percent - two hours
2. Frequency deviation less than 100 Hz - two hours
3. Frequency deviation more than 100 Hz - 1/2 hour
4. Failure to switch day/night power mode and/ or directional pattern with no means to reduce power to 25% or less - 1/2 hour
5. Operation in improper mode with 25% or less power emergency mode unless valid STA is in effect. - 24 hours
6. Directional antenna monitor parameters:
 - a. Less than +/- 15% field, +/- 10 deg phase with no means to reduce power and check monitor points - two hours
 - b. Greater than +/- 15% field, +/- 10 deg phase deviation if trouble occurs one hour or more after scheduled switch time with no means to reduce power and

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- check monitor points (if skywave conditions permit reading) - 1 hour
- c. Reduced power operation under conditions (a) or (b) above - ten days

- 7. Apparent over power operation
 - a. 150 per cent of licensed or less during daytime/critical hours - 3 hours
 - b. Over 120 per cent and failure occurs at night two hours or more from day to night switch time - 1 hour

b. FM, TV, or Translator stations:

- 1. Overmodulation less than 150 percent - 3 hours
Overmodulation greater than 150% - 1 hour
- 2. Main channel frequency deviation
 - a. FM between 2 kHz and 6 kHz - two hours
 - b. FM over 6 kHz - one hour
 - c. TV between 1 kHz and 2 kHz - one hour
 - d. TV over 2 kHz - 1/2 hour
(TV applies to audio and visual)
- 3. Power Discrepancies
 - a. Less than +/- 25 Percent - two hours
 - b. Over +/- 25 Percent - 1/2 hour
- 4. Response time for FM & TV translators 2 hours.

Power estimates based on likelihood of spurious/harmonic emissions due to severe mismatch in transmission line or trouble in other parts of system.

14. Establish a database for Emergency Points of Contact at Broadcast Stations.

The Commission should establish and maintain a data base of emergency points of contact for broadcast stations. The minimal information should be the name and telephone numbers of the station chief operator and/or the contract service if one is used. Initially, the FCC could begin by requiring the information on applications requesting unattended operation.

This commenter suggests that the Commission establish a staff point of contact and encourage written, faxed, or

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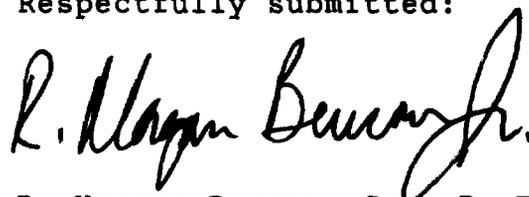
electronic-mail transmission of requested information. This commenter suggests that the Commission's file be available on the Internet for no-charge downloading.

15. **Conclusion:** The Commission should authorize unattended operation to those facilities that conduct measurements and submit a receipt or other minimal documentation from the station engineer or technical service certifying that the measurements were done and the facility complies with FCC standards. The measurement data would be kept in station files and be available on request for inspection. Noncompliant facilities would need to make repairs and comply with FCC standards prior to receiving authority to operate in unattended mode.

This commenter supports "privatization" of broadcast and other communication facility inspections since the FCC apparently has neither the manpower nor resources to put its people in the field full time to comprehensively conduct inspections of numerous transmitting locations presently in service.

This commenter suggests the Commission maintain a data base of points of contact for broadcast stations and make it available for no-charge download off the Internet.

Respectfully submitted:



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