

TV BAS Checkup

Sacramento Ennes Workshop
February 12, 2011

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Co-Chair, Engineers for the Integrity of
Broadcast Auxiliary Services Spectrum
(EIBASS)

WT Docket 10-153

"BAS Flexibility"

- Euphemism: The substitution of an agreeable or inoffensive expression ["BAS flexibility"] for one that may suggest something unpleasant [spectrum grab].
- Biggest change to TV BAS since the ET Docket 01-75 rulemaking, which updated and, where possible, harmonized the Part 74 rules with the Part 101 POFS rules. This brought most fixed-link BAS stations under the Prior Coordination Notice (PCN) process.



WT Docket 10-153

- Proposes to allow POFS licensees access to the 7 and 13 GHz TV BAS bands.
- In support of more backhaul spectrum for wireless broadband access, a goal of the National Broadband Plan (NBP), General Docket 09-51/Wireline Competition Bureau (WC) Dockets 10-90 & 05-337.
- Comment deadline closed on 10-25-2010.
- What the NBP wants the NBP gets.



Other WT 10-153 Issues

- Proposes to eliminate the current restriction that a below-21 GHz POFS station cannot be used as the last link to a broadcast station.
- Probably not all that big of a carrot for TV BAS.
- However, because the proposal is to delete Section 101.603(a)(7) in its entirety, this would appear to open up the 900 MHz POFS bands to Aural BAS, and that might turn out to be a big carrot.



10-153 Issues- Cont'd.

- For example, in January 2010 the FCC issued a \$4,000 NAL to Station WNTB570 at Yuma, AZ, for operating that 956.65 MHz POFS station as the final link to KUKY(FM); that is, as an Aural BAS STL station. This would become perfectly legal if Section 101.603(a)(7) is abolished.



10-153 Issues- Cont'd.

- If POFS stations gain access to the 7 and/or 13 GHz TV BAS bands, that access will be based solely on the Universal Licensing System (ULS) records; there will probably be no familiarity with, or appreciation of, long-existing STL (or ICR) use.
- This makes it imperative that a TV station's 7 and 13 GHz BAS ULS records be both accurate and complete.



10-153 Issues- Cont'd.

- But as documented in the EIBASS 10-153 reply comments:

Class of fixed-link station ⁹	Percentage with missing/bad RX-end coords	Percentage with missing RX height	Percentage with missing RX antenna make/model
950 MHz Aural BAS	15.1%	35.4%	48.5%
2 GHz TV BAS	8.6	20.6	25.1
2.5 GHz TV BAS	16.2	42.2	68.7
7 GHz TV BAS	15.3	37.3	51.3
13 GHz TV BAS	13.3	35.1	49.8
18 GHz TV BAS	14.8	34.1	55.2



10-153 Issues- Cont'd.

- If a TV BAS record in the ULS is inaccurate, or missing critical data, it probably will not receive the interference protection to which it would otherwise be entitled.
- So it would behoove TV BAS licensees in the 7 and 13 GHz bands to undertake an audit of their ULS records (or retain a person or firm skilled in doing so).



10-153 Issues- Cont'd.

- Of course, ALWAYS having accurate FCC records is a good idea, and an FCC expectation.
- For example, making unauthorized changes to its STL resulted in an \$8,000 NAL issued to the licensee of a Colorado Aural BAS station, WMF732. A "clean-up" modification application would have cost far less (including the PCN expense).



- January 8, 2010, NAL for \$17,500 issued to a Rawlins, WY AM/FM station for moving its WHB734 Aural STL by about a mile, without authorization. (Okay, they also had EAS and public file problems, and the NAL didn't break out the amounts for each individual violation. And it didn't help that the station subsequently told the FCC that an application for the new STL location had been filed, when it had not.)
- November 1, 2010, NAL for \$4,000 was issued to a Greenville, PA, AM/FM station for operating its WQGW238 Aural STL on an unauthorized frequency.



10-153 Issues- Cont'd

- Should a commercial microwave frequency coordinator (CMFC) study and protect a BAS record after its stated expiration date?
- Yes! Only if the license status field shows "expired" should the record be ignored if it is past the stated expiration date.
- This is because Section 1.62 of the FCC Rules provides automatic continuing authority if a timely renewal application has been filed; that is, until the renewal application is acted upon.




10-153 Issues- Cont'd.

- For broadcast stations with a license challenge or "character issue," final action on the renewal application can take months, or years.
- In the interim, the Form 303 renewal application also constituted timely renewal of all the BAS licenses associated with that station.
- For example: Station KPIX-TV, CBS, San Francisco, and that station's STL, WBX242. KPIX-TV filed for license renewal on 8-09-2006, but that application is still pending, because of the February 1, 2004, Janet Jackson Super Bowl "wardrobe malfunction" incident.



10-153 Issues- Cont'd.

- Downloading the WBX242 STL license from the ULS shows an apparently expired license:



Federal Communications Commission
Wireless Telecommunications Bureau

RADIO STATION AUTHORIZATION

LICENSEE: CBS BROADCASTING INC.

CBS BROADCASTING INC.
STE 350 2175 K STREET NW
WASHINGTON, DC 20037


Call Sign WBX242	
File Number 0002684760	
Radio Service TS - TV Studio Transmitter Link	
SMSA	Station Class FXO

FCC Registration Number (FRN): 0003482189

Grant Date 04-07-1980	Effective Date 08-22-2006	Expiration Date 12-01-2006	Print Date
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LOCATION

Fixed Location Address or Area of Operation:
855 BATTERY ST
City: SAN FRANCISCO County: SAN FRANCISCO State: CA



10-153 Issues- Cont'd.

ULS License - TV Studio Transmitter Link License - WBX242 - CBS BROADCASTING INC.

1/12/11 12:09 PM



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Universal Licensing System

[FCC](#) > [WTB](#) > [ULS](#) > [Online Systems](#) > License Search

[FCC Site Map](#)

ULS License

TV Studio Transmitter Link License - WBX242 - CBS BROADCASTING INC.

[? HELP](#)

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MAIN	ADMIN	LOCATIONS	PATHS
Call Sign	WBX242	Radio Service	TS - TV Studio Transmitter Link
Status	Active	Auth Type	Regular
Dates			
Grant	04/07/1980	Expiration	12/01/2006
Effective	08/22/2006	Cancellation	
Control Points			
855 Battery Street, SAN FRANCISCO, San Francisco, CA P: (415)765-8695			

"status" still shows as "active"

cancellation field is blank



10-153 Issues- Cont'd.

- So a BAS record in the ULS should be studied and protected if "status" field still shows "active," even if it is beyond the stated expiration date.
- A second tip-off: The "Cancellation" field is BLANK.
- EIBASS was the only commenter to raise this issue, and propose a solution: A "pending renewal application" flag in the ULS.



10-153 Issues- Cont'd.

- Protection of 7 and 13 GHz TV PICKUP (ENG) operations.
- EIBASS comments proposed allowing TV Pickup licensees to add any 7 or 13 GHz ENG-RO sites to their TV Pickup licenses, just as 2 GHz TV Pickup licensees were allowed to do in 2008 (as a result of an SBE Petition for Rulemaking, RM-11308).
- Then, newcomer POFS stations would be required to protect those of-record ENG-RO sites.



10-153 Issues- Cont'd.

- Protection proposed by EIBASS would be the same as adopted by the FCC in the ET Docket 00-258 rulemaking, which allowed DoD uplinks entry into the 2 GHz TV BAS band at up to eleven sites: Namely, no more than a 0.5 dB degradation in the noise threshold of the protected ENG receiver.
- This proposed requirement would only apply to newcomer POFS stations, not to new or modifying TV BAS stations.



10-153 Issues- Cont'd.

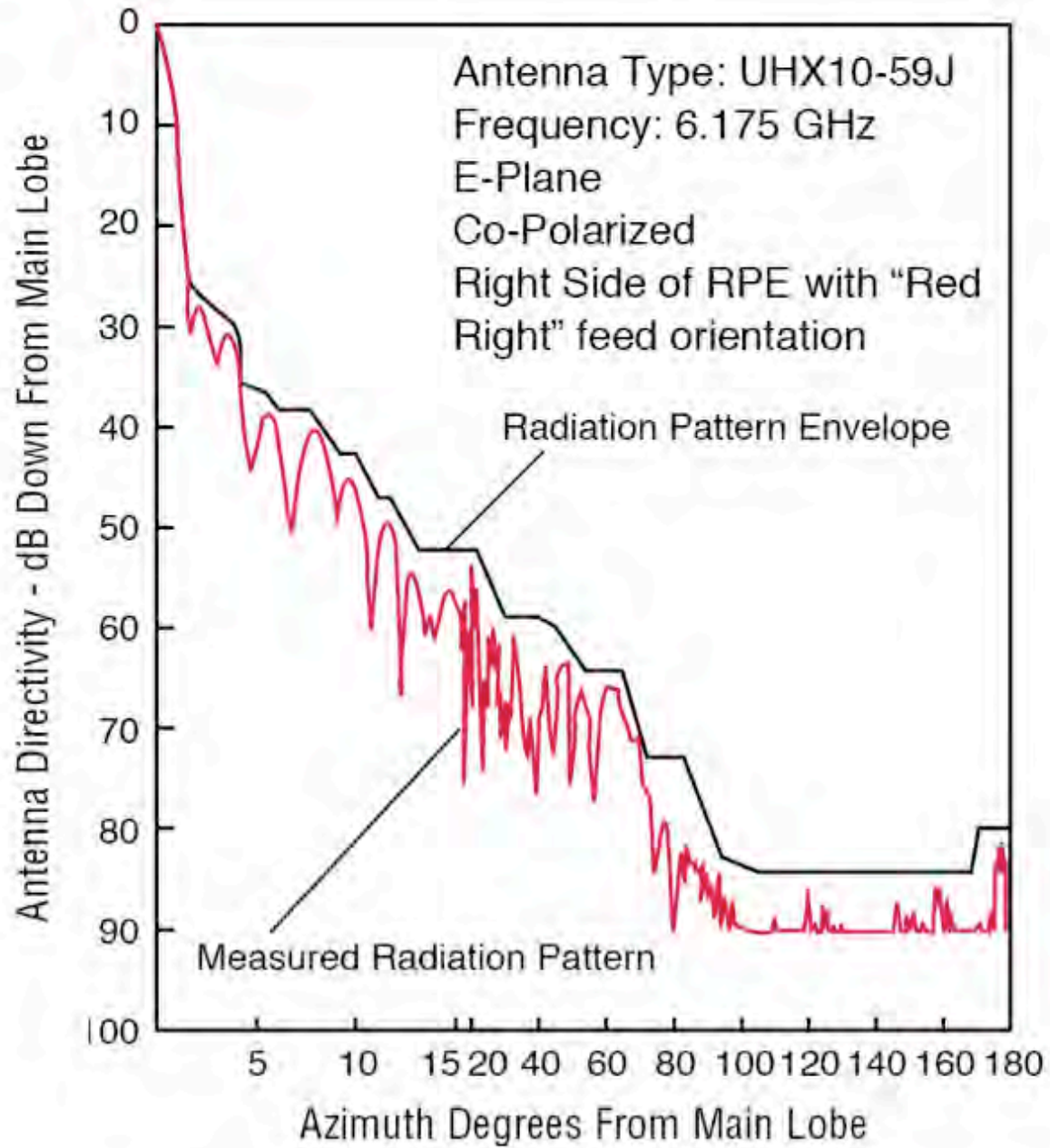
- Wireless Strategies Incorporated (WSI) continued attempt for "microwave white spaces" aka "concurrent coordination" aka "auxiliary microwave stations."
- First attempt = February 23, 2007, Request for Declaratory Ruling.
- Became WT Docket 07-121.
- Given new life in the instant WT 10-153 rulemaking.



10-153 Issues- Cont'd.

- WSI claims that it is possible to add new microwave paths everywhere without causing additional interference to existing users, by using "wasted spectrum" that supposedly exists between a microwave antenna's radiation pattern envelope (RPE) of record and the actual antenna side lobes.





10-153 Issues- Cont'd.

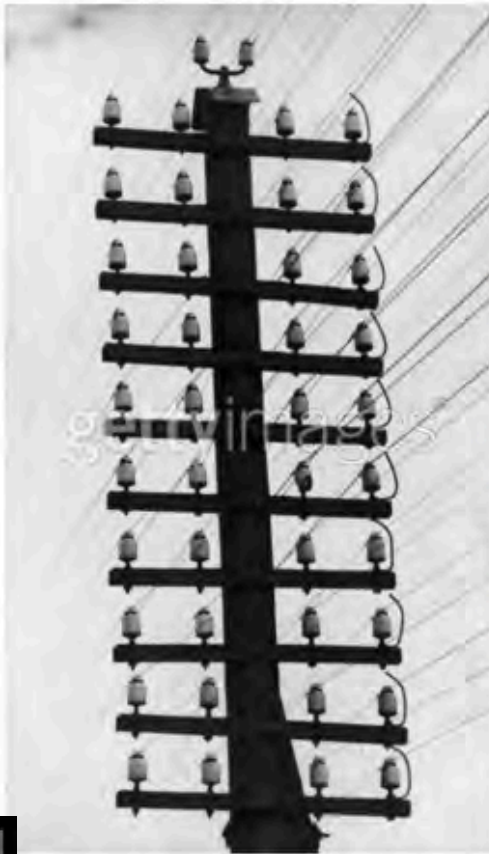
- In EIBASS' view, the WSI proposal is the equivalent of "cold fusion" for microwave spectrum.
- "Extraordinary claims require extraordinary evidence." Carl Sagan, Cosmos, Chapter 12.
- Besides EIBASS, opposing parties included TIA, SIA, NSMA and FWCC.
- On December 8, 2010, WSI filed ex parte comments labeling all those who oppose its proposal as OBSTRUCTIONISTS.



10-153 Issues- Cont'd.

Obstructionists' Falsehood Regarding Exclusive use of Point-To-Point FDD

from the 12-08-2010 WSI ex parte filing



The Obstructionists are Proposing Only Allowing PTP (dedicated) which would Perpetuate the Obsolete, Expensive, Underutilized use of Communication Channels.

Their argument is that there is a debate as to whether FDD and TDMA systems can coexist in a mobile environment (nothing to do with FS).



PCNs

From the November 13, 2002, ET Docket 01-75
R&O, Paragraph 63.

BAS/CARS Frequency Band	Frequency Coordination Procedures		
	Existing Requirements	New Requirements	
	Fixed and Mobile	Fixed	Mobile
2 GHz	Local	Local (no change)	Local (no change)
2.5 GHz	Local	Prior	Local or Prior
6.5 GHz	Prior	Prior (no change)	Prior (no change)
7 GHz	Local	Prior	Local or Prior
13 GHz	Interference Criteria	Prior	Local or Prior
18 GHz	Prior	Prior (no change)	Prior (no change)



PCNs- Continued

- So as of October 16, 2003, all Aural BAS and TV BAS fixed-link applications, except 2 GHz, have required a PCN. The protocols are defined in Section 101.103(d) of the POFS rules.
- PCNs are required new, major-change AND minor-change applications. However, the PCN showing does not have to be submitted as a mandatory exhibit for a minor-change application.



PCNs- Continued

- The October 25, 2010, Declaratory Ruling obtained by EIBASS did NOT create any new regulatory requirements; rather, it had the Commission confirm the EXISTING requirement that PCNs are almost always required, even for minor-change applications.
- "Almost"?



PCNs- Continued

- For fixed-link BAS stations applied for on Form 313, when that form did not ask for receive-end coordinates (circa 1981), and missing RX-end geographic coordinates, RX antenna make/model and/or RX antenna height, a special PCN-exemption is allowed.
- October 16, 2003, ET Docket 01-75 Order, at Paragraph 13: If adding the RX-end information gives a calculated path azimuth that is within $\pm 1^\circ$ of the TX dish azimuth of record, then a PCN showing will not be required. STILL IN EFFECT.



PCNs- Continued

- 2 GHz TV BAS fixed-links are subject to a special POSITIVE OPTION frequency coordination protocol, defined in Section 74.638(c) of the FCC rules.
- “Positive option” means that you must obtain the consent of nearby co-channel and adjacent-channel fixed-link licensees.
- Makes the PCN process a delight, by comparison.



PCNs- One More Thing

- With analog, interference was generally obvious; you could hear or see it in the received signal.
- For digital, interference may not be obvious. It may only degrade the digital link's effective fade margin, and so may show up as more short-term outages than normal. A microwave spectrum analyzer may be needed to figure out what's going on.



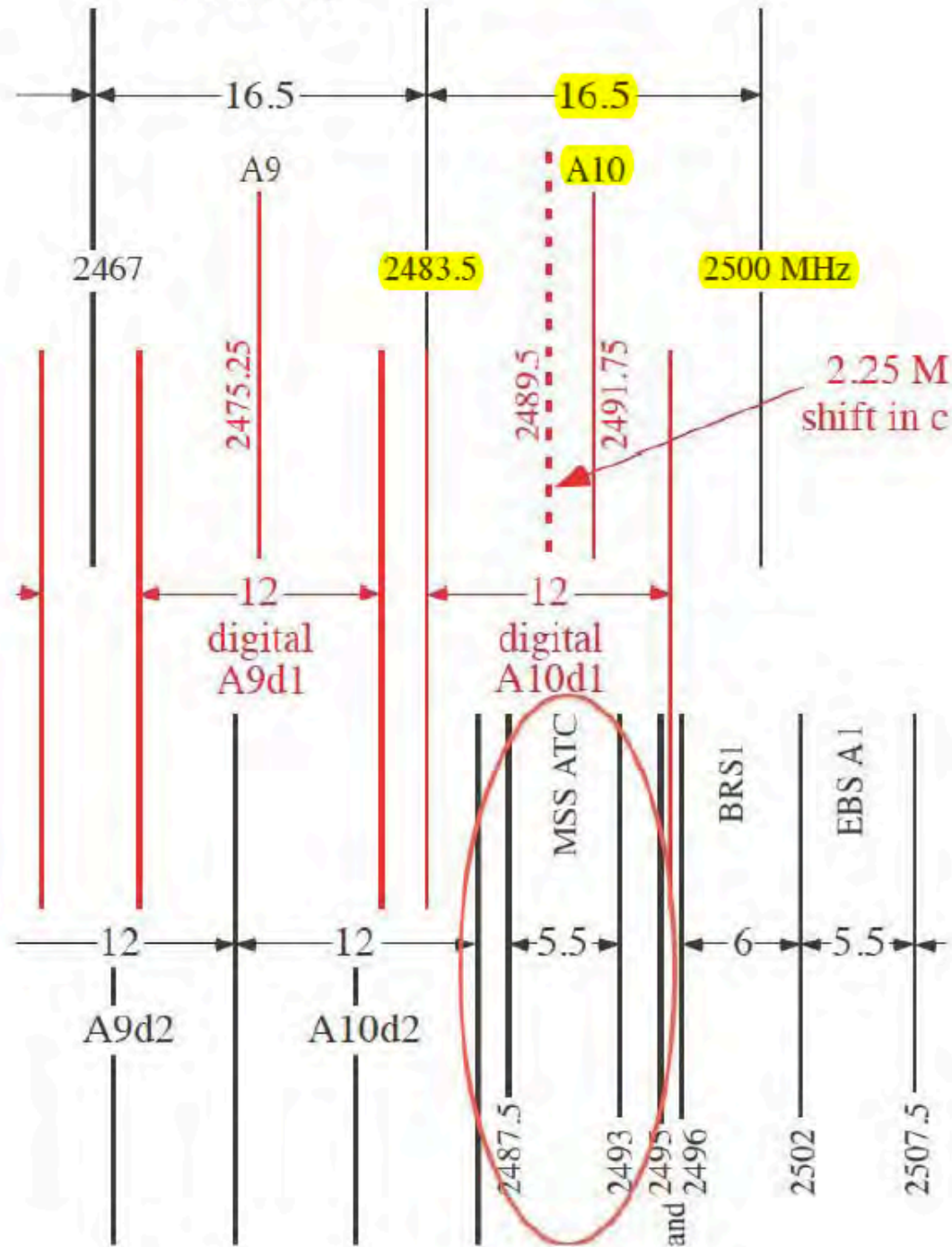
MSS ATC

ET 00-258/IB 01-185/ET 02-364/WT
03-66/IB 07-253/ET 10-142

- Mobile Satellite Services (MSS) Ancillary Terrestrial Component (ATC).
- Co-channel with grandfathered TV BAS Channel A10, 2,483.5–2,500 MHz.
- A10 licensees are CO-PRIMARY, and there is no sunset date for the grandfather rights.



Existing



NON-FEDERAL GOVERNMENT (NG) FOOTNOTES

* * * * *

NG147 In the band 2483.5-2500 MHz, stations in the fixed and mobile services that are licensed under Part 74 (Television Broadcast Auxiliary Stations), Part 90 (Private Land Mobile Radio Services), or Part 101 (Fixed Microwave Services) of the Commission's Rules, which were licensed as of July 25, 1985, and those whose initial applications were filed on or before July 25, 1985, may continue to operate on a primary basis with the mobile-satellite and radiodetermination satellite services, and in the segment 2495-2500 MHz, these grandfathered stations may also continue to operate on a primary basis with stations in the fixed and mobile except aeronautical mobile services that are licensed under Part 27 (Miscellaneous Wireless Communication Services) of the Commission's Rules.

§ 74.602 Frequency assignment.

(a)(2) In the band 2483.5-2500 MHz, no applications for new stations or modification to existing stations to increase the number of transmitters will be accepted. Existing licensees as of July 25, 1985, and licensees whose initial applications were filed on or before July 25, 1985, are grandfathered and their operations are on a co-primary basis with the mobile-satellite and radiodetermination-satellite services, and in the segment 2495-2500 MHz, their operations are also on a co-primary basis with Part 27 fixed and mobile except aeronautical mobile service operations.



MSS ATC

ET 00-258/IB 01-185/ET 02-364/WT
03-66/IB 07-253/ET 10-142

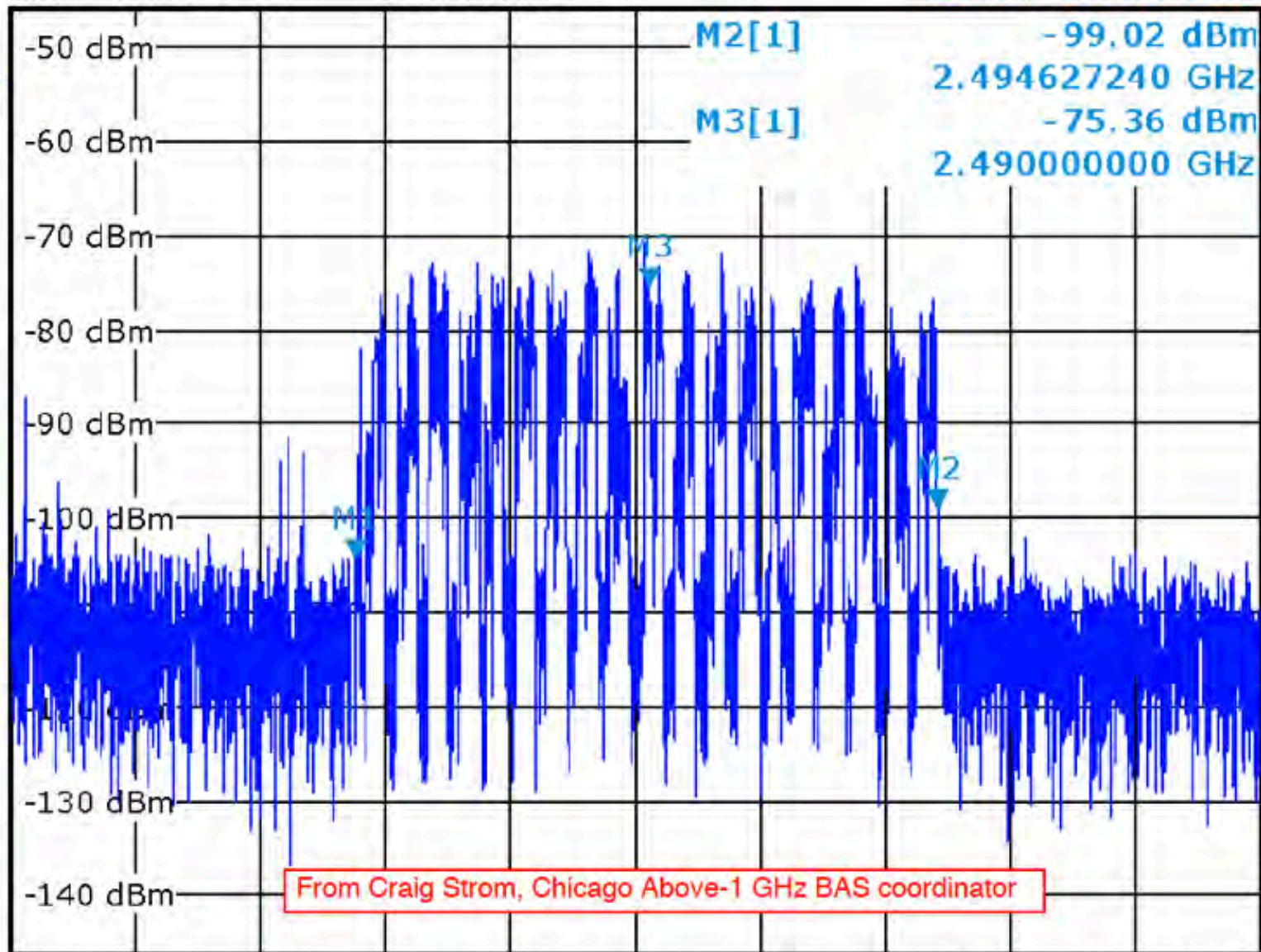
- The Commission's position is that since there are "few" grandfathered A10 licensees, "frequency coordination" between co-channel MSS and A10 TV Pickup operations can address the problem. Right.
- But, surprise, surprise, a new, always-on, INTERFERING co-channel signal on A10 appeared in Chicago starting in mid-December 2010.



Att 0 dB
Ref -46.00 dBm
* RBW 10 kHz
* VBW 10 kHz
SWT 200ms

M1[1] -104.24 dBm
2.485326000 GHz
M2[1] -99.02 dBm
2.494627240 GHz
M3[1] -75.36 dBm
2.490000000 GHz

1AP
Clrw



PS

From Craig Strom, Chicago Above-1 GHz BAS coordinator

CF 2.4898 GHz

Span 20.0 MHz



• Suspects were:

Globalstar/Open Range MSS ATC, S2115

Noikia, Experimental Station WF2XPD

Motorola, Experimental Station WB2XCJ

Chicagoland Microwave BRS1, WOF49
(unlikely)

• And the culprit turned out to
be...



Open Range ATC

- Using TDD: Therefore customer premises equipment (CPEs) and hand held devices (HHDs) also co-channel interferers.
- An ENG truck transmitting on A10 would probably wipe out Open Range communications, if in an Open Range community, such as St. John, IN.



2. Globalstar's ATC License

6. In 2006, the Commission's International Bureau granted Globalstar's predecessor-in-interest authority to operate ATC base stations and dual-mode MSS/ATC mobile terminals using the cdma2000 air interface protocol, assigning the 1610-1615.5 MHz frequency band for ATC mobile-terminal transmissions and the 2487.5-2493 MHz band for ATC base-station transmissions.¹⁰ The Globalstar ATC frequency assignments were later expanded to 1610-1617.775 MHz for mobile-terminal transmissions and 2483.5-2495 MHz for base-station transmissions.¹¹

49. In issuing an STA to Open Range, we adopt certain conditions. We provide Open Range authority to operate only in the specific geographic markets listed in Appendix A. This list includes those markets in which Open Range either already is providing service or has projected that it will have launched by the end of this year.¹⁰⁷ If Open Range enters into an agreement for accessing alternative spectrum and presents a plan to transition off the 2483.5-2495 MHz frequencies, we will consider revisiting the terms of the STA to make any appropriate adjustments that would assist Open Range's customers in transitioning to the use of this alternative spectrum and associated equipment.

vs. 2,485–2,495 MHz observed

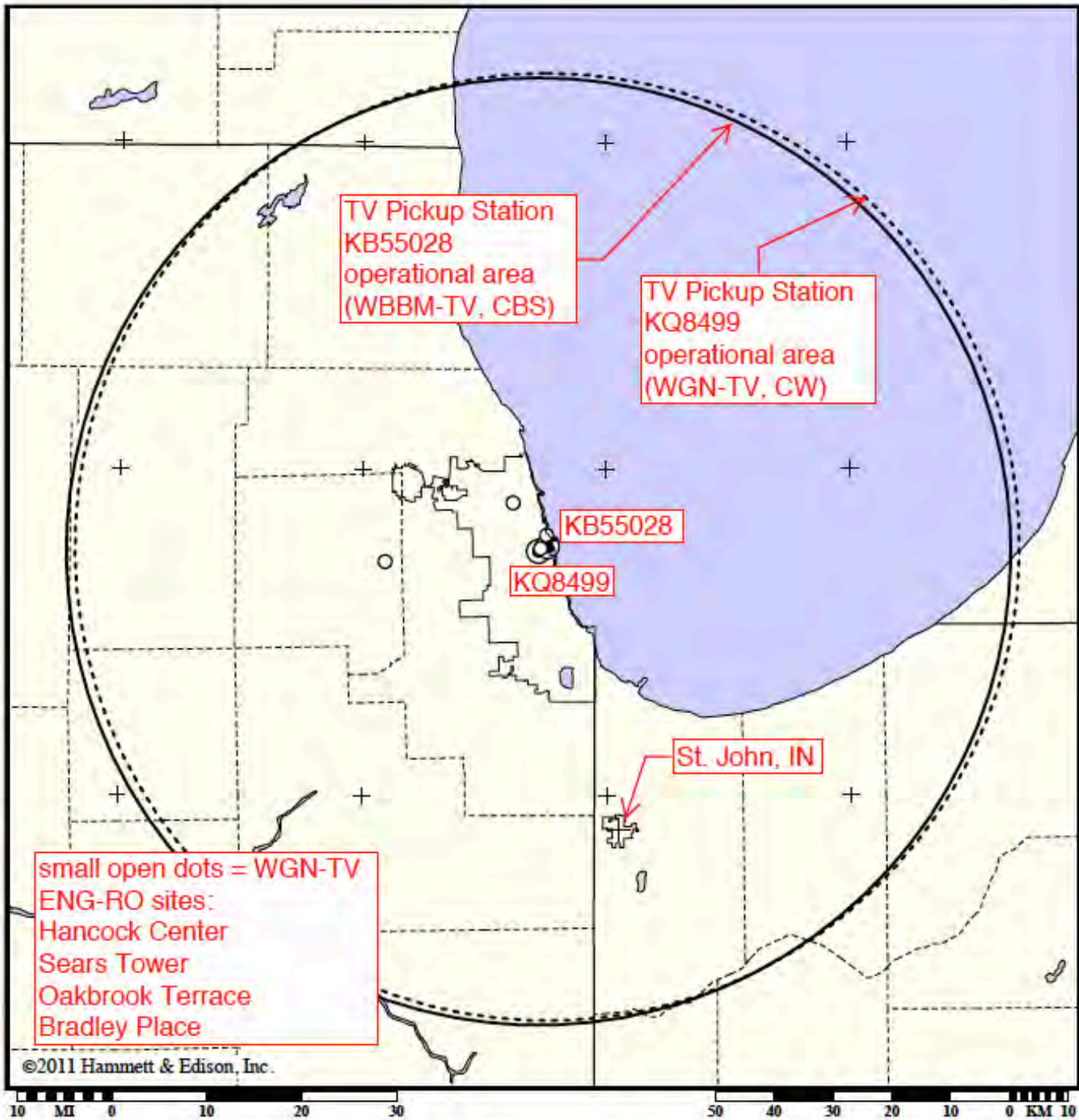
Federal Communications Commission

DA 10-1740

APPENDIX A

[REDACTED]





Attachment
Open Range Communications Inc.
Request for Extension of Temporary Authority
IBFS File No. SAT-STA-20110106-00003

The request by Open Range Communications Inc. for extension of Special Temporary Authority to continue providing terrestrial service in the 2483.5-2495 MHz frequency band for 60 days, from February 1, 2011 to April 1, 2011, IS GRANTED subject to the conditions prescribed in DA 10-1740 (rel. September 14, 2010) at Paragraph 54 and DA 10-1801 (rel. September 23, 2010) at Paragraph 5(b).

This action is taken pursuant to Section 0.261 of the Commission's rules on delegated authority, 47 C.F.R. § 0.261, and is effective immediately. Petitions for reconsideration under Section 1.106 or applications for review under Section 1.115 of the Commission's rules, 47 C.F.R. §§ 1.106 and 1.115, may be filed within 30 days of the date of the public notice announcing this action.



File # SAT-STA-20110106-00003
Call Sign _____ Grant Date 01/20/11
(or other identifier)
Term Dates
From 02/01/11 To 04/01/11
Approved: Stephen J. Duall

Stephen J. Duall
Chief, Satellite Policy Branch



54. IT IS FURTHER ORDERED that Open Range's request for an STA is GRANTED IN PART and DENIED IN PART, and that Open Range IS AUTHORIZED, for a period of 60 days, to provide terrestrial fixed and mobile service in the 2483.5-2495 MHz frequency band, subject to the following conditions:

(a) Open Range is authorized to provide service only in the markets identified in Appendix A, attached hereto;

(b) Open Range is not authorized to provide service in any additional markets;

(c) Operations shall be subject to the technical specifications and conditions identified in the *Globalstar/Open Range ATC Order*, including the conditions specified in paragraphs 35, 36, 41(b) and 41(c) of that Order; and

(d) Open Range shall not cause harmful interference to, and shall not claim protection from, any other lawfully operating station. In the event harmful interference results from operation pursuant to this authorization, Open Range shall cease operations immediately upon notification of such interference, and shall immediately inform the Federal Communications Commission, in writing, of the incident.

September 14, 2010, Globalstar/
Open Range ATC Order

September 23, 2010, DA 10-1801 Order

Federal Communications Commission

DA 10-1801

(a) the STA is extended until January 31, 2011; and

(b) Open Range shall submit a monthly filing to the Chiefs of the International Bureau, the Wireless Telecommunications Bureau, and the Office of Engineering and Technology, that provides a status report on its obtaining access to alternative spectrum and its plans for transitioning customers to the use of this alternative spectrum. Each monthly report shall be submitted on the first business day of the month, beginning on October 1, 2010.

EIBASS Web Site

www.eibass.org

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Engineers for the Integrity of Broadcast Auxiliary Services Spectrum



● MAIN MENU

- Home
- FCC & Other Filings
- About our members
- On The Lighter Side

● LINKS OF INTEREST

- The Society of Broadcast Engineers
- Sprint-Nextel Broadcast 2 Ghz Relocation Site
- Hammett & Edison, Inc

Our Mission



The mission of Engineers for the Integrity of Broadcast Auxiliary Services Spectrum is very simple: File comments with the F.C.C. on matters that impact the Broadcast Auxiliary Services spectrum. We feel that users of the BAS spectrum can best be represented effectively before the FCC by an organization with this as its one and only concern.



Biography

- 1 [Dane Ericksen - Co-Chairman](#)
- 2 [Richard Rudman - Co-Chairman](#)
- 3 [Kenneth J. Brown](#)
- 4 [Paul B. Christensen](#)
- 5 [Gerry Dalton](#)
- 6 [Howard Fine](#)
- 7 [Michael G. McCarthy](#)
- 8 [Michael S. Newman](#)
- 9 [William F. Ruck](#)
- 10 [Burt Weiner](#)
- 11 [Karl Voss](#)

s
cast
ite
Inc
base
base

IN MENU

Other Filings
for our members
the Lighter Side

KS OF INTEREST

Society of
Broadcast Engineers
t-Nextel Broadcast
z Relocation Site
mett & Edison, Inc.
SS Press Release
i-2010
SS Press Release
2010

EIBASS has developed comments and remarks concerning issues important to Broadcast Auxiliary users. Here is a list of documents that we have filed with the FCC, Congress, and/or other parties

- o [Relaxed OOB Requirements for BRS Stations](#) (1)
- o [\(S.2881\) FCC Technical Resource Enforcement Act](#) (3)
- o [MSS flexibility and grandfathered TV BAS Ch. A10](#) (1)
- o [ET 09-36 \(MMNS devices at 413-457 MHz\)](#) (4)
- o [IB Docket No. 04-286](#) (1)
- o [IB 02-364 \(MSS ATC/grandfathered TV BAS Ch A10\)](#) (1)
- o [WT 09-176 \(Use of Telex headsets by NPPs\)](#) (2)
- o [Request for DR on PCNs for minor-change apps](#) (2)
- o [WT Docket 07-121 \(WSI DRE microwave antennas\)](#) (2)
- o [Letter to Commission on NAD83 conversion](#) (1)
- o [Letter to FCC on Aural STL antenna standards](#) (1)
- o [WT Docket 99-87 \(Narrow banding of RPU channels\)](#) (1)
- o [WT 03-66 \(BRS Channel 1 vs grandfathered A10\)](#) (2)
- o [WT Dockets 08-166/08-167, Wireless Microphones](#) (2)
- o [SBE-DoD MOU Regarding the 2 GHz TV BAS Band](#) (1)
- o [2 GHz TV BAS transition deadline](#) (1)
- o [Clarity Media \("Trucker TV"\)](#) (2)
- o [ET 04-186 & DA 09-2479 White Space Devices](#) (1)
- o [RM-11605 POFS backhauls at 7,125-8,500 MHz](#) (1)
- o [ET 10-120/FDA-2010-N-0291, Health Care Devices](#) (1)
- o [WT Docket 10-153 \(BAS Flexibility\)](#) (2)

Questions?



HAMMETT & EDISON, INC.
CONSULTING ENGINEERS
BROADCAST & WIRELESS