



Maximizing Availability of the 700 MHz Band

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February 13, 2008

Full power analog TV stations are required by law to vacate the 700 MHz band no later than February 17, 2009. However, there is no wholesale requirement to clear low power TV stations (LPTV), TV translators, ad hoc auxiliary broadcast operations, or wireless microphones from the band. Under the FCC's rules, these uses have secondary status with respect to public safety.

An entity with secondary status must resolve interference it causes to primary users or discontinue operation. Public safety communications involve safety of life and therefore licensees cannot afford to wait until interference exists. Instead, a mechanism is needed to eliminate the potential for interference before it occurs. Public safety agencies need to notify LPTV and TV translator licensees of 700 MHz operations soon to be deployed. The notifications would be targeted to LPTV and TV translator stations on conflicting channels within interference range of pending public safety deployments and would advise these licensees of the need to move to an alternative channel.

On January 8 and 9, 2008, NPSTC representatives met with staff in the FCC Public Safety/Homeland Security and Media Bureaus to provide an understanding of this issue and obtain any guidance. FCC staff supported the NPSTC efforts and recommended that notifications for relevant LPTV and TV translator stations occur 9 to 12 months prior to actual operation of a 700 MHz public safety system. They advised that LPTV stations need this time to find a viable alternative channel and to obtain authorization from the FCC to use it. FCC staff also provided an up to date list of LPTV and Broadcast Auxiliary stations for use in our analysis.

Broadcasters are also allowed to use spectrum not occupied by TV for broadcast auxiliary operations. These operations, which occur on an ad hoc basis are coordinated through the Society of Broadcast Engineers (SBE). Therefore, SBE coordinators also need to be made aware of 700 MHz public safety systems so they can avoid concurring with any proposed auxiliary operations that would conflict with public safety systems. NPSTC has reached out to SBE.

NPSTC can provide assistance that will enable individual 700 MHz public safety licensees to notify LPTV and TV Translator licensees and the SBE with minimal resources and delay. This assistance includes education/awareness of the issue, notification templates for use by all 700 public safety licensees and analysis showing the existing LPTV and TV translator stations. Public safety licensees will need to provide information about their frequencies and planned coverage footprint to help determine which LPTV and TV Translator stations need to be notified. Public safety licensees would be responsible for making the actual notifications.

In addition to broadcast and auxiliary uses licensed "by rule," churches, schools, bands, businesses and others use wireless microphones on an unlicensed basis. Reputable wireless microphone manufacturers have designed new products that avoid the 700 MHz band, however, there is a significant imbedded base of wireless microphones already in the market and some operate at 700 MHz. These are low power and pose a limited interference potential but still must be addressed. NPSTC is having additional discussions with microphone manufacturers and the FCC to determine viable ways to address the wireless microphone issue.

A draft notification template is attached. In addition, additional analysis on this issue is available in a separate presentation entitled "Maximizing Availability of the 700 MHz Band 700 MHz LPTV and Translator Analysis."

**Sample Public Safety Notification Letter to LPTV, TV Translator or Other Licensed
Broadcast Auxiliary Station**

[Place on Public Safety Entity's Letterhead]

to: LPTV, Translator or BC Aux. Licensee
Call Sign and Name and Address of record.

Dear _____:

This letter is to notify you of the implementation of a 700 MHz band public safety mobile communications system to be operated in (insert operational area, e.g., state, region or locality) under license (Insert PS callsign). Under the Federal Communications Commission rules, your station is secondary to this primary public safety operation in the 700 MHz band. Therefore, Low power TV stations , TV translator stations or TV Auxiliary operations may not cause interference to this public safety system and must accept any interference they might receive from these operations.¹

We expect to begin operation of this Public Safety System on or about (insert planned date). Therefore, we are notifying you so that you can make arrangements to change channels or otherwise modify your facilities before that time, in accordance with authority you obtain from the Federal Communications Commission. Public safety communications involve the safety of life and therefore we cannot tolerate interference.

If you have questions concerning this notification, please contact (name) at (email and phone).

Sincerely,

(signed by appropriate public safety official)

¹ The FCC Report and Order in ET Docket No. 97-157 (FCC 97-421) for the "Reallocation of Television Channels 60-69, the 746-806 MHz Band," clearly defined Land Mobile operations as a "primary service" and that Low Power TV and TV translator operations are secondary to all primary services in this band (see paragraphs 14 and 25-31) The FCC Report and Order adopted 12/31/1997, can be found under "Digital Television (DTV) Regulatory Information" at <http://www.fcc.gov/dtv/>. In the Balanced Budget Act of 1997, Congress clearly recognized that all secondary broadcast services might be displaced by new primary services (see FCC 97-421 para. 29). Also, per section 74.23 of the FCC rules, secondary Broadcast Radio Services may not cause interference that jeopardizes safety of life or protection of property.

Maximizing Availability of the 700 MHz Band 700 MHz LPTV and Translator Analysis

David Eierman
Motorola, Inc.
February 1, 2008

Stations Potentially Affecting Consolidated **Narrowband** Blocks

	Secondary Low Power			Full Service	
	LPTV (LIC, CP OFF*)	Class A (LIC, CP OFF)	XLATOR (LIC, CP OFF)	Analog TV (LIC, CP)	DTV (LIC, CP)
Co-Ch 63	19 LIC 6 CP OFF	2 LIC	49 LIC	7	1
Co-Ch 64	24 LIC 3 CP OFF		35 LIC 2 CP OFF	10	1 **
Adj-Ch 65	20 LIC 3 CP OFF	1 LIC	30 LIC	5 ***	2
Co-Ch 68	12 LIC 6 CP OFF	3 LIC	17 LIC 2 CP OFF	13	1
Co-Ch 69	29 LIC 6 CP OFF		41 LIC	6	1
	<u>128 Total</u> 104 LIC 24 CP OFF	<u>6 Total</u> 6 LIC 0 CP OFF	<u>176 Total</u> 172 LIC 4 CP OFF	41 Total	6 Total

* CP OFF = station has construction permit, but is off-the-air (could be 3 year lag in constructing station or in deleting station from database)

** Does not include NEW Ch 64 DTV station proposed for Dover, NH

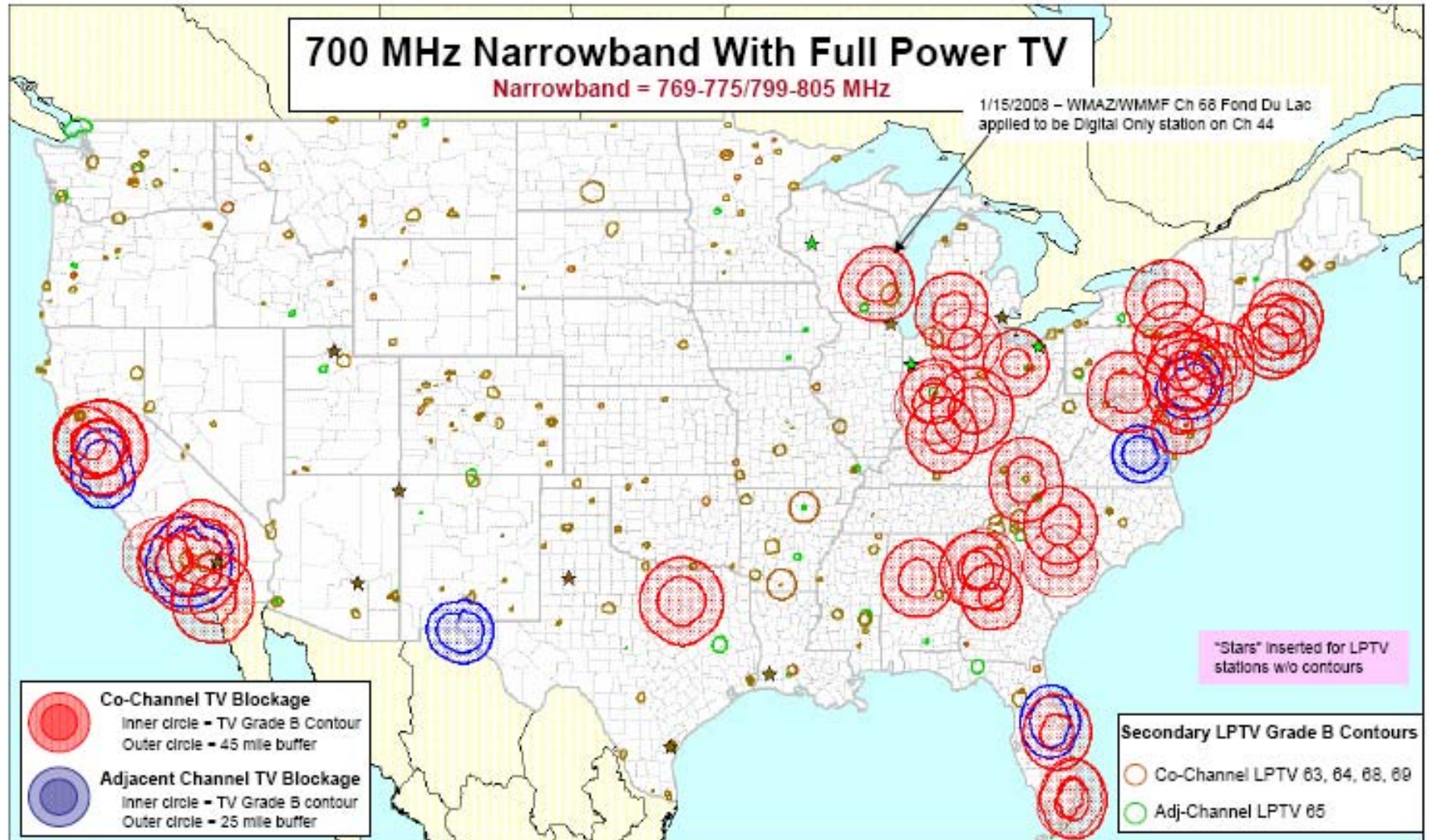
*** Does not include SILENT stations = WEDY-TV 65 New Haven, CT & WLJC-TV 65 Beattyville, KY

From FCC January 2008 database - Includes stations in Alaska, Hawaii, Puerto Rico
Ignored 62 & 67, since they are > 5 MHz away (might require adjacent channel waiver)

700 MHz Narrowband With Full Power TV

Narrowband = 769-775/799-805 MHz

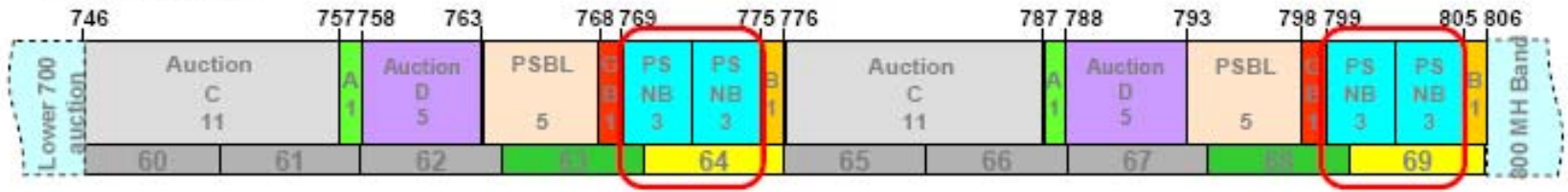
1/15/2008 - WMAZ/WMMF Ch 68 Fond Du Lac applied to be Digital Only station on Ch 44



- Co-Channel TV Blockage**
Inner circle - TV Grade B Contour
Outer circle - 45 mile buffer
- Adjacent Channel TV Blockage**
Inner circle - TV Grade B contour
Outer circle - 25 mile buffer

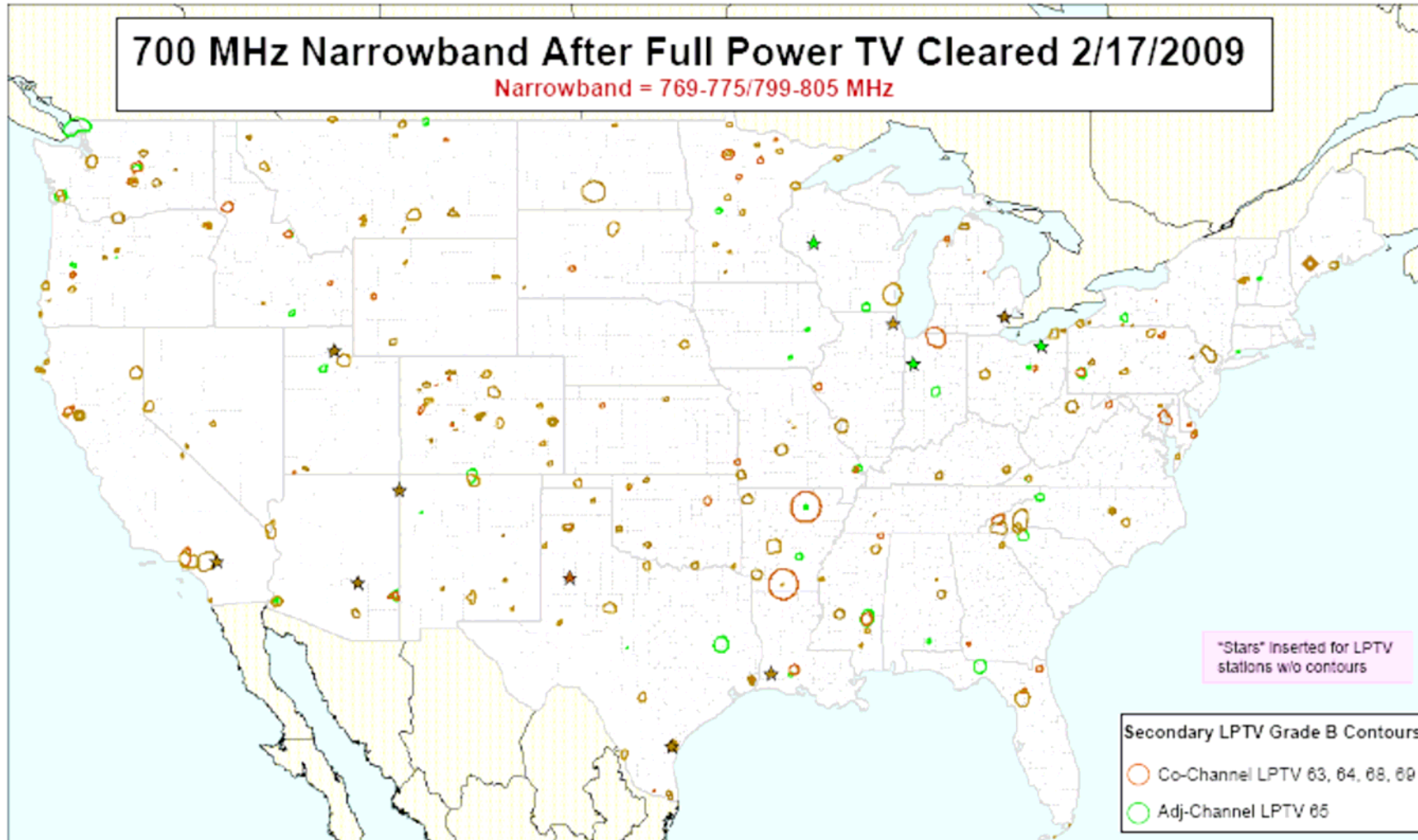
- Secondary LPTV Grade B Contours**
- Co-Channel LPTV 63, 64, 68, 69
 - Adj-Channel LPTV 65

700 Band Plan

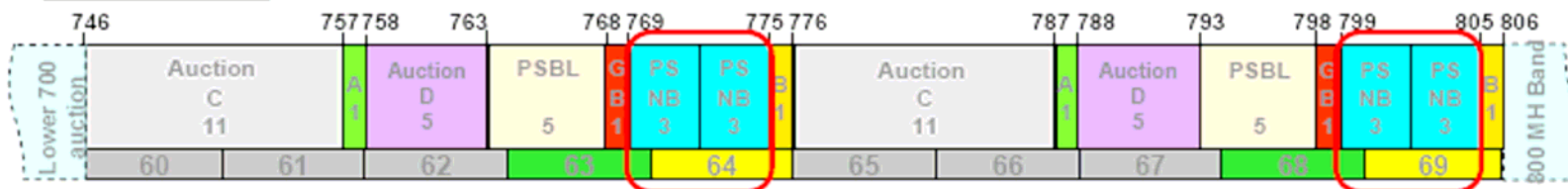


700 MHz Narrowband After Full Power TV Cleared 2/17/2009

Narrowband = 769-775/799-805 MHz



700 Band Plan



TV Stations Potentially Affecting PSBL Broadband Block

	Secondary Low Power			Full Service	
	LPTV (LIC, CP OFF*)	Class A (LIC, CP OFF)	XLATOR (LIC, CP OFF)	Analog TV (LIC, CP)	DTV (LIC, CP)
Co-/Adj-Ch 62***	19 LIC 2 CP OFF	2 LIC	30 LIC	12	3 **
Co-Ch 63	19 LIC 6 CP OFF	2 LIC	49 LIC	7	1
Adj-Ch 64	24 LIC 3 CP OFF		35 LIC	10	1
Co-/Adj-Ch 67***	22 LIC	3 LIC	33 LIC	9	1
Co-Ch 68	12 LIC 6 CP OFF	3 LIC	17 LIC 2 CP OFF	13	1
Adj-Ch 69	29 LIC 6 CP OFF		41 LIC	6	0
	<u>148 Total</u> 125 LIC 23 CP OFF	<u>10 Total</u> 10 LIC 0 CP OFF	<u>207 Total</u> 205 LIC 2 CP OFF	57 Total	7 Total

* CP OFF = station has construction permit, but is off-the-air (could be 3 year lag in constructing station or in deleting station from database)

** Does not include NEW Ch 64 DTV station proposed for Dover, NH

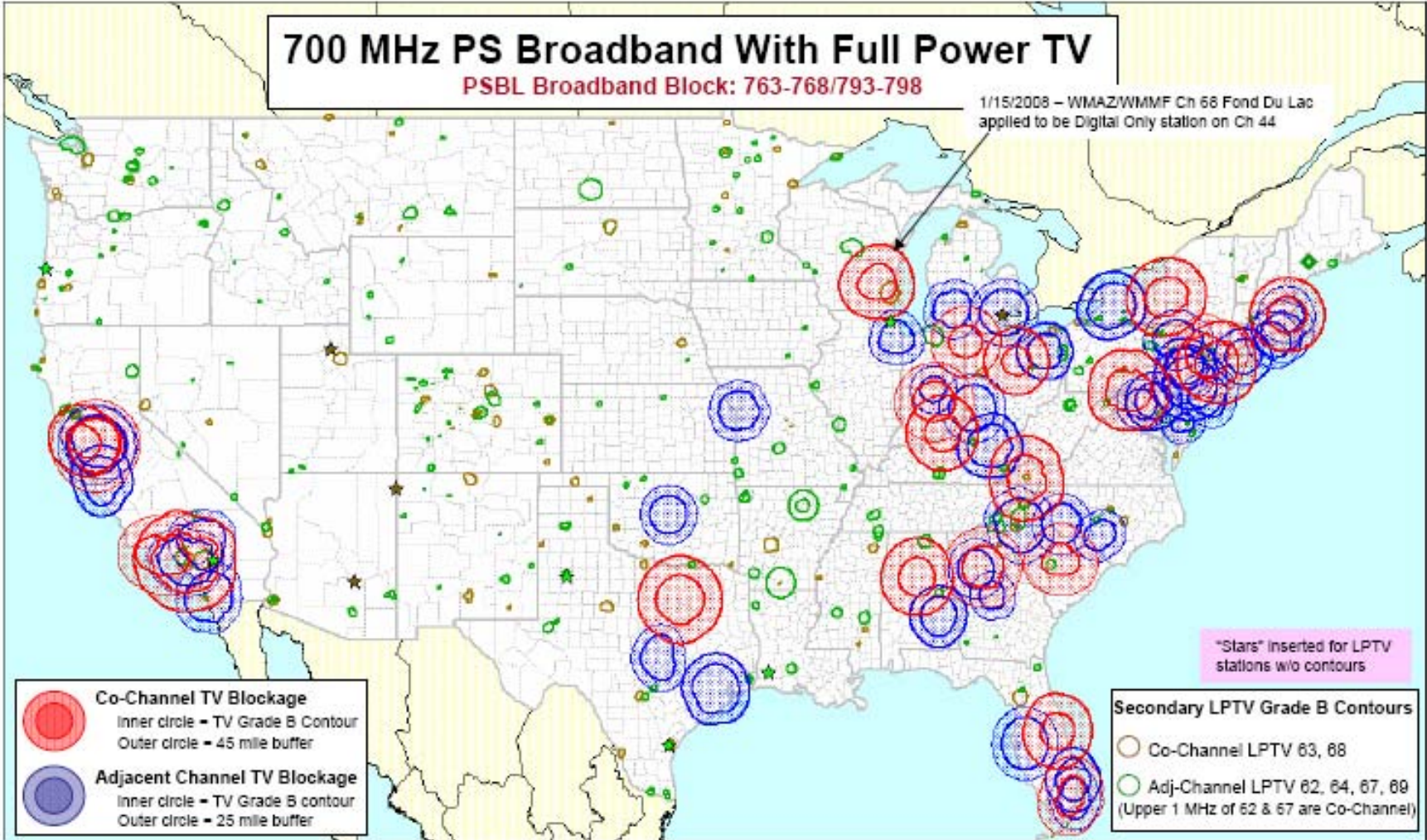
*** Upper 1 MHz of channels 62 & 67 is co-channel to PS BB Block.

From FCC January 2008 database - Includes stations in Alaska, Hawaii, Puerto Rico

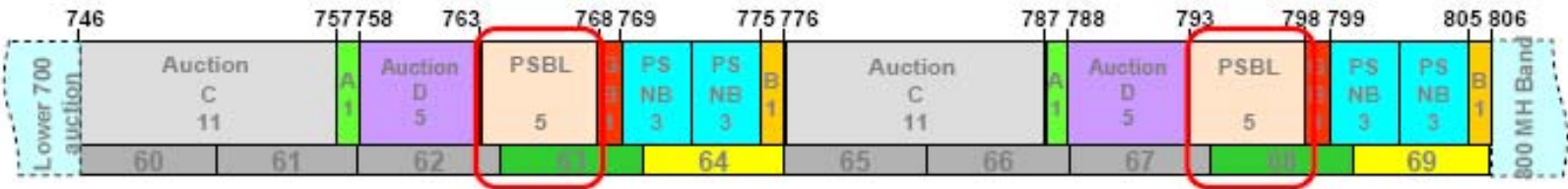
700 MHz PS Broadband With Full Power TV

PSBL Broadband Block: 763-768/793-798

1/15/2008 - WMAZ/WMMF Ch 68 Fond Du Lac applied to be Digital Only station on Ch 44

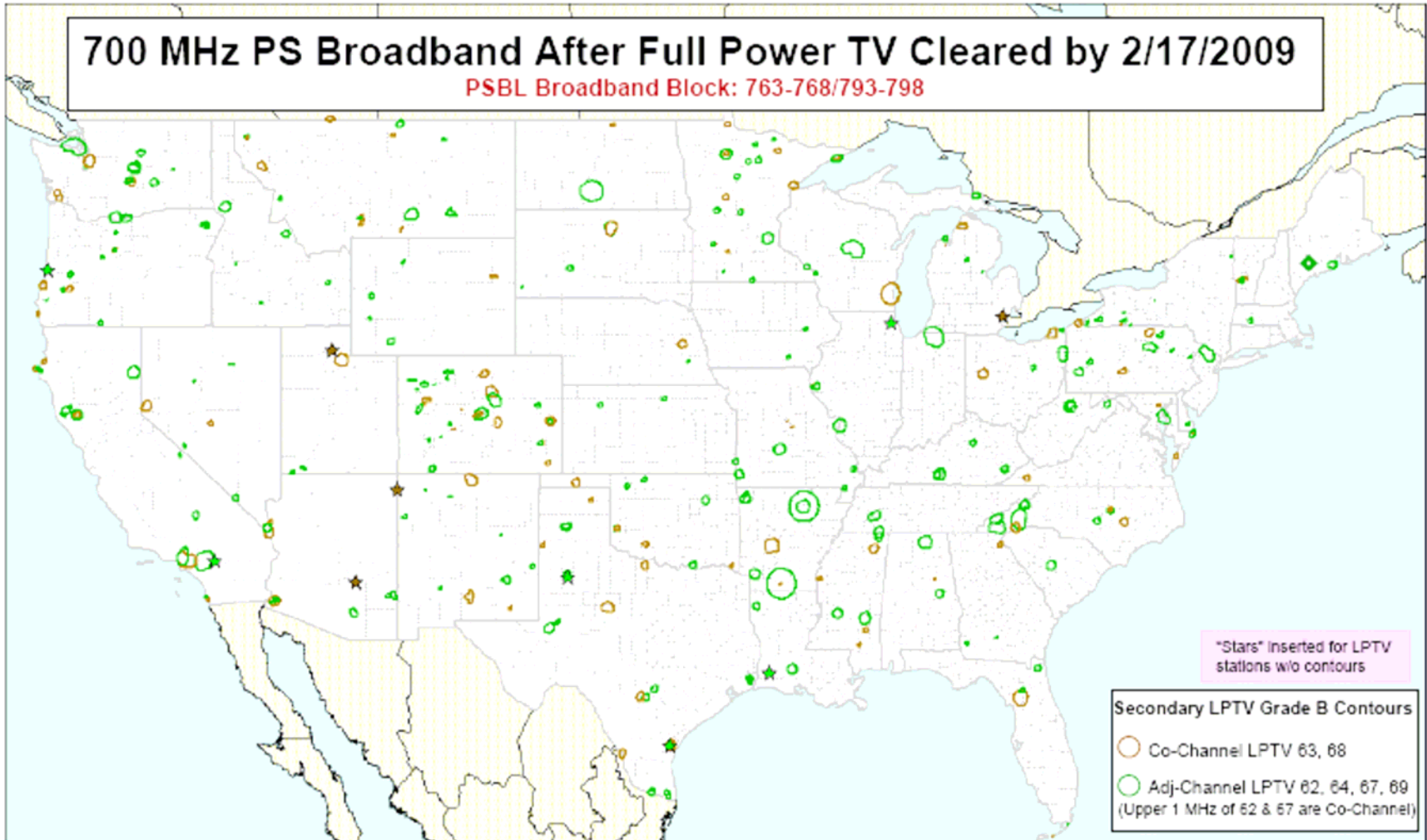


New 700 Band Plan



700 MHz PS Broadband After Full Power TV Cleared by 2/17/2009

PSBL Broadband Block: 763-768/793-798

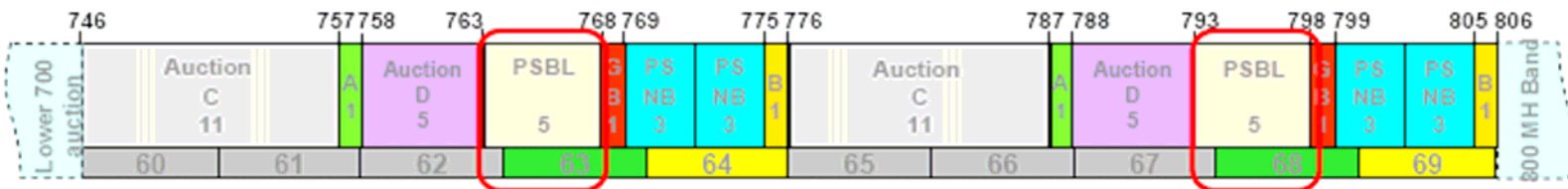


Stars inserted for LPTV stations w/o contours

Secondary LPTV Grade B Contours

- Co-Channel LPTV 63, 68
- Adj-Channel LPTV 62, 64, 67, 69 (Upper 1 MHz of 62 & 67 are Co-Channel)

New 700 Band Plan



TV Stations Potentially Affecting Broadband D Block

	Secondary Low Power			Full Service	
	LPTV (LIC, CP OFF*)	Class A (LIC, CP OFF)	XLATOR (LIC, CP OFF)	Analog TV (LIC, CP)	DTV (LIC, CP)
Adj-Ch 61	29 LIC 1 CP OFF	1 LIC	34 LIC	10	4
Co-Ch 62	19 LIC 2 CP OFF	2 LIC	30 LIC	12	3
Adj-Ch 63	19 LIC 6 CP OFF	2 LIC	49 LIC	7	1
Adj-Ch 66	18 LIC 2 CP OFF		31 LIC	11	2
Co-Ch 67	22 LIC	3 LIC	33 LIC	9	1
Adj-Ch 68	12 LIC 6 CP OFF	3 LIC	17 LIC 2 CP OFF	13	1
	<u>136 Total</u> 119 LIC 17 CP OFF	<u>11 Total</u> 11 LIC 0 CP OFF	<u>196 Total</u> 194 LIC 2 CP OFF	62 Total	12 Total

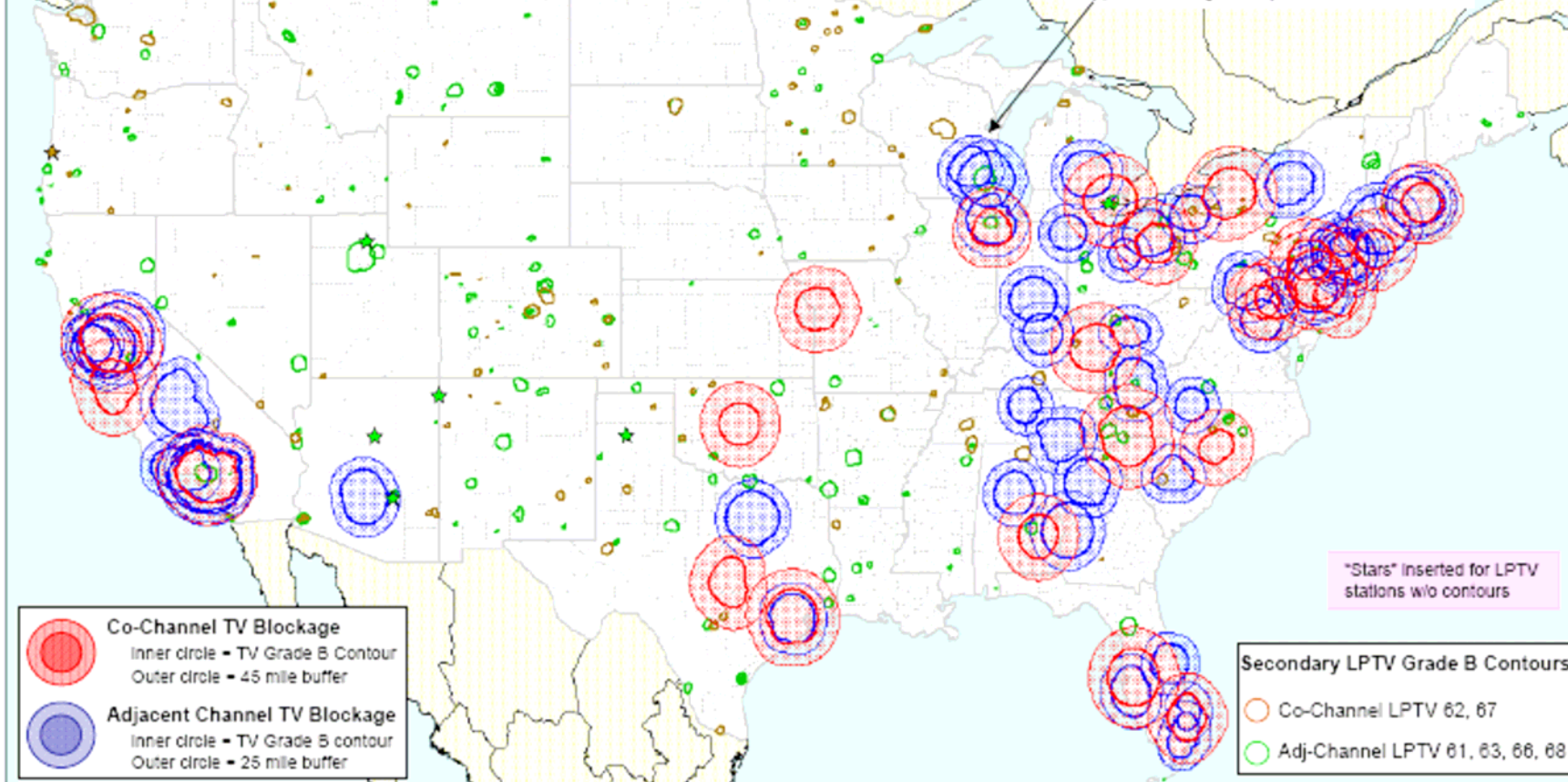
* CP OFF = station has construction permit, but is off-the-air (could be 3 year lag in constructing station or in deleting station from database)

From FCC January 2008 database - Includes stations in Alaska, Hawaii, Puerto Rico

700 MHz PS Broadband With Full Power TV

Broadband D Block: 758-763/788-793

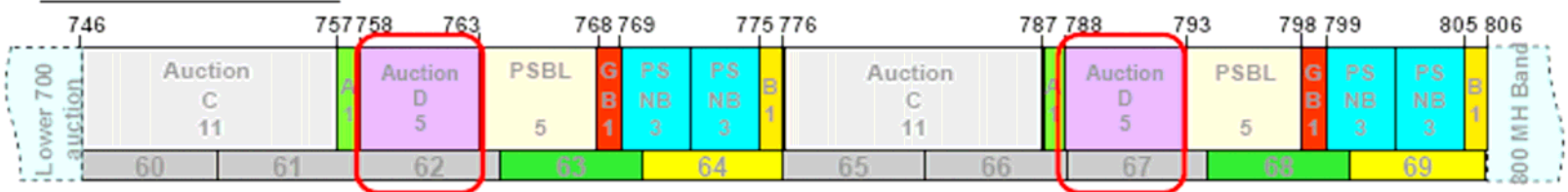
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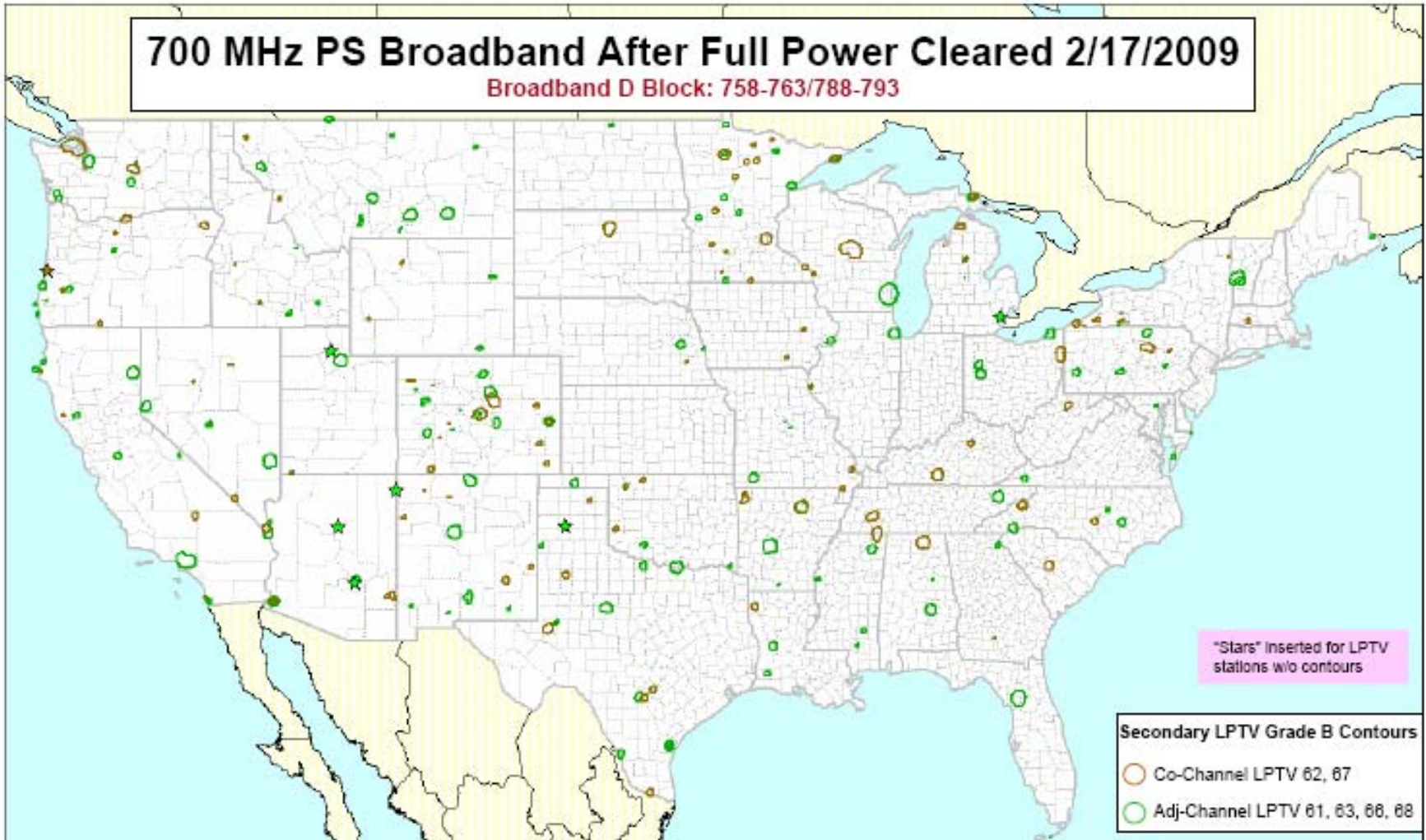
- Secondary LPTV Grade B Contours**
- Co-Channel LPTV 62, 67
 - Adj-Channel LPTV 61, 63, 66, 68

New 700 Band Plan

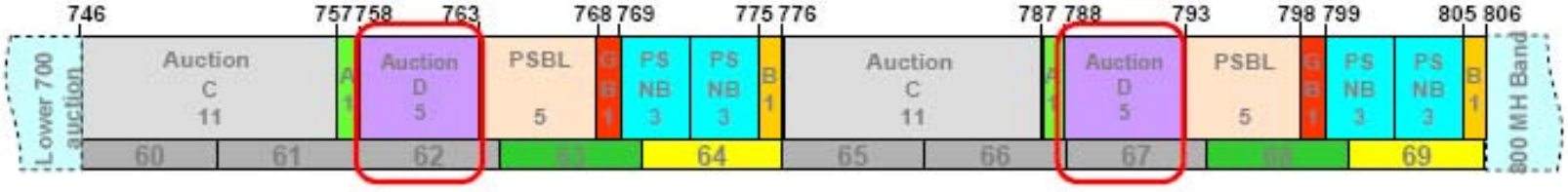


700 MHz PS Broadband After Full Power Cleared 2/17/2009

Broadband D Block: 758-763/788-793



New 700 Band Plan



Guidelines on the Area and Channels that Should be Considered for Potential LPTV & Broadcast Auxiliary Conflicts with 700 MHz Public Safety Systems

• Narrowband

- Co-channel 68 & 69, where broadcast transmissions would fall directly on base station receivers, search 100-125 miles radius around PS site.
- Co-channel 63 & 64, search 75-100 mile radius.
- Adjacent 62 & 67 – Check for stations within the PS service area. [Less likely to impact narrowband PS since these channels are over 5 MHz away.]

• PS Broadband

- Co-channel 62, 63, 67 & 68, where broadcast transmissions would fall directly on base station receivers, search 100-125 miles.
 - Only 1 MHz of channels 62 & 67 are co-channel to PS BB
- Adjacent 64 & 69 – search 50-75 mile radius.

LPTV Clearing

Where do I find information on LPTV and Translator stations?

- Local telephone listings, or web sites, with the local business address and station info.
- Broadcast stations use FCC Media Bureau's CDBS, an electronic database similar to ULS. <http://www.fcc.gov/mb/cdbs.html>
- Start at FCC's Media Bureau's TV Query Page. <http://www.fcc.gov/mb/video/tvq.html>
Search by service (LPTV, translator, booster, TV, DTV), status, state, channel, radius around coordinates, etc. Output is list of stations with links to station's technical and business data.

Service Types

- TX Low Power TV stations which should include Translators (TT),
- CA a few Class A TV stations,
- TB a few TV Boosters (should be within the Grade B contour of a full service station),
- TS Broadcast Auxiliary stations,
- LD a few Digital Low Power stations, or
- DX Digital Auxiliary stations.

- Some additional Part 74 Broadcast Auxiliary Services can be found in FCC ULS. "Advanced License Search" can be done for licenses that overlap 763-805 MHz (~200 listings) at: <http://wireless2.fcc.gov/ULsApp/ULsSearch/searchLicense.jsp>

ULS Service Group

- LP Broadcast Auxiliary Low Power (Wireless Microphones) (155)
- TI TV Intercity Relay (9)
- TS TV Studio Link Transmitter (21)
- TT TV Translator Relay (11)
- AB Aural Microwave Booster (1)
- AS Aural Studio Transmitter Link (1)