
Project	IEEE P802.16 Broadband Wireless Access Working Group		
Title	Proposed LMDS/LMCS Bandplan for Systems in the United States and Canada		
Date Submitted	17 June 1999		
Source	G. Jack Garrison Wavtrace, Inc. 1545 134 th Avenue NE Bellevue, WA 98005	Voice: (604) 524-6980 Fax: (604) 524-6980 E-mail: gjg@bc.sympatico.ca	
Re:	Call for contributions on coexistence posted on the IEEE 802.16-web site, June 1999. Specifically, this contribution proposes a bandplan that can be employed as a <i>reference</i> point for subsequent examination of coexistence issues.		
Abstract	This contribution proposes a <i>reference</i> bandplan that balances the spectrum assignments between LMDS and LMCS. Spectrum aggregation and disaggregation possibilities are identified that can impact the standards practice process. The significance of the license holder to the standards practice is identified.		
Purpose	It is proposed that 802.16 establish a <i>reference</i> bandplan so that examination of coexistence issues may progress.		
Notice	This document has been prepared to assist the IEEE P802.16. It is offered as a basis for discussion and is not binding on the contributing individual(s) or organization(s). The material in this document is subject to change in form and content after further study. The contributor(s) reserve(s) the right to add, amend or withdraw material contained herein.		
Release	The contributor acknowledges and accepts that this contribution may be made publicly available by 802.16.		

***PROPOSED LMDS/LMCS BANDPLAN FOR SYSTEMS IN
THE UNITED STATES AND CANADA***

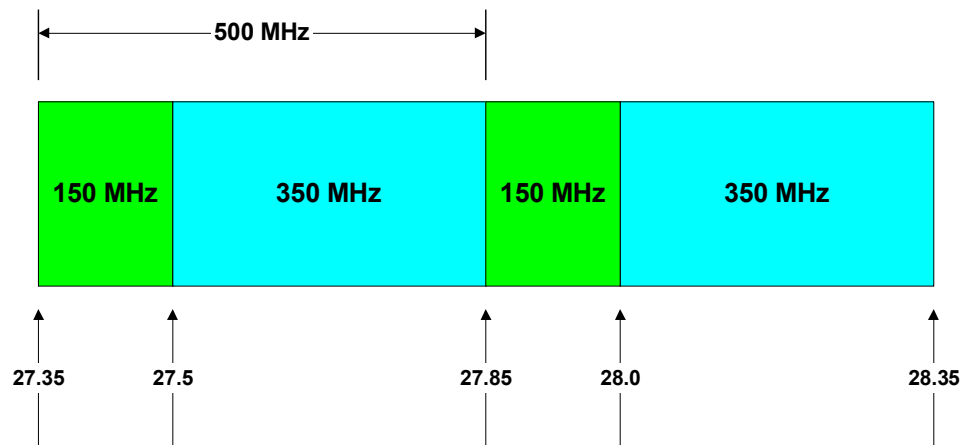
G. Jack Garrison

WAVTRACE, INC.

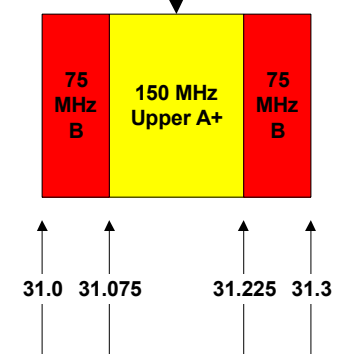
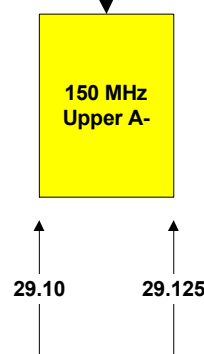
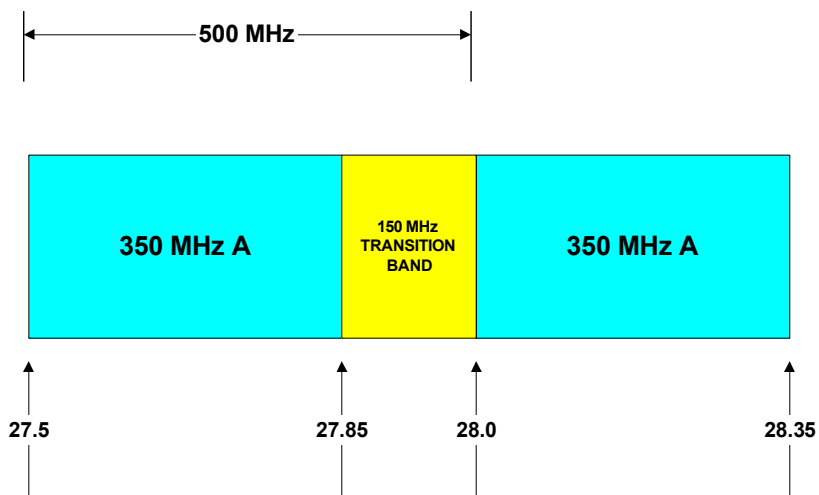
BELLEVUE, WA

REFERENCE BANDPLAN

- **MODIFICATION TO BOSCH TELECOM SUBMISSION**
 - **BALANCES CANADIAN FREQUENCY ASSIGNMENTS**
- **NO EXPLICIT TRANSMISSION DIRECTION SPECIFIED**
 - **NOT REQUIRED FOR TDD**
- **NO EXPLICIT BLOCK SIZE SPECIFIED**
 - **RECOMMENDED BLOCK SIZE HAS NOT BEEN DEBATED**
 - ***REFERENCE* BLOCK SIZE PROPOSED TO EXAMINE COEXISTENCE ISSUES**
 - **CAVEAT: - LICENCE HOLDER HAS FINAL DECISION**



Proposed LMCS
reference Bandplan
Canada



Proposed LMDS
reference Bandplan
United States

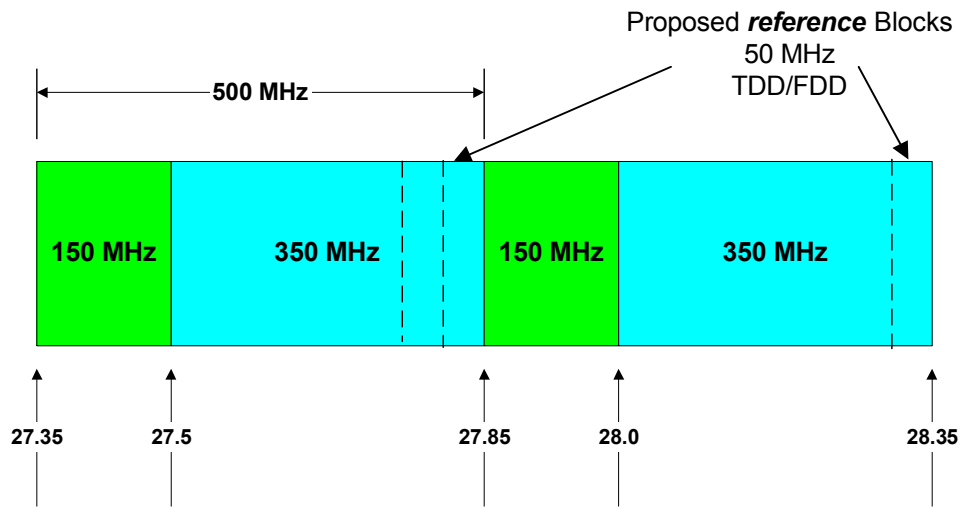
Proposed *reference* LMDS and LMCS Bandplans

REFERENCE FREQUENCY BLOCKS

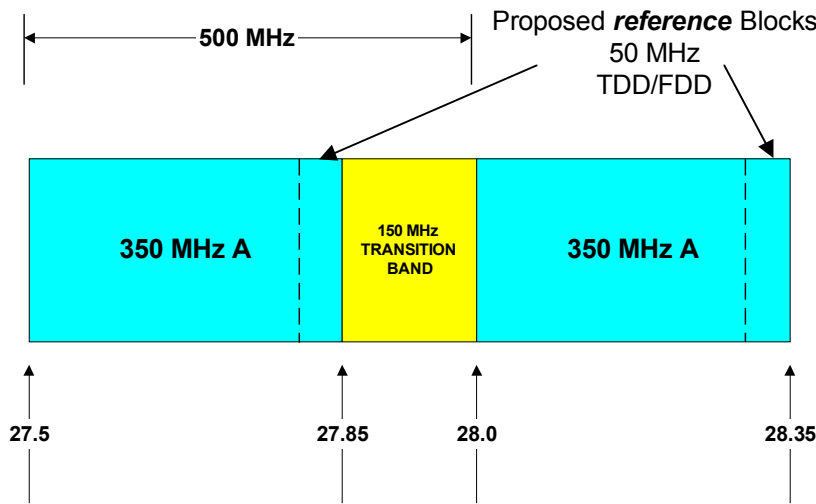
- **REQUIRED TO QUANTIFY COEXISTENCE ISSUES**
 - **50 MHz *REFERENCE* BLOCKS PROPOSED (7-50 MHz Blocks per 350 MHz)**
 - **COMMONLY EMPLOYED BY MANUFACTURERS (38 GHz) – SUITABLE VALUE FOR CARRIER CHANNELIZATION**
 - **NO PAIRED REQUIREMENT FOR TDD**

- **CHANNELS PER BLOCK NOT SPECIFIED**
 - **EACH MANUFACTURER OFFERS DIFFERENT CONFIGURATIONS**
ASYMMETRIC FDD REQUIRES A DIFFERENT GO/RETURN CHANNEL BLOCK SIZE
 - **NO CHANNEL BLOCK ISSUES FOR ASYMMETRIC TDD**
 - **NO SYNCHRONIZATION REQUIREMENT FOR TDD**
 - **ADJACENT CHANNEL INTERFERENCE (ACI) ISSUE – PROPORTIONAL TO CXR BW**

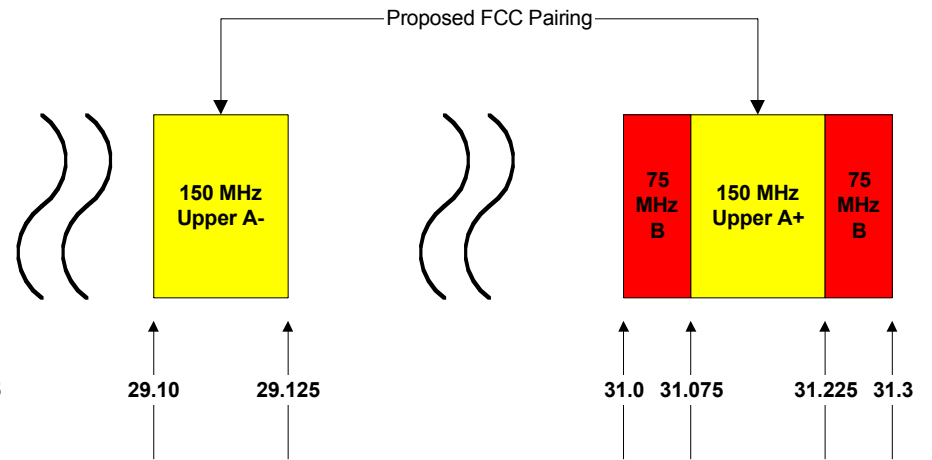
- **NO EXPLICIT ACCESS TECHNIQUE SPECIFIED**
 - **ASSUME TDD and FDD AS BOTH HAVE INDEPENDENT/JOINT COEXISTENCE ISSUES**



Proposed LMCS
reference Bandplan
Canada



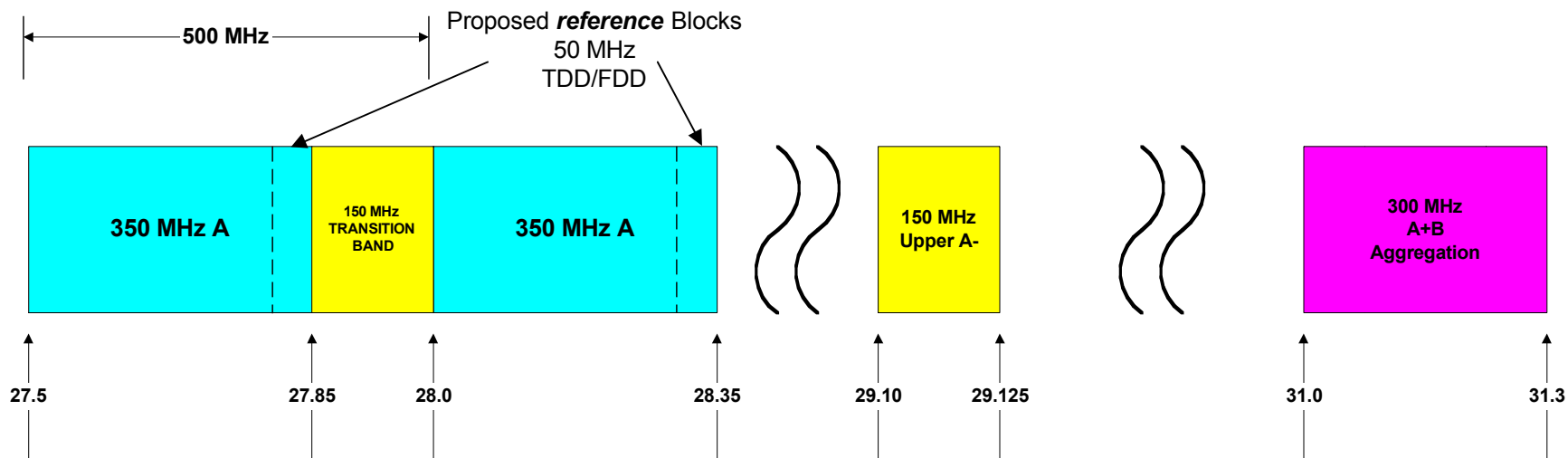
Proposed *reference* LMDS and LMCS Bandplan Blocks



Proposed LMDS
reference Bandplan
United States

SPECTRUM AGGREGATION EXAMPLE

- **LICENCE HOLDER DISCRETION**
 - **AGGREGATION OF UPPER A+ BLOCK WITH B BLOCK**
 - **AVAILABLE OPTION TO A+B OR B BLOCK LICENCE HOLDER (BUY, SELL OR TRADE)**
 - **B BLOCK IS A TIGHT GO/RETURN SPACING FOR FDD**
 - **NON ISSUE FOR TDD**
- **AGGREGATION OF LOWER 850 MHz ALSO POSSIBLE**
 - **WIDER BANDWIDTH CARRIERS**
- **IMPACTS STANDARD PRACTICE PROPOSALS**
- **ORPHANS UPPER A- BLOCK WITHOUT REMEDIAL PAIRING**



Upper A+ and B Block Aggregation

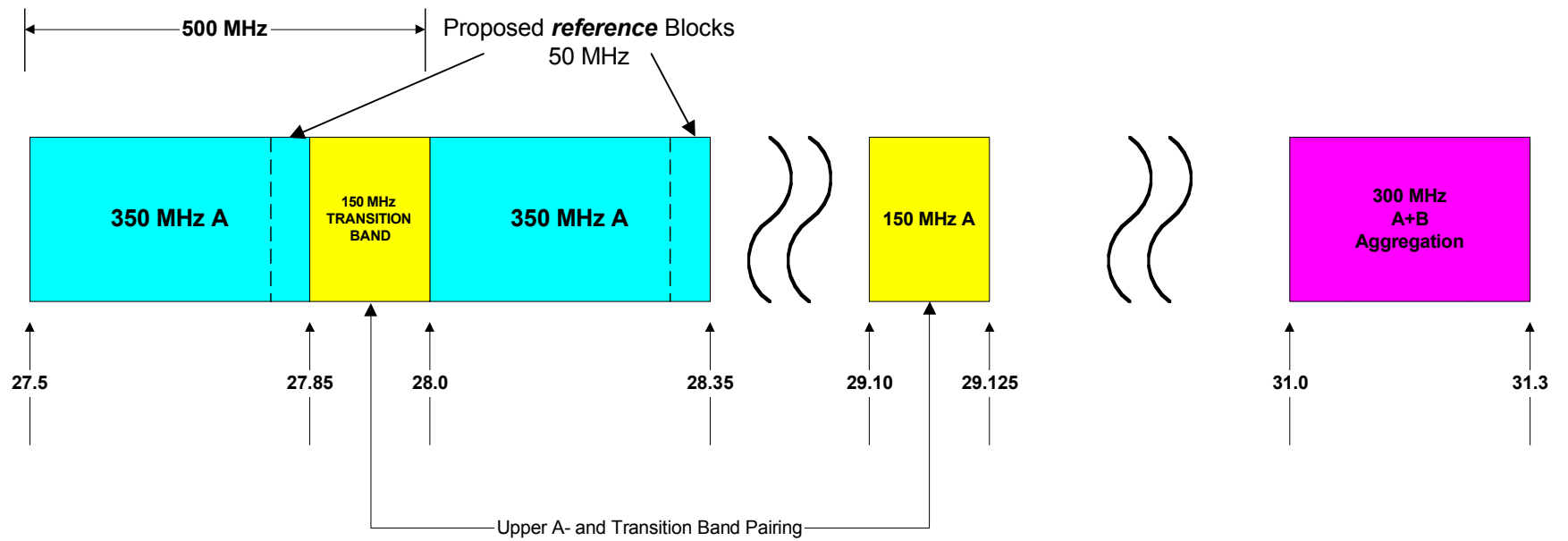
PROPOSED A- ORPHAN RESOLUTION

- **LICENCE HOLDER DISCRETION**
 - **AVAILABLE OPTION TO AN A BLOCK LICENCE HOLDER**

- **EXPLICIT TRANSMISSION DIRECTION REQUIRED**
 - **FCC RESTRICTIONS ON A- USAGE**

- **NO EXPLICIT ACCESS TECHNIQUE SPECIFIED**
 - **COEXISTENCE ISSUES HAVE NOT BEEN DEBATED OR QUANTIFIED**

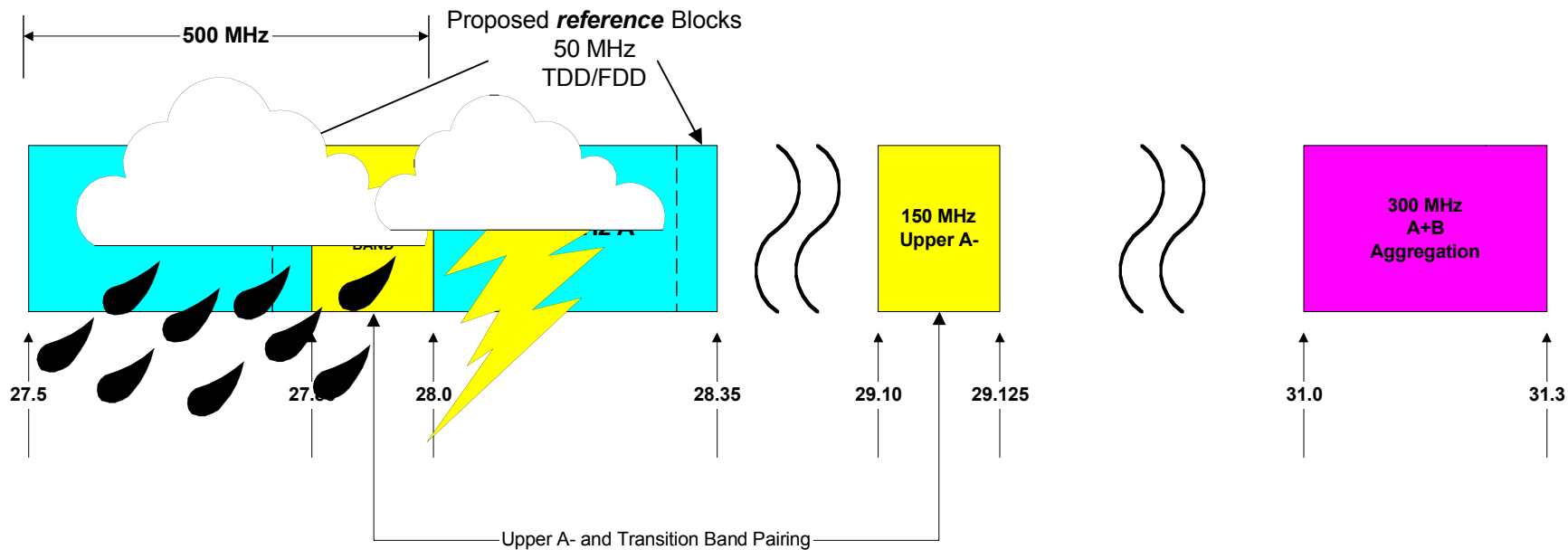
- **IMPACTS STANDARD PRACTICE PROPOSALS**
 - **LICENCE HOLDER HAS FINAL DECISION**



Upper A- and Transition Band Pairing

SPECTRUM DISAGGREGATION

- **LICENCE HOLDER DISCRETION**
 - **AVAILABLE OPTION TO A BLOCK LICENCE HOLDER**
- **PAIRED DISAGGREGATION NOT REQUIRED**
 - **AVAILABLE OPTION TO AN A BLOCK LICENCE HOLDER**
- **BLOCK SIZE DISAGGREGATION NOT REQUIRED**
 - **LIMITED IMPACT ON TDD**
- **SERIOUSLY IMPACTS STANDARD PRACTICE PROPOSALS**
 - **MAJOR STORMS AND RAIN FADES THROUGH THRESHOLD TO BE EXPECTED RELATIVE TO STANDARDS PRACTICE PROPOSALS**



Impact of Disaggregation on Standards Practice Process

SUMMARY

- ***REFERENCE* BALANCED LMDS/LMCS BANDPLAN PROPOSED**
- ***REFERENCE* BLOCK SIZE PROPOSED**
- **CHANNELS/BLOCK ACI ISSUE IDENTIFIED**
- **AGGREGATION AND DISAGGREGATION ISSUES IDENTIFIED**
- **SIGNIFICANCE AND IMPORTANCE OF THE LICENCE HOLDER IDENTIFIED**