Notice of proposed Rulemaking Digital Translators

B. W. St. Clair, 11/03

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

In the Matter of	)	
	)	
Amendment of Parts 73 and 74 of the	)	
Commission's Rules to Establish Rules for Digital	)	MB Docket No. 03-185
Low Power Television, Television Translator, and	)	
Television Booster Stations and to Amend Rules	)	
for Digital Class A Television Stations	)	

NOTICE OF PROPOSED RULE MAKING

Adopted: August 6, 2003 **Released: August 29, 2003**

Comment Date: [60 days after publication in the Federal Register]
Reply Comment Date: [90 days after publication in the Federal Register]

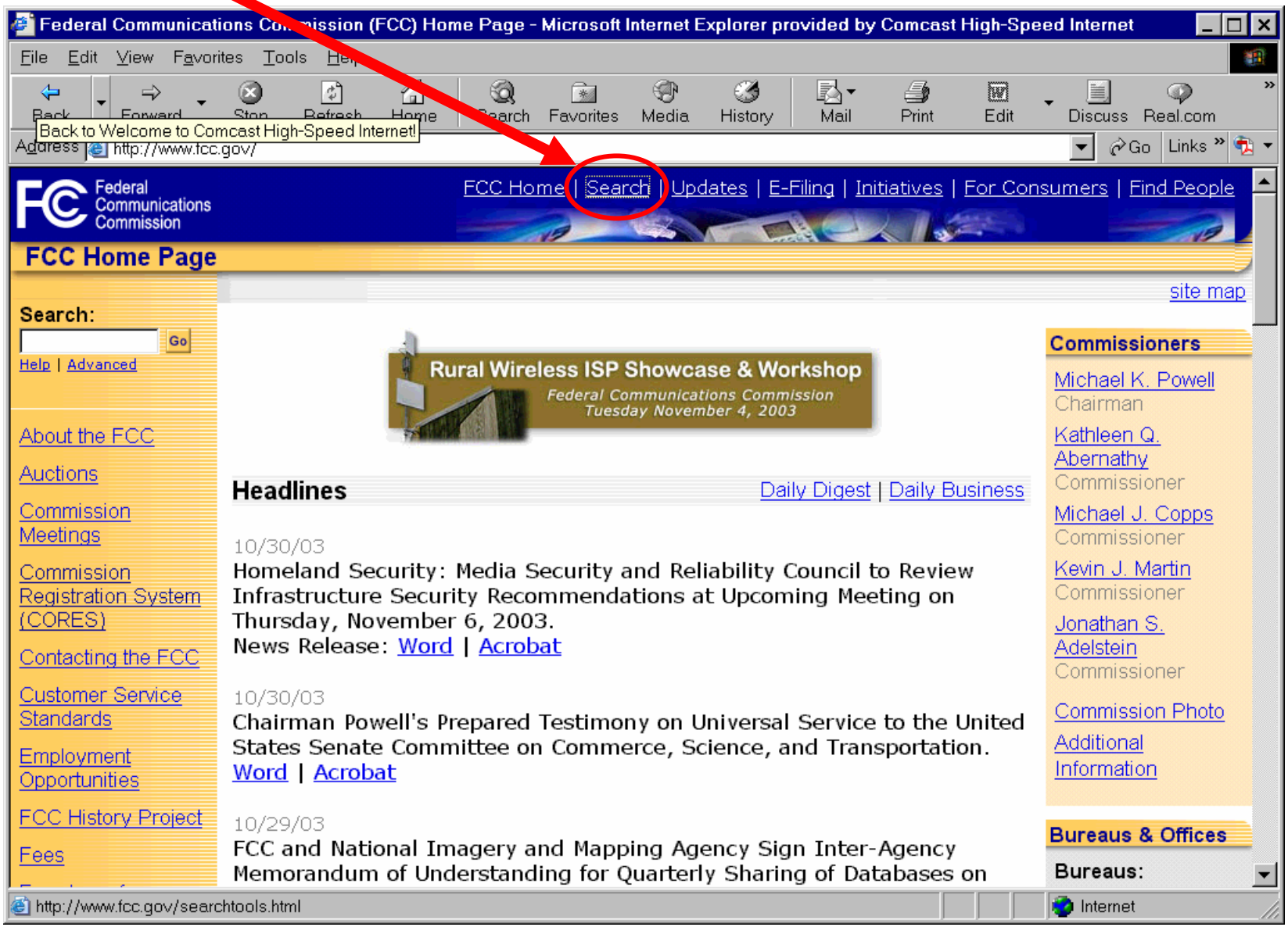
By the Commission:

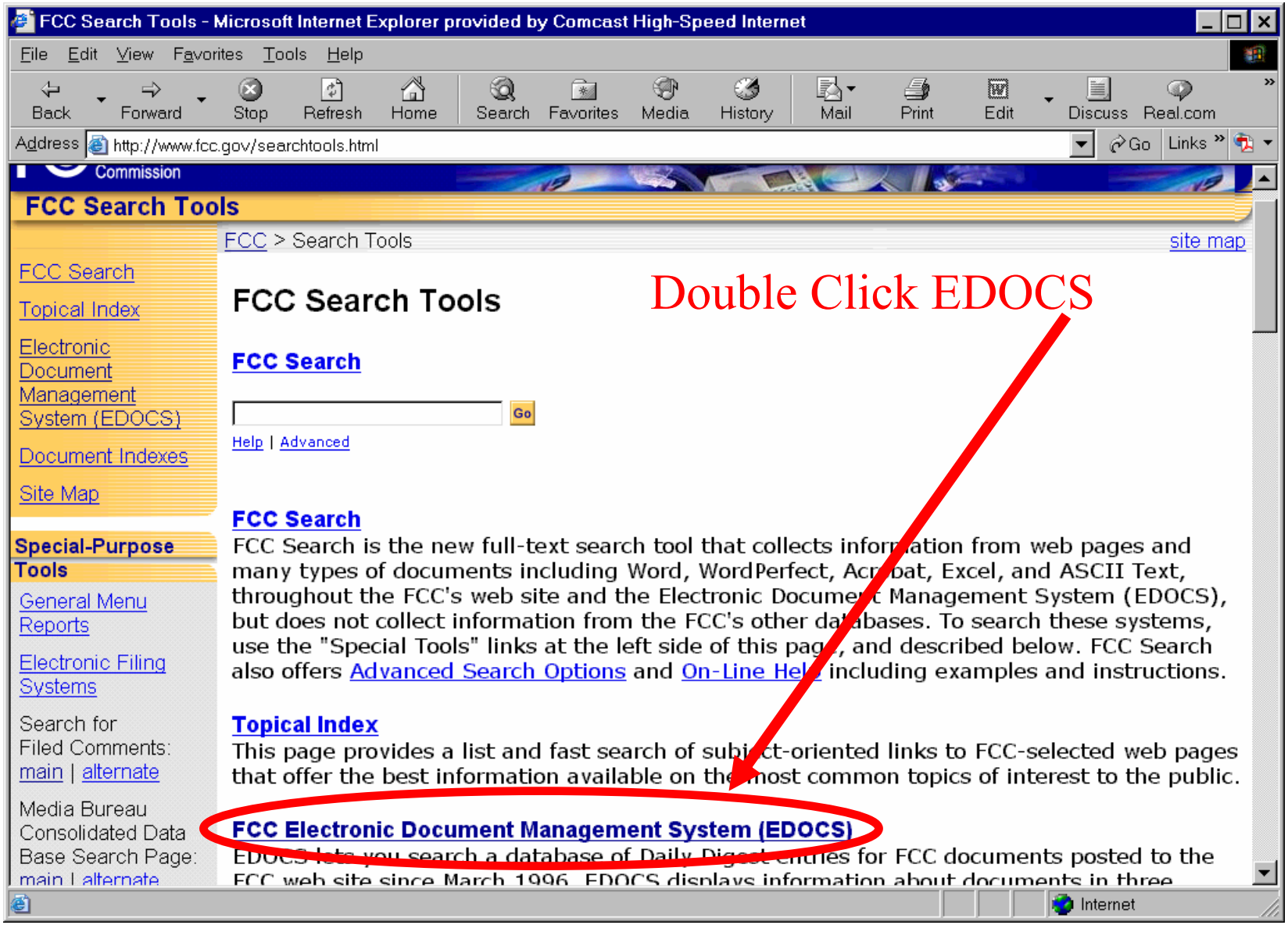
TABLE OF CONTENTS

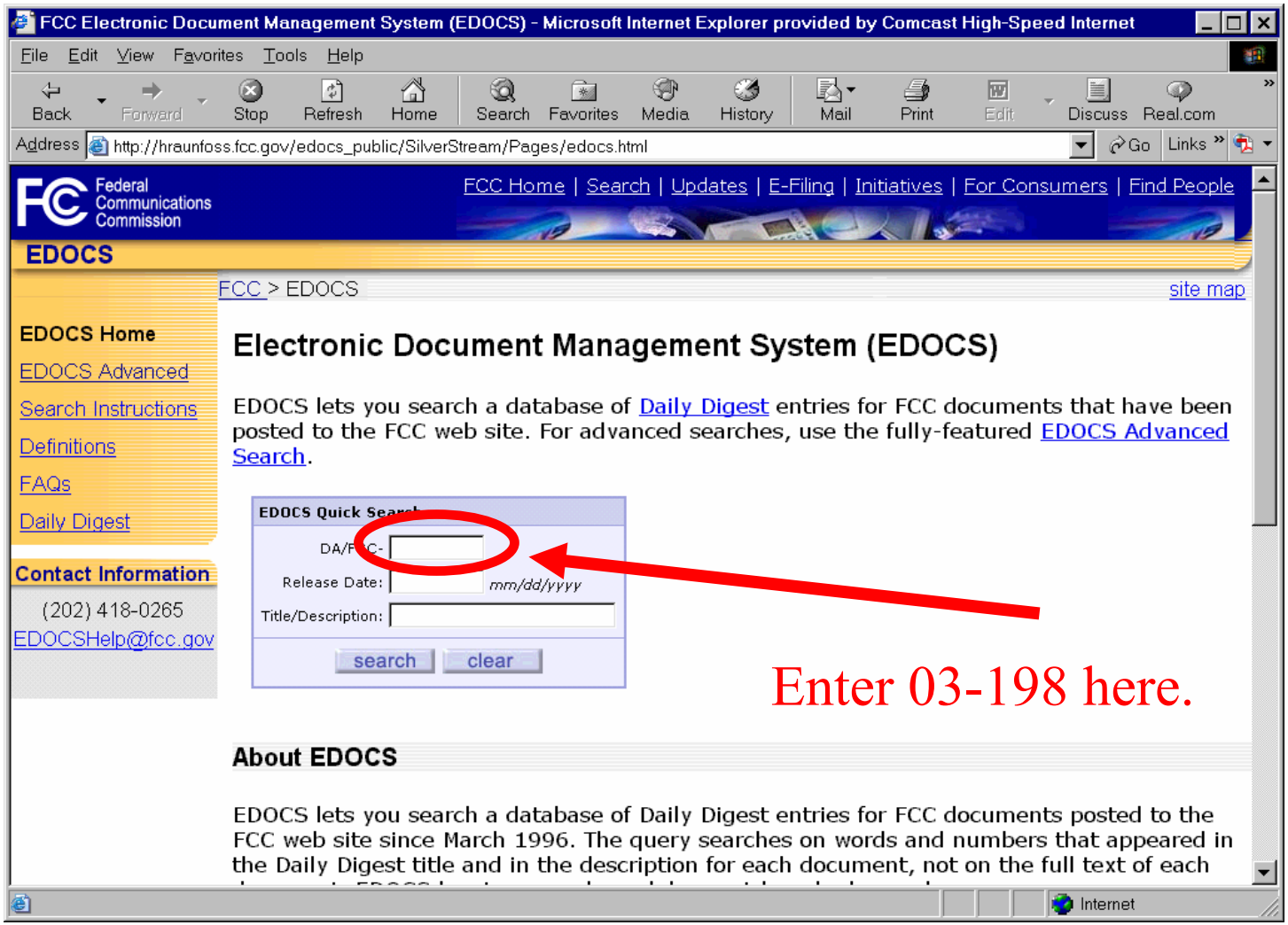
Paragraph

I. INTRODUCTION 1
II. BACKGROUND 3
III. ISSUE ANALYSIS 9
A. Permissible Service 9
1. Digital Television Translator Stations 9
2. Digital Low Power Television Stations 18
B. Channel Assignments 26
C. Interference Protection 31
1. Protected Digital Translator and LPTV Service Contour 31
2. Protection Standards and Methodology 34
a. Broadcast Station Protection 34
b. Protection of Land Mobile Radio and Other Primary Services 58
D. Other Technical Issues 61
1. Power Limits 61
2. Out-of-Channel Emission Limits 62
3. Other Transmission System Facilities Issues 71
4. Modification of Transmission Systems 80
E. Station Operation 82
1. Time of Operation 82
2. Unattended Operation 84
3. Station Identification 85
F. Authorization of Digital LPTV and TV Translator Stations 91
G. Digital Booster Stations 118

Double Click Search @ the FCC Home Page



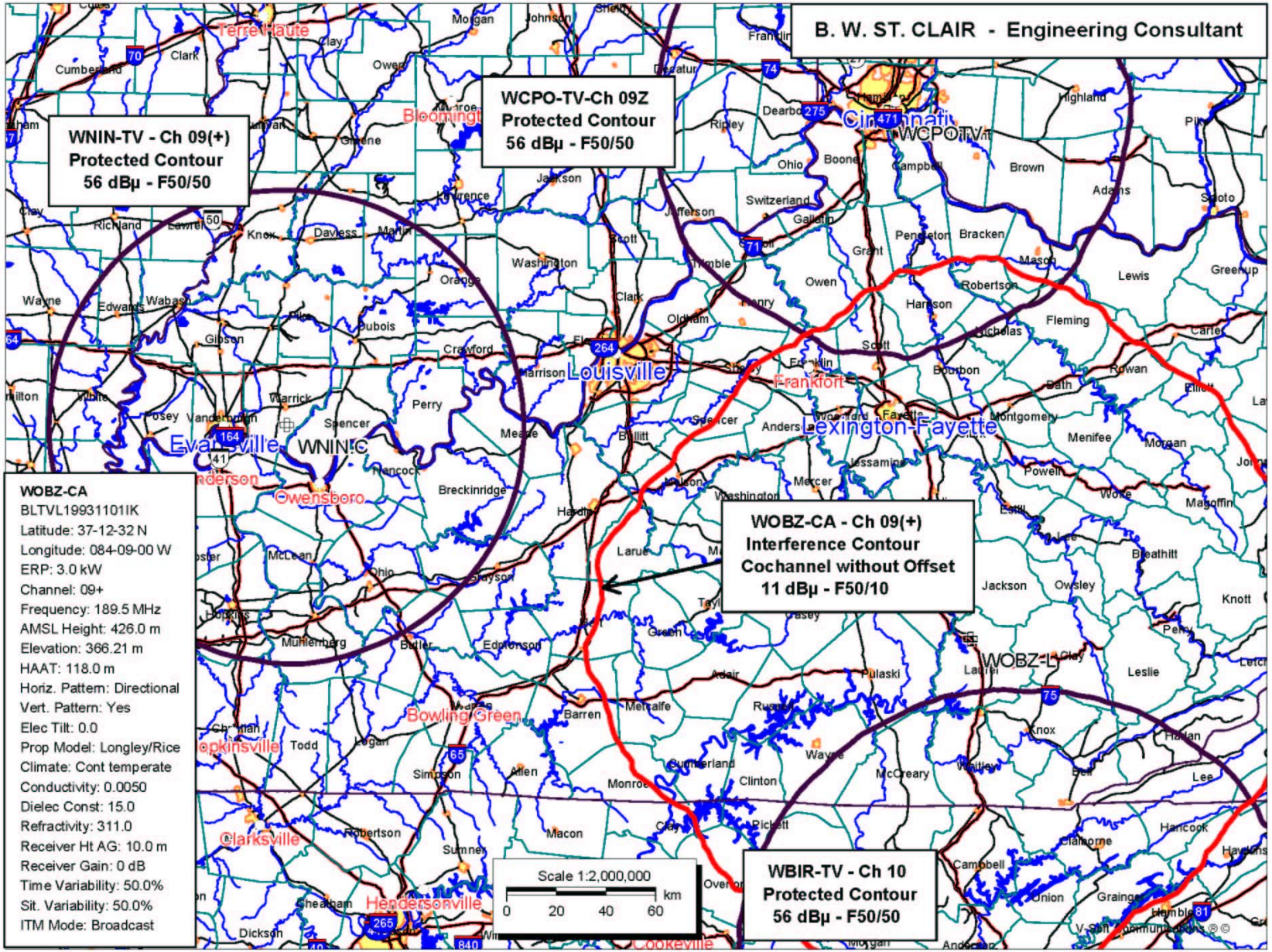

FCC Search Tools - Microsoft Internet Explorer provided by Comcast High-Speed Internet
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites Media History Mail Print Edit Discuss Real.com
Address http://www.fcc.gov/searchtools.html
Go Links
Commission
FCC Search Tools
FCC > Search Tools
site map
FCC Search
Topical Index
Electronic Document Management System (EDOCS)
Document Indexes
Site Map
Special-Purpose Tools
General Menu Reports
Electronic Filing Systems
Search for Filed Comments: main | alternate
Media Bureau Consolidated Data Base Search Page: main | alternate
FCC Search Tools
Double Click EDOCS
FCC Search
Go
Help | Advanced
FCC Search
FCC Search is the new full-text search tool that collects information from web pages and many types of documents including Word, WordPerfect, Acrobat, Excel, and ASCII Text, throughout the FCC's web site and the Electronic Document Management System (EDOCS), but does not collect information from the FCC's other databases. To search these systems, use the "Special Tools" links at the left side of this page, and described below. FCC Search also offers Advanced Search Options and On-Line Help including examples and instructions.
Topical Index
This page provides a list and fast search of subject-oriented links to FCC-selected web pages that offer the best information available on the most common topics of interest to the public.
FCC Electronic Document Management System (EDOCS)
EDOCS lets you search a database of Daily Digest entries for FCC documents posted to the FCC web site since March 1996. EDOCS displays information about documents in three
Internet



http://hraunfoss.fcc.gov/edocs_public/SilverStream/Pages/edocs.html

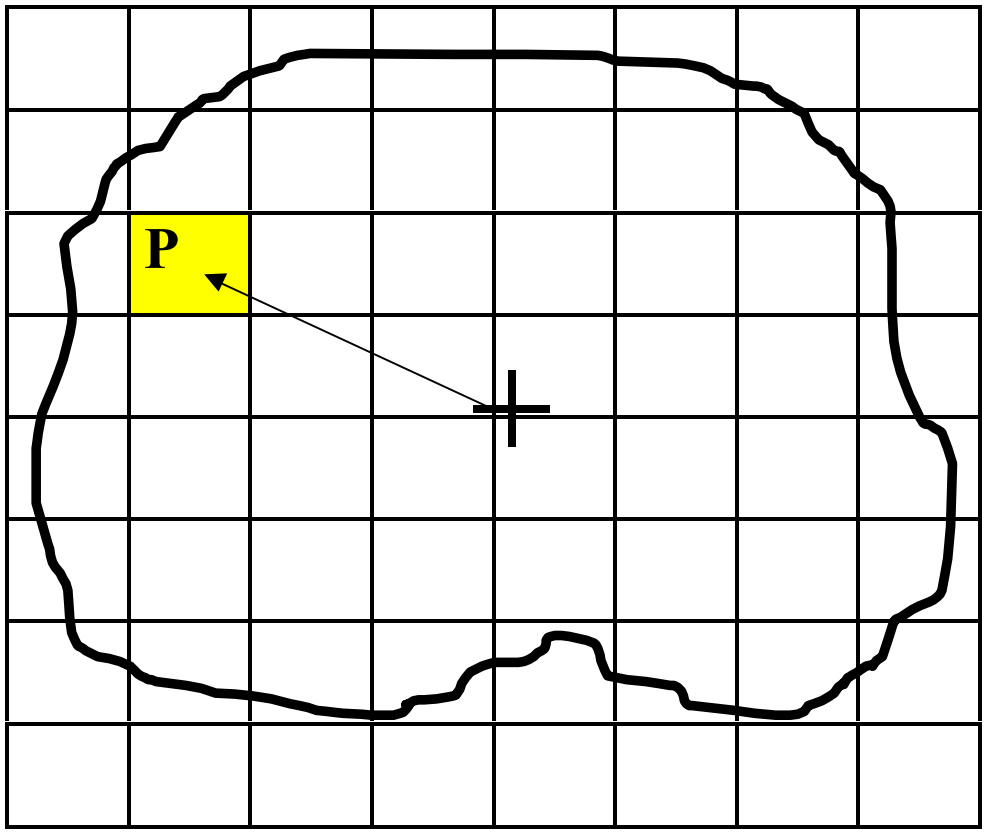
Available Channels

- No argument about channels 2 to 51 (core channels)
- Available for translators
  - Ch 52 – 59 ?
  - Ch 60 to 69 ?
- Available for LPTV
- NPRM Paragraphs 26 to 30

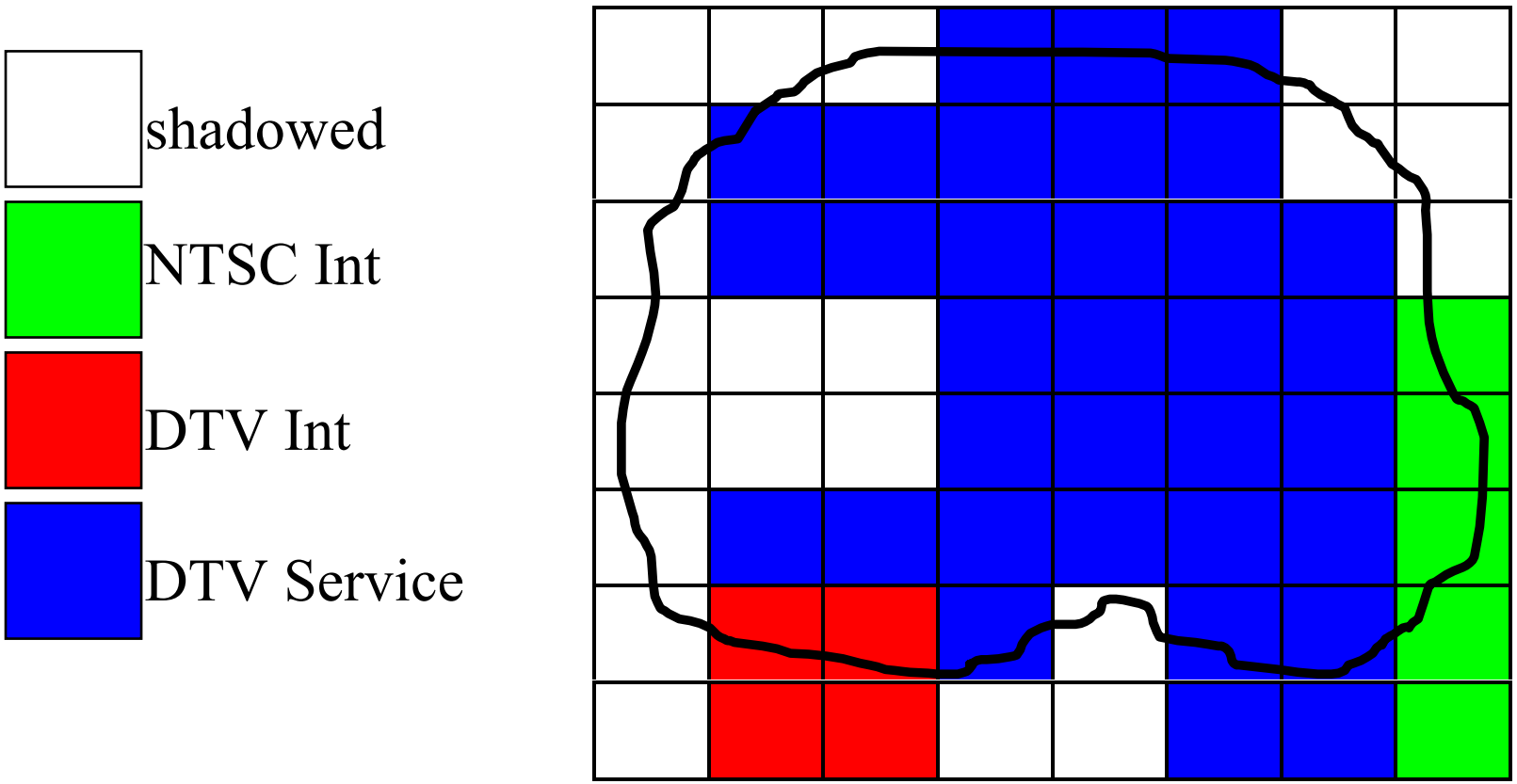

B. W. ST. CLAIR - Engineering Consultant
WNIN-TV - Ch 09(+)
Protected Contour
56 dBµ - F50/50
WCPO-TV-Ch 09Z
Protected Contour
56 dBµ - F50/50
WOBZ-CA
BLTVL19931101IK
Latitude: 37-12-32 N
Longitude: 084-09-00 W
ERP: 3.0 kW
Channel: 09+
Frequency: 189.5 MHz
AMSL Height: 426.0 m
Elevation: 366.21 m
HAAT: 118.0 m
Horiz. Pattern: Directional
Vert. Pattern: Yes
Elec Tilt: 0.0
Prop Model: Longley/Rice
Climate: Cont temperate
Conductivity: 0.0050
Dielec Const: 15.0
Refractivity: 311.0
Receiver Ht AG: 10.0 m
Receiver Gain: 0 dB
Time Variability: 50.0%
Sit. Variability: 50.0%
ITM Mode: Broadcast
WOBZ-CA - Ch 09(+)
Interference Contour
Cochannel without Offset
11 dBµ - F50/10
WBIR-TV - Ch 10
Protected Contour
56 dBµ - F50/50
Scale 1:2,000,000
0 20 40 60 km
Louisville
Lexington-Fayette
Frankfort
Evansville
Owensboro
Bowling Green
Clarksville
Hendersonville
Cookeville
WNIN
WOBZ-L
WCPO-TV

Check cells for Longley-Rice field strength greater than noise limited value

L-R (50,90)p
≥ 41dBμ



DTV Service



Protected Service Areas

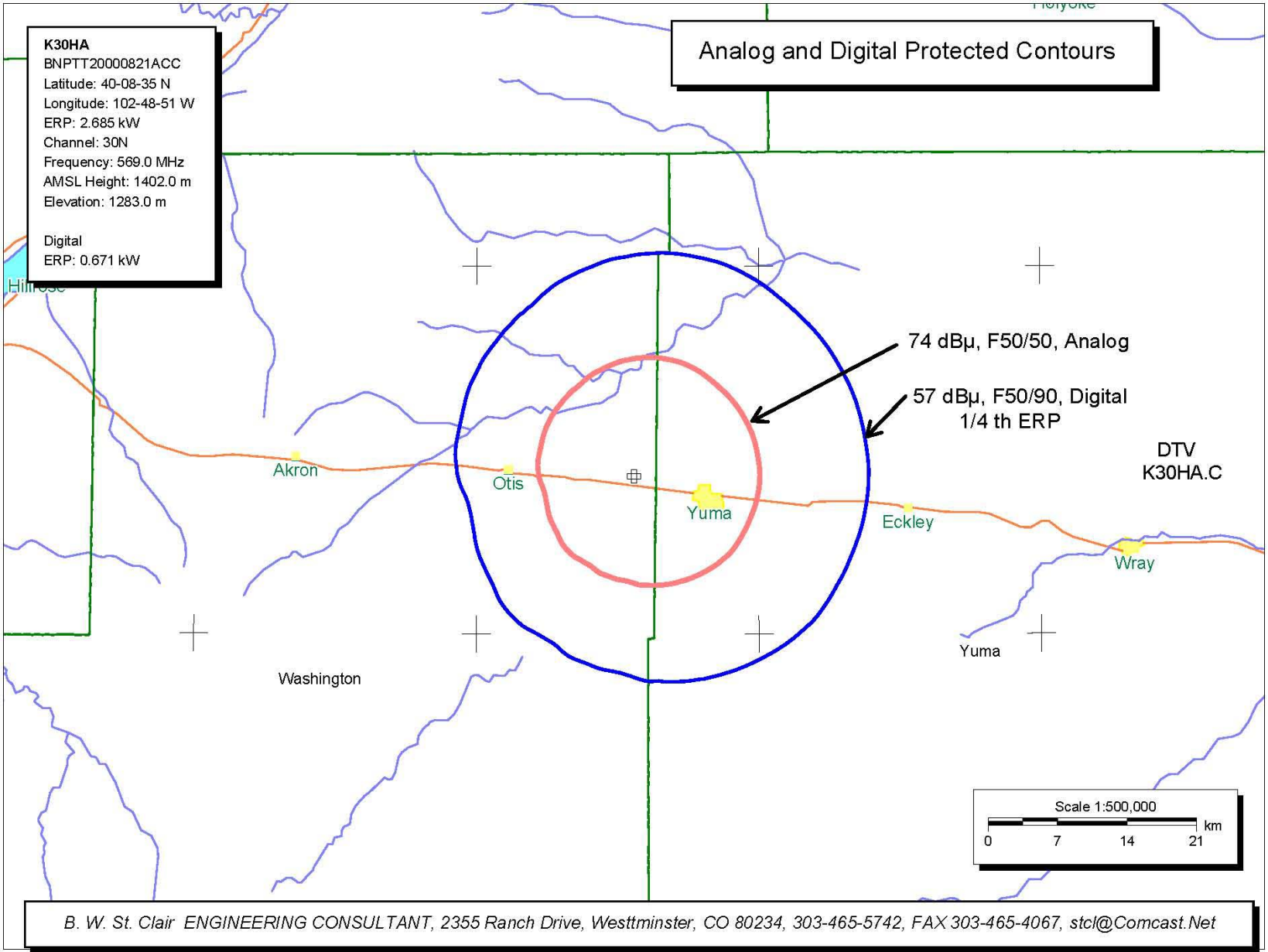
	Low Band VHF	High Band VHF	UHF
Full Service	28 dBμ	36 dBμ	41 dBμ
Proposed for LPTV/ Translators	43 dBμ	48 dBμ	57 dBμ

Based on F50/90 propagation curves.

POWER LIMITS

	VHF	UHF
Analog	3.0 kW	150 kW
Digital	0.3 kW	15 kW

Power limits already established. See §74.735


K30HA
BNPTT20000821ACC
Latitude: 40-08-35 N
Longitude: 102-48-51 W
ERP: 2.685 kW
Channel: 30N
Frequency: 569.0 MHz
AMSL Height: 1402.0 m
Elevation: 1283.0 m
Digital
ERP: 0.671 kW
Analog and Digital Protected Contours
74 dBµ, F50/50, Analog
57 dBµ, F50/90, Digital
1/4 th ERP
DTV
K30HA.C
Akron
Otis
Yuma
Eckley
Wray
Yuma
Washington
Scale 1:500,000
km
0
7
14
21
B. W. St. Clair ENGINEERING CONSULTANT, 2355 Ranch Drive, Westtminster, CO 80234, 303-465-5742, FAX 303-465-4067, stcl@Comcast.Net

30-Oct-03(12)

Comparison of Coverage of NTSC and Digital Signals

This comparison is based on equivalent size transmitters for NTSC and Digital signals.

The power rating of NTSC transmitters is based on the power during the time the sync pulse is being transmitted. A digital transmitter has no recognizable sync pulse period so power is measured as the average power over the whole 6 MHz band.

Translator manufacturers advise us that a given size translator will produce an average digital power that is 25 to 50% of the NTSC peak sync power. That is a translator rated for 100 watts NTSC can be expected to produce 25 to 30 watts average digital power. This example assumes 25 watts or 6dB less.

The laboratory tests of the Grand Alliance digital signal show that a successful picture can be produced with a signal that is 12.5dB less than an NTSC signal based on the way each is measured. This digital "improvement" is based upon a perfect signal, limited only by noise, reaching the receiver.

Replacing or converting an NTSC translator with digital results in:

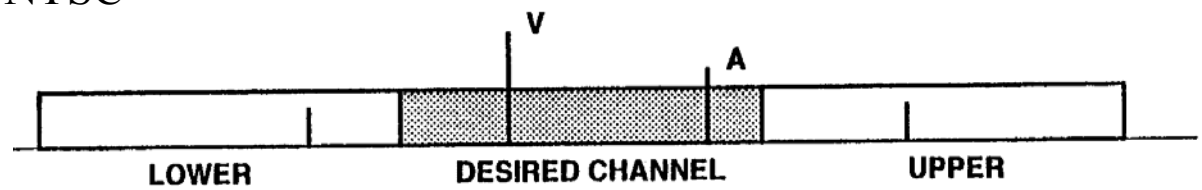
Power change	=	- 6.0 dB
Sensitivity change	=	12.5 dB
Gain	=	6.5 dB

It is prudent to allow 2dB for ghosting and other impairments between the translator and the receiver. It will also be necessary to make a further allowance for the bit error rate which is already present in the output signal of the translator. This number is unknown but is presumably in the range of a few dB.

Taking all the gains and losses there is still a small improvement left when a translator converts to digital. The net result is any home receiving a watchable analog signal from a translator will successfully receive a digital signal from a comparable installation and in general the digital coverage will extend somewhat further.

Spurious Products

NTSC



HDTV

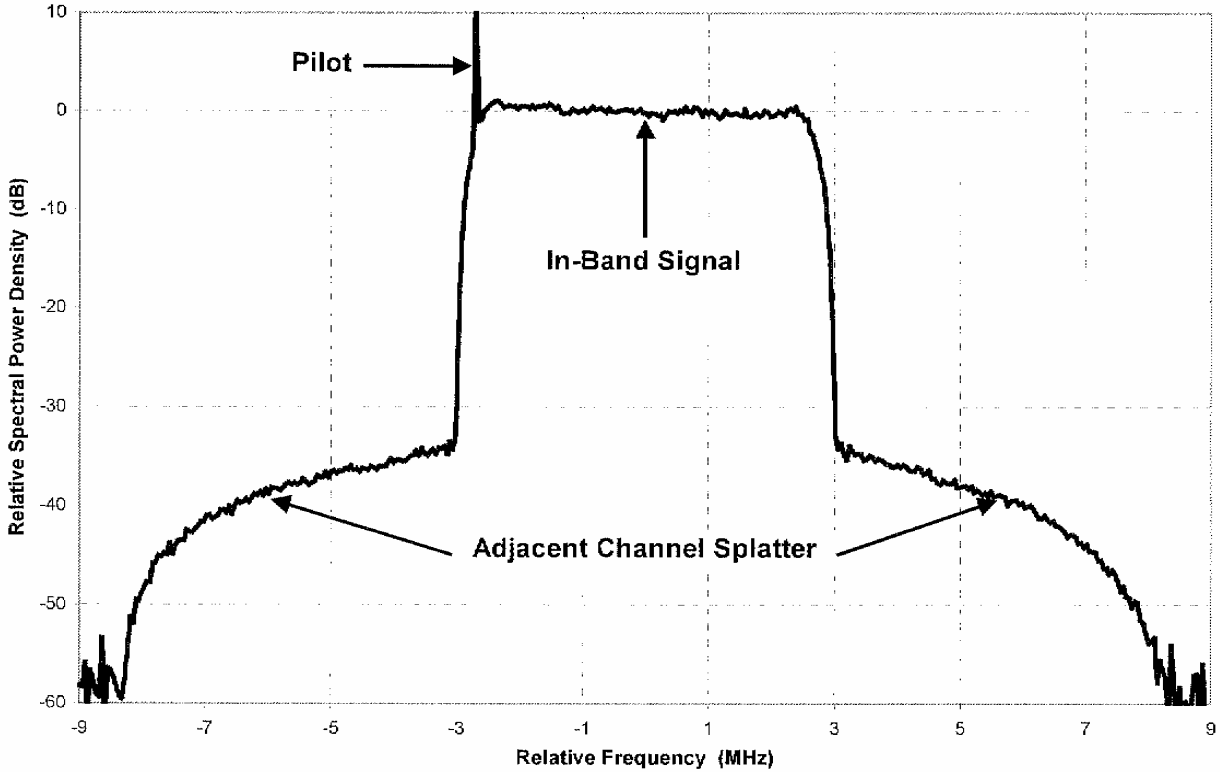


Fig 2-2 Typical DTV spectrum with adjacent channel splatter

From: DTV Repeater Emmission Mask by Gary Sgrignoli,Zenith Corp.

http://www.zenith.com/digitalbroadcast/downloads/DTV Emission Mask Analysis.pdf

APPENDIX I

COMPARISON OF INTERFERENCE FROM ANALOG AND DIGITAL TRANSLATORS

This exhibit compares the interference caused by analog and digital translators with the average digital power at 1/4th the original analog power and the other parameters equal. This corresponds to a practical scenario where an analog translator converts to digital with the equipment unchanged except for the addition of a mask filter.

The ratios are the threshold interference ratios in OET Bul. 69.

RELATIVE INTERFERENCE WITH DIGITAL POWER 6 dB BELOW ANALOG POWER

	Analog to Analog	Digital to Analog	Power Change	Change in Interference
Co Channel with offset	+28dB	+3.4dB	-6dB	none
Co Channel without offset	+45dB	+34dB	-6dB	-17dB
Adjacent Channels Protected Station Upper	-3dB	-17dB	-6dB	-20dB
Adjacent Channels Protected Station Lower	-13dB	-12dB	-6dB	-5dB
Translator 15 Channels Above Protected Station	-9dB	-31dB	-6dB	-28dB

Notes: 1. Ratios in columns 2 & 3 are amount by which interfering signal must be below desired signal. Minus indicates interfering signal stronger than desired.

2. Change in Interference: minus indicates less interference.

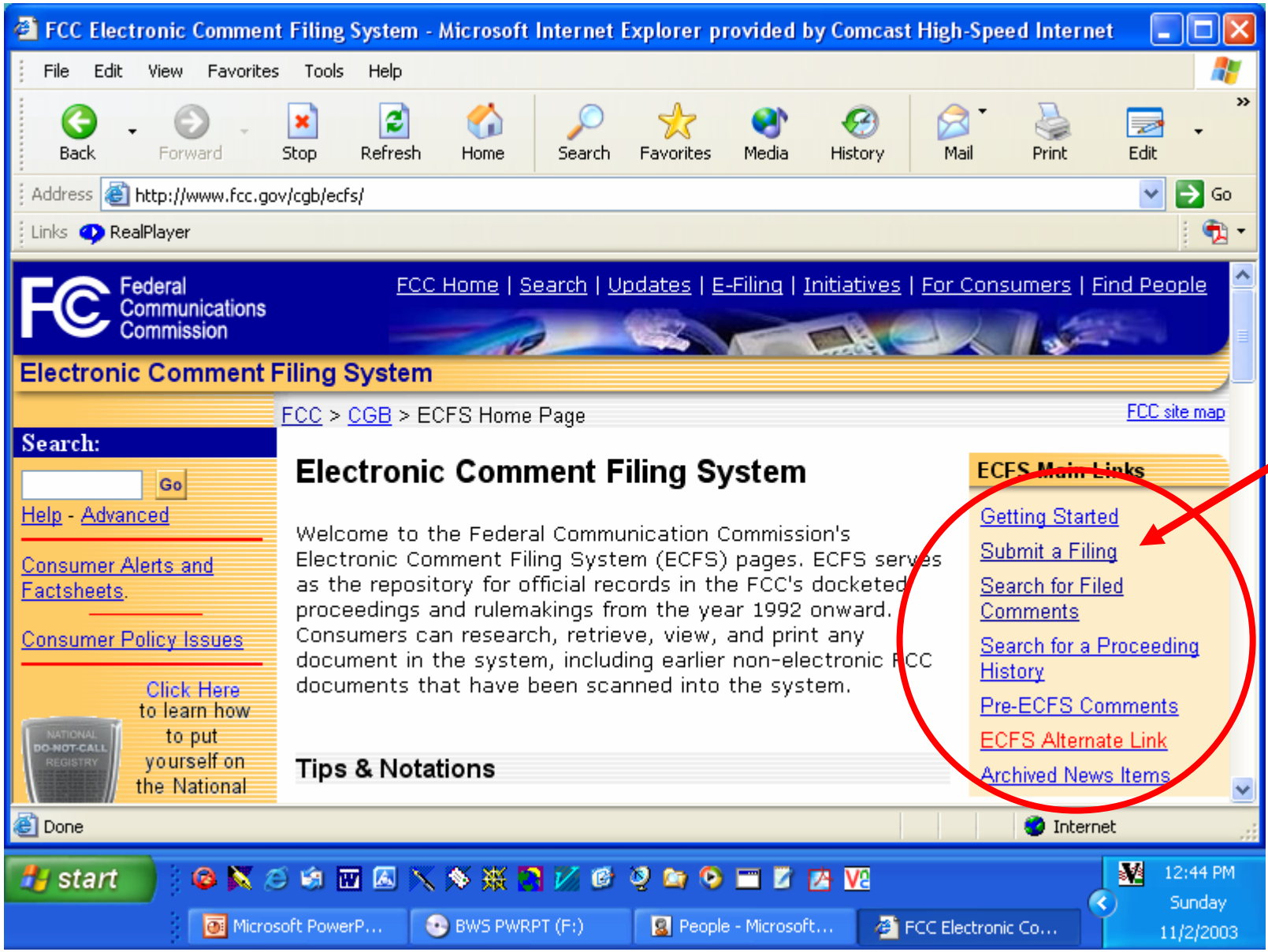
How to file comments...

Streamlined path on FCC's main web page.

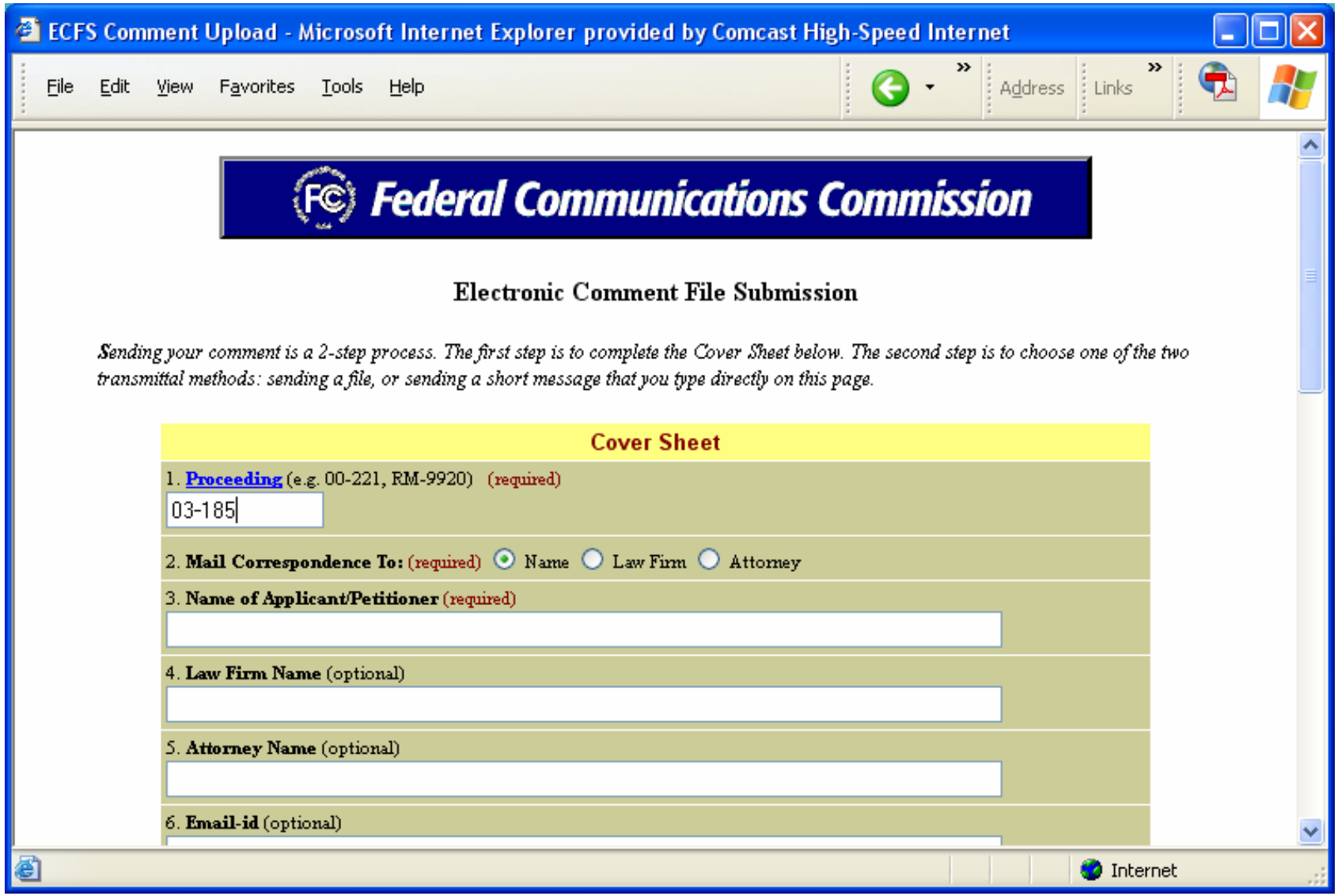
Letter from ok.

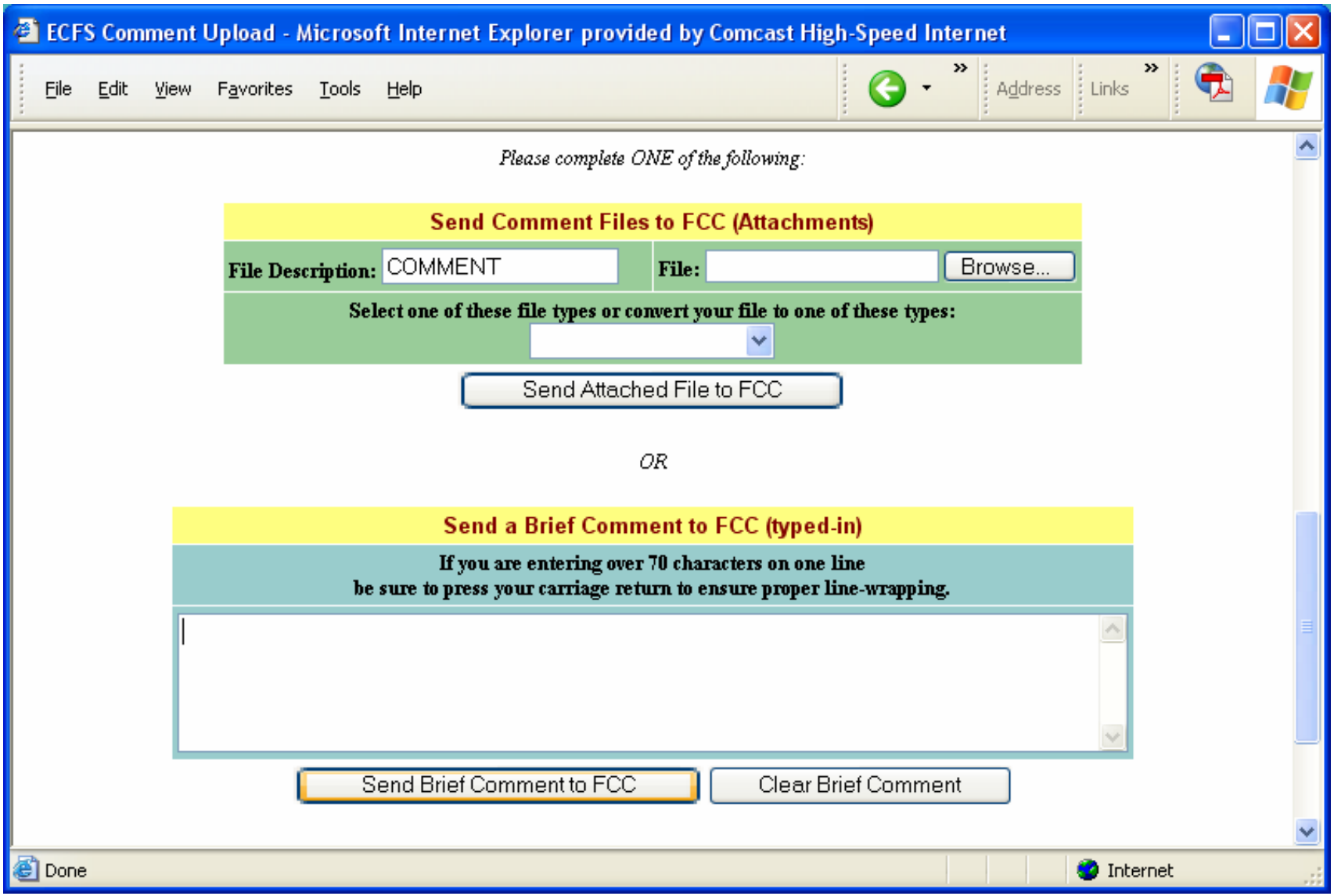
Reference docket – MBDocket 03-185 (NPRM FCC 03-198)

Deadline for comments November 25th, reply comments December 25th roles to 26th.



http://www.fcc.gov/cgb/ecfs/


ECFS Comment Upload - Microsoft Internet Explorer provided by Comcast High-Speed Internet
File Edit View Favorites Tools Help
Address Links
Federal Communications Commission
Electronic Comment File Submission
Sending your comment is a 2-step process. The first step is to complete the Cover Sheet below. The second step is to choose one of the two transmittal methods: sending a file, or sending a short message that you type directly on this page.
Cover Sheet
1. Proceeding (e.g. 00-221, RM-9920) (required)
03-185
2. Mail Correspondence To: (required) Name Law Firm Attorney
3. Name of Applicant/Petitioner (required)
4. Law Firm Name (optional)
5. Attorney Name (optional)
6. Email-id (optional)
Internet



Click here to return to Index

LARCAN- USA

This workshop/seminar was presented by LARCAN-USA in association with

Larry Bloomfield who can be contacted at:

BLOOMFIELD ENTERPRISES, LLC

dba **Tech-Notes**

1980 25th St.

Florence, OR 97439-9717

(541) 902-2424

http://WWW.Tech-Notes.TV

Click here to Return to index