

The Mt. Mansfield Consolidation Project

***N.E.W.S.
January 6, 2007***

Mike, N1JEZ



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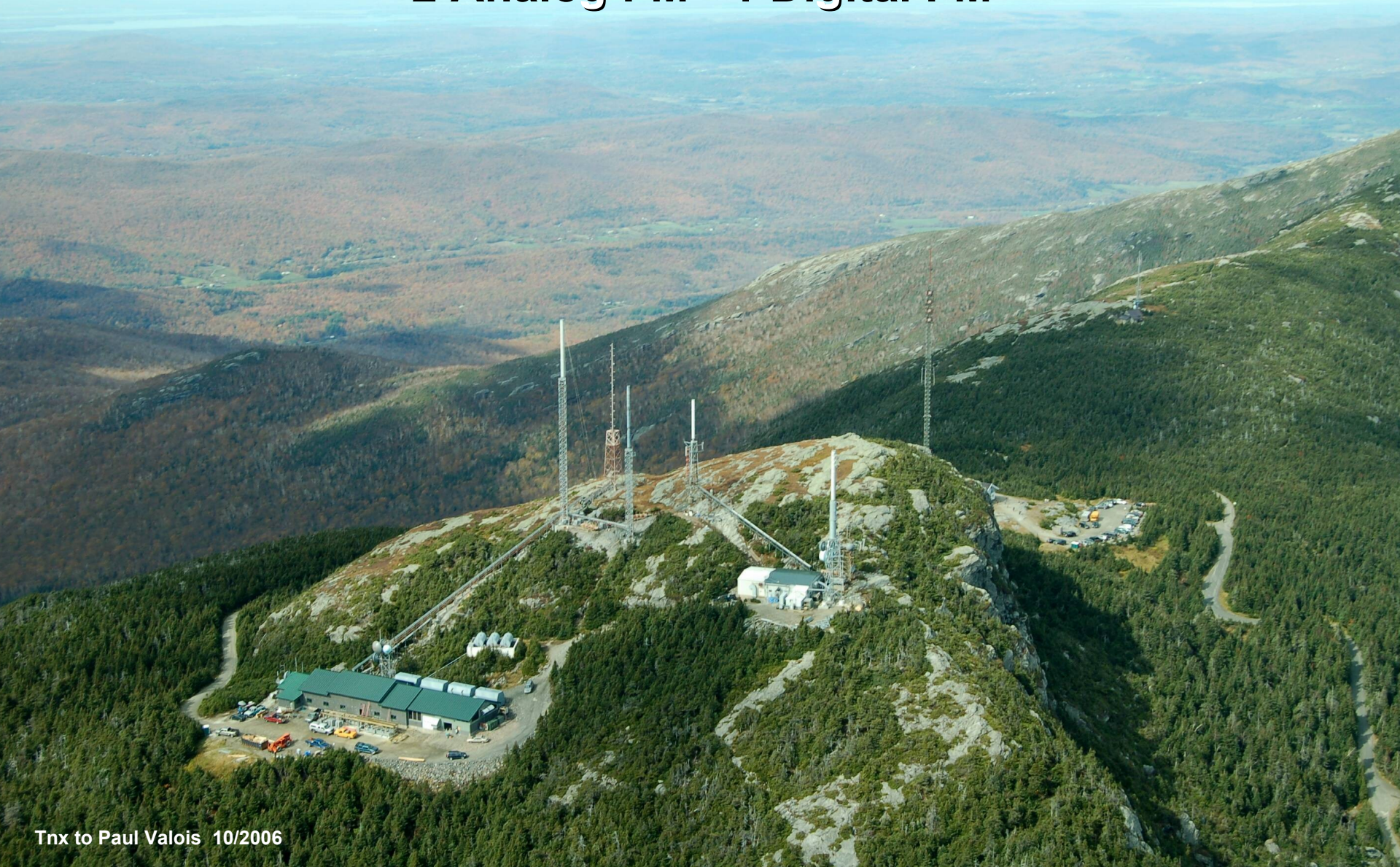
Mike, N1JEZ



Mt. Mansfield – Stowe, VT – 4393 ft. – FN34

3 Analog TV - 5 Digital TV

2 Analog FM - 1 Digital FM

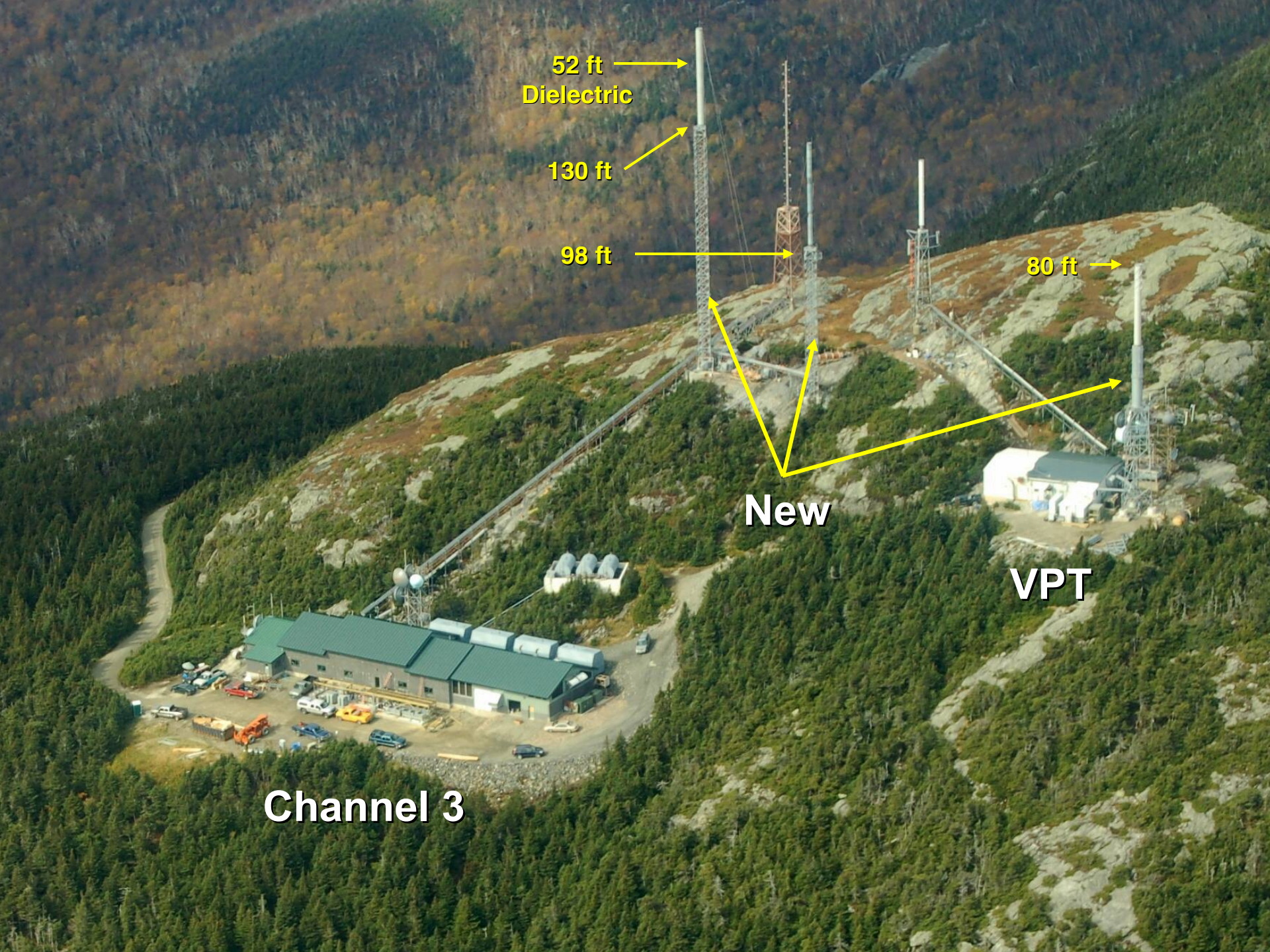




Pre-existing

VPT

Channel 3



52 ft →
Dielectric

130 ft →

98 ft →

80 ft →

New

VPT

Channel 3

Pre-existing

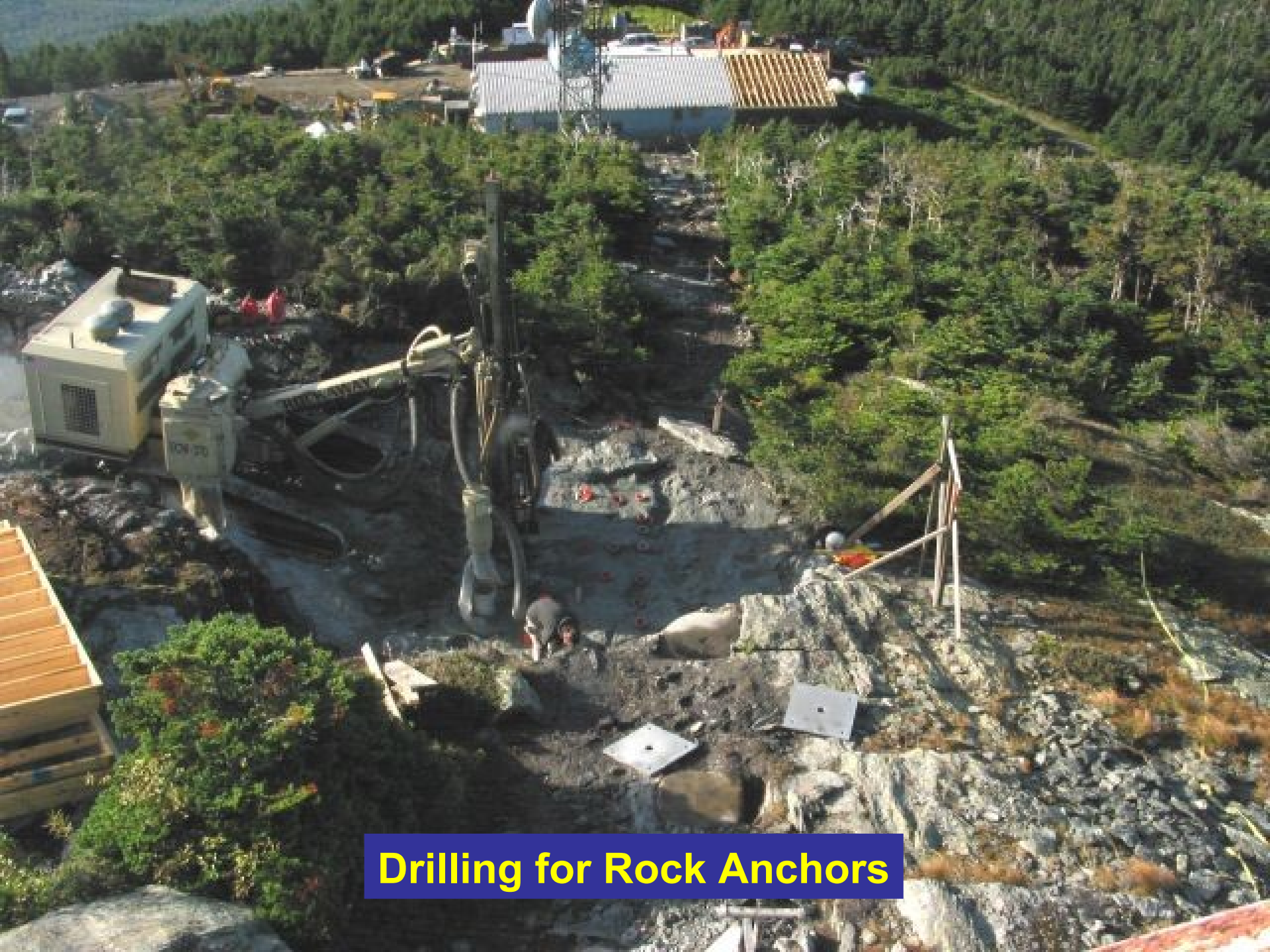




New



Excavation for the Tower Foundations



Drilling for Rock Anchors



New Building Foundation



One of Two Cat Megawatt Gensets Arrive



Genset is Placed on its Isolator



Tower Foundation for New VPT Tower



The Sky Crane



Lifting One Section of a TV Antenna



Setting the Section





Setting Tower Sections

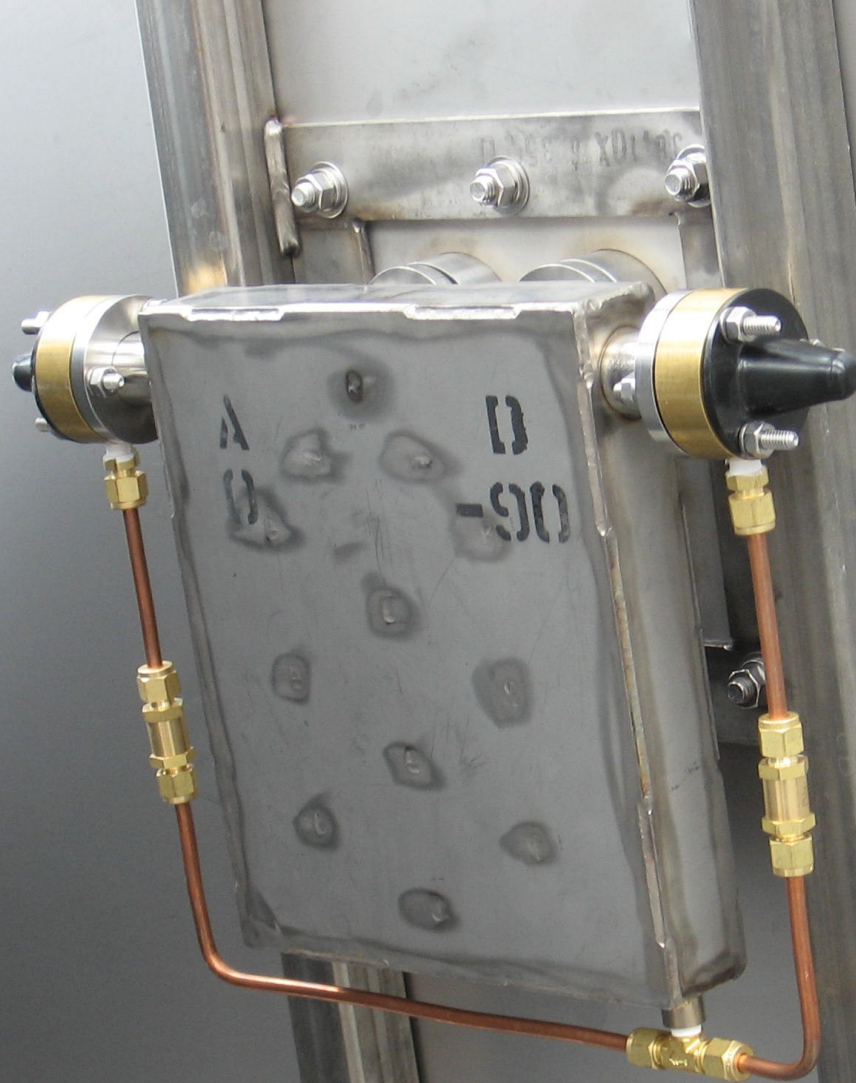


Not Much Margin for Error !



Vermont Public Radio FM Antenna Construction





90° Hybrid

Up Goes Bay #1



Up Goes Bay #1

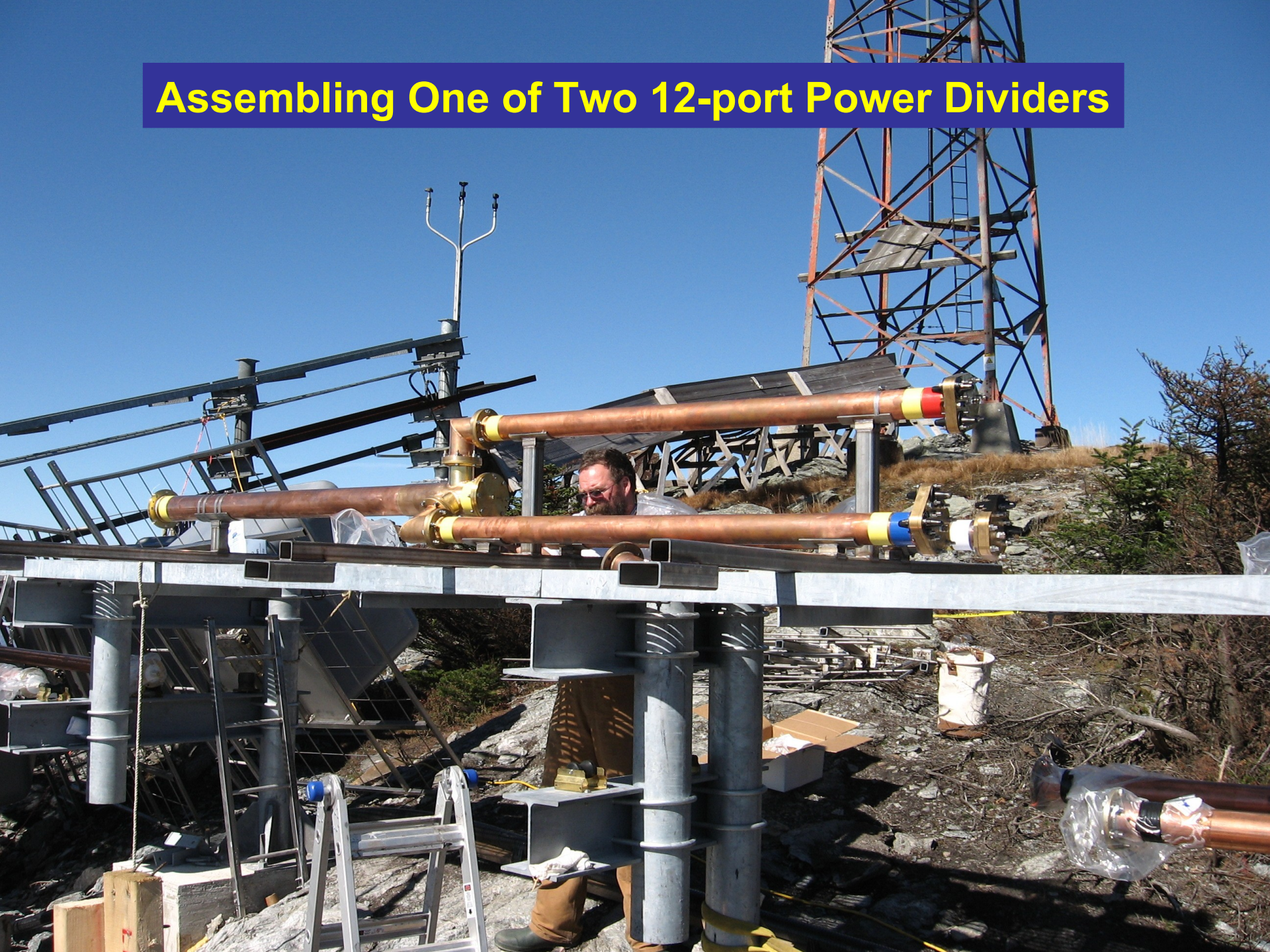


Construction Bay by Bay





Assembling One of Two 12-port Power Dividers



Up They Go





Interbay Isolators



7/8" Heliax Jumpers

Megawatt Catapillar Gensets with Synchronous Switch



09.15.2006 08:22

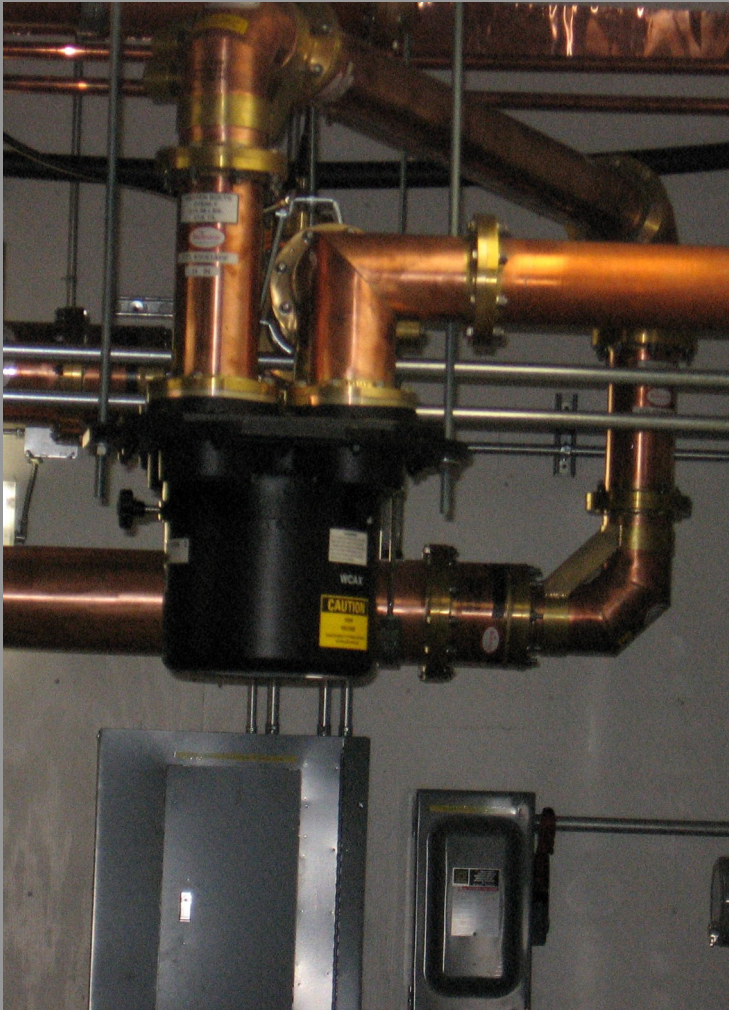


WCAX@DT
High Definition Television
On the Air



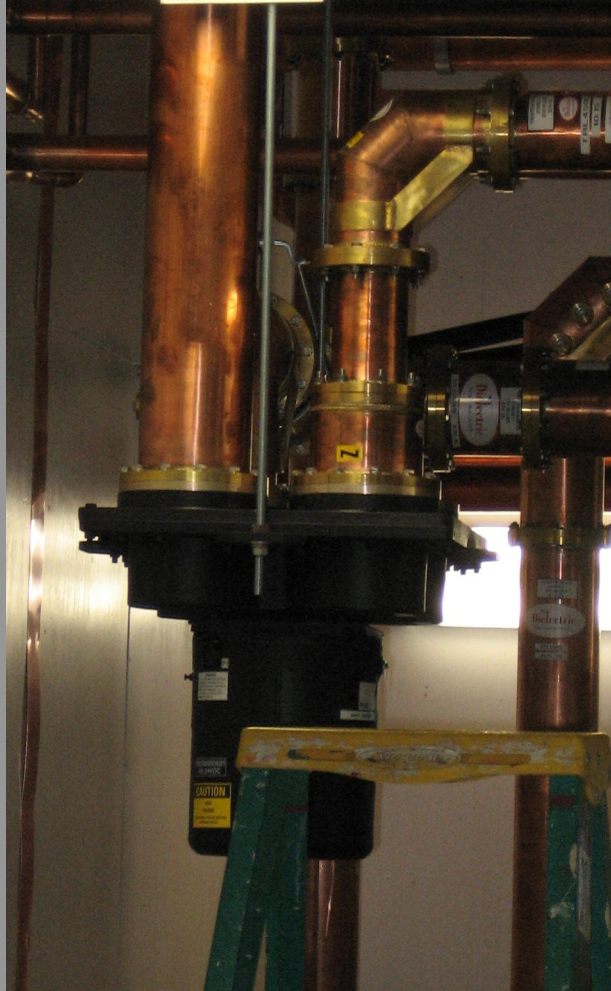
DTV

RF Transfer Switches



Reject Load

DTV





DTV

Harris Solid State

TPO ~ 5700 watts



**Ice Guard &
Top of Shroud**



Early Season Storm





Cut-over Day





Cut-over Day



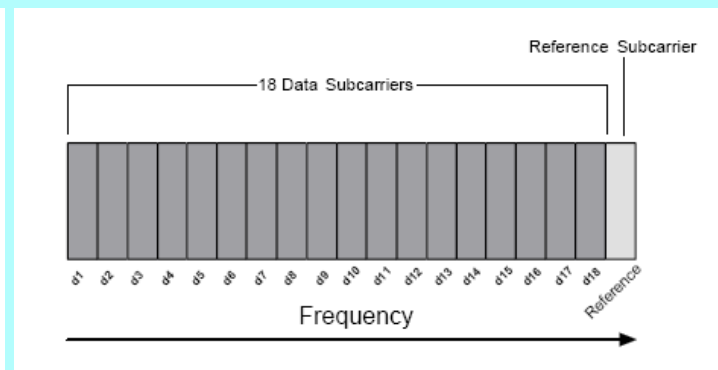
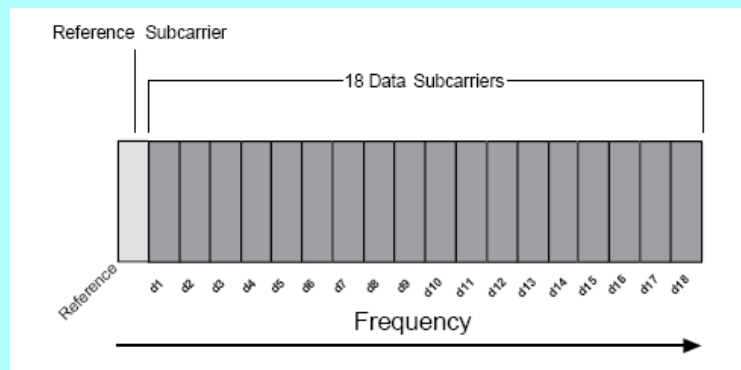
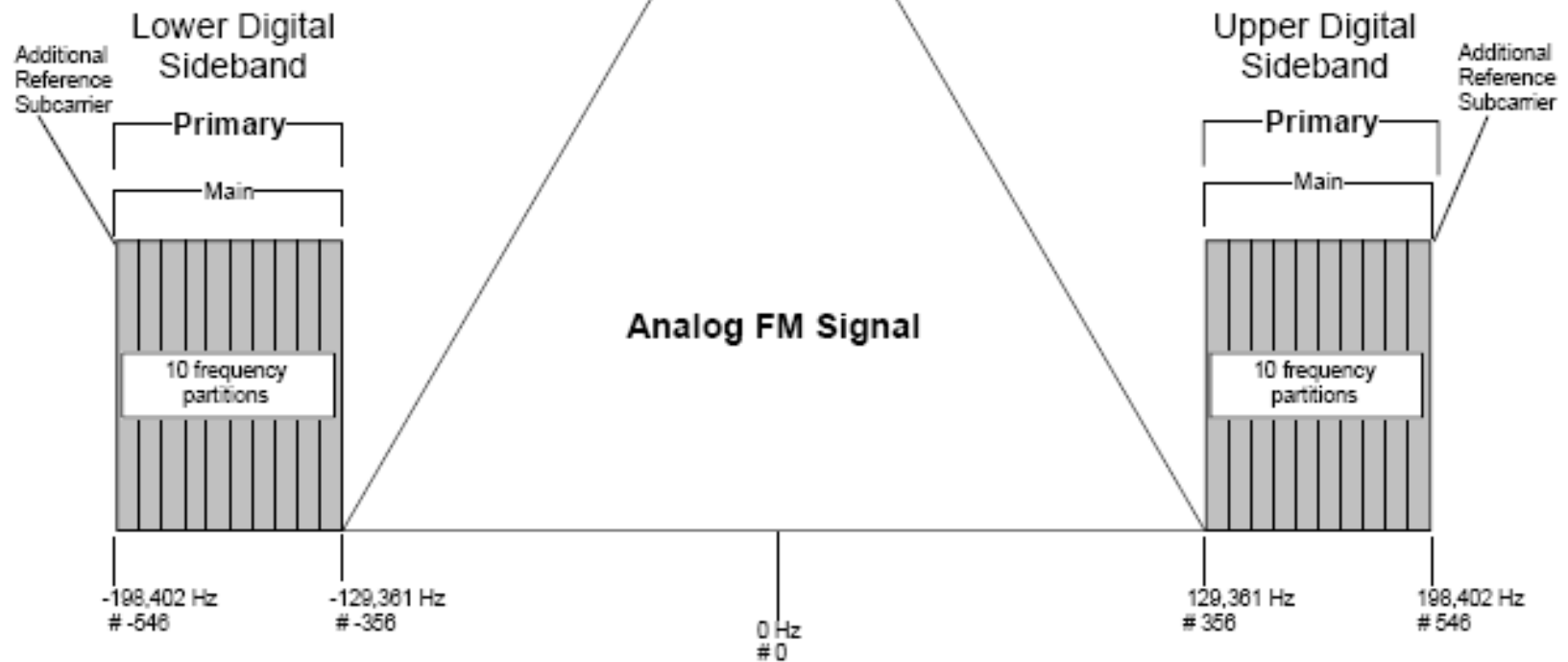
Bet That Shows up on TDR !



Ibiquity IBOC (In Band On Channel) HD (Hybrid Digital)

- **OFDM – Orthogonal Frequency Division Multiplexing**
- **HDC (High Definition Coding)**
- **96kbps Available on FM**
- **200 kHz RF BW**
- **Digital Power = 1% of Analog Power**

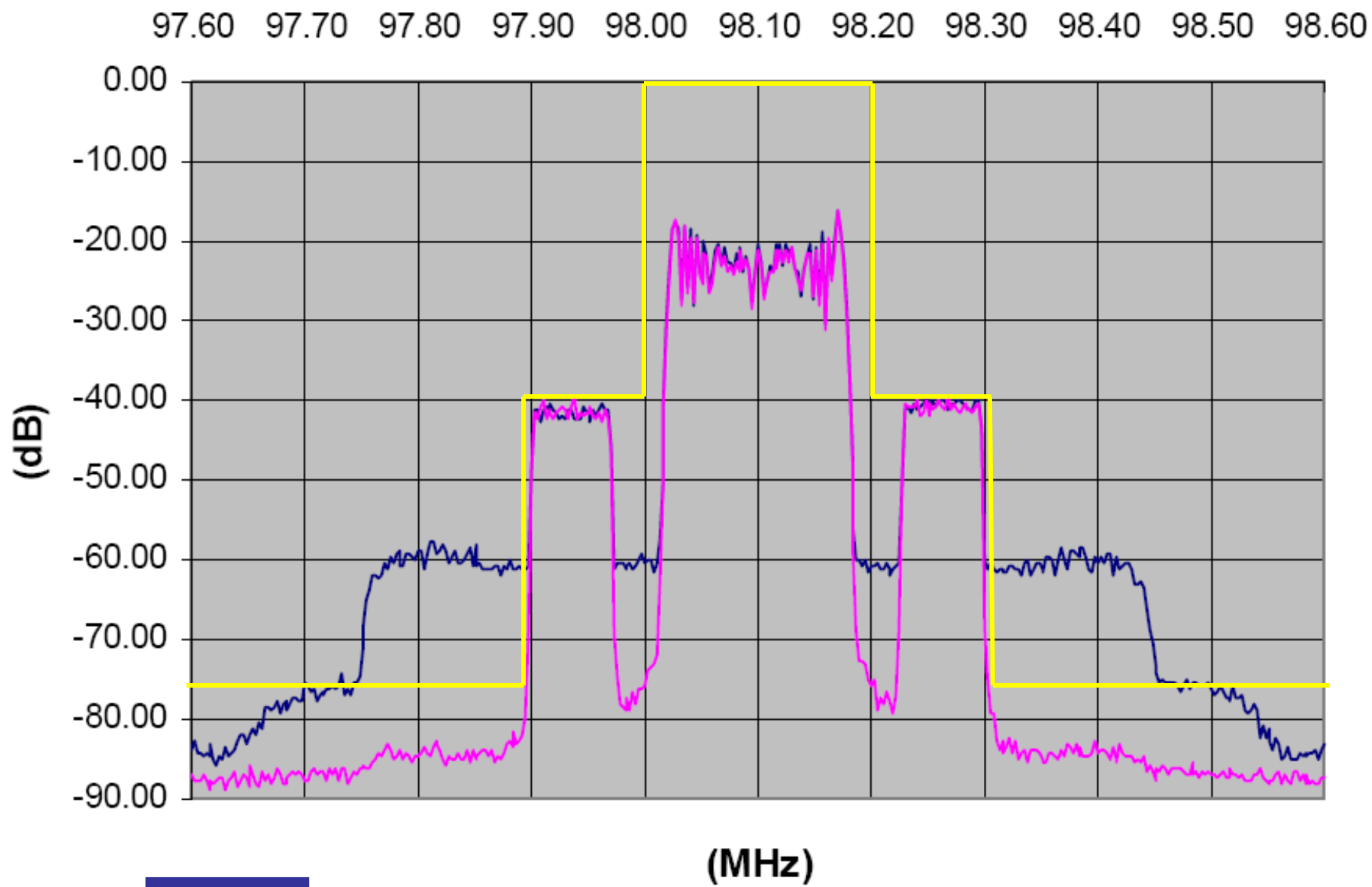
Ibiquity IBOC HD FM





- Transmitter Must be Linear!
- No More Class C
- ~ 45% F @ 4600 watts on WVPR
- RTAC (Harris)





RTAC

— uncorrect — corrected

WVPR 89.5 MHz HD Mask

Radio Works R.F. Consulting

COM-120B

Serial # 1176

50.0

89.50

3

PEAK HOLD W MOD

dBm

kHz/Div

MHz

kHz Res

07/19/2006 17:51:04

10

0

-10

-20

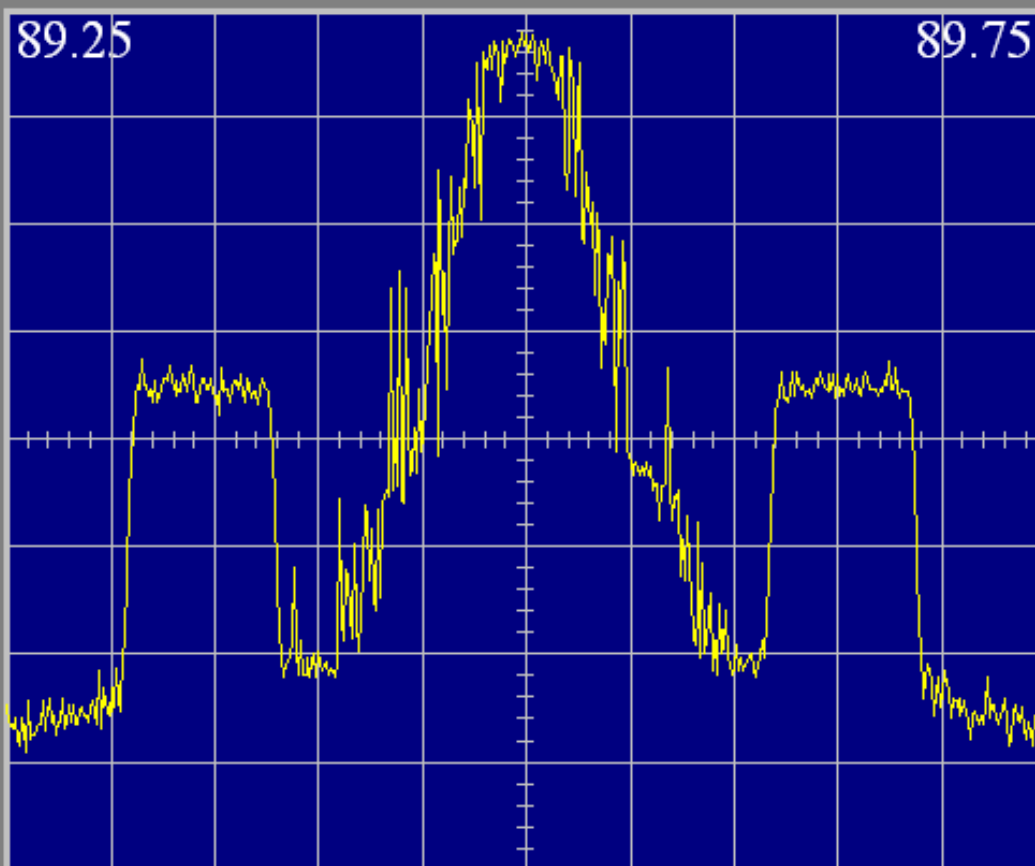
-30

-40

-50

-60

-70



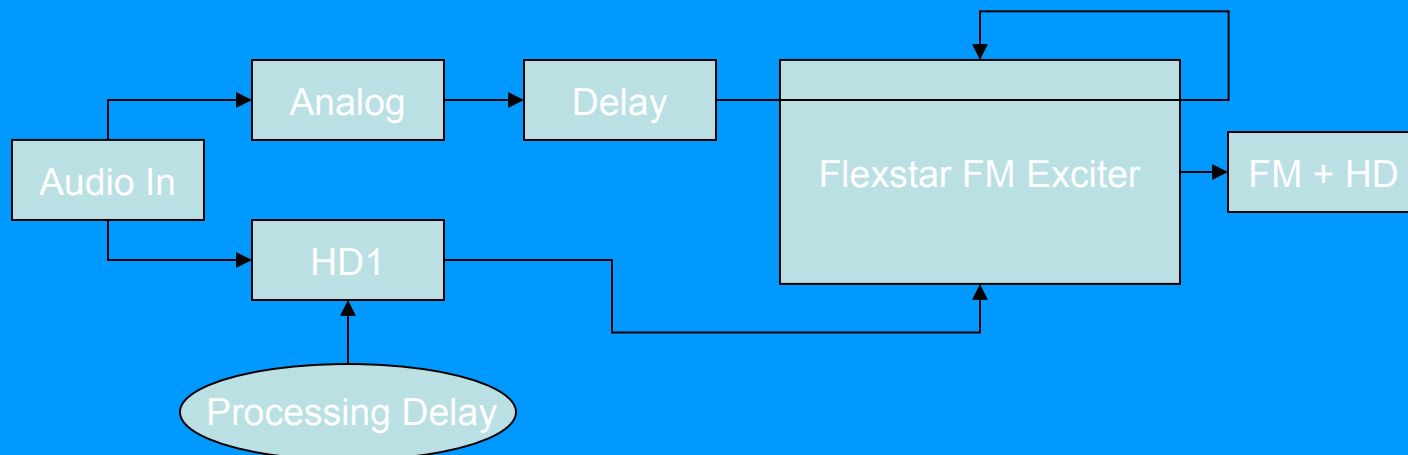
30 dB Attn

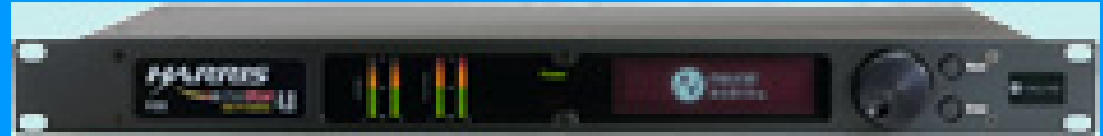
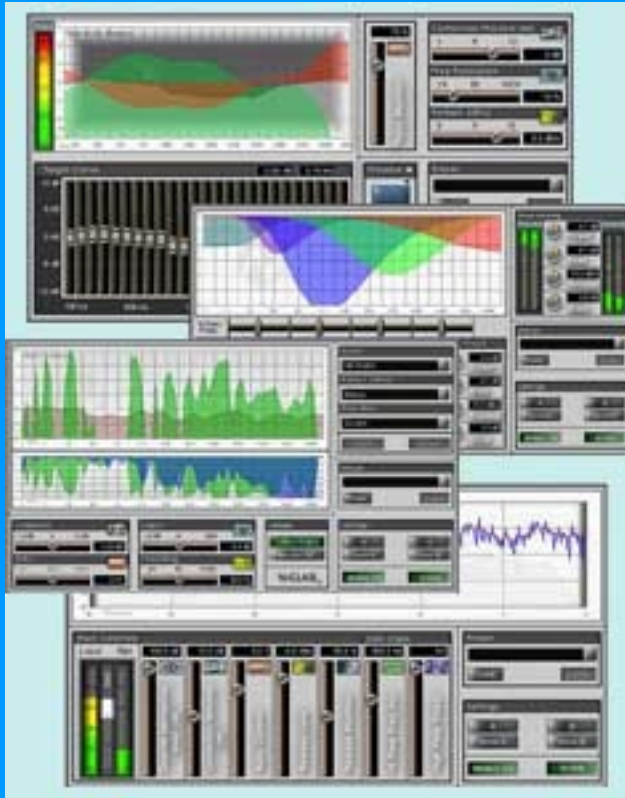
Gen --- dBm

500 mSecs



- For FM, 96 kbps
- Typical is 64 kbps Main – 32 kbps Secondary
- Main = HD1 always the same as Analog
- Secondary = HD2, HD3 etc.
- Diversity Delay ~ 8 secs





- Low bitrate HD2/3 need help
- Neural Codec Pre-conditioning
- Processing Delay ~ 45 secs



Vermont Public Radio HD

HD1 = Main Service

HD2 = VPR All Classical Service

HD3 = BBC

Currently transmitting on:

- **WVPR 89.5 MHz on Mt. Ascutney – HD1, HD2**
- **WBTN 94.3 MHz Bennington – HD1**
- **WVPS 107.9 MHz Mt Mansfield – HD1, HD2 & HD3**

Next will be:

- **WRVT 88.7 MHz in Rutland - HD1**
- **WVPA 88.5 MHz on Burk Mtn – HD1**
- **WJAN 95.1 MHz on Mt Equinox - HD1**

Also:

- **WNCH 88.1 MHz on Mt. Ascutney (Classical) - HD1**

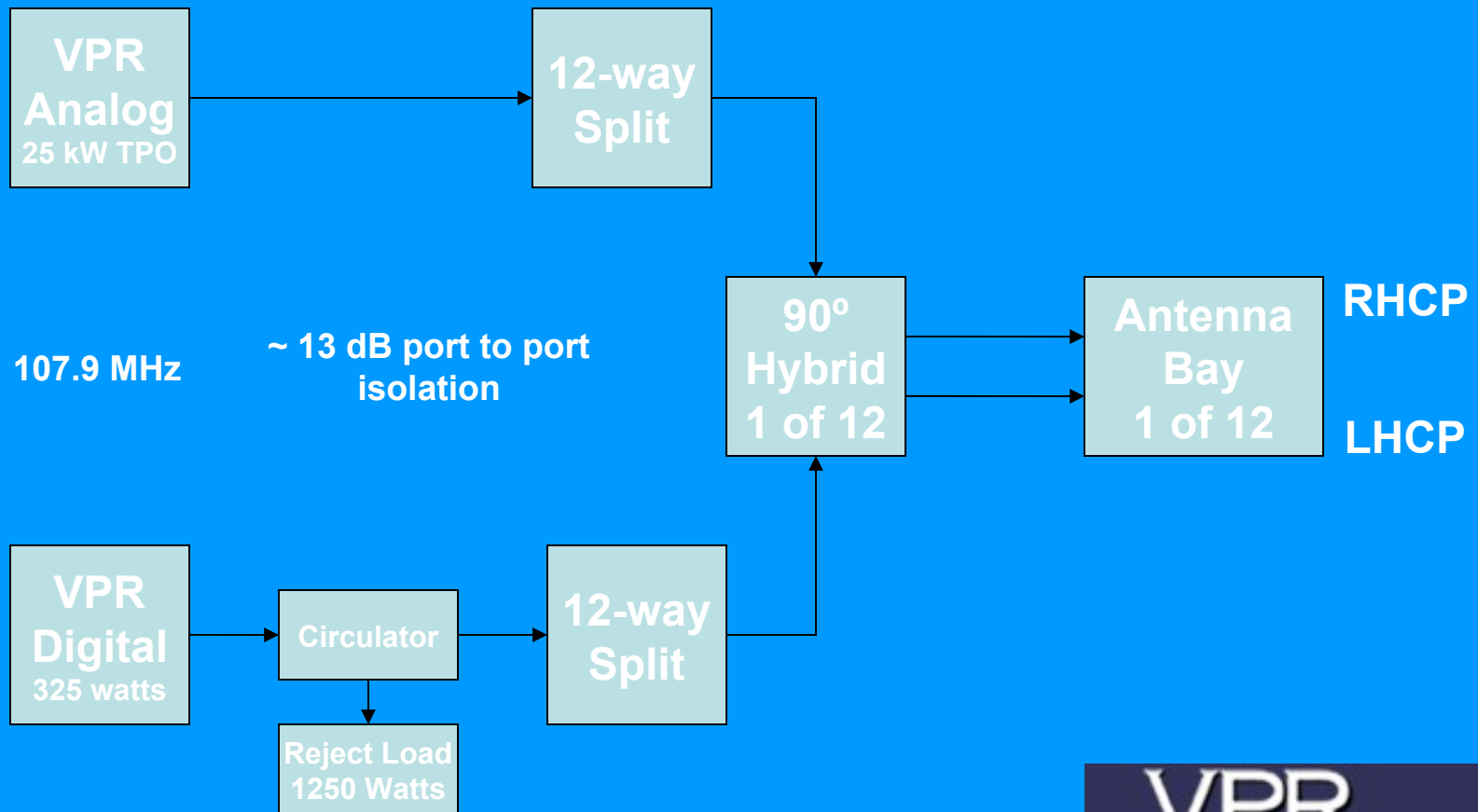


WVPR – WBTV – WRVT – WNCH HD FM



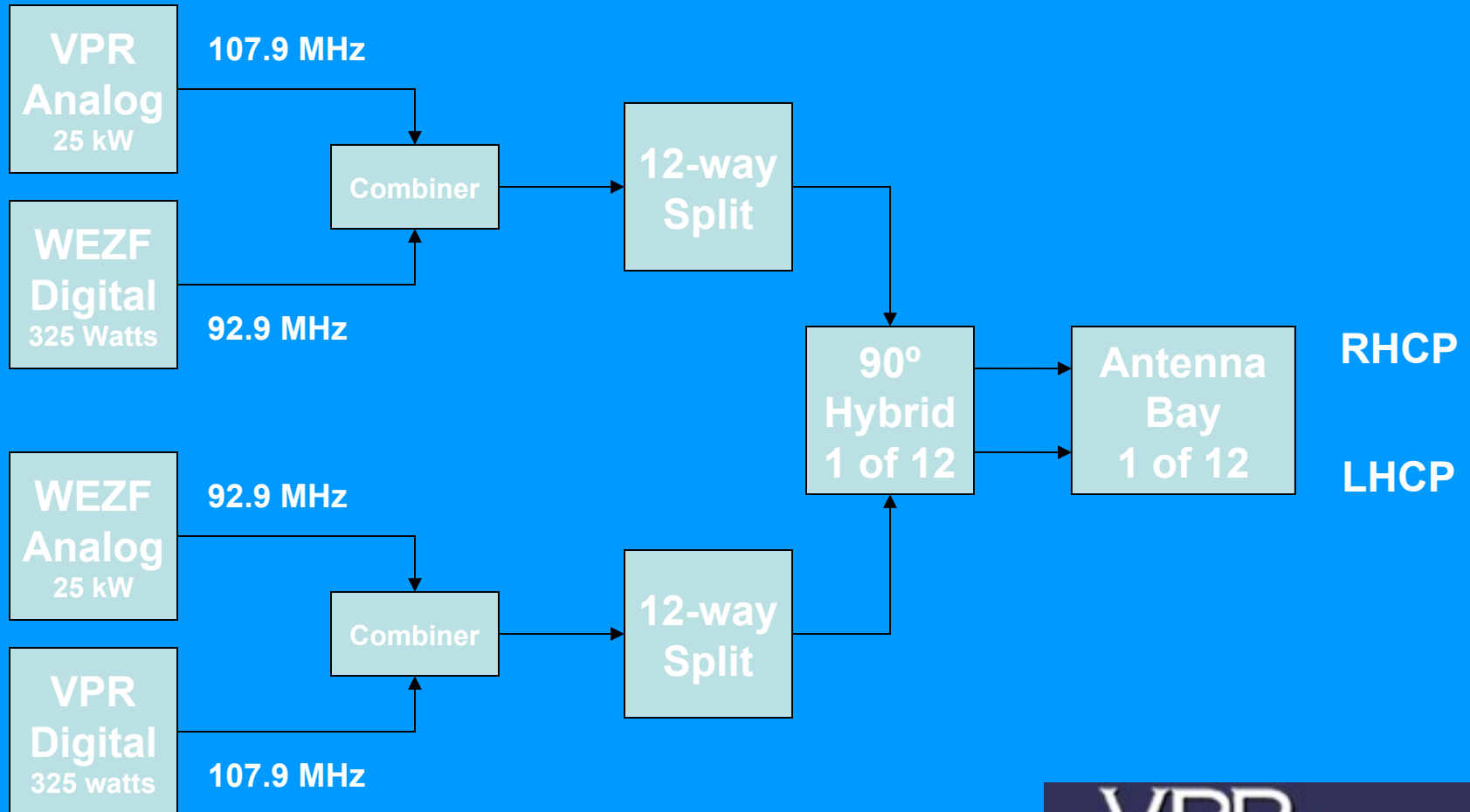
Mt. Mansfield Shively 6014 3-Around

Circularly-Polarized Broadband Multistation FM Antenna



Mt. Mansfield Shively 6014 3-Around

Circularly-Polarized Broadband Multistation FM Antenna



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QUESTIONS ?