Issues Related to DTV Transition

UHF to VHF transition

- 306 stations reverting from either UHF or a different VHF assignment
- Less than 25% of stations have digital capable VHF transmitter
- Represents 230 transmitters that would need to be ordered
- At current industry capacity, this is perhaps an 18 month run rate of production
- Typical installation of 230 transmitters, with filters would be 3 weeks each, or 690 crew/weeks of install. Perhaps 15 install crews available = 46 weeks of install

Analog Switchoff Procedures: UHF to VHF

- UHF interim DTV to final VHF DTV Channel
  - On or before 2/17/08:
    1. Determine if analog VHF transmitter is digital capable
       - 1-4 weeks, involving assessment with the manufacturer or authorized service agent) (At least 75% are not capable)
    2. If not digital capable, order either an analog transmitter or a new digital VHF transmitter
       - Normal lead times: 90-120 days; capacity could limit available “slots” for production and field installation crews
    3. Order and install digital mask filter
       - Manufacturing lead times: 90-120 days assuming normal order flow
       - 2-5 days of installation, depending upon complexity
    4. If using the existing analog transmitter, order and install separate rack with digital exciter and control system for the VHF transmitter
       - normal lead times: 90-120 days; capacity could limit available “slots” for production and field installation crews

Analog Switchoff Procedures: UHF to VHF

- On or before 2/17/09:
  5. Install digital exciter, linearize analog VHF transmitter and calibrate power measurement circuits
     - 3 days, during which DTV transmission may be interrupted
  6. Proof of performance
     - 1 day, during which DTV transmission could be interrupted

UHF to UHF transition

- 222 stations reverting from either UHF or a different VHF interim digital assignment
- Perhaps 70% of stations have digital UHF transmitter that can be retuned to permanent DTV channel
- Remaining 30% need new UHF DTV transmitter (67 transmitters that need to be ordered)
- All stations need new channel mask filter
- At current industry capacity, this is perhaps a 6 month run rate of production
- Typical installation of 67 transmitters, with filters would be 4 weeks, or 268 weeks of install
- Perhaps 15 install crews available = 18 weeks of install

Analog Switchoff Procedures: UHF to UHF

- UHF interim DTV to final UHF DTV Channel
  - On or before 2/17/08:
    1. If using the existing DTV UHF transmitter, determine if it is capable of operating on new channel assignment (most will be able to be retuned)
       - 1-4 weeks, involving assessment with the manufacturer or authorized service agent)
    2. If not capable of channel change, order a new digital UHF transmitter
       - Normal lead times: 90-120 days ; capacity could limit available “slots” for production and field installation crews
    3. Order and install digital mask filter
       - Manufacturing lead times: 90-120 days assuming normal order flow
       - 2-5 days of installation, depending upon complexity

Analog Switchoff Procedures: UHF to UHF

- On or before 2/17/09:
  4. If using current DTV transmitter, schedule technical crew from manufacturer to help with channel change
     - 3 days, during which DTV transmission may be interrupted
  5. Proof of performance
     - 1 day, during which DTV transmission could be interrupted

Implications

- Approximately 231 of the 528 installed transmitters are digital capable, so approximately 297 new digital transmitters would need to be ordered, manufactured, and installed
- 297 transmitters is approximately 15 months or more of the capacity of the U.S. TV transmitter industry. To drive the required timing for installation crews, transmitter ordering would need to commence on an even order basis approximately 23 months prior to analog sunset, or end of March 2007
- 958 crew weeks of installation requirements, divided by 15 crews equals 64 calendar weeks of installation activity on new transmitters
- 231digital capable transmitters requiring 4 days each to convert, equals 185 crew weeks, or an additional 12 weeks of industry capacity (or 64+12 = 76 weeks, or installation work must commence without vacations and holidays approximately end of August 2007)

Feedback from the Field

- Many do not believe that Feb.17, 2009 will remain as a fixed date for analog sunset
  - Some believe that the transition date could slip out as far as 2015
- Most believe that there will be a transition period after analog sunset during which they will have time to build out their RF system for the final DTV channel assignment
  - They assume that they will continue to operate on their temporary DTV assignment until they are ready to move to the permanent assignment

Feedback from the Field

- Some believe that they will be able to apply for extensions on moving to their permanent DTV channel assignment based on the inability of suppliers to deliver transmitters, filters, other critical components or the lack of installation teams to install the RF systems

What are the open issues?

- Final DTV table of channel allotments not yet issued
- Firm statement on analog sunset date with policy towards extensions
- What is the latest date for stations to commence operation on final DTV channel assignment?
  - Is the Commission expecting a flash cut ?
  - Will there be a transition period?
  - Are extensions likely to happen if stations are not ready due to supplier delivery?
  - If there is a transition period, is it pre or post analog sunset?

Other DTV and RF activities that will absorb supplier capacity

- Stations that are purchasing a backup DTV transmitter
  - Requires transmitter and installation crew
- Stations that want to convert their analog transmitter to a DTV backup transmitter
  - Requires exciter(s) and installation crew
- International business
- Deployment of mobile video transmission networks
  - Requires transmitters, mask filters, line, antennas and installation crews

Solid-State Transmitter—
1.8 kW Initial Out-of-Core On-Air

Out-of-Core UHF DTV; Final In-core UHF		Out-of-Core UHF DTV; Final In-core VHF	
Intermediate Out-of-Core Power Increase	No Intermediate Out-of-Core Power Increase	Intermediate Out-of-Core Power Increase	No Intermediate Out-of-Core Power Increase
$515,000 1.8 kW Ch 57	$515,000 1.8 kW Ch 57	$515,000 1.8 kW Ch 57	$515,000 1.8 kW Ch 57
$505,000 14 kW Ch 57		$505,000 14 kW Ch 57	
$700,000 14 kW Ch 14-51	$700,000 14 kW Ch 14-51	$630,000 3.5 kW Ch 2-13	$630,000 3.5 kW Ch 2-13
$1,720,000 Total RF Investment	$1,215,000 Total RF Investment	$1,650,000 Total RF Investment	$1,145,000 Total RF Investment

Examples of typical powers for station requiring replication or maximization ERP of 200 to 350 kW UHF; prices are high end cost range.

IOT (Tube) Transmitter—
30 kW Initial Out-of-Core On-Air

Out-of-Core UHF DTV; Final In-core UHF		Out-of-Core UHF DTV; Final In-core VHF	
Intermediate Out-of-Core Power Increase	No Intermediate Out-of-Core Power Increase	Intermediate Out-of-Core Power Increase	No Intermediate Out-of-Core Power Increase
$875,000 30 kW Ch 57	$875,000 30 kW Ch 57	$875,000 30 kW Ch 57	$875,000 30 kW Ch 57
$345,000 60 kW Ch 57		$345,000 60 kW Ch 57	
$480,000 60 kW Ch 14-51	$480,000 60 kW Ch 14-51	$755,000 7 kW Ch 2-13	$755,000 7 kW Ch 2-13
$1,700,000 Total RF Investment	$1,355,000 Total RF Investment	$1,975,000 Total RF Investment	$1,630,000 Total RF Investment

Examples of typical powers for station requiring replication or maximization ERP of 800 to 1000 kW UHF; prices are high end cost range.