Commercial Radio Networks in US Are Now on Both the New and Old Satellites

Action Required to Repoint or Replace Your Downlink Antenna by June 30

Please Forward to Your Chief or Contract Engineer

February 7, 2017

1. What is happening?

The satellite that the US commercial radio network industry has used for 35 years, currently known as AMC-8, at 139 degrees West Longitude has exceeded its design life and is not being replaced by an equivalent satellite at the 139 position. The radio networks are moving to a new satellite at a different orbital location. **All radio stations who use programming from AMC-8 must re-point or replace their downlink antennas (dishes) by June 30, 2017.**

2. What networks are executing this plan?

The major US radio networks that operate their own satellite systems (uplinks) - Learfield, Orbital Media Networks (OMNi), Premiere Networks, Skyview Networks and Westwood One - formed a group to learn what satellites would be available as AMC-8 reached end of life. The group contacted all three satellite companies that provide C-band service to the US and traded detailed specifications and business proposals to come up with a workable plan.

3. What about ABC and CBS? IMG College Sports?

ABC News is distributed by Skyview Networks. CBS News is distributed by Westwood One. IMG College Sports is distributed by Orbital Media. All three will move when their uplink distributors move.

4. What is the new satellite called, and where is it in the sky?

The new main satellite for US commercial radio networks is now **AMC-18 at 105 degrees West Longitude.** AMC-18 has 5 years of useful life remaining.

AMC-18 will eventually be replaced (once the launch schedule allows it) with an even newer satellite, **SES-11, at the same 105 location.**

Moving from AMC-8 (at 139) to AMC-18 (at 105) will require work by every affiliate. The second step, changing from AMC-18 to the newer SES-11, will not require any affiliate work because both will be at the same 105 West location.

There will also be a backup satellite, SES-1, at 101 degrees West Longitude, which will only be pressed into use if AMC-18 or SES-11 completely fails at some future date.

5. When is the earliest I can repoint my dish?

We are now in the five-month overlap period, from February 1 to June 30, 2017, during which the radio networks are providing service on both the old AMC-8 and the new AMC-18. So the earliest you can repoint is this week.

6. What happens if I don't repoint my dish by June 30, 2017?

If you do nothing, all network shows that are delivered via the AMC-8 satellite will go dark on your stations. This includes Rush Limbaugh, CBS News, Sean Hannity, NBC Sports Radio (Mike Florio, Newy Scruggs, Mark Malone), Talk Radio Network (Sam Sorbo, Roy Masters, Robert Davi), Skyview Networks play-by-play sports and news programming, ABC Radio, ABC News, Dave Ramsey, Westwood One News, Business Talk Radio Network [BTRN] (Ray Lucia, Business Rockstars), Michael Savage, Carson Daly, Sports Byline, Mark Levin, Sports USA, Touchdown Radio, Phil Valentine, CBS Sports Radio (Jim Rome, Doug Gottlieb, Damon Amendolara), Brownfield Ag News, Charles Osgood, Cigar Dave, Delilah, Glenn Beck, Doctor Oz, Big Boy, Steve Harvey, Learfield Sports, Bobby Bones, Dan Patrick, IMG College Sports, John Tesh, Nashville Hot Country, Ask Heloise, The Ray, Café Nashville, Rocky Mountain News Network, North Carolina News Network, United Stations Radio Networks' Nights with Alice Cooper, Lex & Terry, HardDrive XL, Open House Party, Westwood One 24-hour satellite formats and more than 1,000 other show titles that are delivered via AMC-8.

7. Are there any advantages or drawbacks to being on a satellite at 105 West instead of at 139 West?

Yes, both.

The good news -

- AMC-18 / SES-11 are higher up in the sky, roughly due south of Denver. This position is less likely to be blocked by buildings or trees to the southwest.

- The 105 West location requires your dish to look through fewer miles of precipitation to see the satellite. This is helpful for stations in the eastern US, who generally experience more rainfall than in the west.

- Sun transit outages in March and October will now occur about 2.5 hours earlier in the day and will NOT fall during the height of afternoon drive. For example, sun outages for the 105 West satellite downlinked at Boston will occur at about 3 PM EDT. For a downlink in Los Angeles, they will occur at about 11:30 AM PDT. (By contrast, on our old 139 West satellite, Boston experiences these outages at about 5:15 PM EDT, while Los Angeles sees them at about 2:30 PM PDT.)

SES-11, when launched, will be a brand new satellite, but of a proven design that seems to have far fewer issues than the older AMC-8 design.

Potential issues –

The 139 West location is "the last house at the end of the street" so there is no neighboring satellite to the immediate west. This means that some affiliates whose dishes are damaged, distorted or are too

small can get away with purposely mis-aiming their dishes a little too far to the west to avoid interference from the nearest easterly neighbor satellite at 137 West.

At 105 degrees West, we do not have this luxury. The nearest easterly C-band satellite is at 103 West, only 2 degrees away. The nearest westerly C-band satellite is at 107.3 West, only 2.3 degrees away.

The networks strongly urge all affiliates to install a dish that is 2-degree compliant (generally this means 3.7 meters diameter or larger) to make sure you can reject interference from these two adjacent satellites. This may require you to replace your downlink dish even if it is in good condition, but is too small.

8. To make sure I am ready for this transition, how strong and clean should my reception be now?

Each receiver connected to your downlink antenna should ideally be receiving signals – each from its own network – with an **Eb/No of 10 dB or better** - on the old AMC-8 satellite.

Our reasoning: Most receivers lose lock with an Eb/No somewhere below 5 dB. At different places on the ground, the signal coverage of the new satellite may vary by 2 dB – up or down – from what the old satellite had. Plus each downlink should have an additional 3 dB of margin above that to account for rain fade, local interference, wind distortion of the dish and other factors. A 5 dB minimum Eb/No, plus 5 dB of margins, gives an ideal reading of 10 dB Eb/No on the old satellite before repointing.

If your current dish can't reach 10 dB Eb/No for each receiver, you should consider repairing or replacing it.

Special considerations apply in Alaska where the RF signal may be as much as 6 dB lower on AMC-18.

9. I have a 3.0-meter dish. Will it be "good enough" in the more-crowded 2-degree-spaced environment?

You could give it a shot. Once the new satellite is illuminated with signals from the networks, you could repoint your 3.0-meter to 105 West to see how much interference (audio dropouts) it gathers.

The issue is that your test would only show the interference that was present on THAT DAY. The owners of the adjacent satellites constantly have leases starting and ending, and users coming and going, with different frequencies and power levels from month to month and from year to year. The interference could suddenly get worse, and none of us would be given any advance notice.

You and your listeners could suffer with the interference (audio dropouts) while you worked on getting a new 3.7- or 3.8-meter dish in place.

Since each network is on a different frequency, some networks may have interference while others might not. If Dave Ramsey sounds great but Rush Limbaugh has 50 dropouts per hour, you could start a whole new conspiracy theory!

The safe thing would be to put in a 3.7- or 3.8-meter downlink this Spring.

10. Is the polarization setting at 105 the same as it was at 139 West?

All five US networks are using vertical polarization on their AMC-18 downlink paths, the same as we have on the old AMC-8. But because of the crooked look angles required to see any satellite, no two polarization

angles are exactly alike, so you will need to adjust your feed element for minimum cross-polarized interference. Repoint first, then peak it, then set polarization.

11. Will the L-band center frequencies of the network carriers be the same as they are now?

At the new 105 location, our L-band frequencies are different. You (or your network) will need to set the center frequencies on your Wegener, XDS and STORQ receivers at the time you re-point (or replace) your dish.

Every downlink will be re-pointed on a different day. To ease this transition, the networks are using a "fallback carrier" feature in each receiver. Each receiver stores a small table of frequencies to try if it loses lock. Once your dish is repointed, each receiver will try both the old and new frequencies repeatedly until it successfully locks. Once you are successfully pointed at the new satellite, your receivers should lock to the new signal within 30 seconds to 2 minutes.

Below is a table showing the old and new parameters. The symbol and data rates are not changing. The center frequencies (and the satellite!) are changing.

Network	**Old frequency on AMC-8 at 139W**	**New frequency on AMC-18 at 105W**	**Symbol or data rate (unchanged)**
Learfield (XDS)	01,392,350 kHz	01,434,450 kHz	1,490,000 sps
Orbital (XDS)	01,024,000 kHz	01,017,500 kHz	5,000,000 sps
Orbital (Starguide)	1,018.000 MHz	1,023.900 MHz	3,200,000 sps
Premiere (XDS)	01,040,000 kHz	01,040,500 kHz	7,136,000 sps
Skyview (XDS)	01,406,000 kHz	01,094,000 kHz	2,956,000 sps
Westwood (Wegener)	4,170.50 MHz	4,043.00 MHz	14.000 Mb
Westwood (Kalipso for Storq)	00.979500 GHz	01.107000 GHz	10,127,660 sps
Westwood (XDS)	01,000,500 kHz	01,121,000 kHz	9,259,574 sps

Notes:

Westwood's Kalipso receivers, used for Storq automation for some affiliates, don't have a fallback table and must be tuned from the front panel.

Numbers are shown here with commas for clarity. Receiver displays do not have commas.

12. I like the higher-up location in the southern sky, but in my case, I have a tree that will block reception from the new 105 location. What do I do?

You'll need to either trim or remove the tree, or relocate your dish. Consider the age of your dish as well. If it is 35 years old and is rusted in place, you may not be able to repoint it at all and you'll need to replace it.

13. Will the network distribution companies contribute money toward my efforts to cut down trees or to buy or relocate dishes?

No. Each affiliate should pay its own expenses.

14. Can't the commercial radio industry just stay where it is now, at 139 West Longitude, until the radio advertising market gets better and radio stations have more cash?

We don't have that luxury. AMC-8 has exceeded its 15-year design life, which ended in early 2016. Eventually, SES, the owner of AMC-8, will turn off the satellite. If this were to happen, and if the radio industry had done nothing, network programming would fall silent until we took action to replace AMC-8. We are taking that action now.

15. Can't the US commercial radio networks use their market power to force one of the satellite companies to put a new satellite at 139 West?

No. The entire US commercial radio network industry takes up 77 MHz of satellite bandwidth. This is about 9% of the bandwidth of one 24-transponder C-band satellite, or about 0.4% of the total C-band bandwidth serving North America. That is not a lot of market power. Satellite operators like to see that 60% to 80% of their transponders are leased before they launch a new satellite.

16. Can't we just move all US commercial network programming distribution to the internet?

Not if every affiliate wants live programming. There are still places in the US where the fastest internet download speed you can buy is 1 Mb/sec, which is not fast enough for multiple, live, broadcast-quality audio channels plus web browsing, e-mail and business applications. In some places, that 1 Mb/s costs $110 per month, and has a limit of 12 GB of data per month with an overage charge of 1 cent per additional megabyte. For a cluster taking 2 stereo and 2 mono network streams 24 hours a day, assuming the slow 1 Mb/s data could even be made to work, that would be 188 GB per month, or over $1,700 per month under this pricing plan. Replacing a dish would be cheaper.

Conveniently (or ironically), satellite works best in rural areas, where high-speed internet is hardest to find.

The internet also has no Quality of Service. Nobody gets priority. Five audio streams reaching your radio station cluster are just as unimportant as 10,000 people watching Netflix and YouTube at home. When crises and breaking news stories occur, the internet slows down or stops, just when you want live news coverage on your station.

Over time, this situation will improve as internet bandwidth gets faster and cheaper, so internet delivery of live shows may be possible in a future year. Private, ground-based digital fiber networks (separate from the internet) may also become feasible in future years.

17. I have not bought or installed a satellite downlink in years. Where can I buy dishes and installation services?

Start with your chief or contract engineer, who may offer these services themselves, or know a vendor in your region who does.

The networks do not make endorsements, but several vendors have requested to be listed, at http://www.amc8migration.com/Vendors.html .

18. Who can I contact at the networks with questions?

Learfield: Please call 573-893-1955 or e-mail Randy Williams rwilliams@learfield.com

Orbital Media Networks (OMNi): For AMC-8 XDS networks and affiliates, call (303) 925-1708 option 1, or email support@orbitalmedianetworks.com . For antennas, LNBs, other parts, and installation services call (303) 925-1708 option 2 or email sales@orbitalmedianetworks.com .

Skyview Networks:

Technical Inquiries: Please call Network Operations at 877-503-8910 or email operations@skyviewsat.com

Press Inquiries: Please call Renee Smith at 480-503-8702 or email renee@skyviewsat.com

Premiere Networks:

Technical Inquiries: Please call 818-461-8373 or dishmove@premierenetworks.com

Press Inquiries: Rachel Nelson, 818-461-8057 or rnelson@premierenetworks.com

Westwood One:

Technical Inquiries: Please call 888-HELP-450 (888-435-7450). For Wegener- or STORQ-delivered programming, press option 1, then option 2, or email netops@westwoodone.com

For XDS-delivered programming, press option 1, then option 4, or e-mail techservices@westwoodone.com

Press Inquiries: Jana Polsky, 212-641-2101, jpolsky@westwoodone.com

From time to time the networks will post additional information about this transition at http://www.amc8migration.com