



- [PROTON LAUNCH SITE](#)

DIRECTV10 Blog



DIRECTV 10 Blog



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One Last Report

Well, one last report from on site at Baikonur and, as we have been fortunate to be able to report since we arrived, all is on schedule. The SC is working flawlessly and has positioned itself right where it is supposed to be at this point. The launch vehicle performed with impeccable precision throughout the entire 9 hour, 8 minute and 40 second ride into space. And once the SC properly separated from the LV, there was one collective sigh of relief, followed by smiles and congratulations to all involved.



Following the launch, there was a formal gathering at the Polyot hotel sponsored by our hosts. What a wonderful way to finally celebrate with all the organizations involved in the success of the DTV 10 launch mission. Food, cheer and happy faces were all in abundance.

But, as with every campaign, the work was not complete until everything was packed up and the teams were prepared for their trips home to their families. We spent Sunday and Monday cleaning offices, packing boxes and suitcases, and relaxing. The pressure of preparing for the launch was over and the mood of the days was one of relief and an anxious feeling to get home.

As the goodbyes begin, we would like to extend our special thanks to our hosts here in Baikonur. Just like every campaign, it is never goodbye, it is just..."Until we see you next time." So as we say in Russian: "SpyCEEba bolSHOY moy drukes." Thank you very much my friends!!

Das vedanya from Baikonur!

Photo: DIRECTV 10 Launch Team on the pad at Baikonur. Visit the [Photo Gallery](#) for more pictures.

Posted 09 July 2007
[2 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 17:23, Baikonur

Thank You for Joining Us!

Another ILS launch campaign has come to successful conclusion! We appreciate all the great support from DIRECTV and Proton fans alike and hope you'll join us for our next mission, in September.

The blog and blog photo album will be available live until 20 July; after that time, it will be archived by PDF to the [DIRECTV 10 launch archive](#).

Posted 09 July 2007

[0 comments](#)

Posted By: ILS Communications Team at 10:21, EDT

ILS Proton Successfully Launches DIRECTV 10

We have just received confirmation that the fifth and final burn sequence has been completed nominally. The Proton Breeze M carrying DIRECTV 10 has successfully placed the satellite in orbit, completing the mission for ILS.

Click [here](#) for the complete press release and launch photo.

Posted 07 July 2006

[15 comments](#)

Posted By: ILS Communications Team at 10:25, GMT

3 & 4 Down... One to Go

The ILS launch team has confirmed multiple mission events have successfully occurred: third burn ignition and shutdown, jettison of the additional propellant tank (APT) and fourth burn ignition and shutdown. We are standing by for information on our fifth and final burn sequence, which takes place at approximately 6 a.m. EDT.

Posted 07 July 2007

[0 comments](#)

Posted By: ILS Communications Team at 05:30, GMT

Breeze M Second Burn Complete

We have just received confirmation of a nominal second burn and subsequent shutdown of the Breeze M upper stage. Next mission milestone will occur at approximately three hours and 26 minutes after liftoff with the third & then fourth ignitions and shutdowns.

Posted 07 July 2007

[2 comments](#)

Posted By: ILS Communications Team at 02:57, GMT

We have LIFTOFF!



Congratulations to all the teams on a successful liftoff of Proton Breeze M carrying the DIRECTV 10 satellite, which occurred at 7:16 a.m. Baikonur (9:16 p.m. EDT July 6th, 01:16 GMT).

The three stages of the Proton vehicle have performed as planned, and it is up to the Breeze M upper stage to complete the mission. The upper stage has had its first burn, and it is now in a circular parking orbit. We expect to receive confirmation of the second burn in about an hour.

Click [here](#) to view a clip of the launch highlights.

Photo: Proton M Breeze M lifting off with DIRECTV 10. Visit the

[Photo Gallery](#) for more pictures.

Posted 07 July 2007

[3 comments](#)

Posted By: ILS Communications Team at 01:44, GMT

T-2 Hours

Propellant Load - *Complete*
Liquid Thermal Control System - *Activated*

Weather Report

Temperature: 21.8 C (71 F)

Pressure: 743.8 mm hg

RH: 66%

Light clouds, mostly Clear

Light winds at 1-2 MPH

No issues being worked.

State Commission Report Received: *ALL SYSTEMS GO FOR LAUNCH*

Photo: Countdown. Visit the [Photo Gallery](#) for more pictures.



Posted 06 July 2006

[1 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 23:18, GMT

L-12 h, 45m



Ground control to DTV 10... Ground Control to DTV10 (humming Bowie's "Space Oddity"). The Boeing ground control crew is ready to go at the Building 92A-50 control room, as they prepare for the launch countdown. Smiles and excitement are the order of the day. All parties are in place to run the final countdown clock. ILV final closeouts beginning at 21:00 local, State Commission meeting at 22:00 local, and Launch Vehicle fueling at 01:15 local are just a few of the highlights of the 7/701 script as the launch preparations continue.

The weather report looks very promising for

tomorrow morning with predicted blue skies and sunshine to watch the launch of the DTV 10 SC and the ILV into the heavens.

Photo: Ground control team, ready for action. Visit the [Photo Gallery](#) for more pictures.

Posted 06 July 2007

[6 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 18:57, Baikonur

At Baikonur -- Proton Readied to Launch DIRECTV 10

Excerpted from [Khrunichev press release](#)

At Baikonur Cosmodrome, Kazakhstan, the State Commission will meet today, 6 July, at 10 p.m. (Baikonur local time) to certify the readiness of the Proton Breeze M vehicle and flight control team for the launch.

The launch is currently scheduled at 7:16 a.m. (local Baikonur time) on July 7, 9:16 p.m. Friday, July 6 (EDT).

DIRECTV 10 mission will be the debut of the Enhanced Proton Breeze M, which is capable of launching spacecraft over 6,000 kg into Geosynchronous Transfer Orbit (GTO).

Before the launch, Russian Orthodox priests blessed the rocket and the cosmodrome technicians today, at 12:00 a.m.

Khrunichev State Research and Production Space Center, which was created from the merger of the Khrunichev Machine-building Plant and the Salyut Design Bureau 14 years ago, has become a pillar of Russia's space industry. Khrunichev has its headquarters in Moscow, and includes among its branches a number of key manufacturers of launch vehicle and spacecraft components in Moscow and in other cities of the Russian Federation.

The launch will be performed under auspices of ILS- International Launch Services Inc. ILS is a joint venture of Space Transport Inc., Khrunichev State Research and Production Space Center of Moscow and RSC Energia of Moscow. ILS is incorporated in Delaware in the United States, and is headquartered in McLean, Va., a suburb of Washington, D.C.

Photo: Proton and DIRECTV 10 on Launch Pad 39. Visit the [Photo Gallery](#) for more pictures.

Posted 06 July 2007

[0 comments](#)

Posted By: Khrunichev Team at 14:27, Moscow



Last Rites of Passage



L-1 to Go

The final launch countdown rehearsal was flawless, and we are no longer tracking the upcoming launch by days. With the passing of 7:16 a.m. Friday local Baikonur time, the 7/701 script is now running by hours. All thoughts are focused south from the hotel complex to Launch Pad 39 and the ILV.

One of the many traditions that our Russian partners have is the blessing of the ILV. Built into the script is a visit from one of the local Russian Orthodox priests to give his blessings and sprinkle team members and the ILV with holy water in preparation for the upcoming launch. It is a very solemn Russian rite of passage for all of their launch vehicles, and no one is about to break from tradition at this point in the campaign.

Final checks and balances are being performed. At 10:00 p.m. Baikonur local time, there will be one final meeting with the State Commission. At this gathering, all parties will agree that the ILV is ready for fuel loading.

Now the only thing we will wait to hear from all parties: The SC and the ILV are "GO FOR LAUNCH!!!"

Photo: A time-honored tradition -- the blessing of the rocket and launch crew. Visit the [Photo Gallery](#) for more pictures.

Posted 06 July 2007

[1 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 13:54, Baikonur

Well-Oiled Machine

While ILV health checks are continuing, there was one final opportunity for the American teams to visit the launch pad as a group. It was Khrunichev picture and interview day at the pad. As with everything at this point of the campaign, the press day is built into the 7/701 script, which the procedure used for all launch pad operations. Even this second time seeing the ILV upright and tucked into the Missile Service Tower (MST), it is still quite an impressive thing.

The Russian press took many pictures and interviewed various members of the Khrunichev team, as well as representatives from Boeing and ILS. The one common denominator of all the interviews: this entire campaign has been a TEAM effort on everybody's part. It has been a top notch team working together from every aspect. From SC offload, to single line flow, to joint operations, everything to date has performed right on schedule. It is, as they say, a truly well-oiled machine!

Posted 05 July 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 18:19, Baikonur

4th of July. Guess What? BBQ!



Only L-3 Days Left...

With the rocket upright, the SC tucked away awaiting its long journey, and the official countdown clock started, it was time for everyone to let their hair down a little bit and celebrate the 4th of July. Although work was still ongoing, there was time in the schedule for a free evening of festivities. Leave it to the Pinkertons to bring balloons, flags, tablecloths, and all sorts of red, white and blue decorations to the campaign. Someone was thinking!! It turned out to be a wonderful evening.

The weather was perfect for the BBQ. Everyone gathered at the Fili Hotel after a day of electrical checks, purge checks, and all around health checks of the SC and the LV. All systems are a go, and we are right on schedule. The grills were kept busy with smoked ribs, steaks and burgers, and even a pot of homemade chili (right out of the can!). You might have thought that we hadn't eaten in weeks as everyone really enjoyed the American fare. There were very few leftovers! Dinner was topped off with homemade lemonade popsicles and a delicious American flag cake that our friends at the hotel surprised us with. There was even a water balloon toss that ended up being a water balloon fight. Like a bunch of little kids! The music, the dancing, the singing, all in all it was a touch of home.

The one American tradition that we did not have was a fireworks show. It didn't seem, though, that anyone really missed it, because the main topic of conversation throughout the entire picnic was the upcoming launch. As one reveler put it, "we are saving the biggest and best rocket for last!" The final countdown is ON!

Photo: Mmm... flag cake. And the last DTV 10 BBQ! Visit the [Photo Gallery](#) for more pictures.

Posted 04 July 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 23:39, Baikonur

ILV Move to Pad 39

L-4 Days and Counting...

Another early start to another day of the campaign, and it's back to our work clothes from playing dress up. After receiving the OK to roll to the pad, it is time to send the ILV on its trip to Launch Pad 39.

The locomotive was hooked up late Monday evening. Once we reached the traditional 6:30 a.m. (local) departure time, the convoy was off on its two and a half hour journey. The rather uneventful train trip out to the pad could be watched from various points around Area 95 and drew the biggest crowd of onlookers we have seen out here so far. Everyone who wanted to attend was permitted on the pad deck to watch the incredible sight as the assembled ILV rolled horizontally into position next to the flame bucket. Then it was hydraulically rotated to its vertical launch position.



Talk about a photo opportunity. Pictures, videos, Russian and Americans alike... everyone tried to capture it in as many ways as they could. One of the favorite pictures to take is to pose as if one hand is pushing the rocket to vertical. It never really DOES look like one person is doing the lifting, but it is a tradition to try and get that shot to commemorate this exciting day.

The anticipation continues to build as we move from the daily schedule to what is referred to as the 7/701 script. This is the official countdown schedule that will bring us to launch day!

Photo: Proton Breeze M carrying DIRECTV 10 on its way to Launch Pad 39. Visit the [Photo Gallery](#) for more pictures.

Posted 3 July 2007

[10 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 15:42, Baikonur

State Commission Meeting



L-5 Days to Launch

Breeze M fuel loading was completed right on schedule late Monday afternoon. As we like to say after every important milestone, "There were no anomalies!" Considering the hazardous nature of the load operations, no anomalies is the RIGHT answer! Time to send the ILV on its final journey prior to launch: transport to Launch Pad 39.

Before that can happen, all parties involved in the campaign must get together for the State Commission Meeting. This is a gathering of the heads of the myriad organizations involved in launching DIRECTV 10. They gather for an official signing of a certificate stating that everything is go for transport to the pad and that pad operations can commence. Everyone from the spacecraft contractors to the local representatives of the electric company gave their "thumbs up" on the upcoming transport.

It is also an evening to put away the typical "working uniform" of jeans and sneakers to dress up and look good in khakis, shirts and ties. It was almost hard to recognize the participants!

Photo: ILS program staff giving a presentation at the State Commission Meeting. Visit the

[Photo Gallery](#) for more pictures.

Posted 2 July 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 19:29, Baikonur

Fueling Up at the Pump

It is Sunday morning and L-6 days to launch. After two relatively quiet days of ILV checks, it is time to move it to the Breeze M fueling station. This is day one of two days performing one of the more hazardous operations we will witness during a launch campaign. The ILV is positioned on a specially designed rail car -- specially designed in that it needs to support the entire length and mass of a fully integrated Proton M launch vehicle!

With the ILV ready to roll, the troops gathered outside of Hall 111 in anticipation of the transport. Between the cool air, light breeze and bright sunshine, there couldn't be a better morning to transport. It's breathtaking to watch the horizontal ILV roll slowly out of the building. The only thing that could bring on more goosebumps would have been Wagner's "Ride of the Valkyries" (think "Apocalypse Now") playing on loudspeakers as it came out!



The unit was towed out via a locomotive, and then backed up into the Breeze M fueling station, which looks like a huge carport of sorts. This is its home for two days as the Breeze M multi-burn main engine takes on fuel. All fueling operations are completely controlled by Khrunichev specialists.

Because of the nature of the fueling operations, Building 92A-50 is cleared of all non-essential personnel. With the perfect weather and a day off, a large number of the American team took a bus ride in to Baikonur City. The rest of us decided to give the kitchen staff an evening off, and plan a long overdue Sunday summer cookout.

Photo: Backing the integrated launch vehicle in to the fueling bay. Visit the [Photo Gallery](#) for more pictures.

Posted 1 July 2007

[1 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 11:23, Baikonur

Media Advisory

The official [Media Advisory](#) has been released for the ILS Proton launch of DIRECTV 10. Check back for satellite broadcast coordinate updates.

Posted 29 June 2007

[0 comments](#)

Posted By: ILS Communications Team at 16:06, EDT

Mission Overview

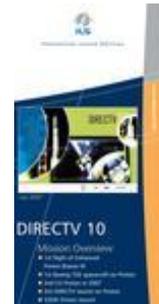
The [DIRECTV 10 Mission Overview](#) is now available online and for download in PDF format.

Also, be sure to visit our latest online newsletter, [LIFTOFF](#) for an interview with ILS Program Director Jim Bonner on the Proton enhancements that will be featured on the launch of DIRECTV 10.

Posted 29 June 2007

[1 comments](#)

Posted By: ILS Communications Team at 09:26, EDT



AU + LV = ILV



Very little time was wasted before the AU was mated to the launch vehicle (LV). With the AU on its rail dolly, Khrunichev specialists hand cranked the unit and aligned it with the LV. Mating operations were performed and, as we always like to report, there were no anomalies. It is finally one complete unit, known as the Integrated Launch Vehicle (ILV).

While Khrunichev puts the ILV through two days of electrical checks, thermal shielding installations and readiness checks in preparation for the move to the Breeze M

fueling station, the Boeing team performs their own pre-transport checks. Battery charging, RF checks, nitrogen purging requirements; all are performed side-by-side with Khrunichev in Hall 111. As you can most likely tell by the pictures, there's plenty of room in that huge hall for everyone to work in unison.

Needless to say, the excitement is building as everyone sees the finished product and wraps up preparations for its final leg of a long journey: To the Breeze M fueling station and then off to Launch Complex 39.

Photo: The ascent unit being mated to the Proton launch vehicle in Hall 111. Visit the [Photo Gallery](#) for more pictures.

Posted 28 June 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 21:10, Baikonur

AU Move to Hall 111

L-10 Days and Counting!

The signing festivities are complete and it is once again time to get down to business. With the rail transporter in place in Hall 101, the AU is lifted from the tilter and positioned over the transporter. The transporter is a locomotive car designed to support the AU on its journey to Hall 111.

A locomotive engine is moved into Hall 101 and connected to the transporter rail car. As team members gather to watch, the slow and rather brief train ride gets underway. The train pulls out of Hall 101 and moves down the rails, at which point a switch is moved so the train can back up and move towards the entrance to Hall 111. This is the hall which houses the complete Proton M/Breeze M rocket that will take the DIRECTV 10 satellite into orbit. As we enter through a huge roll door, the size of the room is all one notices. As Hall 101 was earlier described as being able to hold a soccer game, this room can hold the grandstands as well.

As the AU enters the room, we can only marvel at what is seen: the complete launch vehicle, laying horizontal in its support stand. Pictures do not do justice to the impressive sight of the LV in this room.

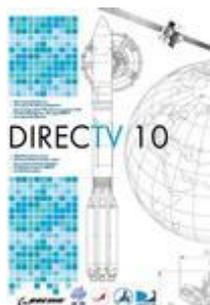
The AU is lifted from the transporter and is placed on a holding dolly on rails. It is positioned at the head of the Proton rocket where it will rest for one night, as Khrunichev prepares the LV and the AU for mating. The excitement is building... stay tuned!

Posted 27 June 2007

[2 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 17:19, Baikonur

DIRECTV 10 Launch Booklet



We are pleased to announce that, for the first time on the ILS site, we are able to offer the upcoming launch booklet published by our partner, Khrunichev.

[DIRECTV 10 Launch Booklet](#)

(Requires Adobe Reader)

Posted 27 June 2007

[1 comments](#)

Posted By: ILS Communications Team at 12:09, EDT

Countdown to Launch

The countdown clock for DIRECTV 10's launch has officially started on the ILS homepage! Also, we have the [webcast](#) test page link up so you can bookmark it for the live broadcast on launch day. The broadcast begins approximately 30 minutes prior to launch, which is currently scheduled for July 6 at 21:16:19, EDT.

Posted 27 June 2007

[1 comments](#)

Posted By: ILS Communications Team at 10:14, EDT



Signing the PLF



One of the more technical operations that we perform here is the signing of the payload fairing by the entire launch team. It takes a lot of coordination with all the parties. The exacting nature of the complex operation is really a sight to behold, as the team members take turns climbing up the ladder, putting their personal touches on the fairing logos and then climbing back down the ladder to safety.

The biggest decisions are what to write, and who to dedicate the launch to: parents, children and loved ones of all sorts are named on the fairing as a tribute to them from the launch team members. It's a great photo opportunity for the team. It is also the last thing we do prior to mating the AU to the launch vehicle. It has been a long road for the SC contractors and their satellite, and it is at this point that they hand it over to the capable hands of our Russian partners from Khrunichev.

Photo: ILS Launch Ops Manager undertaking the complex task of his launch dedication. Visit the [Photo Gallery](#) for more pictures.

Posted 25 June 2007

[1 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 09:34, Baikonur

PLF Encapsulation

It is time to say goodbye to the SC, visually anyway, as the payload fairing is ready to be installed. With the SC horizontal and hovering above a rail track, the bottom half of the fairing is situated on a rail car below. It sits in a cradle and is hand cranked in to position under the SC. Once that is in place, the upper half of the fairing is hoisted up by crane and positioned above the prone SC and lowered to mate with the bottom half. Under the watchful Boeing team's supervision, the maneuvers were successful and the DTV 10 SC was officially encapsulated in preparation for its ride into orbit. This newly assembled configuration is now called the ascent unit (AU).



Once the two halves are secured, the team spends two days performing electrical tests and verifying that, although encapsulated, it is still possible to communicate with the SC. The term "team" certainly applies in this case, as a veritable plethora of activities are ongoing while the Boeing folks and the Khrunichev teams work together performing pre-launch testing.

As impressive a site it is to see the satellite hovering in a horizontal position, seeing the whole AU cantilevered off of the tilter stand is even more impressive. Time now to mate the AU to the Proton launch vehicle! The fun continues...

Posted 24 June 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 21:58, Baikonur

Going Horizontal



After a successful mating of the SC to the Breeze M, the sum of which is referred to as the upper stage (US), there was very little time to admire the handiwork as we moved right into payload fairing encapsulation the very next morning. The first order of business required for encapsulation is the need to have the SC in a horizontal position. This is one of the more harrowing operations to witness. Here is the SC stack-up, fully loaded with propellant, coupled with the Breeze M engine, and mounted to a turnover fixture. That is a whole lot of inches and a whole lot of pounds, supported only

by the mounting base, and we have to rotate it from vertical to horizontal in order to install the payload fairing.

No matter how many times one observes this operation, one cannot help but watch and comment that it is just not supposed to look like this. It can be quite nerve-wracking during these 30 minutes. It seems to get very quiet in the clean room while everything is underway, but the method once again proved true. The Breeze M, the newly designed payload adapter system and the flight hardware moved to horizontal just as they were designed to do. It really is a spectacular sight to see.

Posted 23 June 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 17:25, Baikonur

Joint Operations

Now that SC stand-alone testing is complete, we are starting the phase known as Joint Operations. This is when the SC is mechanically and electrically mated to the Launch Vehicle hardware. To put it simply, this is when we start making the little pieces into one big piece!

The first step was to mate the SC to the adapter system - a conical structure that attaches to the bottom of the SC. Next, we took the SC-adapter combo and mated it to the Breeze M upper stage. We successfully completed these steps today after about 18 hours of work, taking into account all the testing and mechanical and electrical checks that had to occur.



Saturday, the SC-adapter-Breeze M stack will be rotated from vertical to horizontal and the payload fairing installed. The combination of all these pieces into a single unit is known as the ascent unit (AU). The SC will remain in a horizontal orientation until we move the whole launch vehicle to launch pad on L-5 days. This differs from U.S. launch vehicle processing, in that the majority of assembly occurs horizontally. Quite a difference if you are not used to it!

Photo: SC mated with the adapter system and Breeze M. Visit the [Photo Gallery](#) for more pictures.

Posted 22 June 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 23:28, Baikonur

Contingency Days

Now that SC fueling is complete, we are able to relax for a couple days during scheduled contingency days -- extra days built into the schedule. The SC is ready to go and the team is resting before the push of Joint Operations. To celebrate the successful completion on SC fueling and the end of stand-alone operations, ILS and Boeing hosted a barbeque (as you can tell, those are quite popular here) for all the team mates. Steaks and salads helped remind us of home, though the temperatures of around 100 degrees Fahrenheit (37 Celsius) reminded us we are not in Los Angeles or Virginia!

We're looking forward to starting the joint operations phase on Friday and we'll have lots more to tell you about then.

Posted 18 June 2007

[2 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 21:56, Baikonur

Fuel Load Ops Finished

Today, the Boeing propellant team loaded the hydrazine fuel onto the SC. This operation, which took approximately eight hours, is the second half of the propellant load. It marks the completion of the propellant loading phase of SC preps. Kudos to the entire DIRECTV and Boeing teams for an excellent operation! It all went smoothly and according to plan. One engineer remarked that it was "boring", but that is exactly how we want operations here to continue, right up until T-0 on 7 July (local time).

Because the propellant loading is a hazardous operation, the building was cleared and the rest of the non-essential personnel spent the day relaxing, traveling into town to shop and eat shashlik (a very tasty Russian ka-bob). It was also a great chance to call our dads to wish them a happy Father's Day.

We will continue with some post-fueling testing of the SC, flight closeouts of all thermal blankets and removal of some Remove Before Flight (RBF) items over the next several days. Joint operations commence on Friday, 22 June.

Posted 17 June 2007

[2 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 22:20, Baikonur

Oxidizer Load

The DTV-10 SC operates with a bi-propellant propulsion system. This means that in the vast emptiness of space, it carries two sets of chemicals that react exothermically (hot and explosively!) when combined in the engines on board the SC to provide final drift orbital insertion. Since there is no oxygen in space, one of these chemicals supplies the oxygen in the chemical reaction. For this spacecraft, it's dinitrogen tetroxide (N₂O₄), otherwise known as oxidizer. We successfully loaded this first half of the propellants on the SC today.

The operation required that all non-essential personnel evacuate Building 92A-50. We were lucky to have a Dnepr launch occurring at the other end of the Cosmodrome to keep us occupied for a bit. The teams that had the day off got to witness a spectacular early morning launch of the converted ICBM rocket.

Posted 15 June 2007

[2 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 21:29, Baikonur

Dnepr & Buran

While stand-alone operations were well underway, part of the Boeing team was able to take advantage of great weather and a break in their schedule to take in the launch of a Dnepr (pronounced "nepper") rocket from Area 31 of the Cosmodrome. Clear skies, an early morning launch and a westward-looking



view gave the team a great opportunity to watch and hear the latest flight of the Dnepr rocket as it hoisted a small communications payload into space. While the Dnepr is not nearly as large as a Proton rocket, it was still a spectacular event. To hear the spectators describe it, there is still nothing quite like watching a rocket lift off and then, seconds later, hearing and feeling the rumble. With the blue skies, the rocket was visible through first stage separation. Although the launch was early in the morning, it was well worth missing breakfast to see it.



After arriving back at the hotel and not missing lunch, the Boeing gang re-boarded the bus for an afternoon visit to the Gagarin Museum at Baikonur Cosmodrome. From a display honoring its namesake, Russian cosmonaut and national hero, Yuri Gagarin, to an actual full-scale model of the Buran, the Russian built version of the space shuttle, the history of the Russian rocket and space era is chronicled in great detail. Over 50 years of Cosmodrome history are on display in the museum. Many thanks go out to Khrunichev for accommodating their visitors with

another incredible visit.

Photo: Top -- Inverted mushroom cloud from the Dnepr launch. Bottom -- Boeing team in front of the Buran. Visit the [Photo Gallery](#) for more pictures.

Posted 15 June 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 18:45, Baikonur

Electrical Testing Complete!

Today, our DIRECTV customer provided a final review of all the stand-alone electrical testing results and pronounced the SC ready for propellant loading. This announcement follows the "Consent to Load Propellants" meeting held between DIRECTV and Boeing. It's a critical step, in that it allows the load of highly hazardous chemicals into the tanks on board the SC. It's not an operation that you want to repeat or -- in the worst case -- reverse!

After this review was completed, we held our Propellant Loading meeting where we reviewed the readiness of all systems, organizations, processes and procedures for loading SC propellants. Everyone agreed that we were ready, and the appropriate certificates were issued and presented to the KhSC program team.

Posted 14 June 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 18:24, EDT

Kometa BBQ

In keeping with the axiom about "all work and no play", it was decided that we were overdue for a little bit of play. With stand alone testing successfully underway and a full weekend schedule of spacecraft fuel loading ahead of us, we took advantage of a contingency day to gather the troops and break open the freezer and fire up the grill: steaks, Italian sausage and boiled shrimp -- a launch campaign version of surf and turf. We never really knew how many expert grillers we had on our campaign until all of the Pinkerton, ILS and Boeing personnel shared their proven grilling methods with our hosts. We discovered that there is no language barrier when it comes to grilling.



The weather was perfect for our informal courtyard gathering at Baikonur's Kometa Hotel. ILS, Boeing and our staff from Weissker spent an enjoyable evening relaxing, dining and anticipating the upcoming spacecraft operations. There was even a rousing (and at times competitive but humorous) ping-pong tournament between some of the Boeing folks inside the hotel. Short of having this picnic by the side of a pool, it felt like home.

As the campaign winds along, everyone is sharing the same feeling as we prepare for next milestone. The smiles are wide and the thumbs are pointed way up: bring on the propellant loading!

Photo: Thumbs up from some Boeing team members. Visit the [Photo Gallery](#) for more pictures.

Posted 13 June 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 22:34, Baikonur

Standalone Operations

The Boeing SC contractor has been busy testing the DIRECTV 10 SC in what is known as stand-alone operations. This is the time in the beginning of the launch campaign when the SC contractors work alone to test and verify that the SC is healthy, load propellants and configure the SC for launch. After all these steps are done and the SC is completely ready to go for launch, we start "joint operations" where the SC is integrated with the Proton LV.

Right now, they are in the process of verifying that the SC is completely healthy before we proceed to the next step: loading propellants into the tanks inside the SC. In parallel, the SC propellant loading team has been busy with all their checkouts and preparations. Everything is proceeding per the plan - a result of the last 18 months of preparation by DIRECTV, Boeing, ILS and KhSC.

Posted 11 June 2007

[0 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 16:38, Baikonur

Unpack and Fitcheck

On the night of June 6, the SC in its container made its way on the train from the airport to the processing facility, referred to as 92A-50. The main room of this building, known as Hall 101, is absolutely huge - more than large enough to accommodate all the train cars containing the SC and support equipment with room to spare for a soccer game if so inclined!

The SC container was offloaded, placed on the floor of the hall, and all the associated equipment was placed in the areas needed to support the unpacking and testing of the SC. This was finished by about 3 a.m. on June 7 - making for a very long 18-hour day counting all the operations, but using two shifts of personnel.



The SC is well protected within the container, so we left it there overnight. Early the next morning, the riggers came in and started the process of removing the SC from its container. This entails removing the lid, rotating the SC from horizontal to vertical, and using the crane to life it off its supports.

While this was going on, the Khrunichev specialists were preparing the adapter system on its stand in Hall 101 for a "touch and go" fitcheck. To ensure that there are no problems with the mechanical interface of the SC with the adapter and electrical cabling, we perform this short fitcheck before the SC enters Hall 103A, the SC processing and fueling hall. After a successful fitcheck, the SC was moved to a portable dolly and rolled into Hall 103A - its home for the next 14 days.

Next step - SC stand alone testing and propellant load preparations!

Photo: SC fitcheck underway. Visit the [Photo Gallery](#) for more pictures.

Posted 07 June 2007

[4 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 20:35, Baikonur

All Aboard the SC Train!



Well, today the DIRECTV 10 spacecraft (SC) arrived safely from Los Angeles. The Antonov-124 aircraft took a circuitous path after its departure from Los Angeles airport on 4 June, traveling first to Winnipeg, Canada, to Iceland, then Ulyanovsk, Russia and finally to Yubeliy airport at the Baikonur Cosmodrome. We had planned on a 10 a. m. arrival time, and we are sorry to report that the plane was 15 seconds late (probably due to some headwinds in the last mile to the airport). Better luck next time guys!

After taxiing and clearing customs for five very tired passengers, the team snapped into action to open the hold and remove the support equipment and SC container from the airplane. The weather was fantastic for the offload, with light winds, unseasonably cloudy skies and temperatures in the mid-70s Fahrenheit (about 21 degrees Celsius). In just over seven hours, we had all the equipment offloaded and secured to the train that transported the SC to the processing facility.

The SC train consists of a locomotive, a car which holds the passengers (affectionately known as the "Doghouse", a gage car, flatbeds with the SC equipment, a thermal rail car supplying conditioned air to the SC, and finally the SC itself mounted to a flatbed rail car. The gage car is interesting to note because it is an outline of the SC container. If this gage car happens to hit anything along the way, we would immediately stop because this means that the SC container would also hit if we kept moving. We always pre-verify the track with the gage car months before the SC arrives (to ensure compatibility), the day before arrival, and the day of arrival so we are triply sure that nothing will go awry!

After a five-hour trip from the airstrip to the arrival at the processing facility, the SC container and all the associated equipment was offloaded and moved into the various areas of the facility in which they will be needed. Next step: Unpacking the SC and performing a short "touch and go" fitcheck. Stay tuned!

Photo: Loading the SC on to its rail car. Visit the [Photo Gallery](#) for more pictures.

Posted 06 June 2007

[1 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 16:48, Baikonur

Satellite Arrival

Excerpted from [Khrunichev press release](#).

DIRECTV 10 multipurpose telecommunications spacecraft arrived at the Yubileiny airport of the Baikonur Cosmodrome, Kazakhstan, early this morning, 06 June.

The spacecraft and all the equipment needed for ground operations to prepare the spacecraft for launch, was carried by an Antonov 124 "Ruslan" cargo plane operated by Russian "Polet" carrier.

On the same day the spacecraft will be transported by rail to the state-of-the-art processing center (Building 92A-50, also known as MIK) where an industrial team from the spacecraft manufacturer, Boeing, will conduct autonomous checking and tests of all DIRECTV 10 systems.

DIRECTV 10 is a commercial civil multipurpose communications satellite designed to provide DIRECTV Inc. customers unprecedented local and national High Definition Television (HDTV) throughout continental United States, Alaska and Hawaii. An industry leader, U.S.-based DIRECTV, Inc. delivers satellite-based television services to over 15 million U.S. customers in homes and businesses.

The next-generation DIRECTV spacecraft, built on Boeing 702 bus, will be among the world's heaviest geostationary satellites. Its launch mass is over 5800 kg. The satellite projected life span is 15 years.

DIRECTV 10 features state-of-the-art antenna and payload subsystems. The powerful

payload integrates 32 active and 12 spare National Service Ka-band Traveling Wave Tube Amplifier (TWTAs) in addition to 55 active and 15 spare spot beam TWTAs. The payload is powered by a massive solar array that spans more than 48 meters consisting of ultra triple-junction gallium arsenide solar cells. DIRECTV 10 will receive and transmit programming throughout the United States with two imposing Ka-band reflectors, each measuring 2.8 meters in diameter, and nine other Ka-band reflectors.

The Khrunichev-built Proton Breeze M heavy-class carrier rocket, which will be used for the DIRECTV commercial mission scheduled in July, arrived at its launch site and started its pre-launch preparations earlier (see Khrunichev's [Breeze M arrival press release](#)). The Khrunichev engineers are conducting routine assembly and test operations with the rocket in the same vehicle assembly building.

Posted 06 June 2007

[4 comments](#)

Posted By: Khrunichev Team at 03:31, EDT

Main Team Arrival



While the early team spent our first days in Baikonur preparing for the spacecraft arrival, the main team personnel were hopping their transatlantic flights to join us. After a night in Moscow (no fireworks for them) and an early wake-up to catch their flight, the main team arrived in Baikonur right on schedule. To welcome them, the staff at the Fili Hotel graciously arranged a barbecue, complete with cheeseburgers with all the trimmings and homemade potato salad from a team

member's family recipe. We were joined at the picnic by our partners from Khrunichev, who all seemed to very much enjoy the taste of the American summertime meal. It was also a relaxing way to meet and greet our customer, the SC manufacturers, and other launch campaign partners. Although the atmosphere was relaxed, there was a lot of excitement in the air as everyone knew that in just a few hours, the Antonov would arrive and deliver the SC. Time for the *real* fun to begin!

Photo: The always-gracious Fili Hotel staff at Baikonur, preparing for the barbecue. Visit the [Photo Gallery](#) for more pictures.

Posted 05 June 2007

[1 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 22:43, Baikonur

Early Team Arrival

The second ILS launch campaign of 2007 is underway. The early team set out on the 31st of May from Virginia to kick off an early summer launch of the DIRECTV 10 from Baikonur. After a long trip and a safe arrival to Moscow, we received quite a welcome! We settled in for a quick one-night stay in Moscow and met up for our usual pre-campaign dinner. But with an early flight to Baikonur scheduled for the next morning, and with the sun going down, it was time to call it a night. Night in Moscow at this time of year means the sun goes down somewhere around 11:00 p.m., so it was hard enough to convince our bodies to go to bed. Then, as everyone tucked in for the night, the fireworks started. No matter who we asked, there was no explanation for the display. We could only attribute it to the hospitality of



the Russians as they welcomed the American launch team back for another campaign.

After breakfast and a very uneventful flight, the early team arrived safe and sound in Baikonur. What a difference a few months can make! Our clothing changed from March's arrival in heavy coats, boots and hats to shorts and sandals in June.

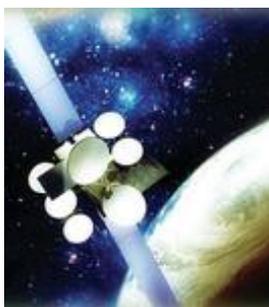
Photo: ILS Launch Ops Manager, enjoying some beautiful Baikonur arrival weather! Visit the [Photo Gallery](#) for more pictures.

Posted 04 June 2007

[8 comments](#)

Posted By: ILS DIRECTV 10 Launch Team at 13:35, Baikonur

Welcome to the DIRECTV 10 Blog!



We are excited to kick off another ILS launch campaign blog, this time featuring the launch of DIRECTV 10 on the enhanced Proton Breeze M.

The early team has arrived safely in Baikonur, ready to get to work on this much anticipated launch. Boeing, the satellite manufacturer, performed additional testing on the spacecraft in the satellite manufacturing facility. The tests are complete and the planned launch date is now 7 July at Baikonur (6 July in the U.S.).

Photo: Artist's rendering of the DIRECTV 10 satellite. Visit the [Photo Gallery](#) for more pictures.

Posted 04 June 2007

[0 comments](#)

Posted By: ILS Communications Team at 10:34, EDT