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Maj. Gen. Robert McMurry, Director, Air Force Space Acquisition

Air Force Space Budget Media Roundtable  
The Pentagon  
5 March 2014

**Under Secretary Fanning:** Good afternoon, everyone and thank you for being here to talk about Air Force Space. I have the privilege of leading off the discussion. I'm going to try to keep my remarks as brief as possible, but there are some higher level things I want to talk about and then you'll have an opportunity to ask us all questions, most of which will be fielded by Dr. Meink and General McMurry. They're far more expert on these issues than I am.

As you know, the Air Force's space program and the people who operate it are a national treasure. Military personnel and our interagency partners depend on Air Force space operations to perform their missions every day, and multi-billion corporations and businesses also depend on the Air Force space capabilities for critical information like GPS location, timing data, and advanced notice of debris threats to commercial satellites.

Over the past 16 years we have invested well over \$100 billion in cutting edge space capabilities. In calendar year 2013 the Air Force launched eight National Security Space missions, bringing to a total of 68 the number of consecutive successful Evolved Expendable Launch Vehicle launches, and 99 consecutive successful National Security Space missions. These launches include the fifth and sixth Wideband Global SATCOM (WGS); the third Advanced Extremely High Frequency satellite (AEHF); a fourth Global Positioning System (GPS II-F) satellite; and the Space Based Infrared System GEO-2. In FY15 the Air Force will acquire three launch services and plans to launch ten missions while also continuing the evaluation and certification of potential new entrants.

To achieve this kind of success takes approximately 15,000 of our Airmen across the total force -- active, Guard, Reserve and civilian. These are people, the people who are conducting space surveillance, launching satellites and providing missile warning 24 hours a day, 7 days a week. They are taking care of our combatant commanders and taking care of this Nation. They perform their mission extraordinarily well and with enormous pride.

Space is no longer a sanctuary and while it was once called the "final frontier," it is a much more developed terrain these days, and much more congested and contested than ever before. Currently

there are over 22,000 objects being tracked in space and that's just what we can see. As more nations gain access to space and objects increase, America's ability to safely and effectively operate in an increasingly congested space environment will determine whether or not we remain a Nation that controls the ultimate high ground through space superiority.

Adversaries recognize this tremendous asymmetric advantage and are actively pursuing ways to challenge us in the domain and negate the advantages of that our space-based capabilities deliver. To maintain freedom of movement in a contested domain we must continue to invest in material and non-material solutions that ensure the availability of space capabilities even in anti-access, area-denial environments. An agile architecture that provides enhanced resiliency and redundancy is critical to maintaining our advantage in space. Disaggregation, distribution, diversity, proliferation and protection are some of the techniques that we are pursuing to improve our space system resilience.

As the price of entry into space decreases, the number of players active in space will continue to rise. Today there are approximately 60 nations and government consortia that own and operate satellites. The United States once had a significant technological advantage in space, but as more nations enter the market our lead is eroding. The investment choices we make today will shape the space capabilities we have in the future.

While building our FY15 budget, we focused primarily on capability over capacity across the Air Force portfolio in order to build an Air Force that can fight and win in an increasingly contested environment in all domains. This extended to our space investments.

We are preparing for the transition of our current capability by examining more resilient, lower cost, and more flexible space architecture. As such, our space strategy postures the Air Force for renewed investments and protected satellite communications, missile warning, weather and space situational awareness.

Further, we continue to investigate the development of space and ground assets to detect, track and identify space objects for space situational awareness in an increasingly congested and sophisticated threat environment.

Finally, we will continue to honor our investments and obligations to the Department of Defense, civil authorities, and our international partners through such successful Air Force programs as the Global Positioning System. Our plan for maximizing opportunities for strengthening resiliency and mission

capability throughout the space architecture will continue to provide the United States and its partners an asymmetric advantage throughout the next decade.

Specifically, the FY15 President's budget removes funds for Advanced Extremely High Frequency (AEHF) 7 and 8, but it also funds the evolution of AEHF tactical and strategic capabilities. The funding removed by the divestment of AEHF 7 and 8 may be restored if the Protected SATCOM Services alternative of analysis proposes additional AEHF satellites.

Current analysis of AEHF satellites indicate they will remain functional for longer than initially predicted. Therefore, replenishment of these satellites is not required until FY27.

It funds Weather Satellite Follow-on to the Defense Meteorological Satellite Program, DMSP, and continues testing of the final DMSP launch (F20) through FY15, to serve as a backup to the DMSP F19 launch in April of this year. DoD and NOAA, the National Oceanic Atmospheric Administration, will conduct a study on the impact of not launching F20 for final disposition and decision in the FY16 budget.

It solidifies long-term stable commitments for the Evolved Expendable Launch Vehicle program yielding significant contract savings while aggressively pursuing competitive New Entrant opportunities. The EELV program uses competition, long term contracts where there's only one provider, and good understanding of costs to get increasingly better deals for the government. We succeeded at reducing the program by an additional \$1.2 billion in this year's budget. Combined with prior year Air Force reductions and savings for the National Reconnaissance Organization, we have reduced the total program by \$4.4 billion since its "high water mark" in the FY12 budget.

It reprofiles Global Positioning System, GPS-III, to meet constellation sustainment demands. It funds the Space Fence, a critical space situational awareness capability for improved detection of small object threats with a 2018 initial operating capability. It funds the Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) to achieve Presidential and National Voice Conferencing (PNVC) initial operating capability in FY19. And it balances resiliency with affordability and examines disaggregated concepts for space systems.

However, if BCA level cuts are re-imposed in 2016 and beyond we would have to decrease our funding in three programs -- Weather Satellite Follow-On, GPS-III, and Space-based Satellite Surveillance Follow-on. This increases the likelihood of a

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program being delayed which subsequently could add increase to the overall cost.

Further, we would be unable to procure one of the three GPS-III satellites planned in FY17 and four Counter Communication Systems units being procured for the Air National Guard.

Bottom line, the sequestration slope will have drastic impacts on Air Force programs and capabilities across the portfolio, including in space.

Air Force space capabilities bring important asymmetric advantages to almost everything we do in the military, be it global battlespace communications, GPS navigation across the ocean, or ISR systems to provide insight into adversaries' actions. But the benefits of space systems go far beyond the military applications. Space is also a fundamental pillar of our Nation's economic might and global influence. It is an enduring source of American strength, a precious and perishable strategic resource that must be protected.

Thank you for your attention and we look forward to your questions.

**Media:** Amy Butler, Aviation Week.

I'm just curious, on the Advanced EHF point that you made, you took money out for 7 and 8, but you also said that you're examining disaggregation techniques or options. Is this the first opportunity at which you can actually insert disaggregation into an existing program? Or was there another reason why 7 and 8 came out for Advanced EHF but not for SBIRS?

**Under Secretary Fanning:** The main reason on 7 and 8, of course, is the analysis that showed that the existing satellites are operating, functioning longer than we had anticipated. I'll let General McMurry talk about how we're trying to introduce disaggregation into the program.

**Maj. Gen. McMurry:** I think you actually hit it pretty close. AEHF is kind of the first look that we have. What Secretary Fanning said is correct. We don't need the satellites as soon as they were programmed, but we still have a billion dollars almost in the budget that supports the development of alternative architectures. What we're doing to get kind of a pathway ahead on that is to Protected Satellite Communication Service AOA with OSD.

**Media:** When is that AOA to be finished?

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**Maj. Gen. McMurry:** It's underway now. It should be finished summertime.

**Media:** I'm sorry, it's hard to hear you.

**Maj. Gen. McMurry:** Summertime.

**Media:** That will actually give you an update to make a move to meet your next budget cycle?

**Maj. Gen. McMurry:** Right.

**Media:** Could you speak to reprofiling the GPS program? The plans for acquisitions this year, with or without sequestration.

**Maj. Gen. McMurry:** Again, the issue there is satellites lasting longer than we expected. The GPS program procurement rate was a little bit faster than we needed. We're under pretty strong budget pressure to look for options. So while we would probably have a more efficient buy profile if we bought them at the rate we had planned, we decided we could delay that purchase rate, still meet the requirements for on-orbit constellation health, and at the same time save funding requirements that were needed in the FYDP.

**Media:** Are you talking about space vehicles 1 through 8? Or are you talking about long lead items --

**Maj. Gen. McMurry:** Mostly 9 and out through this purchase. Eight will go on contract in the next couple of months. What happens when you change that buy rate for satellite replenishment you also adjust the launch rates as well. So it's kind of a two-for-one impact. It hits you in the procurement of the satellites, also in the procurement of the boosters.

**Media:** Andrea Shalal-Esa, Reuters.

I wanted to ask, maybe zoom in a little bit in terms of disaggregation. It sounds like you've sort of embraced it, but you keep hedging your bets a little bit. But can you just talk about the studies that have been done and what your thinking is now about that approach and to what extent, maybe even what kind of a balance there will be between the old style of big bus billion dollar, two billion dollar satellites, and the sort of more resilient approach?

**Maj. Gen. McMurry:** The Air Force is committed to disaggregation. There are lots of different viewpoints on the strategy forward that we're presenting. It's a change in this year's budget to embrace disaggregation.

We've tried to fund our disaggregation efforts in a way where if the Department of Defense decides to go in a different direction with programs we have the flexibility to move in a different direction because we fund it appropriately for whatever [inaudible] you might have going forward. But the Air Force itself is, I think, pretty aggressively embracing the concept of disaggregation as a way to meet again with the increasingly contested environment in space, but also to make sure that we're more resilient and agile in meeting the mission in space.

**Dr. Meink:** We're doing analysis of alternatives for Advanced EHF as well as for SBIRS. Both of those are either just kicking off or have been ongoing for a while. And disaggregation are concepts that are being looked at under those as well as looking at the current systems. So where it appears to be economically viable and does support resiliency, that will be the way forward. But still keeping the lift systems [inaudible].

**Media:** And can you just maybe elaborate in terms of the resistance? Can you map out how significant? [Inaudible] and where it's coming from and whether, --

**Under Secretary Fanning:** I wouldn't use the word resistance. I think because we're proposing increased disaggregation we're having to explain our analysis and our planning behind this to other parts of the Department of Defense. So we're still working through that process right now. I wouldn't, like I said, characterize it as resistance. More curiosity as to what we mean by disaggregation and how it is we're proposing that we go about this new architecture, new direction.

**Media:** What do you mean by disaggregation? We may as well get that answered. In 25 words or less.

**Under Secretary Fanning:** For me, disaggregation is a way of being able to increase the responsiveness of meeting the mission, getting payload into space, and also increasing resiliency by breaking the mission into more payloads rather than two big payloads. Troy will probably have a different definition. General McMurry might as well.

**Dr. Meink:** Fundamentally what we're looking at is can you expand a contested environment? If you split the satellites into smaller satellites are you more resilient in that contested environment?

From a resistance perspective, the question we always get asked is can you do it cost effectively? When you sever these satellites either by mission or by smaller satellites producing

more of them for doing the same mission, can you do that cost effectively? Those are the questions I've been asked, and that's what's being looked at in detail. Specifically Advanced EHF and SBIRS and obviously others moving forward. So it's not just fundamental. The idea is to try, look at how we can break these somewhat large satellites up either by missions, over the missions, or divide them into, instead of filling in that 10 pound bag with four satellites, do you fill it with 10 satellites? And look at what the cost-effectiveness and resiliency in communications of those. I don't think we have all the answers. Again, that's what we're looking at as we do these AOAs.

**Media:** [Inaudible] SBIRS [inaudible]?

**Dr. Meink:** I think right now it's tentatively scheduled for late this calendar year. It could be early next calendar year. And as General McMurry said, the Advanced EHF is late this summer.

**Media:** What does the GPS delay mean for the '14 missions competitively-driven block buy? Does it have any effect?

**Maj. Gen. McMurry:** It does. What it means is that within the window when we had expected to do those new entrants, competitions '15 to '17, there will be fewer total missions available within that window. There are like five GPS missions that the booster procurement has moved past '17. Those five will still be available for competition. It's to be determined how we'll do that competition. It will be part of the phase two, and they're working on that strategy. They have not been moved into a ULA set-aside or a specific sole source situation. There are just not as many of them available in the '15 to '17 --

**Media:** -- nine available --

**Maj. Gen. McMurry:** There are actually seven and there's a reason for the other two changes. They are not GPS. One of them had a weight growth in the payload and became unliftable by SpaceX or any of the new entrants that we had expected to be ready. A second was moved into the ULA four in '15. The SBIRS launch. To maintain the 36 core procurement amount. That really is the one that we electively moved out of that category of available for new entrant competition. We did that in order to honor the long term commitment buy that we have with ULA that got us those billion plus dollars in savings over the next several years.

**Media:** I'm sorry, seven launches will be between '15 and '17, and then --

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**Maj. Gen. McMurry:** Then there's another five that are available. Of the 14, five more still remain available after '17. But the intent is to look at the entire launch business after '17 from a competitive standpoint. The team at Los Angeles under Lieutenant General Pawlikowski is working on that acquisition strategy now.

**Media:** Which launch would fall out of the potential for competition and move into ULA?

**Maj. Gen. McMurry:** The one launch in '15. There was a booster procurement for the SBIRS GEO-4.

**Media:** So the SBIRS GEO-4 might move on to the new entrants at some point?

**Maj. Gen. McMurry:** If it's liftable by a new entrant. And the presumption was if they were certified they could compete. The decision was made earlier on this because A, we didn't think they were going to be ready in time and it's proving it will be late '15 before we're certified if we get it done for the new entrants. And so we made the decision to hold the SBIRS into the block for ULA to maintain our requirements to them.

**Media:** Which payload [inaudible]?

**Maj. Gen. McMurry:** One of the AFSPACE launches, AFSPACE-8, and I'm not even sure what it is.

**Media:** If I can follow up on that. Dee Ann Divis with Inside GNSS.

Where does dual launch for GPS fit into the description of the launch plans that you just [described]?

**Maj. Gen. McMurry:** We had previously funded dual launch in the launch line saying we were going to develop that as a ULA capability. We have subsequently removed funding for that. The expectation is first, that in the near term it's not as critical given the lower replenishment rates that we have for GPS. What we're told, you should follow up with industry is that, from ULA, is they'll probably develop that on their own. But that's their call.

We have maintained the development of dual launch capability within the satellite line. So the satellite itself will be, will have the dual transponders and radio frequencies in place so that if you launch two of them together you could communicate with both of them independently. But we're not funding that within the launch line.



**Media:** Courtney Albon. On another topic, the Air Force has said that the SpaceX team [has] to be ready to compete later in FY14. Does that mean that there won't be a competitive launch available to them at all --

**Maj. Gen. McMurry:** There's actually one. Our original intent had been to make the decision on competing in January, this past January. What we instead decided, and actually this was an NRO Director's decision, is they wanted to wait as long as possible to make that decision because they'd like, if possible, to compete that launch. It's an NRO mission. So we expect to have to release the request for proposal in about the May time frame and we'll see how we're doing. The real question will be do we assess the probability of certification by the end of the calendar year '14 as high? If the answer is yes, we'll probably release an RFP and compete it. If the answer is no, we're definitely not going to make it, then we'll likely use the purchase options that we have with ULA.

**Dr. Meink:** It's important to note that even though originally the [inaudible] certified by January for the ongoing competition, the Air Force worked with the NRO to give as much flexibility to foster this competition to the greatest extent. Move the certification date out to give time, if possible, to compete this mission.

**Maj. Gen. McMurry:** I think there are a lot of good reasons for that. We think the competitive environment is good for us. We are actually adding resources to the team that works certification with SpaceX since they're the lead new entrant at this point. We're putting integration contracts in place with them. And we have a cooperative research and development agreement with them on getting all that certification done. We have certified their first launch, the Casio launch. We've still got a lot of work left, and that work was by mutual agreement based on their plan for certification and how they wanted to approach it. I think we've completed three of like 19 detailed engineering reviews that have to get done. We want those to get done and done right to reach that level of risk management that we have that kind of aligns us towards that 68 in a row mission assurance mindset.

**Media:** On the DMSP follow-on, could you talk about what activities are slated for FY15, and how much funding is provided [inaudible]?

**Maj. Gen. McMurry:** I can. There are a couple of things. You used DMSP so I'm going to talk about two different parts to this. One is what we're doing with the MSP. So we will maintain DMSP in a nine month call-up situation. We have \$80-something million

dollars in place to maintain storage and engineering support for it, and follow closely the Flight 19 launch for DMSP. We'll also do a joint study between DoD and NOAA to make sure that we understand the ramifications of not putting DMSP Flight 20 up, which that's our current plan.

On the Weather System Follow-On, we have about \$35 million that starts to kick start that program development activity which is considered a small sat with a microwave sensor on it, and I forget what the other sensor is, but it's basically focused on being able to measure ocean surface wind vectors and tropical cyclone intensity.

**Dr. Meink:** I think fundamentally what we're looking at with the OMB-directed study is, is it more cost effective to store DMSP-20. It's not inexpensive, as mentioned, it's \$1 million to store it. Is it more cost effective to store the MSP-20 and then migrate it to the follow-on load system, or is it more cost effective to not and go ahead and migrate to what we believe will be a much less expensive weather satellite in the follow-on system.

**Media:** In the language in the budget [inaudible], I think it was the DoD budget [inaudible], a line about focusing on international [inaudible] partnership. Can you say a word about that? I know that you were [inaudible]?

**Dr. Meink:** That's one of the reasons why the Weather Satellite Follow-on program, it is a less expensive, simpler satellite than DMSP. We were actually relying on some of the civil and international partners for some of the data, so we're not building a duplicative system within the DoD to fill all the requirements. So we're effectively [inaudible] specific DoD requirements that we need to meet, that can't be met elsewhere. And then when we utilize civil and international capabilities [inaudible].

**Media:** Is there any [inaudible]?

**Dr. Meink:** There are many [alternatives] that are in discussion [inaudible]. There are many systems out there that we could utilize. Canadians is one of them. I don't think there's a final decision made with the Canadians.

**Maj. Gen. McMurry:** I think there are two aspects of this. It's not so much DoD relationships, but NOAA relationships. NOAA, by the nature of their business, they take in weather data from many organizations and then DoD uses that. So the study looked at can we live with that data? We get pretty darn good civilian weather data. Do we really need a dedicated DoD resource? The answer

was yes in a couple of these specific areas. But not to the degree of what the previous MPOS program or the Defense Weather Satellite System program had been, which were much more expensive, much more complex solutions.

**Media:** Is there a hosted payload [inaudible]?

**Maj. Gen. McMurry:** There's not a, in the AOA the answer is no. There's nothing that says you couldn't do it that way.

**Media:** But you're not going [inaudible], you're going with the micro satellite.

**Maj. Gen. McMurry:** What you need is the orbit characteristic I think that drives you that way. I'm not specifying an answer. What I'm saying is what the study came back and said is that seems to be the answer. It's more of a sun synchronous type, low earth orbit that looks at those specific capabilities.

**Dr. Meink:** The particular orbit it goes into there's not a lot of opportunity for hosting a payload. What's currently in the AOA is a recommendation, there is a specific, it's smaller than a DMSP satellite, but a dedicated satellite for that. Now that AOA has not completed all of the process of being finally signed out by the DoD. We hope that will be relatively soon.

**Media:** To follow up on some of the points you made, you mentioned that you've got roughly a billion dollars set aside for other types of architectures?

**Maj. Gen. McMurry:** What I said is within the AEHF line there is \$980 million or so that is there pending the AOA results to press forward. The sizing of that was toward dealing with the Protected Tactical requirements, but what the CAPE assessment said in our budget review was that it would be adequate should we decide that we need to extend the program of record as well, so they were comfortable that our flexibility within DoD is still there.

**Media:** And is it fair for us to say that that much was saved by pulling out 7 and 8 and it was set aside as you decide the way forward? Or was some of it --

**Maj. Gen. McMurry:** There was a larger amount of money in there that was pulled out. We can tell you how much we actually pulled out of the AEHF line.

**Media:** They said \$2.1 billion in the DoD [inaudible], is that --

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**Maj. Gen. McMurry:** That may be correct, but we'll give you the right number.

**Media:** One more quick follow-up. GPS-III, one is a slip to the launches, and another in the potential reduction of the number of satellites you buy if sequestration BCA levels continue. Can you flesh out how we should articulate the rephrasing of the launches and then how we should articulate how many satellites are in jeopardy if those levels remain? Or maybe I got that wrong.

**Maj. Gen. McMurry:** I think that you have part of it right, not all.

We definitely have rephrased the production rate on GPS-III. What we would do is slow it slightly further in the event that the BCA levels were required. We had bought a purchase of one of the, I believe it's one of the satellites back into like '16 or '17, and then if we don't have that many we'd move it back to the right to level out the funding profile.

**Media:** That's across FYDP.

**Maj. Gen. McMurry:** I think so.

**Media:** You're not shifting a satellite outside the budget.

**Maj. Gen. McMurry:** It moves one out. Whether it's that specific one, it's like dominoes.

**Media:** How do we characterize the rephrasing of, you've got development, early procurement, stretching it out. Is the delivery schedule changing in terms of when Lockheed gives you your satellites?

**Maj. Gen. McMurry:** For those satellites -- The answer is yes. The production rate for GPS-III is being slowed down.

**Media:** How would you --

**Maj. Gen. McMurry:** Just exactly like I -- What I said is, instead of buying 2, 2, 3, 3, 3; I think we're buying 1, 1, 3, 3, 3. So we're just slowing down the number, and we can give you the exact annual buy rates. But we're just slowing down the number of them that we're buying. We'll pay a unit price that's a little higher, but just like when you buy your car on payments, you pay more for the car but you have cash flow management.

**Media:** On the GPS satellite, how does the schedule you're describing fit in with the concepts like NAVSAT and the smaller GPS satellites where they would take, for example, the nuclear

detection payload off and you put it on SBIRS? How does this impact, if at all, the ground segment which is on the [inaudible] side?

**Maj. Gen. McMurry:** I would characterize it with respect to the NAVSAT as related but independent. The constellation sustainment is modeled on a certain requirement number of satellites. That provides, I need five percent availability or a pretty high availability of being able to see all the satellites you want to get the [inaudible] that you want. The areas where we don't see well are like urban canyons or actual canyons in mountainous areas. NAVSAT and other supplemental additions to the constellation are really focused on trying to improve those areas, and I would consider them independent of this decision.

**Media:** So small satellites would be in addition to --

**Maj. Gen. McMurry:** What I'm saying is there are no small satellites in this discussion with regard to the GPS-III rephase. With regards to the ground system, we actually get a little bit more time to bring the ground system on, for a number of reasons, but the biggest being that the initial delivery of the GPS-III is slipping a little bit as well.

**Media:** To where?

**Maj. Gen. McMurry:** FY16.

**Dr. Meink:** Again, I think it's important to note that although it helps remove some of the budget pressures we had, a fundamental reason for pushing out the GPS systems are we currently have 37 I think GPS satellites, so we have a very healthy satellite constellation. Satellites are living longer than we predicted so we didn't need to replenish those as fast as we originally planned. And it made no sense to spend that money if we didn't need the satellites. We slid those out and then it really had nothing to do with some of these other discussions on the satellites were not required to meet the requirement we have for GPS availability. They were slid out. Then of course once they slid out, the launches slid out as well.

**Media:** Is there a mechanism to put M-Code in some of the [inaudible]?

**Dr. Meink:** The challenge right now with implementing M-Code is not on the satellites. It's in the receivers. There is a push within the department to get the M-Code receivers out as quickly as possible. You know that's been ongoing anomaly challenge. There still continues to be pressure within the department to try

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to get those receivers out there as quickly as possible because they do provide a significant performance increase [inaudible].

**Maj. Gen. McMurry:** With the Military User Equipment Program though we have seen pretty good success by industry in packaging M-Code capable nav systems and demonstrating them in the operational environment. The Space Missile System Center is adjusting their acquisition strategy to leverage that success. We think we're going to be able to bring the MGUE program, Military GPS User Equipment program in sooner, and be much closer to meeting the mandates to buy only M-Code equipment starting around '17. I don't know if we'll make that, but we're getting closer.

**Dr. Meink:** It's a good news story there.

**Media:** Would you clarify the status of the SBSS follow-on program? Is that [inaudible]?

**Dr. Meink:** The SBSS follow-on program is --

**Maj. Gen. McMurry:** It's in the budget, but it starts in '16.

**Media:** When would the [inaudible]? 2020, in that time frame?

**Dr. Meink:** I think it's close to 2020. We'll get you the details.

**Maj. Gen. McMurry:** We'll get you an answer on that one. It's somewhere after 2020.

**Dr. Meink:** I think it's '21 or '22. We'll get you the specifics. It is in the budget, though.

**Media:** The GPS issue is what [inaudible] the satellites lasting longer than planned. And another tranche in the development determine the pipeline, but the requirements are coming on. So we're seeing this issue of concern about GPS [inaudible], but you're not really getting the snazzy Corvette model out until much later now. So how are you going to protect the signal in the meantime before you [inaudible] capabilities out [inaudible]?

**Dr. Meink:** There's a whole series of things we do to protect in a jammed environment including modifications we make to the satellite, modifications we make to the receiver. There are modifications to bring on additional capability. Modifications were made to the receivers as well as modifications were made to the antennas to help with that. There are things you can do across the board. We're working in all areas to ensure that we have GPS and capability in a jammed environment.

As you know, obviously over time the contested environment grows, so we try to field more capabilities to address that. And it's literally across the range of [inaudible] satellite. It's what we do in the receivers and what we do in the antennas as well that talk to the satellite. A significant [inaudible] performance [inaudible] antennas. We're working across the board.

**Media:** There's a fair amount of concern among the small new entrants that you're [inaudible] moving too slowly. Now you're [inaudible] new entrants on the launches, you're pushing the already relatively small [inaudible] guarantee 36 for ULA that it already has so many, and now you're taking a few more away. Are you at all concerned that your acquisition strategy is going to be undermined in the end by these decisions? In other words, do you erode the business case for these new entrants if you don't give them a big enough pot to buy for?

**Dr. Meink:** We remain committed to competition. The Air Force team that negotiated the savings in the EELV program has done a remarkable job, but it's not lost on us that the increased competition helped us negotiate those savings. And these rephasings we're talking about in space, they're not unique to the space domain. They cut across all aspects of the Air Force because of the budget environment and the budget uncertainty, even with the Bipartisan Budget Agreement it's still easing us into sequestration in '16. So we have enormous pressure on the budget in '15 and '16. There were few things I think we talked about as much as the impact of sliding out some of these launches beyond the FYDP when we looked at the space program, but the budget situation required us to rephrase in space and in other places. Joint Strike Fighter is another example.

So we are looking for ways to continue our -- to encourage, to increase, to support competition. General McMurry talked about some of the things we're doing with SpaceX. So it's something that we're focused on, we are concerned about, and we're doing what we can to protect.

**Media:** I'm going to date myself here, but it used to be back in the day the Air Force would cite a space major force program number, which was a white space budget for all Air Force Space. Can you give us like a figure that we can say to our readers these are [inaudible] X billion dollar space budget

**Dr. Meink:** A total white world space budget?

**Media:** I think it's called the MFP.

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**Dr. Meink:** MFP is generally broader than just white world space. But I think, General McMurry, do you have --

**Maj. Gen. McMurry:** It's about \$5.3 billion. In '15. \$5.26 --

**Media:** Air Force Space?

**Maj. Gen. McMurry:** Maybe.

**Dr. Meink:** It's \$5.26 --

**Maj. Gen. McMurry:** I rounded it off. I can certainly get you the final number. I can make one up, but I also have experts right behind you that can give you the number.

**Media:** Do you have a number that equates to classified? In some of the reports [inaudible] deal with classified programs, they just don't list what they are. Is there a classified --

**Maj. Gen. McMurry:** I'm not comfortable --

**Maj. Whaley:** Thank you, ladies and gentlemen.

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