24 June 2010

Marlene H. Dortch
Office of the Secretary
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554.

Dear Secretary Dortch:

This letter is in response to Public Notice DA 10-1035 and ET Docket No. 10-123 entitled OFFICE OF ENGINEERING AND TECHNOLOGY REQUESTS INFORMATION ON USE OF 1675 ? 1710 MHz BAND, released June 4, 2010.

I represent the Space Science and Engineering Center (SSEC) at the University of Wisconsin-Madison, a federally-funded research center within the Graduate School that has conduced satellite-based meteorological research for over 40 years. At SSEC, we are seriously concerned about the ultimate national and world-wide consequences of sharing this band and urge you to protect its use for environmental satellites and radiosondes (data gathering weather balloons). Specifically, losing this band for real-time satellite data downlinks would significantly harm SSEC?s ability to support our Federal sponsors (especially NASA and NOAA) and a wide array of data users, including over 160 other Universities nationwide. Further, we feel that failure to protect this band in the U.S. would ultimately lead to severely compromising the distribution of meteorological satellite data to many users around the world.

The Space Science and Engineering Center (SSEC) operates a Data Center that ingests high quality data in real-time (i. e. as it is observed and broadcast from space) from several different geostationary satellites, the NOAA polar orbiting satellites, and the EOS polar orbiting satellites Terra and Aqua. Downlinks from the key US geostationary satellites make use of the frequency band in question. Currently, the SSEC Data Center daily acquires 92 GB of data from four geostationary meteorological satellites broadcasting in this spectral band using an array of antennae located on our roof. The data from these four satellites are ingested continuously on a full-time, 24 hour basis. In addition to performing a wide array of research with this data, we distribute the data and research products to a wide base of scientific users, private sector companies and to the general public. The SSEC prides itself on assisting NOAA in meeting their mission goals of protecting lives and property.

We feel our ability to perform world-class research, teach, and provide such services is highly dependent upon our ability to directly receive the full environmental satellite data broadcast in a real time, 100% reliable manner that only the 1675-1710 MHz band can provide.

The following are answers to your specific inquiries:

1. A description of the utility of the 1675-1710 MHz band for wireless broadband services, including any pairing, band plan, or other licensing approaches that would maximize this utility;
SSEC response: No comment.

2. Identity of the non-federal entities accessing the services operating in the 1675?1710 MHz band;
SSEC response: The Space Science & Engineering Center at the University of Wisconsin-Madison is one of many university-based, non-federal entities accessing these services. We are concerned that commercial use of the 1675-1710 MHz band would have a detrimental effect on atmospheric research in the U.S. and on our ability to provide public services with what have been traditionally publicly available data.

3. A description of the purpose of such use (i.e., the equipment is used to support TV weather forecasting or for conducting university research);
SSEC response: The SSEC uses meteorological satellite data to do research and produce products for a variety of users across various industries both not for profit and commercial. Some of the users of SSEC?s data acquired with downlinks in the 1675?1710 MHz band include:
the National Weather Service
the National Hurricane Center
NASA Langley Research Center
NASA Marshal Space Flight Center
National Transportation Safety Board
Over 160 university meteorology or related departments via the Unidata IDD broadcast
And at least a dozen commercial companies both National and International.
The commercial users that SSEC supplies real-time data, use or produce products that:
Aid in commercial aviation by providing real-time data cloud top heights and convection (thunderstorms).
Provide cloud data for mobile weather applications.
Provide cloud data for large display globes in museums
Provide cloud data backgrounds for lobby maps and globes.

4. Which portions of the 1675-1710 MHz band are used;

SSEC response: This affects:
GVAR reception at 1685.7 MHz
GOES-East (GOES-13)
GOES-West (GOES-11)
GOES-South America (GOES-12)
GOES-Checkout (new launches, e.g. GOES-15)
Also, NOAA will launch a new GOES series beginning in 2016 (GRB reception at 1684-1696 MHz) that will require much greater bandwidth than the current GOES series.

5. How often the service is used (e.g., every day, scheduled times of day, duration, etc.);
SSEC response: The data are collected and used every day, continuously for 24 hours.

6. An estimate of the current investment in wireless equipment, including when it was obtained and put into use;
SSEC response: The intent of this question is not entirely clear, but here we list just the specific investment in equipment at our Data Center related to downlinks using the band of interest.

Amount	Antenna Equipment	Cost	Total	Date Acquired
2	24 Ft Harris Dish	$73,000	$146,000	1970
1	Andrew 4.5 M Dish	$9,137	$9,137	1985
2	Patriot 4.5 M dish	$11,153	$22,306	1999 & 2007
1	Patriot 6.3 M Dish	$51,922	$51,922	2010
5	Wilmanco Feed Assembly	$1,695	$8,475	1999 & 2000
3	Quorum Feed Assembly	$3,390	$10,170	2007 & 2010
3	Quorum Amplifier	$3,190	$9,570	2007 & 2010
4	Comstream CM701	$5,090	$20,360	2000 & 2001
1	Radyne DMD20	$4,760	$4,760	2007
	Misc Power supplies and fiberoptic driver/receiver	$3,000	$3,000	As needed
6	SDI-104 Ingestors	$5,000	$30,000	2009
	Total --		$315,700	

7. A description of whether and how the information and services currently accessed can be obtained from other means; and if so, the anticipated costs and timeframes for implementing any alternatives;
SSEC response: The services currently accessed by direct satellite downlink in this band would be impossible to replicate via other means. SSEC ?s current and anticipated data volumes from affected satellites (92 GB of data per day now - to greater than 500 GB of data per day in the near future) and

internet limitations rule out the possibility of satisfying our data needs using the internet. Both the timeliness and reliability of current services would be compromised.

8. Confirmation that, if the information currently available from the meteorological satellite service were received at only a few receive sites and distributed via terrestrial services, this would be a functionally equivalent substitute for the direct reception of the satellite and radiosonde services;
SSEC response: Our belief is that the meteorological satellite service we are currently receiving could not be distributed via terrestrial services in a functionally equivalent way. The direct reception of satellite data is much more reliable and faster. We could not replicate our real-time data products without it. Severe weather warnings that are essential to public safety would be severely jeopardized by any delays in supplying these satellite data to end users.

9. Any other information interested parties would like to identify regarding use of the meteorological satellite and radiosonde services.
SSEC response: The University of Wisconsin has been directly receiving meteorological satellite data for 40 years. Scientists, such as Dr. Verner Suomi and Dr. Robert Parent, at the University of Wisconsin-Madison were instrumental in the inception and development of the U.S. meteorological satellite program and today are considered pioneers of this field. At SSEC, the direct reception of such data has been instrumental in transforming this research experiment begun in 1959 into the world class research center it is today. We are proud to have taken part over the years in the education of hundreds of graduate students, many of whom are science leaders in the federal government, continue to work as researchers here, or started weather-based business of their own (such as Weather Central, headquartered in Madison, WI). The Space Science and Engineering Center, along with our Cooperative Institute for Meteorological Satellite Studies (a cooperative institute of NOAA), has plans to continue advancing the nation?s knowledge of weather and climate phenomena while simultaneously providing their many meteorological satellite products for public use.

We appreciate the opportunity to provide input on this very important issue, and hope that you will decide that it is ill-advised to open up this frequency band that plays such an important role in distributing weather data, weather data which has had a profoundly positive impact on weather forecasts over the last decade.

Sincerely,

Dr. Henry E. Revercomb
Director, Space Science and Engineering Center
University of Wisconsin-Madison