June 21, 2010

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

Re: FCC Public Notice - REQUESTS INFORMATION ON USE OF 1675 – 1710 MHz BAND, ET Docket No. 10-123

The Meteorological Service of Canada (of the Department of Environment of Canada) commends the Federal Communications Commission for this very important Public Notice (ET Docket No. 10-123). The Meteorological Service of Canada (MSC) is the Canadian counterpart of the NOAA National Weather Service of the United States of America.

MSC's mission is to ensure that "Canadians are equipped to make informed decisions on changing weather, water and climate conditions" affecting their health, safety and economic efficiency. The Meteorological Service of Canada's ability to fulfill its contribution to this mission critically depends on its capacity to adequately observe the earth's surface and its atmosphere at global, regional, national and local scales. To be of relevance to the services provided by the Meteorological Service of Canada and its objective to reduce loss of life and minimize property damage, namely through high-impact hydrometeorological event detection, monitoring, forecasting and warning, the observations must be accurate, reliable and made available in a timely manner.

In preparing its response, the Meteorological Service of Canada has consulted extensively with its internal national and regional operators and data users. The Meteorological Service of Canada has also discussed the topic of this Public Notice with other government departments of Canada and the international hydrometeorological community.

The 1675-1710 MHz band is allocated on a co-primary basis to the Meteorological Aids (MetAids) Service and the Meteorological Satellite (MetSat) Service (Space-to-earth). The Meteorological Service of Canada is extremely concerned that a decision by the US Administration to either transfer or share this band for mobile broadband use would have significant short-, medium- and long-term negative impacts on its operations.

Regarding the MetAids Service, the Meteorological Service of Canada is concerned about the potential degradation of the transmission of the data generated by the US radiosonde network if the band 1675-1700 MHz is shared

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with mobile. The US radiosonde data is a critical real-time input in the detection, monitoring, forecasting and warning of imminent severe weather events when storm development occurs over the US territory, upstream of Canada.

Regarding the MetSat Service, the Meteorological Service of Canada like many other national meteorological and hydrological services, is an important user of the direct data broadcast from NOAA GOES VARiable (GVAR) and POES, European polar satellite MetOp and Chinese FY-1D satellites High Resolution Picture Transmission (HRPT) services in the band 1675-1710 MHz.

The MetSat ground stations of Environment Canada receiving NOAA GOES-GVAR direct satellite broadcast in the band 1685.7MHz are spread across Canada. They are located at:

- Dartmouth, Nova Scotia
- Montreal, Quebec
- Dorval, Quebec (2 receivers)
- Downsview, Ontario
- Trenton, Ontario (2 receivers)
- Winnipeg, Manitoba
- Stony Plain, Alberta
- Vancouver, British-Columbia (2 receivers)

The MetSat ground stations of Environment Canada receiving NOAA POES, as well as EUMETSAT METOP and China FY-1D, HRPT direct satellite broadcast in the band 1698-1710 MHz are located at:

- Gander, Newfoundland
- Stony Plain, Alberta
- Edmonton, Alberta
- Resolute, Nunavut

In Canada, the Meteorological Service of Canada is aware that a number of other federal government departments are users of the direct MetSat data broadcast services in the band 1675-1710 MHz. Examples are the Department of National Defence, the Department of Fisheries and Oceans, and Natural Resources Canada. In Canada, there is also a host of universities, broadcasting stations and private enterprises that use the direct MetSat data broadcast services in the band 1675-1710 MHz but the Meteorological Service of Canada has no details on these.

The Meteorological Service of Canada is concerned that a decision made in the United States of America will propagate globally in the medium- to long-term and will therefore not only constraint MetSat deployment in the US but in all countries.

Firstly, although obviously not providing a 100% availability, direct satellite broadcast under control of the meteorological community presents much higher reliability and shorter latency compared to an Internet solution, in particular in

severe and exceptional events when hydrometeorological data in support of real-time severe weather detection, monitoring, forecasting and warning are essential. This will particularly be critical during disasters when ground based infrastructures such as Internet, telecommunication lines or power lines fail. In disaster events, a direct data broadcast is essential in support of disaster relief operations.

Secondly, it is expected that not all parts of Canada will have the appropriate Internet bandwidth capacity to communicate this critical data in a manner that is efficient and timely. This will be particularly the case for some other countries that rely on the direct MetSat broadcast for their hydrometeorological services. The Meteorological Service of Canada therefore believes that using the Internet as a way to distribute the critical MetSat data may lead to a reduced ability to fulfill its public safety mandate to detect the development of high impact hydrometeorological events and issue appropriate timely warnings to the Canadian public and weather-sensitive industry.

The Meteorological Service of Canada also believes that, in order to make sure that the direct MetSat data broadcast services are not impacted by sharing the band 1675-1710 MHz with the mobile service, significant constraints will have to be imposed to the mobile service, such as large exclusion zones. Given the nature of the mobile service and the number of MetSat receiving stations, such constraints may not be practical. In that context it is expected that, if a decision was made by the US Administration to share the band 1675-1710 MHz with the mobile service, mobile deployment in that band in the US would have a direct and immediate impact on the quality of the data broadcasted to Canadian MetSat stations located in proximity of the Canada-US border.

For all of the reasons mentioned above the Meteorological Service of Canada wishes that the US Administration will not modify the current allocations of the 1675-1710 MHz band to allocate to, or share this band with the mobile broadband service.

The attachment to this letter contains the detailed responses of the Meteorological Service of Canada to the specific questions numbered 1-9 in the FCC Public Notice – Requests Information on Use of 1675 – 1710 MHz Band, ET Docket No. 10-123. As requested, an electronic copy of the letter and its attachment was also sent via e-mail to Best Copy and Printing, Inc. (BCPI), fcc@bcpiweb.com

Yours sincerely,

Diane Campbell

David Grimes
Assistant Deputy Minister
Meteorological Service of Canada

Attachment 1

RESPONSES FROM THE METEOROLOGICAL SERVICE OF CANADA TO QUESTIONS 1–9

In FCC Public Notice - REQUESTS INFORMATION ON USE OF 1675 – 1710 MHz BAND, ET Docket No. 10-123, the Federal Communications Commission invites comments with regard to nine specific questions, numbered 1 through 9. Below are responses from the Meteorological Service of Canada to each of these questions.

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;

Not applicable to the Meteorological Service of Canada.

2. Identity of the non-federal entities accessing the services operating in the 1675–1710 MHz band;

The Meteorological Service of Canada of the Department of Environment of Canada is heavily reliant on the MetSat direct satellite broadcast services in the band 1675-1710 MHz.

In Canada, the Meteorological Service of Canada is aware that a number of other federal government departments are users of the direct MetSat data broadcast services in the band 1675-1710 MHz, namely the Department of National Defence, the Department of Fisheries and Oceans and Natural Resources Canada. In Canada, there is also a host of universities, broadcasting stations and private enterprises that use the direct MetSat data broadcast services in the band 1675-1710 MHz but the Meteorological Service of Canada has no details on these.

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);

The equipment is used to support Canada's national weather warning, weather forecast and environmental monitoring programs, as provided by the Meteorological Service of Canada. Access to accurate, reliable and timely hydrometeorological observations, including space-based observations, is the foundation for the information, science and services provided by Environment Canada.

The Meteorological Service of Canada's operational applications include public, aviation and other economic sectors (e.g. agriculture, commercial, forestry, land transportation, and energy) nowcasting (weather warnings), volcanic ash

monitoring, operational sea and lake ice monitoring in support of maritime safety and shipping, numerical weather prediction.

The Meteorological Service of Canada uses the direct MetSat broadcast data to reduce loss of life and minimize property damage through high-impact hydrometeorological event detection, monitoring, forecasting and warning. Examples of high-impact hydrometeorological events are droughts, floods, hurricanes, tornadoes, thunderstorms, heavy rain/snow and ice storms.

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

Environment Canada's MetSat ground stations receives NOAA GOES-GVAR direct satellite broadcast in the band 1685.7MHz (11 ground stations) and NOAA POES HRPT and the EUMETSAT METOP polar orbiting direct satellite broadcasts in the band 1698-1710 MHz (4 stations).

5. How often the service is used (*e.g.*, every day, scheduled times of day, duration, etc.);

The MetSat direct broadcast service is used 24/7/365 to support the Meteorological Service of Canada's national hydrometeorological operations in support of severe weather detection, monitoring, warning, forecasting and environmental forecasting (e.g. sea ice, volcanic ash) programs.

GOES-GVAR is continually broadcast (every 15 minutes) and every POES-HRPT satellite pass is acquired (approximately 3 acquisitions of 15 minutes duration every hour). All of this data is acquired and analyzed.

6. An estimate of the current investment in wireless equipment, including when it was obtained and put into use;

The Environment Canada GOES and HRPT ground stations that receive broadcast satellite data in this frequency band have a capital investment in the order of 2 to 3 million Canadian dollars.

The 11 Environment Canada GOES-GVAR ground stations were installed in the mid 1990's and underwent a major re-capitalization in the early 2000's to ensure continued access to the current GOES satellites through to the end of their life (~2017).

The 4 Environment Canada POES/METOP-HRPT stations were purchased and installed between 2007-2010 to replace the previous systems which were approximately 15 years old in order to ensure continued access to the polar orbiting direct satellite data broadcasts for the next decade.

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;

The Meteorological Service of Canada relies on direct real-time MetSat satellite data access for the services of the NOAA GOES-GVAR and the NOAA POES HRPT to fulfill its critical mission. The Meteorological Service of Canada believes that, in order to make sure that the direct MetSat data broadcast services are not impacted by sharing the band 1675-1710 MHz with the mobile service, significant constraints will have to be imposed to the mobile service. Given the nature of the mobile service such constraints may not be practical. The Meteorological Service of Canada also believes that using the Internet as a way to distribute the critical MetSat data may lead to a reduced ability to fulfill its public safety mandate to detect the development of high impact hydrometeorological events and issue appropriate timely warnings to the Canadian public and weather-sensitive industry.

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;

Analysis to confirm this statement with respect to the Meteorological Service of Canada's operations cannot be provided in the short timelines provided. Environment Canada MetSat ground stations are collocated with storm prediction centres to ensure the data is available as soon as possible. Increased latencies in providing the satellite data and/or products to meteorologists through adding additional acquisition, processing and dissemination steps may be unacceptable.

Environment Canada MetSat ground stations contribute to the EUMETSAT Advanced Retransmission Service (EARS) network of ground stations which collectively provide near-real time access to the global set of POES observations to support high resolution numerical weather prediction within the permissible time latencies.

9. Any other information interested parties would like to identify regarding use of the meteorological satellite and radiosonde services.

Please see the information provided in the cover letter.