

Compatibility Analysis of VHF Emissions from NMTSat to the NM Tech Ground Station

For the use of the contemplated VHF to transmit from the NMTSat satellite to the ground station located at New Mexico Tech in Socorro, New Mexico, the following considerations are offered as to why the risk of interference is acceptably small:

1. The Socorro site is the only one that will be used.
2. Per the Point Radius Search in Appendix 1, Orbcomm is the only current or pending licensed operator within a 400 km radius of the Socorro site. There are no other licensed operating systems within that range.
3. Per the email in Appendix 2, Orbcomm Inc. has no objection to this temporary use of the frequency for the purpose of this uplink.
4. Per email in Appendix 3, this is compatible with operations at White Sands Missile Range, and Richard Wyman, DOD Area Frequency Coordinator, has notified IRAC of this fact.

Appendix 1 Point Radius Search – FCC Market Survey



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Site / Frequency / Market Search Results

Search Criteria: Frequency Range = 148.785 MHz through 148.815 MHz, Computed Box Based on Point/Radius: Center = 34° 3' 58" N 106° 54' 29" W, Radius = 400 Kilometers, Currently Licensed and Pending Facilities

International Bureau Filing System Database						
Callsign: E940537	File Number: SESMOD2013093000854	Applicant: ORBCOMM License Corp.	FRN: 0004379202	Grant Date: 12/17/2013	Expiration: 05/17/2020	Status: ATPN Sub-System: SES
Site: 1	Description: CONUS	City: ST. JOHNS	State: AZ	County: APACHE	Coordinates: 34° 27' 21" N, 109° 33' 17" W	Distance from Center: 247.6 Kilometers Azimuth from Center: 280.8°
Frequency: 00000137.00000000-00000401.00000000						

International Bureau Filing System Files: 1

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* Indicates points outside the point/radius circle, within the computed box.

Help

If you have suggestions for improvements to this application, please [submit a technical support request](#) or call 877-480-3201.

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Appendix 2: Email from Walter Sonnenfeldt, ORBCOMM Inc. August 18, 2017

ORBCOMM Response - FCC Application File No. 0514-EX-ST-2017 Frequency Coordination - New Mexico Institute of Mining and Technology

From: Walter Sonnenfeldt <Sonnenfeldt.Walter@orbcomm.com>

Date: 08/18/2017 03:28PM

To: Aaron Zucherman <azucherman@gmail.com>

Cc: "Anthony Serafini (anthony.serafini@fcc.gov)" <anthony.serafini@fcc.gov>, "douglas.young@fcc.gov" <douglas.young@fcc.gov>, "mlmiller@sterksolutions.com" <mlmiller@sterksolutions.com>

Re: New Mexico Institute of Mining and Technology. FCC Part 5 Application File No. 0514-EX-ST-2017

Mr. Zucherman:

Please send a reply E-Mail to sonnenfeldt.walter@orbcomm.com to confirm that you have received this message.

Thank you for your coordination request regarding the above-referenced New Mexico Institute of Mining and Technology ("NM Tech") application for FCC Part 5 Special Temporary Authority ("Application").

Based on the information provided in the Application and our correspondence exchanges, ORBCOMM has no objection to grant of the Application for use of spectrum in accordance with FCC Rule Part 5 for experimentation on a temporary non-protected non-interference basis entailing the operation of the single spacecraft, and single earth station to be located in New Mexico, as specified in the Application. However, ORBCOMM's consent to temporary non-interference FCC Part 5 experimental use of spectrum must in no way be construed as ORBCOMM's consent to the use of spectrum by NM Tech or any other party under any other authorization regime (including international coordination of spectrum for use by NM Tech, or authorization for use of spectrum by NM Tech in any country other than the United States).

ORBCOMM has no other comments or objections to the Application at this time.

Best Regards,

Walter Sonnenfeldt
Vice President, Regulatory Affairs
ORBCOMM Inc.
E-Mail: sonnenfeldt.walter@orbcomm.com

Appendix 3 Coordination of NMTSat VHF Transmissions with White Sands Missile Range

The following from Email On Fri, 17 Nov 2017 16:22:01 +0000, "Wyman, Richard J CIV USARMY NETCOM (US)" wrote:

CLASSIFICATION: UNCLASSIFIED

Michael:

It was a pleasure talking to you this morning.

1. Below is the e-mail that I sent to Ms. Poppenhager, our (Army's) IRAC FAS representative.

2. As we discussed, I am OK with the use of M148.8 as a Space-to-Ground SATCOM downlink. This frequency may be used by aircraft, with a power of 10 Watts, so their operations will overpower a 2-Watt transmitter on a Cubesat 500 km above the earth.

3. However, I do have issues with the M431.8 as the uplink. The selection of this frequency seems somewhat arbitrary, as M420-M450 is allocated for Federal radiolocation operations, and for non-Federal amateur use. I would prefer moving to a frequency in the M400-M406 band, or the M450-M470 band. Please consult with New Mexico Tech, to see why they selected this frequency.

a. If they can change the frequency to M400-M406 or M450-M470, then please nominate a frequency in either of those bands.

b. If they cannot, or choose not to change frequency, then have them explain why. I may be open to sector blanking of their uplink antenna, but only for a valid reason.

V/R,

Richard J. Wyman
Chief, Spectrum Operations Branch
DoD Area Frequency Coordinator
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