

Memorandum of Understanding
NRQZ Power Density Waiver – Highland County, VA

The Highland County Board of Supervisors ("Board"), and the National Radio Astronomy Observatory (NRAO), operated by Associated Universities Incorporated, under a cooperative agreement with the National Science Foundation, hereby enter into this Memorandum of Understanding (MOU) in order to establish conditions favorable for granting a site-specific National Radio Quiet Zone (NRQZ) power density limit waiver. To further the interests of the applicant and the NRAO, the parties agree to the following pursuant to the grant of an NRQZ limit waiver.

Mountain Grove

- Specific site information: AGL: 14 meters; NRQZ ID: 240606A
 - Latitude: 38 13 24.6 N
 - Longitude: 79 48 52.8 W
 - Tx Frequencies: 155.7225, 154.1225, 154.385, 155.9025 MHz
 - Bandwidth or emission designators: 11K2, 8K1
- FCC Application Information:
 - Call Sign: Provided as obtained; FRN Number: 0002034494; Frequency Coordination No: ; IM20240200489A, IM20240200489C, (or latest lettered postfix); FCC File Number: 0011277990
- Allowable ERPd for Tx Frequencies: 154.385 MHz shall not exceed 100 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 155.7225 MHz shall not exceed 75 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 154.1225, 155.9025 MHz shall not exceed 50 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative.

Sounding Knob

- Specific site information: AGL: 12 meters; NRQZ ID: 240606A
 - Latitude: 38 20 39.4 N
 - Longitude: 79 35 46.2 W
 - Tx Frequencies: 155.7225, 154.1225, 154.385, 155.9025 MHz
 - Bandwidth or emission designators: 11K2, 8K1

- FCC Application Information:
 - Call Sign: Provided as obtained; FRN Number: 0002034494; Frequency Coordination No: ; IM20240200489A, IM20240200489C, (or latest lettered postfix); FCC File Number: 0011277990
- Allowable ERPd for Tx Frequencies: 155.7225 MHz shall not exceed 100 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 155.1225 MHz shall not exceed 70 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 154.385, 155.9025 MHz shall not exceed 50 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative.

Doe Hill

- Specific site information: AGL: 15 meters; NRQZ ID: 240606A
 - Latitude: 38 25 40.4 N
 - Longitude: 79 29 28.2 W
 - Tx Frequencies: 155.7225, 154.1225, 154.385, 155.9025 MHz
 - Bandwidth or emission designators: 11K2, 8K1
- FCC Application Information:
 - Call Sign: Provided as obtained; FRN Number: 0002034494; Frequency Coordination No: ; IM20240200489A, IM20240200489C, (or latest lettered postfix); FCC File Number: 0011277990
- Allowable ERPd for Tx Frequencies: 155.7225 MHz shall not exceed 75 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 154.385, 155.9025 MHz shall not exceed 50 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 154.1225 MHz shall not exceed 40 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative.

Duncans Knob

- Specific site information: AGL: 21.3 meters; NRQZ ID: 240606A
 - Latitude: 38 09 52.1 N
 - Longitude: 79 42 19.0 W

- o Tx Frequencies: 155.7225, 154.1225, 154.385, 155.9025 MHz
 - o Bandwidth or emission designators: 11K2, 8K1
- FCC Application Information:
 - o Call Sign: Provided as obtained; FRN Number: 0002034494; Frequency Coordination No: ; IM20240200489A, IM20240200489C, (or latest lettered postfix); FCC File Number: 0011277990
- Allowable ERPd for Tx Frequencies: 155.7225 MHz shall not exceed 75 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 154.385 MHz shall not exceed 40 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 155.9025 MHz shall not exceed 50 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 154.1225 MHz shall not exceed 100 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative.

Lantz Mountain

- Specific site information: AGL: 30.5 meters; NRQZ ID: 240606A
 - o Latitude: 38 26 15.0 N
 - o Longitude: 79 38 52.0 W
 - o Tx Frequencies: 155.7225, 154.1225, 154.385, 155.9025 MHz
 - o Bandwidth or emission designators: 11K2, 8K1
- FCC Application Information:
 - o Call Sign: Provided as obtained; Frequency Coordination No: 0002034494; IM20240200489A, IM20240200489C
- Allowable ERPd for Tx Frequencies: 155.7225 MHz shall not exceed 75 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 154.385 MHz shall not exceed 100 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 155.9025 MHz shall not exceed 50 ERP (Watts) Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative. Allowable ERPd for Tx Frequencies: 154.1225 MHz shall not exceed 80 ERP (Watts)

Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative.

Highland County Mobiles

- Specific site information: 300 units; NRQZ ID: 240606A
 - Location: Countywide – Highland County, VA
 - Tx Frequencies: 154.1225, 154.385, 155.7225, 155.9025, 151.3325, 158.8125, 151.01, 151.1075 MHz
 - Bandwidth or emission designators: 11K2, 8K1
 - FCC Application Information:
 - Call Sign: Provided as obtained; FRN Number: 0002034494; Frequency Coordination No: ; IM20240200489A, IM20240200489C, (or latest lettered postfix); FCC File Number: 0011277990
 - Allowable ERPd for Tx Frequencies: 154.1225, 154.385, 155.7225, 155.9025, 151.3325, 158.8125, 151.01, 151.1075 MHz shall not exceed 100 ERP (Watts)
- Omni-directional, and installed in accordance to the engineering submitted by Highland County, or their assigned representative.

It is acknowledged that:

- The Board is the responsible party for all users under licensed frequencies above.
- The authorized control point for the frequencies associated with this MOU is controlled from a single facility located at the Highland County E911 Center (henceforth referred to as Center) in Monterey, VA Other control points will fall under the 6.1 meter rule.
- The Mountain Grove, Sounding Knob, Doe Hill, Duncans Knob, and Lantz Mountain sites (henceforth referred to as Facilities) are base stations remotely controlled by the Center.
- The local situation is evolving, with additional opportunities emerging.
- The Sheriffs Office site is below NRQZ limits, therefore does not fall under this MOU.
- There are 300 mobile and portable units to be licensed in conjunction to the Facilities, with possibility to be modified.

SPECIAL CONDITION:

1. All communications conducted by the Facilities shall be of an official nature and will be only for authorized system users.
2. All communications shall be consistent with the "Standard Operating Guidelines" established by the Board.
3. If any out-of-band VHF radio frequency emissions in the direction of GBO, including

harmonics, arising from these transmitters are shown to exceed the limits of ITU-R RA.769, the Commission agrees to reduce the power until the limits of ITU-R RA.769 are met, or advise NRAO of proposed corrective actions, to which NRAO must agree.

4. It is understood by the Board that the ERPd of the Facilities, at the carrier frequencies, will exceed the NRQZ protection criteria, and will therefore be a source of interference to the GBO.
5. The Board may request additional NRQZ power density limit waivers in the future. Future power density waivers will be evaluated on a site by site basis.
6. This MOU is between the Board and the NRAO. It is non-transferable to any other agency or entity, by any means, whether implied, verbal or written, without prior written permission by the NRAO.
7. The main Control Point is defined as 165 W Main St. Monterey, VA 24465 with telephone number (540) 468-2347. NRAO has the right to contact the Control Point in the event of harmful interference, and to obtain any information deemed necessary to meet the conditions in this MOU.
8. The MOU is valid for five (5) years from the date of this document. The MOU shall be reissued without limitation unless the Board has not followed the MOU. Modifications to the MOU are subject to negotiation.

The persons executing this Memorandum of Understanding hereby certify that they are authorized to sign this document of behalf of their respective organizations and agree to its content.

ACCEPTED AND AGREED:

_____, 2025

Mr. Harry B. Sponaugle
Chairman, Highland County VA

_____, 2025

Mr. Harley Gardner
Chairman/Emergency Services Coordinator, Highland County VA

_____, 2025

Dr. James Jackson, Director
Green Bank Observatory

_____, 2025

Dr. Anthony Beasley, Director
National Radio Astronomy Observatory

_____, 2025

Sheldon Wasik, Zone Regulatory Services Coordinator
National Radio Astronomy Observatory