NATIONAL RADIO ASTRONOMY OBSERVATORY

POST OFFICE BOX 2
GREEN BANK, WV 24944-0002
NRQZ OFFICE TELEPHONE (304) 456-2107   FAX (304) 456-2276
HTTP://WWW.GB.NRAO.EDU/   NRQZ@NRAO.EDU

February 7, 2017
Page 1 of 3
NRQZ ID: 10489_18NOV2017

Attn. Tony Mancari
Shenandoah Valley Educational TV Corporation
847 Martin Luther King Jr. Way
Harrisonburg, VA 22801

Application Reason/Purpose	Prior coordination notification
File Number	Shall be provided by applicant
Applicant Name	Addressee
Call Sign	WVPT
Site Name or Loc	L1 Elliot Knob, VA
	L3 Monterey, VA
Site Specific Data	See Exhibit "A
System Configuration	See attached "Final Engineering"
Previous NRAO Coordination No.	NRQZ ID 3563-2, 7538
Current NRAO Coordination No.	NRQZ ID 10836_15MAY2017

Dear Applicant:

The National Radio Quiet Zone (NRQZ) office evaluated the proposed facilities as shown in exhibit A to determine the possible interference impact on our highly sensitive radio astronomy operations.

SPECIAL CONDITION: Elliot Knob, VA

The NRQZ office has analyzed the Elliot Knob facility. It has been determined that there has been no change in the system configuration from the previously reviewed and approved engineering. The NRAO has no objection to the Elliott Knob facility as submitted in this frequency assignment. Therefore, this facility is grandfathered to the previously coordinated allowable ERPd of 320 Watts at Azimuth 303.1° True.

SPECIAL CONDITION: Monterey, VA

The National Radio Astronomy Observatory (NRAO), Green Bank, WV, objects unless and until the special condition of the **Monterey** station license limit the effective radiated power to 0.0015 watts at Azimuth 295° True.

To meet this special condition, the applicant shall:

1. Use the final engineering submitted by Doug Vernier, 04 August 2008-Elliot Knob, and 13 March 2012-Monterey, indicating that these facilities will meet the requested ERPd limit.
2. Arrange for a site inspection to verify implementation of the submitted and approved engineering.
3. Post a copy of this concurrence at the transmit facility.

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<u>Regulatory</u>

The NRQZ Office requests that:
1. The FCC places the Special Condition on the Station License.
2. This Letter of Concurrence be attached to the FCC application.
3. The applicant provides the NRQZ Office with notice of its official filing with the FCC per section 47CFR1.924 (a) (2).

The National Radio Astronomy Observatory (NRAO) site located at Green Bank, Pocahontas County, WV, has no objection to this assignment provided the special conditions are met.

The Sugar Grove Research Station, the former Naval Radio Research Observatory (NRRO), located at Sugar Grove, Pendleton County, WV has no objection to this assignment.

This letter constitutes coordination of assignment in the National Radio Quiet Zone as required by the FCC Rules and Regulations 47CFR1.924.

If I may be of assistance, please feel free to contact me.

Sincerest regards,

Paulette W. Woody
NRQZ Office Administrator

cc: Doug Vernier, Telecommunications Consultants

file: 10836.docx

Attachments: 10836 Monterey Final Engineering

This concurrence remains valid provided the data contained within is consistent with the applicant's filing at the Commission. Any discrepancy in system parameters, such as geographical coordinates (Latitude, Longitude, AMSL), antenna height above ground level (AGL), antenna gains or directivity (orientation), channel (operating frequency or frequency bands), emission type, and power requires re-coordination. If the Commission has questions regarding the validity of this or any concurrence, please direct inquiries to nrqz@nrao.edu or 304-456-2107.

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Exhibit "A"

Site Name or Loc	Elliott Knob
Nearest City/State	Staunton Virginia
N Latitude	38 09 54.47
W Longitude	79 18 50.13
Ground Elevation (m)	1322.8
Frequency (MHz)	201
Emission Designator	Digital TV
Antenna 1 Type (Gain dBi)	On file
Height agl (m)	10
Orientation (degT)	150° true with 1° electrical tilt

Site Name or Loc	Monterey
Nearest City/State	Monterey Virginia
N Latitude	38 20 39.4
W Longitude	79 35 46.1
Ground Elevation (m)	1338
Frequency (MHz)	201
Emission Designator	Digital TV
Antenna 1 Type (Gain dBi)	Scala C L-713, 9 dBd
Height agl (m)	42.9
Orientation (degT)	355° true

			2/7/2012	DATE
NRQZ#	10836/7538-3	Magnetic Declination Correction	8.92	° West

http://www.ngdc.noaa.gov/geomagmodels/IGRFWMM.jsp

Location:	Monterey, VA	Latitude:	38 20 39.4 (ddmmss.s)
	2/24/2012 - 8° 55'	Longitude:	79 35 46.1 (ddmmss.s)
		Ground Elev.:	4390 Feet AMSL
		Antenna Ht.:	141 Feet AGL
		Frequency:	201 MHz

NRAO AERP (watts) per specified emission	0.0015	watts at	294.9 ° True (Φd)
	Diffraction	watts at	294.9 ° True
		watts at	294.9 ° True

	Sector	7538	10836	
a.	Antenna Type	Scala CL-713	Scala CL-713	
b.	Maximum Antenna Gain	9 dBd	9 dBd	
c.	Antenna Azimuth (° True or "omni")	355 °T	355 °T	
	Antenna Azimuth (Mag)	363.9 °Mag	363.9 °Mag	
d.	Az to GBT on Antenna Pattern	299.9 °	299.9 °	
e.	Antenna Gain to GBT (b - | f |)	-40.00 dB	-35.09 dB	
f.	Antenna Gain to GBT Below Maximum	-49.00 dB	-44.09 dB	
g.	Mechanical Downtilt (Φbt)	°	°	
h.	Loss to GBT Due to Mechanical Downtilt	0 dB	dB	
i.	Transmitter Output Power	1 watts	1 watts	
j.	System Losses: Combiner/Duplexer		0	
	Lightning Arrestor		0	
	Main Line		0	
	RF Filter		0	
	Misc. connectors, etc.		0	
j.	System Loss	0.00 dB	0.00 dB	
k.	Power to Antenna (i x j)	1.00 watts	1.00 watts	
l.	Main Beam Power (k x b)	7.94 watts	7.94 watts	
m.	ERPd to GBT (l x (f + h)) or (l x (e - (h + j)))	0.0001 watts	0.00031 watts	0.00

Power at input to hardline:	1.00	1.00	
Power at bottom jumper:	1.00	1.00	

10836 Monterey Final Engineering

..\Art Peters Antenna Designs\7538-3 Monterey_Ant_Exhibit @ 355 degrees True.pdf

@ 355 degrees True

Previous Cases: 7538 and 3563
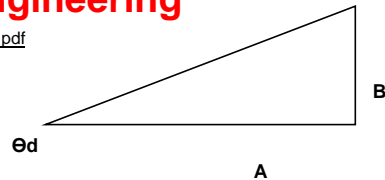
12.59	km to 1st Obstacle	Θd = Angle to 1st Obstacle	
4531	TX AMSL	A = Distance to 1st Obstacle in Feet	41306
4471.59	AMSL 1st Obstacle	B = Ant Ht AMSL minus Ht of 1st Obs	59.41
		Θd = arctan(B/A) =	0.08 °

A -Θd value indicates that the first obstacle is above the horizon
A +Θd value indicaes that the first obstacle is below the horizon

Effective mechanical downtilt adjustment:

Effective Elevation = Θd - Θbt cos(Φd - Φbt) =	0.0	0.0	0.0
Effective Elevation Adjustment =	0 °	0 °	0 °

Definitions:

Φd = Azimuth to GBT
Φbt = Azimuth of mechanical beam tilt
Θd = Elevation to 1st obstacle (negative above horizon)
Θbt = Elevation of antenna mechanical beam tilt (neg. above horizon)

Note: No adjustments for electrical beam tilt are required because
the pattern data already accounts for this

Effective azimuth on horizontal pattern = Φd - Antenna Azimuth (True) {If AZ<0, then add 360}
Effective elevation on vertical pattern = Θd - Θbt cos(Φd - Φbt) {IF ELEV<0, then add 360}

Antenna Gain = HPAT(Eff AZ) + VPAT(Eff ELEV) + Max Gain