



**Antenna Model: TFU-30GBH/VP-R O8**

Proposal Number: **C-70942-2**  
Date: **27-Oct-17**  
Customer: **Nexstar**  
Location: **Norfolk, VA**

### Electrical Specifications

Polarization: **Elliptical**  
Azimuth Pattern: **Directional**  
Antenna Input: **6-1/8" 75 Ohm EIA/DCA**  
VSWR: **Channel 1.08 : 1**  
Bandwidth: **6 MHz**  
Rated Input Power: **55 kW (17.40 dBk) Maximum Average Power**

### Mechanical Specifications

Mounting: **Bottom of Stack**  
Environmental Protection: **Full Radome**  
Height: **62.1 ft (18.9m) less Lightning Protector**  
Weight: **28200 lb (12.8t)**  
Effective Projected Area: **91.5 ft<sup>2</sup> (8.5m<sup>2</sup>) TIA-222-G Basic Wind Speed: 100 m/h (160.9 km/h)**

### Channel Specifications

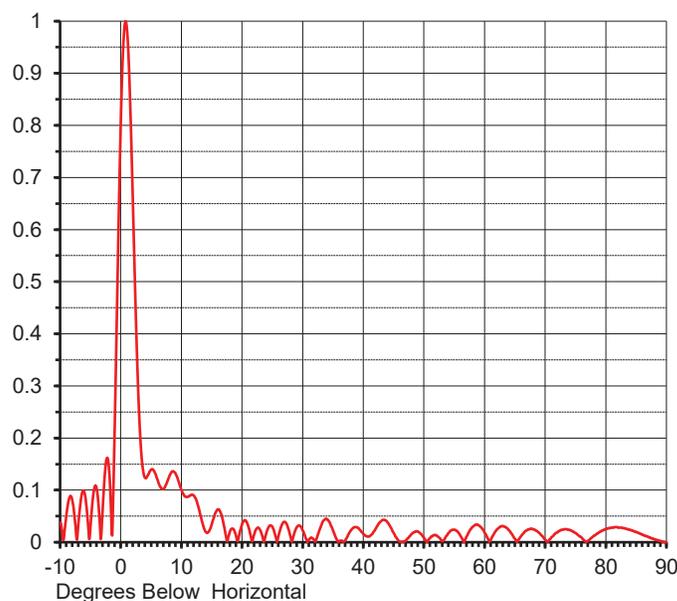
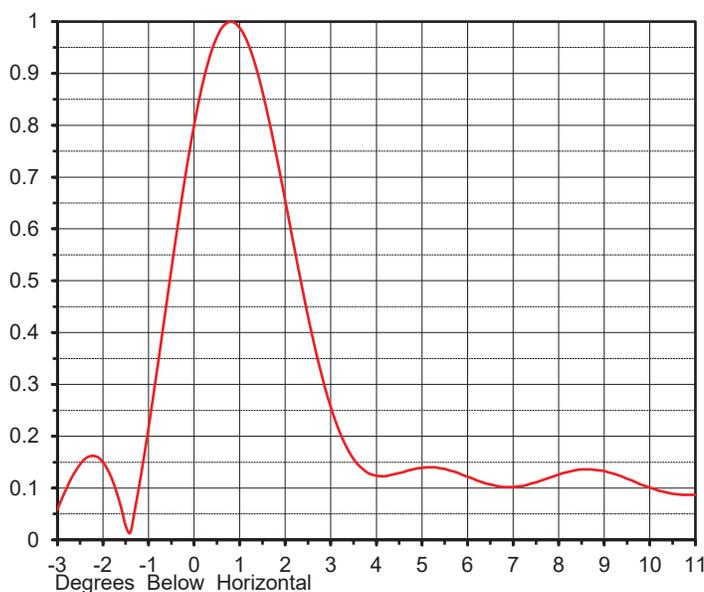
Call	CH	Freq	Hpol ERP	Vpol ERP	TPO	Peak Main Lobe Hpol Gain	Peak Main Lobe Vpol Gain	Peak at Horizontal Hpol Gain	Peak at Horizontal Vpol Gain
WAVY	19	503 MHz	1,000 kW (30.00 dBk)	330 kW (25.19 dBk)	61.2 kW (17.87 dBk)	20.33 (13.08dB)	6.71 (8.27dB)	14.51 (11.62dB)	4.79 (6.80dB)

## ELEVATION PATTERN

Proposal No. **C-70942-2**  
 Date **27-Oct-17**  
 Call Letters **WAVY**  
 Channel **19**  
 Frequency **503 MHz**  
 Antenna Type **TFU-30GBH/VP-R O8**

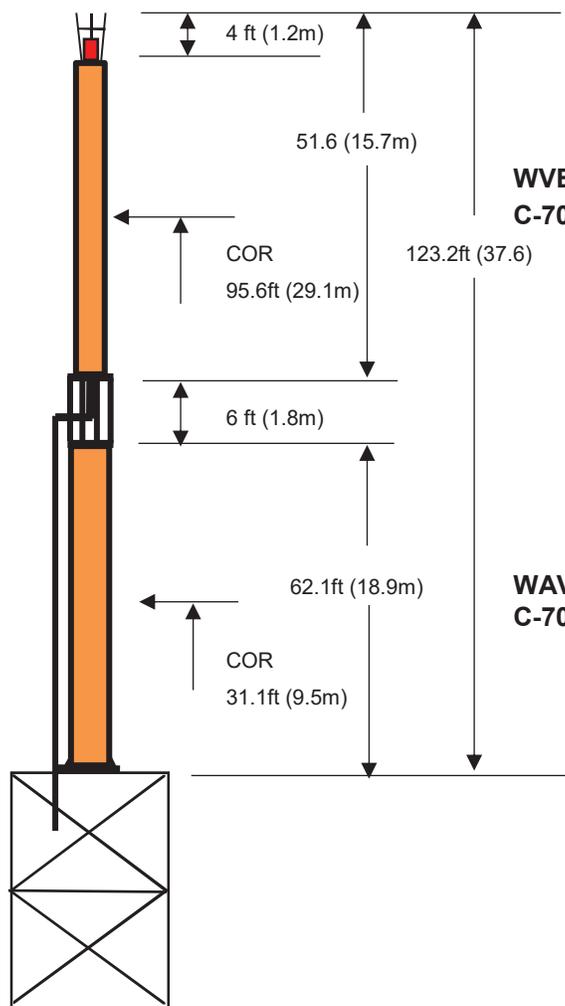
RMS Directivity at Main Lobe **27.0 ( 14.31 dB )**  
 RMS Directivity at Horizontal **19.3 ( 12.86 dB )**  
**Calculated**

Beam Tilt **0.70 deg**  
 Pattern Number **30G270070**



Angle	Field								
-10.0	0.038	10.0	0.098	30.0	0.021	50.0	0.007	70.0	0.004
-9.0	0.058	11.0	0.087	31.0	0.006	51.0	0.009	71.0	0.010
-8.0	0.075	12.0	0.089	32.0	0.001	52.0	0.013	72.0	0.020
-7.0	0.046	13.0	0.054	33.0	0.033	53.0	0.002	73.0	0.025
-6.0	0.091	14.0	0.019	34.0	0.044	54.0	0.018	74.0	0.023
-5.0	0.044	15.0	0.038	35.0	0.020	55.0	0.024	75.0	0.017
-4.0	0.098	16.0	0.063	36.0	0.002	56.0	0.011	76.0	0.008
-3.0	0.080	17.0	0.028	37.0	0.005	57.0	0.012	77.0	0.003
-2.0	0.136	18.0	0.023	38.0	0.025	58.0	0.030	78.0	0.013
-1.0	0.275	19.0	0.008	39.0	0.028	59.0	0.032	79.0	0.020
0.0	0.845	20.0	0.037	40.0	0.015	60.0	0.017	80.0	0.026
1.0	0.974	21.0	0.028	41.0	0.012	61.0	0.006	81.0	0.028
2.0	0.609	22.0	0.018	42.0	0.027	62.0	0.025	82.0	0.028
3.0	0.230	23.0	0.021	43.0	0.042	63.0	0.031	83.0	0.027
4.0	0.123	24.0	0.021	44.0	0.037	64.0	0.022	84.0	0.023
5.0	0.140	25.0	0.027	45.0	0.016	65.0	0.005	85.0	0.019
6.0	0.119	26.0	0.016	46.0	0.001	66.0	0.013	86.0	0.014
7.0	0.103	27.0	0.039	47.0	0.004	67.0	0.024	87.0	0.010
8.0	0.129	28.0	0.006	48.0	0.017	68.0	0.025	88.0	0.005
9.0	0.130	29.0	0.030	49.0	0.020	69.0	0.017	89.0	0.002
								90.0	0.000

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## MECHANICAL SPECIFICATIONS

Proposal No. **C-70942-2**  
 Date **27-Oct-17**  
 Call Letters **WAVY**  
 Channel **19**  
 Frequency **503 MHz**  
 Antenna Type **TFU-30GBH/VP-R 08**

### Preliminary Specifications

#### Bottom of Stack

#### With ice TIA-222-G

**Basic Wind Speed** 100 m/h (160.9 km/h)  
  
**Structure Class** II  
**Exposure Category** C  
**Topography Category** 1

**Design Ice** 0.75 in  $t_{iz} = 2.09$  in  
**Wind Speed w/Ice** 30 m/h (48.3 km/h)

#### Mechanical Specifications

		without ice	with ice	full stack	full stack with ice
Height with Lightning Protector	H4	ft ( m)		123.7 ft (37.7m)	
Height less Lightning Protector	H2	62.1 ft (18.9m)		119.7 ft (36.5m)	
Height of Center of Radiation	H3	31.05 ft (9.5m)		93.4 ft (28.5m)	
Effective Projected Area	(EPA) <sub>S</sub>	91.5 ft <sup>2</sup> (8.5m <sup>2</sup> )	217.8 ft <sup>2</sup> (20.2m <sup>2</sup> )	171.23 ft <sup>2</sup> (15.9m <sup>2</sup> )	175.39 ft <sup>2</sup> (16.3m <sup>2</sup> )
Moment Arm	D1	31.1 ft (9.5m)	31.1 ft (9.5m)	58.2 ft (17.7m)	58.43 ft (17.8m)

**Weight** W 28200 lb (12.8t) 33800 lb (15.3t) 35500 lb (16.1t) 44400 lb (20.1t)

Antenna designed in accordance with AISC specifications for design of structural steel as prescribed by TIA-222-G

**Prepared by:** JBC **Date:** 7-Jul-17 **ME:** **EE:**  
**Rev. No.2 by:** CAB **Date:** 27-Oct-17

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## Summary

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Frequency **503 MHz**  
Antenna Type **TFU-30GBH/VP-R O8**

## Antenna

	Hpol		Vpol	
ERP:	<b>1,000 kW</b>	<b>( 30.00 dBk )</b>	<b>330 kW</b>	<b>( 25.19 dBk )</b>
Peak Gain*	20.33	( 13.08 dB )	6.71	( 8.27 dB )

**Antenna Input Power** **49.2 kW ( 16.92 dBk )**

## Transmission Line

Type: **Rigid**      Attenuation: **( 0.95 dB )**  
Size: **7-3/16"**      Efficiency: **80.3%**  
Impedance: **75 Ohm**  
Length: **1020 ft      310.9 m**

## Transmitter Output

**61.2 kW ( 17.87 dBk )**

Transmitter filter losses not included

\* Directivity and Gain are with respect to half wave dipole. The gain includes feed system losses

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