

## Jerome Manarchuck

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**From:** Gary Cavell <gcavell@cavellmertz.com>  
**Sent:** Wednesday, September 13, 2017 12:40 PM  
**To:** Jerome Manarchuck  
**Cc:** Brian C. Edwards  
**Subject:** WNWR STA Update  
**Attachments:** WNWR AM 1900 Calibration Certificate.pdf

Hi Jerry, RE: BSTA- 20170808AAM

I have been advised that the antenna monitor has been reinstalled at WNWR in Philadelphia, PA following the factory work - adding the nighttime mode (soon to be proofed) and full recalibration. The antenna monitor certificate of calibration is attached.

All directional antenna readings are essentially unchanged, as shown below.

Readings as of Wednesday September 13, 2017 - 8:10am

TX Output - 52.6 KW  
CP - 32.45 A  
CP Power – 52.650 kW

### **Licensed Daytime Antenna Monitor Parameters (Ratio/Phase)**

Tower 1 1.000/0.01° (Lic. 1.000/0.0°)  
Tower 2 0.441/-119.2° (Lic. 0.441/-119.3°)  
Tower 3 0.735/+141.7° (Lic. 0.735/+141.7°)

### **Daytime Tower Base Currents (Not required but recorded and monitored by station)**

Tower 1 - 27.9 A (Baseline 27.9 A)  
Tower 2 - 12.3 A (Baseline 12.3 A)  
Tower 3 - 19.5 A (Baseline 19.5 A)

This shows that the daytime array remains within licensed limits. There is no longer a need for the STA.

The sample system will be checked recertified with the completion of the proof supporting the nighttime CP – which is expected to be completed within the next 30-45 days.

Let me know if this helps to close this matter or if you will need anything else.

With best regards,

-gary

Garrison C. Cavell

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Potomac Instruments, inc.

7309 Grove Rd Unit D Frederick, MD 21704 Phone 301-696-5550 Fax 301-696-5553

## Certificate of Calibration

For

Medium Wave Directional Antenna Monitor

Model: 1901-3

Serial Number: 855

Performed for: WNWR – Global Radio LLC.

Address: 2890 Emma Lee Street  
Suite 201  
Falls Church, VA 22042

Calibration Frequency: 1540 kHz

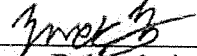
Termination Impedance: 50  $\Omega$

Temperature: 72° F

Relative Humidity: 42%

Equipment Modifications from Standard: None

This document certifies that the above instrument has been tested and calibrated in accordance with factory calibration procedures under the conditions noted using standards that are traceable to the National Institute of Standards and Technology (NIST).

Approved By:   
Zachary Babendreier

Calibration Date: 8/22/2017

Next Recommended Calibration: August 2020

## 1900 Series Antenna Monitor Factory Configuration

Rev A

### General Information

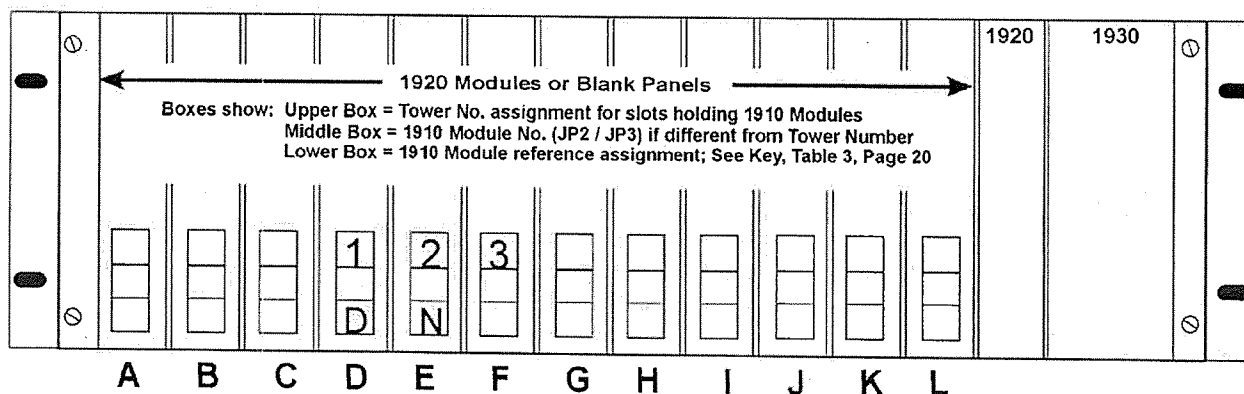
Customer / Order Number <b>WNWR / 3279</b>	Date <b>August 14, 2017</b>
Model Number <input checked="" type="checkbox"/> 1901 <input type="checkbox"/> 1903 <input type="checkbox"/> 1902 Included	Chassis Serial Number <b>855</b>
Number of Towers	<input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
Number of Patterns	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3
Non-Directional Patterns	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Reference Tower for each Pattern	<input checked="" type="checkbox"/> Day Twr # <u>1</u> <input checked="" type="checkbox"/> Night Twr # <u>2</u> <input type="checkbox"/> 3RD Twr # _____
Common Point	<input checked="" type="checkbox"/> N/A    Slot _____
Operating Frequency (kHz)	<b>1540 kHz</b>
Reject Filter Frequencies (kHz)	<b>N/A</b>
Sampling Line Impedance	<input checked="" type="checkbox"/> 50 Ohms <input type="checkbox"/> 75 Ohms <input type="checkbox"/> HI Z
Input Connector Type	<input checked="" type="checkbox"/> UHF <input type="checkbox"/> Type N
AC Power	<input checked="" type="checkbox"/> 117 VAC (3/4 Ampere Fuse) <input type="checkbox"/> 230 VAC (3/8 Ampere Fuse)
Power Supply Serial Number	<b>5010 0774</b>
Notes:	

### Display Board Configuration

Decimal Point Selection (JP1)	<input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4
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### Control Board Configuration

Serial Number	<b>2410 0774</b>			
Tower Output Resistor Values (if different than shown on schematic)	R82 _____ R87 _____ R91 _____	R83 _____ R88 _____ R92 _____	R85 _____ R89 _____ R93 _____	R86 _____ R90 _____
JP1	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> None			
JP2	<input type="checkbox"/> D (Day) <input type="checkbox"/> N (Night) <input type="checkbox"/> C (3RD)			
JP3	<input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1			
JP4	<input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1			
JP5	<input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1			
JP6	<input checked="" type="checkbox"/> 0 <input type="checkbox"/> 1			
JP7	<input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12			
JP8	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> None			
JP9	<input type="checkbox"/> D (Day) <input type="checkbox"/> N (Night)			



## 1910 Metering Module Configurations

Rev A

1910 Slot A	Serial Number	1910 Slot B	Serial Number	1910 Slot C	Serial Number
JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD	JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD	JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD
JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12	JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12	JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
JP4	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP4	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP4	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED
JP5	<input checked="" type="checkbox"/> OPEN (Test Only)	JP5	<input checked="" type="checkbox"/> OPEN (Test Only)	JP5	<input checked="" type="checkbox"/> OPEN (Test Only)
JP6	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP6	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP6	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED
JP7	<input type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers	JP7	<input type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers	JP7	<input type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers
JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input type="checkbox"/> 2 - 3 (TWR)	JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input type="checkbox"/> 2 - 3 (TWR)	JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input type="checkbox"/> 2 - 3 (TWR)
R101	<input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z	R101	<input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z	R101	<input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z
Filter	<input type="checkbox"/> N/A A10468 -	Filter	<input type="checkbox"/> N/A A10468 -	Filter	<input type="checkbox"/> N/A A10468 -
Notes		Notes		Notes	

1910 Slot D	Serial Number 2510 2996	1910 Slot E	Serial Number 2510 2997	1910 Slot F	Serial Number 2510 2998
JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD	JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD	JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD
JP2	<input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	JP2	<input type="checkbox"/> 1 <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input checked="" type="checkbox"/> 3 <input type="checkbox"/> 4
JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12	JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12	JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
JP4	<input type="checkbox"/> OPEN <input checked="" type="checkbox"/> SHORTED	JP4	<input type="checkbox"/> OPEN <input checked="" type="checkbox"/> SHORTED	JP4	<input checked="" type="checkbox"/> OPEN <input type="checkbox"/> SHORTED
JP5	<input checked="" type="checkbox"/> OPEN (Test Only)	JP5	<input checked="" type="checkbox"/> OPEN (Test Only)	JP5	<input checked="" type="checkbox"/> OPEN (Test Only)
JP6	<input type="checkbox"/> OPEN <input checked="" type="checkbox"/> SHORTED	JP6	<input checked="" type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP6	<input checked="" type="checkbox"/> OPEN <input type="checkbox"/> SHORTED
JP7	<input checked="" type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers	JP7	<input checked="" type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers	JP7	<input checked="" type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers
JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input checked="" type="checkbox"/> 2 - 3 (TWR)	JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input checked="" type="checkbox"/> 2 - 3 (TWR)	JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input checked="" type="checkbox"/> 2 - 3 (TWR)
R101	<input checked="" type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z	R101	<input checked="" type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z	R101	<input checked="" type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z
Filter	<input checked="" type="checkbox"/> N/A A10468 -	Filter	<input checked="" type="checkbox"/> N/A A10468 -	Filter	<input checked="" type="checkbox"/> N/A A10468 -
Notes		Notes		Notes	

1910 Slot G	Serial Number	1910 Slot H	Serial Number	1910 Slot I	Serial Number
JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD	JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD	JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD
JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12	JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12	JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
JP4	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP4	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP4	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED
JP5	<input checked="" type="checkbox"/> OPEN (Test Only)	JP5	<input checked="" type="checkbox"/> OPEN (Test Only)	JP5	<input checked="" type="checkbox"/> OPEN (Test Only)
JP6	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP6	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP6	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED
JP7	<input type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers	JP7	<input type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers	JP7	<input type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers
JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input type="checkbox"/> 2 - 3 (TWR)	JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input type="checkbox"/> 2 - 3 (TWR)	JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input type="checkbox"/> 2 - 3 (TWR)
R101	<input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z	R101	<input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z	R101	<input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z
Filter	<input type="checkbox"/> N/A A10468 -	Filter	<input type="checkbox"/> N/A A10468 -	Filter	<input type="checkbox"/> N/A A10468 -
Notes		Notes		Notes	

1910 Slot J	Serial Number	1910 Slot K	Serial Number	1910 Slot L	Serial Number
JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD	JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD	JP1	REF <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD Non-D <input type="checkbox"/> DAY <input type="checkbox"/> NIT <input type="checkbox"/> 3RD
JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4	JP2	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4
JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12	JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12	JP3	<input type="checkbox"/> 5 <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12
JP4	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP4	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP4	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED
JP5	<input checked="" type="checkbox"/> OPEN (Test Only)	JP5	<input checked="" type="checkbox"/> OPEN (Test Only)	JP5	<input checked="" type="checkbox"/> OPEN (Test Only)
JP6	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP6	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED	JP6	<input type="checkbox"/> OPEN <input type="checkbox"/> SHORTED
JP7	<input type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers	JP7	<input type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers	JP7	<input type="checkbox"/> 2 to 6 Towers <input type="checkbox"/> 7 to 12 Towers
JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input type="checkbox"/> 2 - 3 (TWR)	JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input type="checkbox"/> 2 - 3 (TWR)	JP8	<input type="checkbox"/> 1 - 2 and 3 - 4 (CP) <input type="checkbox"/> 2 - 3 (TWR)
R101	<input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z	R101	<input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z	R101	<input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> High Z
Filter	<input type="checkbox"/> N/A A10468 -	Filter	<input type="checkbox"/> N/A A10468 -	Filter	<input type="checkbox"/> N/A A10468 -
Notes		Notes		Notes	