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Also admitted in Massachusetts

April 28, 2014

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

Re: **Notice of Exempt Modification – Facility Modification
Sky Edge Lane, Bethel, Connecticut**

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless (“Cellco”) currently maintains six (6) wireless telecommunications antennas attached to a mast that extends above an existing 150-foot steel transmission line tower (Structure 10255 – Bethel) off Sky Edge Lane in Bethel. The mast supports Sprint antennas at a height of 157.5 feet above ground level (“AGL”) and Cellco antennas at a height of 167.5 feet AGL. The transmission line tower and underlying property are owned by Northeast Utilities (“NU”). The Council approved Cellco’s shared use of this structure in 2007. Cellco was recently notified that NU has scheduled an outage from May 5, 2014 to May 14, 2014 for Structure 10255 and requires the modifications described herein, to be completed in that timeframe.

Cellco now intends to replace all of its existing antennas with three (3) model BXA-70063-4CF, dual band 850 MHz and 700 MHz antennas and three (3) model WWX063X13G00, dual band 1900 MHz and 2100 MHz antennas, all at the 167.5-foot level. Cellco also intends to install six (6) coaxial cable diplexers behind its antennas. Attached behind Attachment 1 are the specifications for the replacement antennas and cable diplexers.

Please accept this letter as notification pursuant to R.C.S.A. § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Bethel First Selectman, Matthew S. Knickerbocker.



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Melanie A. Bachman
April 28, 2014
Page 2

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

1. The proposed modifications will not result in an increase in the height of the existing tower. Cellco's six (6) replacement antennas will be located at same the 167.5-foot level.

2. The proposed modifications will not involve any change to ground-mounted equipment and, therefore, will not require the extension of the site boundary.

3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the replacement antennas will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative RF emissions calculation for the modified facility is included in Attachment 2.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The tower and its foundation can support Cellco's proposed modifications. (See Structural Compliance Verification Letter included in Attachment 3).

For the foregoing reasons, Cellco respectfully submits that the proposed modifications to the above-referenced telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,



Kenneth C. Baldwin

Enclosures
Copy to:

Matthew S. Knickerbocker, Bethel First Selectman
Sandy M. Carter



ATTACHMENT 1

BXA-80063-4CF-EDIN-X

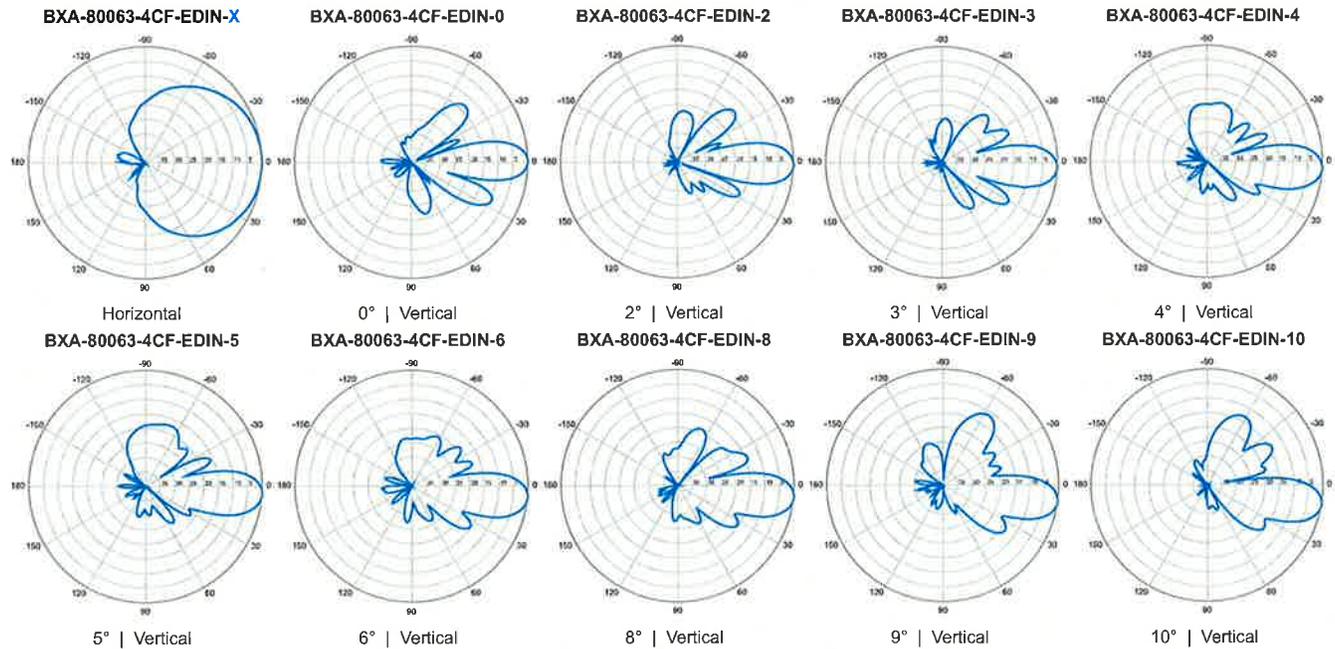
X-Pol | FET Panel | 63° | 13.0 dBd

Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s). Replace "EDIN" with "NE" in the model number when ordering.



Electrical Characteristics			
Frequency bands	806-900 MHz*		
*Optional frequency band for iDEN	806-941 MHz (specify when ordering)		
Polarization	±45°		
Horizontal beamwidth	63°		
Vertical beamwidth	15°		
Gain	13.0 dBd (15.1 dBi)		
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14		
Impedance	50Ω		
VSWR	≤1.4:1		
Upper sidelobe suppression (0°)	-22.1 dB		
Front-to-back ratio (+/-30°)	-34.9 dB		
Null fill	5% (-26.02 dB)		
Isolation between ports	< -25 dB		
Input power with EDIN connectors	500 W		
Input power with NE connectors	300 W		
Lightning protection	Direct Ground		
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)		
Mechanical Characteristics			
Dimensions Length x Width x Depth	1205 x 285 x 133 mm 47.4 x 11.2 x 5.2 in		
Depth with z-brackets	173 mm 6.8 in		
Weight without mounting brackets	4.5 kg 9.9 lbs		
Survival wind speed	> 201 km/hr > 125 mph		
Wind area	Front: 0.34 m ² Side: 0.16 m ² Front: 3.7 ft ² Side: 1.7 ft ²		
Wind load @ 161 km/hr (100 mph)	Front: 498 N Side: 260 N Front: 111 lbf Side: 55 lbf		
Mounting Options			
	Part Number Fits Pipe Diameter Weight		
2-Point Mounting & Downtilt Bracket Kit	36210006 40-115 mm 1.57-4.5 in 4.1 kg 9 lbs		
Concealment Configurations	For concealment configurations, order BXA-80063-4CF-EDIN-X-FP		



Quoted performance parameters are provided to offer typical or range values only and may vary as a result of normal manufacturing and operational conditions. Extreme operational conditions and/or stress on structural supports is beyond our control. Such conditions may result in damage to this product. Improvements to product may be made without notice.

WWX063X13x00

2x X-Pol | Twin Band VET Panel | 65° | 16.8 / 16.8 dBi

Ordering Options		Model Number					
Manual Electrical Tilt		WWX063X13M00					
Remote Electrical Tilt AISG v1.1		WWX063X13R00					
Remote Electrical Tilt AISG v2.0 / 3GPP		WWX063X13G00					
Electrical Characteristics		High Bands #1 and #2: 1710-2170 MHz					
Frequency bands		1710-1880 MHz	1850-1990 MHz	1900-2170 MHz			
Polarization		2x ±45° (Quad)					
Horizontal beamwidth		70°	67°	66°			
Vertical beamwidth		8.3°	7.5°	7.0°			
Gain		15.8 dBi	16.3 dBi	16.8 dBi			
Electrical downtilt		0-10°					
Impedance		50Ω					
VSWR		<1.5:1					
Upper sidelobe suppression		< -18 dB typical					
Front-to-back ratio		> 28 dB					
In-band isolation		> 28 dB					
Isolation between ports		> 30 dB					
Input power		4 x 250 W					
IM3 (2x20W carriers)		< -153 dBc					
Lightning protection		Direct Ground					
Operating temperature		-40° to +60° C (-40° to +140° F)					
Connector(s)		4 Ports / 7/16 DIN / Female / Bottom					
Mechanical Characteristics							
Dimensions Length x Width x Depth		1298 x 305 x 180 mm		51.1 x 12.0 x 7.1 in			
Weight without mounting brackets: MET		11.3 kg		25.0 lbs			
Weight without mounting brackets: RET		11.7 kg		25.7 lbs			
Survival wind speed		241 km/hr		150 mph			
Wind loads (160 km/hr or 100 mph)		Front: 480 N; Side: 284 N		Front: 108 lbf; Side: 64 lbf			
Remote Electrical Downtilt Control							
Remote Electrical Tilt (RET) Control		The remote control of the electrical tilt is managed by a module (MDCU) totally inserted at the bottom of the antenna. One single module controls individually the tilt of each band (no need of daisy chain cables between the bands). This module does not add any additional length at the bottom of the antenna. For RET control, the transparent caps must be in place and locked. The tilt angle indicators always remains visible and the antenna still has manual tilt control (manual override).					
RET Module Part Number (one per antenna)		MDCU-A0000 for AISG v1.1 protocol (one unit included in WWX063X13R00)					
		MDCU-G0000 for 3GPPP/AISG v2.0 protocol (one unit included in WWX063X13G00)					
Important Installation Instructions		 In order to operate RET control, the transparent caps covering the tilt adjustment indicators must be engaged and locked. Do not cut them from the antenna.					
Mounting Options		Part Number		Fits Pipe Diameter		Weight	
2-Point Mounting Bracket Kit		MKS09P01		50-115 mm	2.0-4.5 in	2.7 kg	6 lbs
2-Point Mounting & Downtilt Bracket Kit		MKS09T01		50-115 mm	2.0-4.5 in	4.5 kg	10 lbs
Tri-Sector UNICELL Options							
For use inside UNICELL modules		UNX-20-xx					



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DPX-05x

Diplexer | 700 / 850 MHz | Single Units | Outdoor

- Combines 700 and 850 BTS into one feeder
- Very low insertion losses
- Designed for low passive intermodulation

Ordering Options	
DPX-051	Single unit, no DC/AISG bypass
DPX-052	Single unit, DC/AISG pass both ports
Electrical Characteristics	
698-793 MHz Channel	
Pass-band	698-793 MHz
Insertion loss without sniffer port	0.25 dB max
Insertion loss with sniffer port	0.30 dB max
Return loss all ports	20 dB min
824-894 MHz Channel	
Pass-band	824-894 MHz
Insertion loss without sniffer port	0.25 dB max
Insertion loss with sniffer port	0.30 dB max
Return loss all ports	20 dB min
General Characteristics	
Isolation from port to port	50 dB min
Phase linearity variation	< 10° over any 10 MHz
Group delay variation	< 5 ns over any 10 MHz
CW power	500 W
Peak envelope power	5000 W
PIM	< -155 dBc with 2x20W (3rd order)
Sniffer/Monitor port coupling (optional)	-40 dB nom, relative to COM port
Environmental Characteristics	
Operating temperature	-40° to +65° C / -40° to +149° F
Altitude	3000 meters max
Ingress protection	IP67
Lightning protection	5kA (8/20us) on RF ports
Mechanical Characteristics	
Dimensions	Refer to outline drawing
Weight (estimated)	5 kg / 11 lbs
Connectors, without sniffer port	3 x 7/16 DIN Female
Connectors, with sniffer port	3 x 7/16 DIN Female, 1 x N-Female (sniffer port only)
Mounting	Wall or pole mounting



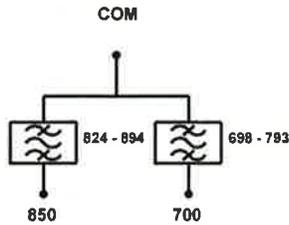
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DPX-05x

Diplexer | 700 / 850 MHz | Single Units | Outdoor

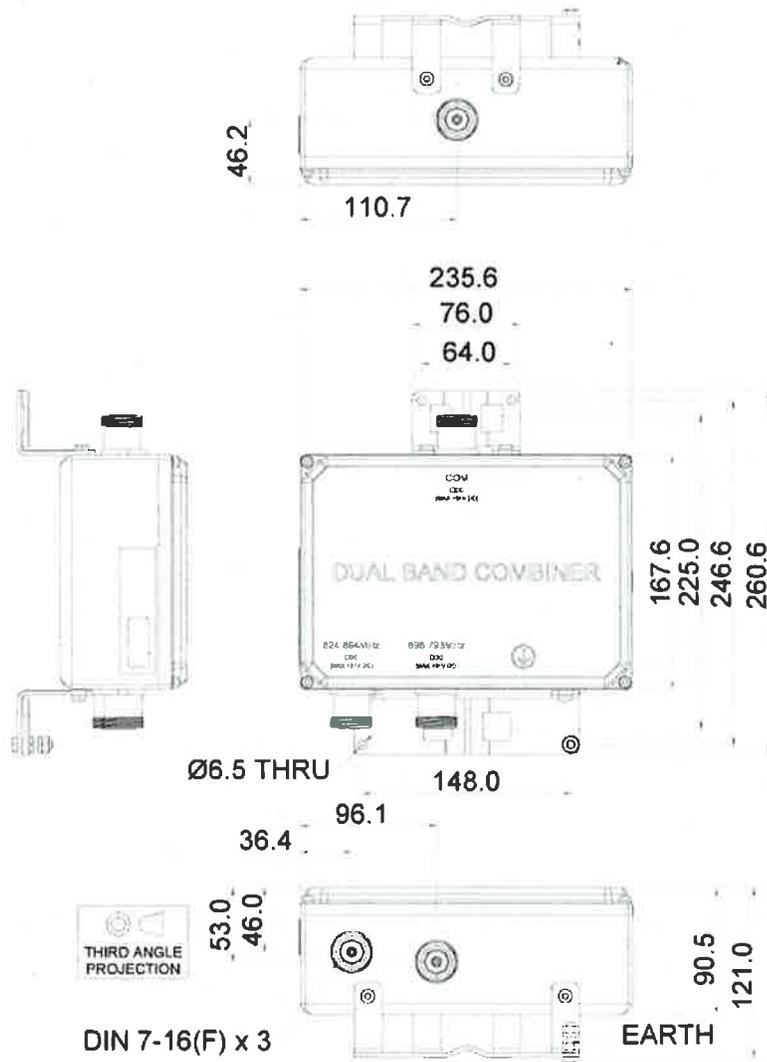
ELECTRICAL BLOCK DIAGRAM

Shown: DPX-051 (no DC/AISG bypass)



MECHANICAL

Shown: DPX-051 (no DC/AISG bypass)



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ATTACHMENT 2

ATTACHMENT 3

April 21, 2014

Mr. Bob Gray
Northeast Utilities
107 Seldon Street
Berlin, CT 06037

Re.: *Antenna Upgrade ~ Structural Compliance Verification*
CL&P Tower No. 10255
Verizon Site Ref. Bethel North
Sky Edge Lane
Bethel, CT 06801

CEN TEK Project No. 14001.047

Dear Mr. Gray,

Centek Engineering, Inc. has reviewed the proposed Verizon Wireless antenna upgrade at the above referenced site. The purpose of the review was to determine the necessity for the transmission structure to be reanalyzed to the latest requirements of Northeast Utility OTRM 059. The existing structure is an electric transmission pole approximately 150-ft tall (AGL) with a 33-ft antenna mast designed to support Verizon's antennas at a rad center elevation of 167.5-ft +/- AGL. A comparison of the following design configuration per the structural report prepared by Centek Engineering dated 2/18/13 and the proposed configuration were prepared:

- **Verizon Wireless (Design Loading):**
Antennas: Three (3) Antel BXA-70063-6CF panel antennas, three (3) Andrew DBXNH-6565A-VTM panel antennas and six (6) RFS FD9R6004/2C-3L diplexers mounted on a dual standoff mount with a RAD center elevation of 167.5-ft above grade.
Coax: Twelve (12) 1-5/8" Ø coax cables running on the exterior of the transmission pole/antenna mast.

- **Verizon Wireless (Proposed Loading):**
Antennas: Three (3) Antel BXA-80063-4CF panel antennas, three (3) Antel WWX063X13 panel antennas and six (6) Antel DPX-051 diplexers mounted on a dual standoff mount with a RAD center elevation of 167.5-ft above grade.
Coax: Twelve (12) 1-5/8" Ø coax cables running on the exterior of the transmission pole/antenna mast.

CEN TEK engineering, INC.
Structural Compliance Verification
Verizon Wireless ~ Bethel North
Sky Edge Lane
Bethel, CT 06801

The comparison assumes that no change will be made to the existing mast or coax cables. Refer to Attachment 1 for a detailed comparative analysis summarized as follows:

	<u>Design Loading</u>	<u>Proposed Loading</u>	<u>Result</u>
Total Wind Area (sf)	37.7	34.3	PASS
Total Weight (lbs)	776.0	764.0	PASS

In conclusion, it was determined that the proposed loading was less than the design loading. The tower is structurally adequate to support the proposed loading. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:



Carlo F. Centore, PE
Principal ~ Structural Engineer



Subject: **Antenna Upgrade Comparative Analysis**
 Job No. **14001.047**
 Carrier Site Ref: **Bethel North**
 Location: **Sky Edge Lane Bethel, CT**
 Rev 0: 4/21/14 Prepared by: T.J.L. Checked by: C.F.C.

Design Loading Condition ⁽¹⁾							
Equipment Model	Properties				Quantity	Total Area (sf)	Total Weight (lbs)
	Height (in)	Width (in)	Depth (in)	Weight (lbs/plf)			
DBXNH-6565A-VTM	50.91	11.85	7.1	35	3	12.6	105
BXA-70063-6CF	71	11.2	5.2	20	3	16.6	60
FD9R6004/2C-3L	5.8	6.5	1.5	6	6	1.6	36
Dual Standoff Mount					1	7.0	575
						37.7	776.0

1) Loading taken from Centek Engineering structural report dated 2/18/13.

Proposed Loading Condition ⁽²⁾							
Equipment Model	Properties				Quantity	Total Area (sf)	Total Weight (lbs)
	Height (in)	Width (in)	Depth (in)	Weight (lbs/plf)			
BXA-80063-4CF	47.4	11.2	5.2	15	3	11.1	45
WWX063X13	51.1	12	7.1	26	3	12.8	78
DPX-051	9.28	8.86	4.76	11	6	3.4	66
Dual Standoff Mount					1	7.0	575
						34.3	764.0

2) Loading taken from RF data sheet dated 4/10/14.

Conclusion	
Proposed loading is less than the design loading therefore full analysis of the tower is not required per Northeast Utilities OTRM 059.	

BXA-80063-4CF-EDIN-X

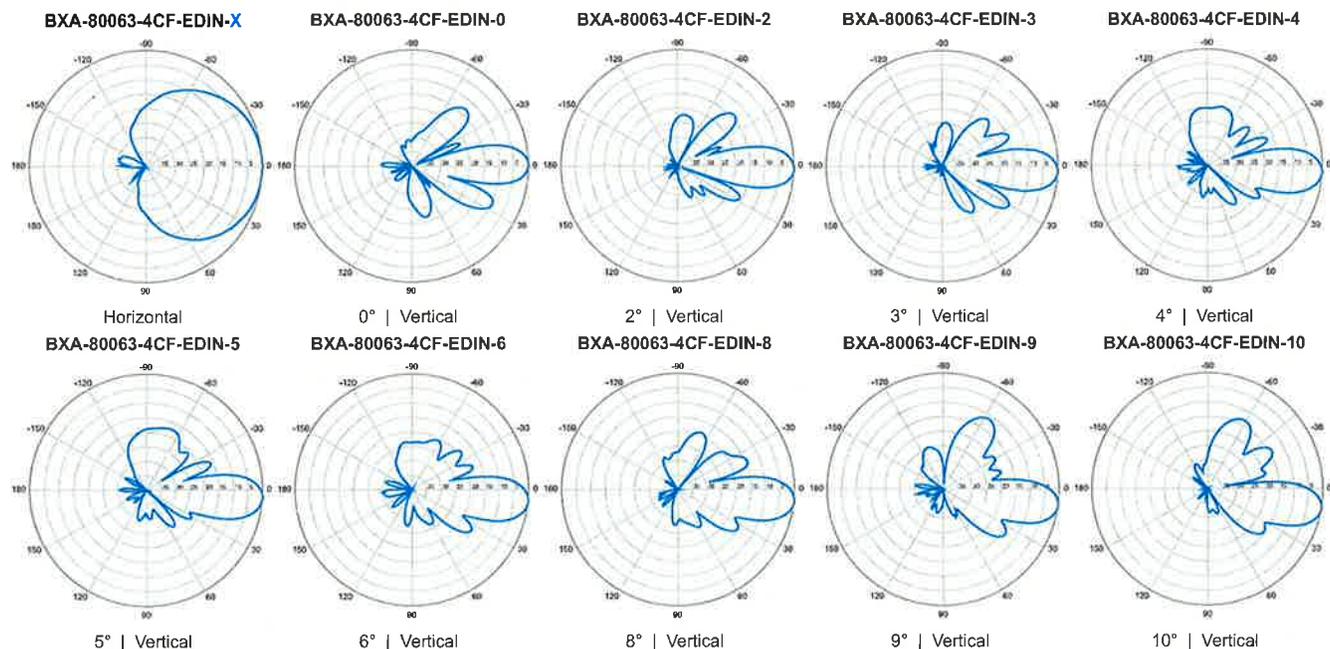
X-Pol | FET Panel | 63° | 13.0 dBd

Replace "X" with desired electrical downtilt.

Antenna is also available with NE connector(s)
Replace 'EDIN' with 'NE' in the model number when ordering.



Electrical Characteristics	
Frequency bands	806-900 MHz*
*Optional frequency band for iDEN	806-941 MHz (specify when ordering)
Polarization	±45°
Horizontal beamwidth	63°
Vertical beamwidth	15°
Gain	13.0 dBd (15.1 dBi)
Electrical downtilt (X)	0, 2, 3, 4, 5, 6, 8, 9, 10, 12, 14
Impedance	50Ω
VSWR	≤1.4:1
Upper sidelobe suppression (0°)	-22.1 dB
Front-to-back ratio (+/-30°)	-34.9 dB
Null fill	5% (-26.02 dB)
Isolation between ports	< -25 dB
Input power with EDIN connectors	500 W
Input power with NE connectors	300 W
Lightning protection	Direct Ground
Connector(s)	2 Ports / EDIN or NE / Female / Center (Back)
Mechanical Characteristics	
Dimensions Length x Width x Depth	1205 x 285 x 133 mm 47,4 x 11,2 x 5,2 in
Depth with z-brackets	173 mm 6.8 in
Weight without mounting brackets	4.5 kg 9.9 lbs
Survival wind speed	> 201 km/hr > 125 mph
Wind area	Front: 0.34 m ² Side: 0.16 m ² Front: 3.7 ft ² Side: 1.7 ft ²
Wind load @ 161 km/hr (100 mph)	Front: 498 N Side: 260 N Front: 111 lbf Side: 55 lbf
Mounting Options	
	Part Number Fits Pipe Diameter Weight
2-Point Mounting & Downtilt Bracket Kit	36210006 40-115 mm 1,57-4,5 in 4.1 kg 9 lbs
Concealment Configurations	For concealment configurations, order BXA-80063-4CF-EDIN-X-FP



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WWX063X13x00

2x X-Pol | Twin Band VET Panel | 65° | 16.8 / 16.8 dBi

Ordering Options		Model Number					
Manual Electrical Tilt		WWX063X13M00					
Remote Electrical Tilt AISG v1.1		WWX063X13R00					
Remote Electrical Tilt AISG v2.0 / 3GPP		WWX063X13G00					
Electrical Characteristics		High Bands #1 and #2: 1710-2170 MHz					
Frequency bands		1710-1880 MHz	1850-1990 MHz	1900-2170 MHz			
Polarization		2x ±45° (Quad)					
Horizontal beamwidth		70°	67°	66°			
Vertical beamwidth		8.3°	7.5°	7.0°			
Gain		15.8 dBi	16.3 dBi	16.8 dBi			
Electrical downtilt		0-10°					
Impedance		50Ω					
VSWR		<1.5:1					
Upper sidelobe suppression		< -18 dB typical					
Front-to-back ratio		> 28 dB					
In-band isolation		> 28 dB					
Isolation between ports		> 30 dB					
Input power		4 x 250 W					
IM3 (2x20W carriers)		< -153 dBc					
Lightning protection		Direct Ground					
Operating temperature		-40° to +60° C (-40° to +140° F)					
Connector(s)		4 Ports / 7/16 DIN / Female / Bottom					
Mechanical Characteristics							
Dimensions Length x Width x Depth		1298 x 305 x 180 mm		51.1 x 12.0 x 7.1 in			
Weight without mounting brackets: MET		11.3 kg		25.0 lbs			
Weight without mounting brackets: RET		11.7 kg		25.7 lbs			
Survival wind speed		241 km/hr		150 mph			
Wind loads (160 km/hr or 100 mph)		Front: 480 N; Side: 284 N		Front: 108 lbf; Side: 64 lbf			
Remote Electrical Downtilt Control							
Remote Electrical Tilt (RET) Control	The remote control of the electrical tilt is managed by a module (MDCU) totally inserted at the bottom of the antenna. One single module controls individually the tilt of each band (no need of daisy chain cables between the bands). This module does not add any additional length at the bottom of the antenna. For RET control, the transparent caps must be in place and locked. The tilt angle indicators always remains visible and the antenna still has manual tilt control (manual override).						
RET Module Part Number (one per antenna)	MDCU-A0000 for AISG v1.1 protocol (one unit included in WWX063X13R00)						
	MDCU-G0000 for 3GPPP/AISG v2.0 protocol (one unit included in WWX063X13G00)						
Important Installation Instructions	 In order to operate RET control, the transparent caps covering the tilt adjustment indicators must be engaged and locked. Do not cut them from the antenna.						
Mounting Options		Part Number		Fits Pipe Diameter		Weight	
2-Point Mounting Bracket Kit		MKS09P01		50-115 mm	2.0-4.5 in	2.7 kg	6 lbs
2-Point Mounting & Downtilt Bracket Kit		MKS09T01		50-115 mm	2.0-4.5 in	4.5 kg	10 lbs
Tri-Sector UNICELL Options							
For use inside UNICELL modules		UNX-20-xx					



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DPX-052	Single unit, DC/AISG pass both ports
Electrical Characteristics	
698-793 MHz Channel	
Pass-band	698-793 MHz
Insertion loss without sniffer port	0.25 dB max
Insertion loss with sniffer port	0.30 dB max
Return loss all ports	20 dB min
824-894 MHz Channel	
Pass-band	824-894 MHz
Insertion loss without sniffer port	0.25 dB max
Insertion loss with sniffer port	0.30 dB max
Return loss all ports	20 dB min
General Characteristics	
Isolation from port to port	50 dB min
Phase linearity variation	< 10° over any 10 MHz
Group delay variation	< 5 ns over any 10 MHz
CW power	500 W
Peak envelope power	5000 W
PIM	< -155 dBc with 2x20W (3rd order)
Sniffer/Monitor port coupling (optional)	-40 dB nom, relative to COM port
Environmental Characteristics	
Operating temperature	-40° to +65° C / -40° to +149° F
Altitude	3000 meters max
Ingress protection	IP67
Lightning protection	5kA (8/20us) on RF ports
Mechanical Characteristics	
Dimensions	Refer to outline drawing
Weight (estimated)	5 kg / 11 lbs
Connectors, without sniffer port	3 x 7/16 DIN Female
Connectors, with sniffer port	3 x 7/16 DIN Female, 1 x N-Female (sniffer port only)
Mounting	Wall or pole mounting



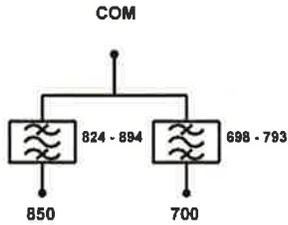
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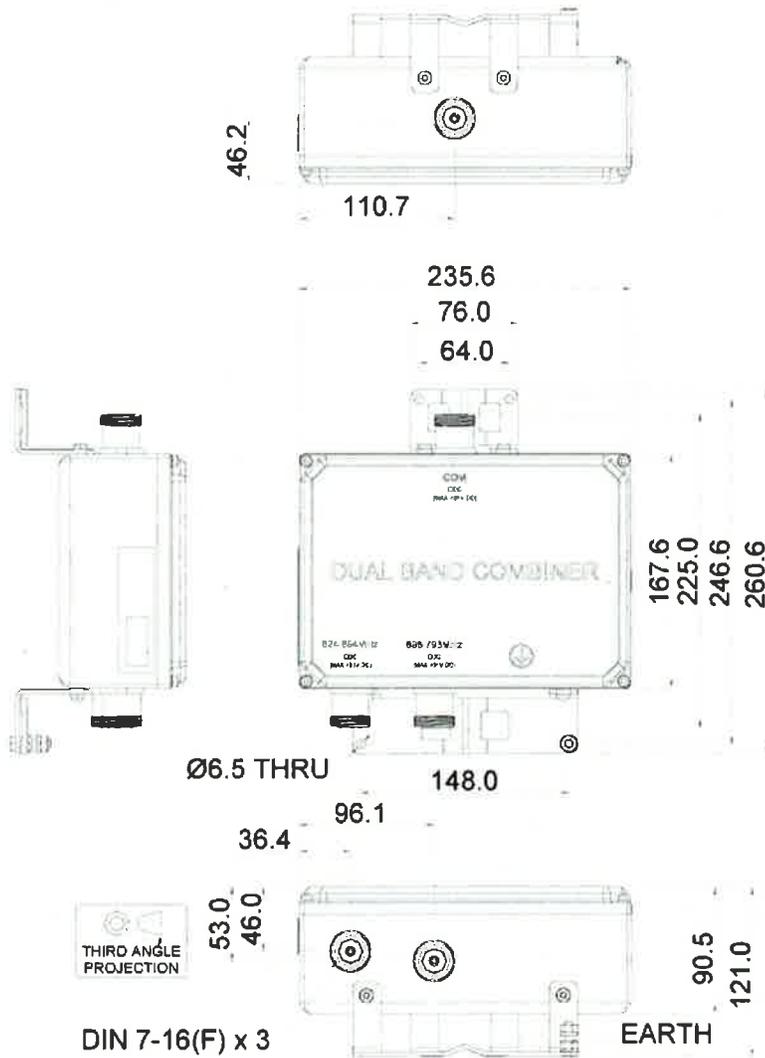
ELECTRICAL BLOCK DIAGRAM

Shown: DPX-051 (no DC/AISG bypass)



MECHANICAL

Shown: DPX-051 (no DC/AISG bypass)



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