Welcome to AntennaSelect™ Volume 28 – October 2016

Welcome to Volume 28 of our newsletter, AntennaSelect™. Every two months we will be giving you an "under the radome" look at antenna and RF Technology. If there are subjects you would like to see covered, please let us know what you would like to see by emailing us at: info@micronetixx.com

In This Issue:

New DX Series UHF Standby/Temporary Antennas

MICRONETIXX COMMUNICATIONS

With the TV Spectrum Re-Pack coming up, Micronetixx is proud to announce our newest line of UHF slot-style antennas, the DX Series. The DX Series are 8-bay side mounted slot antennas. The antennas have an omnioid azimuth pattern. There are a total of 6 models in the DX Series. Power input ratings vary from 12 kW to 50 kW. The DX Series is available in two configurations; a standard-spaced slot antenna or a low-downward radiation model with up to a 17 dB reduction in radiation at high depression angles. With much lower RFR profiles, these antennas can be deployed at lower tower positions; even on building roof tops with RFR Levels well below MPE.

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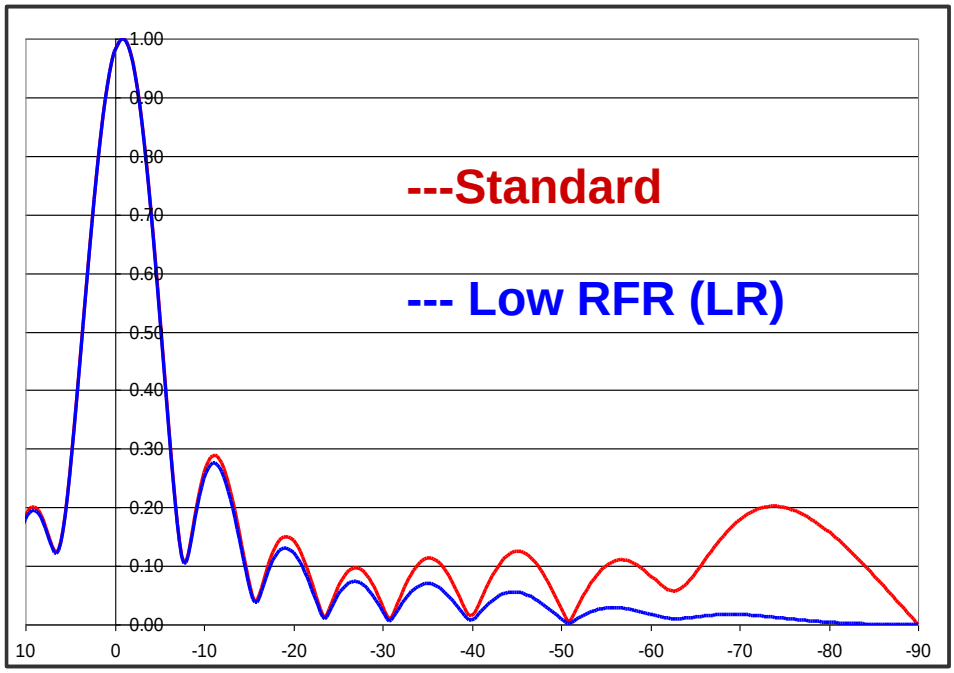
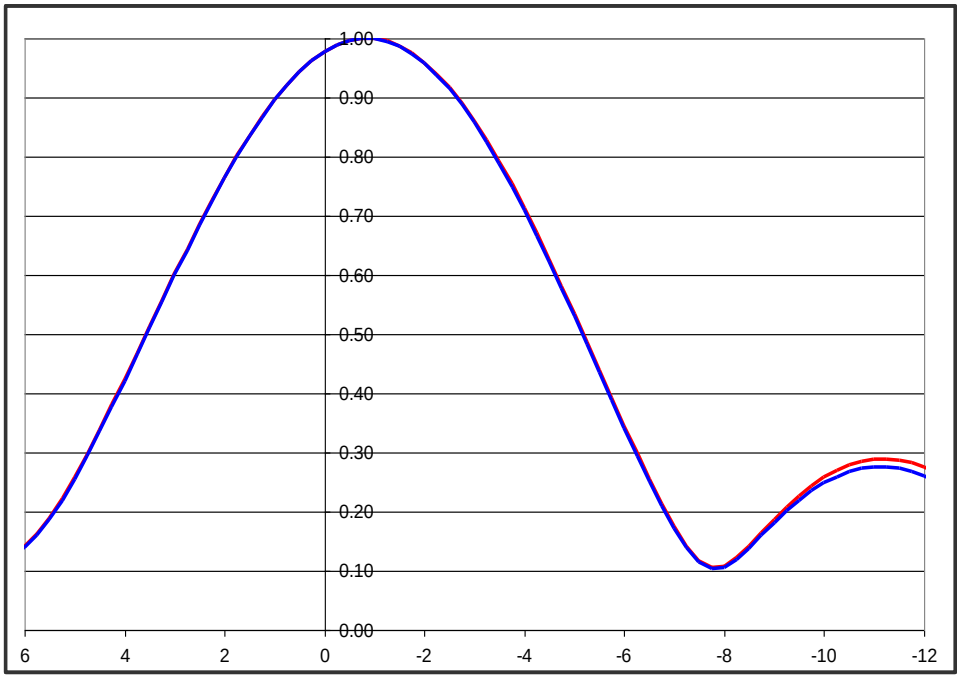
The DX Series Antennas have a standard beam tilt of -0.75 degree, with 10% fill in the first null, and a minimum relative field magnitude of 10% down to -14.5 degrees. The elevation patterns of the standard and LR (low downward radiation) model are plotted below:



8-Bay Elevation Plots +10 to -90 Degrees 0.75 Degree Beam Tilt



8-Bay Elevation Plots +6 to -12 Degrees 0.75 Degree Beam Tilt

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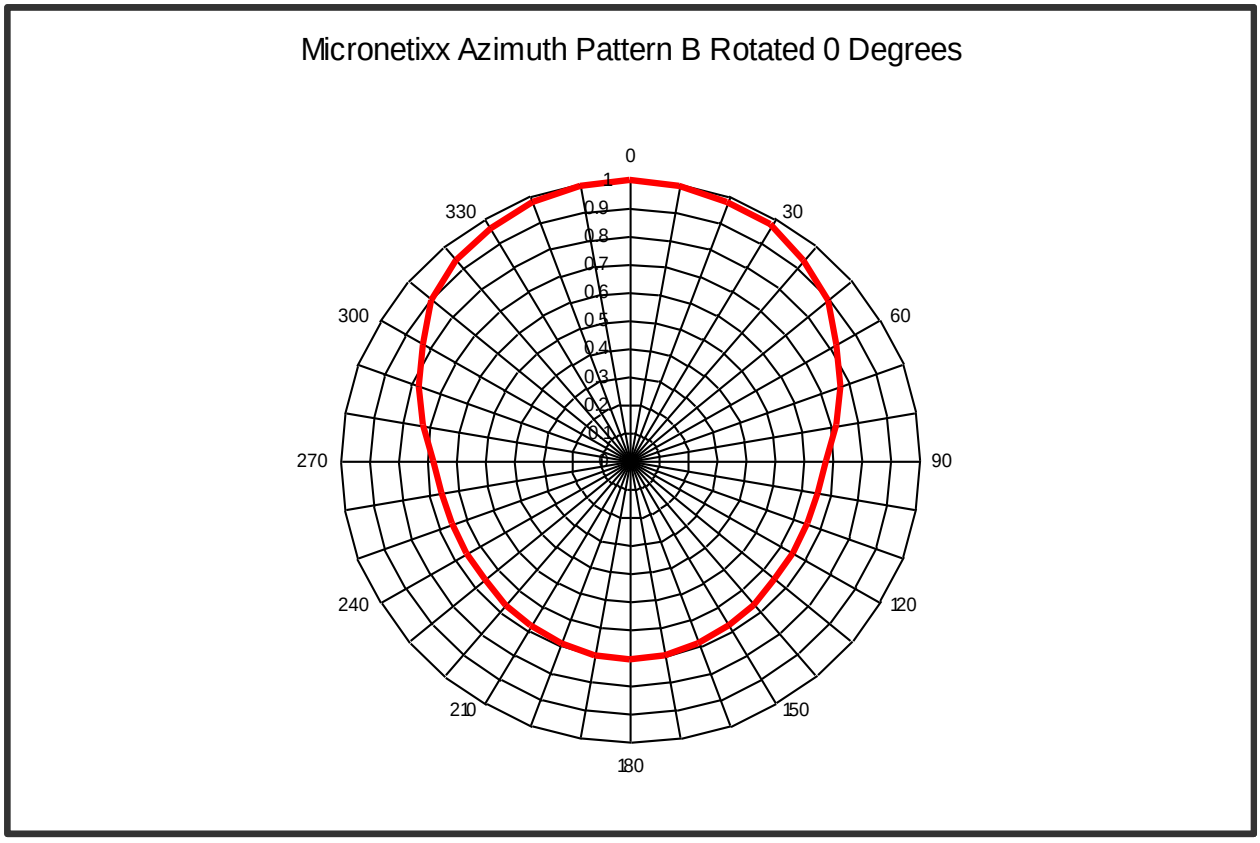

The DX-2000 and DX-2000LR Antennas have a 3-1/8” EIA input with a 12 kW input power rating. The DX-3000 and DX-3000LR Antennas have a 4-1/16” EIA input with a 25 kW input power rating. The DX-4000 and DX-4000LR Antennas have a 6-1/8” EIA input. The DX-4000 has an input power rating of 40 kW, while the DX-4000LR has an input rating of 50 kW. The LR models have a 12.8% higher elevation gain, as the final grazing lobe is suppressed.

Model # Standard	Max Input Power	Gain	Maximum ERP
DX-2000	12 kW	14.45 (11.60 dB)	173 kW (22.38 dBk)
DX-3000	25 kW	14.45 (11.60 dB)	360 kW (25.56 dBk)
DX-4000	40 kW	14.45 (11.60 dB)	575 kW (27.59 dBk)
Low RFR			
DX-2000LR	12 kW	16.3 (12.12 dB)	195 kW (22.90 dBk)
DX-3000LR	25 kW	16.3 (12.12 dB)	405 kW (26.07 dBk)
DX-4000LR	50 kW	16.3 (12.12 dB)	815 kW (29.10 dBk)

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Micronetixx DX Series Antennas are constructed from rugged passivated aluminum pylons. A radome covers the front half of the antenna to ensure reliable operation in harsh environments. Stainless steel mounting brackets are always provided with our antennas for leg or outrigged-pole mounting applications. The RF input to the antenna is end-fed at the bottom of the pylon. The chart below depicts mechanical antenna loads for two channels.

Model #	Channel 18			Channel 29		
Standard	**Length**	**Weight**	**Wind Load**	**Length**	**Weight**	**Wind Load**
DX-2000	18 feet	126 lbs.	12.6 ft^2	16-1/4 feet	114 lbs.	11.4 ft^2
DX-3000	18 feet	144 lbs.	15.8 ft^2	16-1/4 feet	142 lbs.	14.3 ft^2
DX-4000	18 feet	180 lbs.	18.0 ft^2	16-1/4 feet	163 lbs.	16.4 ft^2
Low RFR						
DX-2000LR	18-3/4 feet	132 lbs.	13.1 ft^2	17 feet	118 lbs.	11.9 ft^2
DX-3000LR	18-3/4 feet	150 lbs.	16.4 ft^2	17 feet	147 lbs.	14.9 ft^2
DX-4000LR	18-3/4 feet	186 lbs.	18.8 ft^2	17 feet	170 lbs.	17.0 ft^2

Note: Weight and wind loads may vary slightly depending on mounting system

DX Series Antennas can be customized with additional bay counts, elliptical polarization, additional beam tilt, and directional patterns. Contact us for details.

The DX Series is the most cost-effective antenna solution for standby or temporary use during the Spectrum Repack. The light weight and low wind load signatures of these antennas allow them to be used in many locations where other antennas would not be. All DX Series Antennas feature very low differential group delay across the channel – perfect for the new ATSC 3.0 world.

Higher Power FML FM Antenna Options

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Micronetixx popular FML FM Antennas now have higher input power options. The FML Series are compact, yet rugged, circularly polarized FM antennas. They were primarily designed for LPFM, and translator applications.

We have had a number of customers ask for a higher power version of the FML antenna for auxiliary and standby applications. Some of our international partners chimed in too…the compact size of the FMLs would reduce freight charges by quite a bit.

Higher power options are available on 4 through 8 bay FML Antennas using an input power divider, with either a 7/8" or 1-5/8" EIA flange input. An 8-bay FML antenna with a 1-5/8" EIA input can produce an ERP of up to 34 kW!

So if you're looking for a rugged, all-stainless steel FM antenna, with great pricing, the FML Series is the way to go.

Full Wave Spaced
FML Antenna Mechanical Information and C/P Gain/ Input Power

Model Number	Number of Bays	Antenna Length	Reccomended tower space	Radiation Aperture	Antena Weight	Antenna Load Area	Antenna Gain	Input Power	Maximum ERP
FML-1-N	1	10 ft. (3.04 m)	20 ft. (6.08 m)	7 ft. (3.04 m)	5 lbs. (2.3 kg)	0.2 ft^2 (0.02 m^2)	0.49	0.5 kW	250 Watts
FML-1-DIN	1	10 ft. (3.04 m)	20 ft. (6.08 m)	7 ft. (3.04 m)	5 lbs. (2.3 kg)	0.2 ft^2 (0.02 m^2)	0.49	1	500 Watts
FML-2-N	2 CF	15 ft. (4.57 m)	30 ft. (9.14 m)	10 ft. (3.04 m)	12 lbs. (5.5 kg)	0.5 ft^2 (0.05 m^2)	0.99	1 KW	1 kW
FML-2-DIN	2 CF	15 ft. (4.57 m)	30 ft. (9.14 m)	10 ft. (3.04 m)	12 lbs. (5.5 kg)	0.5 ft^2 (0.05 m^2)	0.99	1.5 kW	1.5 kW
FML-3-N	3 EF	25 ft. (7.62) m)	40 ft. (12.19 m)	20 ft. (6.08) m)	17 lbs. (8.0 kg)	0.7 ft^2 (0.07m^2)	1.50	1 kW	1.5 kW
FML-3-DIN	3 EF	25 ft. (7.62) m)	40 ft. (12.19 m)	20 ft. (6.08) m)	17 lbs. (8.0 kg)	0.7 ft^2 (0.07m^2)	1.50	1.5 kW	2.25 kW
FML-4-N	4 EF	35 ft. (10.67 m)	50 ft. (15.24 m)	30 ft. (9.14 m)	22 lbs. (10.0 kg)	0.9 ft^2 (0.09 m^2)	2.10	1 kW	2 kW
FML-4-DIN	4 CF	35 ft. (10.67 m)	50 ft. (15.24 m)	30 ft. (9.14 m)	22 lbs. (10.0 kg)	0.9 ft^2 (0.09 $m^{2)}$	2.10	1.5 kW	3 kW
FML-4-78	4 PD	35 ft. (10.67 m)	50 ft. (15.24 m)	30 ft. (9.14 m)	40 lbs. (18.2 kg)	2.9 ft^2 (0.27 $m^{2)}$	2.10	4 kW	8 kW
FML-6-N	6 CF	55 ft. (16.76 m)	70 ft. (21.33 m)	50 ft. (15.24 m)	33 lbs. (15.0 kg)	1.4 ft^2 (0.13 m^2)	3.28	1 kW	3 kW
FML-6-78	6 PD	55 ft. (16.76 m)	70 ft. (21.33 m)	50 ft. (15.24 m)	52 lbs. (23.6 kg)	3.4 ft^2 (0.32 m^2)	3.28	4 kW	12 kW
FML-6-158	6 PD	55 ft. (16.76 m)	70 ft. (21.33 m)	50 ft. (15.24 m)	53 lbs. (24.1 kg)	3.4 ft^2 (0.32 m^2)	3.28	6 kW	18 kW
FML-8-DIN	8 CF	75 ft. (22.86 m)	90 ft. 27.43 m)	70 ft. (21.33 m)	44 lbs. (20.0 kg)	1.8 ft^2 (0.17 m^2)	4.35	1.5 kW	6 kW
FML-8-78	8 PD	75 ft. (22.86 m)	90 ft. 27.43 m)	70 ft. (21.33 m)	62 lbs. (28.2 kg)	3.8 ft^2 (0.35 m^2)	4.35	4 kW	17 kW
FML-8-158	8 PD	75 ft. (22.86 m)	90 ft. 27.43 m)	70 ft. (21.33 m)	63 lbs. (28.6 kg)	3.8 ft^2 (0.35 m^2)	4.35	8 kW	34 kW

Notes: EF = End Fed CF = Center Fed PD = Power Divider. Gain shown is with out beam tilt or null fill. -78 models have a 7/8" EIA input, -158 models have a 1-5/8" EIA input. The **FML** arrays can be provided in 1/2 to full wave spacings. Also directional models of the **FML** antennas are available. Contact us for the details. Mechanical data is taken for a antenna tuned to 98.1 MHz.

Circular Polarization With Two LPF8 Antennas?

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Is it possible to get circular polarization with two LPF8 log periodic FM antennas? The answer is no. You could install one horizontal and one vertical LPF8 to get a dual-linear polarized signal however. That can reduce cross-polarization losses, (that can occur due to Faraday Rotation), at the receive point by about 10 dB. So what about rotating the two antennas so one is 45 degrees from horizontal and the other is 45 degrees from vertical? It will still be a dual-linear polarized signal. If the majority of listeners were using a horizontally polarized receive antenna, there would be less signal strength than the horizontal/vertical transmit antenna placement.

To get true circular polarization the horizontal and vertical antenna would need to be at the same point and be phased 90 degrees from one another for the signal to launch properly.

If you need some directionality, going to a circular polarized antenna and have it customized with a directional pattern is a better solution. Getting a front to back ratio of 6 to 8 dB, plus an azimuth gain of 1.8 to 2.0 dB can be easily achieved. Also, if the antenna is to be mounted on a short tower, a 2 or 4 bay half-wave spaced antenna can greatly reduce RFR on the ground.

Be on the lookout for the next volume of AntennaSelect™ coming out in December

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1 Gendron Drive Lewiston ME 04240 U.S.A.
V 207-786-2000 www.micronetixxantennas.com