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Low PIM Antennas
High Performance

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Low PIM Antennas for High Performance Communication Systems

Sinclair is an industry leader in the design and manufacture of low passive inter-modulation (PIM) antennas. When major communication system OEMs first started asking for better antenna PIM performance, Sinclair moved quickly to understand their requirements. Today, Sinclair offers an extensive range of ruggedly designed low PIM VHF, UHF and 700-1000 MHz antennas. Our antennas are installed in major public safety and private wireless communication networks around the world including Tetra, GSM, P25 and Tetrapol.

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Sinclair Low PIM Antennas

PIM Defined

PIM is a process where new undesired RF noise byproducts are created when two or more desired RF signals are present. The new undesired byproducts can interfere with the original desired RF signals. PIM is present to some extent in all antenna designs. How much depends heavily on the type of materials used. Special design techniques can reduce PIM byproducts to very low levels where they no longer interfere with the desired RF signals. Although an industry PIM standard has not yet been defined, a 3rd order intermodulation signal of minus 150dBc[(1)] has become the de facto performance target.

PIM Degrades System Performance

PIM can severely degrade communication system performance by reducing receiver sensitivity and limiting effective coverage range. PIM can also cause interference with other communication systems and violate regulatory requirements. Ongoing increases in frequency congestion and site density are compounding PIM problems in the field and are driving the need for higher performance antennas.

Communication system configurations that specify PIM rated antennas for frequency-dense and site-congested urban areas can avoid the possible severe performance degradation that can occur with non-PIM rated antennas.

Low PIM Dipole Antennas

Sinclair's SD210-HL, SD310-HL, SE414 and SE419 series of low PIM dipole antennas provide industry-leading efficiency, band-width and frequency range options. They are available in 1, 2, 4 and 8 bay configurations. These antennas are perfectly suited for trunked and multi-channel, multi-coupled systems.

Low PIM Collinear Omni Antennas

Sinclair's high-performance low PIM collinear omnis use industry-leading designs that offer high gain, excellent bandwidth and high reliability.

In the VHF band, Sinclair offers its 5 dBd gain SC281-HL series of collinear omnis with 20 MHz of bandwidth. These antennas are an ideal solution for multicoupled trunked radio applications where 500 watts of true power handling capability and survival wind speed ratings of 192 mph are required.

In the UHF band Sinclair offers a broad range of low PIM collinear omni-directional designs with gains ranging from 3 dBd to 10 dBd. The SC381-HL series of collinear omni-directional antennas provide 6 dBd of gain and 67 MHz of bandwidth. It is a perfect candidate for Tetra, Tetrapol and P25 multicoupled public safety trunked radio systems.

In the 700-1000 MHz band Sinclair's workhorse SC481-SL, SC488-HL, SC432 and SC479 series of low PIM collinear omni antennas provide maximum coverage for AMPS, GSM, CDMA, TDMA, private SMR and public safety P25 type networks where high gain and efficiency are required from 694 to 985 MHz. These antennas offer long life and superior resistance to harsh environmental conditions, with an enclosed fiberglass radome to minimize tip deflection and coverage variations in severe wind.

Note 1: 3rd order harmonic products that result from two 20 watt signals fed into the Antenna.

Sinclair's Low PIM Antenna Product Line

EXPOSED DIPOLE SERIES	BANDWIDTH (MHz)	FREQ RANGE (MHz)	GAIN (dBd)	TYPE	HEIGHT (INCHES/CM'S)
SD210-HL	36	138 - 174	2	Exposed Dipole	72/183
SD310-HL	64	310 - 512	2	Exposed Dipole	48/122
SD235	36	138 - 174	3/5	Exposed Dipole/Field Adjustable	168/427
SD335	62	450 - 512	3/5.5	Exposed Dipole/Field Adjustable	96/244
COLLINEAR					
SC281-HL	20	148 - 174	6	Collinear	251/638
SC323-HL	20	380 - 430	3	Collinear	78/198
SC329-HL	20	380 - 470	6	Collinear	141/358
SC381-HL	67	380 - 490	6	Collinear	160/406
SC488-HL	70	806 - 960	10	Collinear	183/465
SC481	52 - 90	694 - 960	10.5	Collinear	194/493
SC229	5	138 - 174	6	Collinear	238/605
SC432	123 - 154	746 - 960	0,3,6	Collinear, Multiple Port	172/438
SC479	123 - 154	746 - 960	9	Collinear	172/438
PANEL					
SP330C-SL (circular polarized)	20	380 - 470	12	Panel	77/196
SP330X-SL (cross polarized)	20	380 - 470	12	Panel	77/196

Exposed dipole antennas are available in 1, 2, 4, 6 and 8 bay as well as omni, ¼ and ½ offset configurations.

Bandwidths shown are maximums for each series.

Other low PIM antennas are available - please contact customer service.

All antennas listed have PIM ratings of minus 150 dBc or lower.

Heights shown are maximum for each series.

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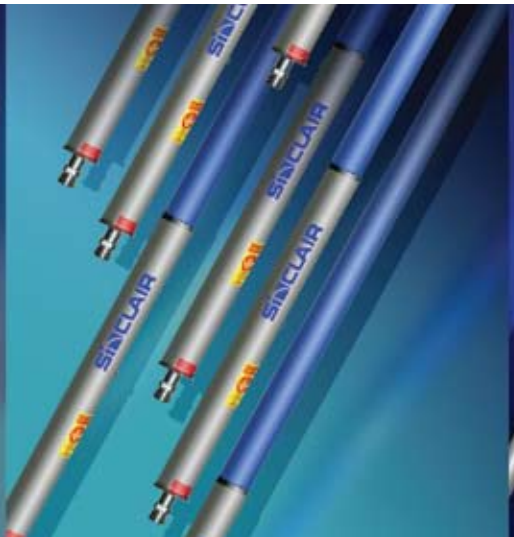

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RELIABILITY
SECURITY
CUSTOMIZATION
COVERAGE

Sinclair provides antennas, filters, combining systems, and radio coverage solutions for RF telecommunications networks. Designed to function in extreme weather conditions, Sinclair's products enjoy a reputation for high performance, reliability, durability and value. We have been serving our markets with new innovative products for over 57 years.

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