RFI
TECHNOLOGY SOLUTIONS

Meander® Collinear Solutions

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About RFI Technology Solutions

RFI is a global technology solutions company, specialising in wireless coverage. RFI has one of the largest, most innovative and experienced wireless solutions teams with dedicated engineers, product managers, deployment engineers, logistics, distribution and R&D staff.

Our network of international sales offices means that all customers get the attention and advice they require, providing local support on a global scale.

RFI develops, manufactures and distributes world-class, high performance, wireless products including; antenna systems, rebroadcast & monitoring equipment, power systems and cabling and connectors. RFI is recognised as a market leader in wireless products and offers the best products backed with outstanding technical support.

RFI is continually strengthening its technology solutions portfolio, including the recent acquisition of Maxon Australia, allowing us to offer industry leading M2M solutions.

AWARD WINNING MANUFACTURING

RFI is proud to be an award winning manufacturer with wireless coverage products that perform on a global stage. RFI Technology solutions are manufactured in Australia and exported to 80+ countries. RFI operates manufacturing sites in Victoria and South Australia, both with a proud history in quality, safety and environmental performance. Our two sites include Australia's largest antenna manufacturing facility, producing world class Antenna and Multicoupling Systems for both Domestic and International Markets and the only Australian manufacturing site producing frequency translating repeater systems.

LEADING-EDGE TECHNOLOGY

RFI utilises leading RF design and drafting modeling packages. Our world-class testing environment has an extensive suite of test equipment and custom automated testing.

RFI Meander® Antenna Solutions

The Meander® family is a complete and extensive antenna offering covering 130-930MHz, with exceptional bandwidth capability in an extremely light-weight and low profile package. These antennas are an extremely versatile replacement for any antenna range available in the market.

PERFORMANCE

RFI's patented Meander® antennas tick the box in every area for performance, providing wide, full band coverage, high power rating, and exceptional PIP and low PIM performance. Purchasing a Meander® antenna ensures a highly reliable, cost effective, light-weight solution for everything from multi-carrier environments in mission-critical applications to typical telemetry and SCADA applications.

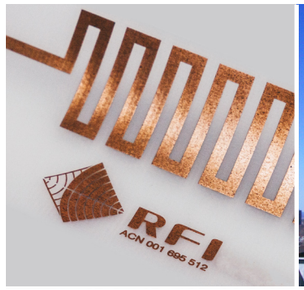
MEANDER® TECHNOLOGY

Using RFI's patented Meander® PCB technology, the antenna elements have been printed on a single continuous sided PCB. By removing all the joints and variations typified in the construction of standard high gain collinears, many benefits ensure, including ultra low PIM, high PIP rating, pattern repeatbility, weight reduction, and exceptional reliability.

FEATURES INCLUDE:

- High power capability
- -150 PIM rated, with outstanding PIM stability
- 25kW PIP rating
- 0dBd - 9dBd options
- Excellent bandwidth characteristics, with full band coverage
- Exceptional pattern stability
- Superior manufacturing
- Extremely light weight
- Direct grounding for better stability and reduction of static precipitation

USA Patent No. 6,909,403, European Patent No. 1411588, Aust Patent No. 2003255049. Chinese Patent No. ZL200310100548.5 and Indian Patent No. 254674.



Product Applications

SOUTH EAST ASIA POLICE NETWORK - PUBLIC SAFETY RADIO DESIGN & UPGRADE

RFI provided equipment and design assistance for a whole of country digital upgrade and geographic expansion to a 180+ site public safety network based in South East Asia. Many of the install sites were high density RF sites, necessitating PIM conscious design considerations to ensure reliable service.

With low PIM requirements in mind, the design team utilised RFI's extensive range of -150dBc PIM rated VHF Meander® series collinears in the design, providing a complete and cost effective solution meeting specific site coverage requirements.

The VHF Meander® series in particular offers a lightweight, wideband VHF antenna with -150dBc low PIM and 25kW PIP ratings, packaged in a low profile radome, with benefits including reduced wind and tower loading over that of a traditional dipole array in a high power cost effective package.

RFI provided a low PIM solution including antennas and multicoupling, combined with an array of support services including site frequency evaluation, intermodulation studies, client training and interference mitigation services, all of which facilitated in the delivery of an efficient and highly robust radio network.

TAIWAN MARITIME SAFETY COMMUNICATION SYSTEM

Taiwan's major maritime first responders implemented a nationwide maritime safety communications network across 3 stages providing coverage of the complete region.

RFI worked with one of the country's major systems integrators to implement a system which minimised potential interference and maximised longevity and performance within this critical communications network.

RFI's Meander® series antennas were chosen for their low PIM performance, light weight and wide bandwidth capability packaged in a compact size.

A successful and cost effective project was delivered and all expectations in performance met, with a low noise, high performance network delivered on time.

VHF Meander® Collinear Antennas

- PIM rated, individually tested
- PIP rated to endure rigorous multi-carrier environments
- Large bandwidth
- Exceptional 400W continuous power rating
- Lightweight
- Rugged build
- High reliability
- 4.3-10 connector

ELECTRICAL SPECIFICATIONS

Model	Gain dBi (dBd)	Frequency	Bandwidth	E Plane °	Power W	Passive IM 3rd order dBc*	Peak Instantaneous Power kW
COL51-140-P	2.1 (0)	130 - 140	Full band	100	400	-150	25
COL51-150-P		140 - 150		106			
COL51-160-P		150 - 160		92			
COL51-166-P		156 - 166		75			
COL51-174-P		162 - 174		82			
COL53-140-P	6.1 (4)	130 - 140		24			
COL53-150-P		140 - 150					
COL53-160-P		150 - 160					
COL53-166-P		156 - 166					
COL53-174-P		162 - 174					
COL54-155-P	8.1 (6)	145 - 155		17			
COL54-160-P		150 - 160					
COL54-166-P		156 - 166					
COL54-174-P		162 - 174					

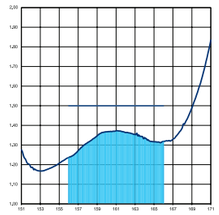
MECHANICAL SPECIFICATIONS

Model	Construction	Length mm	Project Area cm²	Weight	Wind Gust	Shipping Weight	Shipping Dimensions
COL51-140-P	76mm Composite fibreglass sky blue radome & 750 x Ø90mm Ecofilm plated aluminium mount tube	2300	1705	11	>240	13	Ø100 x 2500mm
COL51-150-P		2100	1588				Ø100 x 2300mm
COL51-160-P		2200	1683				Ø100 x 2400mm
COL51-166-P		2200	1636				
COL51-174-P		2100	1597				Ø100 x 2300mm
COL53-140-P		5500	4870	19		22	Ø100 x 5700mm
COL53-150-P		5200	4600	18		21	Ø100 x 5400mm
COL53-160-P		5000	4460	18		21	Ø100 x 5200mm
COL53-166-P		4800	4342	17		20	Ø100 x 5000mm
COL53-174-P		4800	4218	17		20	
COL54-155-P		6500	5906	23	217	26	Ø100 x 6700mm
COL54-160-P		6500	5810	21	>240	24	
COL54-166-P		6500	5640	2		23	
COL54-174-P		6000	5420	19		22	Ø100 x 6200mm

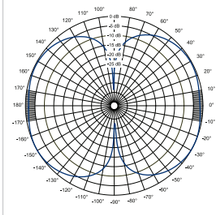
COL51 SERIES (130-174MHz)

- 5 Models covering 130-174MHz in 10MHz bands.
- Unity gain.
- Exceptional beamwidth over full band.
- Useful for close in coverage, telemetry and control station systems.

Typical VSWR Response



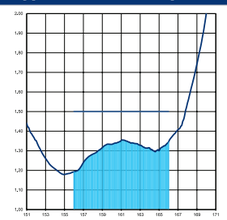
Typical E-Plane



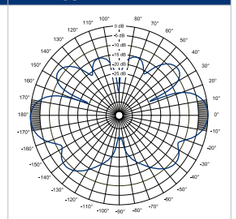
COL53 SERIES (130-174MHz)

- 5 Models covering 130-174MHz in 10 MHz bands.
- 4dBd gain.
- Medium gain, with great coverage characteristics, including strong null fill.
- Useful for a good mix of gain and close in coverage, including local VHF coverage in multi-carrier environments.

Typical VSWR Response



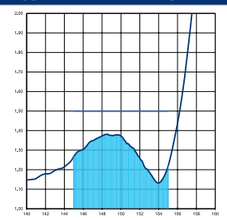
Typical E-Plane



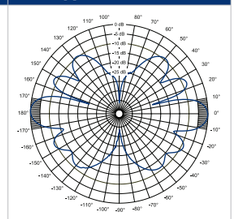
COL54 SERIES (145-174MHz)

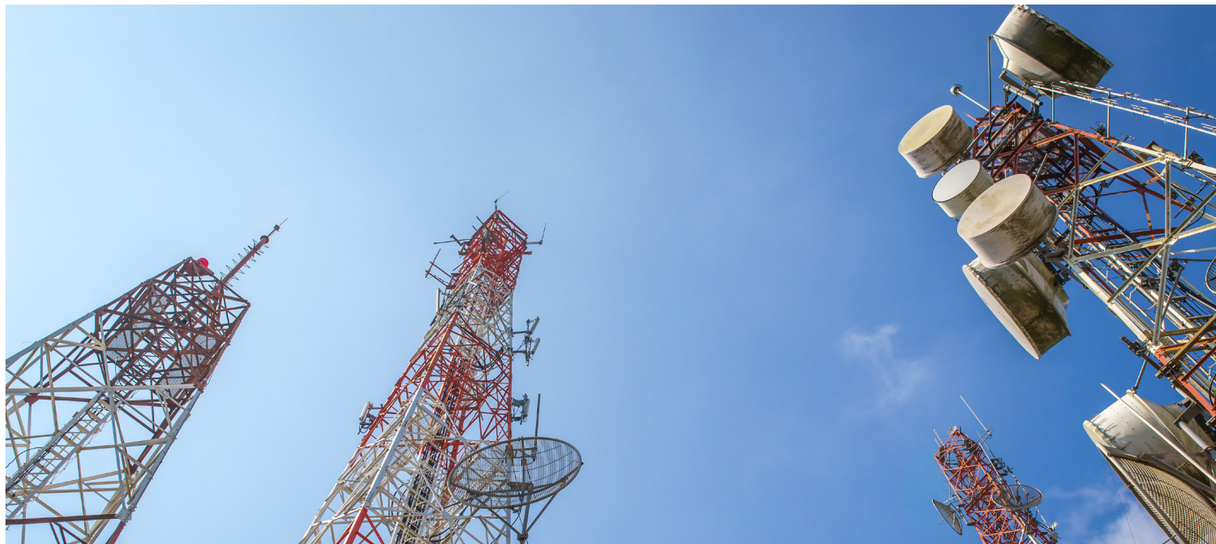
- 4 Models covering 145-174MHz in 10MHz bands.
- 6 dBd gain.
- High gain, with great coverage characteristics and strong main lobe.
- Useful for long range coverage in multi-carrier combined systems.

Typical VSWR Response



Typical E-Plane





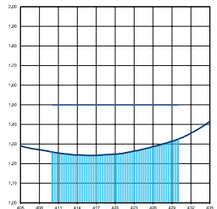
UHF Meander® Collinear Antennas

- PIM rated, individually tested
- PIP rated to endure rigorous multi-carrier environments
- Exceptional Bandwidth
- Comprehensive range, covering UHF band, gain and coverage options.
- Exceptional 250W continuous power rating
- Lightweight, high durability
- High reliability
- 4.3-10 connector

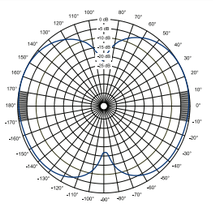
COL41 SERIES (380-520MHz)

- 5 Models covering 380-520MHz, in 20MHz bands.
- Unity gain.
- Exceptional beamwidth over full band.
- Useful for close in coverage, telemetry and control station systems.

Typical VSWR Response



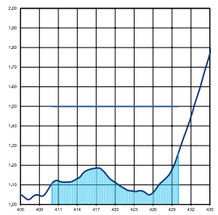
Typical E-Plane



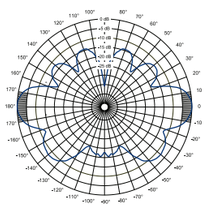
COL43 SERIES (380-520MHz)

- 6 Models covering 380-520MHz in 20MHz bands.
- 4dBd gain.
- Medium gain, with great coverage characteristics, including strong null fill.
- Useful for a good mix of gain and close in coverage.
- Including localised multi-carrier environments. LMR, critical systems, telemetry, transport.

Typical VSWR Response



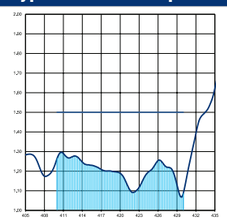
Typical E-Plane



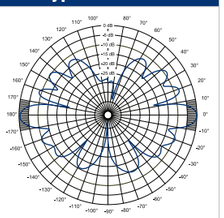
COL45 SERIES (350-520MHz)

- 7 models, and the most comprehensive and versatile of the Meander® series.
- Covering 350-520MHz in 20MHz bands.
- 7 dBd gain.
- High gain, with great coverage characteristics, and strong main lobe.
- Useful for medium to long range coverage.
- Uses include multi-carrier combined systems in LMR, critical systems, public safety, telemetry, mining, and transport.

Typical VSWR Response



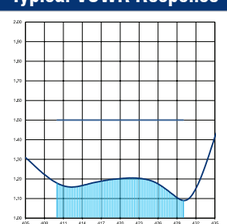
Typical E-Plane



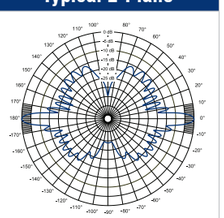
COL410 SERIES (145-174MHz)

- 6 Models covering 380-520MHz, in 20MHz bands.
- 9 dBd gain.
- High gain, with great coverage characteristics and strong main lobe.
- Useful for long range coverage in multi-carrier combined systems. Including multi-carrier combined systems in LMR, critical systems and public safety.

Typical VSWR Response



Typical E-Plane



Note: For further detail on specific model numbers please refer to model specific PDS at **rfiwireless.com.au**

* 2 x 20W, 3rd order PIM test performed on each item produced, to give -150dBc PIM rating

ELECTRICAL SPECIFICATIONS

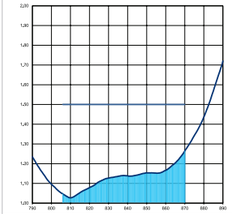
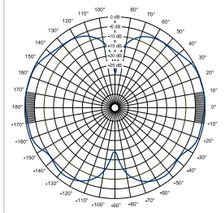
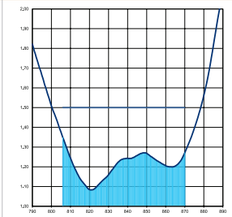
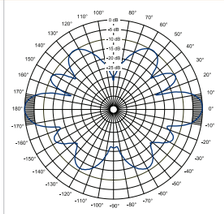
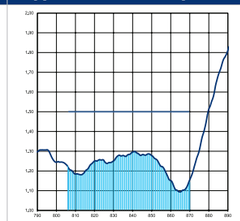
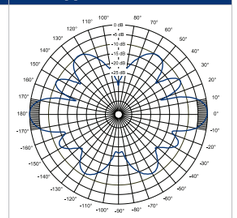
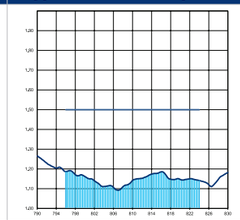
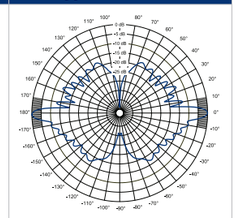
Model	Gain dBi (dBd)	Frequency	Bandwidth	E Plane °	Power W	Passive IM 3rd order dBc*	Peak Instantaneous Power kW
COL41-400-P	2.1 (0)	380 - 400	Full Band	109	250	-150	25
COL41-420-P		400 - 420		96			
COL41-470-P		450 - 470		71			
COL41-490-P		470 - 490		69			
COL41-520-P		490 - 520		57			
COL43-400-P	7.1 (5)	380 - 400		21			
COL43-420-P		400 - 420					
COL43-430-P		410 - 430					
COL43-470-P		450 - 470					
COL43-490-P		470 - 490					
COL43-520-P		490 - 520					
COL45-370-P	9.1 (7)	350 - 370		12.5			
COL45-400-P		380 - 400					
COL45-420-P		400 - 420					
COL45-430-P		410 - 430					
COL45-470-P		450 - 470					
COL45-490-P		470 - 490					
COL45-520-P		490 - 520					
COL410-400-P	11.1 (9)	380 - 400		7			
COL410-420-P		400 - 420					
COL410-430-P		410 - 430					
COL410-470-P		450 - 470					
COL410-490-P		470 - 490					
COL410-520-P		490 - 520					

MECHANICAL SPECIFICATIONS

Model	Construction	Length mm	Projected Area cm²	Weight	Wind Gust	Shipping Weight	Shipping Dimensions
COL41-400-P	38mm Composite fibreglass sky blue radome & 500 x Ø48.5mm Ecofilm plated aluminium mount tube	1100	437	2.1	>240	4	Ø70 x 1300mm
COL41-420-P							
COL41-470-P							
COL41-490-P							
COL41-520-P							
COL43-400-P		2170	980	2.9		4	Ø70 x 2300mm
COL43-420-P		2035	916				
COL43-430-P		1970	871	2.7			
COL43-470-P		1860	810			3.5	Ø70 x 2200mm
COL43-490-P		1794	770				
COL43-520-P		1735	736	2.6			
COL45-370-P		3665	1625	3	214	5.5	Ø70 x 3700mm
COL45-400-P		3360	1516		232	5	Ø70 x 3600mm
COL45-420-P		3100	1399		>240		Ø70 x 3300mm
COL45-430-P		3045	1372				Ø70 x 3200mm
COL45-470-P		2810	1265	2.5		4.5	Ø70 x 3000mm
COL45-490-P		2720	1224				Ø70 x 2900mm
COL45-520-P		2615	1176				Ø70 x 2800mm
COL410-400-P	38mm Composite fibreglass sky blue radome & 650 x Ø76.2mm Ecofilm plated aluminium mount tube	6210	4765	11.5	>240	25.5	Ø115 x 6400mm
COL410-420-P		5900	4570	11		25	Ø115 x 6200mm
COL410-430-P		5820	4474	11		24	Ø115 x 6000mm
COL410-470-P		5390	4144	10.5		23	Ø115 x 5600mm
COL410-490-P		5200	3969	10		22	Ø115 x 5400mm
COL410-520-P		4940	3774	10		21.5	Ø115 x 5200mm

800MHz Meander® Collinear Antennas

- PIM rated, individually tested
- PIP rated to endure rigorous multi-carrier environments
- Exceptional bandwidth
- Comprehensive range, covering 800MHz band, gain and coverage options
- Includes ISM900 band coverage
- Exceptional 250W continuous power rating
- Lightweight, high durability
- High reliability
- 4.3-10 connector

COL81 SERIES (746-930MHz)	Typical VSWR Response	Typical E-Plane
• 3 models covering 746-930MHz in full bands. • Unity gain. • Exceptional beamwidth over full band. • Useful for close in coverage, telemetry and control station systems.		
COL84 SERIES (746-930MHz)	**Typical VSWR Response**	**Typical E-Plane**
• 3 models covering 746-930MHz in full bands. • 5 dBd gain. • Medium gain, with great coverage characteristics. • Useful for a good mix of gain and close in coverage. • Including localised multi-carrier environments, LMR, critical systems, telemetry, and transport.		
COL85 SERIES (746-930MHz)	**Typical VSWR Response**	**Typical E-Plane**
• 3 models covering 746-930MHz in full bands. • 7 dBd gain. • Great coverage characteristics, with strong main lobe, and good null fill. • Useful for medium to long range coverage. • Uses include multi-carrier combined systems in LMR, critical systems, public safety, telemetry, mining, transport.		
COL811 SERIES (746-930MHz)	**Typical VSWR Response**	**Typical E-Plane**
• 4 models covering 746-930MHz in full bands. • 9 dBd gain. • High gain, with great coverage characteristics, and strong main lobe. • Useful for long range, large area coverage in multi-carrier combined systems. • Including multi-carrier combined systems in LMR, critical systems, public safety and telemetry.		

Note: For further detail on specific model numbers please refer to model specific PDS at **rfiwireless.com.au**
* 2 x 20W, 3rd order PIM test performed on each item produced, to give -150dBc PIM rating

ELECTRICAL SPECIFICATIONS

Model	Gain dBi (dBd)	Frequency	Bandwidth	E Plane °	Power W	Passive IM 3rd order dBc*	Peak Instantaneous Power kW
COL81-806-P	2.1 (0)	746 - 806	Full Band	67	250	-150	25
COL81-870-P		806 - 870					
COL81-930-P		850 - 930					
COL84-806-P	7.1 (5)	746 - 806		16			
COL84-870-P		806 - 870					
COL84-930-P		850 - 930					
COL85-806-P	9.1 (7)	746 - 806		13			
COL85-870-P		806 - 870					
COL85-930-P		850 - 930					
COL811-806-P	11.1 (9)	746 - 806		7			
COL811-824-P		796 - 824					
COL811-870-P		806 - 870					
COL811-930-P		850 - 930					

MECHANICAL SPECIFICATIONS

Model	Construction	Length mm	Project Area cm²	Weight	Wind Gust	Shipping Weight	Shipping Dimensions
COL81-806-P	38mm Composite fibreglass sky blue radome & 500 x Ø48.5mm Ecofilm plated aluminium mount tube	1100	437	2.2	>240	4	Ø70 x 1300mm
COL81-870-P							
COL81-930-P							
COL84-806-P		1716	726	3		5	Ø70 x 2000mm
COL84-870-P		1633	680				
COL84-930-P		1567	647				
COL85-806-P		1960	844	2.1		4.1	Ø70 x 2100mm
COL85-870-P		1860	785				Ø70 x 2000mm
COL85-930-P		1780	736				Ø70 x 2000mm
COL811-806-P		3610	1629	11.5		5	Ø70 x 3800mm
COL811-824-P		3520	1599	11			Ø70 x 3700mm
COL811-870-P		3390	1512	11			Ø70 x 3500mm
COL811-930-P		3200	1428	10			Ø70 x 3400mm

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RFI
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