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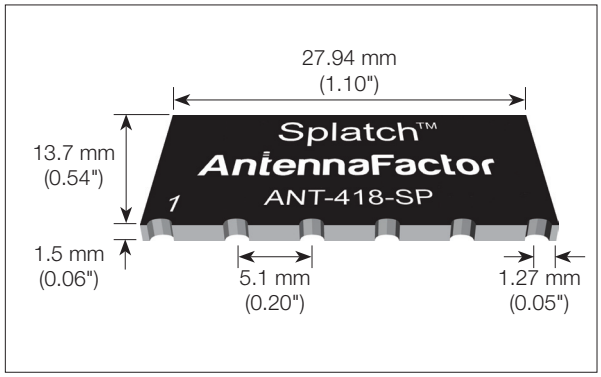
ANT-418-SP

Data Sheet

Product Description

The Splatch uses a grounded-line technique to achieve outstanding performance from a tiny surface-mount element. This unique antenna is designed for hand or reflow-mounting directly to a product's circuit board. Its low cost makes it ideal for volume applications. Unlike many compact antennas, the Splatch exhibits good proximity performance, making it an appropriate choice for handheld applications such as remote controls, pagers and alert devices.



Features

- Very low cost
- Ultra-compact package
- Direct PCB attachment
- Ideal for concealed / internal mounting
- Perfect for compact portable devices
- Suitable for hand or reflow-assembly
- Resistant to proximity effects

Electrical Specifications

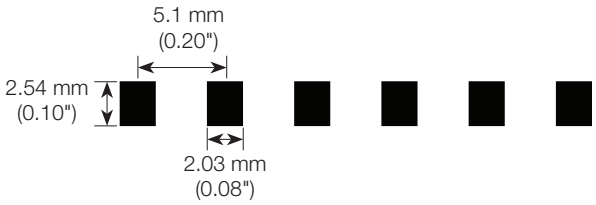
Center Frequency:	418MHz
Recom. Freq. Range:	414 – 422MHz
Bandwidth:	8MHz
Wavelength:	¼-wave
VSWR:	≤ 1.9 typ. at center
Peak Gain:	–8dBi
Impedance:	50-ohms
Connection:	Surface-mount
Oper. Temp. Range:	–40°C to +130°C

Electrical specifications and plots measured on 3.8 cm x 8.4 cm (1.50" x 3.30") reference ground plane.

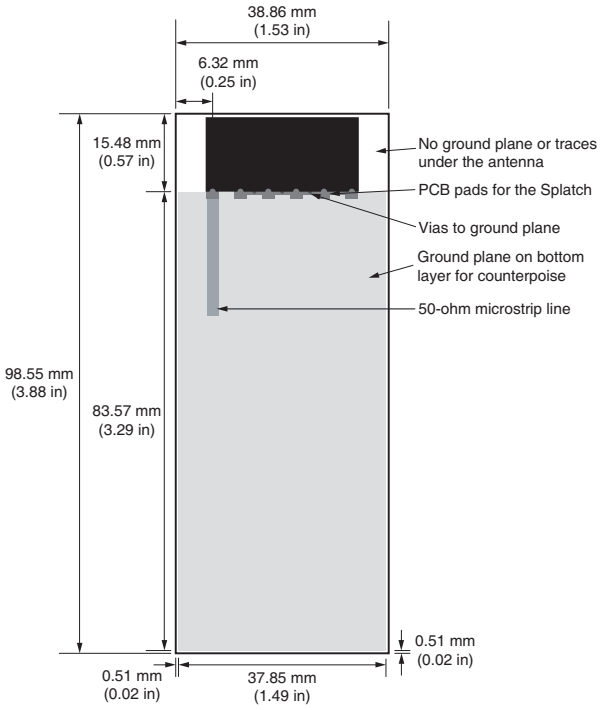
Ordering Information

ANT-418-SP (supplied in tubes of 20 pieces)
ANT-418-SP-T (Tape and reel of 500 pieces)

Recommended Footprint



Recommended Mounting



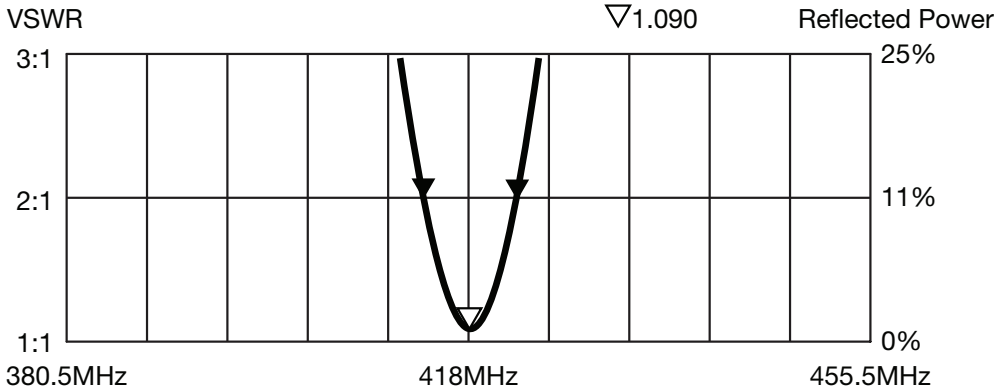
Please see AN-00502 for more details on PCB layout.

Revised 1/3/2017

Counterpoise

Quarter-wave or monopole antennas require an associated ground plane counterpoise for proper operation. The size and location of the ground plane relative to the antenna will affect the overall performance of the antenna in the final design. When used in conjunction with a ground plane smaller than that used to tune the antenna, the center frequency typically will shift higher in frequency and the bandwidth will decrease. The proximity of other circuit elements and packaging near the antenna will also affect the final performance. For further discussion and guidance on the importance of the ground plane counterpoise, please refer to Linx Application Note AN-00501: Understanding Antenna Specifications and Operation.

VSWR Graph



What is VSWR?

The Voltage Standing Wave Ratio (VSWR) is a measurement of how well an antenna is matched to a source impedance, typically 50-ohms. It is calculated by measuring the voltage wave that is headed toward the load versus the voltage wave that is reflected back from the load. A perfect match has a VSWR of 1:1. The higher the first number, the worse the match, and the more inefficient the system. Since a perfect match cannot ever be obtained, some benchmark for performance needs to be set. In the case of antenna VSWR, this is usually 2:1. At this point, 88.9% of the energy sent to the antenna by the transmitter is radiated into free space and 11.1% is either reflected back into the source or lost as heat on the structure of the antenna. In the other direction, 88.9% of the energy recovered by the antenna is transferred into the receiver. As a side note, since the ":1" is always implied, many data sheets will remove it and just display the first number.

How to Read a VSWR Graph

VSWR is usually displayed graphically versus frequency. The lowest point on the graph is the antenna's operational center frequency. In most cases, this is different than the designed center frequency due to fabrication tolerances. The VSWR at that point denotes how close to 50-ohms the antenna gets. Linx specifies the recommended bandwidth as the range where the typical antenna VSWR is less than 2:1.

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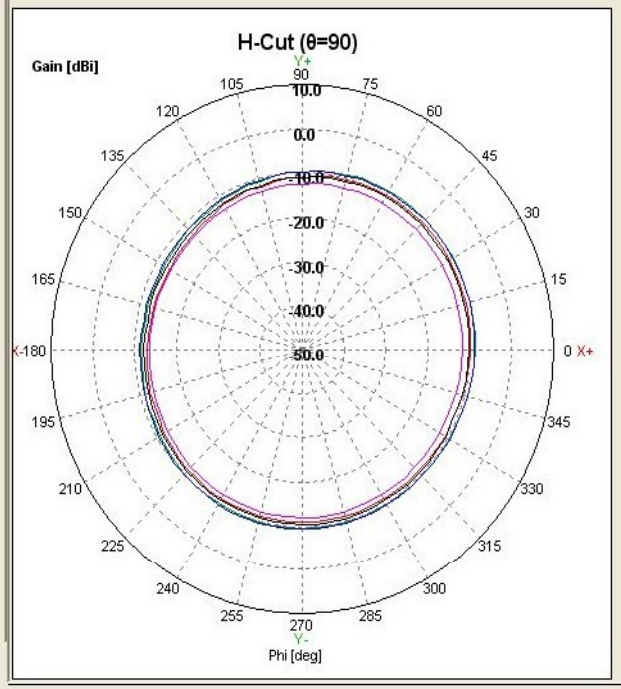
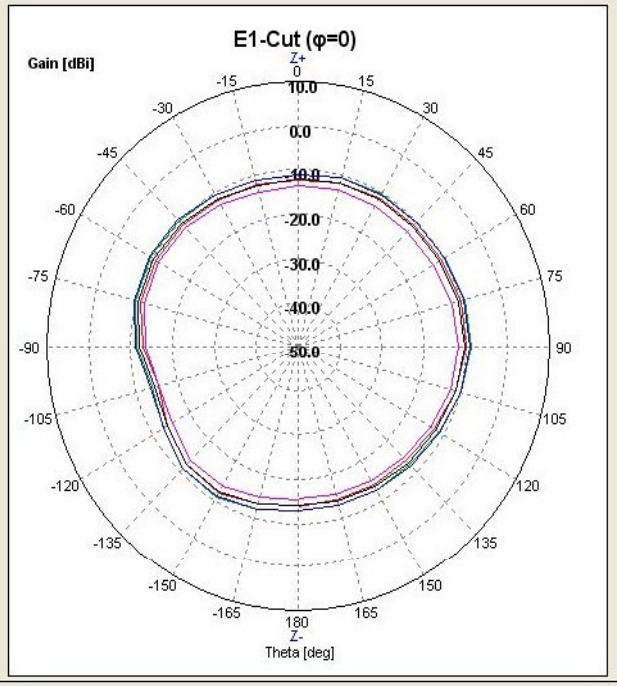
04/23 **Original**

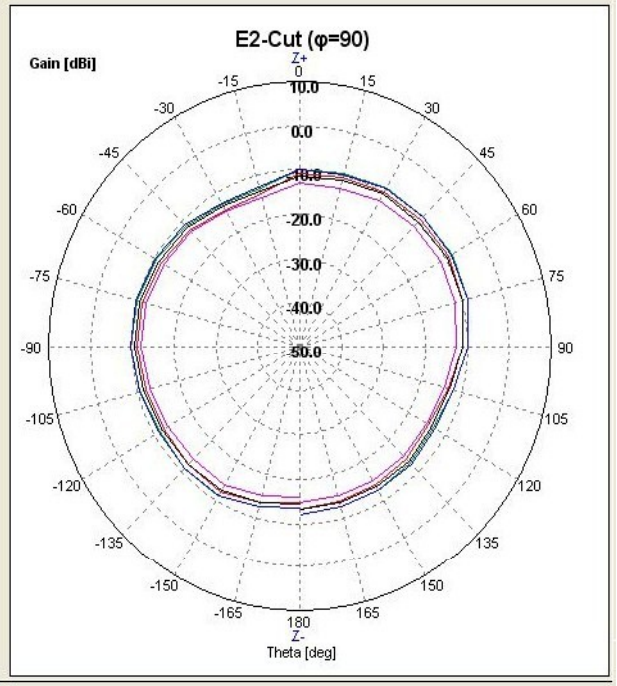
1. ANT-418-SP Radiation Patterns

Summary | **Multiple Frequency** | Multiple Cut | 3D-View | Reserved

		PwrSum					H(θ=90)				E1(φ=0)				E2(φ=90)			
No.	Freq.	Eff.[%]	Avg.[dBi]	Peak[dBi]	θ[deg]	φ[deg]	Avg.[dBi]	Peak[dBi]	φ[deg]	BW[deg]	Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]	Avg.[dBi]	Peak[dBi]	θ[deg]	BW[deg]
1	410.000	6.84	-11.65	-8.80	75.00	50.00	-11.04	-9.34	40.00	999.00	-11.92	-9.80	90.00	211.07	-11.81	-9.06	60.00	102.27
2	414.000	8.97	-10.47	-7.85	60.00	70.00	-9.84	-8.35	30.00	999.00	-10.75	-8.74	90.00	218.24	-10.66	-8.07	60.00	104.04
3	418.000	9.10	-10.41	-8.03	60.00	70.00	-9.77	-8.51	25.00	999.00	-10.71	-8.83	90.00	226.14	-10.60	-8.17	60.00	106.09
4	422.000	7.00	-11.55	-9.42	60.00	80.00	-10.91	-9.86	25.00	999.00	-11.86	-10.12	-60.00	235.58	-11.75	-9.51	60.00	109.18
5	426.000	4.96	-13.05	-11.13	60.00	80.00	-12.42	-11.54	25.00	999.00	-13.35	-11.50	-60.00	237.89	-13.27	-11.18	60.00	112.77





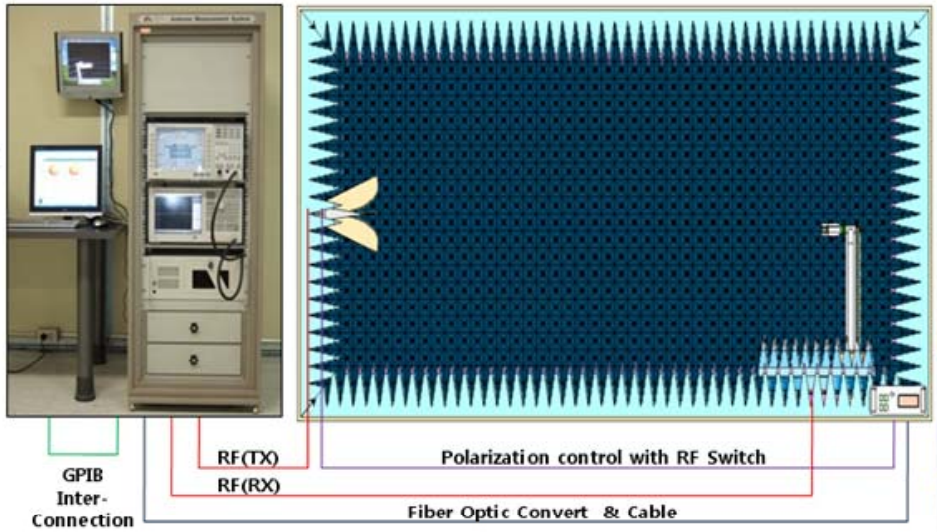
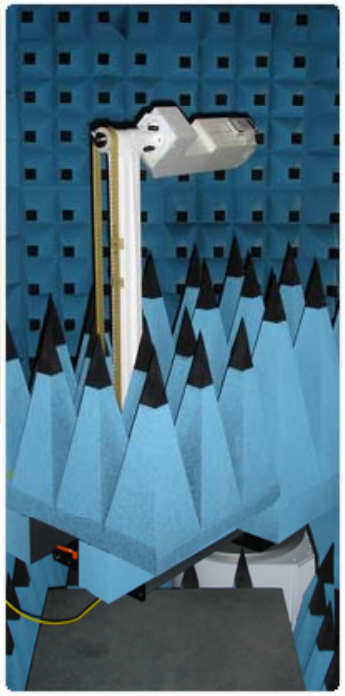
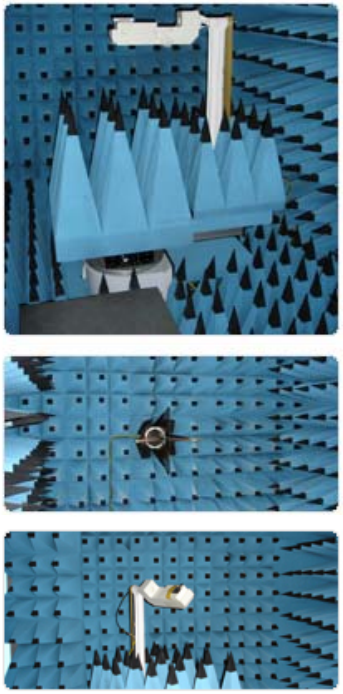


6. Chamber

WIRELESS COMMUNICATIONS TEST SET

VECTOR NETWORK ANALYZER

SYSTEM CONTROLLER & LCD MONITOR



Chamber - MTG 6x3x3(m), 300MHz~6GHz
Active - Agilent E5515C (8960 Series 10)
Passive - Agilent E5071B 300KHz~8.5GHz