

Use case for interference absorber for antennas



BN A77697



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Purpose of the document

In general, the installation of Omni chip antennas on metal surfaces or close to metal will have a negative influence on the antenna performance. Therefore, it is highly recommended to install Omni chip antennas in metal free environments. However, this is not always possible. In such cases, the interference absorber can be installed between mounting surface and antenna to absorb RF reflections caused by metal.

SPINNER does not guarantee error free operation and highly recommends installing antennas in metal free environments.

Mapping of antenna part number to related interference absorber part number:

Part number of SPINNER Omni chip antennas	Part number of recommended interference absorber
BN A77142, BN A77142C0001	BN A77697
BN A77137, BN A77137C0001, BN A77143, BN A77146, BN A77146C0003, BN A77147	BN A77698

Tests with interference absorbers

Below two test scenarios for SPINNER’s interference absorber for antennas:

Example for SISO Omni chip antenna

Antenna directly mounted on metal plate:



VSWR test results:

Frequency	VSWR
617 - 960 MHz:	18.79
1350 - 1550 MHz:	5.35
1710 - 2700 MHz:	3.94
3400 - 4000 MHz:	1.54
4900 - 6000 MHz:	1.81

VSWR between 617 and 2700 MHz is > 2 and antenna does not perform properly.

Antenna mounted on metal plate with interference absorber between antenna and metal plate:



VSWR test results:

Frequency	VSWR
617 - 960 MHz:	1.76
1350 - 1550 MHz:	1.50
1710 - 2700 MHz:	1.65
3400 - 4000 MHz:	1.51
4900 - 6000 MHz:	1.62

VSWR between 617 and 2700 MHz almost according to data sheet.

Example for MIMO Omni chip antenna

Antenna directly mounted on metal plate:



VSWR test results:

Frequency	VSWR
Port 1	
694 - 960 MHz:	4.10
1710 - 2700 MHz:	1.39
3400 - 4000 MHz:	1.64
Port 2	
694 - 960 MHz:	4.10
1710 - 2700 MHz:	1.37
3400 - 4000 MHz:	1.64

VSWR between 617 and 960 MHz > 2 and antenna does not perform properly.

Antenna mounted on metal plate with interference absorber between antenna and metal plate:



VSWR test results:

Frequency	VSWR
Port 1	
694 - 960 MHz:	1.70
1710 - 2700 MHz:	1.37
3400 - 4000 MHz:	1.59
Port 2	
694 - 960 MHz:	1.58
1710 - 2700 MHz:	1.35
3400 - 4000 MHz:	1.39

VSWR between 617 and 960 MHz almost according to data sheet.