Cisco Dual Polarization Base Station Antenna (IW-ANT-SS9-516-N)

This chapter contains the following sections:

Overview

The Cisco Dual Polarization Base Station Antenna (IW-ANT-SS9-516-N) is designed to cover a frequency range of 4.9 to 6.425 GHz. This antenna is designed for point-to-multipoint connectivity in smart cities (coverage for parking lots, building-to-building connectivity etc), or ports and mines.

Figure 1: IW-ANT-SS9-516-N Antenna

Features include the following:

- Compact size
- Relative high gain

Electrical Specifications

The following table is a summary of the electrical specifications:

Antenna Type	Dual Polarization Base Station
Frequency Range	4.9 - 6.425 GHz
Input Impedance	50 Ω
Gain	15 dBi (typ)
VSWR	1.7:1 (typ) 2:1 (max)
Polarization	Dual Linear Vertical + Horizontal
-3dB Elevation Beamwidth	7º (typ)
-3dB Azimuth Beamwidth	90º (typ)
Azimuth Side Lobe Level	Port V- ETSI EN 302 326-3 V1.3.1 CS2 Port H-ETSI EN 302 326-3 V1.3.1 CS2

F/B Ratio	30 dB (min)
Cross Polarization	-20 dB (typ)
Port to Port Isolation	45 dB (typ) 42 dB (min)
Power	6W (max)
Lightning Protection	DC Grounded

Mechanical Specifications

The following table is a summary of the mechanical specifications:

Dimensions (L x W x D)	371 x 371 x 40 mm (max)
Weight	2 kg (max)
Radome Material	Plastic
Base Plate Material	Aluminum with chemical conversion coating
Connector type	2X N-Type Female

Environmental Specifications

The following table is a summary of the mechanical specifications:

Test	Standard	Duration	Temperature	Notes
Low Temperature	IEC 68-2-1	72 hours	-55° C	—
High Temperature	IEC 68-2-2	72 hours	+71° C	—
Temperature Cycling	IEC 68-2-14	1 hour	-45°C +70°C	3 Cycles
Vibration	IEC 60721-3-4	30 min/axis	—	Random 4M3
Mechanical Shock	IEC 60721-3-4	4M3	—	4M3
Humidity	ETSI EN300-2-4 T4.1E	144 hours	—	95%
Water Tightness	IEC 529	—	—	IP67
Solar Radiation	ASTM G53	1000 hours	—	—
Flamibility	UL 94	—	—	Class HB

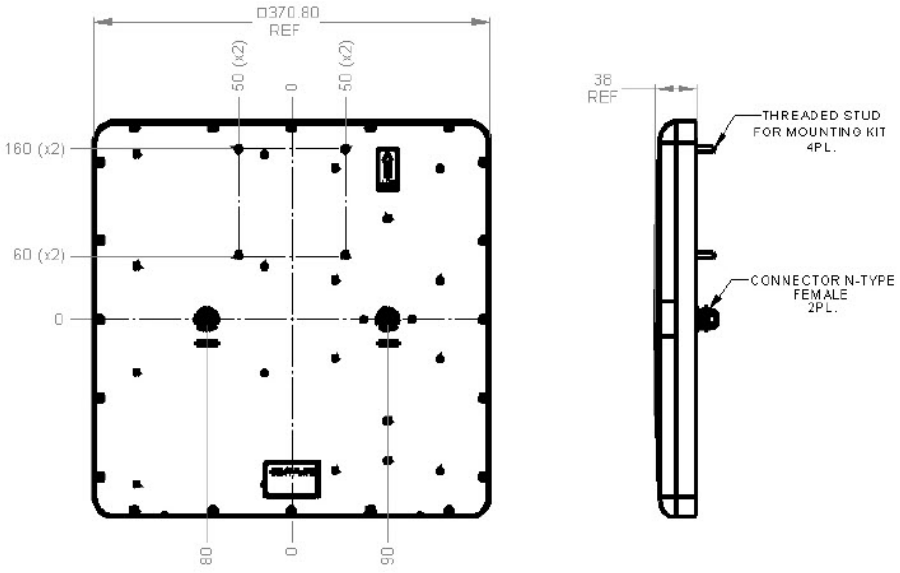
Test	Standard	Duration	Temperature	Notes
Salt Spray	IEC 68-2-11 Ka	500 hours	—	—
Ice and Snow	—	—	—	25mm Radial
Wind Speed Survival	—	—	—	220 Km/h
Wind Speed Operation	—	—	—	160 Km/h
Wind Load (Survival)	—	—	—	Front Thrust 39.6 kg Side Thrust 4.3 kg

Mechanical Drawing

The following diagram provides mechanical details of the antenna.

Note All measurements are in millimeters.

Figure 2: Mechanical Drawing



Installation Instructions

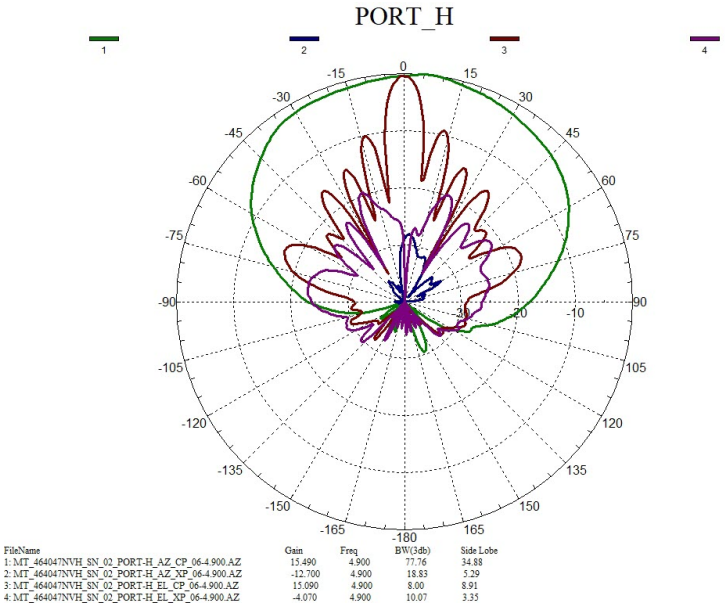
This antenna uses the ATLAS MTI RFID Antenna Mounting Kit - MT-120018. Follow the link for complete installation instructions.

Radiation Patterns

The following figures show the antenna radiation patterns.

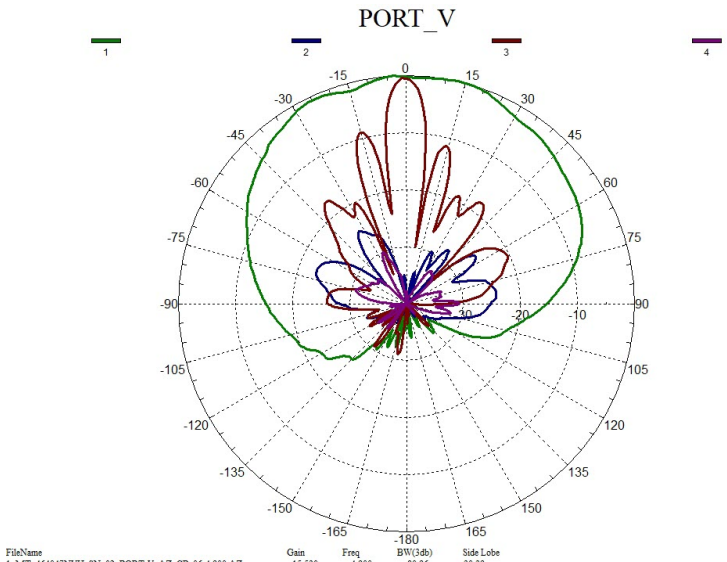
4.9 GHz

Figure 3: Horizontal



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-H_AZ_CP_06-4.900.AZ	15.490	4.900	77.76	34.88
2: MT_464047NVH_SN_02_PORT-H_AZ_XP_06-4.900.AZ	-12.700	4.900	18.83	5.29
3: MT_464047NVH_SN_02_PORT-H_EL_CP_06-4.900.AZ	15.090	4.900	8.00	8.91
4: MT_464047NVH_SN_02_PORT-H_EL_XP_06-4.900.AZ	-4.070	4.900	10.07	3.35

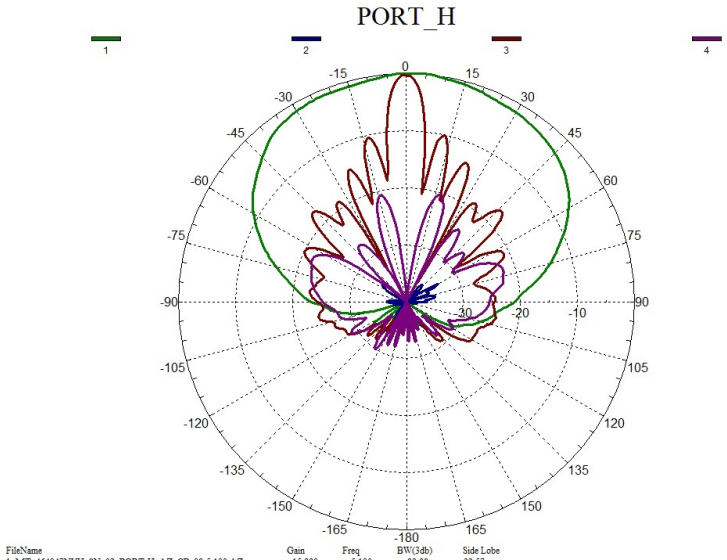
Figure 4: Vertical



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-V_AZ_CP_06-4.900.AZ	15.530	4.900	80.96	30.39
2: MT_464047NVH_SN_02_PORT-V_AZ_XP_06-4.900.AZ	-7.740	4.900	23.86	1.63
3: MT_464047NVH_SN_02_PORT-V_EL_CP_06-4.900.AZ	15.030	4.900	8.26	8.51
4: MT_464047NVH_SN_02_PORT-V_EL_XP_06-4.900.AZ	-14.630	4.900	12.37	2.67

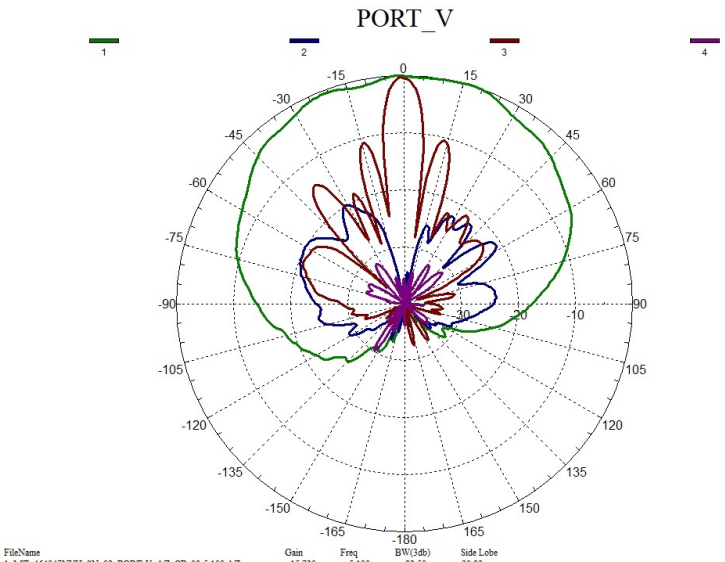
5.1 GHz

Figure 5: Horizontal



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-H_AZ_CP_08-5.100.AZ	15.990	5.100	83.98	32.57
2: MT_464047NVH_SN_02_PORT-H_AZ_XP_08-5.100.AZ	-17.640	5.100	12.46	1.27
3: MT_464047NVH_SN_02_PORT-H_EL_CP_08-5.100.AZ	15.780	5.100	7.82	9.94
4: MT_464047NVH_SN_02_PORT-H_EL_XP_08-5.100.AZ	-4.380	5.100	8.96	0.49

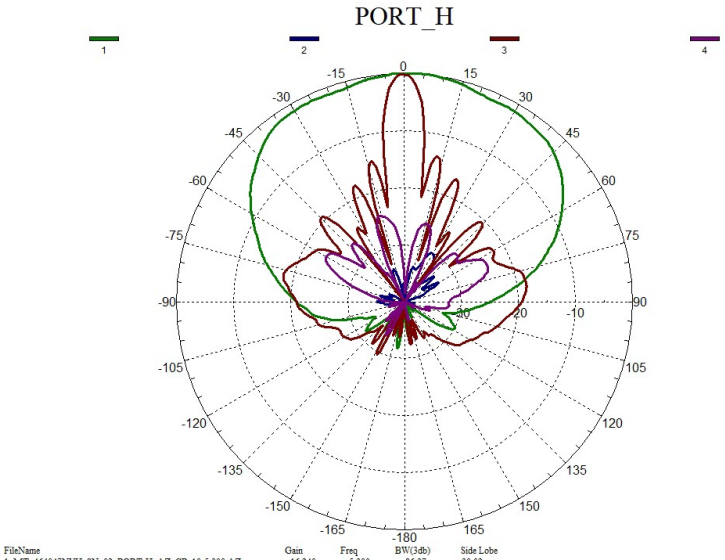
Figure 6: Vertical



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-V_AZ_CP_08-5.100.AZ	15.720	5.100	82.50	30.83
2: MT_464047NVH_SN_02_PORT-V_AZ_XP_08-5.100.AZ	-4.260	5.100	35.09	0.01
3: MT_464047NVH_SN_02_PORT-V_EL_CP_08-5.100.AZ	15.330	5.100	8.28	10.19
4: MT_464047NVH_SN_02_PORT-V_EL_XP_08-5.100.AZ	-14.490	5.100	6.46	4.63

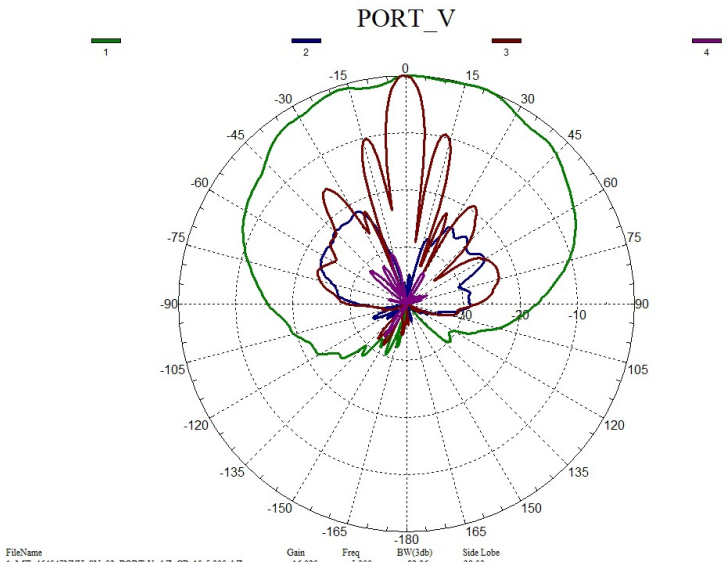
5.3 GHz

Figure 7: Horizontal



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-H_AZ_CP_10-5.300.AZ	16.240	5.300	86.37	30.02
2: MT_464047NVH_SN_02_PORT-H_AZ_XP_10-5.300.AZ	-13.940	5.300	15.06	3.10
3: MT_464047NVH_SN_02_PORT-H_EL_CP_10-5.300.AZ	16.160	5.300	8.13	13.84
4: MT_464047NVH_SN_02_PORT-H_EL_XP_10-5.300.AZ	-7.950	5.300	14.41	2.21

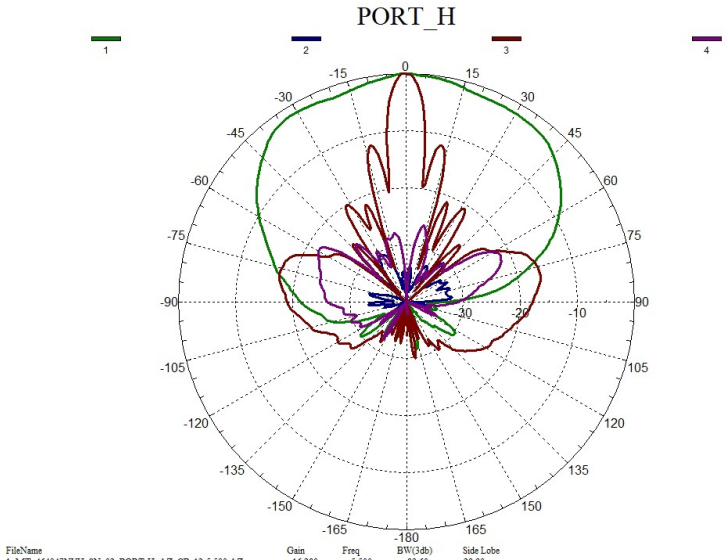
Figure 8: Vertical



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-V_AZ_CP_10-5.300.AZ	16.020	5.300	82.96	28.03
2: MT_464047NVH_SN_02_PORT-V_AZ_XP_10-5.300.AZ	-5.710	5.300	47.55	11.95
3: MT_464047NVH_SN_02_PORT-V_EL_CP_10-5.300.AZ	15.980	5.300	7.82	9.50
4: MT_464047NVH_SN_02_PORT-V_EL_XP_10-5.300.AZ	-14.900	5.300	8.69	1.48

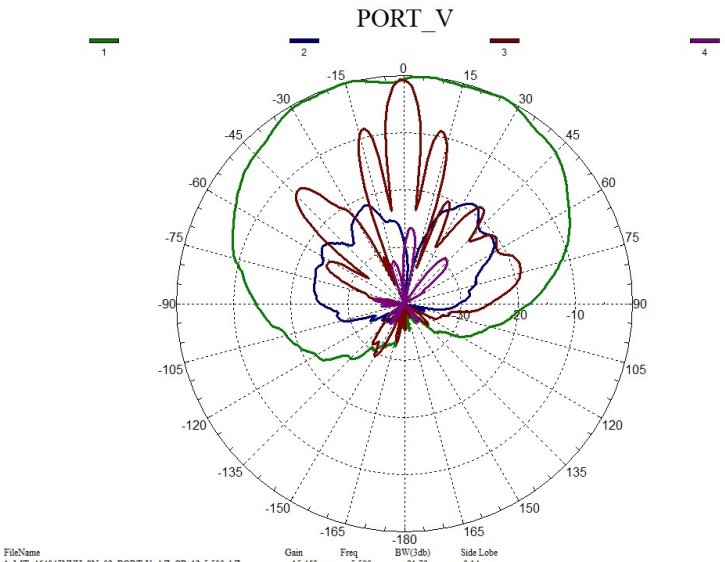
5.5 GHz

Figure 9: Horizontal



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-H_AZ_CP_12-5.500.AZ	16.280	5.500	83.60	29.90
2: MT_464047NVH_SN_02_PORT-H_AZ_XP_12-5.500.AZ	-14.250	5.500	9.91	2.21
3: MT_464047NVH_SN_02_PORT-H_EL_CP_12-5.500.AZ	16.330	5.500	7.57	11.95
4: MT_464047NVH_SN_02_PORT-H_EL_XP_12-5.500.AZ	-5.350	5.500	17.60	8.90

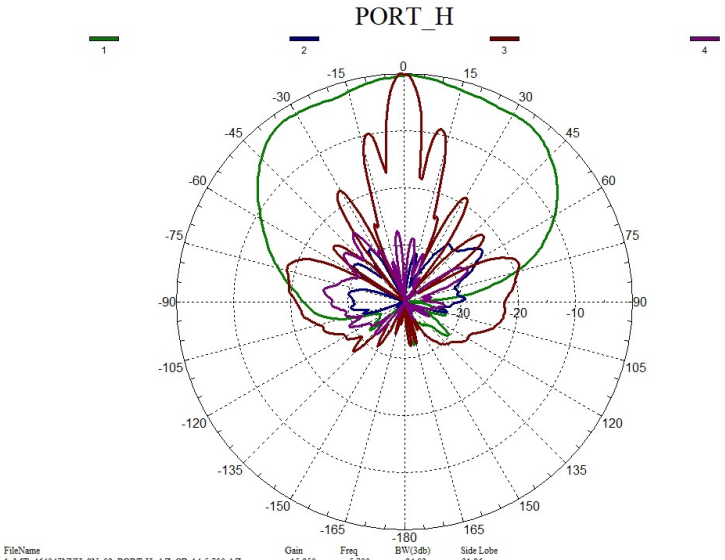
Figure 10: Vertical



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-V_AZ_CP_12-5.500.AZ	15.460	5.500	91.79	0.14
2: MT_464047NVH_SN_02_PORT-V_AZ_XP_12-5.500.AZ	-3.240	5.500	32.88	6.55
3: MT_464047NVH_SN_02_PORT-V_EL_CP_12-5.500.AZ	14.770	5.500	7.29	7.88
4: MT_464047NVH_SN_02_PORT-V_EL_XP_12-5.500.AZ	-11.240	5.500	9.58	5.60

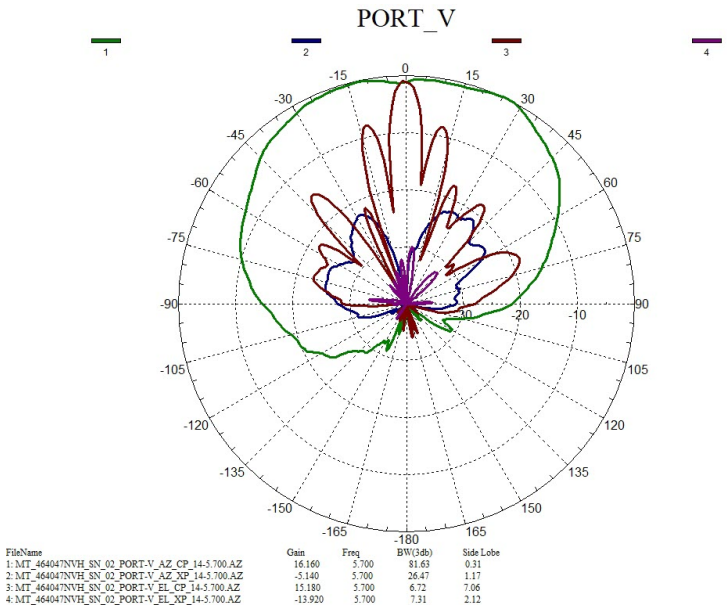
5.7 GHz

Figure 11: Horizontal



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-H_AZ_CP_14-5.700.AZ	15.950	5.700	84.02	31.86
2: MT_464047NVH_SN_02_PORT-H_AZ_XP_14-5.700.AZ	-7.500	5.700	16.91	5.60
3: MT_464047NVH_SN_02_PORT-H_EL_CP_14-5.700.AZ	16.280	5.700	6.97	9.11
4: MT_464047NVH_SN_02_PORT-H_EL_XP_14-5.700.AZ	-8.760	5.700	8.90	1.48

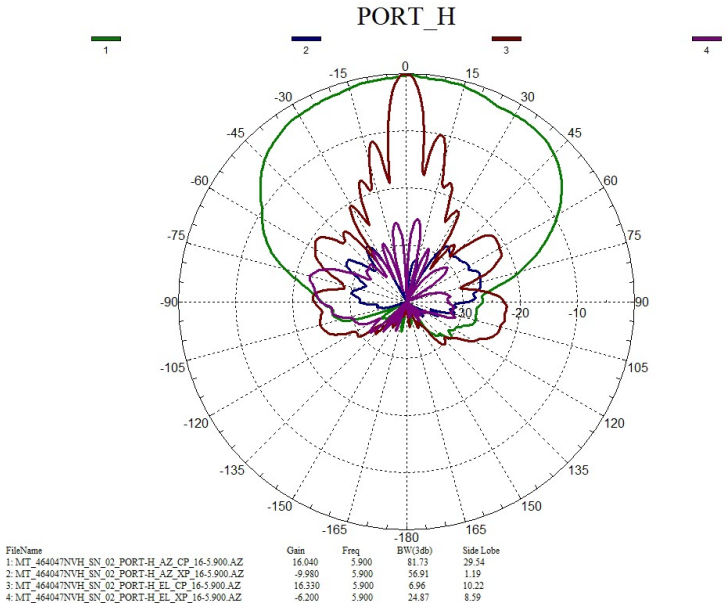
Figure 12: Vertical



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-V_AZ_CP_14-5.700.AZ	16.160	5.700	81.63	0.31
2: MT_464047NVH_SN_02_PORT-V_AZ_XP_14-5.700.AZ	-5.140	5.700	26.47	1.17
3: MT_464047NVH_SN_02_PORT-V_EL_CP_14-5.700.AZ	15.180	5.700	6.72	7.06
4: MT_464047NVH_SN_02_PORT-V_EL_XP_14-5.700.AZ	-13.920	5.700	7.31	2.12

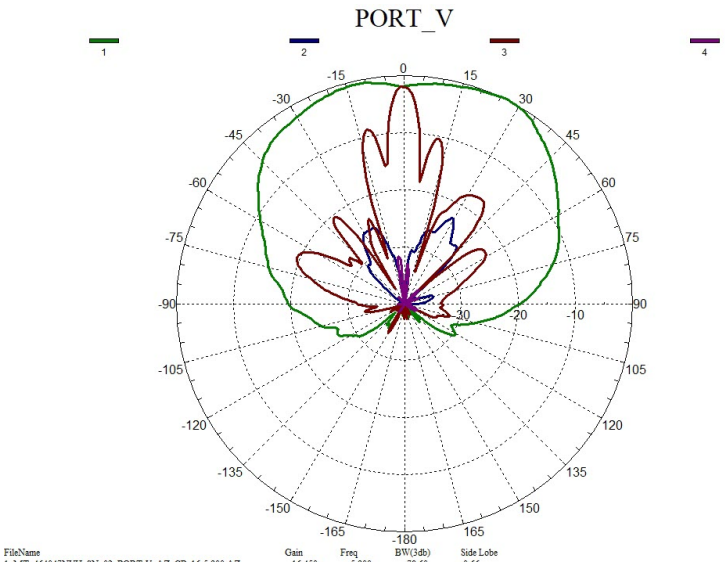
5.9 GHz

Figure 13: Horizontal



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-H_AZ_CP_16-5.900.AZ	16.040	5.900	81.73	29.54
2: MT_464047NVH_SN_02_PORT-H_AZ_XP_16-5.900.AZ	-9.980	5.900	56.91	1.19
3: MT_464047NVH_SN_02_PORT-H_EL_CP_16-5.900.AZ	16.330	5.900	6.96	10.22
4: MT_464047NVH_SN_02_PORT-H_EL_XP_16-5.900.AZ	-6.200	5.900	24.87	8.59

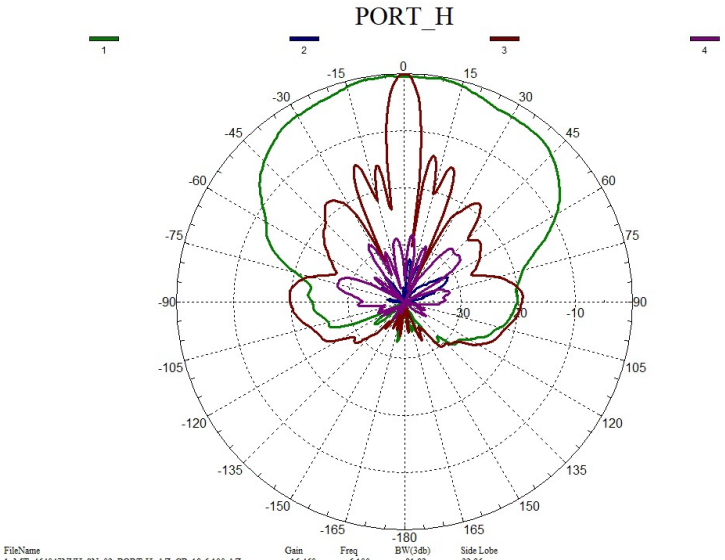
Figure 14: Vertical



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-V_AZ_CP_16-5.900.AZ	16.450	5.900	78.60	0.66
2: MT_464047NVH_SN_02_PORT-V_AZ_XP_16-5.900.AZ	-6.420	5.900	11.34	2.81
3: MT_464047NVH_SN_02_PORT-V_EL_CP_16-5.900.AZ	14.590	5.900	6.70	6.99
4: MT_464047NVH_SN_02_PORT-V_EL_XP_16-5.900.AZ	-15.200	5.900	6.26	1.45

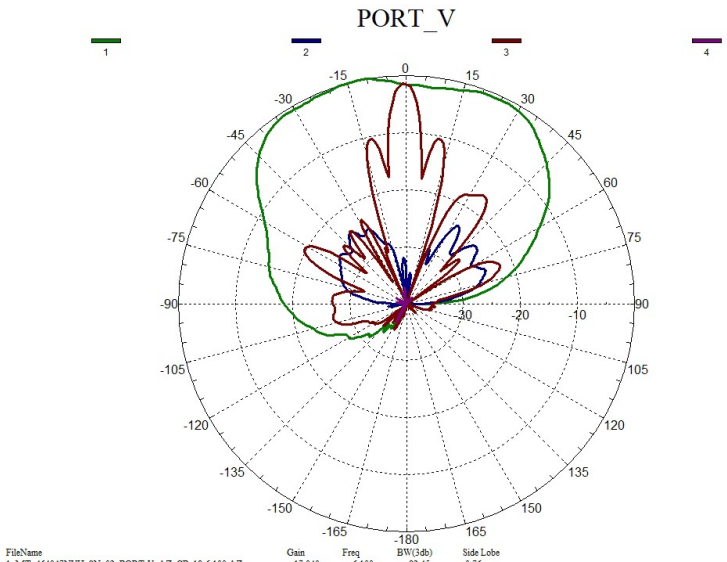
6.1 GHz

Figure 15: Horizontal



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-H_AZ_CP_18-6.100.AZ	16.460	6.100	81.82	32.96
2: MT_464047NVH_SN_02_PORT-H_AZ_XP_18-6.100.AZ	-14.400	6.100	16.39	2.05
3: MT_464047NVH_SN_02_PORT-H_EL_CP_18-6.100.AZ	16.900	6.100	6.83	13.91
4: MT_464047NVH_SN_02_PORT-H_EL_XP_18-6.100.AZ	-10.550	6.100	20.17	2.14

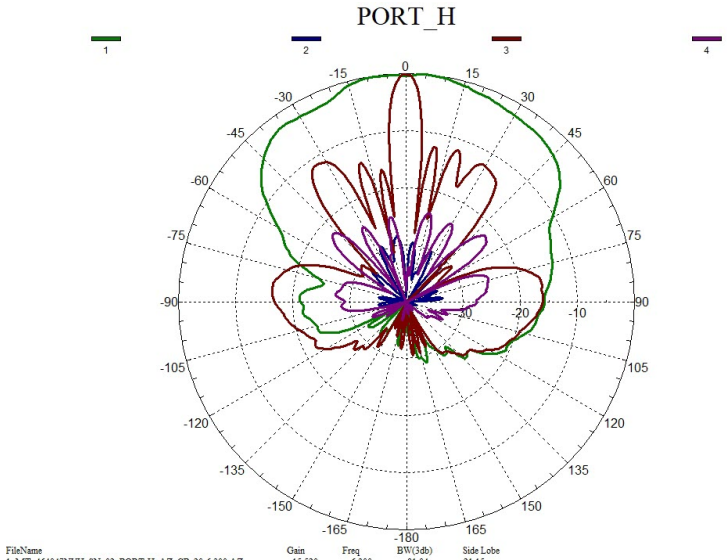
Figure 16: Vertical



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-V_AZ_CP_18-6.100.AZ	17.040	6.100	82.45	0.76
2: MT_464047NVH_SN_02_PORT-V_AZ_XP_18-6.100.AZ	-6.550	6.100	8.80	0.69
3: MT_464047NVH_SN_02_PORT-V_EL_CP_18-6.100.AZ	15.610	6.100	6.60	9.08
4: MT_464047NVH_SN_02_PORT-V_EL_XP_18-6.100.AZ	-19.340	6.100	7.71	4.54

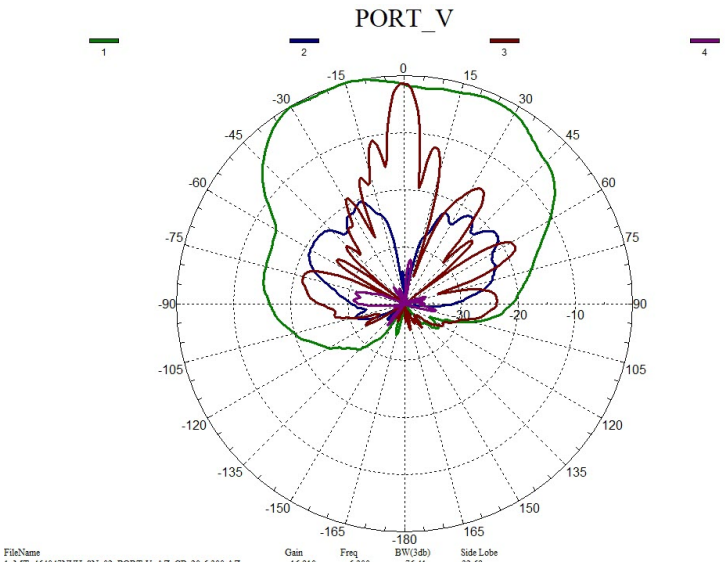
6.3 GHz

Figure 17: Horizontal



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-H_AZ_CP_20-6.300.AZ	15.520	6.300	81.04	21.15
2: MT_464047NVH_SN_02_PORT-H_AZ_XP_20-6.300.AZ	-12.670	6.300	10.52	0.98
3: MT_464047NVH_SN_02_PORT-H_EL_CP_20-6.300.AZ	15.630	6.300	6.65	12.54
4: MT_464047NVH_SN_02_PORT-H_EL_XP_20-6.300.AZ	-6.450	6.300	11.38	2.16

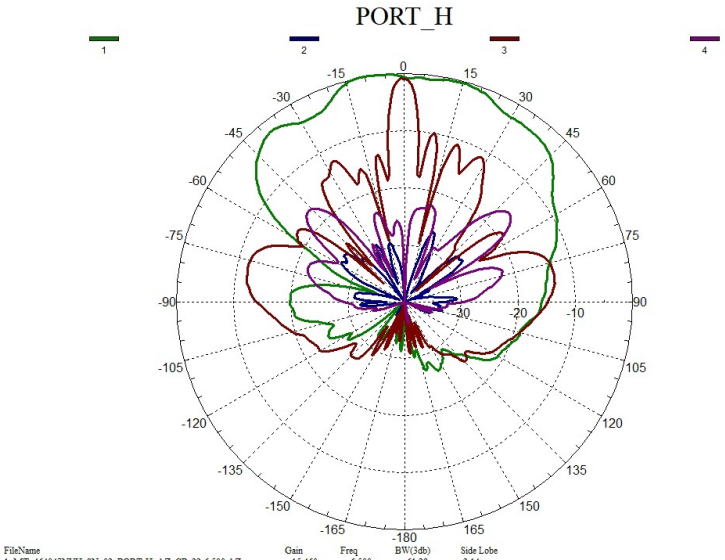
Figure 18: Vertical



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-V_AZ_CP_20-6.300.AZ	16.910	6.300	76.41	32.69
2: MT_464047NVH_SN_02_PORT-V_AZ_XP_20-6.300.AZ	-2.860	6.300	17.79	1.07
3: MT_464047NVH_SN_02_PORT-V_EL_CP_20-6.300.AZ	15.590	6.300	6.71	9.64
4: MT_464047NVH_SN_02_PORT-V_EL_XP_20-6.300.AZ	-14.150	6.300	20.81	6.94

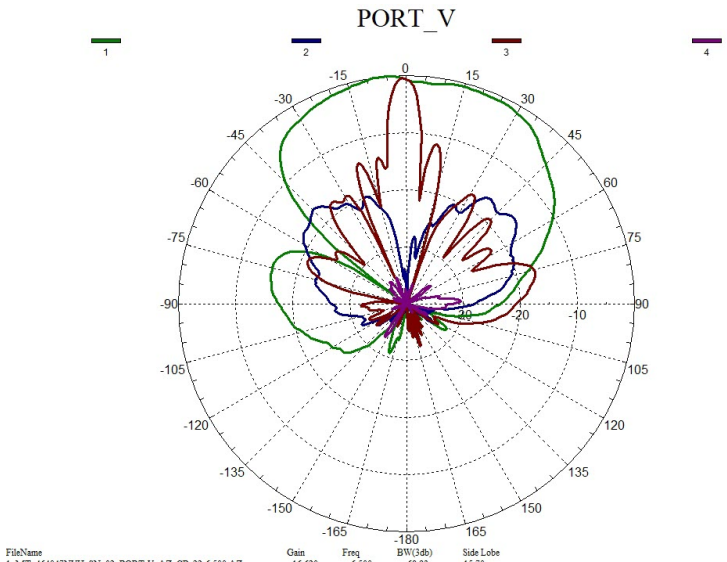
6.5 GHz

Figure 19: Horizontal



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-H_AZ_CP_22-6.500.AZ	15.460	6.500	61.29	2.14
2: MT_464047NVH_SN_02_PORT-H_AZ_XP_22-6.500.AZ	-11.230	6.500	15.82	2.19
3: MT_464047NVH_SN_02_PORT-H_EL_CP_22-6.500.AZ	14.670	6.500	6.54	9.20
4: MT_464047NVH_SN_02_PORT-H_EL_XP_22-6.500.AZ	-0.540	6.500	12.36	6.08

Figure 20: Vertical



FileName	Gain	Freq	BW(3db)	Side Lobe
1: MT_464047NVH_SN_02_PORT-V_AZ_CP_22-6.500.AZ	16.620	6.500	68.93	15.70
2: MT_464047NVH_SN_02_PORT-V_AZ_XP_22-6.500.AZ	0.680	6.500	27.37	0.52
3: MT_464047NVH_SN_02_PORT-V_EL_CP_22-6.500.AZ	16.150	6.500	7.01	11.09
4: MT_464047NVH_SN_02_PORT-V_EL_XP_22-6.500.AZ	-13.800	6.500	14.23	2.61