



HIRSCHMANN MOBILITY

Cellular/ GNSS/ WLAN/BT
Screw Antenna

CGNW 702659 SF S/Series

Part Number 955-181-XXX

Features

- Combination antenna for positioning, data-services and short range radio services
- Terrestrial based transmission and satellite-based positioning
- Embedded high performance LNA with ceramic patch antenna
- Screw mounting on metallic ground
- Street vehicle roof mount installation

Technical Data

Dimensions	95 mm x 57 mm x 72 mm
Housing materials	PA 6
Weight	ca. 178 g
Tightening torque	max. 7 Nm
Temperature range	-40 °C - +85 °C
Protection class	IP 6k9K (acc. ISO 20653)
Cable type	Dacar 462 (based on RG 174)

Technical Data

Cellular	
Frequency range	Low: 698 - 960 MHz High: 1710 - 2690 MHz
Services	2G: GSM 850/900 MHz GSM 1800/1900 MHz 3G: UMTS 4G: LTE-bands (1 - 10; 12 - 20; 23, 25; 26 - 30; 33 - 41; 44)
Load capacity	max. 8 W pulsed acc. GSM standard
VSWR	< 3:1
Gain	2.5 dBi ¹⁾
Diagnostic resistor	10 kOhms
GNSS	
Frequency range	GPS: 1563 - 1587 MHz (L1) QZSS: 1563 - 1587 MHz (L1) Galileo: 1559 - 1591 MHz (E1) BeiDou: 1559 - 1591 MHz (B1) GNSS: 1598 - 1606 MHz (G1)
Impedance	50 Ohm
Return loss	> 12 dB
Gain	typ. 2 dBic ²⁾
Amplification	typ. 27 ±3 dB
Noise figure	< 1.9 ±0.3 dB
Voltage supply	2.9 - 5.5 VDC
Current consumption	≤ 12 mA ± 3 mA at 3.3 V
WLAN / BT	
Frequency range	IEEE 802.11 b, g: 2400 - 2484 MHz IEEE 802.11 a, h: 5150 - 5725 MHz IEEE 802.11 n: 2400 - 2484 MHz 5150 - 5725 MHz IEEE 802.11 p: 5755 - 5925 MHz Bluetooth: 2400 - 2483,5 MHz
Impedance	50 Ohm
Load capacity	IEEE 802.11 b, g: max. 200 mW (1 W only USA) IEEE 802.11 p: 8 W EIRP (5.79 - 5.81 GHz) 2 W EIRP (5.85 - 5.92 GHz) Bluetooth: < 100 mW
VSWR	< 2.5:1

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WLAN / BT	
Gain	2.5 dBi ¹⁾ @ 2.4 GHz; +3 dBi ¹⁾ @ 5.8 GHz
Diagnostic resistor	10 kOhms
Peak gain of each band (dBi)*	
	LTE-LB: 698 - 862 MHz +5.1
	GSM 850: 824 - 894 MHz +5.1
	GSM 900: 880 - 960 MHz +4.2
	GSM 1800: 1710 - 1880 MHz +4.0
	GSM 1900: 1850 - 1990 MHz +4.0
	UMTS: 1920 - 2170 MHz +3.9
	LTE-HB: 2305 - 2690 MHz +4.3
	WLAN 2.4GHz: +4.2
	WLAN 5GHz: +8.8
Note: Gain values are not including any cable losses!	

¹⁾ dBi: referenced to an isotropic radiator

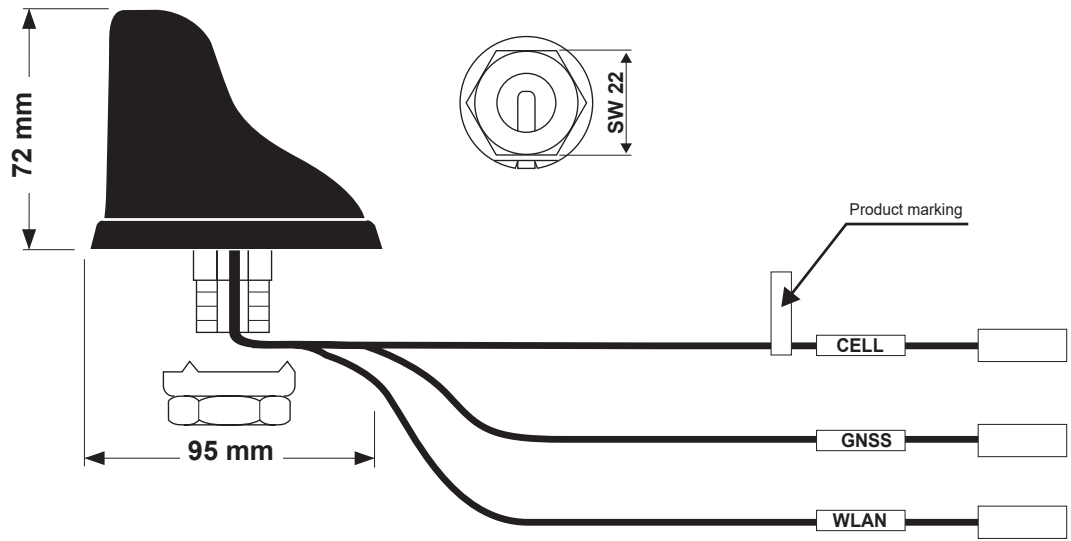
²⁾ dBic: referenced to an isotropic radiator, circular polarization

Cable Attenuation																			
Frequency [GHz]	0,1	0,2	0,5	0,8	1,0	1,2	1,5	1,8	2,0	2,2	2,5	2,8	3,0	3,5	4,0	4,5	5,0	5,5	6,0
db/m	0,3	0,4	0,6	0,8	0,9	1,0	1,1	1,2	1,3	1,4	1,5	1,6	1,6	1,8	1,9	2,0	2,1	2,3	2,4

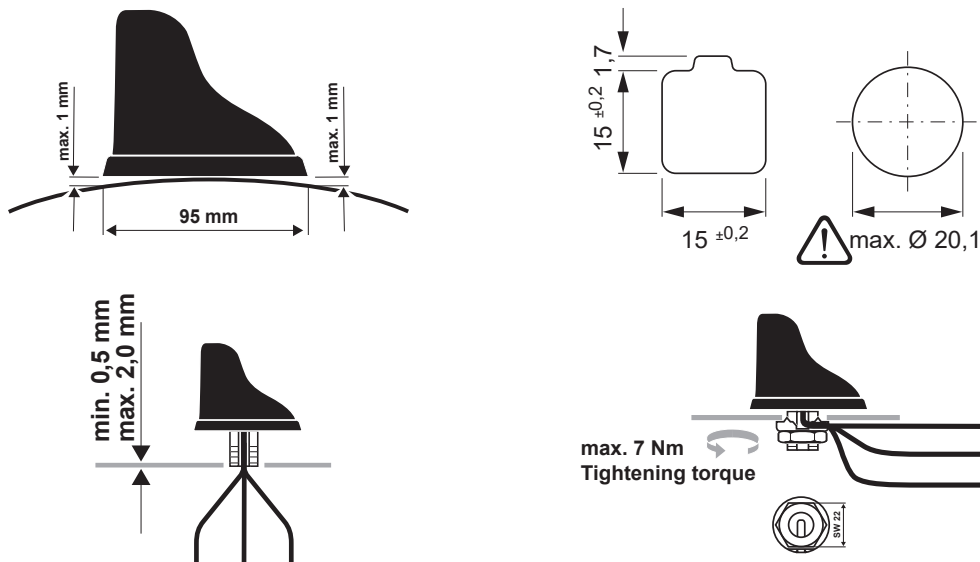
Versions

PN	Description	CELL	GNSS	WLAN
955-181-001	CGNW 702659 SF S/SMA/0.15	150 mm SMAm	150 mm SMAm	150 mm SMAm
955-181-002	CGNW 702659 SF S/FAKRA/D/C/E/0.3	325 mm FAKRAf, D	305 mm FAKRAf, C	315 mm FAKRAf, E
955-181-003	CGNW 702659 SF S/FME/3.0	3000 mm FMEf	3000 mm FMEf	3000 mm FMEf
955-181-004	CGNW 702659 SF S/SMA/5.0	5000 mm SMAm	5000 mm SMAm	5000 mm SMAm
955-181-005	CGNW 702659 SF S/FAKRA/D/C/E/5.0	5000 mm FAKRAf, D	5000 mm FAKRAf, C	5000 mm FAKRAf, E
955-181-006	CGNW 702659 SF S/FME/SMA/FME/5.0	5000 mm FMEf	5000 mm SMAm	5000 mm FMEf
955-181-007	CGNW 702659 SF S/FME/SMB/SMA/0.25	250 mm FMEf	250 mm SMBf	250 mm SMAm
955-181-008	CGNW 702659 SF S/FAKRA/D/C/K/2.0	2000 mm FAKRAf, D	2000 mm FAKRAf, C	2000 mm FAKRAf, K
955-181-009	CGNW 702659 SF S/SMA/3.0	3000 mm SMAm	3000 mm SMAm	3000 mm SMAm
955-181-010	CGNW 702659 SF S/FAKRA/D/C/K/5.0	5000 mm FAKRAf, D	5000 mm FAKRAf, C	5000 mm FAKRAf, K
955-181-011	CGNW 702659 SF S/FAKRA/D/C/B/0.3	325 mm FAKRAf, D	325 mm FAKRAf, C	325 mm FAKRAf, B
955-181-012	CGNW 702659 SF S/FAKRA/D/C/I/0.3	300 mm FAKRAf, D	300 mm FAKRAf, C	300 mm FAKRAf, I

Technical Drawing



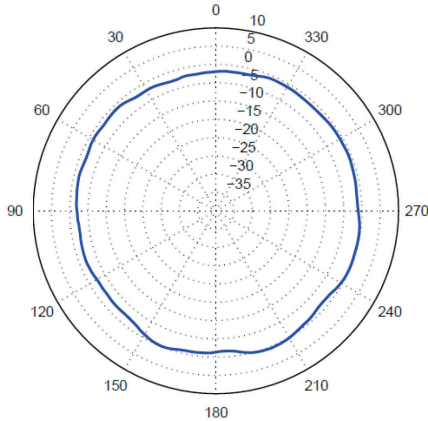
Installation



Antenna diagrams

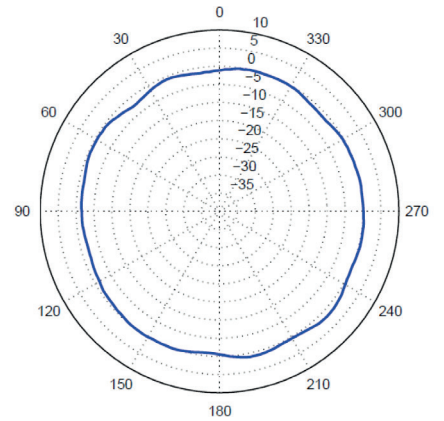
Cellular antenna measurement
LTE-LB

FREQ = 698.00 MHz, EL = 80.0 degrees, POL = VLP



Lin. Avg. Gain = -1.21 dBi; Std = 0.75 dB
Min. Gain = -2.58 dBi; Max. Gain = 0.47 dBi

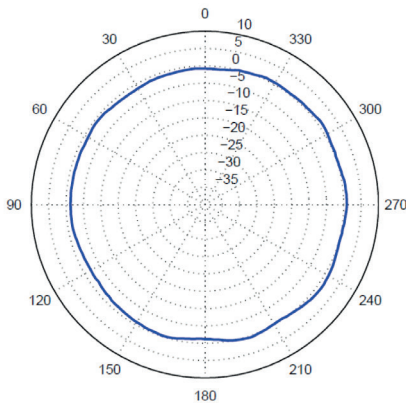
FREQ = 880.00 MHz, EL = 80.0 degrees, POL = VLP



Lin. Avg. Gain = -0.38 dBi; Std = 0.90 dB
Min. Gain = -2.42 dBi; Max. Gain = 1.68 dBi

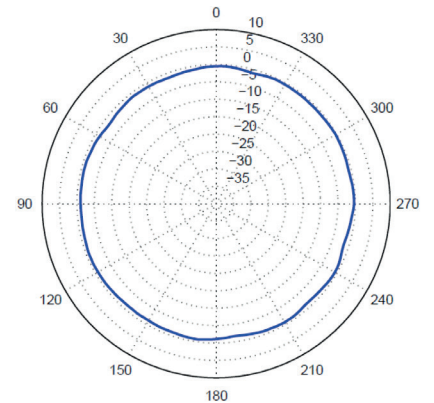
GSM 900

FREQ = 869.00 MHz, EL = 80.0 degrees, POL = VLP



Lin. Avg. Gain = -0.34 dBi; Std = 0.92 dB
Min. Gain = -2.15 dBi; Max. Gain = 1.28 dBi

FREQ = 960.00 MHz, EL = 80.0 degrees, POL = VLP

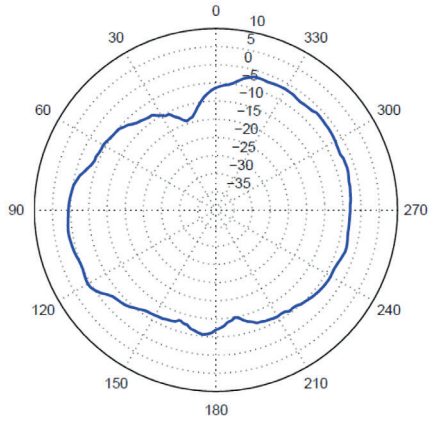


Lin. Avg. Gain = -0.94 dBi; Std = 0.32 dB
Min. Gain = -1.78 dBi; Max. Gain = -0.34 dBi

Antenna diagrams

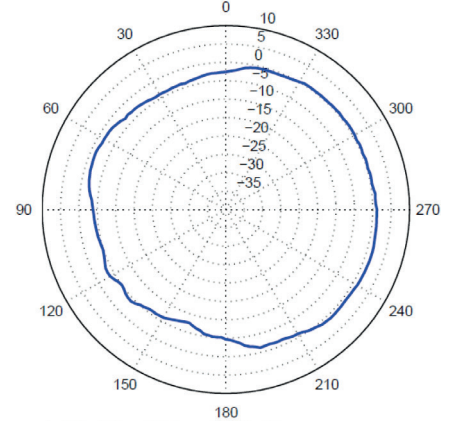
Cellular antenna measurement
GSM 1800

FREQ = 1710.00 MHz, EL = 80.0 degrees, POL = VLP



Lin. Avg. Gain = -3.25 dBi; Std = 3.38 dB
Min. Gain = -14.27 dBi; Max. Gain = 1.08 dBi

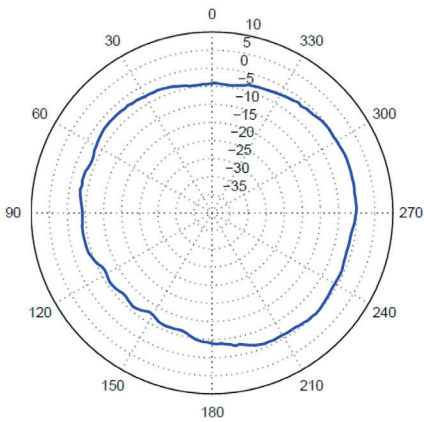
FREQ = 1880.00 MHz, EL = 80.0 degrees, POL = VLP



Lin. Avg. Gain = -1.38 dBi; Std = 2.46 dB
Min. Gain = -7.66 dBi; Max. Gain = 1.53 dBi

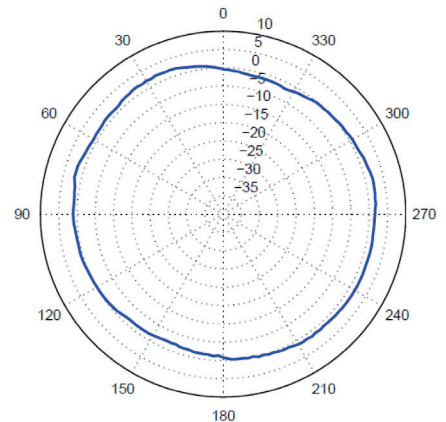
UMTS

FREQ = 1960.00 MHz, EL = 80.0 degrees, POL = VLP



Lin. Avg. Gain = -2.43 dBi; Std = 2.09 dB
Min. Gain = -7.62 dBi; Max. Gain = 0.12 dBi

FREQ = 2170.00 MHz, EL = 80.0 degrees, POL = VLP

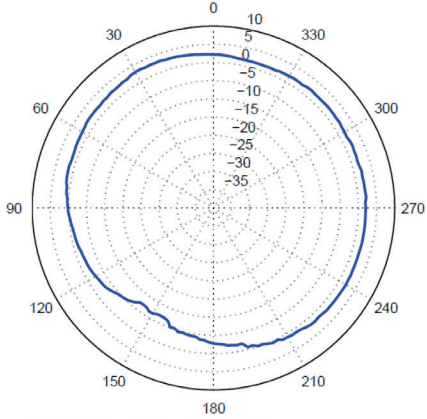


Avg. Gain = 0.57 dBi; Std = 1.21 dB
Min. Gain = -2.14 dBi; Max. Gain = 2.13 dBi

Antenna diagrams

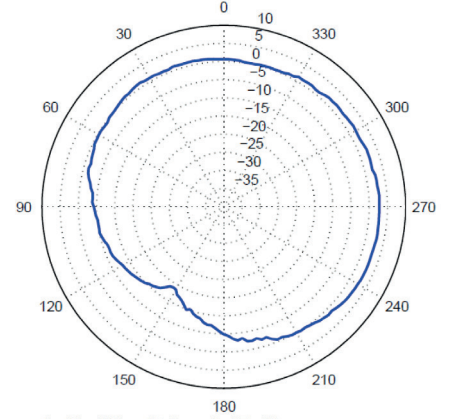
Cellular antenna measurement
LTE-HB

FREQ = 2500.00 MHz, EL = 80.0 degrees, POL = VLP



Lin. Avg. Gain = 0.94 dBi; Std = 2.76 dB
Min. Gain = -7.17 dBi; Max. Gain = 3.14 dBi

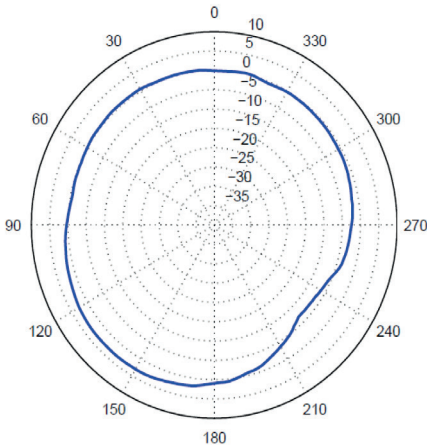
FREQ = 2690.00 MHz, EL = 80.0 degrees, POL = VLP



Lin. Avg. Gain = -0.12 dBi; Std = 4.45 dB
Min. Gain = -13.82 dBi; Max. Gain = 2.92 dBi

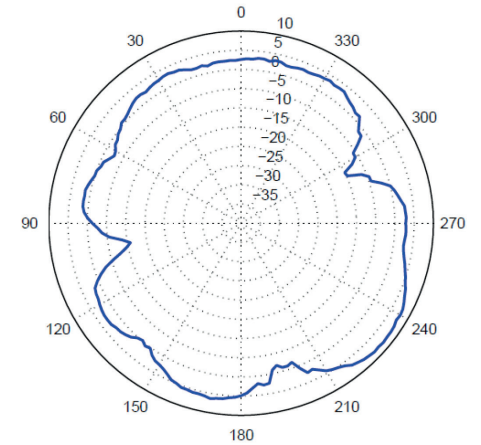
WLAN antenna measurement
WLAN 2.4 / 5 GHz

FREQ = 2440.00 MHz, EL = 80.0 degrees, POL = VLP



Lin. Avg. Gain = 0.11 dBi; Std = 2.51 dB
Min. Gain = -6.94 dBi; Max. Gain = 3.10 dBi

FREQ = 5800.00 MHz, EL = 80.0 degrees, POL = VLP

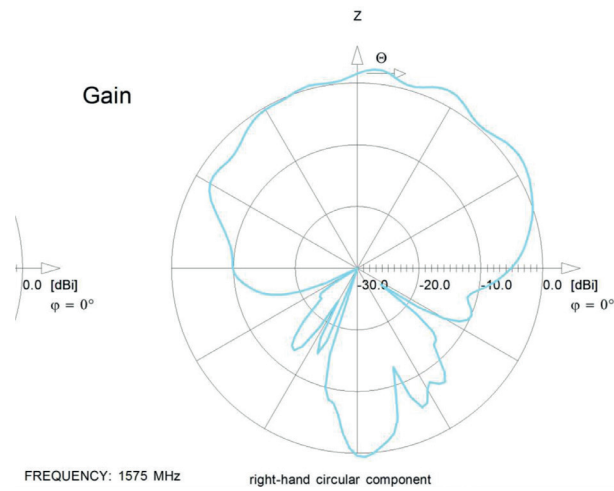


Lin. Avg. Gain = 3.04 dBi; Std = 3.69 dB
Min. Gain = -10.80 dBi; Max. Gain = 8.28 dBi

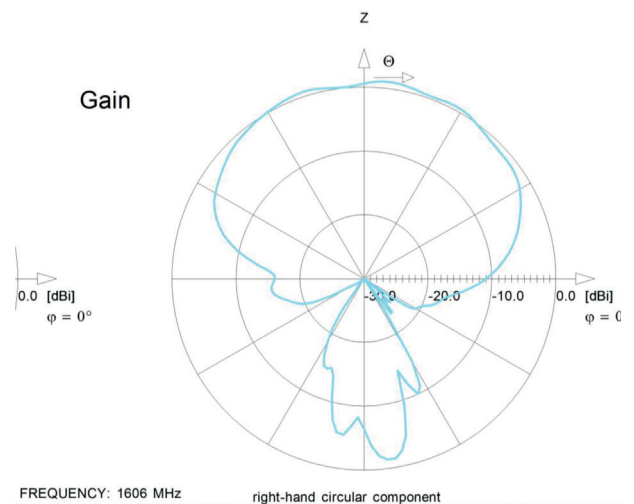
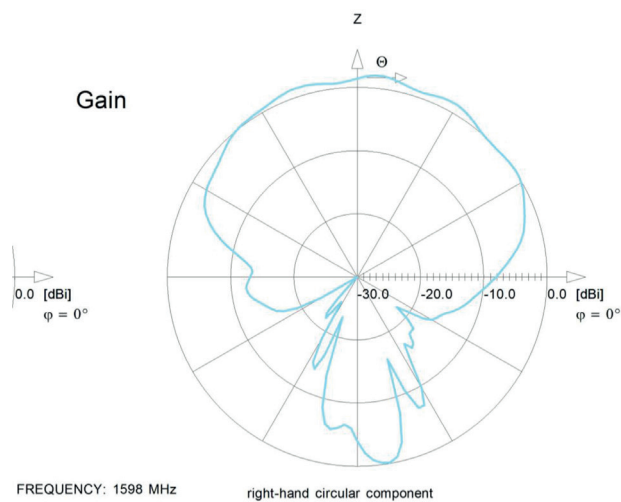
Antenna diagrams

GNSS antenna measurement

GPS



GNSS 1598 - 1606 MHz



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