

# CAR GSM Antenna

## MODEL: MA-90



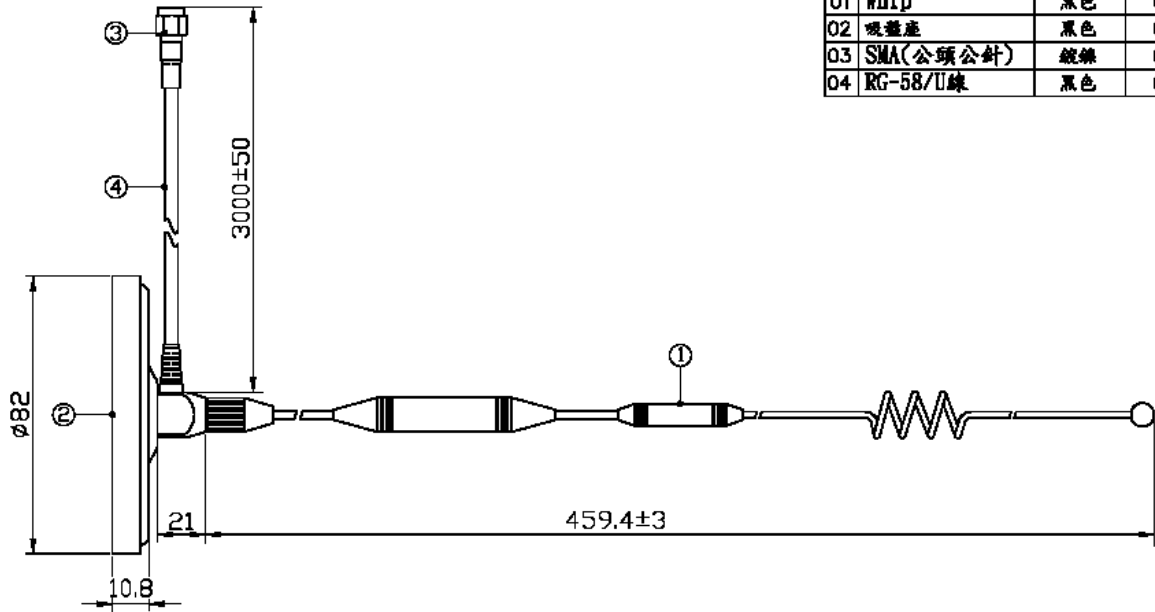
### 1. Electrical Properties

| Parameter            | Description               |
|----------------------|---------------------------|
| Frequency Band       | 800/900/1800/1900/2170Mhz |
| Nominal Impedance    | 50 ohm                    |
| Polarization         | Vertical                  |
| Electrical Wave      | 1 /2 $\lambda$ Dipole     |
| Return Loss          | Please See Data-1         |
| V.S.W.R              | 2.0:1                     |
| Antenna Average Gain | 9dBi                      |
|                      |                           |

### 2. Mechanical Properties

| Parameter                   | Description      |
|-----------------------------|------------------|
| Antenna Type                | External Antenna |
| Touch Type                  | Screw Type       |
| Connector Type              | SMA 180°-Type    |
| Antenna Dimensions          | 465 mm $\pm$ 3   |
| Antenna Cable Total Length  | 3000 mm $\pm$ 20 |
| Antenna Color               | Black            |
| Operating Temperature Range | -20°C~+60°C      |
| Storage Temperature Range   | -30°C~+70°C      |
|                             |                  |

| NO. | 圖名        | 外觀 | 用量 |
|-----|-----------|----|----|
| 01  | Whip      | 黑色 | 01 |
| 02  | 吸盤座       | 黑色 | 01 |
| 03  | SMA(公頭公針) | 鍍銀 | 01 |
| 04  | RG-58/U線  | 黑色 | 01 |



Third angle projection

| CUSTOMER'S        | MODEL            | PARTS NUMBER         | FREQUENCY    | UNIT     | SCALE   | DATE     | VERSION  |
|-------------------|------------------|----------------------|--------------|----------|---------|----------|----------|
|                   |                  | 824-960/1710-2170MHz |              | M/M      |         | 20080807 | 1        |
| TOLERANCE         | I, XX±0.15       | NAME                 | PARTS NUMBER | APPROVED | CHECKED | DRAWING  | DESIGNED |
| SURFACE ROUGHNESS | $\sqrt{\sqrt{}}$ | APPEARANCE           |              |          |         |          |          |

S11 FORWARD REFLECTION

TRANSMISSION/REFLECTION

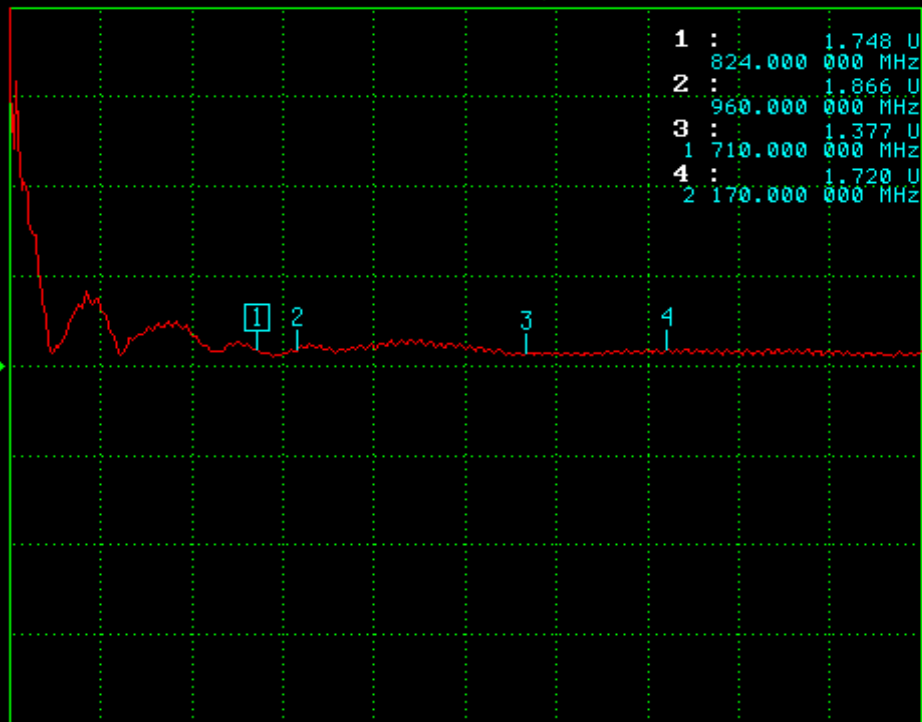
CHN1

CH 1 - S11  
REFERENCE PLANE  
0.0000 mm

SWR

REF=0.000 pU

10.000 U/DIV



1 : 1.748 U  
824.000 000 MHz  
2 : 1.866 U  
960.000 000 MHz  
3 : 1.377 U  
1 710.000 000 MHz  
4 : 1.720 U  
2 170.000 000 MHz

1: 824.000000 MHz  
1.748 U  
2: 960.000000 MHz  
1.866 U  
3: 1.710000000 GHz  
1.377 U  
4: 2.170000000 GHz  
1.720 U

MARKER TO PEAK

MORE

10.000 000 MHz

3 000.000 000 MHz

S11 FORWARD REFLECTION  
CHN1

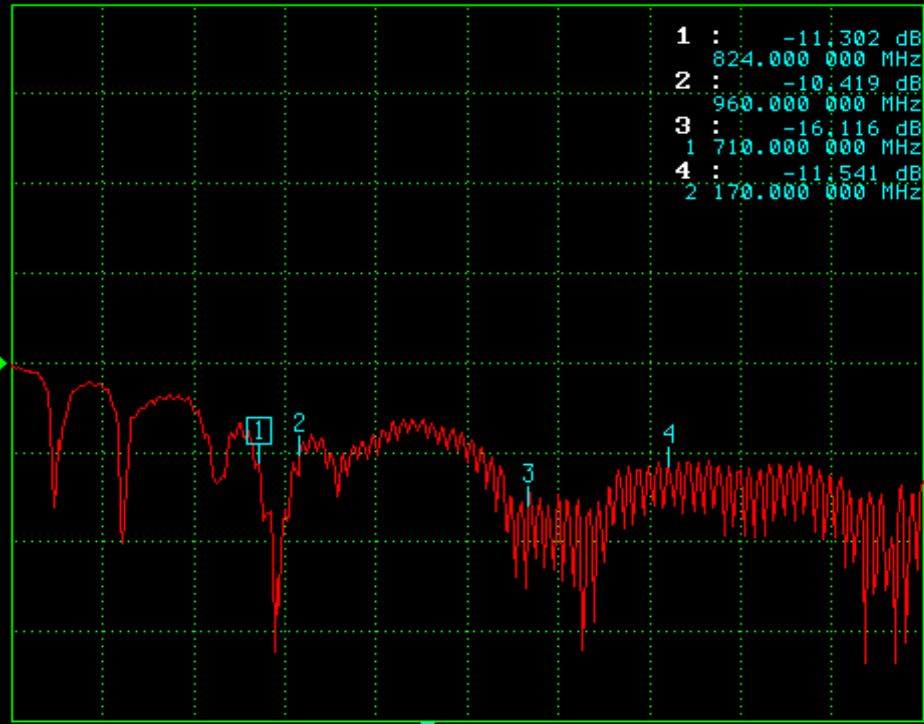
TRANSMISSION/REFLECTION

CH 1 - S11  
REFERENCE PLANE  
0.0000 mm

LOG MAGNITUDE

REF=0.000 dB

10.000 dB/DIV



1 : -11.302 dB  
824.000 000 MHz  
2 : -10.419 dB  
960.000 000 MHz  
3 : -16.116 dB  
1 710.000 000 MHz  
4 : -11.541 dB  
2 170.000 000 MHz

1: 824.000000 MHz  
-11.302 dB  
2: 960.000000 MHz  
-10.419 dB  
3: 1.710000000 GHz  
-16.116 dB  
4: 2.170000000 GHz  
-11.541 dB

MARKER TO PEAK

MORE

10.000 000 MHz

3 000.000 000 MHz