

Product Specifications

Product name : Antenna

Model : KH-5G-SMAJ-131MM

Specifications : 5G, SMA-J, Rubber

Version : A01

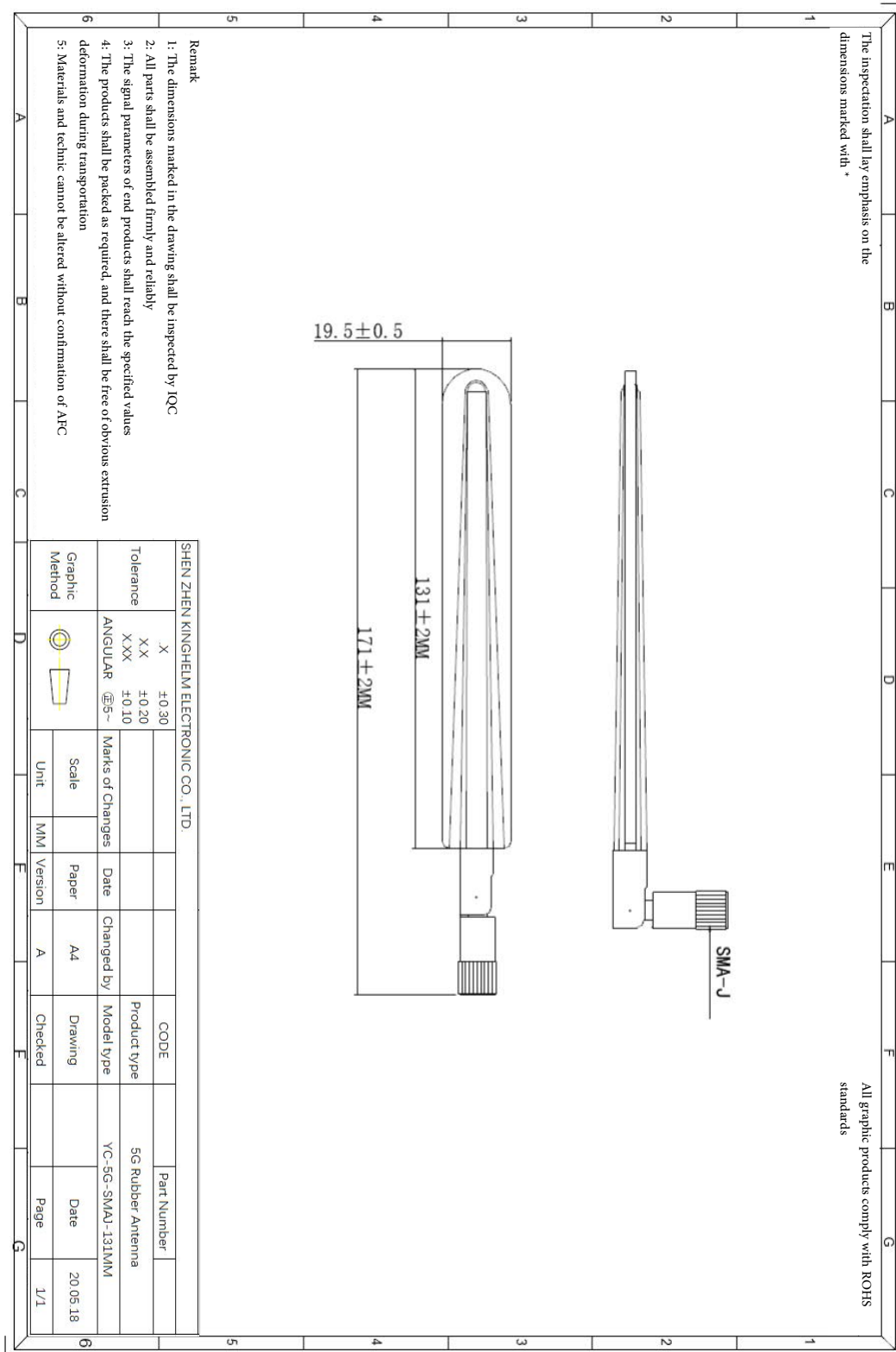
Date : 2020/07/17

| Drawing | Check | Approved |
|-----------|-------------|----------|
| CHEN XING | XING JINBAO | HE JUNJU |

Customer Approval:

Customer Confirm/Date

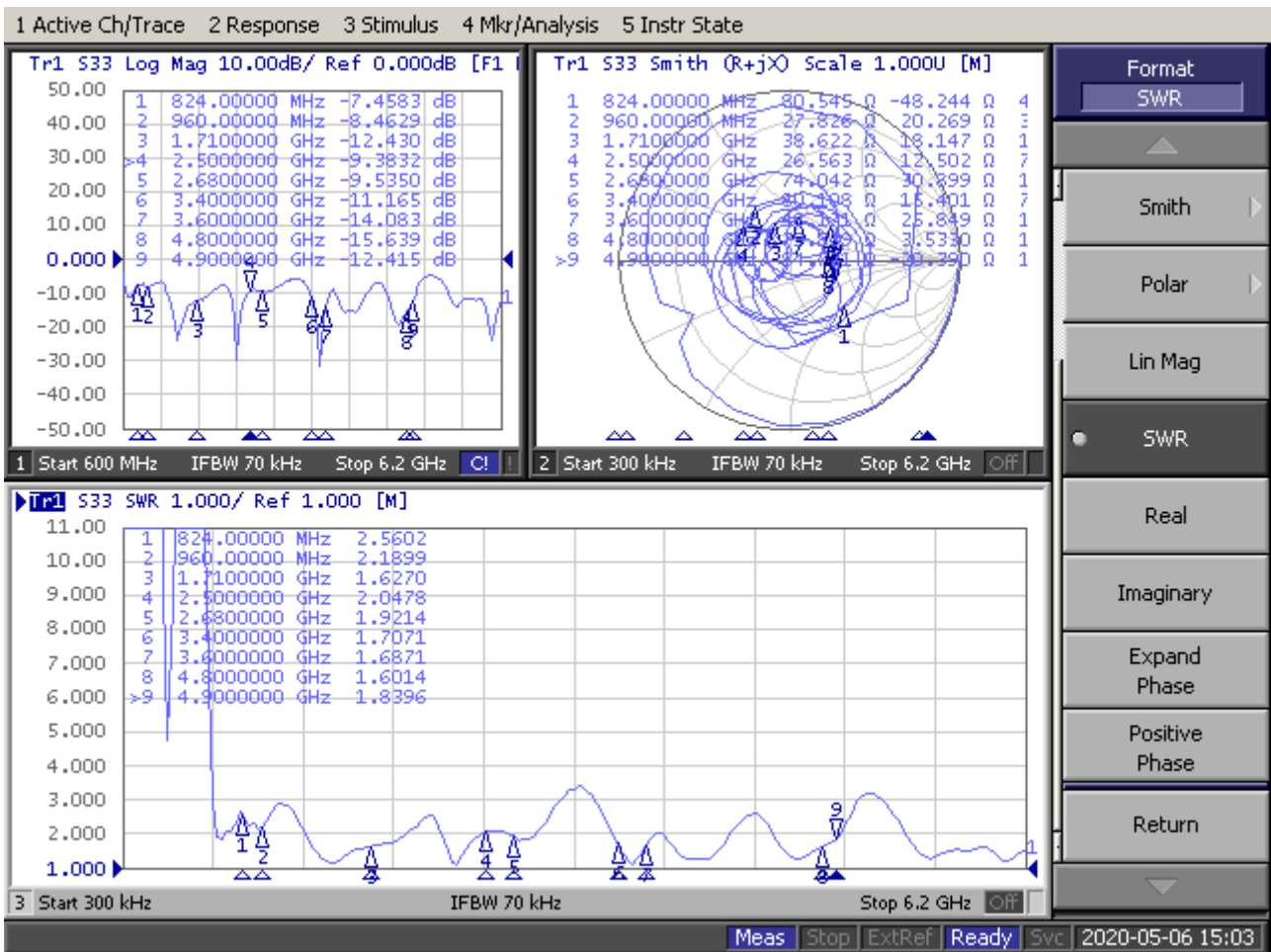
1. Product Drawing



2. Product Specifications

| RF Parameters | |
|-------------------------|---|
| Frequency range (MHZ) | 824-960/1710-2680/ 3400-3600/4800-4900 |
| V. S. W. R | ≤3.0 |
| Gain (dBi) | 3.0 |
| Radiation Direction | Omnidirectional |
| Polarization | Vertical polarization |
| Impedence (Ω) | 50 |
| Max power (W) | 10 |
| Mechanical Properties | |
| Connector Type | SMA-J |
| Antenna length (MM) | 171*19.5 |
| Environmental parameter | |
| Working temperature | -30°C~60°C |
| Working humidity | 40~85% |

3. S11 Test Data



4. Gain and efficiency test data

| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | UHS (%) | DHS (%) | Max (dB) | Min (dB) | Attenut Hor | Attenut Ver |
|------------|----------|-----------|------------|------------|---------|---------|----------|----------|-------------|-------------|
| 820 | 56.46 | -2.48 | 1.94 | -0.21 | 19.561 | 36.894 | 1.94 | -16.87 | 39.52 | 38.88 |
| 830 | 54.94 | -2.6 | 1.97 | -0.18 | 19.415 | 35.528 | 1.97 | -17.39 | 39.36 | 38.7 |
| 840 | 61.44 | -2.12 | 2.17 | 0.02 | 23.326 | 38.117 | 2.17 | -15.82 | 39.59 | 38.87 |
| 850 | 68.72 | -1.63 | 2.44 | 0.29 | 27.521 | 41.201 | 2.44 | -13.73 | 39.94 | 39.35 |
| 860 | 71.64 | -1.45 | 2.5 | 0.35 | 29.902 | 41.742 | 2.5 | -13.76 | 40.32 | 39.8 |
| 870 | 68.37 | -1.65 | 2.27 | 0.12 | 28.72 | 39.648 | 2.27 | -14.55 | 40.35 | 39.9 |
| 880 | 64.16 | -1.93 | 2.11 | -0.04 | 27.081 | 37.083 | 2.11 | -17.05 | 40.45 | 40.02 |
| 890 | 58.73 | -2.31 | 1.62 | -0.53 | 25.613 | 33.118 | 1.62 | -22.66 | 40.26 | 39.77 |
| 900 | 56.73 | -2.46 | 1.81 | -0.34 | 25.666 | 31.064 | 1.81 | -29.36 | 40.16 | 39.82 |
| 910 | 57.12 | -2.43 | 2.08 | -0.07 | 26.986 | 30.136 | 2.08 | -25.61 | 40 | 39.86 |
| 920 | 63.17 | -1.99 | 2.46 | 0.31 | 29.669 | 33.501 | 2.46 | -19.38 | 40.43 | 40.39 |
| 930 | 75.78 | -1.2 | 2.84 | 0.69 | 34.636 | 41.144 | 2.84 | -15.84 | 40.83 | 40.76 |
| 940 | 86.79 | -0.62 | 3.06 | 0.91 | 36.805 | 49.987 | 3.06 | -16.6 | 41.21 | 41.09 |
| 950 | 81.49 | -0.89 | 3.01 | 0.86 | 33.4 | 48.095 | 3.01 | -15.12 | 41.21 | 41.1 |
| 960 | 78.01 | -1.08 | 3.47 | 1.32 | 30.01 | 48 | 3.47 | -12.46 | 41.28 | 41.28 |

| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | UHS (%) | DHS (%) | Max (dB) | Min (dB) | Attenut Hor | Attenut Ver |
|------------|----------|-----------|------------|------------|---------|---------|----------|----------|-------------|-------------|
| 1700 | 60 | -2.22 | 1.17 | -0.98 | 28.061 | 31.936 | 1.17 | -10.65 | 45.1 | 45.64 |
| 1750 | 58.35 | -2.34 | 1.29 | -0.86 | 26.155 | 32.193 | 1.29 | -9.58 | 45.22 | 45.71 |
| 1800 | 70.78 | -1.5 | 2.32 | 0.17 | 29.945 | 40.832 | 2.32 | -10.41 | 46.09 | 46.01 |
| 1850 | 52.05 | -2.84 | 0.94 | -1.21 | 19.776 | 32.269 | 0.94 | -14.78 | 46.43 | 46.07 |
| 1900 | 49.74 | -3.03 | 1.06 | -1.09 | 15.728 | 34.008 | 1.06 | -19.11 | 46.8 | 46.6 |
| 1950 | 48.05 | -3.18 | 1.12 | -1.03 | 13.586 | 34.462 | 1.12 | -19.29 | 45.62 | 46.86 |
| 2000 | 49.03 | -3.1 | 1.68 | -0.47 | 10.984 | 38.048 | 1.68 | -17.74 | 46.25 | 46.67 |
| 2050 | 59.75 | -2.24 | 2.07 | -0.08 | 11.864 | 47.89 | 2.07 | -16.08 | 47.6 | 47.77 |
| 2100 | 93 | -0.32 | 4 | 1.85 | 16.506 | 76.497 | 4 | -15.18 | 48.8 | 49.22 |
| 2150 | 75.3 | -1.23 | 4.05 | 1.9 | 15.913 | 59.387 | 4.05 | -14.41 | 48.31 | 48.26 |
| 2200 | 82.14 | -0.85 | 4.86 | 2.71 | 21.31 | 60.834 | 4.86 | -17.79 | 49.05 | 48.57 |
| 2250 | 87.01 | -0.53 | 4.34 | 3.19 | 30.26 | 66.754 | 5.34 | -9.87 | 50.06 | 49.57 |
| 2300 | 85.02 | -0.64 | 4.1 | 2.85 | 34.02 | 67 | 5 | -10.99 | 50.85 | 50.77 |
| 2350 | 88.34 | -0.54 | 3.58 | 1.43 | 33.422 | 54.921 | 3.58 | -15.87 | 50.53 | 50.83 |
| 2400 | 64.68 | -1.89 | 1.77 | -0.38 | 25.656 | 39.029 | 1.77 | -13.77 | 49.53 | 49.95 |
| 2450 | 59.3 | -2.27 | 1.44 | -0.71 | 24.415 | 34.881 | 1.44 | -15.62 | 50.1 | 50.01 |
| 2500 | 56.85 | -2.45 | 1.04 | -1.11 | 25.308 | 31.543 | 1.04 | -13.72 | 50.42 | 50.26 |
| 2550 | 61.38 | -2.12 | 1.12 | -1.03 | 28.673 | 32.706 | 1.12 | -15.64 | 51.13 | 51.11 |
| 2600 | 47.56 | -3.23 | -0.28 | -2.43 | 22.013 | 25.543 | -0.28 | -15.9 | 50.76 | 50.77 |
| 2650 | 45.44 | -3.43 | -0.9 | -3.05 | 22.667 | 22.777 | -0.9 | -15.72 | 51.35 | 50.92 |
| 2700 | 52.19 | -2.82 | -0.27 | -2.42 | 27.078 | 25.114 | -0.27 | -14.4 | 51.83 | 51.74 |

| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | UHS (%) | DHS (%) | Max (dB) | Min (dB) | Attenut Hor | Attenut Ver |
|------------|----------|-----------|------------|------------|---------|---------|----------|----------|-------------|-------------|
| 3300 | 46.81 | -3.34 | 1.3 | -1.85 | 22.928 | 13.884 | 0.3 | -18.62 | 55.49 | 53.58 |
| 3324 | 49.81 | -3.03 | 1.35 | -0.8 | 29.962 | 19.852 | 1.35 | -16.71 | 55.76 | 54.28 |
| 3348 | 53.92 | -2.68 | 1.88 | -0.27 | 30.754 | 23.167 | 1.88 | -21.18 | 56.12 | 54.75 |
| 3372 | 53.66 | -2.7 | 1.68 | -0.47 | 30.532 | 23.127 | 1.68 | -18.15 | 56.06 | 55.06 |
| 3396 | 59.51 | -2.25 | 2.3 | 0.15 | 32.275 | 27.24 | 2.3 | -19.1 | 56.24 | 55.38 |
| 3420 | 50.46 | -2.97 | 1.51 | -0.64 | 25.912 | 24.551 | 1.51 | -18.22 | 55.84 | 55.22 |
| 3444 | 47 | -3.28 | 2.39 | 0.24 | 25.655 | 21.346 | 2.39 | -22.63 | 56.09 | 55.55 |
| 3468 | 40.14 | -3.96 | 1.08 | -1.37 | 22.177 | 17.958 | 0.78 | -20.09 | 56.05 | 55.51 |
| 3492 | 44.18 | -3.55 | 1.63 | -0.52 | 26.234 | 17.951 | 1.63 | -23.75 | 56.34 | 55.73 |
| 3516 | 40.05 | -3.97 | 1.26 | -0.89 | 25.313 | 14.739 | 1.26 | -16 | 56.74 | 56.27 |
| 3540 | 47.94 | -3.21 | 1.61 | -0.54 | 25.108 | 12.831 | 1.61 | -19.38 | 56.2 | 55.75 |
| 3564 | 47.59 | -3.25 | 1.62 | -1.53 | 24.963 | 12.631 | 0.62 | -18.14 | 56.54 | 56.24 |
| 3588 | 40.68 | -3.91 | 1.19 | -1.66 | 28.096 | 12.58 | 0.49 | -17.84 | 56.08 | 55.68 |
| 3600 | 49.47 | -3.04 | 1.65 | -1.5 | 27.294 | 12.18 | 0.65 | -17.36 | 56.35 | 56.01 |

| Freq (MHz) | Effi (%) | Effi (dB) | Gain (dBi) | Gain (dBd) | UHS (%) | DHS (%) | Max (dB) | Min (dB) | Attenut Hor | Attenut Ver |
|------------|----------|-----------|------------|------------|---------|---------|----------|----------|-------------|-------------|
| 4800 | 48.59 | -3.13 | 2.61 | 0.46 | 30.802 | 17.786 | 2.61 | -15.58 | 61.79 | 62.08 |
| 4810 | 42.55 | -3.87 | 0.96 | -2.19 | 20.115 | 12.434 | -0.04 | -18.65 | 61.1 | 61.6 |
| 4820 | 42.14 | -3.93 | 1.73 | -1.42 | 19.5 | 12.638 | 0.73 | -18.49 | 60.69 | 61.06 |
| 4830 | 42.71 | -3.69 | 2.9 | -0.25 | 26.841 | 15.868 | 1.9 | -15.85 | 61.5 | 62.01 |
| 4840 | 43.3 | -3.64 | 2.37 | -0.78 | 27.793 | 15.506 | 1.37 | -14.11 | 61.96 | 62.53 |
| 4850 | 42.2 | -3.62 | 1.45 | -1.7 | 19.666 | 12.531 | 0.45 | -20.39 | 61.18 | 61.65 |
| 4860 | 45.5 | -3.94 | 1.24 | -1.91 | 15.829 | 9.666 | 0.24 | -22.34 | 60.46 | 60.99 |
| 4870 | 44.03 | -3.68 | 1.13 | -2.02 | 20.616 | 13.413 | 0.13 | -23.54 | 60.7 | 61.2 |
| 4880 | 45.95 | -3.44 | 2.4 | -0.75 | 22.764 | 13.184 | 1.4 | -21.13 | 61.28 | 61.35 |
| 4890 | 39.16 | -4.35 | 2.55 | -0.6 | 18.017 | 11.144 | 1.55 | -19.23 | 61.34 | 61.23 |
| 4900 | 38.9 | -4.39 | 1.19 | -1.96 | 17.77 | 11.133 | 0.19 | -19.52 | 61.5 | 61.5 |

5. Reliability Test Report

| Item | Test Conditions | Specification |
|------------------------------------|---|---|
| Storage Conditions | If not specified, the test temperature, humidity and air pressure will be as follows: 1. Temperature: -40°C~+85°C 2. Relative humidity 45%-85% 3. Air pressure: 86kpa-106kpa | Normal Electrical and Mechanical Properties |
| High-Low Temperature Test | Carry out 5 cycles between 70 °C and - 40 °C, and then place it for 1-2hrs under normal conditions to check its appearance quality. | The dimensions shall meet the requirements and For Electrical and Mechanical Properties |
| Constant Damp-Heat Resistance Test | Relative humidity 95±3%, test temperature: 40°C. after lasting for 2hrs, The electrical properties shall be measured within 5min after the test object is taken out. The test object shall be placed for 1-2h under normal conditions to check its appearance quality | The dimensions shall meet the requirements and For Electrical and Mechanical Properties |
| Vibration Test | Vibration Frequency 10-55HZ, Displacement Amplitude: 0.35MM, Acceleration Amplitude: 50.0M/S, Sweep Cycles: 30times | Normal Electrical and Mechanical Properties |
| Free Fall Test | Free fall for 3 times in the direction of mutually perpendicular axes at the height of 1m | Normal Electrical and Mechanical Properties |

Test equipment and principles

1. Test Equipment:

Network Analyzers :

Agilent 8753D 5071B

Communications Test Set: Agilent E5515C

3D Chamber Test System:

2. Test principle:

