

Specification

Part No.	:	PC27.09.0100A
Product Name	:	TheStripe™ 850 / 900 / 1800 / 1900MHz GSM PCB Antenna W/100mm 1.13 Coaxial Cable MMCX (M) R/A Connector
Feature	:	100mm long, 1.13 mm diameter 850 / 900 / 1800 / 1900MHz GSM Miniature Co-Axial Cable MMCX(M)RA Dims: 34mm*7mm*0.8mm RoHS Compliant



1. Introduction

This miniaturized low profile PCB antenna is based on smart TheStripe™ antenna technology. It consists of a PCB antenna and 1.13mm coaxial cable with MMCX(M) 90 degree connector.

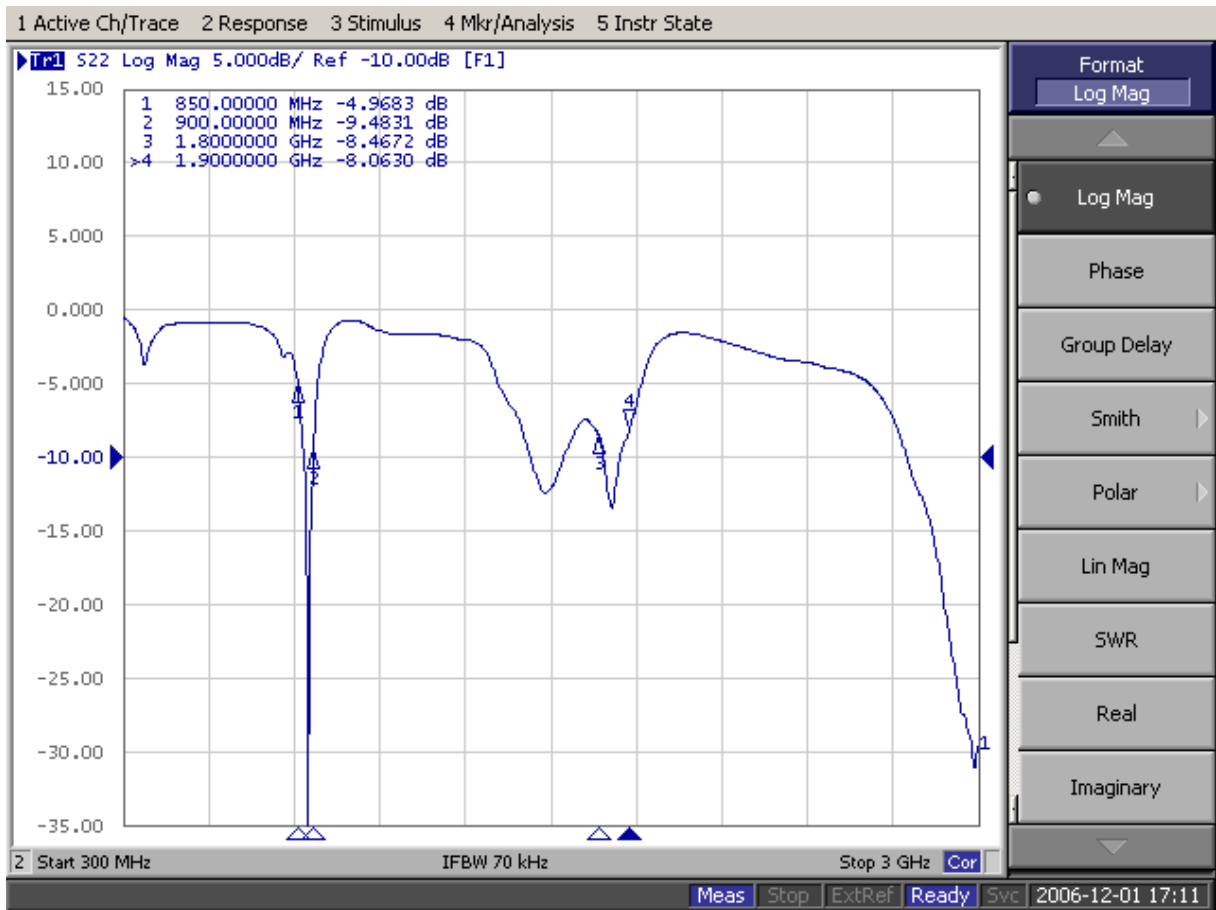
Further optimization can be done upon receipt of the client’s device at a local Taoglas facility.

2. Specifications

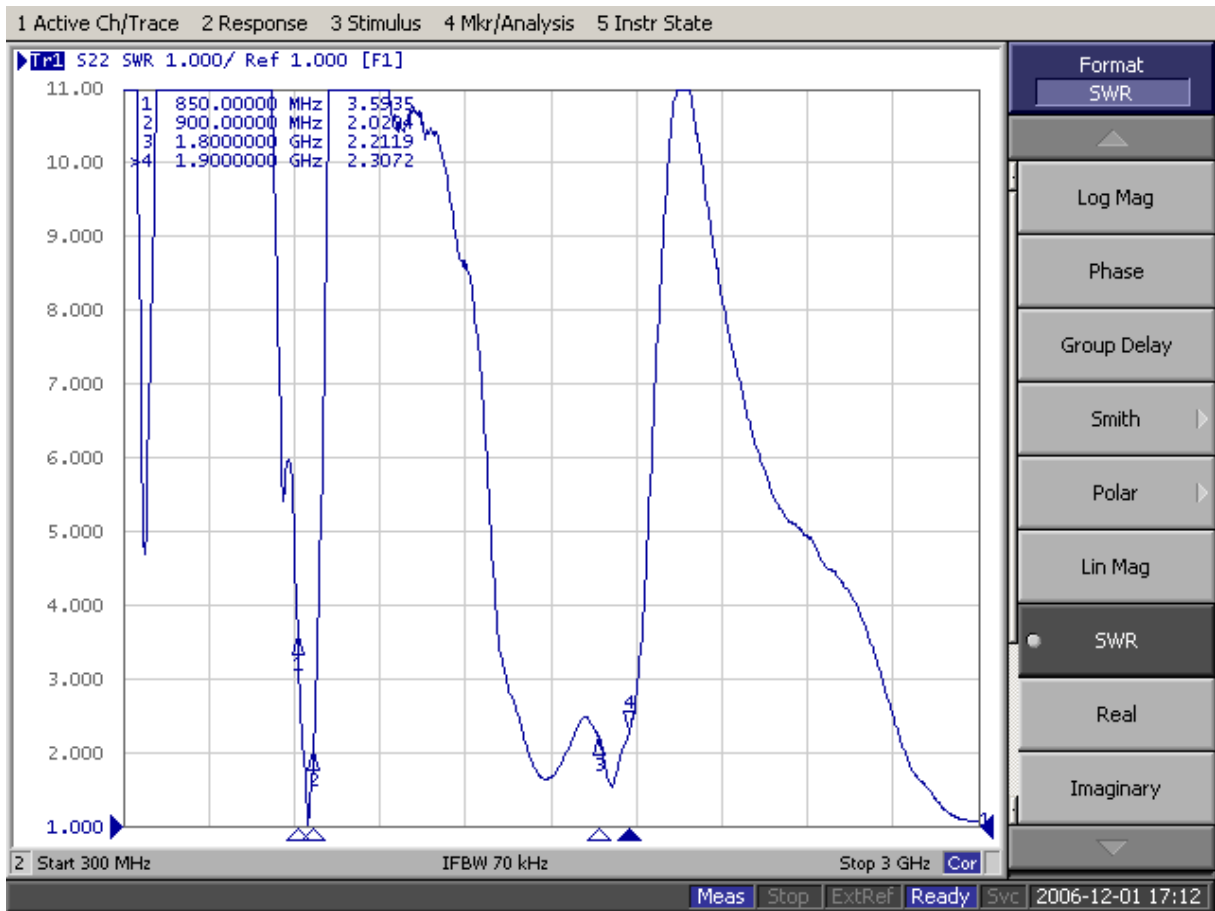
CELLULAR				
Communication system	AMPS	GSM	DCS	PCS
Frequency Band	800MHz	900MHz	1800MHz	1900MHz
VSWR	3.59	2.02	2.21	2.3
Return Loss	-4.96 dB	-9.48 dB	-8.46 dB	-8.06 dB
Efficiency	56.84%	72.98%	63.52%	55.79%
Peak Gain	0.01dBi	1.2dBi	2.66dBi	1.25dBi
Average Gain	-2.45dB	- 1.37dB	- 1.97dB	-2.53dB
Impedance	50 Ohm			
Radiation Pattern	Omnidirectional			
Polarization	Horizontal			
MECHANICAL				
Dimensions	34 * 7 * 0.8mm			
RF Cable	RF Coaxial Cable φ 1.13 ± 0.1mm, L = 100 mm Gray Color			
RF Connector	MMCX(M)RA			
ENVIRONMENTAL				
Operation Temperature	-20°C to + 55°C			
Storage Temperature	-30°C to + 75°C			
Relative Humidity	40% to 95%			

3. Antenna Characteristics

3.1. Return loss



3.2. VSWR



4. Reliability

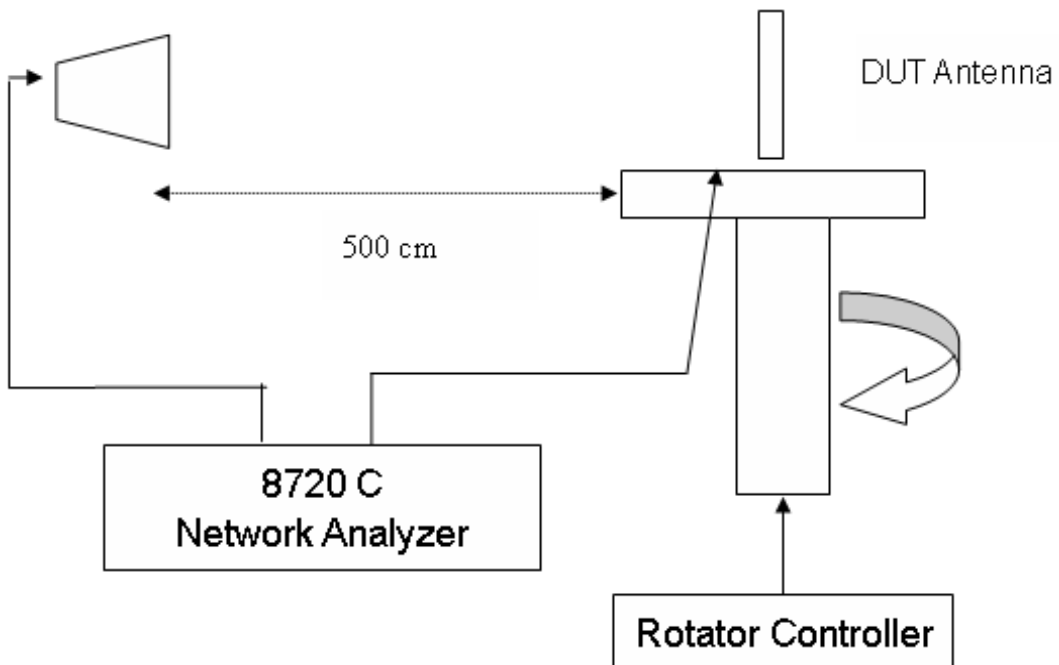
Test Items	Procedure	Requirement
Thermal Shock	Starting at -40 for 30 minutes and then cycled to +85 to remain 30 minutes (a complete cycle). To repeat 5 complete cycles. (Refer to IEC 68-2-14 Method Na)	<ol style="list-style-type: none"> 1. The value of return loss must be within product specifications after this test. 2. No physical deformation should be evident.
Storage Temperature (Cold)	Samples must be put into -30°C chamber for 72 hours and samples shall be powered during test. (Refer to IEC 68-2-1 Method Aa)	<ol style="list-style-type: none"> 1. The value of return loss must be within product specifications after this test. 2. No physical deformation should be evident.
Storage Temperature (Dry Heat)	Samples must be put into +75°C chamber for 72 hours and samples shall be powered during test. (Refer to IEC 68-2-1 Method Ba)	<ol style="list-style-type: none"> 1. The value of return loss must be within product specifications after this test. 2. No physical deformation should be evident.
Operating Temperature (Cold)	Samples must be put into -20°C chamber for 2 hours and samples shall be powered during test. (Refer to IEC 68-2-1 Method Aa)	<ol style="list-style-type: none"> 1. The value of return loss must met specification during test/after test 2. No mechanical defects after test.
Operating Temperature (Dry Heat)	Samples must be put into +65°C chamber for 72 hours and samples shall be powered during test. (Refer to IEC 68-2-1 Method Ba)	<ol style="list-style-type: none"> 1. The value of return loss must met specification during test/after test 2. No mechanical defects after test.

5. Antenna Test Procedures and Setup

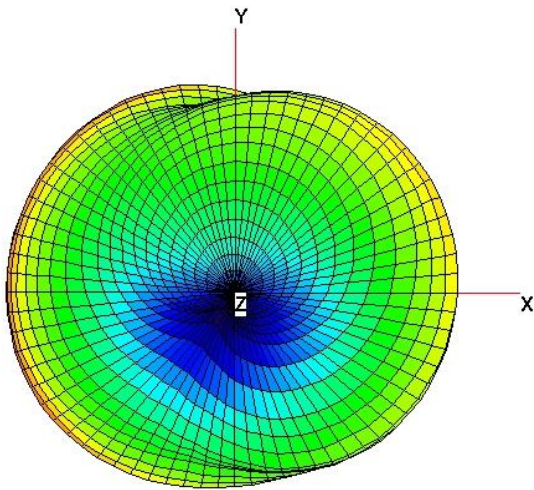
5.1. 3D Radiation Pattern Testing

Test Setup Diagram

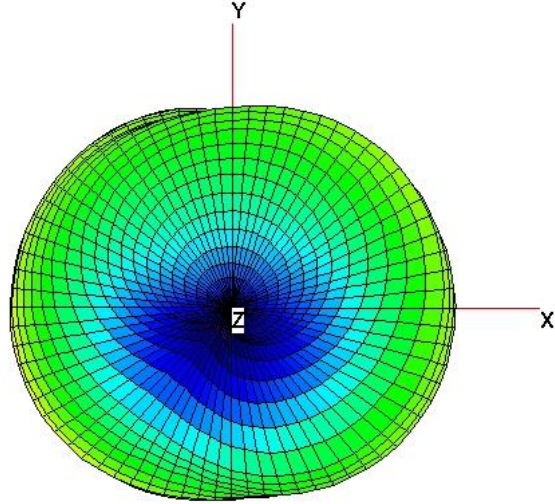
Radiation Pattern Testing - Anechoic Chamber



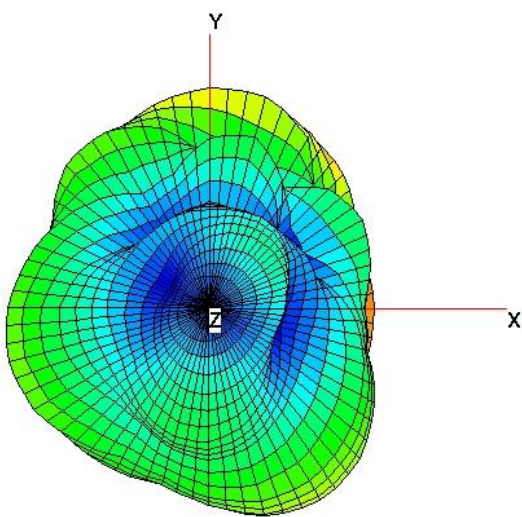
5.2. 3D Radiation Pattern Testing



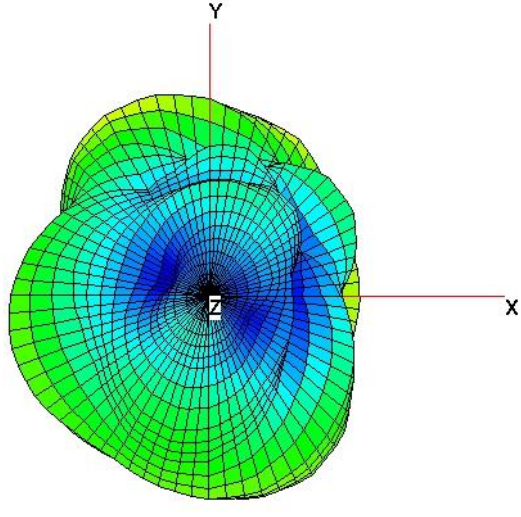
850 MHz



900 MHz



1800 MHz



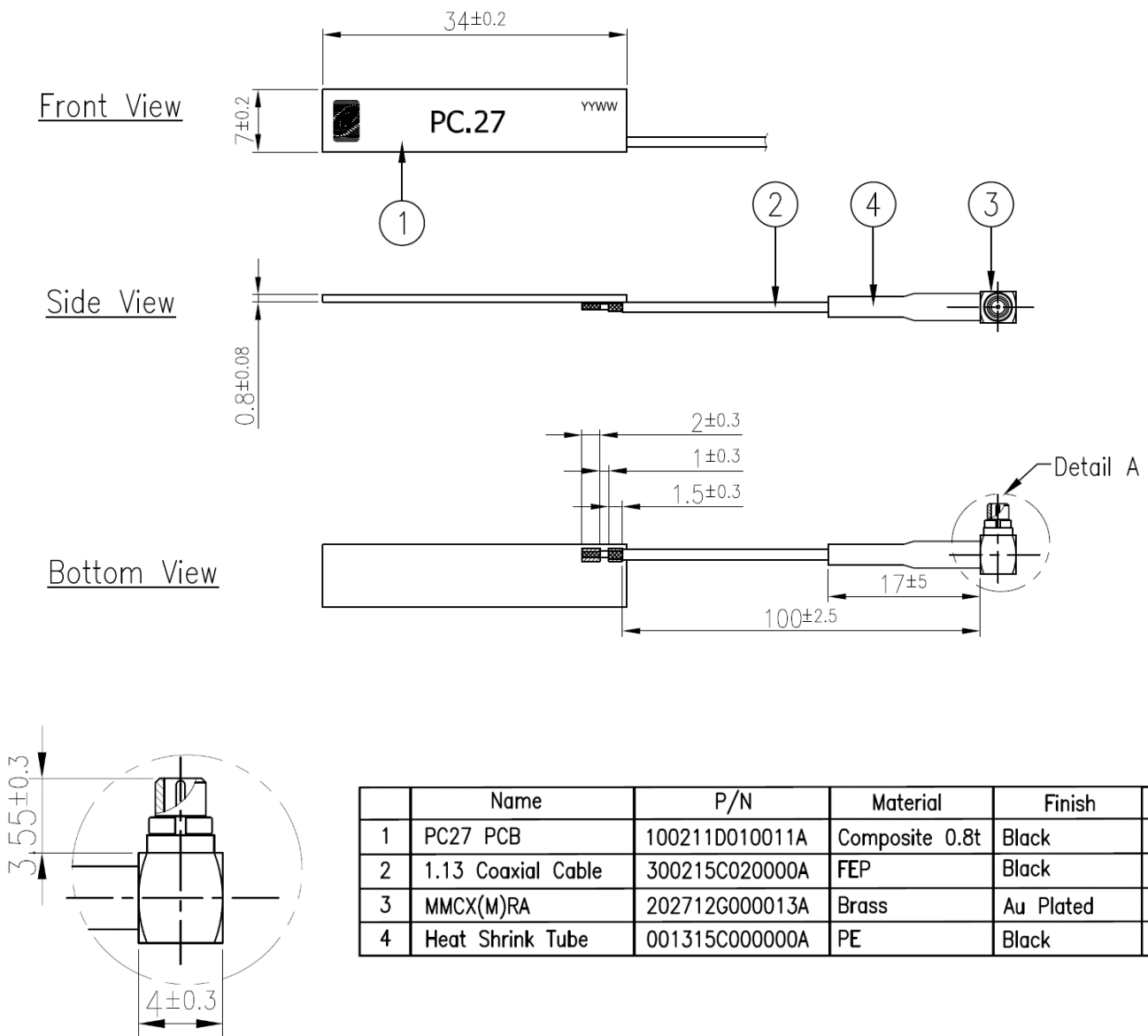
1900 MHz

5.3. 3D Chamber Testing – Tabular Results

Frequency	850	900	1800	1900
Note	MMCX			
Ant. Port Input Pwr. (dBm)	0	0	0	0
Tot. Rad. Pwr. (dBm)	-6.70207	-5.99557	-3.58516	-5.37679
Peak EIRP (dBm)	-2.40694	-1.57714	1.90289	0.060763
Directivity (dBi)	4.29514	4.41842	5.48805	5.43755
Efficiency (dB)	-6.70207	-5.99557	-3.58516	-5.37679
Efficiency (%)	21.3694	25.1445	43.801	28.9949
Gain (dBi)	-2.40694	-1.57714	1.90289	0.060763
NHPRP ±Pi/4 (dBm)	-7.60628	-6.98737	-4.95228	-6.71252
NHPRP ±Pi/6 (dBm)	-8.96174	-8.37139	-6.68997	-8.43839
NHPRP ±Pi/8 (dBm)	-10.17	-9.55263	-7.9014	-9.58462
Upper Hem. PRP (dBm)	-11.6509	-11.2301	-8.08553	-9.80534
Lower Hem. PRP (dBm)	-8.37684	-7.54214	-5.48811	-7.31973
NHPRP4 / TRP Ratio (dB)	-0.90421	-0.9918	-1.36712	-1.33574
NHPRP4 / TRP Ratio (%)	81.2044	79.5829	72.9942	73.5235
NHPRP6 / TRP Ratio (dB)	-2.25967	-2.37582	-3.10481	-3.0616
NHPRP6 / TRP Ratio (%)	59.4338	57.8653	48.9237	49.4128
NHPRP8 / TRP Ratio (dB)	-3.46791	-3.55706	-4.31624	-4.20784
NHPRP8 / TRP Ratio (%)	44.9996	44.0853	37.0149	37.9504
UHPRP / TRP Ratio (dB)	-4.94881	-5.2345	-4.50037	-4.42856
UHPRP / TRP Ratio (%)	31.9977	29.9606	35.4784	36.0698
LHPRP / TRP Ratio (dB)	-1.67477	-1.54657	-1.90295	-1.94294
LHPRP / TRP Ratio (%)	68.0023	70.0394	64.5216	63.9302
Front/Back Ratio (dB)	3.58199	5.22619	7.98457	8.74956
Phi BW (°)	137	132	109	92
+ Phi BW (°)	52	51	76	61
- Phi BW (°)	85	81	33	31
Theta BW (°)	53	51	18	18
+ Th. BW (°)	25	27	9	10
- Th. BW (°)	28	24	9	8
Boresight Phi (°)	210	210	0	360
Boresight Th. (°)	120	120	135	135
Maximum Power (dBm)	-2.40694	-1.57714	1.90289	0.060763
Minimum Power (dBm)	-20.7114	-19.4284	-12.8702	-17.302
Average Power (dBm)	-7.56269	-6.68836	-3.63931	-5.51374
Max/Min Ratio (dB)	18.3044	17.8513	14.7731	17.3628
Max/Avg Ratio (dB)	5.15575	5.11122	5.5422	5.5745
Min/Avg Ratio (dB)	-13.1487	-12.7401	-9.23091	-11.7883
Average Gain (dB)	-6.70207	-5.99557	-3.58516	-5.37679
E-Plane BW (°)	143	77	113	70
+ E-Plane BW (°)	108	46	92	51
- E-Plane BW (°)	35	31	21	19
H-Plane BW (°)	103	104	19	19
+ H-Plane BW (°)	70	75	10	10
- H-Plane BW (°)	33	29	9	9

6. Mechanical Drawings (Unit: mm)

6.1. Dimensions and Drawing



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