

**Shenzhen Haotiancheng Wireless
Technology Co., Ltd.**

Name: Sample Approval

Ver: V1.0

date: 2026.06.09

Sample Approval SheetProject Name: D41-MSample Name: MAIN +WGB+DIV antennaSample SPEC: FPC material, black, 3M300 adhesive backing

Customer PN.:

Transfer Date: 2026.06.09

Supplier Confirm	Project	Engineer	Quality
	Xiao Qiang	Huang Desheng	Gu Shuang
date	2026.06.09	2026.06.09	2026.06.09

Customer confirm	PM	Electron	MD	PD	QE
date					

conclusion	☐ MP	☐ Limits use () K	☐ ROHS
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Main Antenna Switching Logic

logic	Control Frequency Band
RF1	LTE-B1/2/3/4/8/30/34/38/39/40/41/66
RF2	LTE-B5
RF3	LTE-B12/17
RF4	LTE-B71

3.3 Impedance Requirements

50 ohm

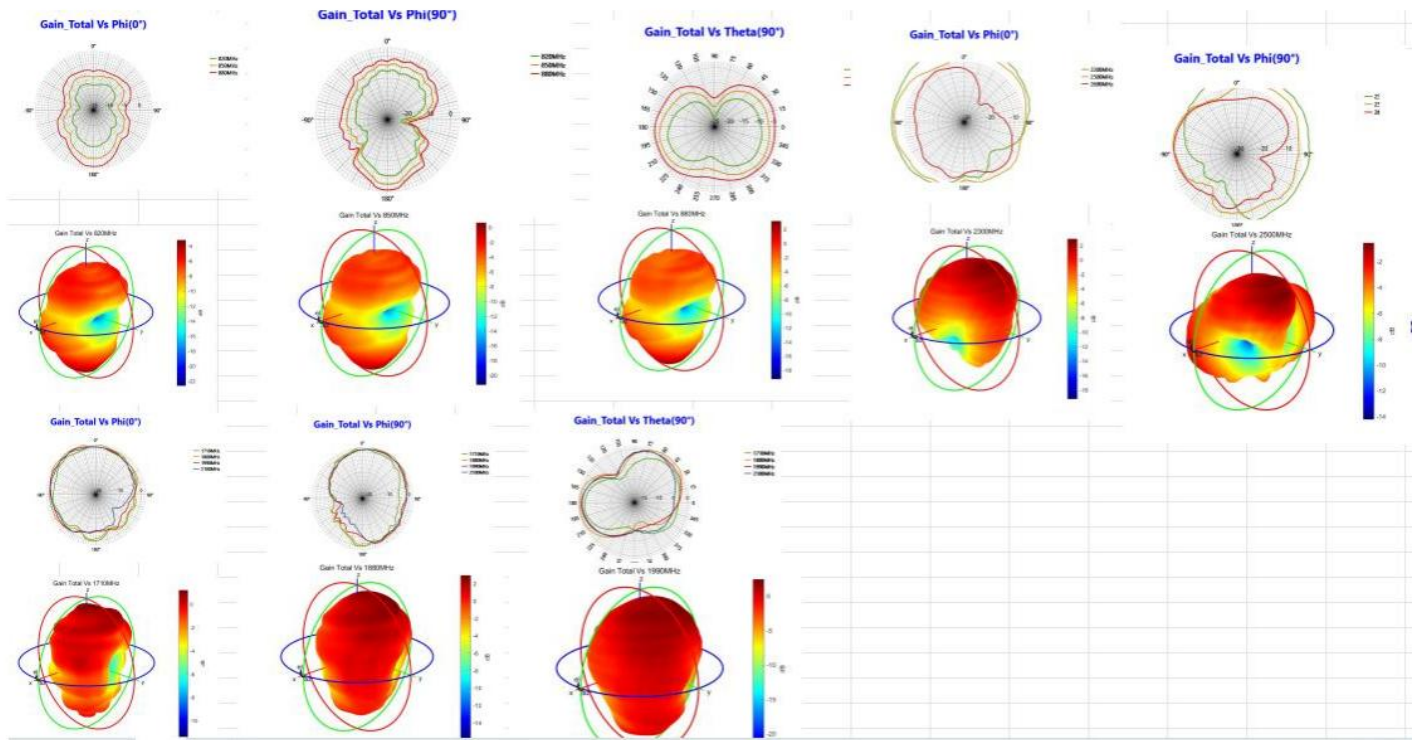
3.4 Main Antenna Test Data

Band	TRP/TIS	L	M	H	Band	TRP/TIS	L	M	H
LTE-B1	TRP	16.31	16.73	16.57	LTE-B30	TRP	15.99	15.75	15.46
	TIS			-90.02		TIS			-90.15
LTE-B2	TRP	15.32	15.41	15.35	LTE-B34	TRP	16.04	16.56	16.78
	TIS			-90.21		TIS			-90.84
LTE-B3	TRP	15.73	15.4	15.18	LTE-B38	TRP	16.32	16.05	15.79
	TIS			-89.84		TIS			-88.81
LTE-B4	TRP	15.81	15.53	15.19	LTE-B39	TRP	16.33	16.49	16.61
	TIS			-89.62		TIS			-89.93
LTE-B5	TRP	14.56	14.42	14.31	LTE-B40	TRP	16.6	16.41	16.23
	TIS			-88.87		TIS			-89.81
LTE-B8	TRP	15.14	15.26	15.28	LTE-B41	TRP	17.12	16.82	16.24
	TIS			-89.19		TIS			-88.34
LTE-B12	TRP	11.59	12.01	12.49	LTE-B66	TRP	15.79	15.61	15.49
	TIS			-87.42		TIS			-90.05
LTE-B17	TRP	11.36	11.72	12.15	LTE-B71	TRP	9.24	9.43	9.6
	TIS			-87.62		TIS			-86.37

Main antenna passive gain efficiency

Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
690	24.15	-1.32	1700	50.05	0.87	2000	49.08	2.76	2300	56.03	3.64	2600	58.99	2.05
700	25.29	-1.41	1710	51.77	1.08	2010	45.59	2.71	2310	55.34	3.49	2610	56.26	1.84
710	25.99	-1.42	1720	48.12	0.84	2020	45.8	2.74	2320	55.34	3.4	2620	51.55	1.35
720	28.06	-0.94	1730	49.13	0.98	2030	49.15	2.87	2330	60.56	3.73	2630	54.13	1.48
730	28.01	-0.62	1740	52.18	1.44	2040	45.12	2.16	2340	60.11	3.47	2640	59.24	2.01
740	26.54	-0.77	1750	53.15	1.71	2050	41.73	1.5	2350	54.04	2.65	2650	57.53	1.88
750	27.18	-0.67	1760	53.25	1.85	2060	43.68	1.65	2360	55.3	2.41	2660	52.22	1.41
760	28.33	-0.61	1770	49.33	1.64	2070	42.27	1.45	2370	55.4	2.12	2670	54.93	1.56
770	26.48	-1.11	1780	51.13	1.85	2080	44.63	1.57	2380	54	1.77	2680	56.41	1.75
780	28.09	-1.09	1790	48.41	1.76	2090	47.22	1.79	2390	58.13	1.89	2690	47.73	0.98
790	31.16	-0.84	1800	43.01	1.12	2100	49.23	2.08	2400	59.58	1.89	2700	45.22	0.75
800	33.81	0.63	1810	41.51	0.75	2110	43.6	1.81	2410	59.08	1.84			
810	35.47	0.21	1820	42.61	0.42	2120	44.01	2	2420	56.93	1.53			
820	34.91	-0.3	1830	41.21	-0.18	2130	45.61	2.28	2430	60.61	1.79			
830	33.29	-0.45	1840	39.64	-0.27	2140	43.85	2.14	2440	66.75	2.21			
840	32.67	-0.29	1850	41.84	0.58	2150	44.07	2.28	2450	68.66	2.32			
850	37.03	0.36	1860	43.68	1.18	2160	47.62	2.71	2460	68.49	2.32			
860	35.15	0.38	1870	41.71	1.14	2170	47.41	2.8	2470	68.47	2.31			
870	29.11	-0.6	1880	42.42	1.23	2180	46	2.61	2480	68.69	2.37			
880	30.07	-0.27	1890	46.16	1.77	2190	47.65	2.67	2490	70.42	2.77			
890	36.66	0.57	1900	44.54	1.72	2200	50.99	2.96	2500	69.69	3			
900	40.97	0.74	1910	42.03	1.58	2210	49.65	2.84	2510	67.65	3.08			
910	38.47	0.45	1920	45.31	2.01	2220	50.21	2.92	2520	63.59	2.91			
920	36.15	0.56	1930	48.8	2.46	2230	55.65	3.36	2530	61.76	2.85			
930	37.7	1.16	1940	46.35	2.25	2240	55.56	3.32	2540	58.94	2.49			
940	39.51	1.59	1950	48.87	2.53	2250	51.87	2.98	2550	55.92	2.15			
950	38.73	1.39	1960	50.71	2.72	2260	54.42	3.33	2560	56.83	2.06			
960	36.57	0.85	1970	49.33	2.59	2270	57.2	3.73	2570	60.19	2.3			
970	40.69	0.57	1980	47.88	2.36	2280	53.55	3.52	2580	55.21	1.8			
980	40.95	0.32	1990	47.59	2.45	2290	52.88	3.5	2590	52.19	1.65			

Main antenna passive apple diagram

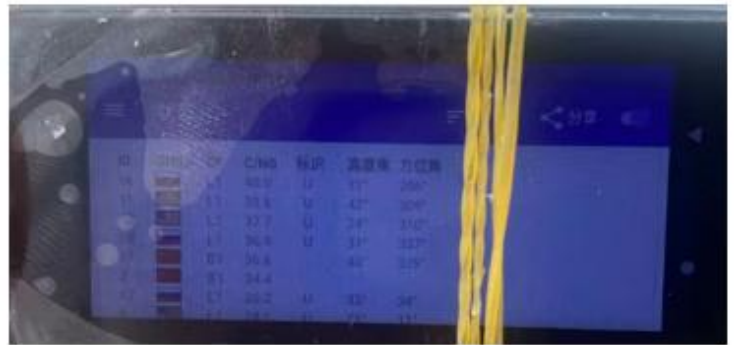


Tri-band antenna passive gain efficiency

Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)	Freq (MHz)	Effi (%)	Gain (dBi)
1550	42.12	0.31	2400	45.81	0.69	5000	38.92	-0.57
1560	46.05	0.93	2410	47.05	0.78	5050	37.46	-0.92
1570	47.38	1.37	2420	48.63	0.82	5100	39.84	-0.5
1580	49.86	1.9	2430	54.57	1.12	5150	46.92	0.5
1590	53.49	2.52	2440	59	1.56	5200	51.69	1.03
1600	52.88	2.75	2450	60.31	1.71	5250	45.89	0.31
1610	49.57	2.48	2460	55.85	1.4	5300	49.01	0.75
1620	47.12	1.94	2470	57.47	1.58	5350	48.52	1.26
			2480	61.95	1.97	5400	50.22	1.1
			2490	64.08	2.18	5450	46.7	1.09
			2500	61.2	1.94	5500	42.72	1.21
						5550	34.52	0.83
						5600	50.46	2.69
						5650	55.69	3.1
						5700	51.39	2.45
						5750	52.22	1.98
						5800	49.67	2.11
						5850	55.26	2.74
						5900	50.09	1.98

3.5 Auxiliary Antenna Test Results

GPS	Maximum Signal Strength	Number of Satellites
	40	15
	Average Positioning Time	Weather Conditions
	70S	Sunny
WIFI	Normal Wi-Fi Coverage Distance	
	20 M	
	Smooth Online Video Streaming Distance	
	15M	
BT	Normal Call Distance	
	20 M	



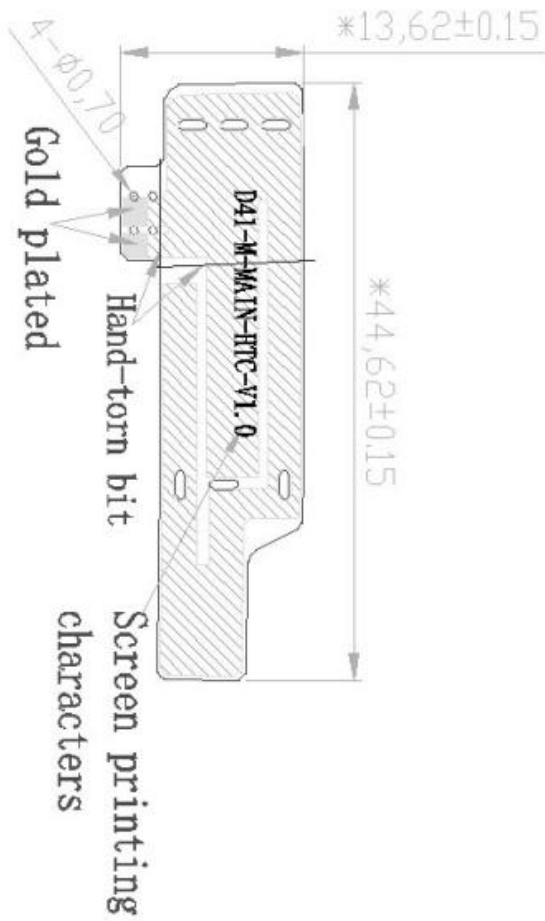
4 Appearance and Structure

4.1 Antenna Material

Antenna Material: FPC Antenna, Black Ink, White Silkscreen Characters。

Base Material + Double-sided Tape + Release Paper

4.2 Structural Drawing



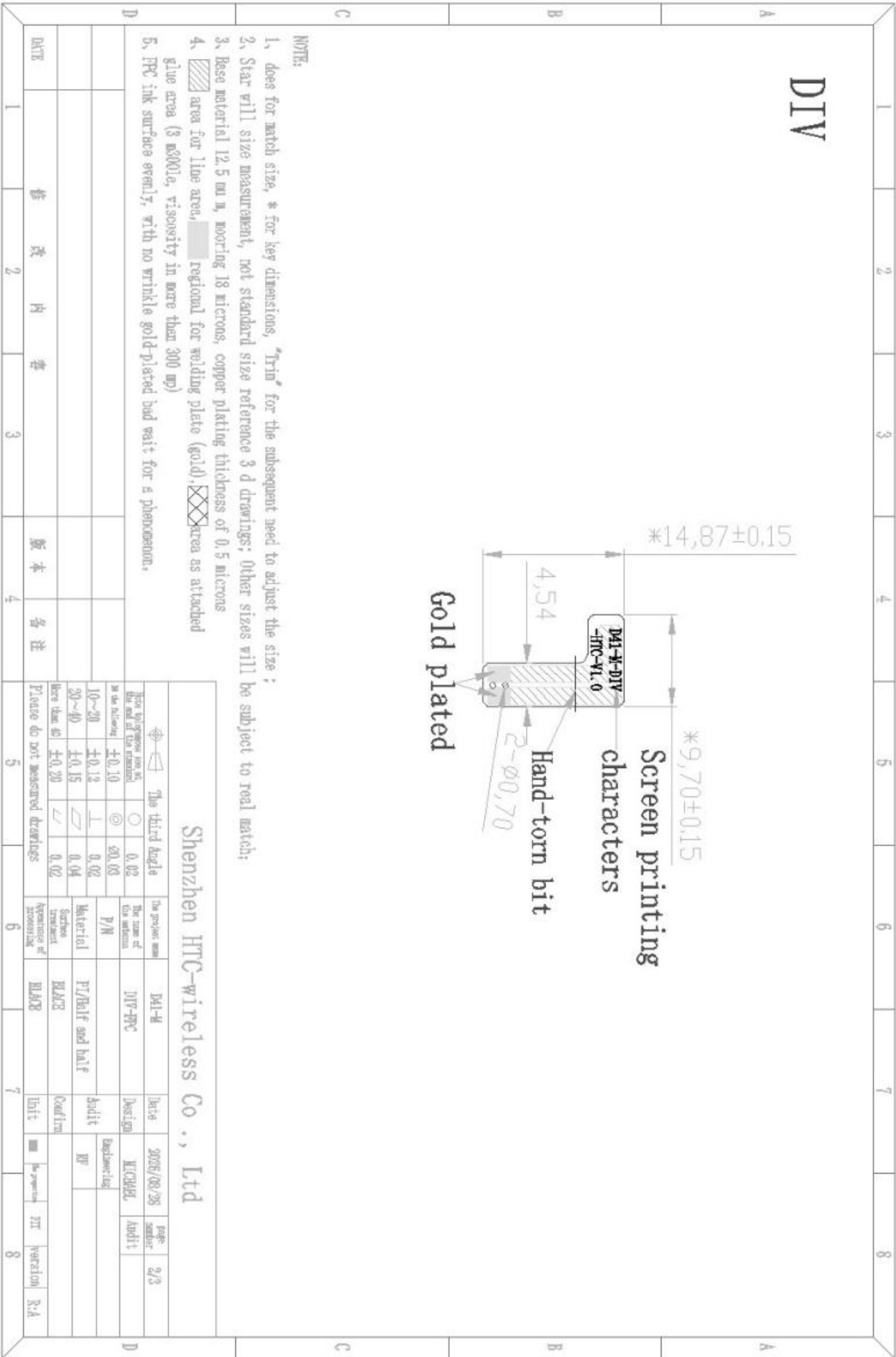
NOTE:

- 1, does for match size, * for key dimensions, "trim" for the subsequent need to adjust the size ;
- 2, Star will size measurement, not standard size reference 3 d drawings; Other sizes will be subject to real match;
- 3, Base material 12.5 mm $\bar{m}$, mooring 18 microns, copper plating thickness of 0.5 microns
- 4,  area for line area,  regional for welding plate (gold),  area as attached
- glue area (3 m300),e, viscosity in more than 300 mp)
- 5, FPC ink surface evenly, with no wrinkle gold-plated bad wait for a phenomenon.
- | | |
|---|---------------|
|  | The third Aug |
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|  | |
| Start to process the at | |

4.  area for line area,  regional for welding plate (gold),  area as attached glue area (3 m3000e, viscosity in more than 300 mp) 5. FPC ink surface evenly, with no wrinkle gold-plated bad part for a phenomenon.									
DATE	修	改	内	容	原	本	备	注	
1	2	3	4	5	6	7	8		

Shenzhen HTC-wireless Co., Ltd									
 The third angle		The project name		DATE		Date		Page number	
Note: Dimensions are at the side of this drawing as the following		The size of the surface		MAIN-TPC		Design		1/3	
± 0.10 ± 0.12 ± 0.15 ± 0.20		$\phi 0.03$ $\phi 0.02$ $\phi 0.04$ $\phi 0.02$		P/N		Material		Unit	
				PT/Belf and half		Surface treatment		Confirm	
				PLATE		Appearance of processing		DATE	
Please do not measured drawings				DATE		Unit		In process	
5	6	7	8						

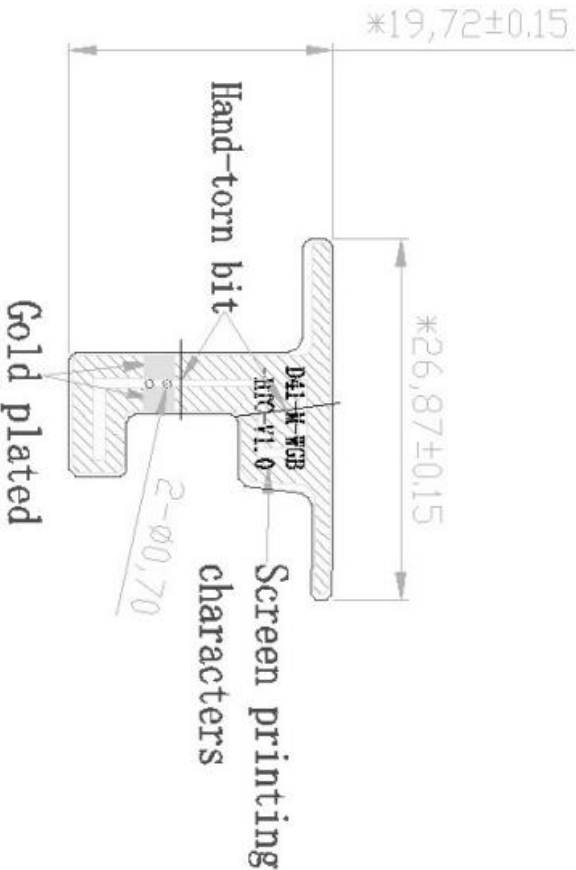
Gold plated



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 The third angle		The project name		DAI-M		Date		2005/08/28	
How to measure the size of the dimension on the following		The name of the software P/N		DTP-PPC		Design MICHAEL		Page number	
10~20 ± 0.12		Material		PTFE half and half		Audit		Audit	
20~40 ± 0.15									
More than 40 ± 0.20									
Please do not measured drawings				Equivalence of processing		Confirm			
5		6		7				III version	
				8		R&D			

WIFI/BT/GPS



NOTE:

- 1、does for match size, * for key dimensions, "Trim" for the subsequent need to adjust the size ;
- 2、Star will size measurement, not standard size reference 3 d drawings; Other sizes will be subject to real match;
- 3、Base material 12.5 mm η , mooring 18 microns, copper plating thickness of 0.5 microns
- 4、 area for line area, regional for welding plate (gold), area as attached glue area (3 m300le, viscosity in more than 300 mp)
- 5、FPC ink surface evenly, with no wrinkle gold-plated bad wait for a phenomenon.

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The third Angle		The project name		Date		2025/09/28		Page 3/3	
Don't miss the size of the drawing		The size of the drawing		Design		NICHIEL		Audit	
In the following		P/N				Exploding			
10~20		±0.12		Material		PL/Bolt and Bolt		Coef. time	
30~40		±0.15		Surface treatment		BLAKE			
More than 40		±0.20		Deposition of processing		BLAKE			
Please do not measured drawings									
5		6		7		8			

Packaging Method

Each antenna is packed in an individual PP bag. 100 pieces are packed into one small PP bag, and these small bags are stacked and packed into a large PP bag. Finally, two large bags are placed into one small carton. Please note that the exact quantity is subject to the actual shipment.

