



惠州硕贝德无线科技股份有限公司

Huizhou Speed Wireless Technology Co.,Ltd

Specifications For DIV+GPS Antenna of Project E7-Europe

Customer/ Project	E7		Frequency Band	700MHz~960MHz 1410MHz-2690MHz 1575MHZ	
SCT P/N	F-0Y-31-0116-002-K0		Version	V1.0	
Date	20230317				
SPEED					
Checked by	RF	TXJ	Designed by	RF	JZP
	ME	Nick		ME	Nick
	QC		Remark		
Customer					
Date					
Confirmed by	RF				
	ME				
Remark					

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Revised Records

Date	Revision version	Change Description	Author
2023.02.16	V1.0	Initial version	JZP
2023.03.17	V2.0	Update version	JZP
2023.03.29	V3.0	Update version	JZP

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1 Project Overview

This document is the specifications of the E7 with Main+WiFi antenna. The supported frequency band is 700~960MHz, 1410~2690MHz , 1575MHz

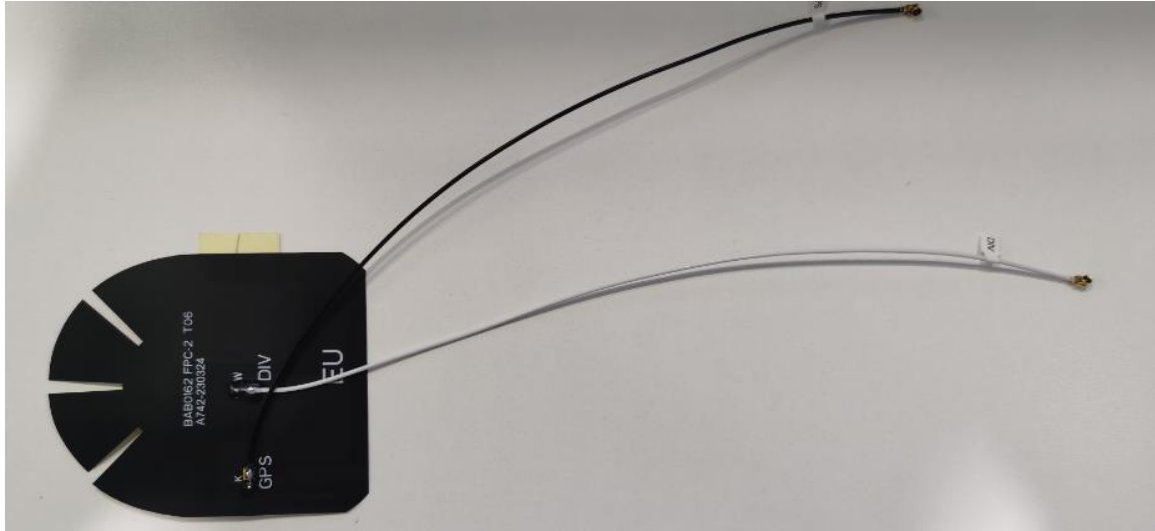


Figure1 Antenna picture

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2 Antenna Specification

Antenna Form	FPC+cable
Working Bands	700MHz~960MHz 1410MHz~2690MHz+1575MHz
Peak Gain	LF:2.7dbi HF:4.1dbi
Efficiency	LF>20% HF>35%
VSWR	<2.5
Impedance	50ohm
Polarization	Linear polarization
A/R	N/A
Radiation Pattern	Omnidirectional
Feed Mode	Cable
power capacity	33dBm
Size(L*W*H)	
Weight	N/A
Operating temperature	-30 °C to +80 °C
Storage temperature	-30 °C to +80 °C

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3 Test Environment

The measuring equipment for antenna return loss, voltage standing wave ratio and isolation is Keysight E5071C vector network analyzer. As shown below:

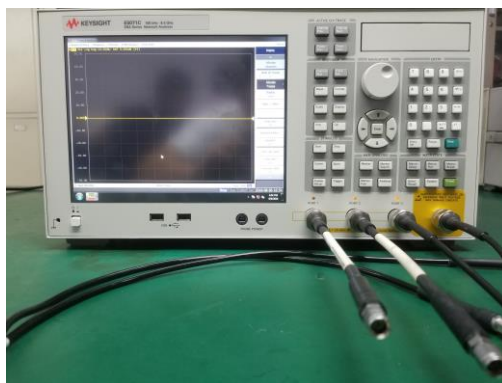


Figure 2 Keysight E5071C vector network analyzer

The efficiency, gain, and pattern of the antenna are all tested in a dark room at Satimo, France. The darkroom uses 64 probes to electronically scan the antenna's radiation performance, collect data, and then analyze and organize it through a computer, which can provide antenna testing in the 400MHz to 8.5GHz frequency.



Figure3 Satimo Darkroom

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4 Test Results

4.1 Return Loss

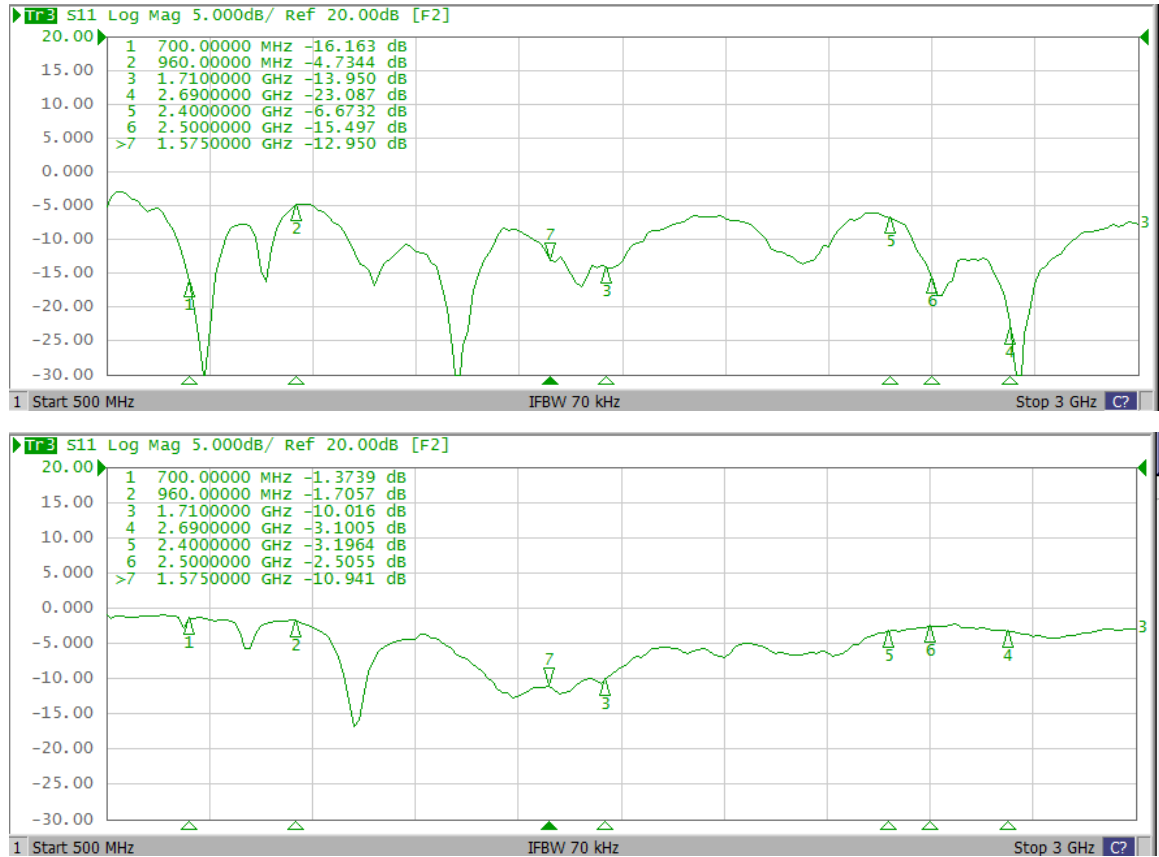


Figure 4 Return Loss

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4.2 Passive Efficiency and Gain

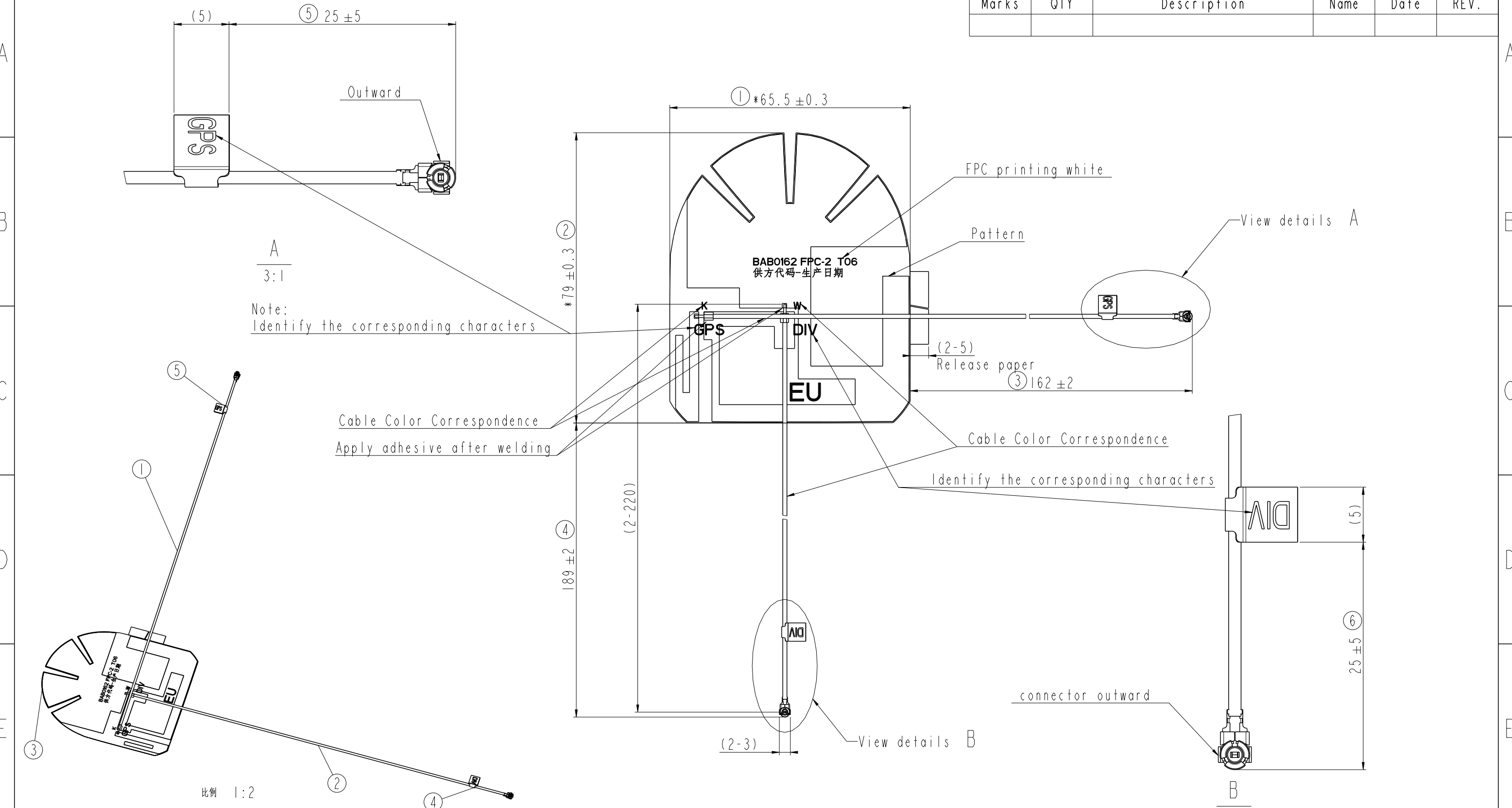
Freq. (MHz)	DIV ANT		Freq. (MHz)	DIV ANT		Freq. (MHz)	DIV ANT	
	Efficiency	Gain. dBi		Efficiency	Gain. dBi		Efficiency	Gain. dBi
700	57%	2.50	1410	58%	4.15	2070	45%	3.79
710	56%	2.18	1430	57%	3.73	2090	38%	1.82
720	50%	1.29	1450	55%	3.57	2110	32%	0.61
730	50%	1.89	1470	54%	2.96	2130	28%	0.32
740	55%	2.31	1490	54%	2.65	2150	28%	0.67
750	56%	2.34	1510	53%	2.75	2170	31%	1.01
760	53%	2.11	1530	53%	2.79	2190	34%	0.81
770	51%	2.13	1550	58%	3.02	2210	37%	1.59
780	49%	2.00	1570	61%	3.39	2230	40%	2.15
790	47%	1.87	1590	64%	3.46	2250	42%	2.51
800	39%	1.33	1610	64%	3.38	2270	45%	2.52
810	30%	0.50	1630	63%	3.37	2290	47%	2.32
824	26%	-0.39	1650	62%	3.67	2310	49%	2.36
830	23%	-1.15	1670	60%	4.01	2330	51%	2.94
840	24%	-2.02	1690	57%	3.27	2350	54%	3.40
850	31%	-1.39	1710	52%	1.86	2370	58%	3.84
860	42%	-0.38	1730	50%	1.73	2390	59%	3.80
870	60%	1.46	1750	52%	2.83	2410	62%	3.77
880	67%	2.77	1770	48%	3.51	2430	64%	4.02
894	64%	2.72	1790	45%	3.08	2450	66%	3.95
900	55%	1.59	1810	43%	2.60	2470	64%	3.44
910	47%	0.80	1830	42%	1.57	2490	59%	2.79
920	40%	0.14	1850	44%	1.48	2510	52%	3.00
930	34%	-0.28	1870	41%	1.13	2530	46%	2.69
940	29%	-0.58	1890	40%	0.91	2550	42%	2.53
950	25%	-1.01	1910	39%	1.36	2570	38%	1.83
960	23%	-1.95	1930	42%	2.27	2590	36%	1.01
			1950	45%	2.36	2610	38%	1.26
			1970	46%	2.36	2630	46%	2.27
			1990	43%	2.77	2650	53%	2.92
			2010	43%	3.02	2670	57%	3.18
			2030	48%	3.86	2690	61%	3.36
			2050	51%	4.53			

Freq. (MHz)	GPS ANT	
	Efficiency	Gain. dBi
1550	49%	3.11
1555	50%	3.26
1560	51%	3.31
1561	52%	3.34
1570	53%	3.57
1575	54%	3.68
1580	53%	3.44
1585	52%	3.21
1590	49%	3.10
1595	49%	2.85

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REVISION RECORD Please refer to sheet1 for details)					
Marks	QTY	Description	Name	Date	REV.



5	标签-GPS	S-70-31-0116-002-W0	S01	1
4	标签-DIV	S-70-31-0077-004-W0	S01	1
3	FPC-2	M-Z3-31-0116-002-K0	S01	1
2	Cable-3	S-D1-31-0116-003-W0	S01	1
1	Cable-1	S-D1-31-0116-001-K0	S01	1
Index	Part	P/N	REV.	QTY

NOTES:
1.THE DIMENSION MARKED WITH "*" IS THE KEY DIMENSION,
NO TOLERANCE REFERENCE TABLE,NO DIMENSION REFERENCE 3D/2D
2.SCRATCH OR COLLISION DAMAGES ON THE SURFACE ARE NOT ALLOWED;
NEED TO REMOVE ALL BURRS AND SHARP EDGES,CLEAN THE OIL POLLUTION;
3.ALL MATERIALS OF THE MODULE MUST MEET ROHS & REACH REQUIREMENTS.
4.THE SOLDER JOINT IS SEALED WITH UV GLUE,AND THE ANTENNA MUST BE
TESTED FOR AIR TIGHTNESS.

Title	ANT2(EU2)	DRW.	MZ	Date	25/2/28
Project	BAB0162	CHK.		Date	
P/N	F-0Y-31-0116-002-K0	APP.		Date	
Material	FPC+CABLE+LABEL	REV.	S01	G/W	2 g
Scale	1:1	Dimensions in mm all rights strictly reserved.			
Sheet	1 / 1				
Size	A3				