



惠州硕贝德无线科技股份有限公司

Huizhou Speed Wireless Technology Co.,Ltd

Specifications For Main+WIFI Antenna of Project E7-Europe

Customer/ Project		E7	Frequency Band	700MHz~960MHz 1410MHz-2690MHz 2400MHZ-2500MHz	
SCT P/N		F-0Y-31-0116-001-K0	Version	V3.0	
Date		20230329			
SPEED					
Checked by	RF	TXJ	Designed by	RF	JZP
	ME	Nick		ME	Nick
	QC		Remark		
Customer					
Date					
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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 , 2400MHz-2500MHz

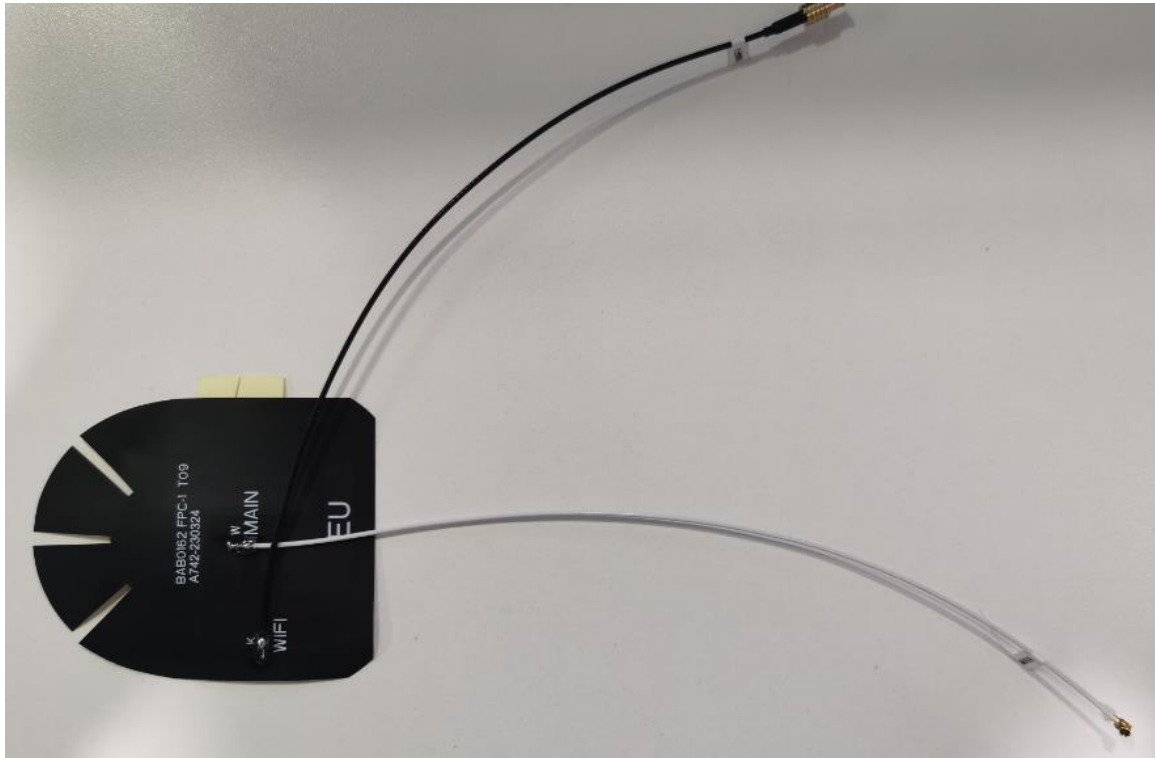


Figure1 Antenna picture

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2 Antenna Specification

Antenna Form	FPC+cable
Working Bands	700MHz~960MHz 1410MHz~2690MHz+2400MHz-2500MHz
Peak Gain	LF:0.58dbi HF:4.91dbi
Efficiency	LF>20% HF>35%
VSWR	<3
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

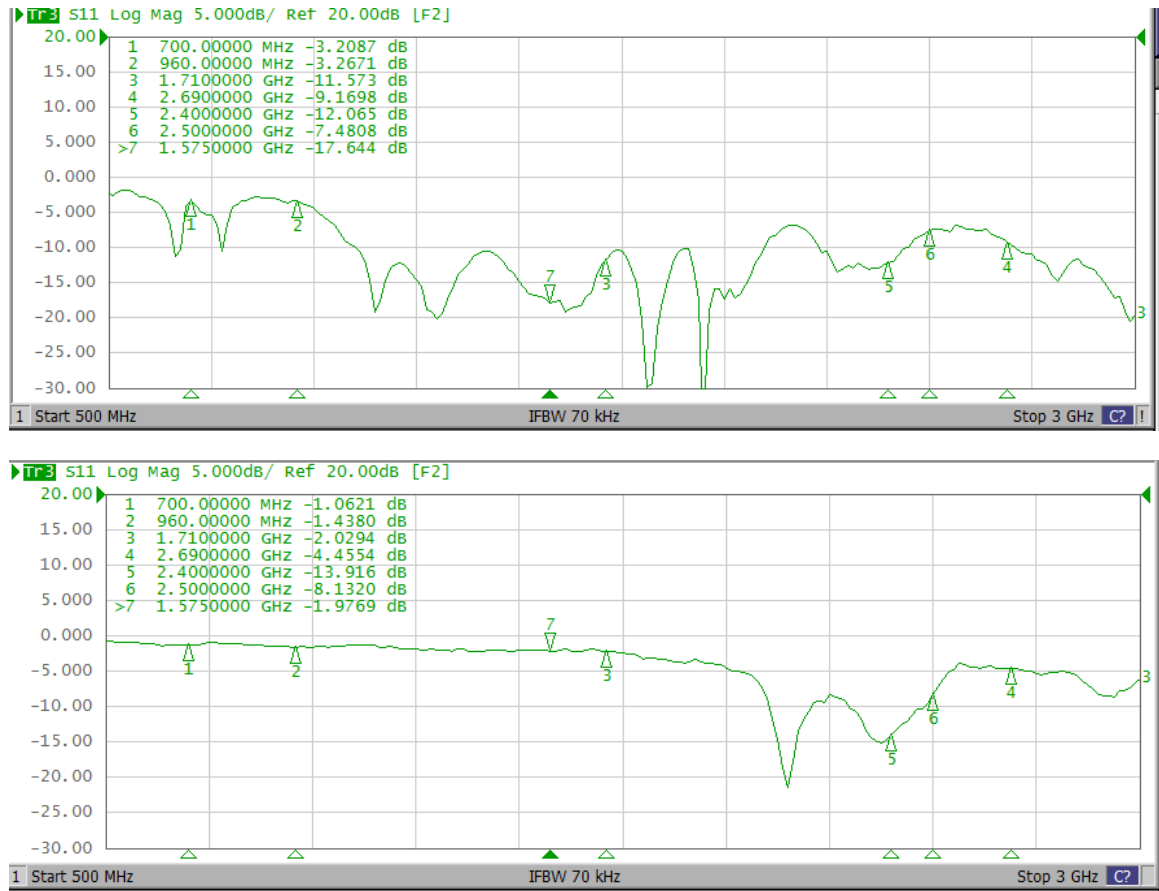


Figure 4 Return Loss

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4.2 Passive Efficiency and Gain

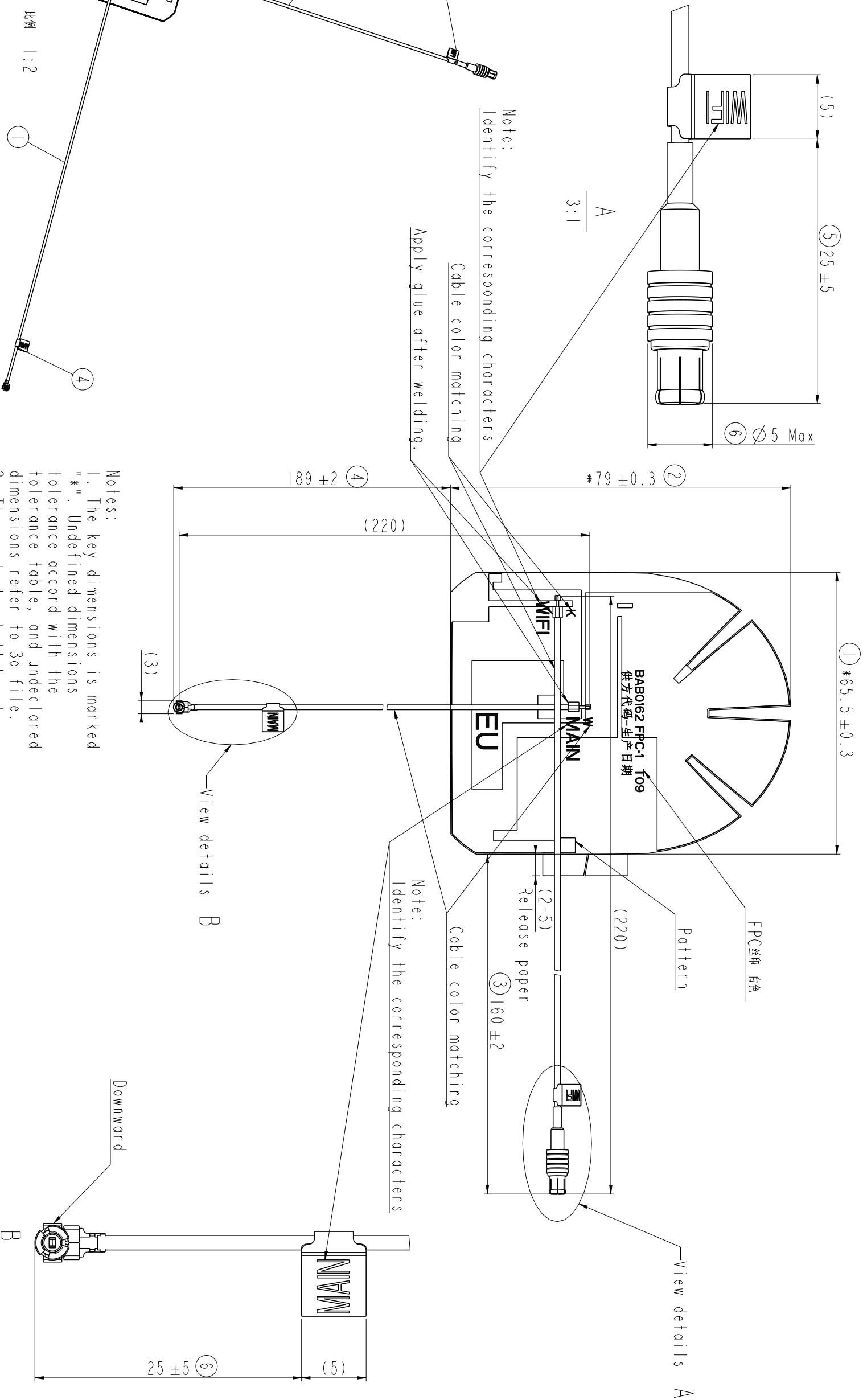
Freq. (MHz)	MAIN ANT		Freq. (MHz)	MAIN ANT		Freq. (MHz)	MAIN ANT	
	Efficiency	Gain. dBi		Efficiency	Gain. dBi		Efficiency	Gain. dBi
700	28%	0.29	1410	70%	3.35	2070	61%	2.99
710	35%	0.54	1430	68%	3.13	2090	60%	3.38
720	40%	-0.01	1450	67%	2.91	2110	58%	3.52
730	44%	-0.75	1470	65%	2.63	2130	55%	3.45
740	44%	-0.25	1490	64%	2.22	2150	53%	3.30
750	43%	0.58	1510	64%	2.06	2170	50%	2.93
760	38%	0.24	1530	66%	2.26	2190	50%	2.48
770	31%	-1.25	1550	68%	2.41	2210	53%	2.32
780	30%	-1.13	1570	69%	2.60	2230	60%	3.26
790	31%	-2.32	1590	67%	2.73	2250	62%	3.31
800	29%	-1.36	1610	69%	2.98	2270	62%	2.80
810	25%	-1.55	1630	68%	2.97	2290	60%	2.57
824	23%	-2.46	1650	66%	2.69	2310	60%	2.67
830	22%	-2.80	1670	65%	2.57	2330	62%	2.61
840	21%	-2.77	1690	59%	2.61	2350	63%	3.26
850	21%	-3.20	1710	53%	2.26	2370	63%	3.63
860	20%	-3.23	1730	49%	1.92	2390	62%	3.99
870	21%	-2.66	1750	49%	1.53	2410	60%	4.46
880	22%	-2.25	1770	53%	1.66	2430	59%	4.91
894	23%	-2.05	1790	58%	1.83	2450	55%	4.60
900	25%	-1.69	1810	64%	2.41	2470	52%	3.68
910	27%	-0.98	1830	62%	2.90	2490	51%	2.81
920	28%	-0.52	1850	59%	3.13	2510	51%	2.77
930	29%	-0.15	1870	51%	2.55	2530	52%	3.16
940	30%	0.12	1890	43%	2.10	2550	51%	3.21
950	29%	0.16	1910	41%	2.85	2570	52%	3.39
960	29%	0.14	1930	37%	2.97	2590	52%	3.50
			1950	36%	1.92	2610	53%	3.38
			1970	46%	2.32	2630	53%	3.21
			1990	52%	2.98	2650	53%	3.28
			2010	57%	3.52	2670	53%	3.42
			2030	59%	3.26	2690	55%	3.64
			2050	60%	2.66			

Freq. (MHz)	WIFI ANT	
	Efficiency	Gain. dBi
2400	52%	2.77
2410	50%	2.44
2420	48%	2.31
2430	45%	2.20
2440	44%	2.14
2450	42%	2.01
2460	40%	1.98
2470	41%	1.75
2480	40%	1.66
2490	38%	1.54
2500	37%	1.51

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



Title	ANTI(EU1)	DRW.	MZ	Date	25/2/28
Project	BAB0162	CHK.		Date	
P/N	F-0Y-31-0116-001-K0	APP.		Date	
Material	FPC+CABLE+LABEL	REV.	S01	G/W	5 g
Scale	1:1	Dimensions in mm All rights strictly reserved.			
Sheet	1 / 1				
Size	A3				

Notes:

1. The key dimensions is marked "※". Undefined dimensions tolerance accord with the tolerance table, and undeclared dimensions refer to 3d file.

2. The products shell be clean and free from oil stains, scratches, deformation, damage, etc.

3. Conform to SPEED related reliability testing requirements;

4. Conform to the requirements of Toxic and hazardous substances in products management standards (including but not limited to the EU rohs 2.0) .

5	标签-WIFI	S-70-31-0116-001-W0	S01	1
4	标签-MAIN	S-70-31-0077-003-W0	S01	1
3	FPC-1	M-Z3-31-0116-001-K0	S01	1
2	Cable-2(MCX)	S-D1-31-0116-002-K0	S01	1
1	Cable-3	S-D1-31-0116-003-W0	S01	1
Index	Part	P/N	REV.	QTY

5	标签-WIFI	S-70-31-0116-001-W0	S01	1
4	标签-MAIN	S-70-31-0077-003-W0	S01	1
3	FPC-1	M-Z3-31-0116-001-K0	S01	1
2	Cable-2(MCX)	S-D1-31-0116-002-K0	S01	1
1	Cable-3	S-D1-31-0116-003-W0	S01	1
Index	Part	P/N	REV.	QTY

Recommended: SCT/QRF 7.3-48/A.2