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Applicant: ShenZhen Doctors of Intelligence & Technology Co., Ltd

Address: 903, 904, Block A, Building 8, International Innovation Valley,

Xilidashi Second Road, Nanshan District, Shenzhen

The following sample was submitted and identified by/on behalf of the client as:

Sample Name: ESP-F WiFi Module /ESP-F1 WiFi Module/ESPC2-12 WiFi Module

Model No.: ESP-F

Client Reference ESP-F1, ESPC2-12

Information:

Sample Received Date: 2022.11.25

Testing Period: 2022.11.25—2022.11.28

Test Requested: As specified by client, Split the sample and determine the Pb, Cd, Hg, Cr(VI),

PBBs ,PBDEs, DBP, BBP, DEHP and DIBP content of the parts.

Test Method: 1. Sample Screening testing with reference to IEC 62321-3-1:2013

2. Chemical Test Method

a. Determination of Lead ,Cadmium by ICP-OES with reference to

IEC 62321-5:2013

b. Determination of Mercury by ICP-OES with reference to IEC

62321-4:2013+AMD1:2017

c. Determination of Hexavalent Chromium by Colorimetric method using

UV-Vis reference to IEC 62321-7-1:2015, IEC 62321-7-2:2017

d. Determination of PBBs and PBDEs by GC-MS with reference to IEC

62321-6:2015

e. Determination of DBP, BBP, DEHP and DIBP by GC-MS with reference

to IEC 62321-8:2017

Test Result(s): Please refer to the following page(s).

Conclusion: Base upon the performed tests by submitted sample, the test results comply

with the limits as set by Directive (EU) 2015/863 - Amendment of EU RoHS

Directive 2011/65/EU Annex II.

Checked by

Approved by

Justin

Ryan Zhang

Technical Manager



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Test Result(s)

Part No.	Part Description	Restricted Substances	Result of EDXRF (1)		Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
		Pb		BL		Comply
		Cd		BL		Comply
		Hg		BL		Comply
		Cr(VI)		BL		Comply
	Silvery color	PBBs			(2)	NA
1	metal	PBDEs				NA
		DBP				NA
	(0)	BBP		(0)		NA NA
		DEHP				NA
		DIBP	- X		<u></u>	NA
	(0)	Pb	(0)	BL	$\langle C_1 \rangle$	Comply
		Cd		BL		Comply
		Hg		BL		Comply
	(0)	Cr(VI)		BL		Comply
2	Black resistor	PBBs		BL		Comply
2	Black resistor	PBDEs		BL		Comply
		DBP	(0)		N.D.	Comply
		BBP			N.D.	Comply
		DEHP			N.D.	Comply
	(0)	DIBP		(¿ĠŚ)	N.D.	Comply
		Pb		BL		Comply
		Cd		BL		Comply
		Hg		BL	(-	Comply
		Cr(VI)		BL		Comply
•	Silvery color	PBBs		BL		Comply
3	crystal oscillator	PBDEs		BL		Comply
		DBP			N.D.	Comply
		BBP			N.D.	Comply
		DEHP			N.D.	Comply
		DIBP			N.D.	Comply



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Part No.	Part Description	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS	
		Pb	BL		Comply	
		Cd	BL		Comply	
		Hg	BL		Comply	
		Cr(VI)	BL	(<u>c</u> ^)	Comply	
		PBBs	BL		Comply	
4	Brown capacitor	PBDEs	BL		Comply	
		DBP	(c)	N.D.	Comply	
		BBP		N.D.	Comply	
		DEHP		N.D.	Comply	
		DIBP	(6)	N.D.	Comply	
		Pb	BL		Comply	
		Cd	BL		Comply	
	(0)	Hg	BL (Comply	
		Cr(VI)	BL		Comply	
_	Black electronic	PBBs	BL		Comply	
5	component	PBDEs	BL	(-c)	Comply	
		DBP		N.D.	Comply	
		BBP		N.D.	Comply	
	(3)	DEHP	(cs	N.D.	Comply	
		DIBP		N.D.	Comply	
		Pb	BL		Comply	
	(3)	Cd	BL		Comply	
		Hg	BL	2	Comply	
		Cr(VI)	BL		Comply	
6	Brown capacitor	PBBs	BL (C)		Comply	
J	Diowii capacitoi	PBDEs	BL		Comply	
		DBP		N.D.	Comply	
		BBP		N.D.	Comply	
		DEHP		N.D.	Comply	
		DIBP		N.D.	Comply	



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Part No.	Part Description	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
	(0)	Pb	BL		Comply
		Cd	BL		Comply
		Hg	BL	, 	Comply
		Cr(VI)	BL	(<u>, c^)</u>	Comply
		PBBs	BL		Comply
7	Black IC	PBDEs	BL		Comply
		DBP	(5)	N.D.	Comply
		BBP		N.D.	Comply
		DEHP		N.D.	Comply
	(3)	DIBP	(6)	N.D.	Comply
		Pb	BL		Comply
		Cd	BL		Comply
		Hg	BL		Comply
		Cr(VI)	BL		Comply
		PBBs			NA
8	Solder	PBDEs			NA C
		DBP			NA
		BBP			NA
		DEHP	(5)		NA NA
		DIBP) 	NA
		Pb	BL		Comply
		Cd	BL		Comply
		Hg	BL	(30)	Comply
		Cr(VI)	BL		Comply
		PBBs	IN C	N.D.	Comply
9	Black PCB	PBDEs	IN S	N.D.	Comply
		DBP		N.D.	Comply
		BBP		N.D.	Comply
	((0))	DEHP	(5)	N.D.	Comply
		DIBP		N.D.	Comply



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			,		
Part No.	Part Description	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
	(6)	(4)	- (c)		
		Pb	BL		Comply
		Cd	BL		Comply
		Hg	BL		Comply
		Cr(VI)	BL	(2)	Comply
10	Silvery color	PBBs			NA
.0	metal	PBDEs			NA
	(0)	DBP	(60)		NA NA
		BBP			NA
		DEHP		<u></u>	NA
(C)	(0)	DIBP	(5)	(<u>-</u> C_)	NA C
		Pb	BL		Comply
		Cd	BL		Comply
	$\langle C_j \rangle$	Hg	BL		Comply
		Cr(VI)	BL		Comply
-44	Drawn can acitar	PBBs	BL		Comply
(11	Brown capacitor	PBDEs	BL	(-0 1)	Comply
		DBP		N.D.	Comply
		BBP		N.D.	Comply
		DEHP	(3)	N.D.	Comply
		DIBP		N.D.	Comply
		Pb	BL		Comply
		Cd	BL	 -	Comply
		Hg	BL		Comply
		Cr(VI)	BL		Comply
	Silvery color	PBBs	BL		Comply
12	crystal oscillator	PBDEs	BL	<i></i>	Comply
		DBP		N.D.	Comply
	(A)	BBP		N.D.	Comply
	((C))	DEHP	(5)	N.D.	Comply
		DIBP		N.D.	Comply
		טוסר		IN.D.	Comply



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Part No.	Part Description	Restricted Result of Substances EDXRF (1)			Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
		Pb		BL		Comply
		Cd		BL		Comply
		Hg	-,	BL		Comply
		Cr(VI)	(0)	BL	(<u>c</u>)	Comply
		PBBs		IN	N.D.	Comply
13	Black IC	PBDEs		IN .	N.D.	Comply
		DBP		(c)	N.D.	Comply
		BBP			N.D.	Comply
		DEHP			N.D.	Comply
		DIBP	(0)		N.D.	Comply
		Pb		BL		Comply
		Cd		BL		Comply
	(c)	Hg		BL C		Comply
		Cr(VI)		BL		Comply
		PBBs		BL		Comply
14	Black IC	PBDEs		BL	(-61)	Comply
		DBP			N.D.	Comply
		BBP			N.D.	Comply
	(6)	DEHP		(3)	N.D.	Comply
		DIBP			N.D.	Comply
		Pb		BL		Comply
	(3)	Cd		BL		Comply
		Hg		BL		Comply
		Cr(VI)		BL		Comply
15	Solder	PBBs		(3)		NA NA
15	Solder	PBDEs				NA
		DBP				NA
		BBP				NA
		DEHP			(2)	NA NA
		DIBP				NA



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Part No.	Part Description	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
		Pb	BL		Comply
		Cd	BL		Comply
		Hg	BL	,	Comply
		Cr(VI)	BL	(<u>c</u> ^)	Comply
		PBBs	IN	N.D.	Comply
16	Black PCB	PBDEs	IN .	N.D.	Comply
		DBP	(6)	N.D.	Comply
		BBP		N.D.	Comply
		DEHP		N.D.	Comply
	(3)	DIBP	E)	N.D.	Comply
		Pb	BL		Comply
		Cd	BL		Comply
		Hg	BL		Comply
		Cr(VI)	BL		Comply
	Silvery color	PBBs			NA
17	metal	PBDEs			NA C
	motor	DBP			NA NA
		BBP			NA
		DEHP	(54)		NA NA
		DIBP			NA
		Pb	BL		Comply
		Cd	BL		Comply
		Hg	BL	(60)	Comply
		Cr(VI)	BL		Comply
		PBBs	BL A		Comply
18	Brown capacitor	PBDEs	BL		Comply
		DBP		N.D.	Comply
		BBP		N.D.	Comply
	((C))	DEHP	(0)	N.D.	Comply
		DIBP		N.D.	Comply
		סוטר		IN.D.	Comply



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Part No.	Part Description	Restricted Result of EDXRF (1)			Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
	(0)	Pb		BL)	Comply
		Cd		BL		Comply
		Hg		BL		Comply
		Cr(VI)		BL	(<u>c</u>)	Comply
	Silvery color	PBBs		IN	N.D.	Comply
19	crystal oscillator	PBDEs		IN	N.D.	Comply
	Crystal Oscillator	DBP			N.D.	Comply
		BBP			N.D.	Comply
		DEHP			N.D.	Comply
		DIBP			N.D.	Comply
		Pb		BL		Comply
		Cd		BL		Comply
		Hg		BL C		Comply
		Cr(VI)		BL		Comply
		PBBs		BL		Comply
20	White LED	PBDEs		BL		Comply
		DBP			N.D.	Comply
		BBP			N.D.	Comply
		DEHP		(3)	N.D.	Comply
		DIBP			N.D.	Comply
		Pb		BL		Comply
		Cd		BL		Comply
		Hg		BL	(30)	Comply
		Cr(VI)		BL		Comply
		PBBs		BL		Comply
21	Black IC	PBDEs		BL) <u></u>	Comply
		DBP			N.D.	Comply
		BBP			N.D.	Comply
	((C))	DEHP	(SC)		N.D.	Comply
		DIBP			N.D.	Comply



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Part No.	Part Description	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
		Pb	BL		Comply
		Cd	BL		Comply
		Hg	BL	,,	Comply
	(0)	Cr(VI)	BL	(<u>c</u> ())	Comply
		PBBs	BL		Comply
22	Black IC	PBDEs	BL		Comply
		DBP	(C)	N.D.	Comply
		BBP		N.D.	Comply
		DEHP		N.D.	Comply
		DIBP	<u></u>	N.D.	Comply
		Pb	BL		Comply
		Cd	BL		Comply
	(6)	Hg	BL C		Comply
		Cr(VI)	BL		Comply
		PBBs	BL		Comply
23	Black resistor	PBDEs	BL	(-61)	Comply
		DBP		N.D.	Comply
		BBP		N.D.	Comply
		DEHP	(5)	N.D.	Comply
		DIBP		N.D.	Comply
		Pb	BL		Comply
	(3)	Cd	BL	(Comply
		Hg	BL		Comply
		Cr(VI)	BL		Comply
24	Solder	PBBs	(3)		NA NA
24	Solder	PBDEs			NA
		DBP			NA
		BBP			NA
		DEHP			NA NA
		DIBP			NA



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Part No.	Part Description	Restricted Substances	Result of EDXRF (1)	Result of Chemical Testing (2) (mg/kg)	Conclusion on RoHS
		Pb	BL		Comply
		Cd	BL		Comply
		Hg	BL		Comply
	(6)	Cr(VI)	BL	(4 <u>c</u> .)	Comply
25	Dlock DCD	PBBs	IN	N.D.	Comply
25	Black PCB	PBDEs	IN	N.D.	Comply
	$\langle C_{i} \rangle$	DBP	(c)	N.D.	Comply
		BBP		N.D.	Comply
		DEHP		N.D.	Comply
(C)		DIBP	<u>5)</u>	N.D.	Comply





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Remark:

- (1) (a) It is the result on total Br while test item on restricted substances is PBBs/PBDEs. It is the result on total Cr while test item on restricted substances is Cr(VI).
 - (b) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC/MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC62321-3-1:2013 (unit: mg/kg)

		0	, 5 5,
Element	Polymer	Metal	Composite Materials
7	BL≤(70-3σ) <x<< td=""><td>BL≤(70-3σ)<x<< td=""><td>LOD<x<(150+3σ)< td=""></x<(150+3σ)<></td></x<<></td></x<<>	BL≤(70-3σ) <x<< td=""><td>LOD<x<(150+3σ)< td=""></x<(150+3σ)<></td></x<<>	LOD <x<(150+3σ)< td=""></x<(150+3σ)<>
Cd	(130+3σ)≤OL	(130+3σ) ≤OL	≤OL
Dh.	BL≤(700-3σ) <x<< td=""><td>BL≤(700-3σ)<x<< td=""><td>BL≤(500-3σ)<x<< td=""></x<<></td></x<<></td></x<<>	BL≤(700-3σ) <x<< td=""><td>BL≤(500-3σ)<x<< td=""></x<<></td></x<<>	BL≤(500-3σ) <x<< td=""></x<<>
Pb	(1300+3σ) ≤OL	(1300+3σ) ≤OL	(1500+3σ) ≤OL
Uа	BL≤(700-3σ) <x<< td=""><td>BL≤(700-3σ)<x<< td=""><td>BL≤(500-3σ)<x<< td=""></x<<></td></x<<></td></x<<>	BL≤(700-3σ) <x<< td=""><td>BL≤(500-3σ)<x<< td=""></x<<></td></x<<>	BL≤(500-3σ) <x<< td=""></x<<>
Hg	(1300+3σ)≤OL	(1300+3σ)≤OL	(1500+3σ) ≤OL
Br	BL≤(300-3σ) <x< td=""><td>NA</td><td>BL≤(250-3σ)<x< td=""></x<></td></x<>	NA	BL≤(250-3σ) <x< td=""></x<>
Cr	BL≤(700-3σ) <x< td=""><td>BL≤(700-3σ)<x< td=""><td>BL≤(500-3σ)<x< td=""></x<></td></x<></td></x<>	BL≤(700-3σ) <x< td=""><td>BL≤(500-3σ)<x< td=""></x<></td></x<>	BL≤(500-3σ) <x< td=""></x<>

- (c) BL = Below Limit, OL = Over Limit, IN = Inconclusive, LOD = Limit of Detection,
 - --- = Not Regulated, NA = Not Applicable.
- (d) The XRF screening test for RoHS elements The reading may be different to the actual content in the sample be of non-uniformity composition.
- (2) (a) 1mg/kg = 1ppm = 0.0001%, N.D.= Not Detected (<MDL), --- = Not Conducted.
 - (b) Unit and Method Detection Limit (MDL) in chemical test

Test Items	Pb	Cd	Hg	Cr(VI)	PBBs	PBDEs	DBP	BBP	DEHP	DIBP
MDL(mg/kg)	10	10	10	*	100	100	100	100	100	100
Limit(mg/kg)	1000	100	1000	1000	1000	1000	1000	1000	1000	1000

^{*}MDL of Cr(VI) for polymer, composite sample is 10 mg/kg,

MDL of Cr(VI) for metal sample is 0.10 µg/cm²,

The limit is quoted from the Directive (EU) 2015/863 - Amendment of EU RoHS Directive 2011/65/EU Annex II.

- (c) According to IEC 62321-7-1:15, For metal samples,
 - a. When the Cr (VI) concentration is > the 0,13 μ g/cm², the sample is positive for Cr(VI) and considered to contain Cr(VI).
 - b. When the Cr (VI) concentration is N.D.(< the 0,10 μ g/cm²), the sample is negative for Cr(VI) and considered a non-Cr(VI) based coating.
 - c. When the Cr (VI) concentration is \geq the 0,10 µg/cm² and \leq the 0,13 µg/cm², the result is considered to be inconclusive Unavoidable coating variations may influence the determination.

Because the storage condition and production date of the sample are not known, the test results of



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the sample of hexavalent chromium can only represent the state of hexavalent chromium in the samples tested.





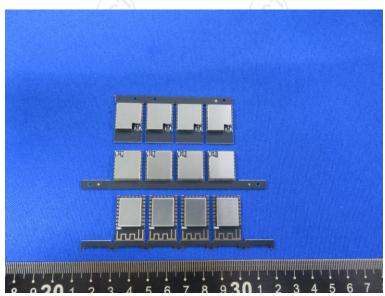
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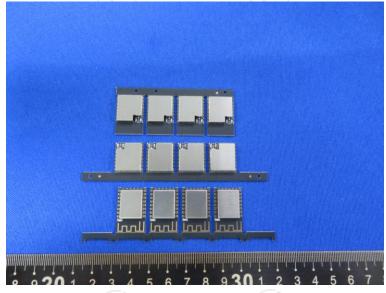


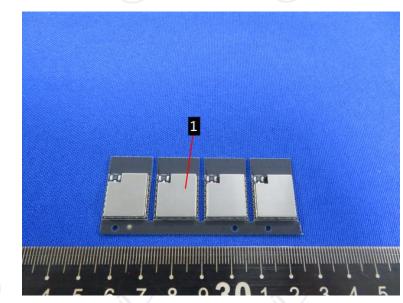
Photo(s) of the sample(s)

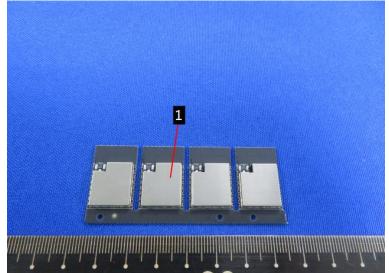
















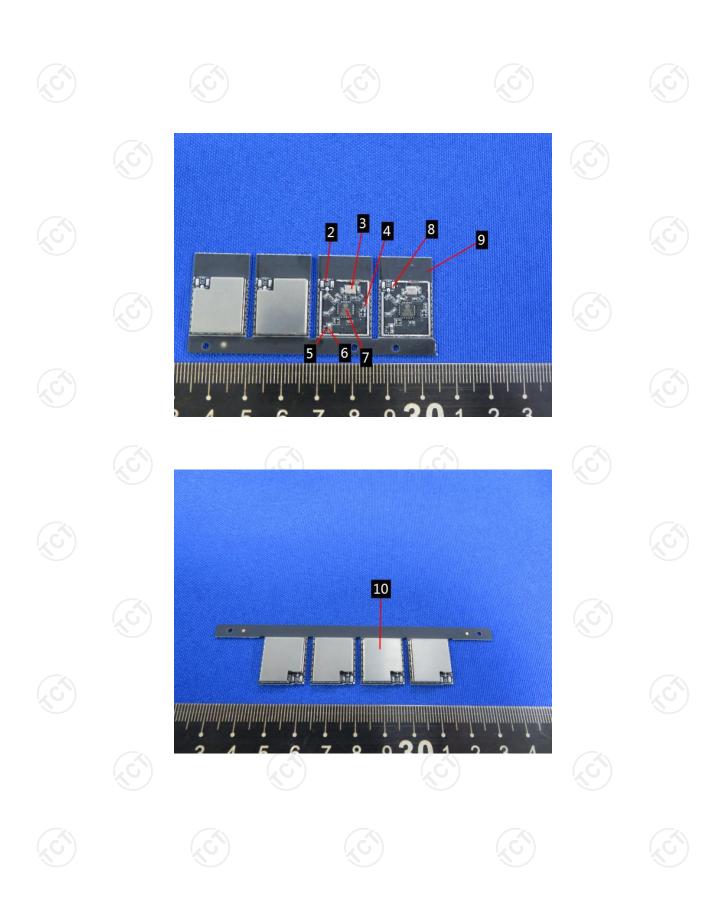






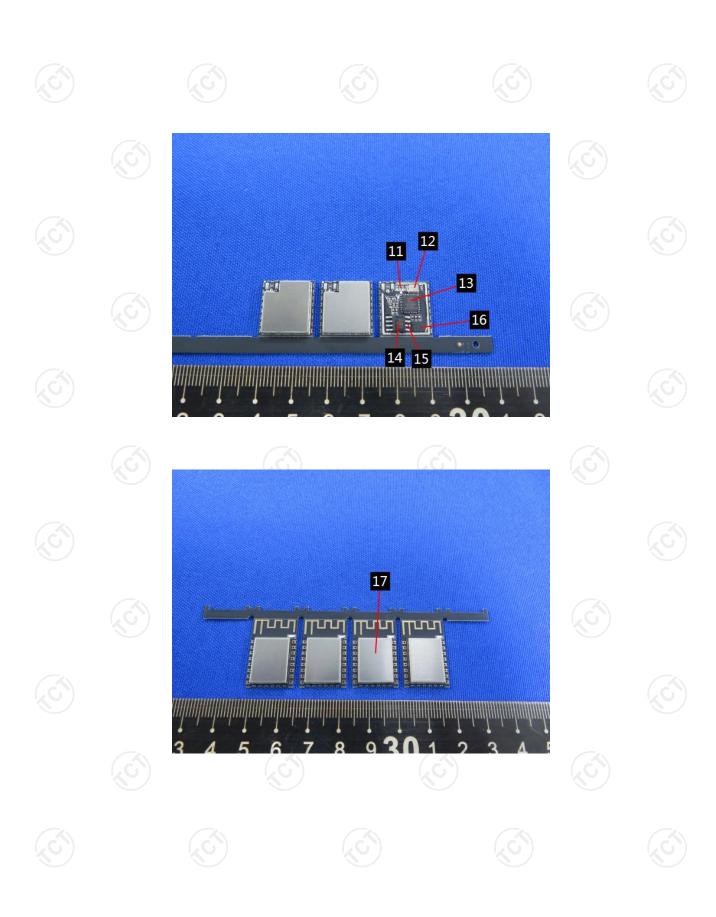


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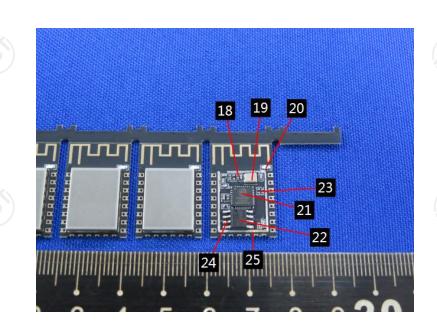


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*** End of Report ***

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