TEST REPORT

Product Name	:	True wireless Bluetooth
Brand Mark	:	Lenovo, thinkplus
Model No.	:	LP40
Extension Model	:	Lenovo K3; K3 plus; Lenovo M1; TH10; Lenovo GM2; Lenovo GM3; Lenovo GM5; Lenovo GM6; LP1 pro; Lenovo LP1S; thinkplus LP2; LP3 pro; Lenovo LP5; Lenovo LP6; Lenovo LP7; LP11; LP12; TH20; TH30; LP3; LP8; Lenovo LP50; LP40 pro; LP60; LP70; Lenovo LP80; PD1X; Lenovo SH1; HE05X; thinkplus X3; thinkplus X4; Lenovo X5; Lenovo BH1; Lenovo BH2; BH3; BH4
FCC ID		2A8SE-22090001
Report Number	:	BLA-EMC-202209-A4901
Date of Sample Receipt	:	2022/9/22
Date of Test	:	2022/9/22 to 2022/9/27
Date of Issue	:	2022/9/27
Test Standard	:	47 CFR Part 15, Subpart B
Test Result	:	Pass

Prepared for:

Lenovo (Beijing) Co. LTD

Building 2, Building 2, No.6, Xindi West Road, Haidong District, Beijing

Prepared by:

BlueAsia of Technical Services(Shenzhen) Co.,Ltd.

Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China

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Compiled by: Charlie Review by: Sweely

Approved by: Blue Zhong Date: 2022/9/27

BlueAsia of Technical Services(Shenzhen) Co., Ltd. BLA

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REPORT REVISE RECORD

Version No.	Date	Description
00	2022/9/27	Original

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TABLE OF CONTENTS

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1 TEST SUMMARY

Test item	Test Requirement	Test Method	Class/Severity	Result
Conducted Emissions at Mains Terminals (150kHz-30MHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (above 1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass
Radiated Emissions (30MHz-1GHz)	47 CFR Part 15, Subpart B	ANSI C63.4:2014	Class B	Pass

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2 GENERAL INFORMATION

Applicant	Lenovo (Beijing) Co. LTD
Address	Building 2, Building 2, No.6, Xindi West Road, Haidong District, Beijing
Manufacturer	Lenovo (Beijing) Co. LTD
Address	201-H2-6, 2nd Floor, Building 2, No. 6 Shangdi West Road, Haiding District, Beijing
Factory	Lenovo (Beijing) Co. LTD
Address	201-H2-6, 2nd Floor, Building 2, No. 6 Shangdi West Road, Haiding District, Beijing
Product Name	True wireless Bluetooth
Test Model No.	LP40
Extension Model	Lenovo K3; K3 plus; Lenovo M1; TH10; Lenovo GM2; Lenovo GM3; Lenovo GM5; Lenovo GM6; LP1 pro; Lenovo LP1S; thinkplus LP2; LP3 pro; Lenovo LP5; Lenovo LP6; Lenovo LP7; LP11; LP12; TH20; TH30; LP3; LP8; Lenovo LP50; LP40 pro; LP60; LP70; Lenovo LP80; PD1X; Lenovo SH1; HE05X; thinkplus X3; thinkplus X4; Lenovo X5; Lenovo BH1; Lenovo BH2; BH3; BH4
Remark	All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are model name for commercial purpose.

3 GENERAL DESCRIPTION OF E.U.T.

Hardware Version	XRX-V23-1
Software Version	XRX-SDK-V04
Power supply	Earphone:DC3.7V Charging base:DC3.7V

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4 TEST MODE

TEST MODE	TEST MODE DESCRIPTION
Charging	Keep the battery of the EUT in charging mode
Operation(BT)	Pair the device with Smartphone via Bluetooth and keep the music playing.
Remark:Only the data of the worst mode would be recorded in this report.	

5 MEASUREMENT UNCERTAINTY

Parameter	Expanded Uncertainty (Confidence of 95%)
Radiated Emission(9kHz-30MHz)	±4.34dB
Radiated Emission(30Mz-1000MHz)	±4.24dB
Radiated Emission(1GHz-18GHz)	±4.68dB
AC Power Line Conducted Emission(150kHz-30MHz)	±3.45dB

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6 DESCRIPTION OF SUPPORT UNIT

Device Type	Manufacturer	Model Name	Serial No.	Remark
AC Adapter	UGREEN	CD112	N/A	N/A

7 LABORATORY LOCATION

All tests were performed at:
BlueAsia of Technical Services(Shenzhen) Co., Ltd.
Building C, No. 107, Shihuan Road, Shiyan Sub-District, Baoan District, Shenzhen, Guangdong Province, China
Telephone: TEL: +86-755-28682673 FAX: +86-755-28682673
No tests were sub-contracted.

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8 TEST INSTRUMENTS LIST

Test Equipment Of Conducted Emissions at Mains Terminals (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal.Date**	**Cal.Due**
Shield room	SKET	833	N/A	25/11/2020	24/11/2023
Receiver	R&S	ESPI3	101082	24/9/2022	23/9/2023
LISN	R&S	ENV216	3560.6550.15	24/9/2022	23/9/2023
LISN	AT	AT166-2	AKK1806000003	26/9/2022	25/9/2023
EMI software	EZ	EZ-EMC	N/A	N/A	N/A

Test Equipment Of Radiated Emissions (above 1GHz)					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal.Date**	**Cal.Due**
Chamber	SKET	966	N/A	10/11/2020	9/11/2023
Spectrum	R&S	FSP40	100817	24/9/2022	23/9/2023
Horn Antenna	Schwarzbeck	9120D	01892 P:00331	26/9/2022	25/9/2023
Amplifier	SKET	LNPA-0118-45	N/A	24/9/2022	23/9/2023
EMI software	EZ	EZ-EMC	N/A	N/A	N/A

Test Equipment Of Radiated Emissions (30MHz-1GHz)					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal.Date**	**Cal.Due**
Chamber	SKET	966	N/A	10/11/2020	9/11/2023
Receiver	R&S	ESR7	101199	24/9/2022	23/9/2023
EMI software	EZ	EZ-EMC	N/A	N/A	N/A
broadband Antenna	Schwarzbeck	VULB9168	00836 P:00227	26/9/2022	25/9/2023

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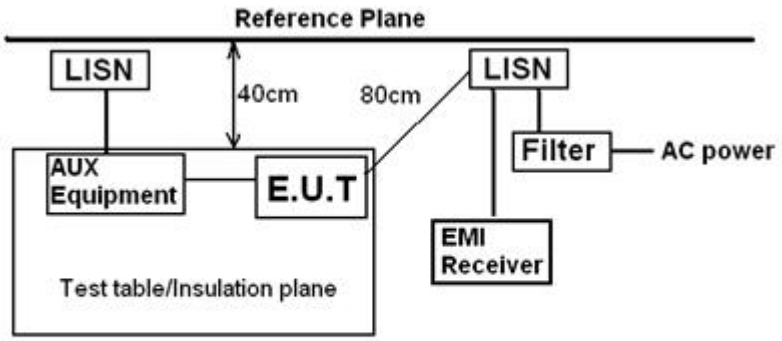
9 CONDUCTED EMISSIONS AT MAINS TERMINALS (150KHZ-30MHZ)

Test Standard	47 CFR Part 15, Subpart B
Test Method	ANSI C63.4:2014
Test Mode (Pre-Scan)	Charging;Operation(BT)
Test Mode (Final Test)	Charging
Tester	Charlie
Temperature	25℃
Humidity	60%

9.1 LIMITS

Frequency Range	Limit
0.15M-0.5MHz	66dB(μV)-56dB(μV) quasi-peak, 56dB(μV)-46dB(μV) average
0.5M-5MHz	56dB(μV) quasi-peak, 46dB(μV) average
5M-30MHz	60dB(μV) quasi-peak, 50dB(μV) average

9.2 BLOCK DIAGRAM OF TEST SETUP



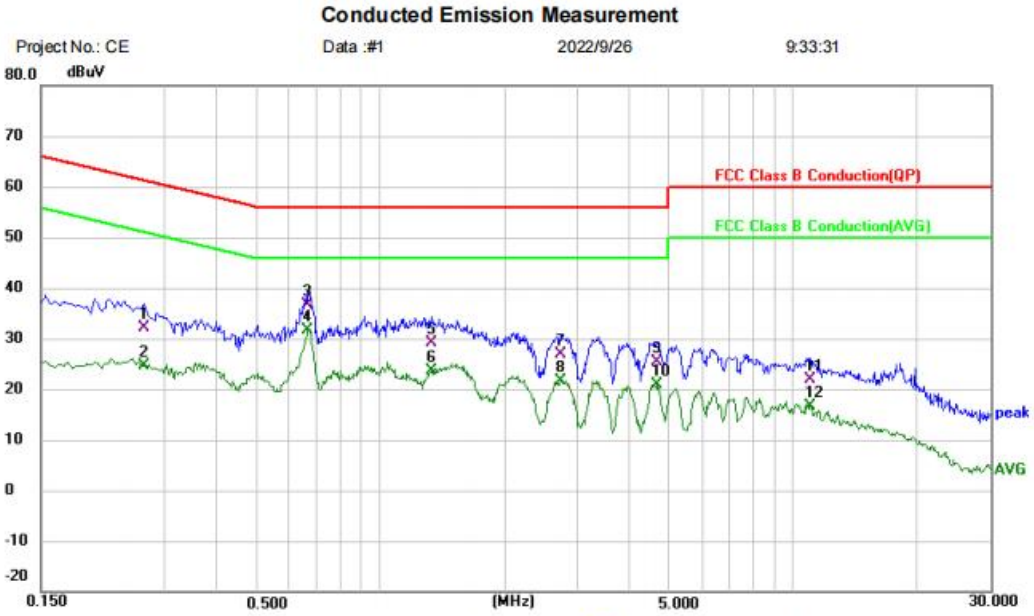
Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

9.3 PROCEDURE

An initial pre-scan was performed with peak detector.Quasi-Peak or Average measurement were performed at the frequencies with maximized peak emission were detected.

9.4 TEST DATA

[TestMode: Charging]; [Line: Neutral];[Power:AC120V/60Hz]



Site
Limit: FCC Class B Conduction(QP)
EUT: Bluetooth headset
M/N: LP40
Mode: Charging mode
Note:

Phase: N
Power:

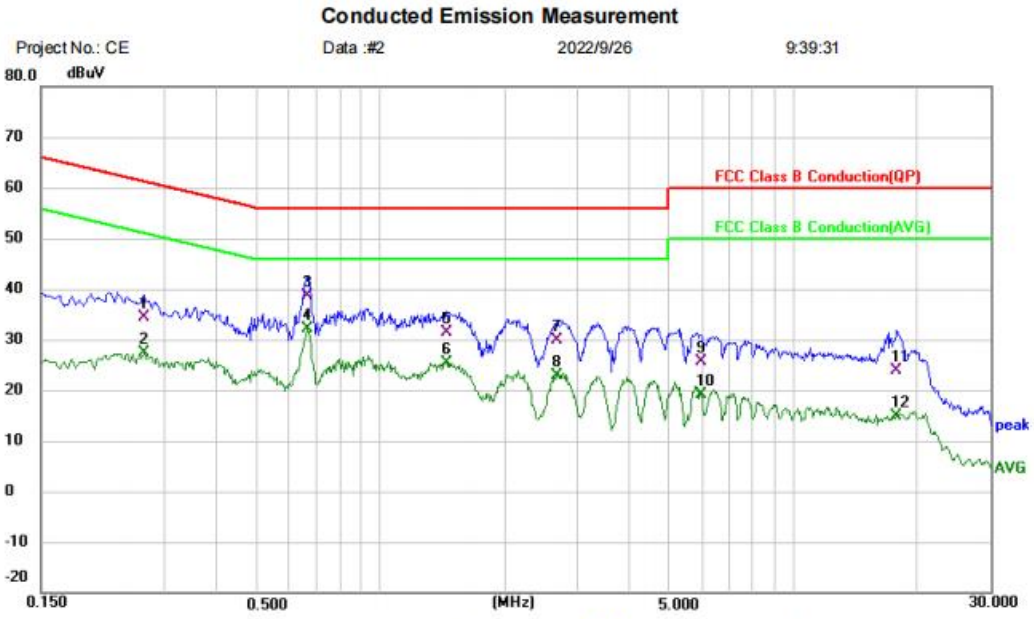
Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2660	21.82	10.30	32.12	61.24	-29.12	QP	
2		0.2660	14.34	10.30	24.64	51.24	-26.60	AVG	
3		0.6660	26.82	9.82	36.64	56.00	-19.36	QP	
4	*	0.6660	21.86	9.82	31.68	46.00	-14.32	AVG	
5		1.3300	19.23	9.85	29.08	56.00	-26.92	QP	
6		1.3300	13.78	9.85	23.63	46.00	-22.37	AVG	
7		2.7220	17.01	9.89	26.90	56.00	-29.10	QP	
8		2.7220	11.67	9.89	21.56	46.00	-24.44	AVG	
9		4.6740	15.33	9.94	25.27	56.00	-30.73	QP	
10		4.6740	10.94	9.94	20.88	46.00	-25.12	AVG	
11		11.0060	11.59	10.18	21.77	60.00	-38.23	QP	
12		11.0060	6.33	10.18	16.51	50.00	-33.49	AVG	

*:Maximum data x:Over limit !:over margin (Reference Only

Test Result: Pass

[TestMode: Charging]; [Line: Line] ;[Power:AC120V/60Hz]



Site
Phase: L1
Temperature: (C)
Limit: FCC Class B Conduction(QP)
Power:
Humidity: %RH
EUT: Bluetooth headset
M/N: LP40
Mode: Charging mode
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2660	24.00	10.38	34.38	61.24	-26.86	QP	
2		0.2660	16.90	10.38	27.28	51.24	-23.96	AVG	
3		0.6620	28.75	9.89	38.64	56.00	-17.36	QP	
4	*	0.6620	22.36	9.89	32.25	46.00	-13.75	AVG	
5		1.4420	21.36	9.93	31.29	56.00	-24.71	QP	
6		1.4420	15.45	9.93	25.38	46.00	-20.62	AVG	
7		2.6660	19.82	9.96	29.78	56.00	-26.22	QP	
8		2.6660	12.82	9.96	22.78	46.00	-23.22	AVG	
9		5.9780	15.60	10.05	25.65	60.00	-34.35	QP	
10		5.9780	9.14	10.05	19.19	50.00	-30.81	AVG	
11		17.7700	13.60	10.40	24.00	60.00	-36.00	QP	
12		17.7700	4.40	10.40	14.80	50.00	-35.20	AVG	

*:Maximum data x:Over limit !:over margin (Reference Only

Test Result: Pass

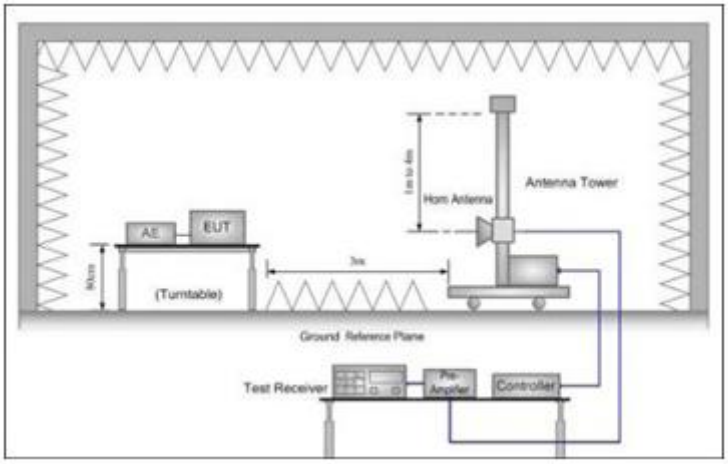
10 RADIATED EMISSIONS (ABOVE 1GHZ)

Test Standard	47 CFR Part 15, Subpart B
Test Method	ANSI C63.4:2014
Test Mode (Pre-Scan)	Charging;Operation(BT)
Test Mode (Final Test)	Operation(BT)
Tester	Charlie
Temperature	25℃
Humidity	60%

10.1 LIMITS

Frequency Range	Limit
Above 1GHz	74(dBμV/m) peak, 54(dBμV/m) average

10.2 BLOCK DIAGRAM OF TEST SETUP

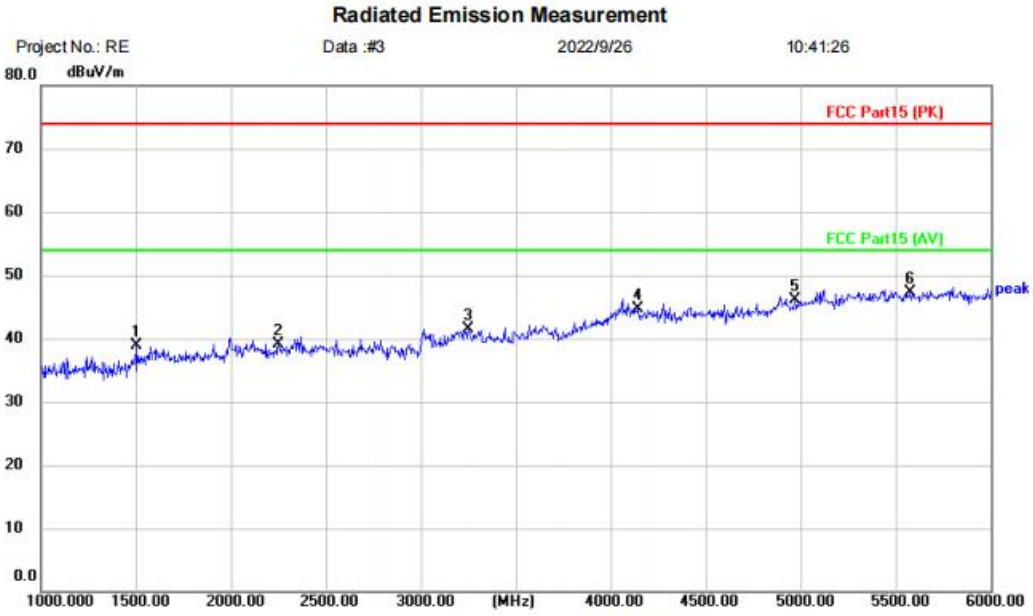


10.3 PROCEDURE

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Average measurements were conducted based on the peak sweep graph. The EUT was measured by Horn antenna with 2 orthogonal polarities.

10.4 TEST DATA

[TestMode: Charging]; [Polarity: Horizontal]



Site
Limit: FCC Part15 (PK)
EUT: Bluetooth headset
M/N: LP40
Mode: BT Mode
Note:

Polarization: *Horizontal*
Power:

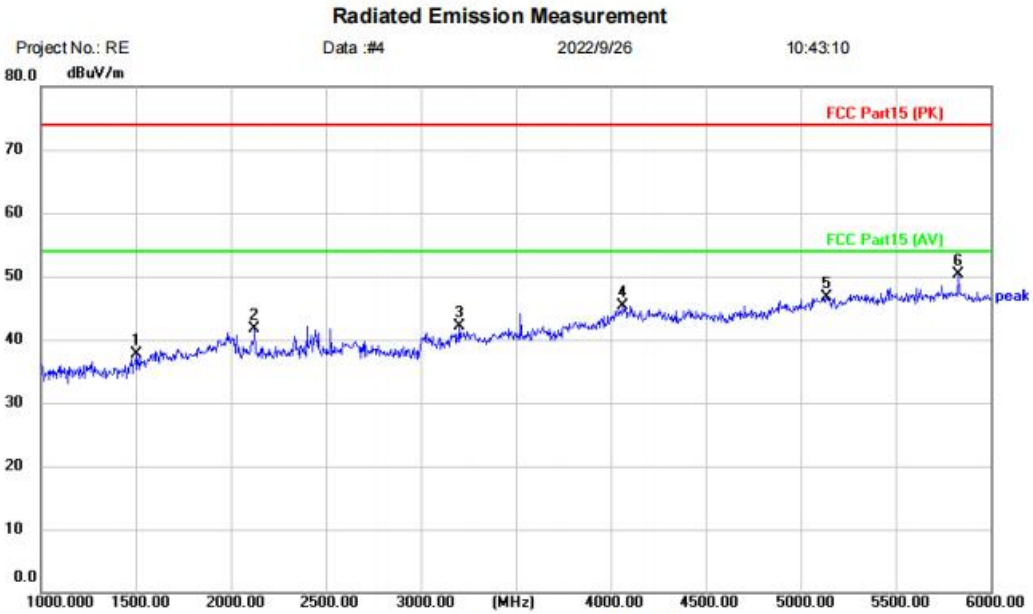
Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		1500.000	46.58	-7.74	38.84	74.00	-35.16	peak	
2		2250.000	43.79	-4.59	39.20	74.00	-34.80	peak	
3		3250.000	45.38	-3.86	41.52	74.00	-32.48	peak	
4		4145.000	43.76	0.86	44.62	74.00	-29.38	peak	
5		4970.000	43.08	2.97	46.05	74.00	-27.95	peak	
6	*	5575.000	42.59	4.63	47.22	74.00	-26.78	peak	

*:Maximum data x:Over limit !:over margin (Reference Only

Test Result: Pass

[TestMode: Charging]; [Polarity: Vertical]



Site
Limit: FCC Part15 (PK)
EUT: Bluetooth headset
M/N: LP40
Mode: BT Mode
Note:

Polarization: *Vertical*
Power:

Temperature: (C)
Humidity: %RH

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	Comment
1		1500.000	45.47	-7.74	37.73	74.00	-36.27	peak	
2		2125.000	46.93	-5.15	41.78	74.00	-32.22	peak	
3		3205.000	46.04	-4.02	42.02	74.00	-31.98	peak	
4		4065.000	44.88	0.38	45.26	74.00	-28.74	peak	
5		5135.000	43.14	3.63	46.77	74.00	-27.23	peak	
6	*	5830.000	45.66	4.68	50.34	74.00	-23.66	peak	

*:Maximum data x:Over limit !:over margin (Reference Only

Test Result: Pass

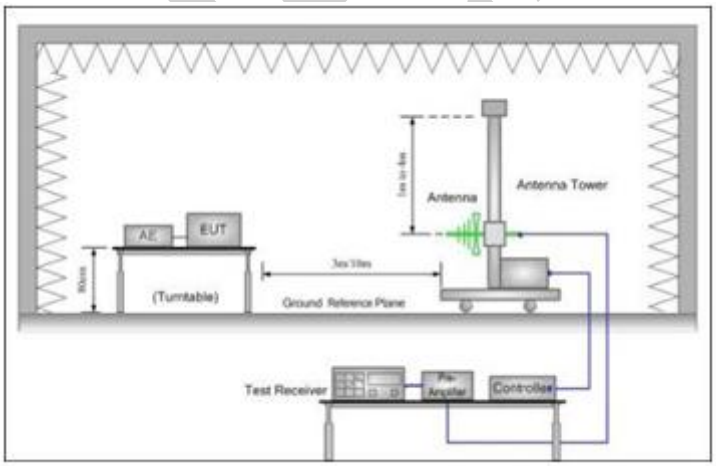
11 RADIATED EMISSIONS (30MHZ-1GHZ)

Test Standard	47 CFR Part 15, Subpart B
Test Method	ANSI C63.4:2014
Test Mode (Pre-Scan)	Charging;Operation(BT)
Test Mode (Final Test)	Charging
Tester	Charlie
Temperature	25℃
Humidity	60%

11.1 LIMITS

Frequency Range	Limit
30MHz -88MHz	40.0(dBμV/m) quasi-peak
88MHz-216MHz	43.5(dBμV/m) quasi-peak
216MHz-960MHz	46.0(dBμV/m) quasi-peak
960MHz-1000MHz	54.0(dBμV/m) quasi-peak

11.2 BLOCK DIAGRAM OF TEST SETUP

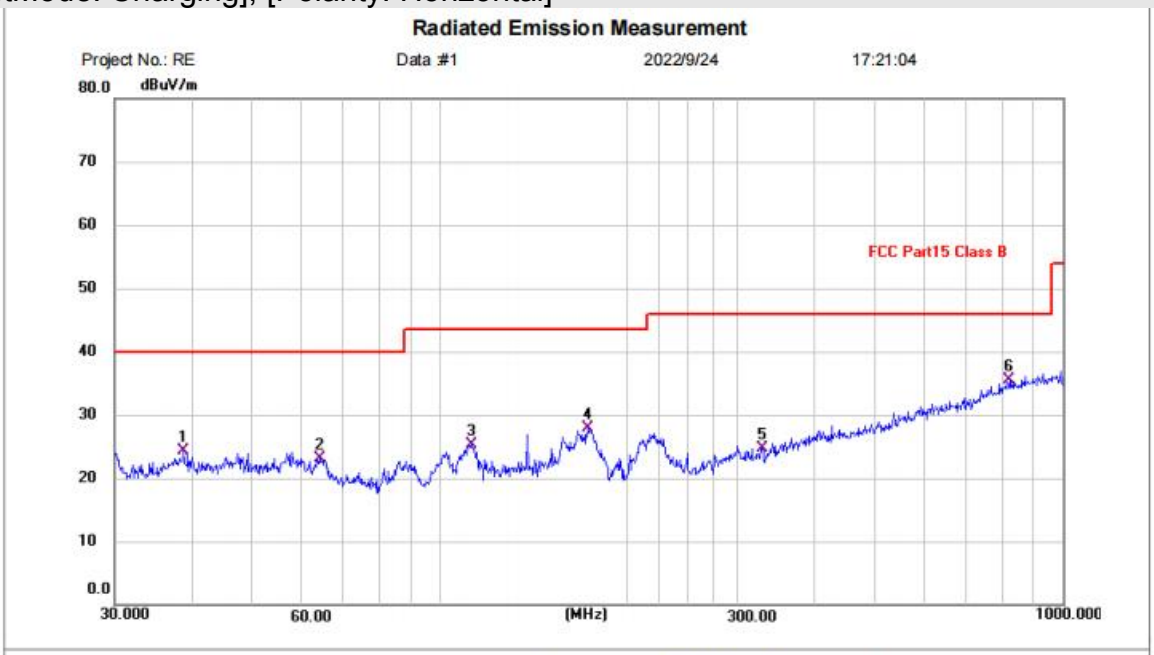


11.3 PROCEDURE

An initial pre-scan was performed in the chamber using the spectrum analyser in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by BiConiLog antenna with 2 orthogonal polarities.

11.4 TEST DATA

[TestMode: Charging]; [Polarity: Horizontal]



Site
Limit: FCC Part15 Class B
EUT: Bluetooth headset
M/N: LP40
Mode: Charging mode
Note:

Polarization: *Horizontal*
Power:

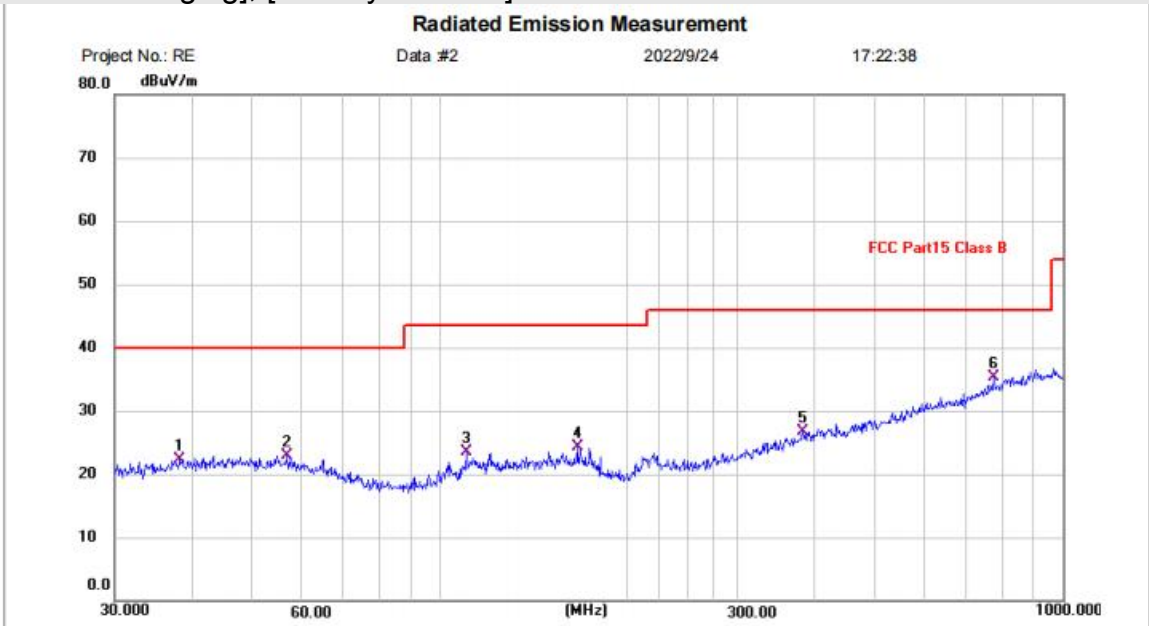
Temperature: (C)
Humidity: %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	38.7517	33.20	-8.91	24.29	40.00	-15.71	QP	P	
2	63.9827	33.05	-9.92	23.13	40.00	-16.87	QP	P	
3	112.1304	35.63	-10.42	25.21	43.50	-18.29	QP	P	
4	172.5987	37.76	-9.92	27.84	43.50	-15.66	QP	P	
5	329.0390	32.03	-7.32	24.71	46.00	-21.29	QP	P	
6 *	821.7103	32.64	2.89	35.53	46.00	-10.47	QP	P	

*:Maximum data x:Over limit !:over margin

Test Result: Pass

[TestMode: Charging]; [Polarity: Vertical]



Site
Limit: FCC Part15 Class B
EUT: Bluetooth headset
M/N: LP40
Mode: Charging mode
Note:

Polarization: *Vertical*
Power:

Temperature: (C)
Humidity: %RH

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	38.2120	31.36	-8.97	22.39	40.00	-17.61	QP	P	
2	56.7917	31.79	-8.98	22.81	40.00	-17.19	QP	P	
3	110.1816	34.06	-10.62	23.44	43.50	-20.06	QP	P	
4	166.0680	33.63	-9.36	24.27	43.50	-19.23	QP	P	
5	382.5878	32.21	-5.41	26.80	46.00	-19.20	QP	P	
6 *	774.1584	33.16	2.05	35.21	46.00	-10.79	QP	P	

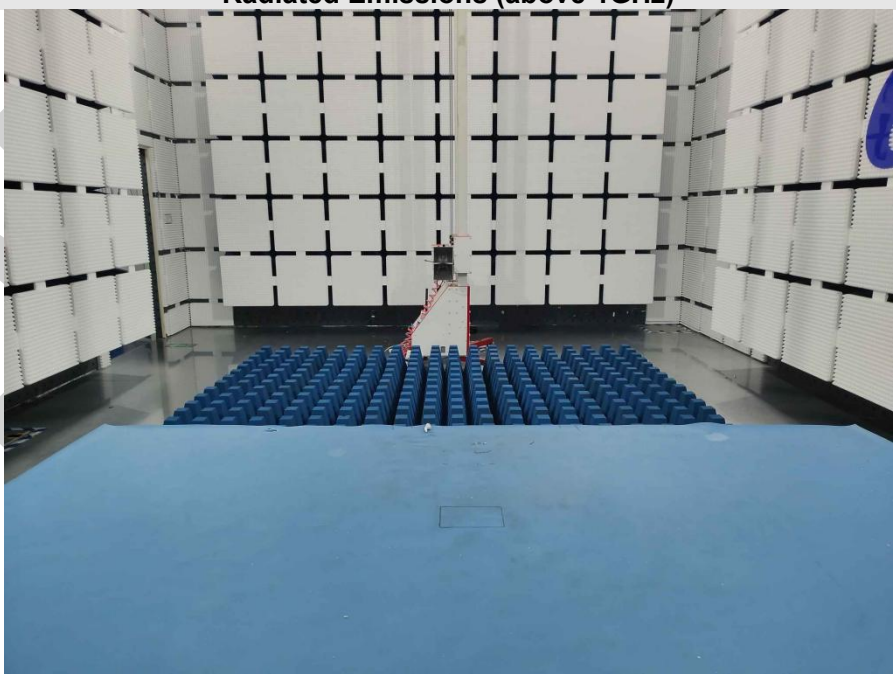
*:Maximum data x:Over limit !:over margin

Test Result: Pass

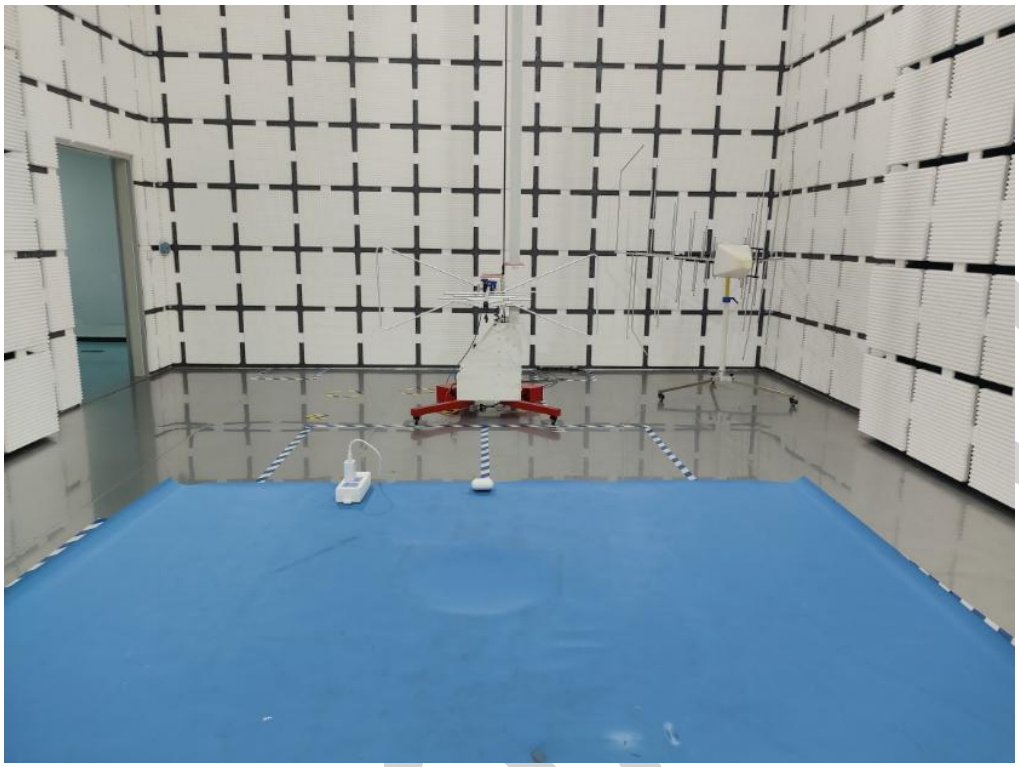
APPENDIX A: PHOTOGRAPHS OF TEST SETUP

Conducted Emissions at Mains Terminals (150kHz-30MHz)

Radiated Emissions (above 1GHz)



Radiated Emissions (30MHz-1GHz)



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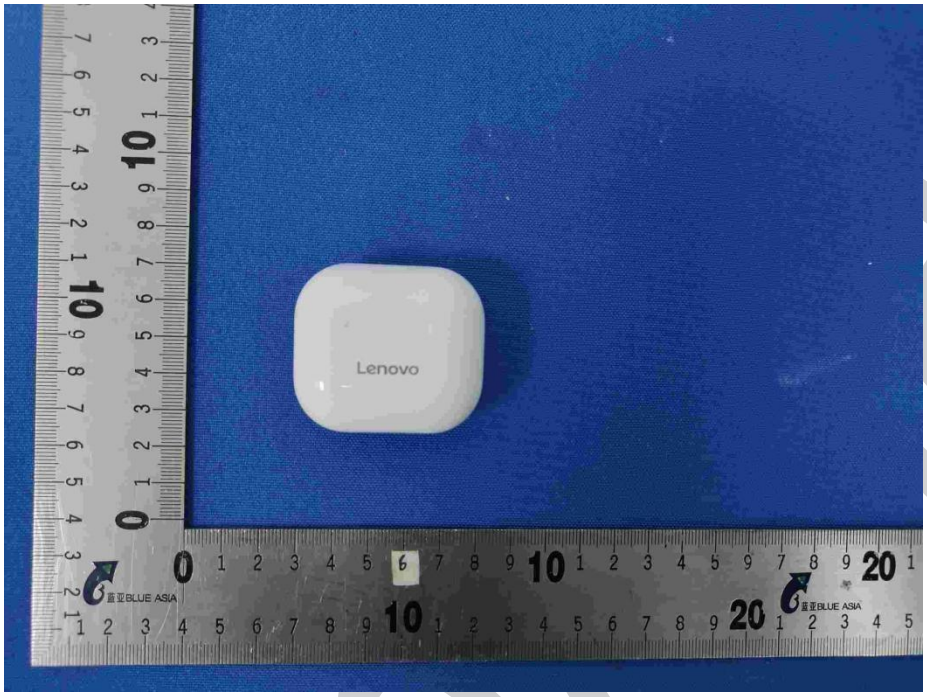
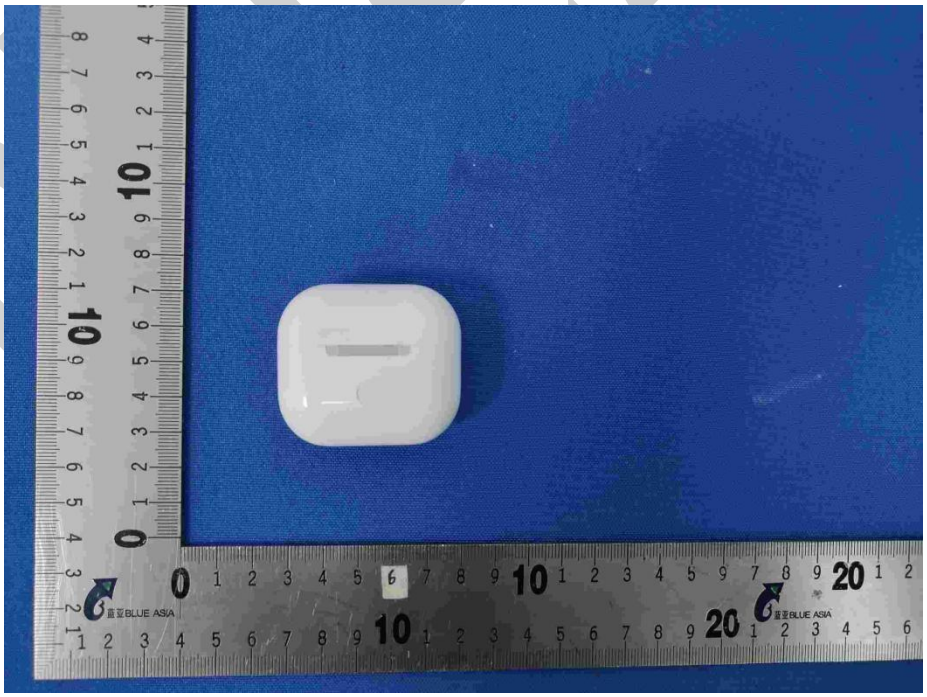
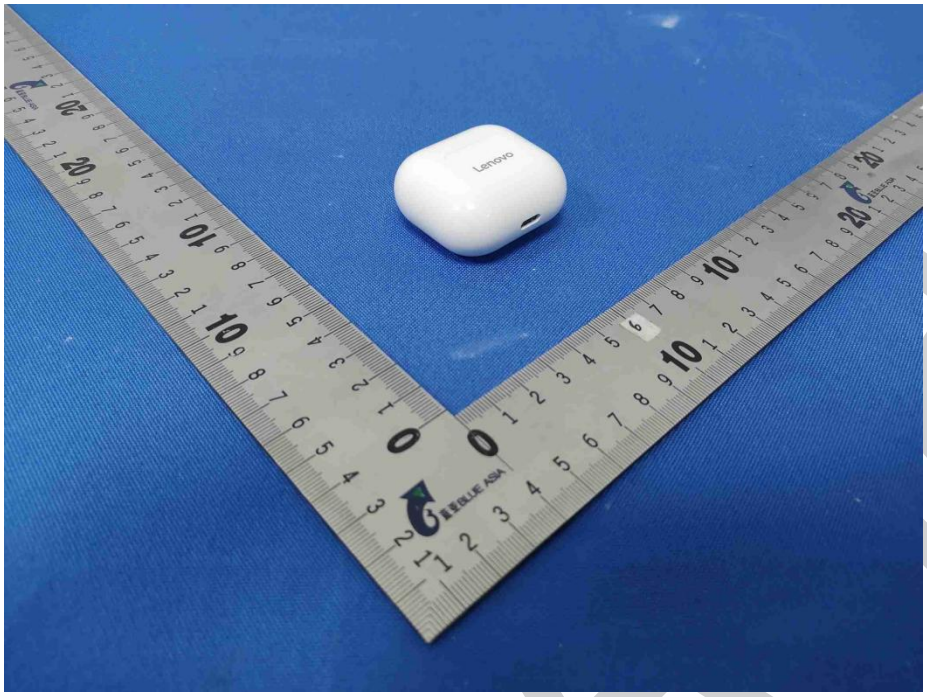
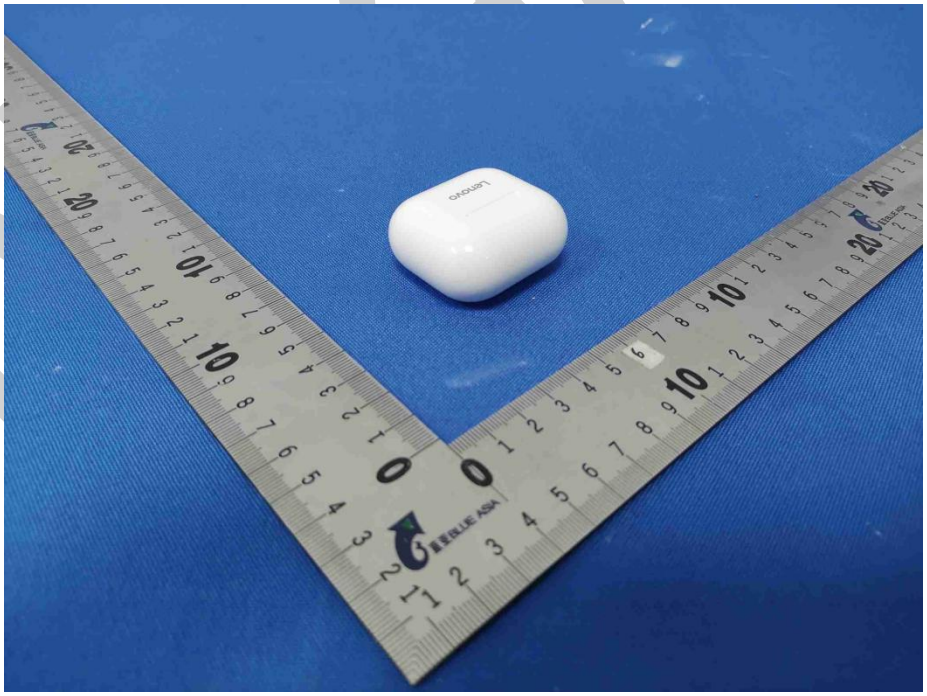
APPENDIX B: PHOTOGRAPHS OF EUT

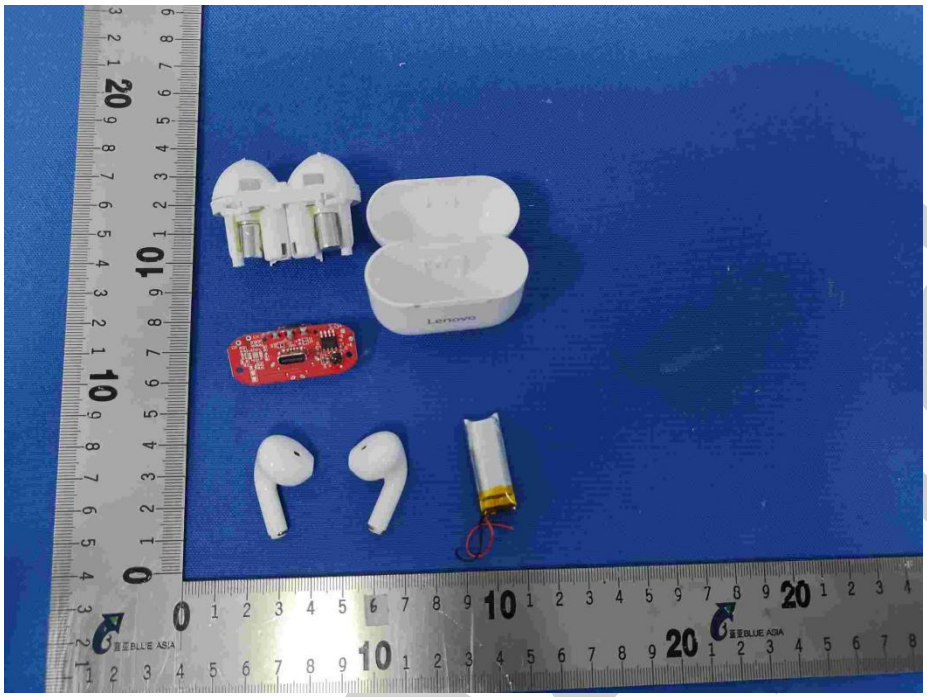








Report



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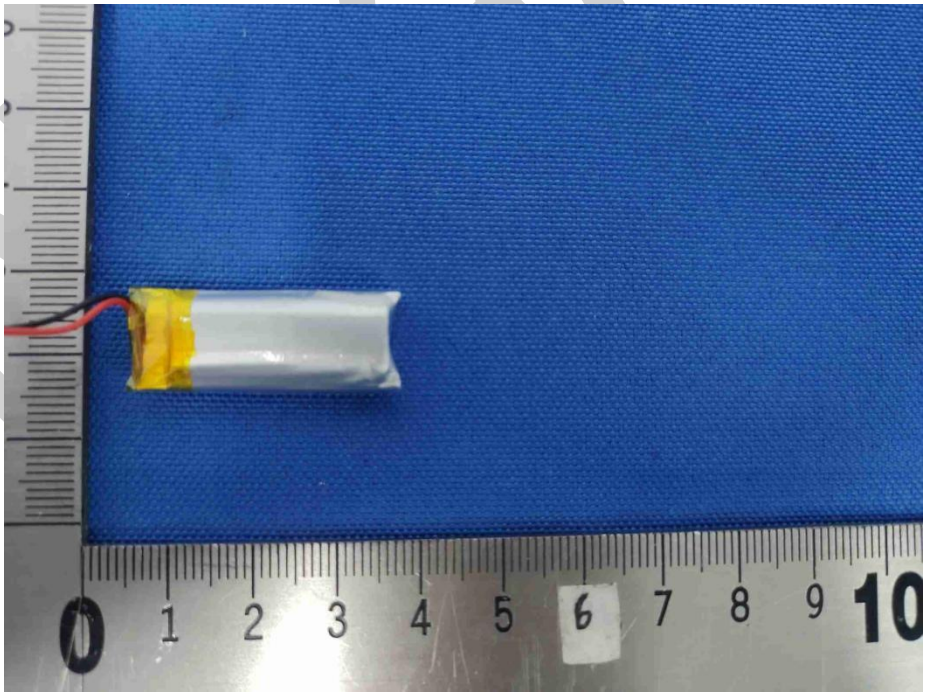

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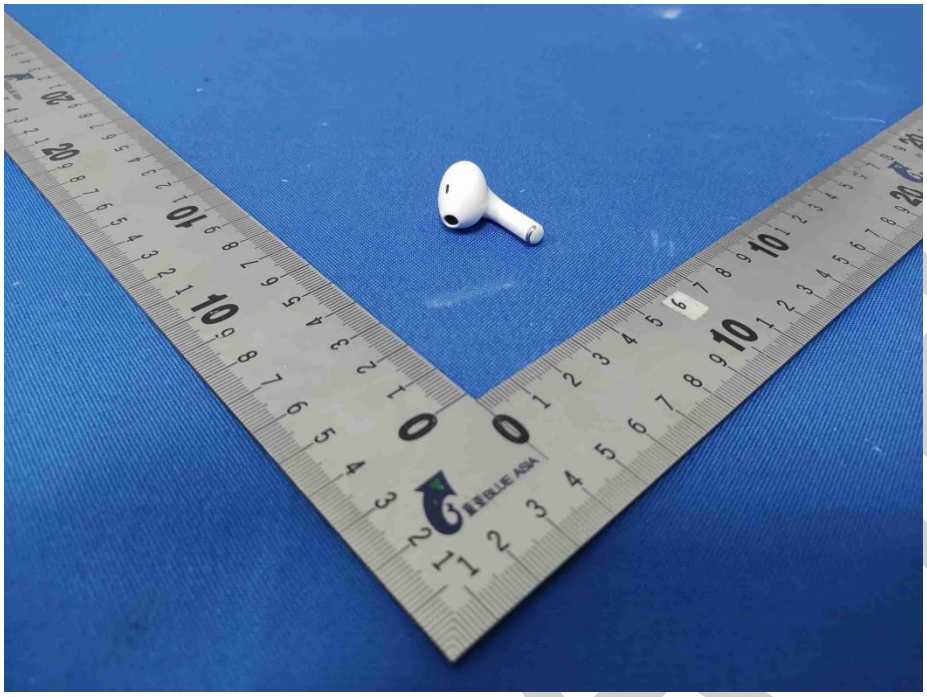

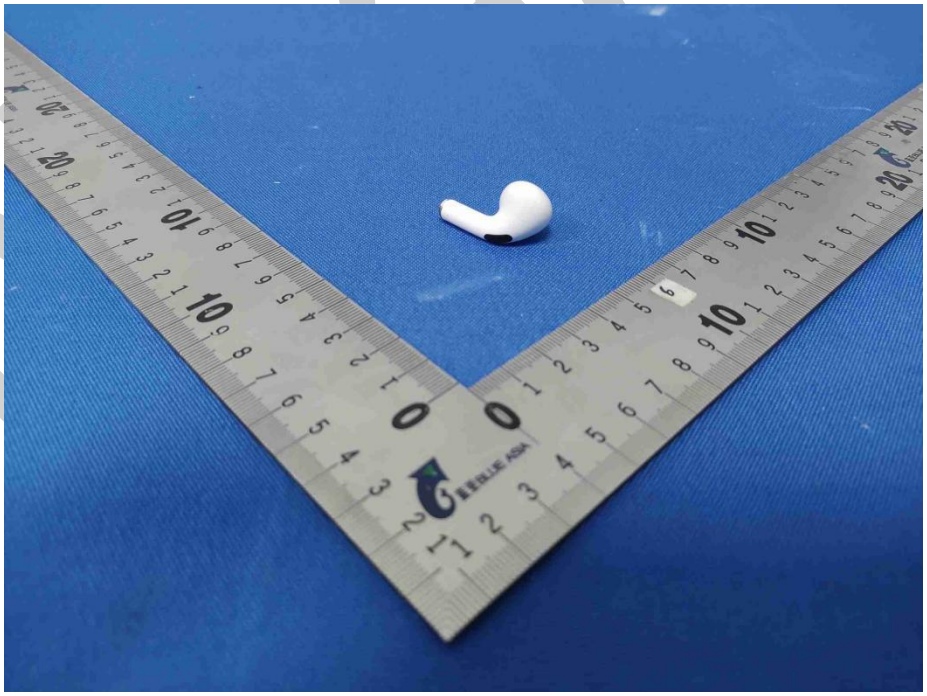

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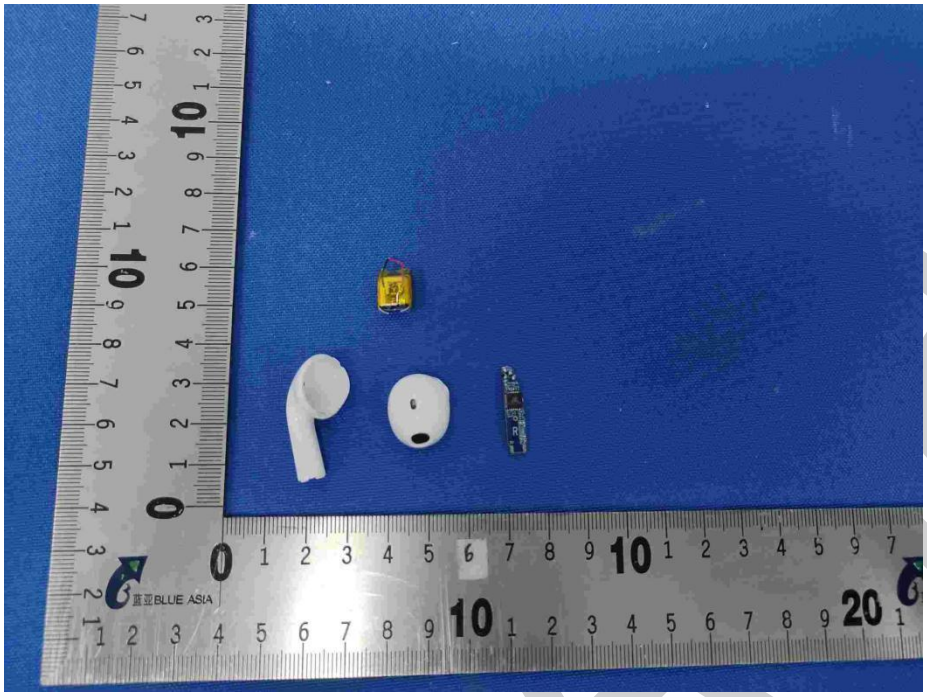

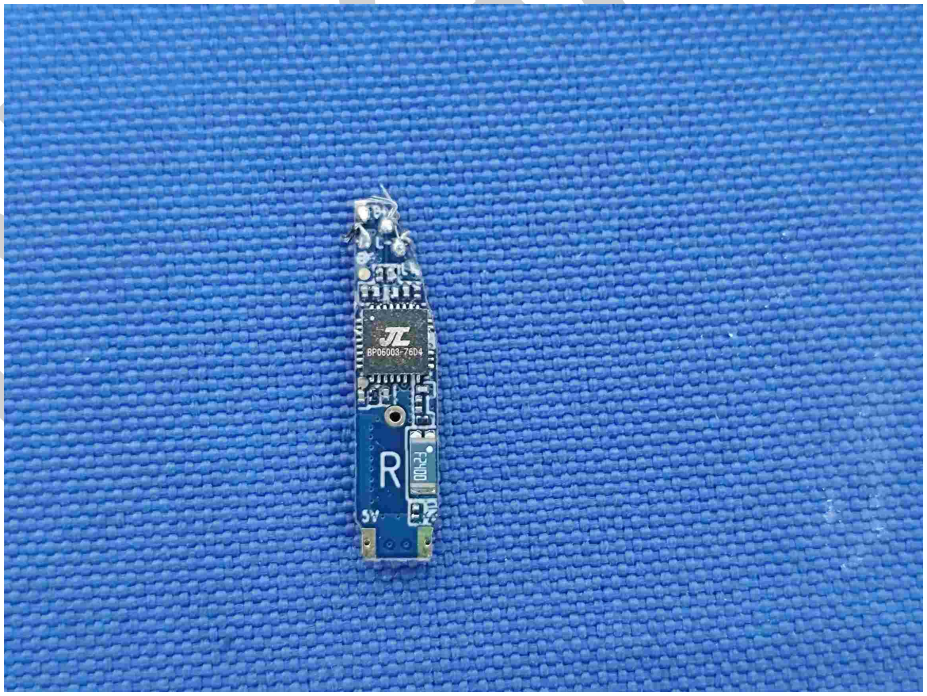

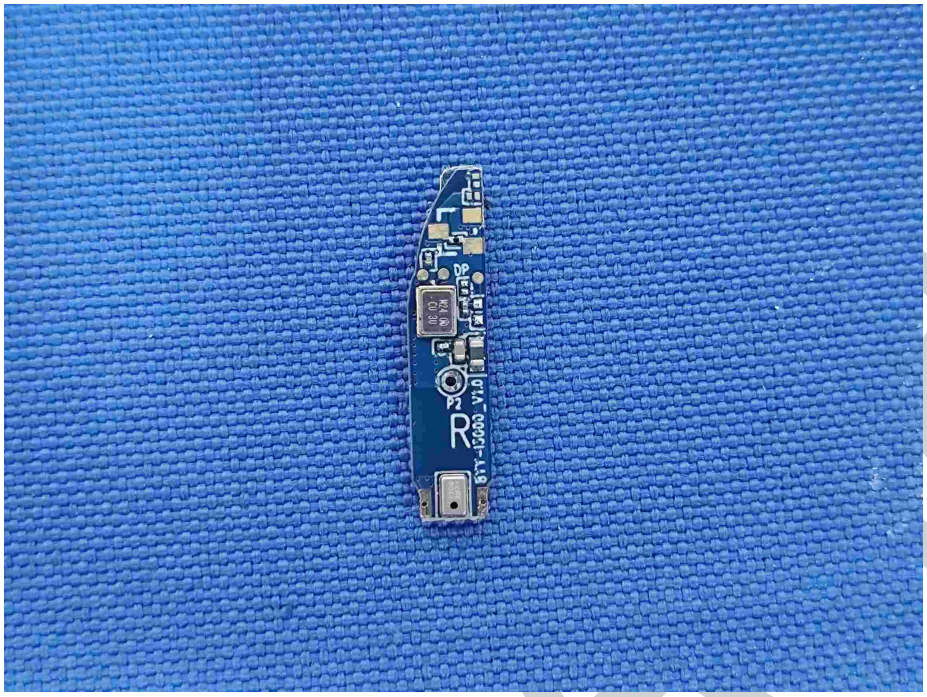

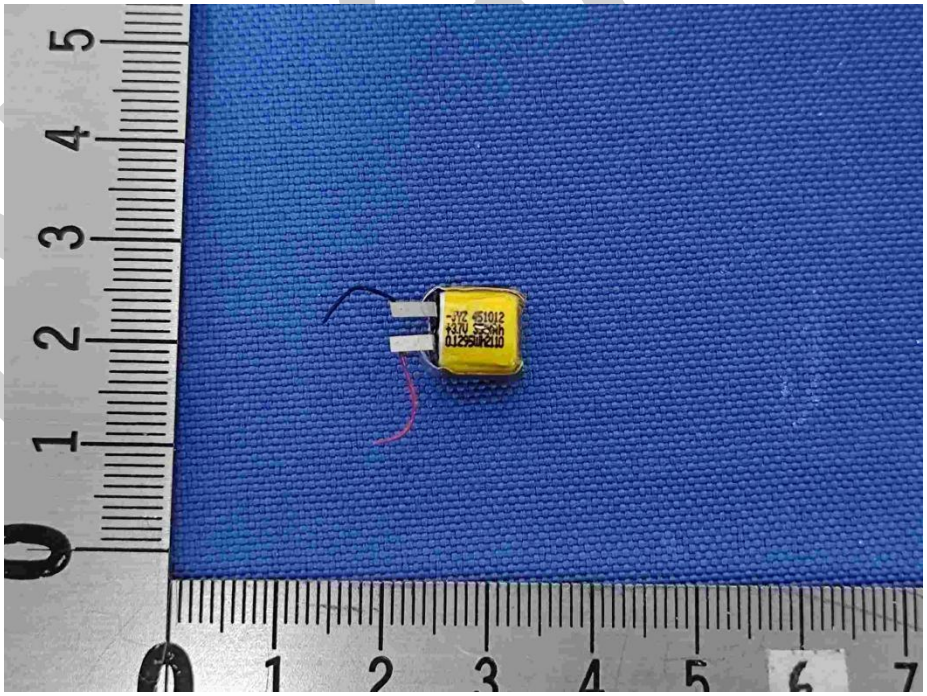

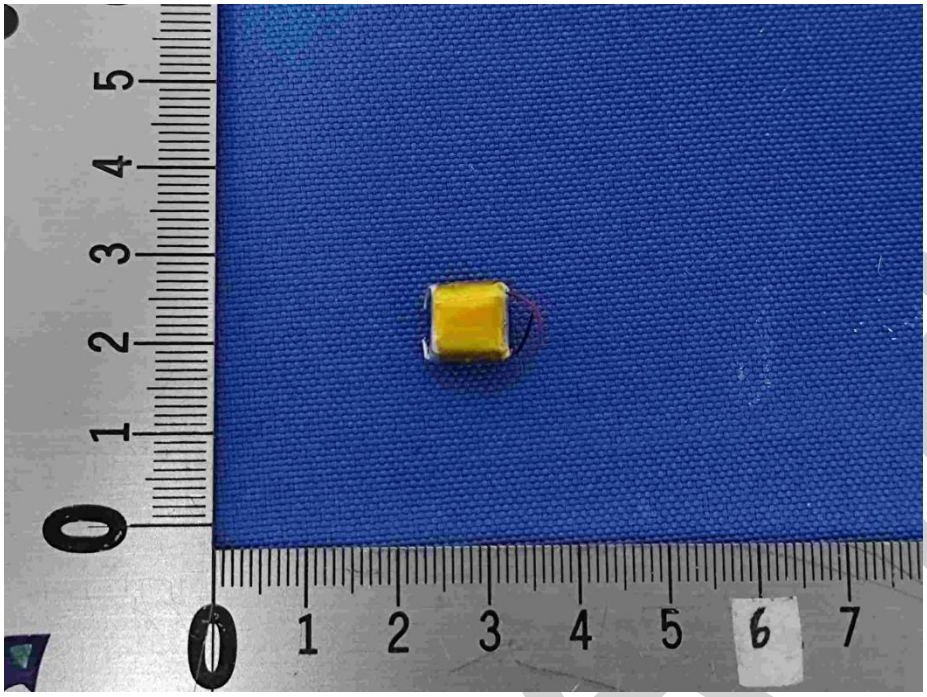

----END OF REPORT----

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