



FCC TEST REPORT

For

Mixtile Limited

Mixtile Cluster Box

Test Model: MC-CLUSTERBOX

Prepared for : Mixtile Limited
Address : Haisong Building Tower B Suite 1101, Tairan 9th Road,
Futian District, Shenzhen

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : Room 101, 201, Building A and Room 301, Building C,
Juji Industrial Park, Yabianxueziwei, Shajing Street,
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Date of receipt of test sample : September 6, 2023
Number of tested samples : 1
Serial number : Prototype
Date of Test : September 6, 2023 to September 7, 2023
Date of Report : September 7, 2023



**TEST REPORT****Report No.** : LCSA08313028E**Date of Issue** : September 7, 2023**Testing Laboratory Name** : Shenzhen LCS Compliance Testing Laboratory Ltd.**Address** : Room 101, 201, Building A and Room 301, Building C, Juji Industrial Park, Yabianxueziwei, Shajing Street, Bao'an District, Shenzhen, Guangdong, China**Testing Location/ Procedure** : Full application of Harmonised standards ■
Partial application of Harmonised standards □
Other standard testing method □**Applicant's Name** : Mixtile Limited**Address** : Haisong Building Tower B Suite 1101, Tairan 9th Road, Futian District, Shenzhen**Test Specification****Standard** : FCC 47 CFR Part 15, Subpart B
ANSI C63.4-2014**Test Report Form No.** : LCSEMC-1.0**TRF Originator** : Shenzhen LCS Compliance Testing Laboratory Ltd.**Master TRF** : Dated 2011-03**Shenzhen LCS Compliance Testing Laboratory Ltd. All rights reserved.**

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Test Item Description. : Mixtile Cluster Box**Trade Mark** : N/A**Test Model** : MC-CLUSTERBOX**Result** : Positive**Compiled by:**

Coco Song / File Administrator

Supervised by:

Baron Wen / Technique principal

Approved by:

Gavin Liang / Manager



Shenzhen LCS Compliance Testing Laboratory Ltd.

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Scan code to check authenticity



TEST REPORT

Test Report No.: LCSA08313028E	<u>September 7, 2023</u> Date of issue
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Test Model	MC-CLUSTERBOX
EUT	Mixtile Cluster Box
Applicant	Mixtile Limited
Address	Haisong Building Tower B Suite 1101, Tairan 9th Road, Futian District, Shenzhen
Telephone	/
Fax	/
Manufacturer	Mixtile Limited
Address	Haisong Building Tower B Suite 1101, Tairan 9th Road, Futian District, Shenzhen
Telephone	/
Fax	/
Factory	Mixtile Limited
Address	Haisong Building Tower B Suite 1101, Tairan 9th Road, Futian District, Shenzhen
Telephone	/
Fax	/

Test Result	Positive
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The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.



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Scan code to check authenticity



Revision History

Report Version	Issue Date	Revision Content	Revised By
000	September 7, 2023	Initial Issue	/





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1. SUMMARY OF STANDARDS AND RESULTS

1.1 Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

Description of Test Item	Standard	Limits	Result
Conducted emissions on AC mains	FCC 47 CFR Part 15, Subpart B ANSI C63.4-2014	15.107, Class B	Pass
Radiated emissions (Below 1GHz)	FCC 47 CFR Part 15, Subpart B ANSI C63.4-2014	15.109, Class B	Pass





1.2 Description of Test Modes

No	Title	Description
TM1	Working(AC 120V/60Hz)	Record





2. GENERAL INFORMATION

2.1 Description of Device (EUT)

EUT	: Mixtile Cluster Box
Test Model	: MC-CLUSTERBOX
	For adapter:
	Input: 100-240V~ 50-60Hz 2A
Power Supply	: Output: 19V \approx 4.74A
	For EUT:
	Input: 19~19.5V \approx 4.5A
Highest Internal Frequency	: 1.705-108MHz
Classification of Equipment	: Class B

Highest internal frequency (Fx)	Highest measured frequency
$F_x \leq 1.705\text{MHz}$	30MHz
$1.705\text{MHz} < F_x \leq 108\text{MHz}$	1GHz
$108\text{MHz} < F_x \leq 500\text{MHz}$	2GHz
$500\text{MHz} < F_x \leq 1000\text{MHz}$	5GHz
$F_x > 1\text{GHz}$	5 x Fx up to a maximum of 40GHz

2.2 Support equipment List

The EUT was tested as an independent device.

2.3 Description of Test Facility

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

NVLAP Accreditation Code is 600167-0.

FCC Designation Number is CN5024.

CAB identifier is CN0071.

CNAS Registration Number is L4595.

2.4 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emission (150kHz to 30MHz)	$\pm 2.35\text{ dB}$
Radiated Emission (30MHz to 1000MHz)	$\pm 3.48\text{ dB}$
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	





3. MEASURING DEVICES AND TEST EQUIPMENT

Conducted emissions on AC mains

Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
EMI Test Software	Farad	EZ	/	/	/
Artificial Mains	R&S	ENV216	101288	2023-06-09	2024-06-08
Pulse Limiter	R&S	ESH3-Z2	102750-NB	2023-08-15	2024-08-14
EMI Test Receiver	R&S	ESR3	102312	2023-02-25	2024-02-24

Radiated emissions (Below 1GHz)

Equipment	Manufacturer	Model No	Serial No.	Cal Date	Due Date
EMI Test Software	AUDIX	E3	/	/	/
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	2021-09-12	2024-09-11
Horn Antenna	SCHWARZBECK	BBHA 9120D	9120D-1925	2021-09-05	2024-09-04
EMI Test Receiver	R&S	ESR3	102311	2023-08-15	2024-08-14
Broadband Preamplifier	/	BP-01M18G	P190501	2023-06-09	2024-06-08





4. EMISSION TEST RESULTS (EMI)

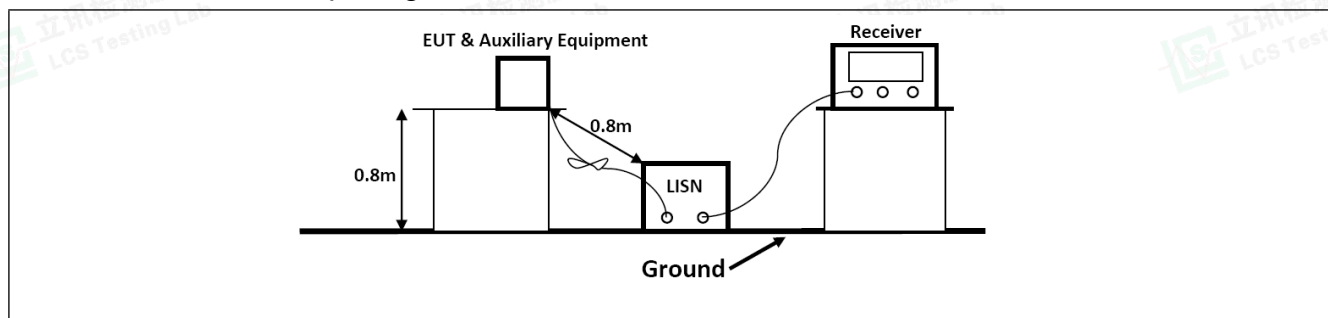
4.1 Conducted emissions on AC mains

Test Requirement:	15.107, Class B		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBμV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	*Decreases with the logarithm of the frequency.		
Test Method:	ANSI C63.4-2014		
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. Remark: Level= Read Level+ Cable Loss+ LISN Factor		

4.1.1 E.U.T. Operation:

Operating Environment:			
Temperature:	23.5 °C	Humidity:	53.6 %
Pre test mode:	TM1		
Final test mode:	TM1		

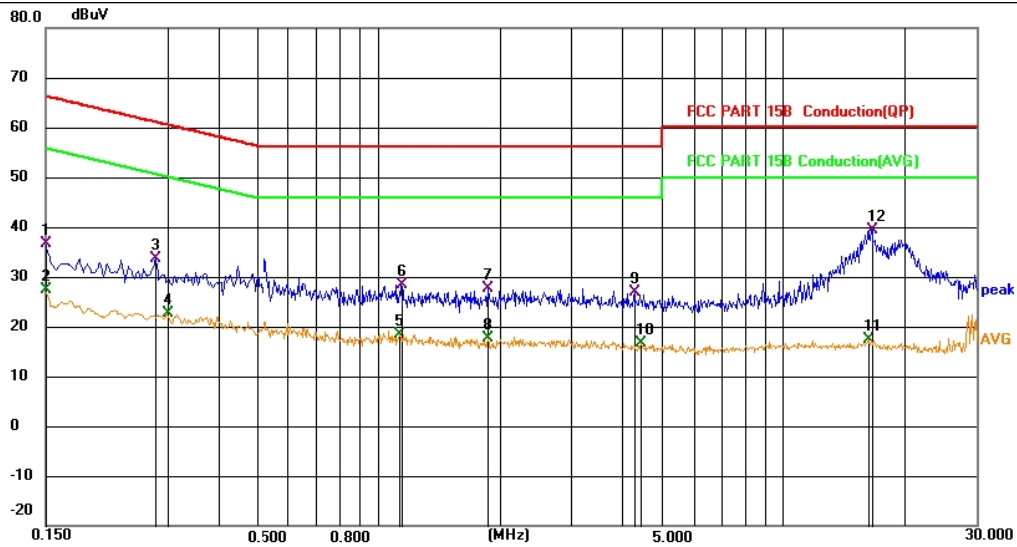
4.1.2 Test Setup Diagram:





4.1.3 Test Data:

TM1 / Line: Line

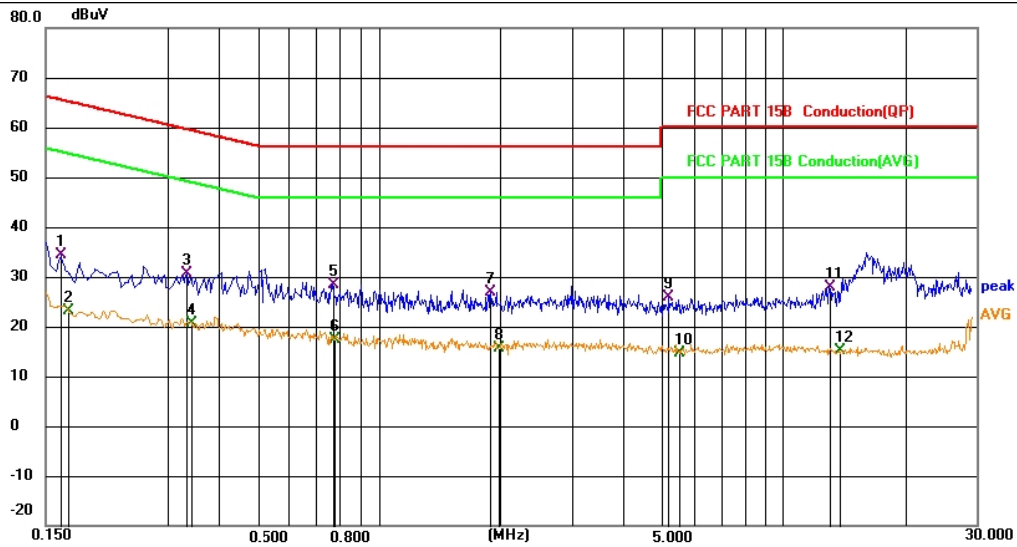


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1		0.1500	16.46	20.20	36.66	66.00	-29.34	QP	
2		0.1500	7.20	20.20	27.40	56.00	-28.60	AVG	
3		0.2806	13.56	20.12	33.68	60.80	-27.12	QP	
4		0.2986	2.54	20.12	22.66	50.28	-27.62	AVG	
5		1.1265	-1.72	20.11	18.39	46.00	-27.61	AVG	
6		1.1355	8.32	20.11	28.43	56.00	-27.57	QP	
7		1.8645	7.55	20.12	27.67	56.00	-28.33	QP	
8		1.8645	-2.60	20.12	17.52	46.00	-28.48	AVG	
9		4.2766	6.88	20.01	26.89	56.00	-29.11	QP	
10		4.4476	-3.29	19.97	16.68	46.00	-29.32	AVG	
11		16.2286	-3.04	20.54	17.50	50.00	-32.50	AVG	
12	*	16.5796	18.78	20.59	39.37	60.00	-20.63	QP	





TM1 / Line: Neutral



No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Margin dB	Detector	Comment
1	0.1633	14.47	19.95	34.42	65.29	-30.87	QP	
2	0.1712	3.14	19.96	23.10	54.90	-31.80	AVG	
3	0.3338	10.71	19.98	30.69	59.36	-28.67	QP	
4	0.3446	0.74	19.99	20.73	49.09	-28.36	AVG	
5 *	0.7711	8.18	20.29	28.47	56.00	-27.53	QP	
6	0.7752	-2.85	20.29	17.44	46.00	-28.56	AVG	
7	1.8879	6.81	20.17	26.98	56.00	-29.02	QP	
8	1.9697	-4.53	20.18	15.65	46.00	-30.35	AVG	
9	5.1937	5.89	19.92	25.81	60.00	-34.19	QP	
10	5.5054	-5.43	20.00	14.57	50.00	-35.43	AVG	
11	12.9885	7.96	20.04	28.00	60.00	-32.00	QP	
12	13.7680	-4.92	19.98	15.06	50.00	-34.94	AVG	





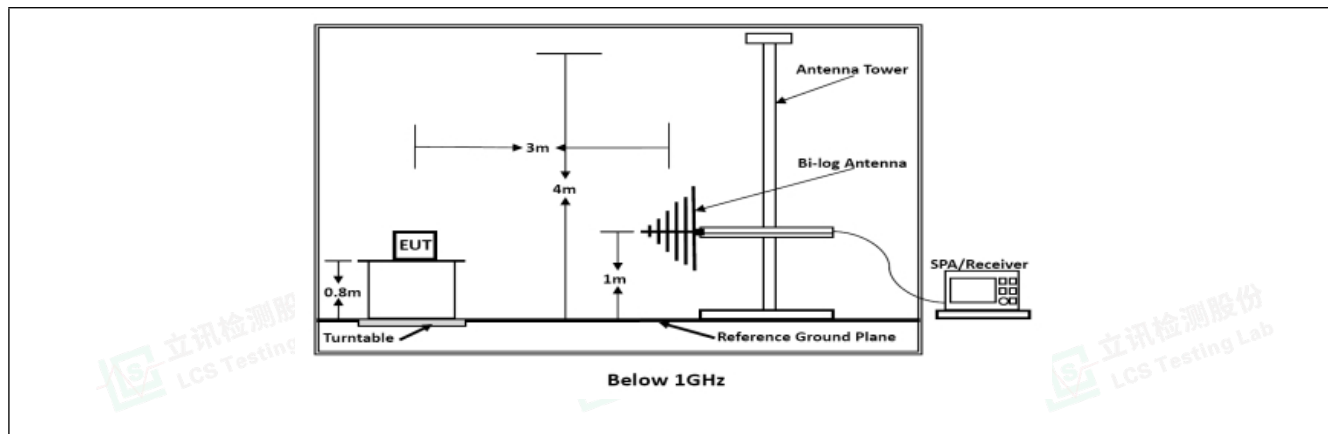
4.2 Radiated emissions (Below 1GHz)

Test Requirement:	15.109, Class B				
Test Limit:	Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:				
	Frequency of emission (MHz)	Field strength @3m		Field strength @10m	
		(uV/m)	(dBuV/m)	(uV/m)	(dBuV/m)
	30 – 88	100	40	30	29.5
	88 – 216	150	43.5	45	33.1
	216 – 960	200	46	60	35.6
	Above 960	500	54	150	43.5
Test Method:	ANSI C63.4-2014				
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. Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor				

4.2.1 E.U.T. Operation:

Operating Environment:			
Temperature:	22.3 °C	Humidity:	53 %
Pre test mode:	TM1		
Final test mode:	TM1		

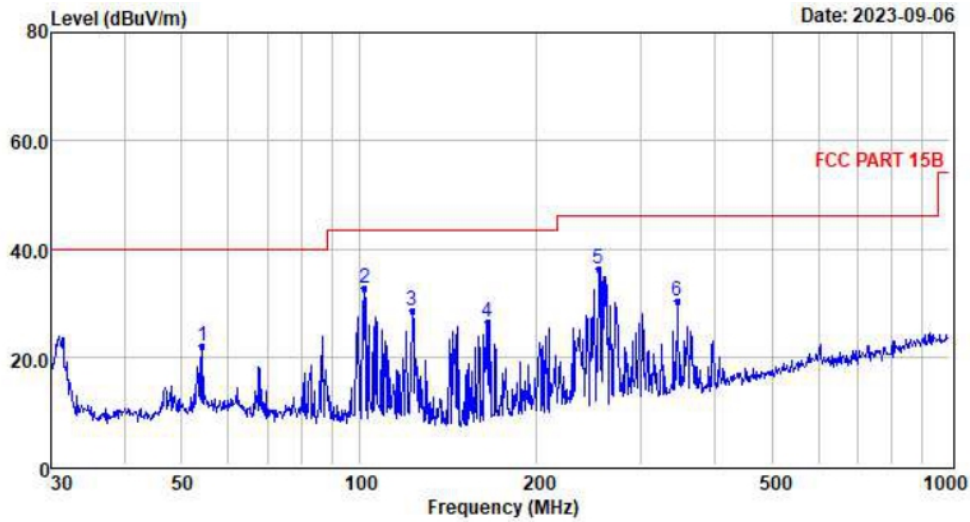
4.2.2 Test Setup Diagram:





4.2.3 Test Data:

TM1 / Polarization: Horizontal



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	54.26	8.70	0.62	12.56	21.88	40.00	-18.12	QP
2	102.00	21.02	0.81	10.85	32.68	43.50	-10.82	QP
3	122.83	17.31	0.92	10.25	28.48	43.50	-15.02	QP
4	164.91	16.01	1.09	9.45	26.55	43.50	-16.95	QP
5	254.73	22.35	1.27	12.56	36.18	46.00	-9.82	QP
6	345.60	14.25	1.36	14.66	30.27	46.00	-15.73	QP

Note: 1. All readings are Quasi-peak values.

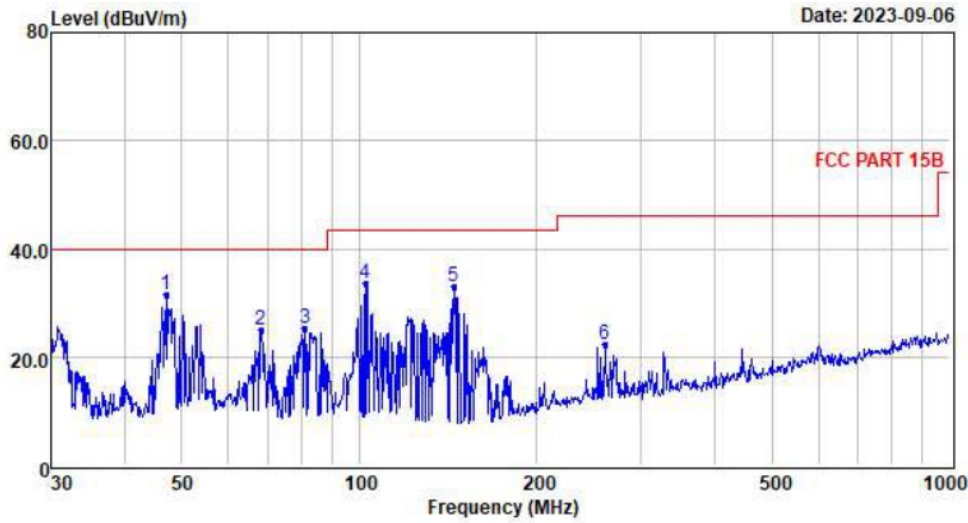
2. Measured= Reading + Antenna Factor + Cable Loss

3. The emission that are 20db below the official limit are not reported





TM1 / Polarization: Vertical



	Freq	Reading	CabLos	Antfac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dBuV/m	dBuV/m	dB	
1	46.99	19.09	0.58	11.89	31.56	40.00	-8.44	QP
2	68.15	13.69	0.69	10.60	24.98	40.00	-15.02	QP
3	80.93	14.81	0.74	9.77	25.32	40.00	-14.68	QP
4	102.36	22.00	0.81	10.87	33.68	43.50	-9.82	QP
5	144.84	23.30	1.01	8.60	32.91	43.50	-10.59	QP
6	261.06	8.15	1.28	12.76	22.19	46.00	-23.81	QP

Note: 1. All readings are Quasi-peak values.

2. Measured= Reading + Antenna Factor + Cable Loss

3. The emission that are 20db below the official limit are not reported



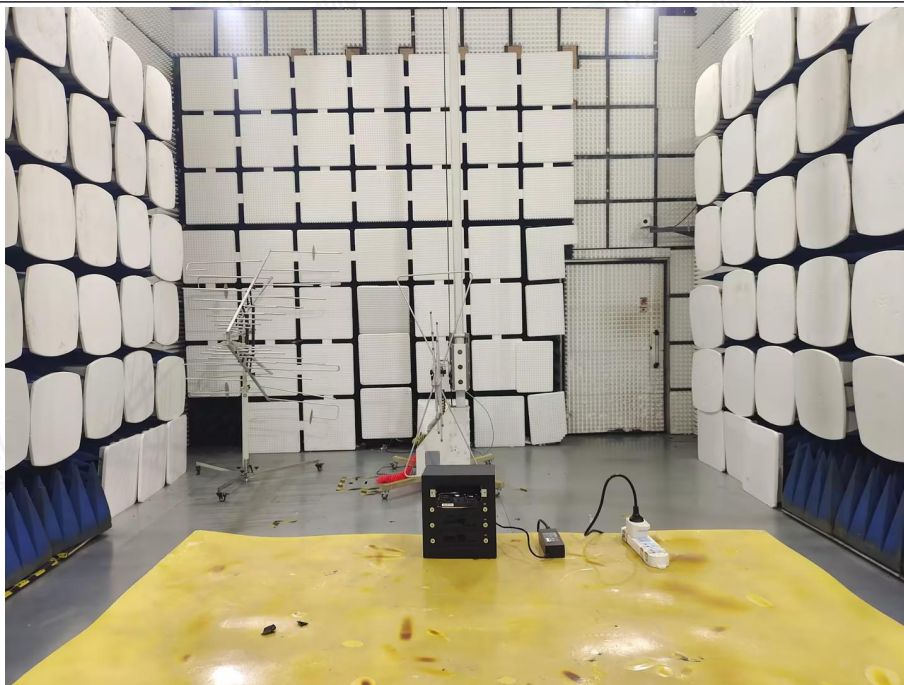


5. TEST SETUP PHOTOS

Conducted emissions on AC mains



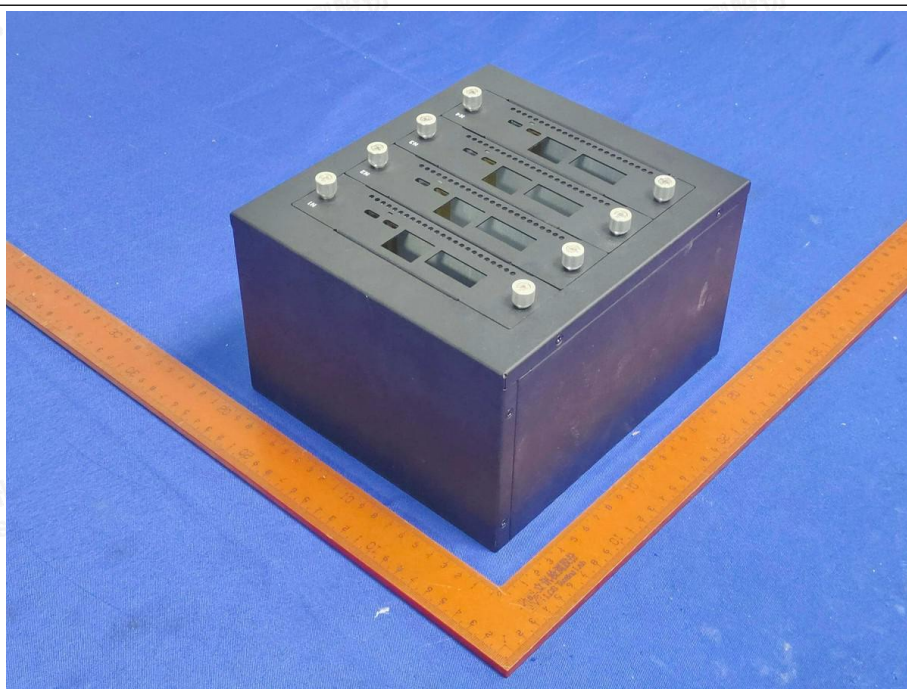
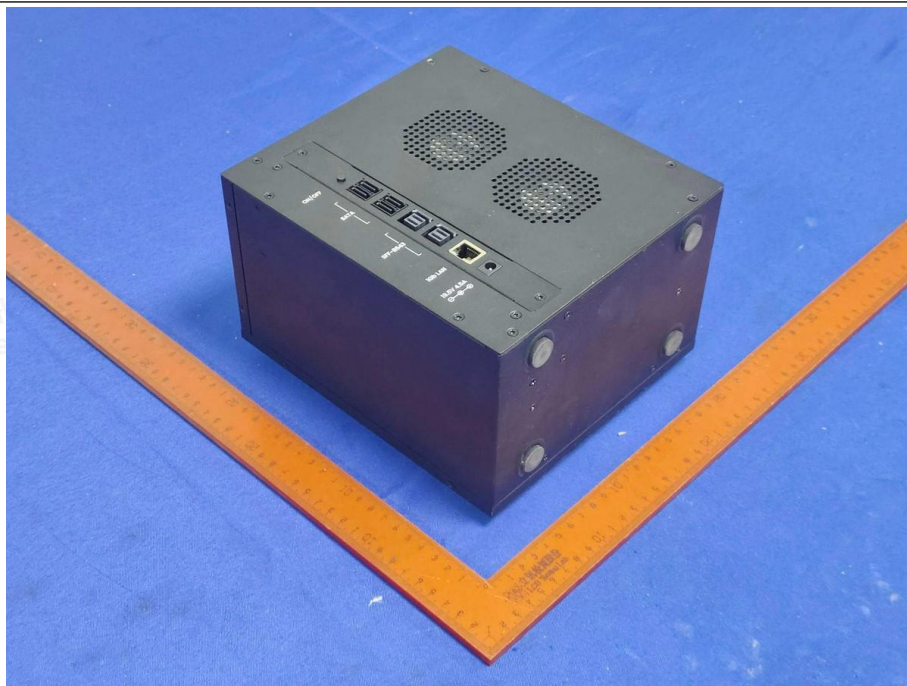
Radiated emissions (Below 1GHz)

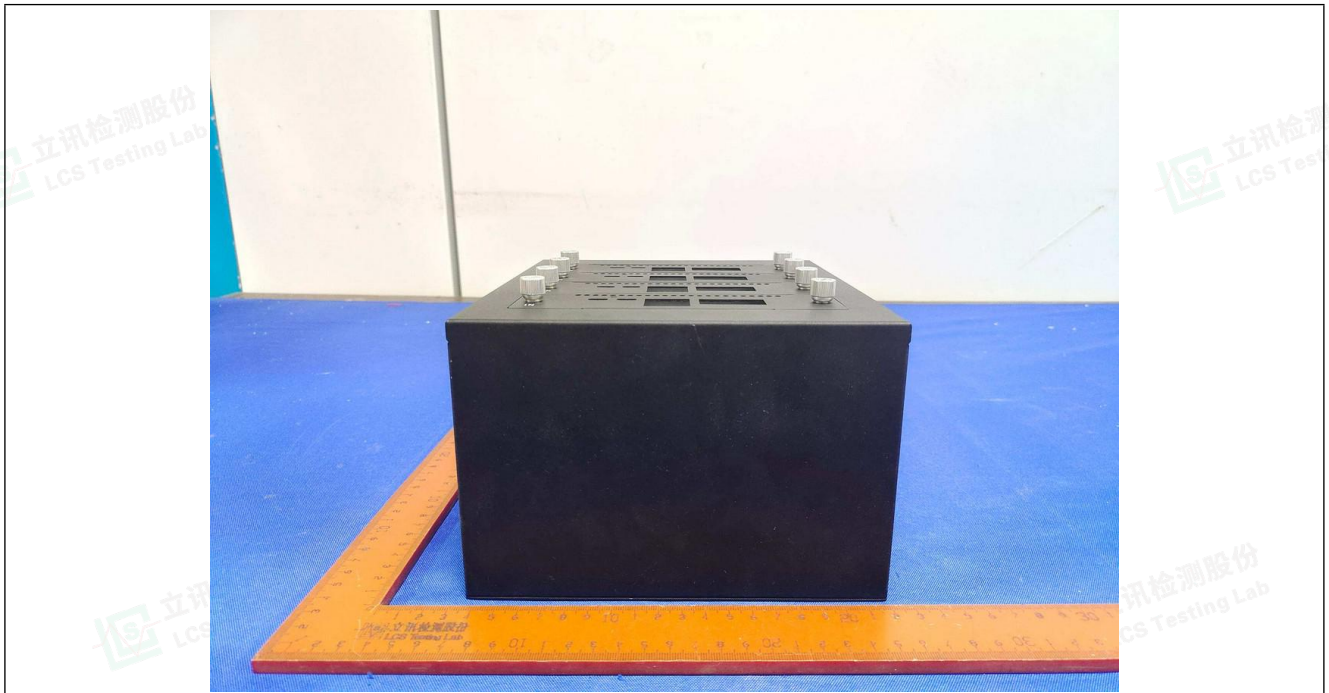


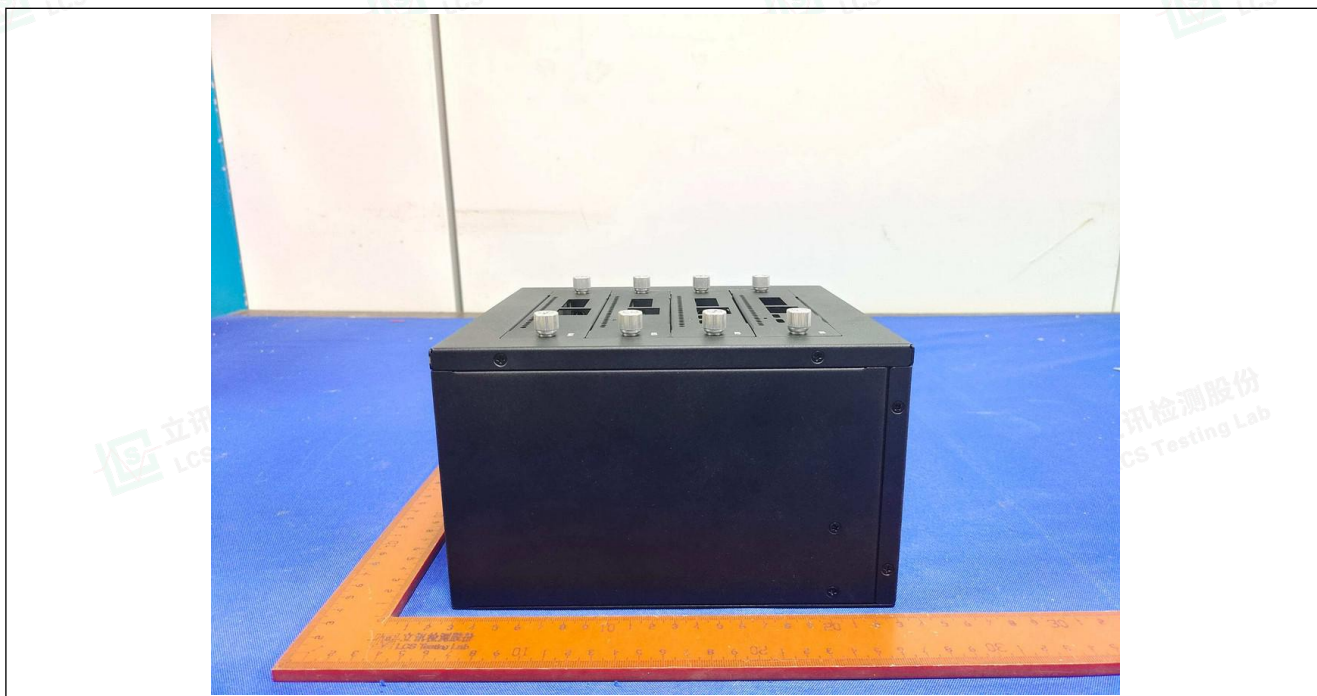


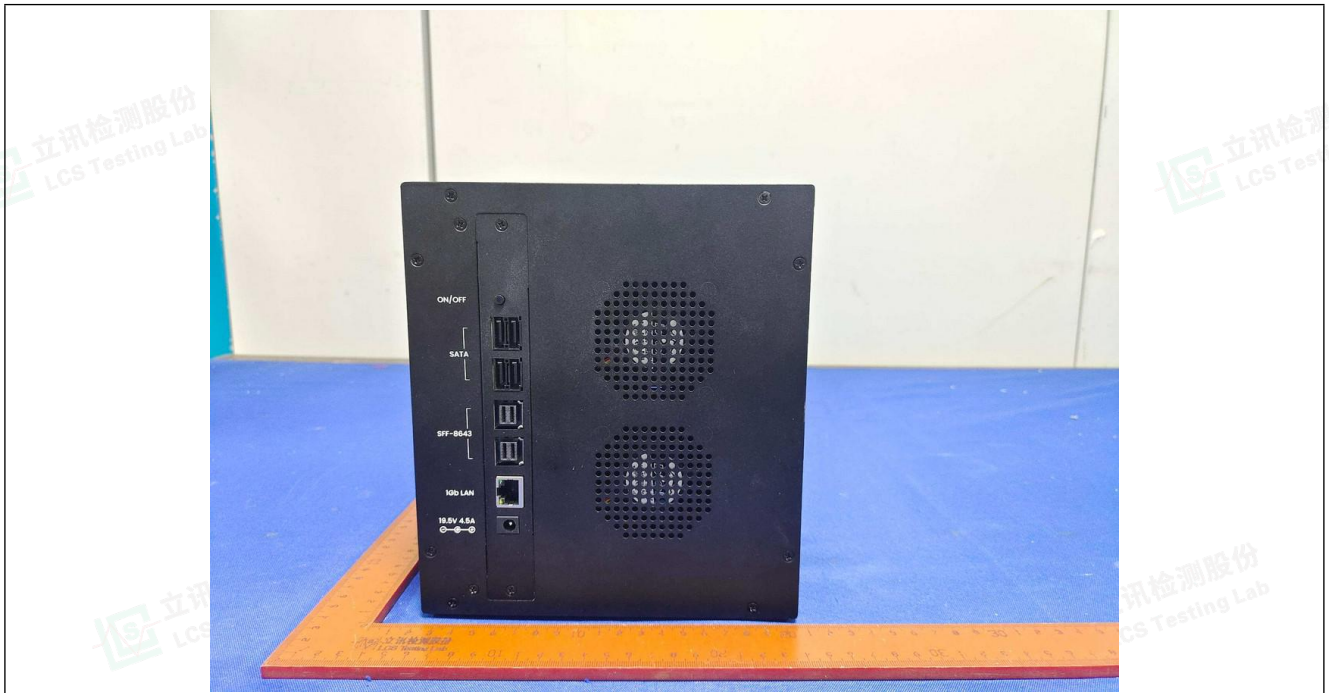
6. EUT CONSTRUCTIONAL DETAILS (EUT PHOTOS)

External





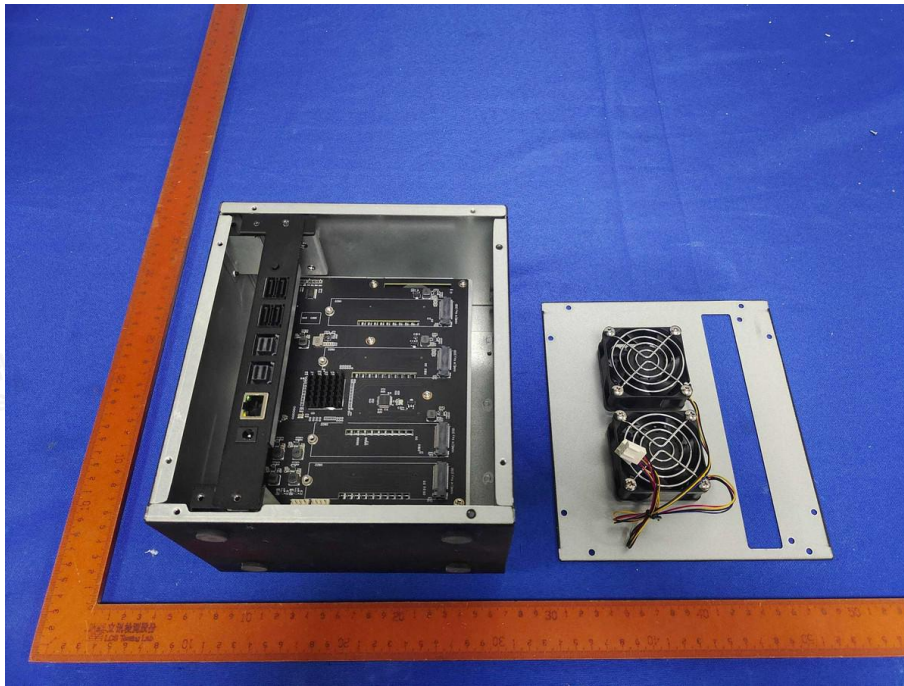


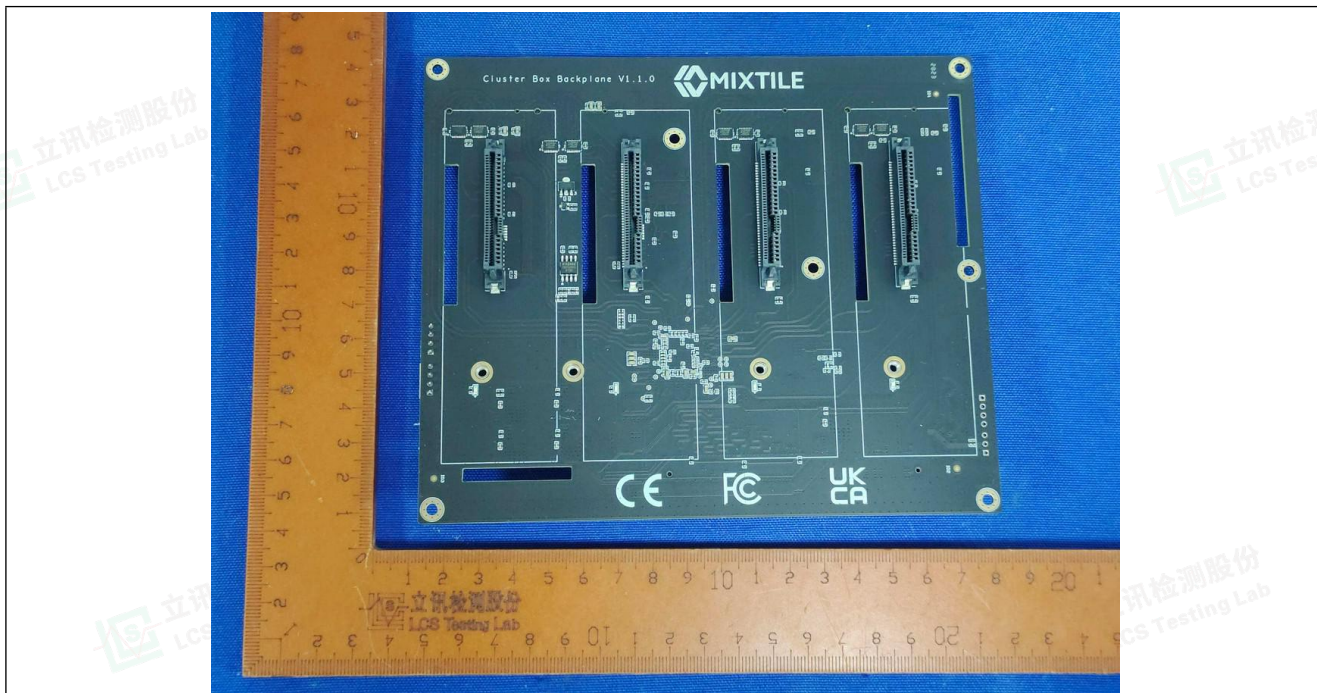
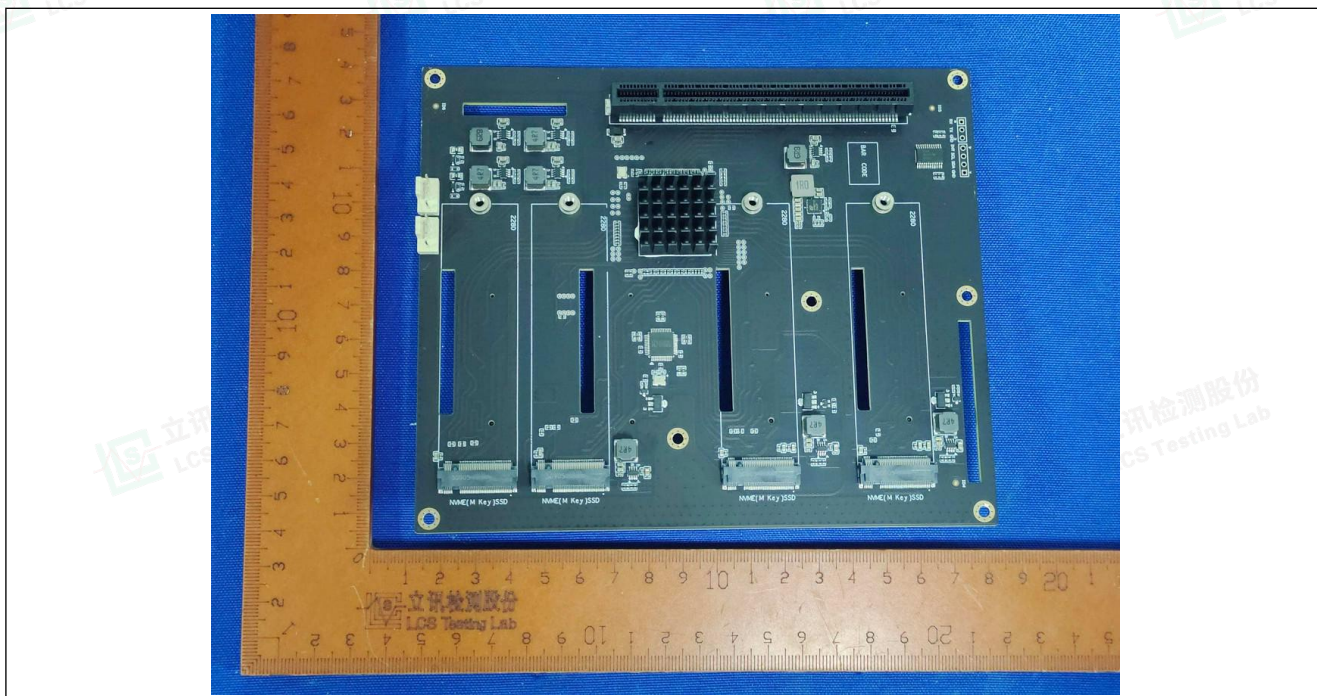


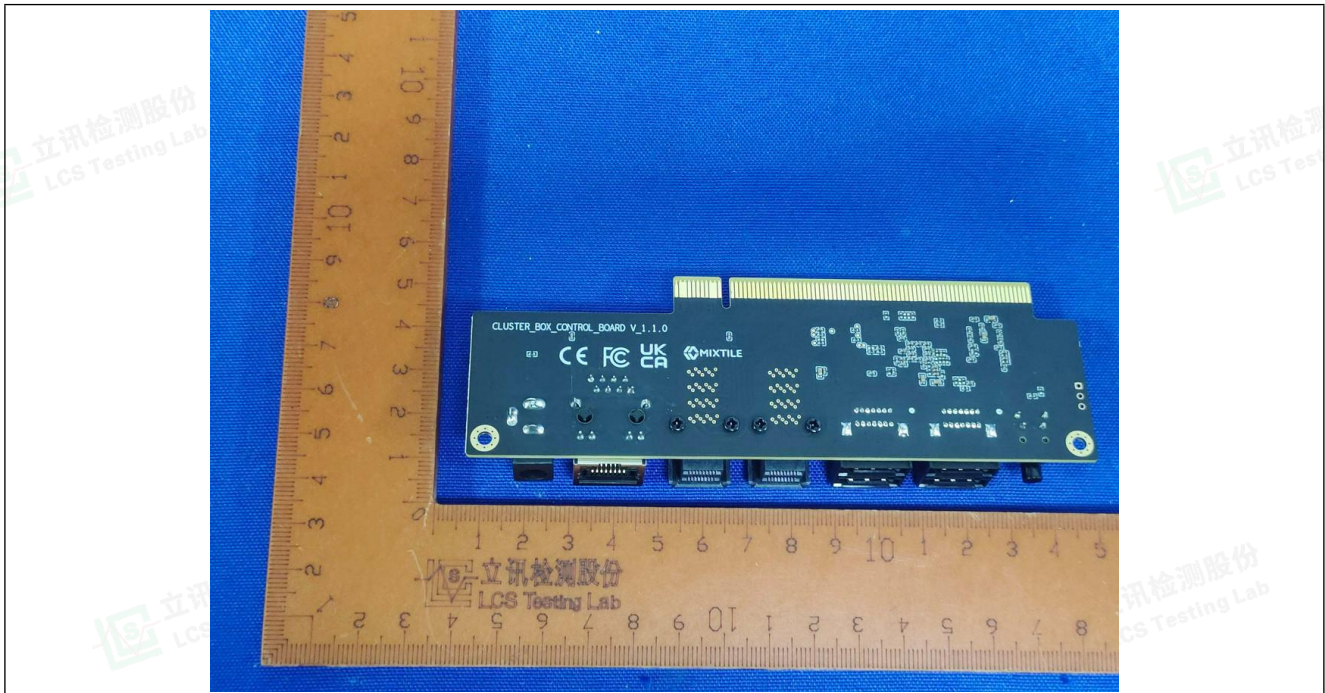
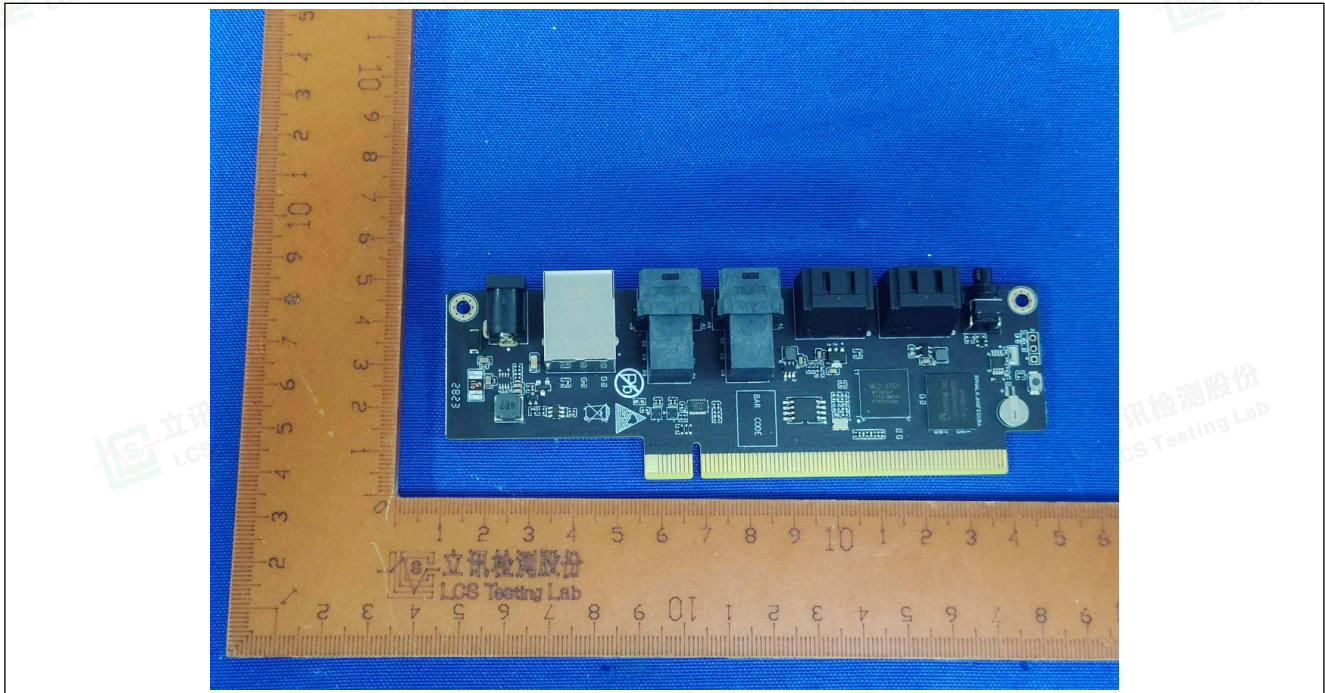




Internal







--- End of Report ---

