

# TEST REPORT

**Product: 18Gbps HDMI over HDBaseT Extender with Bi-directional IR (150M)**

**Model No.: HDC-EHB150CG-38206/38207 (Please refer to page 5)**

**Trade mark: N/A**

**Report No.: TCT200421E006**

**Issued Date: Apr. 28, 2020**

Issued for:

**Shenzhen HDCVT Technology Co., Ltd  
Floor 7, Building 5, Lihe industrial Park SongBai Rd, Nanshan District,  
Shenzhen, Guangdong China**

Issued By:

**Shenzhen Tongce Testing Lab  
1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District,  
Shenzhen, Guangdong, China**

**TEL: +86-755-27673339**

**FAX: +86-755-27673332**

**Note:** This report shall not be reproduced except in full, without the written approval of Shenzhen Tongce Testing Lab. This document may be altered or revised by Shenzhen Tongce Testing Lab personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample.

**TABLE OF CONTENTS**

1. Test Certification .....3

2. Test Result Summary.....4

3. EUT Description.....5

4. Test Methodology.....6

    4.1. Decision of Final Test Mode .....6

    4.2. EUT System Operation .....6

5. Setup of Equipment under Test.....7

    5.1. Description of Support Units .....7

    5.2. Configuration of System Under Test .....7

6. Facilities and Accreditations .....8

    6.1. Facilities.....8

    6.2. Measurement Uncertainty .....8

7. Emission Test .....9

    7.1. Conducted Emission at Mains Terminals .....9

    7.2. Radiated Emission.....13

8. Photographs of Test Configuration.....20

9. Photographs of EUT.....22

## 1. Test Certification

<b>Product:</b>	18Gbps HDMI over HDBaseT Extender with Bi-directional IR (150M)
<b>Model No.:</b>	HDC-EHB150CG-38206/38207 (Please refer to page 5)
<b>Applicant:</b>	Shenzhen HDCVT Technology Co., Ltd
<b>Address:</b>	Floor 7, Building 5, Lihe industrial Park SongBai Rd, Nanshan District, Shenzhen, Guangdong China
<b>Manufacturer:</b>	Shenzhen HDCVT Technology Co., Ltd
<b>Address:</b>	Floor 7, Building 5, Lihe industrial Park SongBai Rd, Nanshan District, Shenzhen, Guangdong China
<b>Test Voltage:</b>	AC 120 V/ 60 Hz
<b>Date of Test:</b>	Apr. 21, 2020 ~ Apr. 28, 2020
<b>Applicable Standards:</b>	47 CFR FCC Part 15 Subpart B ANSI C63.4: 2014

The above equipment has been tested by Shenzhen Tongce Testing Lab and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

**Tested By:**

*Ronaldo*

**Date:**

**Apr. 28, 2020**

**Ronaldo**

**Check By:**

*Howie*

**Date:**

**Apr. 28, 2020**

**Howie**

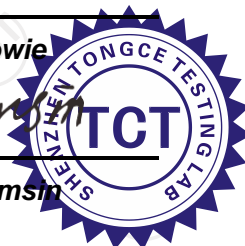
**Approved By:**

*Tomsin*

**Date:**

**Apr. 28, 2020**

**Tomsin**



## 2. Test Result Summary

Emission		
Test Method	Item	Result
FCC 47 CFR Part 15 Subpart B	Conducted Emission at Mains Terminals	Pass
	Radiated Emission	Pass

**Note:**

1. Pass: Test item meets the requirement.
2. Fail: Test item does not meet the requirement.
3. N/A: Test case does not apply to the test object.
4. The test result judgment is decided by the limit of test standard.
5. The information of measurement uncertainty is available upon the customer's request.

### 3. EUT Description

<b>Product Name:</b>	18Gbps HDMI over HDBaseT Extender with Bi-directional IR (150M)
<b>Model No.:</b>	HDC-EHB150CG-38206/38207
<b>Power supply:</b>	Adapter Information: MODEL: NBS24J240100D5 INPUT: AC 100-240 V, 50/ 60 Hz, 0.6 A OUTPUT: DC 24.0 V, 1.0 A, 24.0 W
<b>DC Line:</b>	<input type="checkbox"/> Shielded <input checked="" type="checkbox"/> Unshielded, <input checked="" type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input type="checkbox"/> Not applicable <input checked="" type="checkbox"/> Length: 1.45 m
<b>Signal Line:</b>	<input type="checkbox"/> Shielded <input checked="" type="checkbox"/> Unshielded, <input checked="" type="checkbox"/> Detachable <input type="checkbox"/> Un-detachable <input type="checkbox"/> Not applicable <input checked="" type="checkbox"/> Length: 1.45 m

#### Model(s) List

No.	Model Number	Tested With
1	HDC-EHB150CG-38206/38207	<input checked="" type="checkbox"/>
Other models	HDC-E5100W, HDN-E9100, HDN-EA800, HDC-EU2100E, HDC-ED850KA, HDC-E5100, HDCRX-EHB70UPSE, HDV-EB100CF, HDN-EN9100HTR, HDC-EHB50EARC, HDC-EH970AU, HDC-EW91K, HDV-EB100CC, HDV-EB100KVM, HDP-EA901, HDC-E5100P, HDC-E5100K, HDC-EHB100AUE/AE, HDM-A62PSH100, HDV-EB100CN, HDV-E5100M, HDV-BE50P, HDV-F02, HDC-EHB70AU, HDC-EHB100AE/AUE, HBT-WPB70T, HBT-WPB210T, HDC-WP10HUTW/B, HDC-WP10HDTW/B, HDC-WP20HUTW/B, HDC-WP20HDTW/B, HDC-WP50HUW/B, HDV-E50C, HDV-E50NU, HDV-E100U, HDV-E150C, HDP-BNT1K, HDV-CTL100, HDV-EU2050, HDV-EU2100, HDC-EHB150CG, HDC-EDB50C, HDV-BE50, HBT-WP200U+WPC01, HDC-WP100U2, HBT-E70S, HDV-C100/IR, HDV-EU2050/2100, HDV-W881, HDV-W561, HDV-UH60, HDV-UH60P, HDV-US60, HDV-UH50, HDV-UA60	<input type="checkbox"/>

**Note:** HDC-EHB150CG-38206/38207 is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of HDC-EHB150CG-38206/38207 can represent the remaining models.

## 4. Test Methodology

### 4.1. Decision of Final Test Mode

The EUT was tested together with the thereafter additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The following test mode(s) were assessed:

Test Mode
Mode 1: Normal Operation

### 4.2. EUT System Operation

1. Set up EUT with the support equipments.
2. Make sure the EUT work normally during the test.

## 5. Setup of Equipment under Test

### 5.1. Description of Support Units

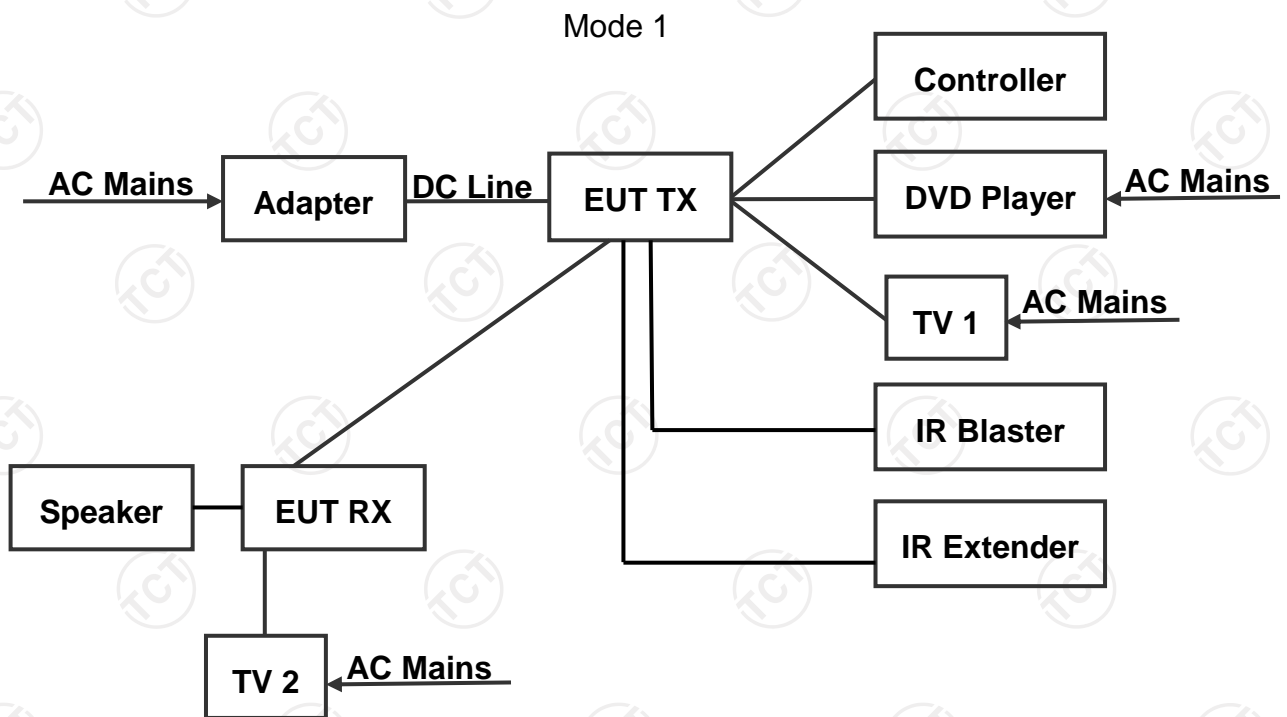
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
DVD Player	BDP-G4305	BD4305CCCC1409L S002	/	GIEC
TV 1	19PFL3120/T3	AU2A1241000762	/	PHILIPS
TV 2	32L15EBC	H51D79C00782T1	/	TOSHIBA
Speaker	/	/	/	/

**Note:**

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

### 5.2. Configuration of System Under Test



(EUT: 18Gbps HDMI over HDBaseT Extender with Bi-directional IR (150M))

## 6. Facilities and Accreditations

### 6.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

FCC - Registration No.: 645098

Shenzhen Tongce Testing Lab

The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 32. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 6.2. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

No.	Item	MU
1.	Temperature	$\pm 0.1^{\circ}\text{C}$
2.	Humidity	$\pm 1.0\%$
3.	Spurious Emissions, Conducted	$\pm 2.56\text{ dB}$
4.	All Emissions, Radiated	$\pm 4.28\text{ dB}$

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of  $k=2$ .



## 7. Emission Test

### 7.1. Conducted Emission at Mains Terminals

#### 7.1.1. Test Specification

<b>Test Requirement:</b>	FCC 47 CFR Part 15 Subpart B
<b>Test Method:</b>	ANSI C63.4: 2014
<b>Frequency Range:</b>	150 kHz to 30 MHz

#### 7.1.2. Limits

Frequency (MHz)	Class B dB( $\mu$ V)	
	Quasi-peak	Average
0.15 - 0.5	66 – 56 <sup>a</sup>	56 – 46 <sup>a</sup>
0.50 - 5.0	56	46
5.0 - 30.0	60	50

a. Decreases with the logarithm of the frequency

#### 7.1.3. Test Instruments

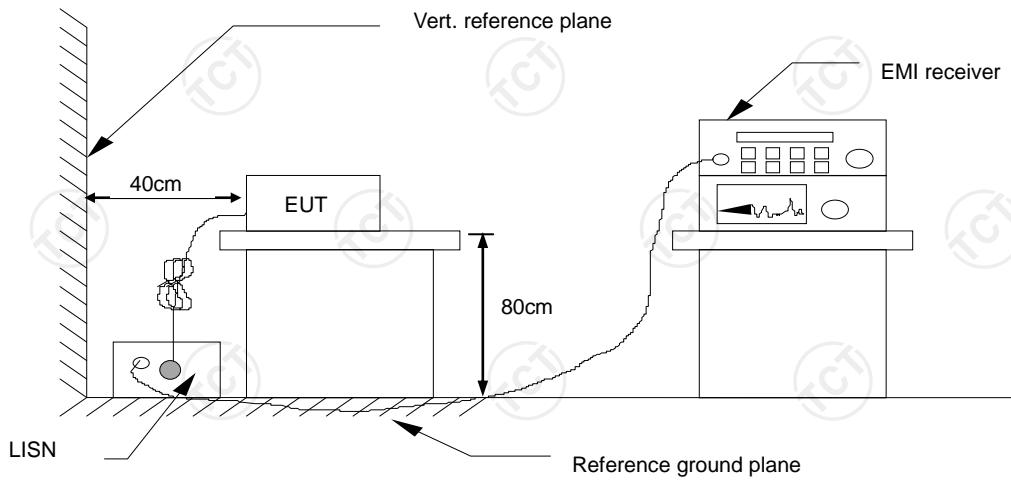
Conducted Emission Shielding Room Test Site (843)				
Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESPI	101402	Jul. 29, 2020
LISN	Schwarzbeck	NSLK 8126	8126453	Sep. 11, 2020
Coax cable (9KHz-30MHz)	TCT	CE-05	N/A	Sep. 08, 2020
Test Software	Shurple Technology	EZ-EMC	EMEC-3A1	N/A

**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

#### 7.1.4. Test Method

The AMN was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane. This distance was between the closest points of the AMN and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the AMN. All power was connected to the system through Artificial Mains Network (AMN). Conducted voltage measurements on mains lines were made at the output of the AMN

### 7.1.5. Block Diagram of Test Setup



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

### 7.1.6. Test Results

<b>Test Environment:</b>	Temp.:	25 °C	Humid.:	55 %	Press.:	96 kPa
<b>Test Mode:</b>	Mode 1					
<b>Test Voltage:</b>	AC 120 V/ 60 Hz					
<b>Test Result:</b>	Pass					

**Note:**

L1 = Live Line / N = Neutral Line

Freq. = Emission frequency in MHz

Reading level (dBµV) = Receiver reading

Correct Factor (dB) = LISN factor + Cable loss

Measurement (dBµV) = Reading level (dBµV) + Corr. Factor (dB)

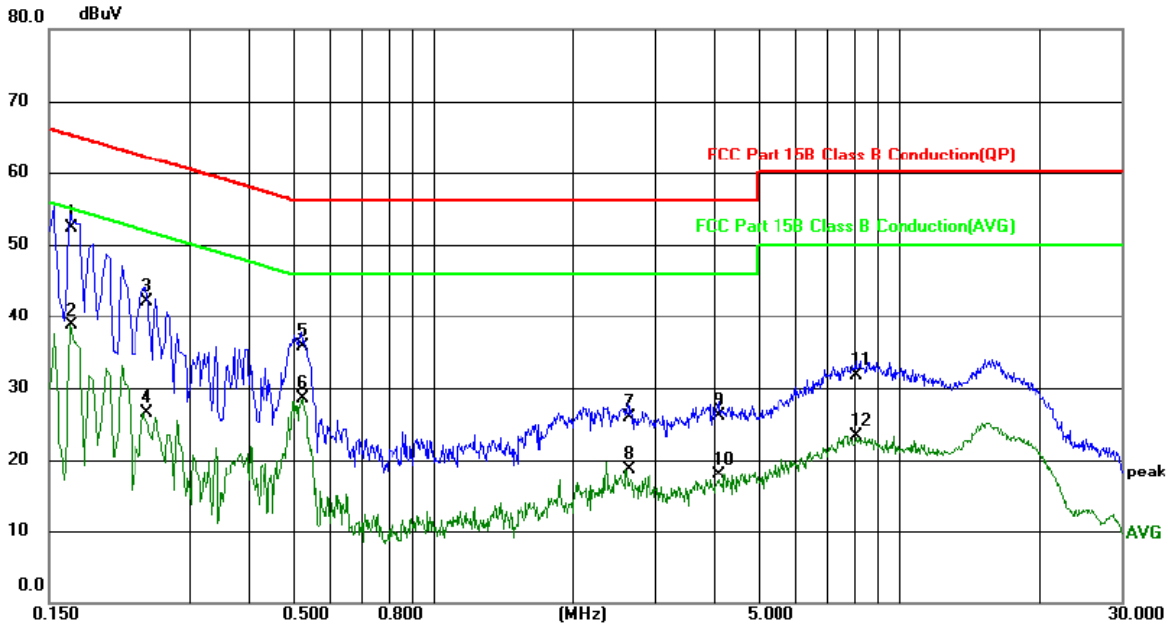
Limit (dBµV) = Limit stated in standard

Margin (dB) = Measurement (dBµV) – Limits (dBµV)

Q.P. =Quasi-Peak    AVG =average

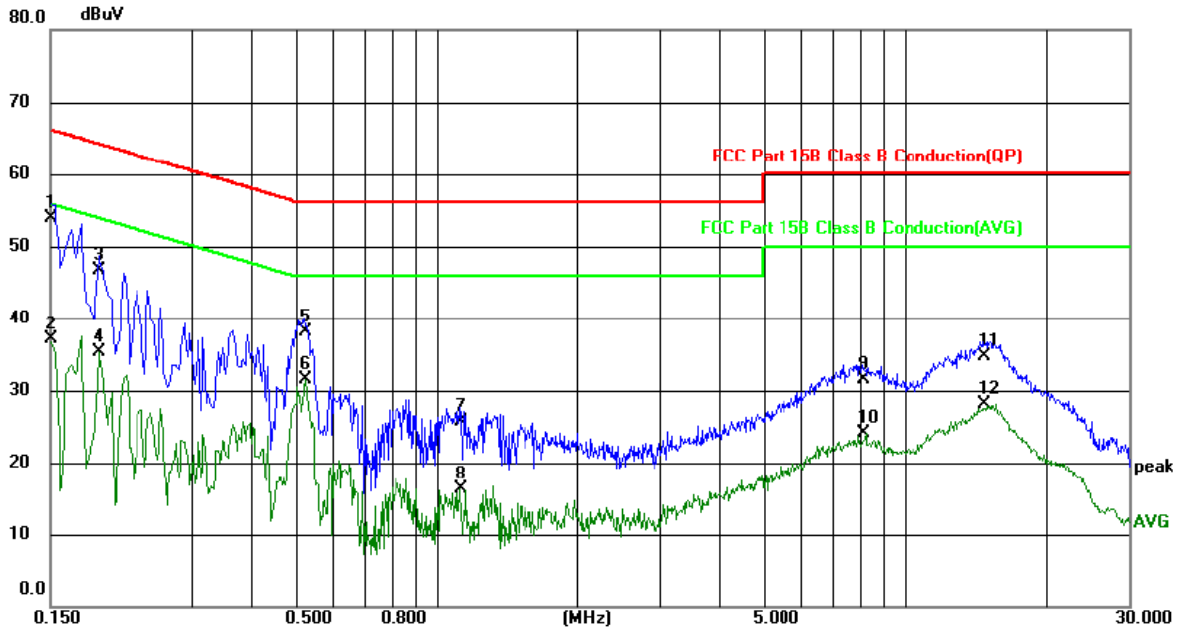
\* is meaning the worst frequency has been tested in the frequency range 150 kHz to 30MHz.

Please refer to following diagram for individual



Site: \_\_\_\_\_ Phase: **L1** Temperature: 25 (C)  
 Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 55 %RH  
 Note: \_\_\_\_\_

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1660	42.13	10.22	52.35	65.16	-12.81	QP	
2		0.1660	28.52	10.22	38.74	55.16	-16.42	AVG	
3		0.2420	31.89	10.23	42.12	62.03	-19.91	QP	
4		0.2420	16.31	10.23	26.54	52.03	-25.49	AVG	
5		0.5220	25.50	10.22	35.72	56.00	-20.28	QP	
6		0.5220	18.20	10.22	28.42	46.00	-17.58	AVG	
7		2.6220	15.46	10.45	25.91	56.00	-30.09	QP	
8		2.6220	8.16	10.45	18.61	46.00	-27.39	AVG	
9		4.1060	15.63	10.47	26.10	56.00	-29.90	QP	
10		4.1060	7.39	10.47	17.86	46.00	-28.14	AVG	
11		8.0659	21.16	10.53	31.69	60.00	-28.31	QP	
12		8.0659	12.85	10.53	23.38	50.00	-26.62	AVG	



Site: \_\_\_\_\_ Phase: **N** Temperature: 25 (C)  
 Limit: FCC Part 15B Class B Conduction(QP) Power: AC 120V/60Hz Humidity: 55 %RH  
 Note: \_\_\_\_\_

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	0.1500	43.66	10.23	53.89	66.00	-12.11	QP	
2		0.1500	26.79	10.23	37.02	56.00	-18.98	AVG	
3		0.1900	36.40	10.22	46.62	64.04	-17.42	QP	
4		0.1900	25.01	10.22	35.23	54.04	-18.81	AVG	
5		0.5220	27.92	10.22	38.14	56.00	-17.86	QP	
6		0.5220	21.23	10.22	31.45	46.00	-14.55	AVG	
7		1.1180	15.24	10.37	25.61	56.00	-30.39	QP	
8		1.1180	5.97	10.37	16.34	46.00	-29.66	AVG	
9		8.1340	21.00	10.53	31.53	60.00	-28.47	QP	
10		8.1340	13.61	10.53	24.14	50.00	-25.86	AVG	
11		14.7380	23.98	10.77	34.75	60.00	-25.25	QP	
12		14.7380	17.26	10.77	28.03	50.00	-21.97	AVG	

## 7.2. Radiated Emission

### 7.2.1. Test Specification

<b>Test Requirement:</b>	FCC 47 CFR Part 15 Subpart B
<b>Test Method:</b>	ANSI C63.4: 2014
<b>Frequency Range:</b>	30 MHz to 6000 MHz
<b>Measurement Distance:</b>	3 m
<b>Antenna Polarization:</b>	Horizontal & Vertical

### 7.2.2. Limits

#### Below 1 GHz

Frequency (MHz)	Class B (at 3m)
	dBuV/m
30 ~ 88	40.0
88 ~ 216	43.5
216 ~ 960	46.0
960 ~ 1000	54.0

#### Above 1 GHz

Frequency (MHz)	Peak Value (at 3m)	Average (at 3m)
	dBuV/m	dBuV/m
Above 1GHz	74.0	54.0

**Note:**

1. The lower limit shall apply at the transition frequencies.
2. Emission level dB( $\mu$ V/m) = 20 log Emission level ( $\mu$ V/m).

### 7.2.3. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESIB7	100197	Jul. 29, 2020
Spectrum Analyzer	R&S	FSQ40	200061	Sep. 11, 2020
Amplifier	HP	8447D	2727A05017	Sep. 08, 2020
Amplifier	EM Electronics Corporation CO.,LTD	EM30265	07032613	Sep. 08, 2020
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 06, 2020
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 06, 2020

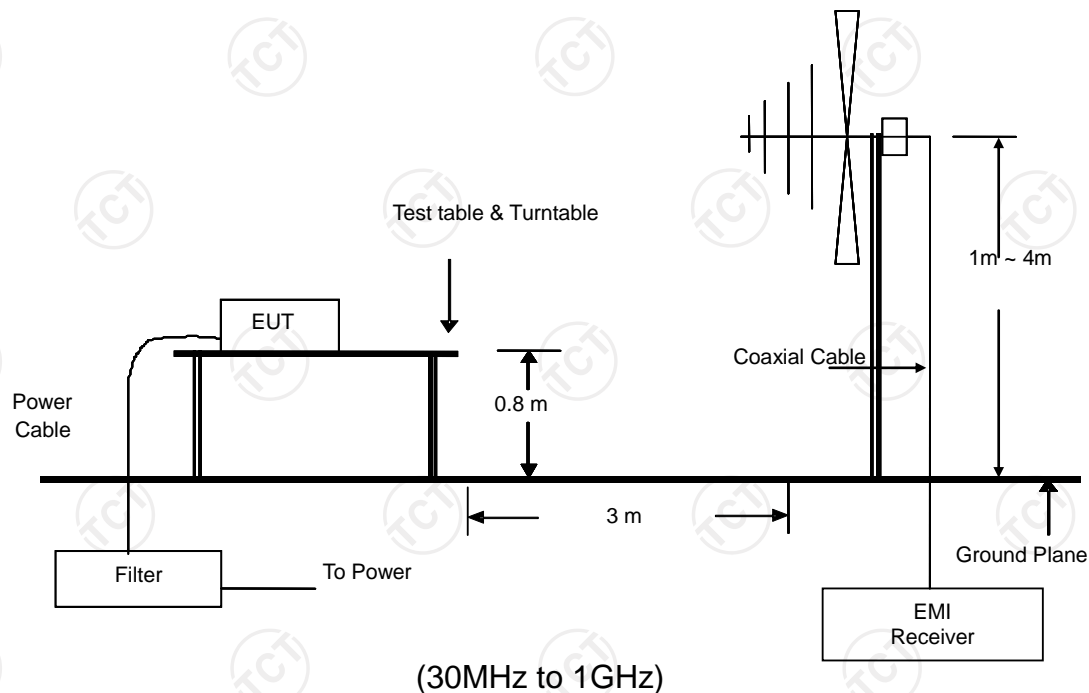
Antenna Mast	SKET	CC-A-4M	N/A	N/A
Coax cable (9KHz-40GHz)	TCT	RE-high-02	N/A	Sep. 08, 2020
Coax cable (9KHz-40GHz)	TCT	RE-high-04	N/A	Sep. 08, 2020
Test Software	Shurple Technology	EZ-EMC	FA-03A2	N/A

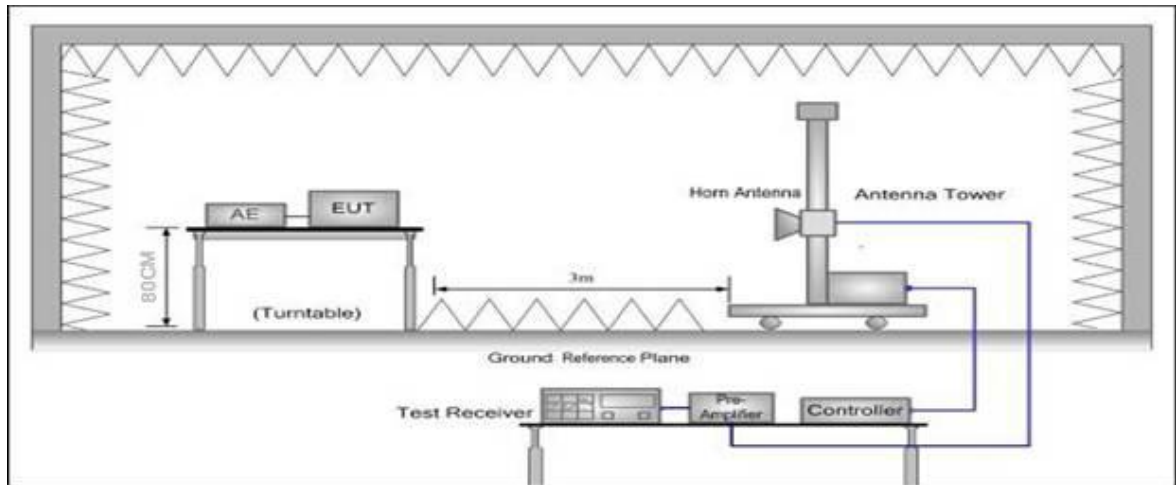
**Note:** The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

### 7.2.4. Test Method

Measurements were made in a 3-meter semi-anechoic chamber that complies to CISPR 16. Preliminary (peak) measurements were performed at an antenna to EUT separation distance of 3 meter. The EUT was rotated 360° about its azimuth with the receive antenna located at various heights in horizontal and vertical polarities. Final measurements (quasi-peak) were then performed by rotating the EUT 360° and adjusting the receive antenna height from 1 to 4 m. All frequencies were investigated in both horizontal and vertical antenna polarity, where applicable. Block Diagram of Test Setup.

### 7.2.5. Block Diagram of Test Setup





(Above 1GHz)

For the actual test configuration, please refer to the related item – Photographs of the Test Configuration

### 7.2.6. Test Results

<b>Test Environment:</b>	Temp.: 25 °C	Humid.: 55 %	Press.: 96 kPa
<b>Test Mode:</b>	Mode 1		
<b>Test Voltage:</b>	AC 120 V/ 60 Hz		
<b>Test Result:</b>	Pass		

**Note:**

Freq. = Emission frequency in MHz

Reading level (dB $\mu$ V/m) = Receiver reading

Corr. Factor (dB) = Antenna Factor + Cable Loss - AMP Factor

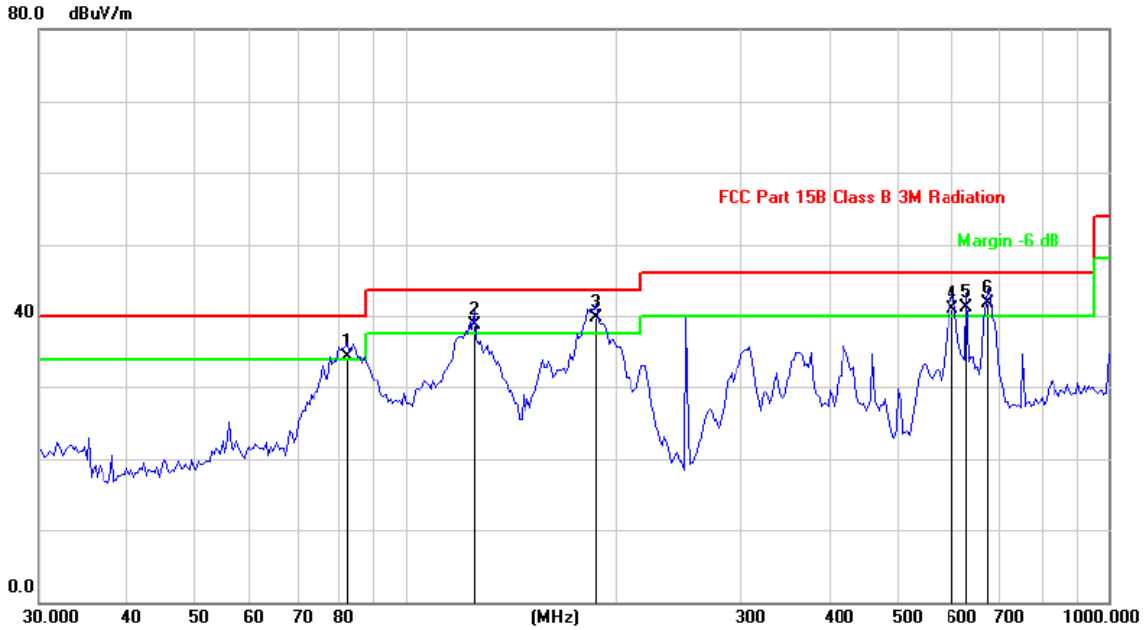
Measurement (dB $\mu$ V/m) = Reading level (dB $\mu$ V/m) + Corr. Factor (dB)

Limit (dB $\mu$ V/m) = Limit stated in standard

Margin (dB) = Measurement (dB $\mu$ V/m) – Limit (dB $\mu$ V/m)

\* is meaning the worst frequency has been tested in the test frequency range

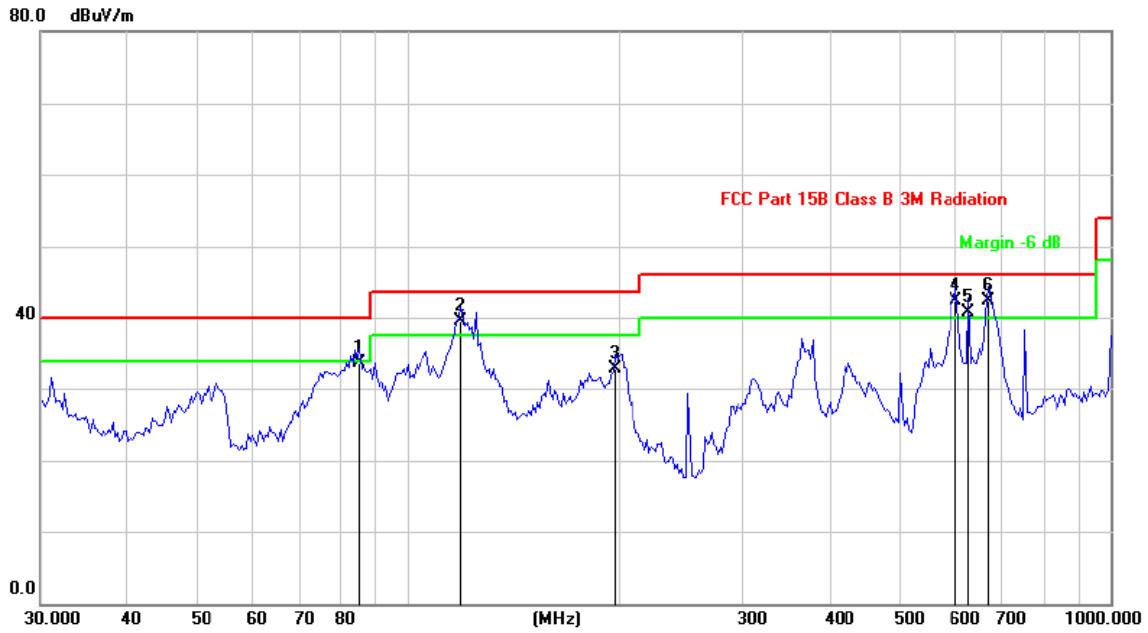
Please refer to following diagram for individual



Site: Polarization: **Horizontal** Temperature: 25  
 Limit: FCC Part 15B Class B 3M Radiation Power: AC 120V/60Hz Humidity: 55 %  
 Note:

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1	!	82.5257	49.74	-15.52	34.22	40.00	-5.78	QP		
2	!	124.9248	52.59	-13.90	38.69	43.50	-4.81	QP		
3	*	186.4684	54.40	-14.64	39.76	43.50	-3.74	QP		
4	!	598.7065	45.05	-4.07	40.98	46.00	-5.02	QP		
5	!	628.8935	44.90	-3.78	41.12	46.00	-4.88	QP		
6	!	674.6766	45.16	-3.42	41.74	46.00	-4.26	QP		

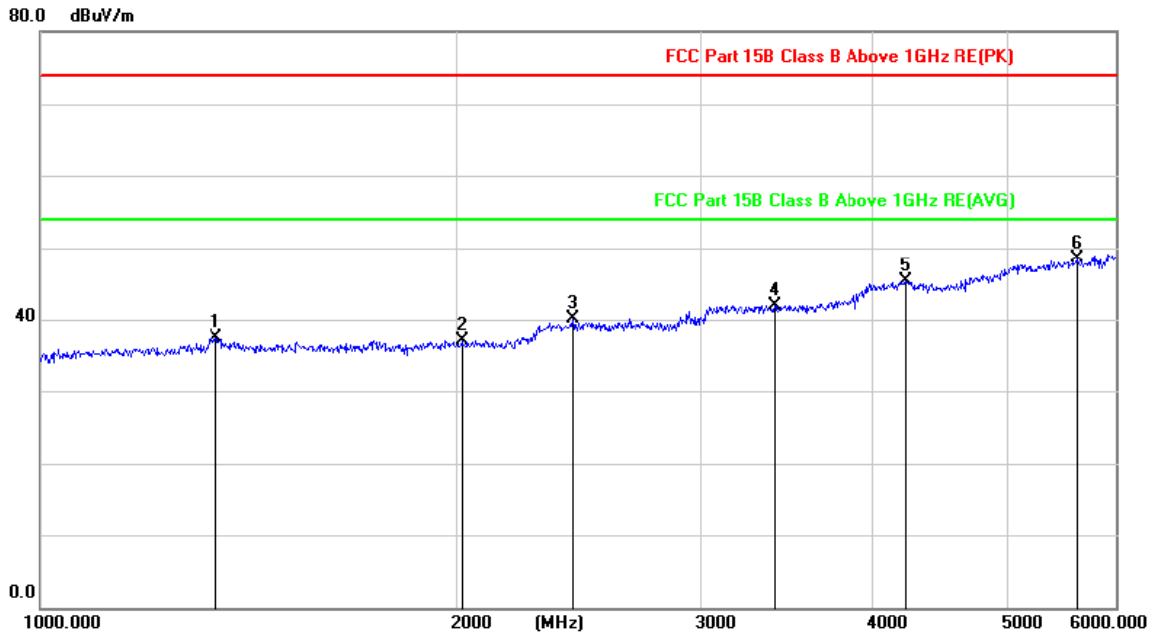




Site: Polarization: **Vertical** Temperature: 25  
 Limit: FCC Part 15B Class B 3M Radiation Power: AC 120V/60Hz Humidity: 55 %  
 Note:

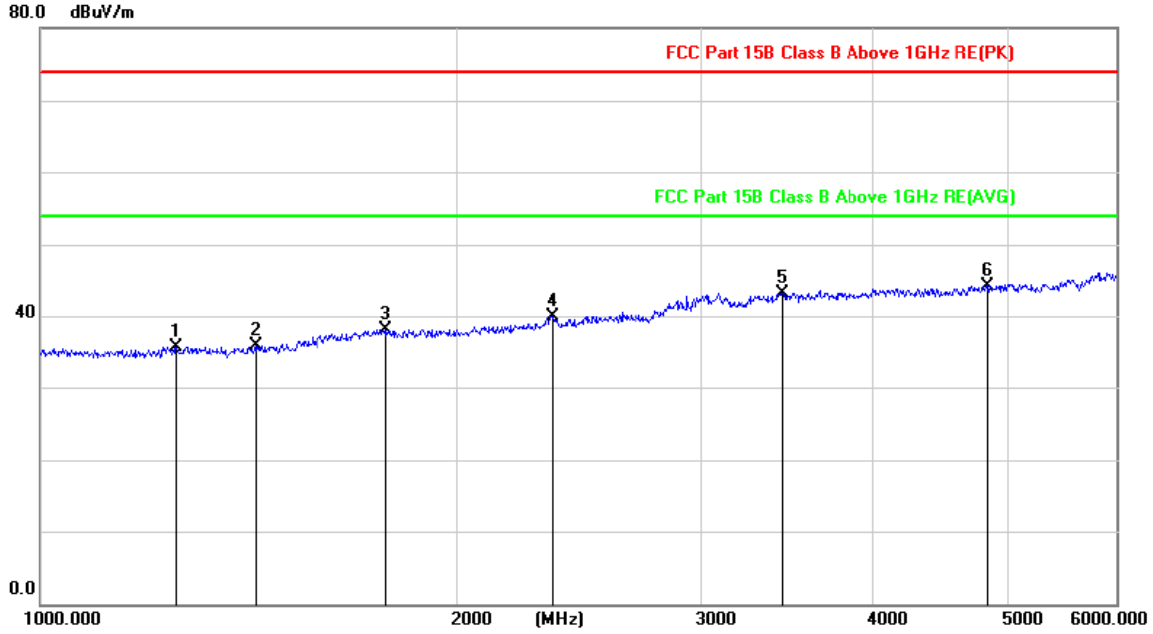
No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Detector	Antenna Height cm	Table Degree	Comment
1		85.4769	47.49	-13.71	33.78	40.00	-6.22	QP			
2	!	118.9282	51.24	-11.75	39.49	43.50	-4.01	QP			
3		197.2512	47.02	-14.08	32.94	43.50	-10.56	QP			
4	*	602.9287	46.35	-4.01	42.34	46.00	-3.66	QP			
5	!	628.8935	44.48	-3.78	40.70	46.00	-5.30	QP			
6	!	669.9523	45.68	-3.45	42.23	46.00	-3.77	QP			





Site: \_\_\_\_\_ Polarization: **Horizontal** Temperature: 25  
 Limit: FCC Part 15B Class B Above 1GHz RE(PK) Power: AC 120V/60Hz Humidity: 55 %  
 Note: \_\_\_\_\_

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1339.179	49.37	-11.85	37.52	74.00	-36.48	peak		
2		2018.530	48.68	-11.53	37.15	74.00	-36.85	peak		
3		2427.643	49.79	-9.69	40.10	74.00	-33.90	peak		
4		3399.987	50.19	-8.29	41.90	74.00	-32.10	peak		
5		4223.122	47.80	-2.49	45.31	74.00	-28.69	peak		
6	*	5625.198	47.61	0.80	48.41	74.00	-25.59	peak		



Site: \_\_\_\_\_ Polarization: **Vertical** Temperature: 25  
 Limit: FCC Part 15B Class B Above 1GHz RE(PK) Power: AC 120V/60Hz Humidity: 55 %  
 Note: \_\_\_\_\_

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dB/m	Over dB	Antenna Height cm	Table Degree degree	Comment
1		1253.277	47.76	-12.07	35.69	74.00	-38.31	peak		
2		1430.969	47.58	-11.72	35.86	74.00	-38.14	peak		
3		1777.406	50.23	-12.20	38.03	74.00	-35.97	peak		
4		2346.389	49.92	-10.05	39.87	74.00	-34.13	peak		
5		3442.900	51.36	-8.19	43.17	74.00	-30.83	peak		
6	*	4839.195	45.86	-1.66	44.20	74.00	-29.80	peak		

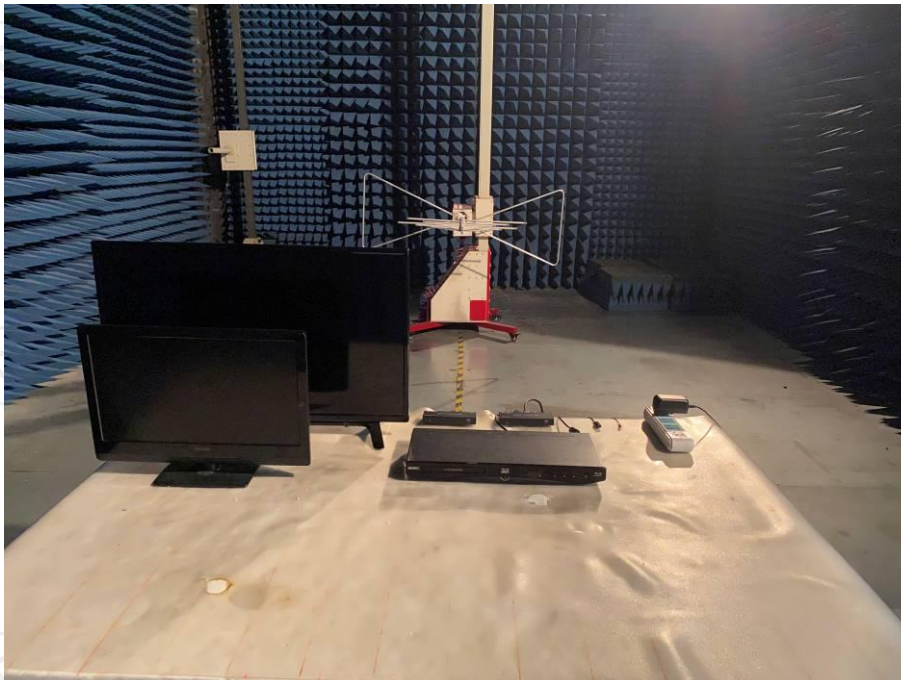


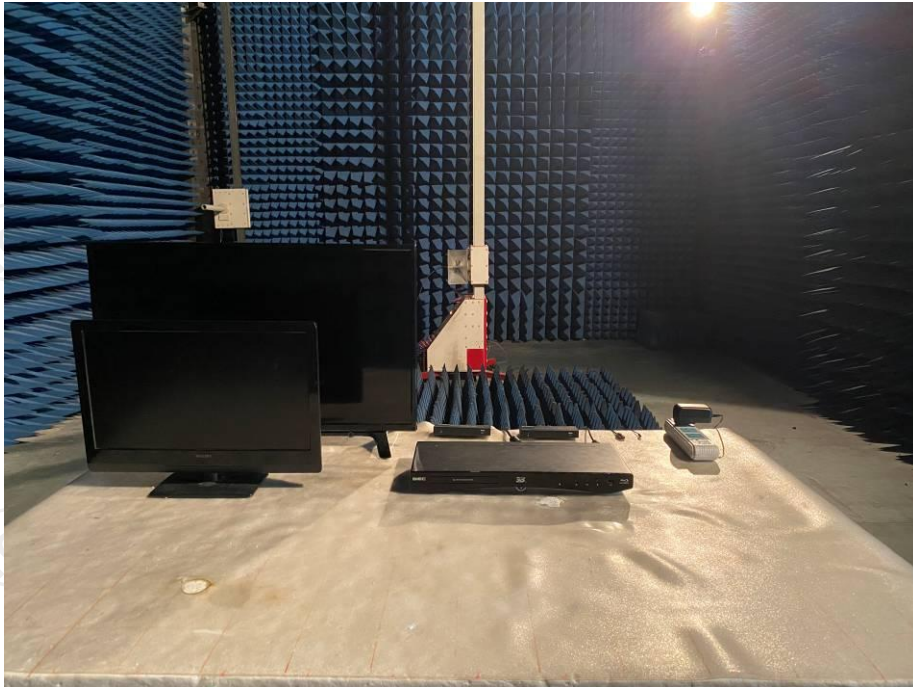
## 8. Photographs of Test Configuration

Conducted Emission Test View



Radiated Emission Test View

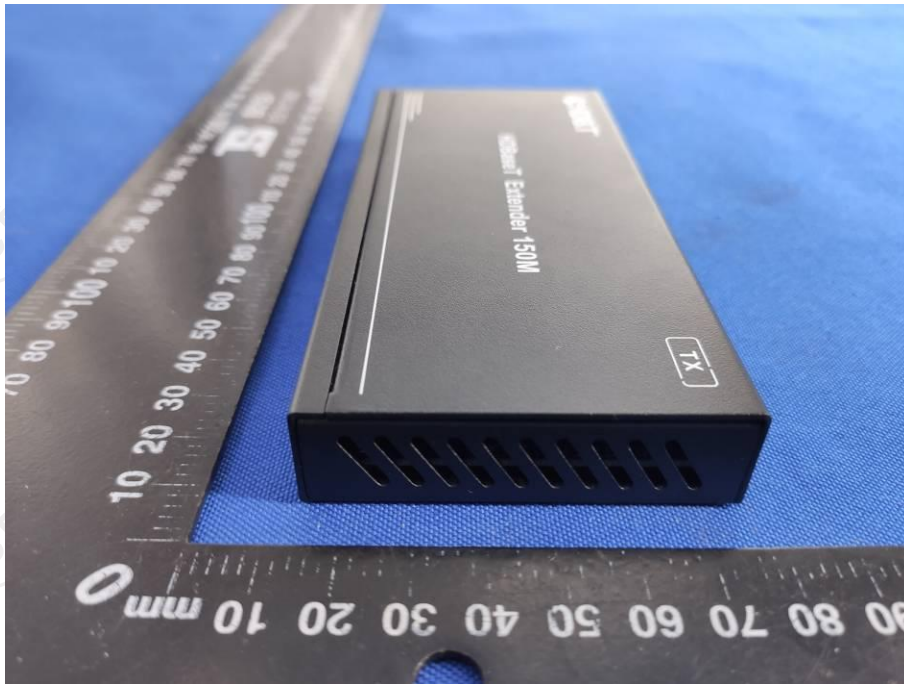




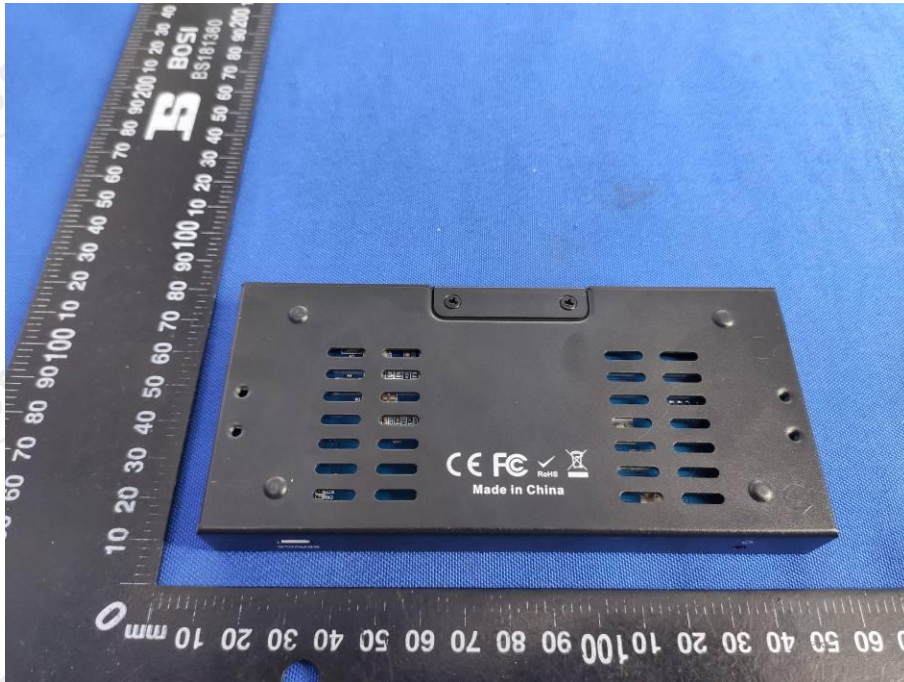
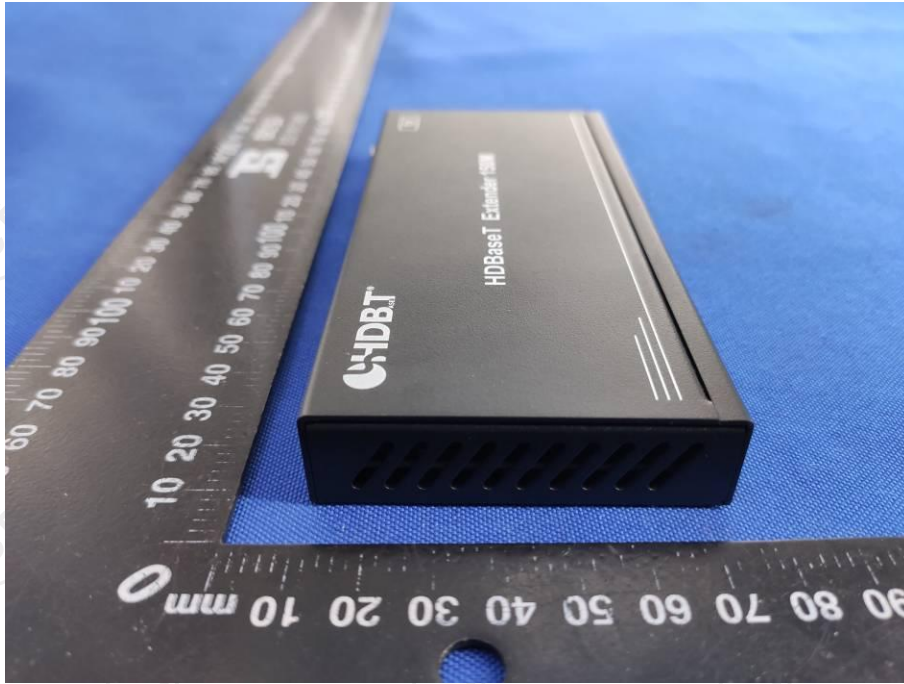
### 9. Photographs of EUT

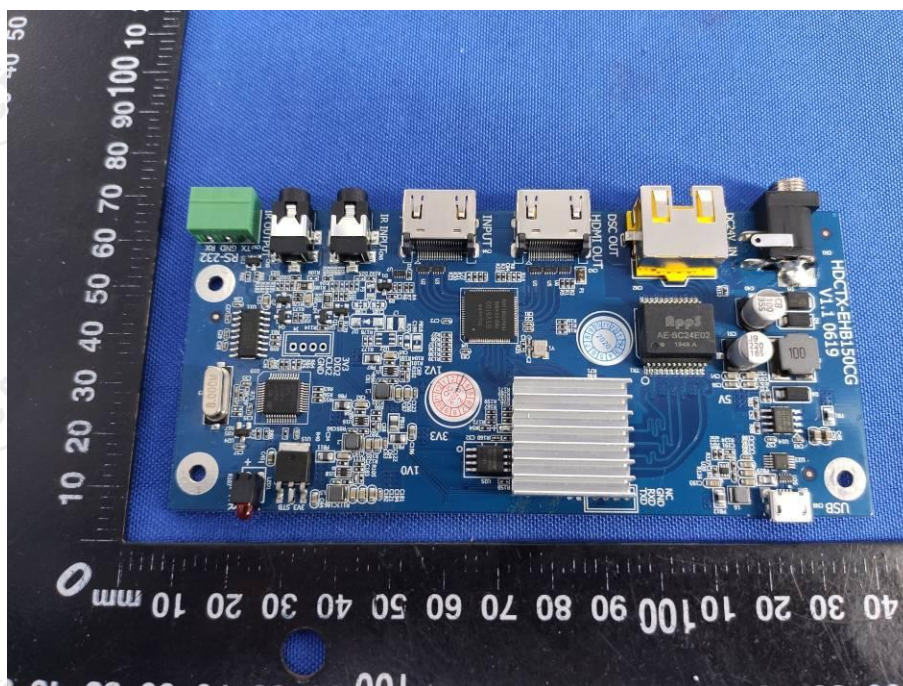


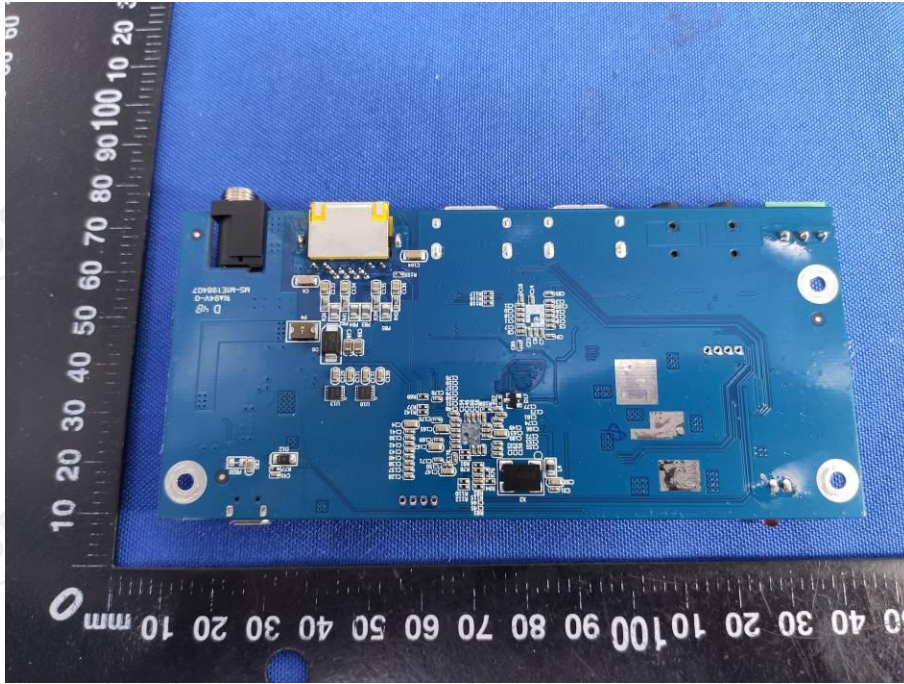




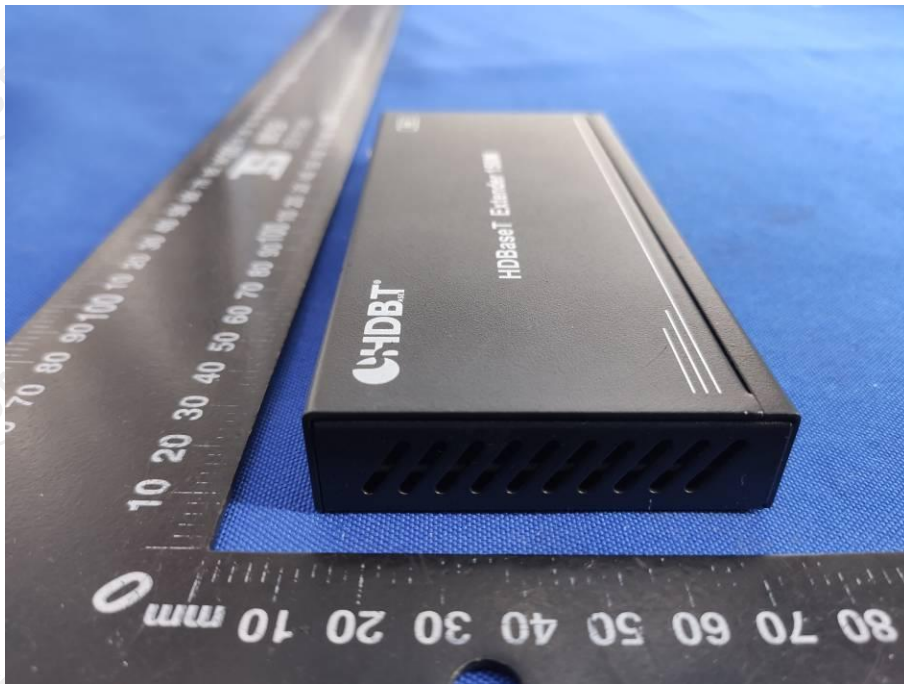




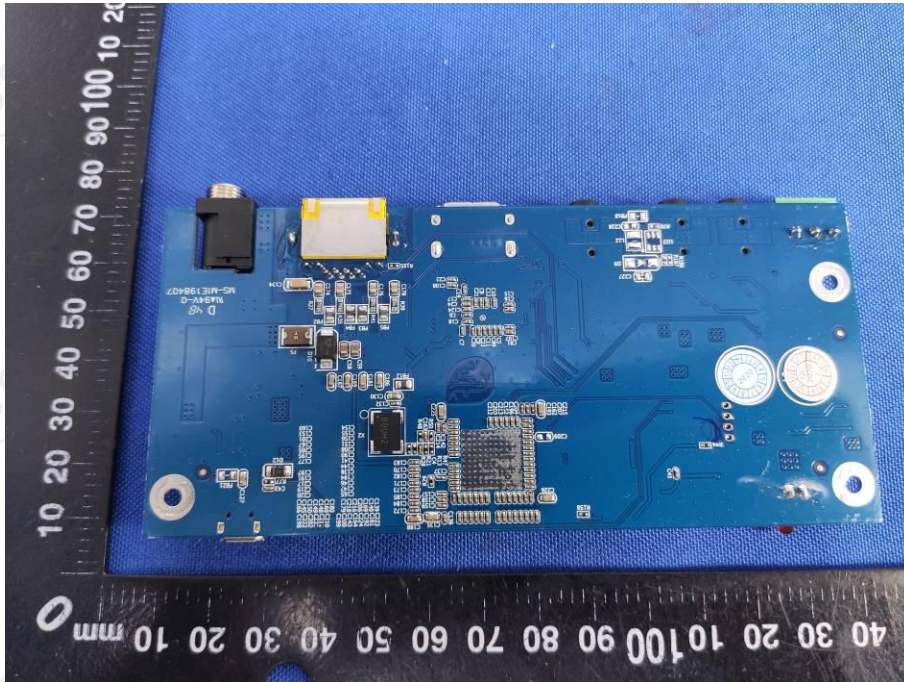












**\*\*\*\*\*END OF REPORT\*\*\*\*\***