

# TEST REPORT

**Report No.:** 8236EU121202W

**Applicant:** MERU(HK)LIMITED

**Address:** FLAT/RM B 9/F, 235 WING LOK STREET TRADE CTR,  
235 WING LOK STREET, SHEUNG WAN, HK

**Product Name:** Ink phone case

**Model No.:** IPHONE 16 PRO (refer to clause 2.4)

**Trademark:** Paper Kirei

**FCC ID:** 2BNWX-IPHONE16PRO

**Test Standard(s):** 47 CFR FCC Part 15 Subpart B

**Test Method(s):** ANSI C63.4-2014

**Date of Receipt:** Dec. 12, 2024

**Test Date:** Dec. 12, 2024 – Dec. 25, 2024

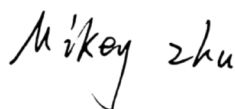
**Date of Issue:** Feb. 19, 2025

**ISSUED BY:**

SHENZHEN EU TESTING LABORATORY LIMITED



**Prepared by:**



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**Reviewed and Approved by:**



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### Revision Record

Report Version	Issued Date	Description	Status
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## 2 General Information

### 2.1 Applicant Information

Applicant	MERU(HK)LIMITED
Address	FLAT/RM B 9/F, 235 WING LOK STREET TRADE CTR, 235 WING LOK STREET, SHEUNG WAN, HK

### 2.2 Manufacturer Information

Manufacturer	MERU(HK)LIMITED
Address	FLAT/RM B 9/F, 235 WING LOK STREET TRADE CTR, 235 WING LOK STREET, SHEUNG WAN, HK

### 2.3 Factory Information

Factory	MERU(HK)LIMITED
Address	FLAT/RM B 9/F, 235 WING LOK STREET TRADE CTR, 235 WING LOK STREET, SHEUNG WAN, HK

### 2.4 General Description of E.U.T.

Product Name	Ink phone case
Model No. Under Test	IPHONE 16 PRO
List Model No.	CCP02BL0224, CCP02BL0324, CCP02BL0424, CCP02BL0524, CCP02BL0624, CCP02BL0724
Description of Model differentiation	All models are same with electrical parameters and internal circuit structure, but only differ in appearance colors and model name. (this information provided by the customer)
Rating(s)	Induction
Test Sample No.	-1/2(Normal Sample), -2/2(Engineering Sample)
Hardware Version	N/A
Software Version	N/A
Remark	For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

### 2.5 Technical Information of E.U.T.

Network and Wireless Connectivity	NFC (Near-Field Communication)
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The requirement for the following technical information of the EUT was tested in this report:

The Highest Speed of Processor	N/A
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### 3 Test Summary

#### 3.1 Test Standard

The tests were performed according to following standards:

No.	Identity	Document Title
1	47 CFR Part 15 Subpart B	Unintentional Radiators
2	ANSI C63.4-2014	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

Remark:

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product maybe which result in lowering the emission/immunity should be checked to ensure compliance has been maintained.

#### 3.2 Test Verdict

No.	Test Items	FCC Rule	Verdict
1	Conducted Emission (Power Line)	15.107	N/A
2	Radiated Emission	15.109	PASS

Note:

(1) "N/A" denotes test is not applicable in this Test Report.

#### 3.3 Test Laboratory

Test Laboratory	Shenzhen EU Testing Laboratory Limited
Address	101, Building B1, Fuqiao Fourth Area, Qiaotou Community, Fuhai Substrict, Baoan District, Shenzhen, Guangdong, China
Designation Number	CN1368
Test Firm Registration Number	952583

## 4 Test Configuration

### 4.1 Test Environment

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	30% to 60%	
Atmospheric Pressure	86 kPa to 106 kPa	
Temperature	NT (Normal Temperature)	+15°C to +35°C
Working Voltage of the EUT	NV (Normal Voltage)	Induction

### 4.2 Test Equipment

Conducted Emission Test					
Equipment	Manufacturer	Model No	Serial No	Cal Date	Cal Due Date
L.I.S.N. Artificial Mains Network	Rohde & Schwarz	ENV216	EE-004	2024/01/09	2025/01/08
EMI Test Receiver	Rohde & Schwarz	ESCI	EE-005	2024/01/09	2025/01/08
Test Software	Farad	EZ-EMC	EE-014	N.C.R	N.C.R

Radiated Emission Test					
Equipment	Manufacturer	Model No	Serial No	Cal Date	Cal Due Date
EMI Test Receiver	ROHDE & SCHWARZ	ESPI	EE-006	2024/01/09	2025/01/08
Bilog Broadband Antenna	SCHWARZBECK	VULB 9163	EE-007	2023/01/14	2026/01/13
Double Ridged Horn Antenna	A-INFOMW	LB-10180-NF	EE-008	2023/01/12	2026/01/11
Pre-amplifier	Agilent	8447D	EE-009	2024/01/09	2025/01/08
Pre-amplifier	Agilent	8449B	EE-010	2024/01/09	2025/01/08
MXA Signal Analyzer	Agilent	N9020A	EE-011	2024/01/09	2025/01/08
MXG RF Vector Signal Generator	Agilent	N5182A	EE-012	2024/01/09	2025/01/08
Test Software	Farad	EZ-EMC	EE-015	N.C.R	N.C.R

### 4.3 Description of Support Unit

No.	Title	Manufacturer	Model No.	Serial No.
1	Mobile Phone	Apple	iPhone 13	--

### 4.4 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned bellow was evaluated respectively.

No.	Test Modes	Description
TM1	Working mode	Keep the EUT in Working mode

### 4.5 Measurement Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

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

Test Item	Measurement Uncertainty
Radiated Emission (30MHz- 1GHz)	Ur = 2.70 dB (Horizontal)
	Ur = 2.70 dB (Vertical)
Radiated Emission (1GHz- 18GHz)	Ur = 3.50 dB (Horizontal)
	Ur = 3.50 dB (Vertical)
Radiated Emission (18GHz- 40GHz)	Ur = 5.15 dB (Horizontal)
	Ur = 5.24 dB (Vertical)
Conducted Emission	Uc = 2.50 dB

## 5 Emission Test

### 5.1 Conducted Emission at AC Power Line

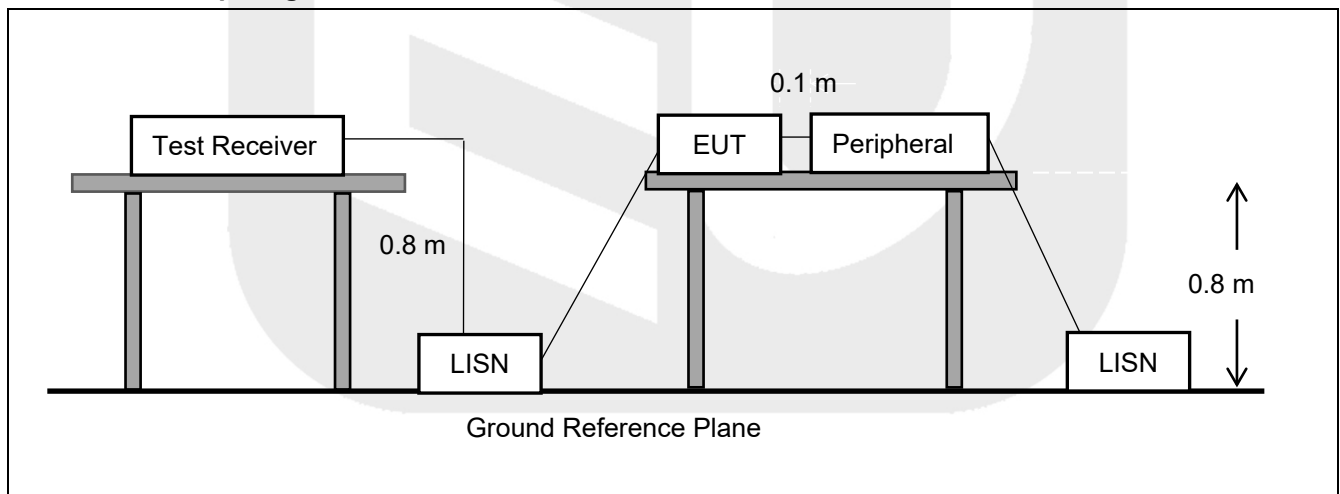
#### 5.1.1 Test Requirement

Test Limit	Frequency of emission (MHz)	Class A	
		Conducted limit (dBμV)	
		Quasi-peak	Average
	0.15 - 0.50	79	66
	0.50 - 30	73	60
	Frequency of emission (MHz)	Class B	
		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

Note:

- 1) The lower limit shall apply at the transition frequency.
- 2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50 MHz.

#### 5.1.2 Test Setup Diagram



#### 5.1.3 Test Procedure

The EUT is put on the plane 0.8 m high above the ground by insulating support and connected to the AC mains through Line Impedance Stability Network (L.I.S.N). This provided a 50ohm coupling impedance for the tested equipment. Both sides of AC line are investigated to find out the maximum conducted emission according to the test standard regulations during conducted emission measurement.

The bandwidth of the field strength meter (R&S Test Receiver ESCI) is set at 9kHz in 150kHz~30MHz.

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal



120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz ) shown here.

#### 5.1.4 Test Data

Not applicable.

The EUT can't be connected to AC power line, so there is no need to conduct this test item.



## 5.2 Radiated Emission Test

### 5.2.1 Test Requirement

Test Limit

Frequency (MHz)	Class A	
	Distance (Meters)	Field Strength (dBμV/m)
30 - 88	3	39
88 - 216	3	43.5
216 - 960	3	46.5
Above 960	3	49.5

Frequency (MHz)	Class B	
	Distance (Meters)	Field Strength (dBμV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

Note:

1) Field Strength (dBμV/m) = 20\*log [Field Strength (μV/m)].

2) The lower limit shall apply at the transition frequency.

### 5.2.2 Test Setup Diagram

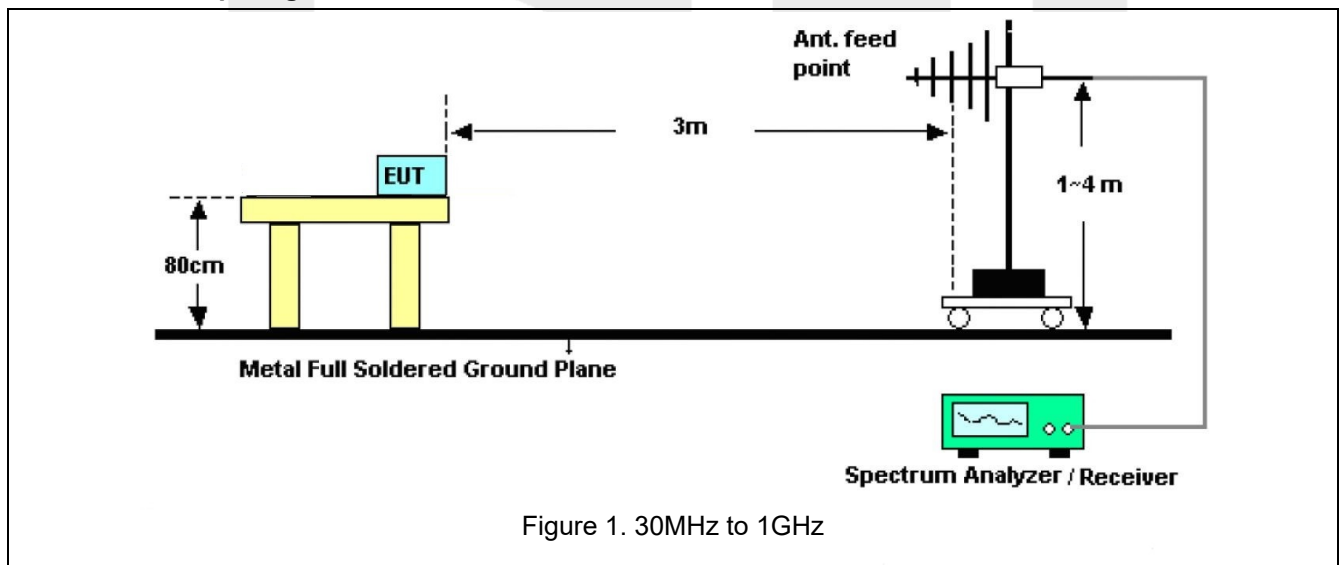


Figure 1. 30MHz to 1GHz

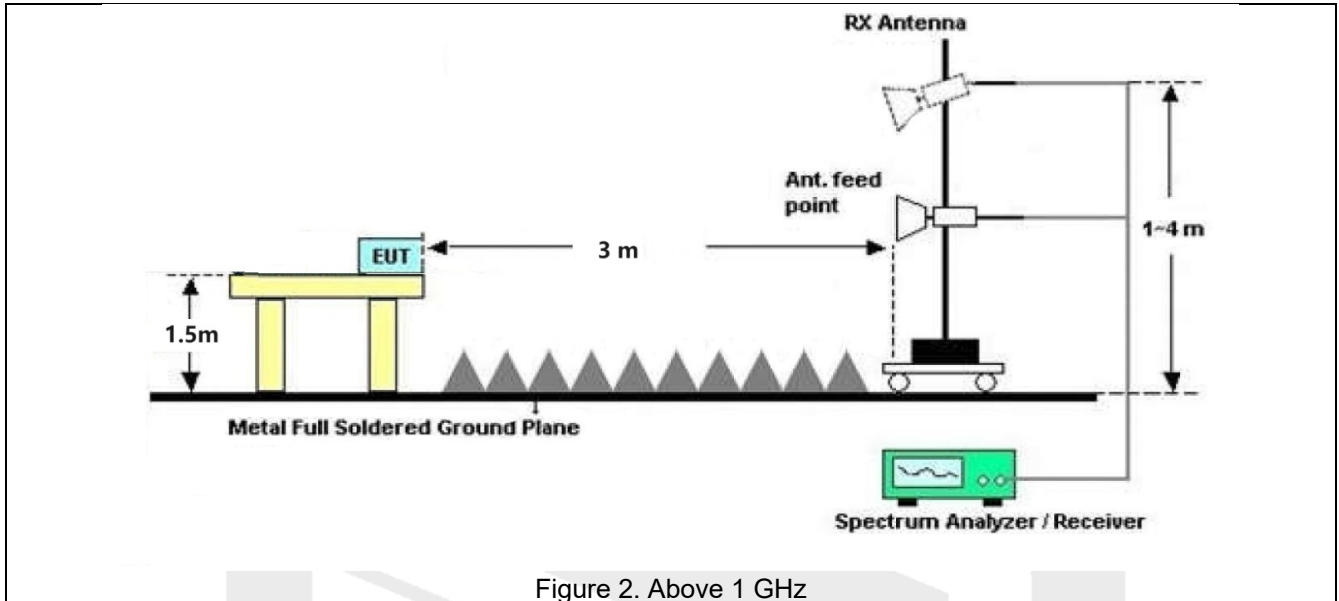


Figure 2. Above 1 GHz

### 5.2.3 Test Procedure

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

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

The measurement frequency range is from 30 MHz to the 5th harmonic of the maximum frequency of the EUT internal source. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for  $f \geq 1$  GHz, 100 kHz for  $f < 1$  GHz

VBW  $\geq$  RBW

Sweep = auto

Detector function = peak for  $f < 1$  GHz, peak & RMS Average for  $f \geq 1$  GHz

Trace = max hold

### 5.2.4 Test Data

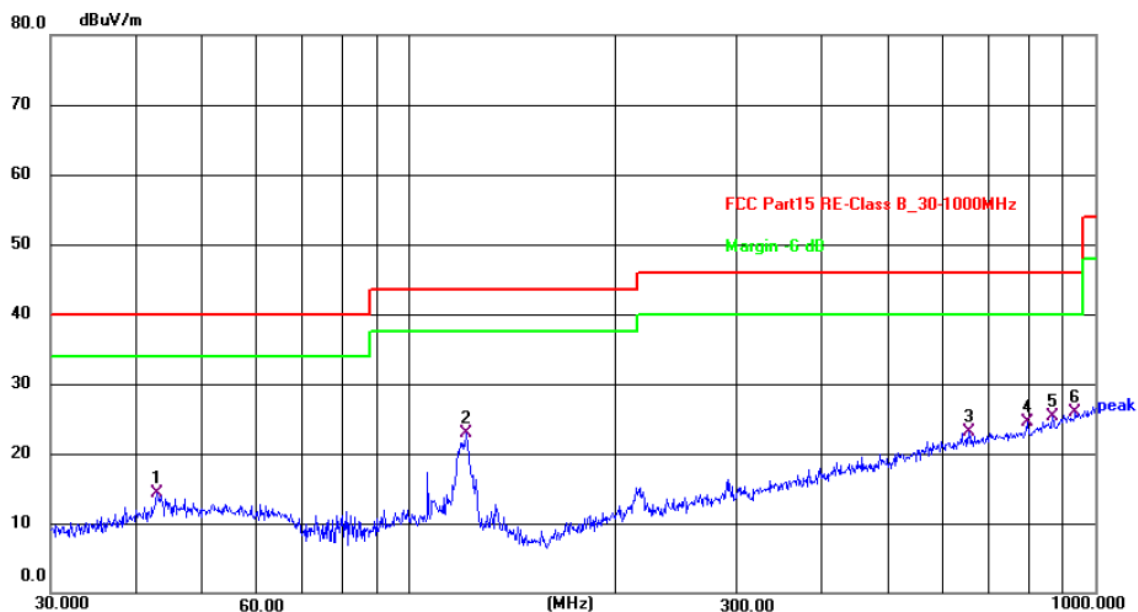
**PASS.**

Please refer to the following pages.

The test results of 9kHz-30MHz was attenuated more than 20dB below the permissible limits, so the results don't record in the report.

### Radiated Emission Test Data (30-1000MHz)

Test Site:	966 Chamber #1	Polarization:	Horizontal
Distance:	3m	Test Mode:	TM1



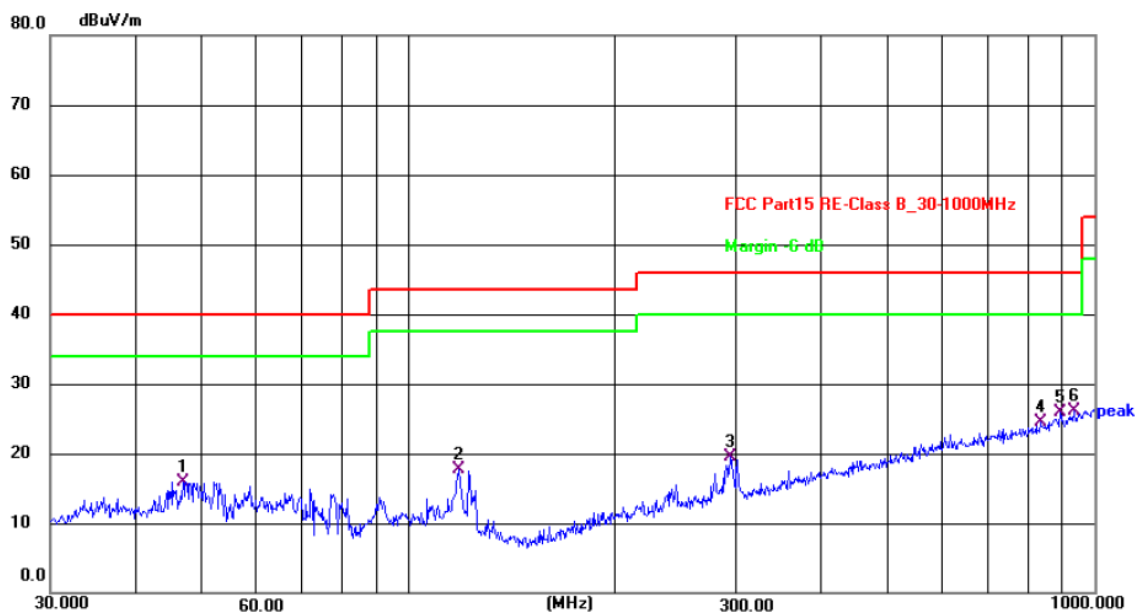
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	42.8997	28.98	-14.64	14.34	40.00	-25.66	QP	P	
2	121.1230	39.88	-16.98	22.90	43.50	-20.60	QP	P	
3	654.2318	28.79	-5.72	23.07	46.00	-22.93	QP	P	
4	796.1830	28.53	-4.03	24.50	46.00	-21.50	QP	P	
5	866.0880	27.91	-2.70	25.21	46.00	-20.79	QP	P	
6 *	935.5461	27.40	-1.52	25.88	46.00	-20.12	QP	P	

Note: Level = Reading + Factor

Margin = Level - Limit

**Radiated Emission Test Data (30-1000MHz)**

<b>Test Site:</b>	966 Chamber #1	<b>Polarization:</b>	Vertical
<b>Distance:</b>	3m	<b>Test Mode:</b>	TM1



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	46.8301	30.17	-14.21	15.96	40.00	-24.04	QP	P	
2	118.1861	34.60	-16.81	17.79	43.50	-25.71	QP	P	
3	294.1136	31.66	-12.13	19.53	46.00	-26.47	QP	P	
4	833.3170	28.01	-3.44	24.57	46.00	-21.43	QP	P	
5	890.7277	28.43	-2.51	25.92	46.00	-20.08	QP	P	
6 *	932.2714	27.92	-1.81	26.11	46.00	-19.89	QP	P	

**Note 1: Level = Reading + Factor**
**Margin = Level - Limit**

## **ANNEX A TEST SETUP PHOTOS**

Please refer to the document “8236EU121202W-AA.PDF”

## **ANNEX B EXTERNAL PHOTOS**

Please refer to the document “8236EU121202W-AB.PDF”

## **ANNEX C INTERNAL PHOTOS**

Please refer to the document “8236EU121202W-AC.PDF”



## STATEMENT

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