

## TEST REPORT

**Product** : BE3600 Whole Home Mesh Wi-Fi 7 System  
**Trade mark** : N/A  
**Model/Type reference** : Mesh3EP, ME3 Pro, EE3 Pro  
**Serial Number** : N/A  
**Report Number** : EED32R80588402  
**Date of Issue** : Jun. 05, 2025  
**Test Standards** : ETSI EN 301 893 V2.1.1(2017-05)  
**Test result** : PASS

Prepared for:

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Date:

Jun. 05, 2025

Check No.:3513220425



2 Version

Version No.	Date	Description
00	Jun. 05, 2025	Original

### 3 Test Summary

Test Item	Test Requirement	Test Method	Limit	Result
Carrier frequencies	EN 301 893 V2.1.1 Clause 4.2.1	EN 301 893 V2.1.1 Clause 5.4.2	Clause 4.2.1.3	PASS
Nominal Channel Bandwidth and Occupied Channel Bandwidth	EN 301 893 V2.1.1 Clause 4.2.2	EN 301 893 V2.1.1 Clause 5.4.3	Clause 4.2.2.2	PASS
RF output power	EN 301 893 V2.1.1 Clause 4.2.3	EN 301 893 V2.1.1 Clause 5.4.4	Clause 4.2.3.2	PASS
Transmit Power Control (TPC)	EN 301 893 V2.1.1 Clause 4.2.3	EN 301 893 V2.1.1 Clause 5.4.4	Clause 4.2.3.2	PASS
Power density	EN 301 893 V2.1.1 Clause 4.2.3	EN 301 893 V2.1.1 Clause 5.4.4	Clause 4.2.3.2	PASS
Transmitter unwanted emissions outside the 5 GHz RLAN bands	EN 301 893 V2.1.1 Clause 4.2.4.1	EN 301 893 V2.1.1 Clause 5.4.5	Clause 4.2.4.1.2	PASS
Transmitter unwanted emissions within the 5 GHz RLAN bands	EN 301 893 V2.1.1 Clause 4.2.4.2	EN 301 893 V2.1.1 Clause 5.4.6	Clause 4.2.4.2.2	PASS
Receiver spurious emissions	EN 301 893 V2.1.1 Clause 4.2.5	EN 301 893 V2.1.1 Clause 5.4.7	Clause 4.2.5.2	PASS
Dynamic Frequency Selection (DFS)	EN 301 893 V2.1.1 Clause 4.2.6	EN 301 893 V2.1.1 Clause 5.4.8	Clause 4.2.6.2	PASS
Adaptivity (channel access mechanism)	EN 301 893 V2.1.1 Clause 4.2.7	EN 301 893 V2.1.1 Clause 5.4.9	Clause 4.2.7.2	PASS
Receiver Blocking	EN 301 893 V2.1.1 Clause 4.2.8	EN 301 893 V2.1.1 Clause 5.4.10	Clause 4.2.8.4	PASS
User Access Restrictions	EN 301 893 V2.1.1 Clause 4.2.9	EN 301 893 V2.1.1 Clause 4.2.9.2	Clause 4.2.9.2	PASS <sup>1</sup>
Geo-location capability	EN 301 893 V2.1.1 Clause 4.2.10	EN 301 893 V2.1.1 Clause 4.2.10.3	Clause 4.2.10.3	N/A <sup>1</sup>

Remark:

PASS<sup>1</sup> Because this test product has user access restrictions.

N/A<sup>1</sup> Because these requirements apply to equipment with geo-location capability

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

CH: In this whole report CH means channel.

Volt: In this whole report Volt means Voltage.

Temp: In this whole report Temp means Temperature.

Humid: In this whole report Humid means humidity.

Press: In this whole report Press means Pressure.

N/A: In this whole report not application

Model No.: Mesh3EP, ME3 Pro, EE3 Pro

Only the model Mesh3EP was tested, since the electrical circuit design, layout, components used and internal wiring were identical for the above models, with difference being color of appearance, pack and model name.

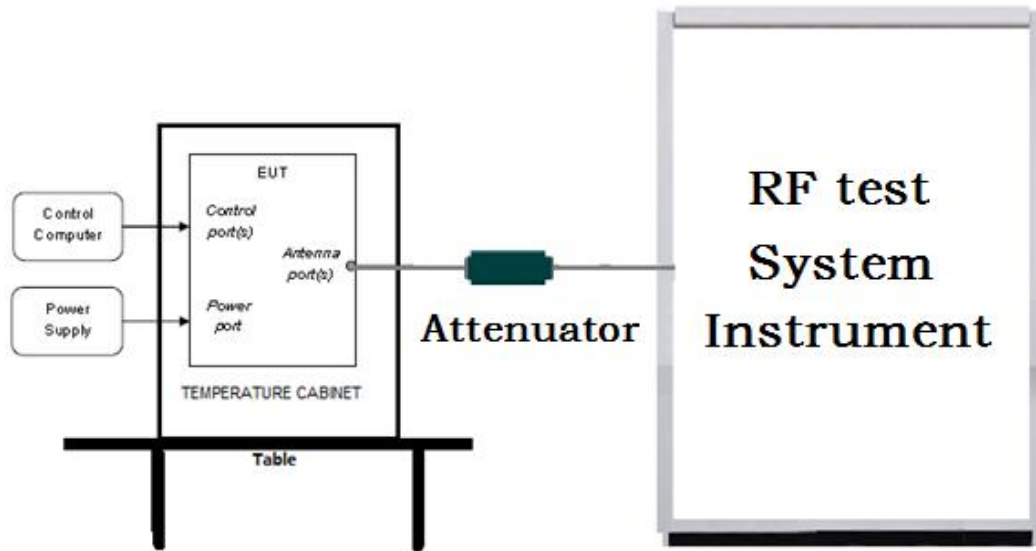
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## 5 Test Requirement

### 5.1 Test setup

#### 5.1.1 For Conducted test setup



#### 5.1.2 For Radiated Emissions test setup

Radiated Emissions setup:

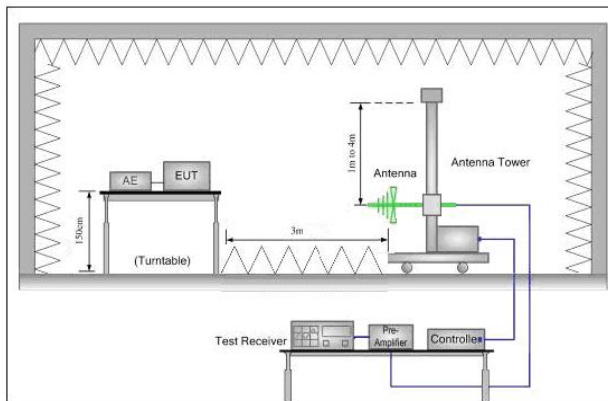


Figure 1. 30MHz to 1GHz

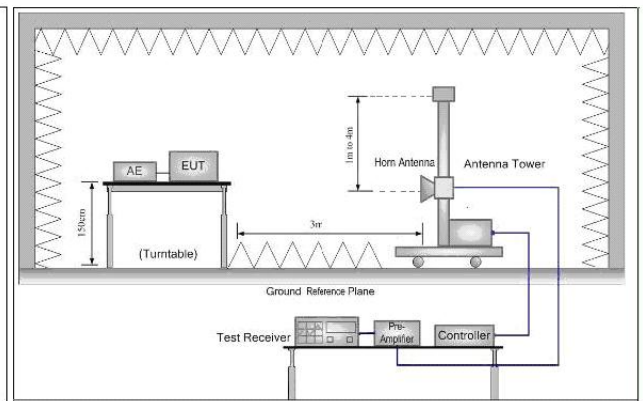


Figure 2. Above 1GHz

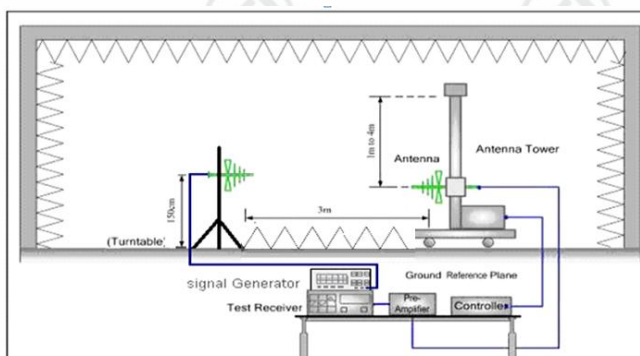


Figure 1. 30MHz to 1GHz

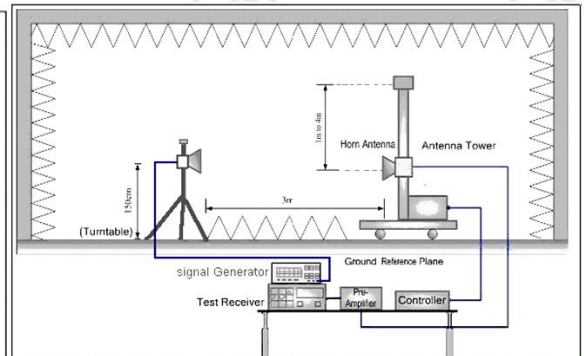


Figure 2. Above 1GHz



## 5.2 Test Environment

Environment Parameter	Selected Values During Tests		
Test condition	Ambient		
	Temperature(°C)	Voltage(V)	Humidity(%)
NT/NV	22	DC 12.0	55
LT/NV	0	DC 12.0	55
HT/NV	40	DC 12.0	55

Note:

- 1) The EUT just work in such extreme temperature of 0°C~+40°C and the voltage of 12V, so here the EUT is tested in the temperature of 0°C~+40°C and the voltage of 12V.
- 2) NV: Normal Voltage NT: Normal Temperature  
LT: Low Extreme Test Temperature HT: High Extreme Test Temperature

### 5.1.2 Normal test conditions

#### 5.1.2.1 Normal temperature and humidity

Unless otherwise declared by the manufacturer, the normal temperature and humidity conditions for tests shall be any convenient combination of temperature and humidity within the following ranges:

- temperature: +15 °C to +35 °C;
- relative humidity: 20 % to 75 %.

The actual values during the tests shall be recorded.

#### 5.1.2.2 Normal power source

The normal test voltage for the equipment shall be the nominal voltage for which the equipment was designed.

### 5.1.3 Extreme test conditions

Some tests in the present document need to be repeated at extreme temperatures. Where that is the case, measurements shall be made over the extremes of the operating temperature range as declared by the manufacturer.

### 5.3 Test Condition

Test	Clause	Test channels		
		Lower sub-band (5 150 MHz to 5 350 MHz)		Higher sub-band 5 470 MHz to 5 725 MHz
		5 150 MHz to 5 250 MHz	5 250 MHz to 5 350 MHz	
Centre frequencies	5.4.2	C7 (see note 1)		C8 (see note 1)
Occupied Channel Bandwidth	5.4.3	C7		C8
Power, Power Density	5.4.4	C1	C2	C3, C4
Transmitter unwanted emissions outside the 5 GHz RLAN bands	5.4.5	C7 (see note 1)		C8 (see note 1)
Transmitter unwanted emissions within the 5 GHz RLAN bands	5.4.6	C1	C2	C3, C4
Receiver spurious emissions	5.4.7	C7 (see note 1)		C8 (see note 1)

Test	Clause	Test channels		
		Lower sub-band (5 150 MHz to 5 350 MHz)		Higher sub-band 5 470 MHz to 5 725 MHz
		5 150 MHz to 5 250 MHz	5 250 MHz to 5 350 MHz	
Transmit Power Control (TPC)	5.4.4	n.a. (see note 2)	C2 (see note 1)	C3, C4 (see note 1)
Dynamic Frequency Selection (DFS)	5.4.8	n.a. (see note 2)	C5	C6 (see note 3)
Adaptivity	5.4.9	C9		
Receiver Blocking	5.4.10	C7		C8
C1, C3:	The lowest declared channel for every declared <i>Nominal Channel Bandwidth</i> within this band. For the Power Density testing, it is sufficient to only perform this test using the lowest <i>Nominal Channel Bandwidth</i> .			
C2, C4:	The highest declared channel for every declared <i>Nominal Channel Bandwidth</i> within this band. For the Power Density testing, it is sufficient to only perform this test using the lowest <i>Nominal Channel Bandwidth</i> .			
C5, C6:	One channel out of the declared channels for this frequency range. If more than one <i>Nominal Channel Bandwidth</i> has been declared for this sub-band, testing shall be performed using the lowest and highest <i>Nominal Channel Bandwidth</i> .			
C7, C8:	One channel out of the declared channels for this sub-band. For <i>Occupied Channel Bandwidth</i> , testing shall be repeated for every declared <i>Nominal Channel Bandwidth</i> within this sub-band.			
C9:	One channel (in case of single-channel testing) or a group of channels (in case of multi-channel testing) out of the declared channels.			
NOTE 1:	In case of more than one channel plan has been declared, testing of these specific requirements need only be performed using one of the declared channel plans.			
NOTE 2:	Testing is not required for <i>Nominal Channel Bandwidths</i> that fall completely within the frequency range 5 150 MHz to 5 250 MHz.			
NOTE 3:	Where the declared channel plan includes channels whose <i>Nominal Channel Bandwidth</i> falls completely or partly within the 5 600 MHz to 5 650 MHz band, the tests for the <i>Channel Availability Check</i> (and where implemented, for the <i>Off-Channel CAC</i> ) shall be performed on one of these channels in addition to a channel within the band 5 470 MHz to 5 600 MHz or within the band 5 650 MHz to 5 725 MHz.			

The worst case configurations, The worst case data was recorded in the report.  
SISO

Operating Frequency	802.11 Mode	Data rate (in Mb/s)
5150-5250MHz, 5250-5350MHz	a	6
	n(HT20)	6.5
	ac(HT20)	6.5
	ax(HE20)	8
	n(HT40)	13.5
	ac(HT40)	13.5
	ax(HE40)	16
	ac(HT80)	29.3
	ax(HE80)	34
	ac(HT160)	68
	ax(HE160)	68
	be(EHT20)	8.6
	be(EHT40)	17.2
	be(EHT80)	36
	be(EHT160)	72.1

MIMO

Operating Frequency	802.11 Mode	Data rate (in Mb/s)
5150-5250MHz, 5250-5350MHz	n(HT20)	13
	ac(HT20)	13
	ax(HE20)	16
	n(HT40)	27
	ac(HT40)	27
	ax(HE40)	32
	ac(HT80)	58.5
	ax(HE80)	68
	ax(HE160)	136
	ac(HT160)	136
	be(EHT20)	17
	be(EHT40)	34.4
	be(EHT80)	72
	be(EHT160)	144.2



## 6 General Information

### 6.1 Client Information

Applicant:	SHENZHEN TENDA TECHNOLOGY CO., LTD.
Address of Applicant:	6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052
Manufacturer:	SHENZHEN TENDA TECHNOLOGY CO., LTD.
Address of Manufacturer:	6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052
Factory:	SHENZHEN TENDA TECHNOLOGY CO., LTD.
Address of Factory:	6-8 Floor, Tower E3, No. 1001, Zhongshanyuan Road, Nanshan District, Shenzhen, China. 518052

### 6.2 General Description of EUT

Product Name:	BE3600 Whole Home Mesh Wi-Fi 7 System	
Model No.:	Mesh3EP, ME3 Pro, EE3 Pro	
Test model No.:	Mesh3EP	
Trade mark:	N/A	
Type of Modulation:	IEEE 802.11a: OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11n(HT20/HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM) IEEE 802.11ac(HT20/HT40/HT80/HT160): OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) IEEE 802.11ax(HT20/HT40/HT80/HT160): OFDM (1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK) IEEE 802.11be(EHT20/EHT40/EHT80/EHT160): OFDM (4096QAM, 1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK)	
Frequency band(s) of operation	U-NII-1: 5150-5250MHz U-NII-2A: 5250-5350MHz	
Operating Frequency	U-NII-1: 5150-5250MHz U-NII-2A: 5250-5350MHz	
Operating Temperature:	0℃ to +40℃	
Sample Type:	Fixed-Use	
Test Power Grade:	default	
Test Software of EUT:	QATool_Dbg.exe	
Antenna Type:	PCB Antenna	
Antenna Gain:	U-NII-1: ANT0: 3.86 dBi, ANT1: 3.49 dBi, ANT2: 3.64 dBi U-NII-2A: ANT0: 4.15 dBi, ANT1: 3.67 dBi, ANT2: 3.77 dBi	
Beamforming Gain:	3dBi	
Antenna Configuration:	<input checked="" type="checkbox"/> SISO <input type="checkbox"/> 2x2 MIMO <input checked="" type="checkbox"/> 3x3 MIMO <input type="checkbox"/> 4x4MIMO <input checked="" type="checkbox"/> Beamforming <input checked="" type="checkbox"/> TPC	
Power Supply:	Adapter1:	Model No.:BW0241202000WE Input: AC 100-240V,50/60Hz,0.6A Output: DC 12V/2A

	Adapter2:	Model No.:BW0241202000WG Input: AC 100-240V,50/60Hz.0.6A Output: DC 12V/2A
Test voltage:	DC 12V	

6.3 Other Information

Sample Received Date:	Apr. 24, 2025
Sample tested Date:	Apr. 24, 2025 to May 22, 2025

Operation Frequency each of channel

802.11a/802.11n/802.11ac/802.11ax/be(20MHz) Frequency/Channel Operations:

U-NII-1		U-NII-2A		U-NII-2C	
Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
36	5180	52	5260	100	5500
40	5200	56	5280	104	5520
44	5220	60	5300	108	5540
48	5240	64	5320	112	5560
-	-	-	-	116	5580
-	-	-	-	120	5600
-	-	-	-	124	5620
-	-	-	-	128	5640
-	-	-	-	132	5660
-	-	-	-	136	5680
-	-	-	-	140	5700

802.11n/802.11ac/802.11ax/be(40MHz) Frequency/Channel Operations:

U-NII-1		U-NII-2A		U-NII-2C	
Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
38	5190	54	5270	102	5510
46	5230	62	5310	110	5550
-	-	-	-	118	5590
-	-	-	-	126	5630
-	-	-	-	134	5670

802.11ac/802.11ax/be(80MHz) Frequency/Channel Operations:

U-NII-1		U-NII-2A		U-NII-2C	
Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
42	5210	58	5290	106	5530
-	-	-	-	122	5610

802.11ax/be(160MHz) Frequency/Channel Operations:

U-NII-1&U-NII-2A		U-NII-2C	
Channel	Frequency(MHz)	Channel	Frequency(MHz)
50	5250	114	5570

## 6.4 Description of Support Units

The EUT has been tested with associated equipment below.

1) Support equipment

Description	Manufacturer	Model No.	Certification	Supplied by
Netbook	Asus	FL8700JP1065-0D8GXYQ2X10	FCC&CE	CTI

## 6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd.

Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China

Telephone: +86 (0) 755 3368 3668 Fax: +86 (0) 755 3368 3385

No tests were sub-contracted.

## 6.6 Deviation from Standards

None.

## 6.7 Abnormalities from Standard Conditions

None.

## 6.8 Other Information Requested by the Customer

None.

## 6.9 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty
1	Radio frequency	$7.8 \times 10^{-8}$
2	RF Power conducted	0.46dB(30MHz-1GHz)
		0.55dB(1GHz-18GHz)
3	Unwanted Emission, conducted	0.46dB(30MHz-1GHz)
		0.55dB(1GHz-18GHz)
4	Spurious Emission, radiated	4.3dB (30MHz-1GHz)
		4.5dB (1GHz-18GHz)
		3.4dB (18GHz-26GHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC and low frequency voltages test	0.026%



## 7 Equipment List

RF test system					
Equipment	Manufacturer	Model No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Spectrum Analyzer	Keysight	N9010A	MY54510339	12-05-2024	12-104-2025
Signal Generator	Keysight	N5182B	MY53051549	11-30-2024	11-29-2025
DC Power	Keysight	E3642A	MY56376072	11-30-2024	11-29-2025
Communication test set	R&S	CMW500	169004	03-03-2025	03-02-2026
RF control unit(power unit)	JS Tonscend	JS0806-2	22G8060592	07-22-2024	07-21-2025
Wi-Fi 7GHz Band Extender	JS Tonscend	TS-WF7U2	2206200002	05-31-2024	05-30-2025
High-low temperature test chamber	Dong Guang Qin Zhuo	LK-80GA	QZ20150611879	11-30-2024	11-29-2025
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	05-29-2024	05-28-2025
BT&WI-FI Automatic test software	JS Tonscend	JS1120-3	V3.3.20	---	---
Spectrum Analyzer	R&S	FSV3044	101509	02-14-2025	02-13-2026

3M full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Fully Anechoic Chamber	TDK	FAC-3	---	01-09-2024	01-08-2027
Receiver	Keysight	N9038A	MY57290136	01-04-2025	01-03-2026
Spectrum Analyzer	Keysight	N9020B	MY57111112	01-14-2025	01-13-2026
Spectrum Analyzer	Keysight	N9030B	MY57140871	01-14-2025	01-13-2026
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-12-2025	04-11-2026
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-12-2025	04-11-2026
Horn Antenna	ETS-LINDGREN	3117	57407	07-03-2024	07-02-2025
Preamplifier	EMCI	EMC001330	980563	03-03-2025	03-02-2026
Preamplifier	Tonscend	TAP-011858	AP21B806112	07-18-2024	07-17-2025
Preamplifier	Tonscend	EMC051845SE	980380	12-05-2024	12-04-2025
Communication test set	R&S	CMW500	102898	01-04-2025	01-03-2026
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	03-31-2025	03-30-2026
RSE Automatic test software	JS Tonscend	JS36-RSE	V4.0.0.0	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	---	---
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	---	---
Cable line	Times	EMC104-NMNM-1000	SN160710	---	---
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	---	---
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	---	---
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	---	---
Cable line	Times	HF160-KMKM-3.00M	393493-0001	---	---

## 8 Radio Technical Requirements Specification

### Reference documents for testing:

No.	Identity	Document Title
1	EN 301 893 V2.1.1 (2017-05)	5 GHz RLAN; Harmonised Standard covering the essential requirements of article 3.2 of Directive 2014/53/EU

### Test Results List:

EN 301 893 V2.1.1		Test Descriptions & Test Conditions	Verdict	Note
Test Requirement	Test Method			
Clause 4.2.1	Clause 5.4.2	Center frequencies		Note 1
		NT/NV	PASS	
		LT/NV	PASS	
		HT/NV	PASS	
Clause 4.2.2	Clause 5.4.3	Nominal Channel Bandwidth and Occupied Channel Bandwidth.		Note 1
		NT/NV	PASS	
Clause 4.2.3	Clause 5.4.4	RF output power		Note 1
		NT/NV	PASS	
		LT/NV	PASS	
		HT/NV	PASS	
Clause 4.2.3	Clause 5.4.4	Transmit Power Control (TPC)		Note 1
		NT/NV	PASS	
		LT/NV	PASS	
		HT/NV	PASS	
Clause 4.2.3	Clause 5.4.4	Power density		Note 1
		NT/NV	PASS	
Clause 4.2.6	Clause 5.4.8	Dynamic Frequency Selection (DFS)		Appendix A
		NT/NV	PASS	
Clause 4.2.7	Clause 5.4.9	Adaptivity (channel access mechanism)		Note 1
		NT/NV	PASS	
Clause 4.2.7	Clause 5.4.10	Receiver Blocking		Note 1
		NT/NV	PASS	
Clause 4.2.4.2	Clause 5.4.6	Transmitter unwanted emissions within the 5 GHz RLAN bands		Note 1
		NT/NV	PASS	
Clause 4.2.4.1	Clause 5.4.5	Transmitter unwanted emissions outside the 5 GHz RLAN bands		Appendix B
		NT/NV	PASS	
Clause 4.2.8	Clause 5.4.7	Receiver spurious emissions		Appendix B
		NT/NV	PASS	
Clause 4.2.10	Clause 4.2.10.3	Geo-location capability		N/A
		NT/NV	N/A	

Note 1: The test data please refer to Appendix: 5G Wi-Fi of EED32R80588402.

**Appendix A: DYNAMIC FREQUENCY SELECTION (DFS)****DFS REQUIREMENT****Limit**

DFS is required for RLAN devices in the frequency ranges 5 250 MHz to 5 350 MHz and 5 470 MHz to 5 725 MHz. This requirement applies to all types of RLAN devices and to any type of communication between these devices. Radar detection is not required in the frequency range 5 150 MHz to 5 250 MHz.

**Master Device Requirements:**

- (1) Before initiating a network on a channel, which has not been identified as an *Available channel*, the master device shall perform a *channel Availability Check* to ensure that there is no radar operating on the channel.
- (2) During normal operation, the master device shall monitor the *operating channel (In-Service Monitoring)* to ensure that there is no radar operating on the channel. When the master device has detected a radar signal during *In-Service Monitoring*, the *operating channel* is made unavailable. The master device shall instruct all its associated slave devices to stop transmitting on this (to become unavailable) channel.
- (3) The master device shall not resume any transmissions on this *unavailable channel* during a period of time after a radar signal was detected. This period is referred as the *Non-Occupancy Period*.

**Slave Device Requirements:**

- (1) A slave device shall not transmit before receiving an appropriate enabling signal from a master device.
- (2) A slave device shall stop all its transmissions whenever instructed by a master device to which it is associated. The device shall not resume any transmissions until it has again received an appropriate enabling signal from a master device.
- (3) A slave device, which is required to perform radar detection, shall stop its own transmissions once it has detected radar signals



**Table D.1: DFS requirement values**

Parameter	Value
Channel Availability Check Time	60 s (see note 1)
Maximum Off-Channel CAC Time	4 hours (see note 2)
Channel Move Time	10 s
Channel Closing Transmission Time	1 s
Non-Occupancy Period	30 minutes
NOTE 1: For channels whose nominal bandwidth falls completely or partly within the band 5 600 MHz to 5 650 MHz, the <i>Channel Availability Check Time</i> shall be 10 minutes.	
NOTE 2: For channels whose nominal bandwidth falls completely or partly within the band 5 600 MHz to 5 650 MHz, the <i>Maximum Off-Channel CAC Time</i> shall be 24 hours.	

**Table D.2: Interference threshold values**

EIRP Spectral Density dBm/MHz	Value (see notes 1 and 2)
10	-62 dBm
NOTE 1: This is the level at the input of the receiver of a RLAN device with a maximum EIRP density of 10 dBm/MHz and assuming a 0 dBi receive antenna. For devices employing different EIRP spectral density and/or a different receive antenna gain G (dBi) the DFS threshold level at the receiver input follows the following relationship: DFS Detection Threshold (dBm) = -62 + 10 · EIRP Spectral Density (dBm/MHz) + G (dBi), however the DFS threshold level shall not be lower than -64 dBm assuming a 0 dBi receive antenna gain.	
NOTE 2: Slave devices with a maximum EIRP of less than 23 dBm do not have to implement radar detection.	

**Table D.3: Parameters of the reference DFS test signal**

Pulse width W [μs]	Pulse repetition frequency PRF [pps]	Pulses per burst [PPB]
1	700	18

Table D.4: Parameters of DFS Test Signals

Radar test signal # (see notes 1 to 3)	Pulse width W [μs]		Pulse repetition frequency PRF (PPS)		Number of different PRFs	Pulses per burst for each PRF (PPB) (see note 5)
	Min	Max	Min	Max		
1	0,5	5	200	1000	1	10 (see note 6)
2	0,5	15	200	1600	1	15 (see note 6)
3	0,5	15	2300	4000	1	25
4	20	30	2000	4000	1	20
5	0,5	2	300	400	2/3	10 (see note 6)
6	0,5	2	400	1200	2/3	15 (see note 6)

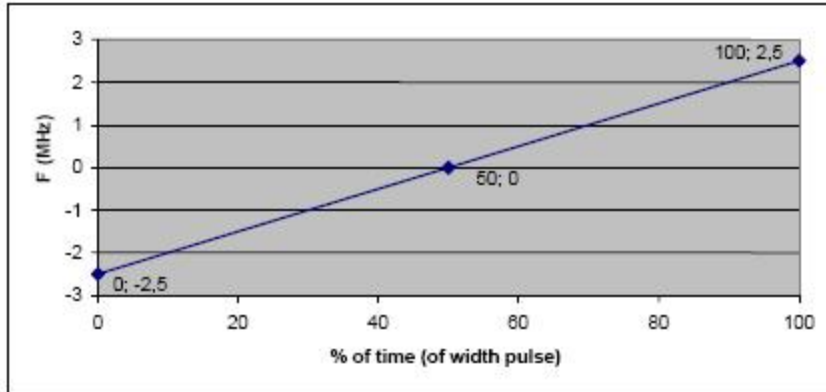
**NOTE 1:**

Radar test signals 1 to 4 are constant PRF based signals. See figure D.1. These radar test signals

are intended to simulate also radars using a packet based Staggered PRF. See figure D.2.

**NOTE 2:**

Radar test signal 4 is a modulated radar test signal. The modulation to be used is a chirp modulation with a  $\pm 2,5$  MHz frequency deviation which is described below.

**NOTE 3:**

Radar test signals 5 and 6 are single pulse based Staggered PRF radar test signals using 2 or 3

different PRF values. For radar test signal 5, the difference between the PRF values chosen shall

be between 20 pps and 50 pps. For radar test signal 6, the difference between the PRF values

chosen shall be between 80 pps and 400 pps. See figure D.3.

**NOTE 4:**

Apart for the *Off-Channel* CAC testing, the radar test signals above shall only contain a single

burst of pulses. See figures D.1, D.3 and D.4.

For the *Off-Channel* CAC testing, repetitive bursts shall be used for the total duration of the test.

See figures D.2 and D.5. See also clauses 4.7.2.2, 5.3.8.2.1.3.1 and 5.3.8.2.1.3.2.

**NOTE 5:**

The total number of pulses in a burst is equal to the number of pulses for a single PRF multiplied by the number of different PRFs used.

**NOTE 6:**

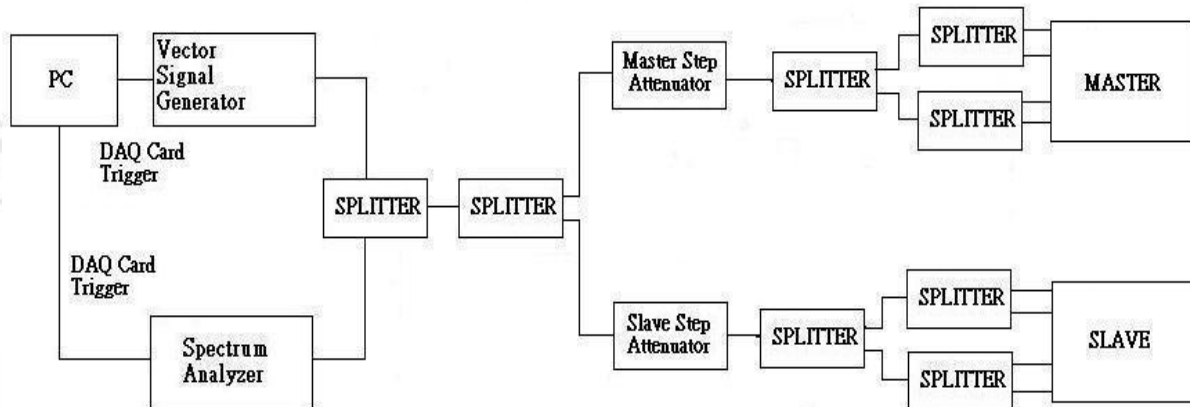
For the CAC and Off-Channel CAC requirements, the minimum number of pulses (for each PRF) for any of the radar test signals to be detected in the band 5 600 MHz to 5 650 MHz shall be 18.

**Table D.5: Detection probability**

Parameter	Detection Probability ( $P_d$ )	
	Channels whose nominal bandwidth falls partly or completely within the 5 600 MHz to 5 650 MHz band	Other channels
CAC, Off-Channel CAC	99,99 %	60 %
In-Service Monitoring	60 %	60 %
NOTE: $P_d$ gives the probability of detection per simulated radar burst and represents a minimum level of detection performance under defined conditions. Therefore $P_d$ does not represent the overall detection probability for any particular radar under real life conditions.		



## CONDUCTED METHOD SYSTEM BLOCK DIAGRAM



## CONDUCTED METHOD EUT TEST SETUP

The EUT was programmed in normal link mode at least 30 % traffic load.

**DESCRIPTION OF EUT**

The firmware installed in the EUT during testing was:

Firmware Rev: V16.03.60.25\_multi

**Driver Rev: V1.0**

The EUT operates over the 5250-5350 MHz.

The EUT is a Master Device without radar detection.

Two antennas are utilized to meet the system operational requirements.

The EUT uses two transmitters, each connected to a 50-ohm coaxial antenna port. Both antenna ports are connected to the test system via a power divider to perform conducted tests.

WLAN traffic is generated by streaming the video file TestFile.mp2 “6 ½ Magic Hours” from the Master to the Slave in full motion video mode using the media player with the V2.61 Codec package.

**OVERVIEW OF 20 MHz MASTER DEVICE**

The rated output power of the Master unit is < 23dBm (EIRP). Therefore the required interference threshold level is -62 dBm. After correction for antenna gain and procedural adjustments, the required conducted threshold at the antenna port is  $-62 + 10 \cdot \text{EIRP Spectral Density (dBm/MHz)} + G(\text{dBi}) = -62 \text{ dBm}$ .

The calibrated conducted DFS Detection Threshold level is set to -62dBm. The tested level is lower than the required level hence it provides margin to the limit.

**TEST CHANNELS AND METHOD**

All tests were performed at these frequencies:

IEEE 802.11a mode: 5320 MHz

IEEE 802.11ax (EHT160) Mode: 5250 MHz

Measurements were performed using conducted test methods.

**Test Result:** The test data please refer to Appendix: 5G Wi-Fi DFS of EED32R80588402

## Appendix B): Spurious emissions

### Test Procedure:

1. Scan from 30MHz to 26GHz; find the maximum radiation frequency to measure.
2. The technique used to find the Spurious Emissions of the transmitter was the antenna substitution method. Substitution method was performed to determine the actual ERP/EIRP emission levels of the EUT.

Test procedure as below:

- 1) The EUT was powered ON and placed on a 1.5m high table at a 3 meter fully Anechoic Chamber. The antenna of the transmitter was extended to its maximum length. Modulation mode and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- 2) The EUT was set 3 meters (above 18GHz the distance is 1 meter) away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 3) The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made.
- 4) Steps 1) to 3) were performed with the EUT and the receive antenna in both vertical and horizontal polarization.
- 5) The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter.
- 6) A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 3) is obtained for this set of conditions.
- 7) The output power into the substitution antenna was then measured.
- 8) Steps 6) and 7) were repeated with both antennas polarized.
- 9) Calculate power in dBm by the following formula:  

$$\text{ERP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$$

$$\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$$

$$\text{EIRP} = \text{ERP} + 2.15\text{dB}$$

where:

Pg is the generator output power into the substitution antenna.

- 10) Test the EUT in the lowest channel , the Highest channel  
Repeat above procedures until all frequencies measured was complete.

<b>Limit:</b>	<b>Frequency range</b>	<b>Maximum power,</b>	<b>Bandwidth</b>
	30 MHz to 47 MHz	-36dBm	100 kHz
	47 MHz to 74 MHz	-54 dBm	100 kHz
	74 MHz to 87,5 MHz	-36dBm	100 kHz
	87,5 MHz to 118 MHz	-54 dBm	100 kHz
	118 MHz to 174 MHz	-36dBm	100 kHz
	174 MHz to 230 MHz	-54 dBm	100 kHz
	230 MHz to 470 MHz	-36dBm	100 kHz
	470 MHz to 862 MHz	-54 dBm	100 kHz
	862 MHz to 1 GHz	-36dBm	100 kHz
	1 GHz to 5.15 GHz	-30dBm	1MHz
	5.35GHz to 5.47GHz	-30dBm	1MHz
	5.725GHz to 26GHz	-30dBm	1MHz
<b>Transmitter limits for spurious emissions</b>			
<b>Frequency range</b>		<b>Maximum power</b>	<b>bandwidth</b>
30MHz to 1GHz		-57dBm	100kHz
1GHz to 26GHz		-47dBm	1MHz
<b>Spurious emission limits for receivers</b>			



## Radiated Spurious Emissions test Data:

### 1) Transmitter unwanted emissions outside the 5 GHz RLAN bands

Remark: Through Pre-scan, 802.11n(HT20)-MIMO mode was the worst case; only the worst case were recorded in the report.

Mode:		802.11 n(HT20) Transmitting						
Antenna		MIMO			Channel:		5180MHz	
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	56.1926	150	2	-61.52	-54.00	7.52	Pass	Horizontal
2	104.5034	150	89	-58.30	-54.00	4.30	Pass	Horizontal
3	750.103	150	357	-65.49	-54.00	11.49	Pass	Horizontal
4	2680.9681	150	208	-39.36	-30.00	9.36	Pass	Horizontal
5	10353.2677	150	342	-46.64	-30.00	16.64	Pass	Horizontal
6	17646.3573	150	296	-41.00	-30.00	11.00	Pass	Horizontal
7	59.4909	150	281	-60.14	-54.00	6.14	Pass	Vertical
8	103.7274	150	230	-59.81	-54.00	5.81	Pass	Vertical
9	750.006	150	187	-62.08	-54.00	8.08	Pass	Vertical
10	2421.3421	150	213	-40.02	-30.00	10.02	Pass	Vertical
11	10218.7109	150	116	-48.31	-30.00	18.31	Pass	Vertical
12	17615.8808	150	134	-41.20	-30.00	11.20	Pass	Vertical

Mode:		802.11 n(HT20) Transmitting						
Antenna		MIMO			Channel:		5320MHz	
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	57.6478	150	4	-59.50	-54.00	5.50	Pass	Horizontal
2	103.8244	150	55	-56.09	-54.00	2.09	Pass	Horizontal
3	750.103	150	159	-64.32	-54.00	10.32	Pass	Horizontal
4	2820.6821	150	106	-39.29	-30.00	9.29	Pass	Horizontal
5	12513.6507	150	181	-45.32	-30.00	15.32	Pass	Horizontal
6	17605.5303	150	252	-40.94	-30.00	10.94	Pass	Horizontal
7	62.4982	150	0	-58.77	-54.00	4.77	Pass	Vertical
8	103.5334	150	232	-59.99	-54.00	5.99	Pass	Vertical
9	750.103	150	260	-61.80	-54.00	7.80	Pass	Vertical
10	2439.4939	150	153	-40.42	-30.00	10.42	Pass	Vertical
11	12495.2498	150	246	-45.12	-30.00	15.12	Pass	Vertical
12	17591.7296	150	116	-40.97	-30.00	10.97	Pass	Vertical

## Receiver spurious emissions test data

Remark: Through Pre-scan, 802.11n(HT20)-MIMO mode was the worst case; only the worst case were recorded in the report.

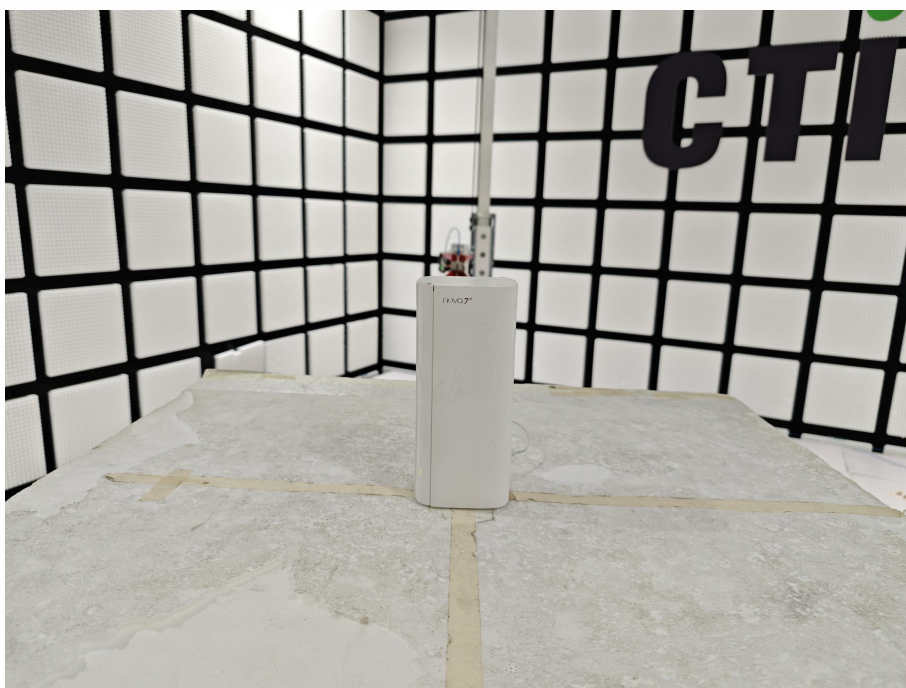
Mode:		802.11n(HT20) Receiving						
Antenna		MIMO			Channel:		5180MHz	
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	53.9602	150	38	-65.95	-57.00	8.95	Pass	Horizontal
2	89.9005	150	211	-64.21	-57.00	7.21	Pass	Horizontal
3	750.067	150	241	-68.81	-57.00	11.81	Pass	Horizontal
4	2802.7521	150	328	-62.96	-47.00	15.96	Pass	Horizontal
5	6359.9744	150	308	-60.89	-47.00	13.89	Pass	Horizontal
6	15495.4598	150	3	-53.49	-47.00	6.49	Pass	Horizontal
7	46.4908	150	339	-63.30	-57.00	6.30	Pass	Vertical
8	103.5782	150	264	-65.33	-57.00	8.33	Pass	Vertical
9	687.5474	150	196	-72.74	-57.00	15.74	Pass	Vertical
10	2279.8112	150	0	-58.55	-47.00	11.55	Pass	Vertical
11	5023.0409	150	280	-62.24	-47.00	15.24	Pass	Vertical
12	15429.4972	150	121	-55.08	-47.00	8.08	Pass	Vertical

Mode:		802.11n(HT20) Receiving						
Antenna		MIMO			Channel:		5320MHz	
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	120.0205	150	357	-60.39	-57.00	3.39	Pass	Horizontal
2	208.8769	150	357	-68.09	-57.00	11.09	Pass	Horizontal
3	625.0278	150	84	-69.93	-57.00	12.93	Pass	Horizontal
4	1155.0462	150	324	-63.50	-47.00	16.50	Pass	Horizontal
5	4999.92	150	84	-51.32	-47.00	4.32	Pass	Horizontal
6	21792.1896	150	1	-65.91	-47.00	18.91	Pass	Horizontal
7	80.006	150	3	-64.54	-57.00	7.54	Pass	Vertical
8	120.0205	150	3	-63.04	-57.00	6.04	Pass	Vertical
9	810.986	150	3	-62.66	-57.00	5.66	Pass	Vertical
10	1155.0462	150	344	-64.26	-47.00	17.26	Pass	Vertical
11	4999.92	150	69	-52.49	-47.00	5.49	Pass	Vertical
12	21158.1579	150	242	-66.54	-47.00	19.54	Pass	Vertical

## PHOTOGRAPHS OF TEST SETUP

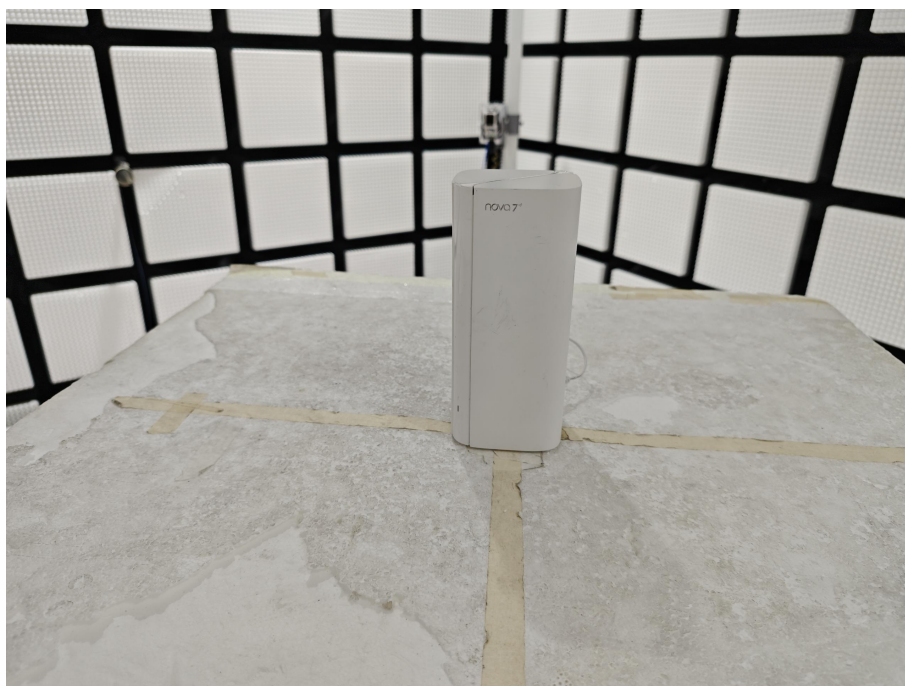


**Radiated spurious emission Test Setup-1(Below 1GHz)**



**Radiated spurious emission Test Setup-2(Above 1GHz)**





**Radiated spurious emission Test Setup-3(Above 18GHz)**

**PHOTOGRAPHS OF EUT Constructional Details**

Refer to Report No. EED32R80588401 for EUT external and internal photos.



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