TEST REPORT

FCC ID	2BDEM-CK007A
Test Report No:	TCT240325E004
Date of issue:	Apr. 02, 2024
Testing laboratory:	SHENZHEN TONGCE TESTING LAB
Testing location/ address:	2101 & 2201, Zhenchang Factory, Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China
Applicant's name: :	d-DAO Technology Inc.
Address:	20111 Stevenscreek Blvd, suite 205, Cupertino, California, 95014, United States
Manufacturer's name :	d-DAO Technology Inc.
Address:	20111 Stevenscreek Blvd, suite 205, Cupertino, California, 95014, United States
Standard(s):	FCC CFR Title 47 Part 15 Subpart C Section 15.247 FCC KDB 558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10:2013
Product Name::	Starlight Window Camera
Trade Mark:	EOJOC
Model/Type reference :	CK007A
Rating(s):	Adapter Information: Model: TPA-468050100UU Input: AC 100–240V, 50/60Hz, 0.2A Output: DC 5.0V, 1000mA
Date of receipt of test item	Mar. 25, 2024
Date (s) of performance of test:	Mar. 25, 2024 ~ Apr. 02, 2024
Tested by (+signature) :	Rieo LIU
Check by (+signature) :	Beryl ZHAO
Approved by (+signature):	Tomsin
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Table of Contents

TCT 通测检测 TESTING CENTRE TECHNOLOGY

1.	General Product Information	3
	1.1. EUT description	3
	1.2. Model(s) list	3
	1.3. Operation Frequency	3
2.	Test Result Summary	4
	General Information	
	3.1. Test environment and mode	5
	3.2. Description of Support Units	5
4.	Facilities and Accreditations	6
	4.1. Facilities	6
	4.2. Location	6
	4.3. Measurement Uncertainty	6
5.	Test Results and Measurement Data	7
	5.1. Antenna requirement	
	5.2. Conducted Emission	
	5.3. Conducted Output Power	12
	5.4. Emission Bandwidth	
	5.5. Power Spectral Density	14
	5.6. Conducted Band Edge and Spurious Emission Measurement	15
	5.7. Radiated Spurious Emission Measurement	17
Ар	opendix A: Test Result of Conducted Test	
Ар	opendix B: Photographs of Test Setup	
	opendix C: Photographs of EUT	



1. General Product Information

1.1. EUT description

Product Name:	Starlight Window Camera	
Model/Type reference:	СК007А	(č
Sample Number	TCT240325E004-0101	
Bluetooth Version:	V5.4	(\mathbf{C})
Operation Frequency:	2402MHz~2480MHz	
Channel Separation:	2MHz	
Data Rate:	LE 1M PHY, LE 2M PHY	
Number of Channel:	40	
Modulation Type:	GFSK	
Antenna Type:	Metal Antenna	
Antenna Gain:	3.19dBi	
Rating(s):	Adapter Information: Model: TPA-468050100UU Input: AC 100–240V, 50/60Hz, 0.2A Output: DC 5.0V, 1000mA	

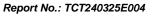
Note: The antenna gain listed in this report is provided by applicant, and the test laboratory is not responsible for this parameter.

1.2. Model(s) list

None.

1.3. Operation Frequency

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency		
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz		
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz		
$(\mathbf{x}\mathbf{G})$		<u>(</u> C)	(5)			(\mathbf{C})		
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz		
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz		
Remark: Ch	Remark: Channel 0, 19 & 39 have been tested.								



Page 3 of 64



2. Test Result Summary

Requirement	CFR 47 Section	Result		
Antenna requirement	§15.203/§15.247 (c)	PASS		
AC Power Line Conducted Emission	§15.207	PASS		
Conducted Peak Output Power	§15.247 (b)(3)	PASS		
6dB Emission Bandwidth	§15.247 (a)(2)	PASS		
Power Spectral Density	§15.247 (e)	PASS		
Band Edge	§15.247(d)	PASS		
Spurious Emission	§15.205/§15.209	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.

Page 4 of 64

3. General Information

Engineer mode:

3.1. Test environment and mode

Operating Environment:							
Condition	Conducted Emission	Radiated Emission					
Temperature:	21.2 °C	25.4 °C					
Humidity:	45 % RH	46 % RH					
Atmospheric Pressure:	1010 mbar	1010 mbar					
Test Software:							
Software Information:	putty						
Power Level:	Default						
Test Mode:	· · · · · · · · · · · · · · · · · · ·						
Engineer mode:	Engineer mode: Keep the EUT in continuous transmitting by select						

channel and modulations

The sample was placed 0.8m & 1.5m for the measurement below & above 1GHz above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case(Z axis) are shown in Test Results of the following pages.

3.2. 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
				1

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.
- 3. For conducted measurements (Output Power, 6dB Emission Bandwidth, Power Spectral Density, Spurious Emissions), the antenna of EUT is connected to the test equipment via temporary antenna connector, the antenna connector is soldered on the antenna port of EUT, and the temporary antenna connector is listed in the Test Instruments.



4. Facilities and Accreditations

4.1. Facilities

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

• FCC - Registration No.: 645098

SHENZHEN TONGCE TESTING LAB

Designation Number: CN1205

The testing lab 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.

IC - Registration No.: 10668A-1

- SHENZHEN TONGCE TESTING LAB
- CAB identifier: CN0031

The testing lab has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing.

4.2. Location

SHENZHEN TONGCE TESTING LAB

Address: 2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuhai Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China TEL: +86-755-27673339

4.3. Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	± 3.10 dB
2	RF power, conducted	± 0.12 dB
3	Spurious emissions, conducted	± 0.11 dB
4	All emissions, radiated(<1 GHz)	± 4.56 dB
5	All emissions, radiated(1 GHz - 18 GHz)	± 4.22 dB
6	All emissions, radiated(18 GHz- 40 GHz)	± 4.36 dB



5. Test Results and Measurement Data

5.1. Antenna requirement

Standard requirement: FCC Part15 C Section 15.203 /247(c)

15.203 requirement:

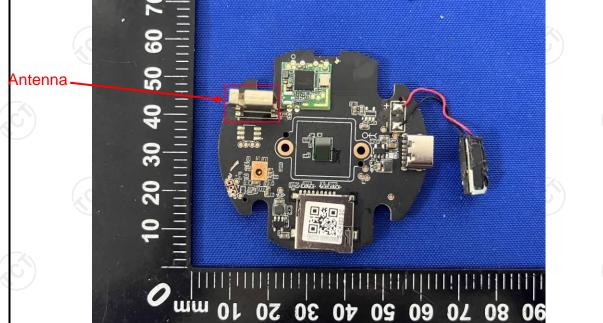
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(c) (1)(i) requirement:

(i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.

E.U.T Antenna:

The Bluetooth antenna is metal antenna which permanently attached, and the best case gain of the antenna is 3.19dBi.



5.2. Conducted Emission

5.2.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.207							
Test Method:	ANSI C63.10:2013							
Frequency Range:	150 kHz to 30 MHz	(C)						
Receiver setup:	RBW=9 kHz, VBW=30) kHz, Sweep time	e=auto					
	Frequency range	Limit (dBuV)					
	(MHz)	Quasi-peak	Average					
Limits:	0.15-0.5	66 to 56*	56 to 46*					
	0.5-5	56	46					
	5-30	60	50					
	Referenc	e Plane						
Test Setup:	E.U.T AC power Test table/Insulation plane Remark: E.U.T: Equipment Under Test LISN: Line Impedence Stabilization N Test table height=0.8m	EMI Receiver	r – AC power					
Test Mode:	Adapter + Transmitting	g Mode						
Test Procedure:	 The E.U.T is connected to an adapter through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs). Both sides of A.C. line are checked for maximum emission, the relative positions of equipment and all of the interface cables must be changed according to 							
		on conducted mea	aoaronnonna					

Page 8 of 64

Page 9 of 64

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Fax: 86-755-27673332

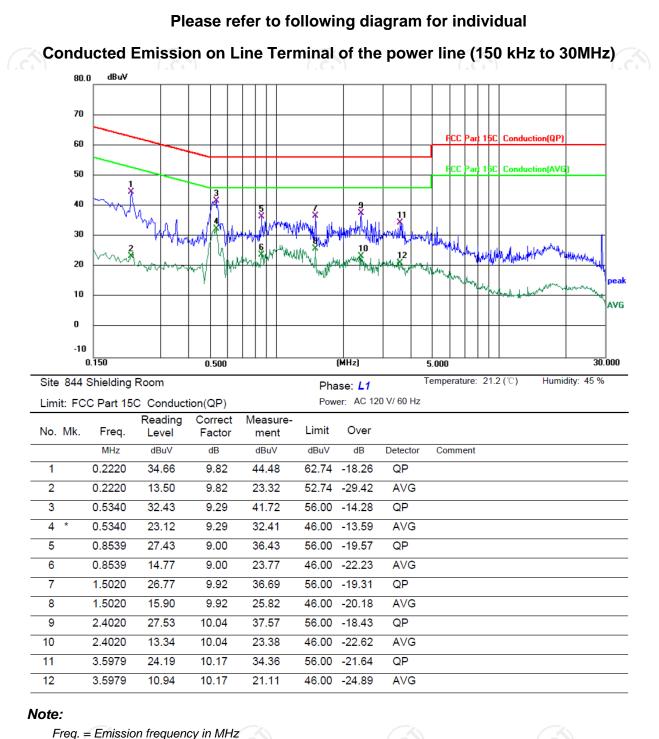


Hotline: 400-6611-140 Tel: 86-755-27673339

	Conducted Emission Shielding Room Test Site (843)										
	Equipment	Manufacturer	Model	Serial Number	Calibration Due						
N.	EMI Test Receiver	R&S	ESCI3	100898	Jun. 29, 2024						
	Line Impedance Stabilisation Newtork(LISN)	Stabilisation Schwarzbeck		8126453	Jan. 31, 2025						
	Line-5	ТСТ	CE-05	/	Jul. 03, 2024						
	EMI Test Software	Shurple Technology	EZ-EMC	1	1						

5.2.3. Test data

CENTRE TECHNOLOGY



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

Corr. Factor (dB) = LISN factor + Cable loss

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

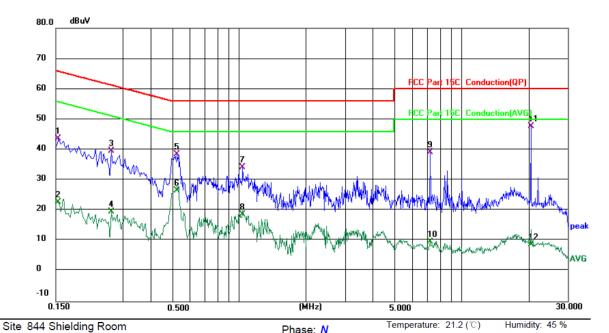
Limit $(dB\mu V) = Limit$ stated in standard

Margin (dB) = Measurement (dB μ V) – Limits (dB μ V)

Q.P. =Quasi-Peak

AVG =average

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



Conducted Emission on Neutral Terminal of the power line (150 kHz to 30MHz)

	-				1.110	100. 11				
Limit: FCC Part 15C Conduction(QP)			Power: AC 120 V/ 60 Hz					 		
No. Mk.	Freq.		Correct Factor	Measure- ment	Limit	Over				
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment		
1	0.1539	33.59	10.00	43.59	65.79	-22.20	QP			

	MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	0.1539	33.59	10.00	43.59	65.79	-22.20	QP	
2	0.1539	12.85	10.00	22.85	55.79	-32.94	AVG	
3	0.2660	29.83	9.83	39.66	61.24	-21.58	QP	
4	0.2660	9.80	9.83	19.63	51.24	-31.61	AVG	
5	0.5260	29.28	9.29	38.57	56.00	-17.43	QP	
6	0.5260	17.36	9.29	26.65	46.00	-19.35	AVG	
7	1.0420	25.37	8.82	34.19	56.00	-21.81	QP	
8	1.0420	9.81	8.82	18.63	46.00	-27.37	AVG	
9	7.2300	28.64	10.49	39.13	60.00	-20.87	QP	
10	7.2300	-0.88	10.49	9.61	50.00	-40.39	AVG	
11 *	20.5859	37.17	10.51	47.68	60.00	-12.32	QP	
12	20.5859	-1.72	10.51	8.79	50.00	-41.21	AVG	

Note1:

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> Freq. = Emission frequency in MHz Reading level $(dB\mu V)$ = Receiver reading Corr. Factor (dB) = LISN factor + Cable loss Measurement $(dB\mu V)$ = Reading level $(dB\mu V)$ + Corr. Factor (dB)Limit $(dB\mu V)$ = Limit stated in standard Margin (dB) = Measurement $(dB\mu V)$ – Limits $(dB\mu V)$ Q.P. =Quasi-Peak AVG =average

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

Note2: Speed for 1M and 2M modulations of EUT have been tested, but the test data only show the worst case in this report, and we found the worst case is 1M speed modulation. Measurements were conducted in all three channels (high, middle, low), and the worst case Mode (Lowest channel) was submitted only.



5.3. Conducted Output Power

5.3.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB 558074 D01 v05r02
Limit:	30dBm
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Refer to item 3.1
Test Procedure:	 Set spectrum analyzer as following: a) Set the RBW ≥ DTS bandwidth. b) Set VBW ≥ 3 × RBW. c) Set span ≥ 3 x RBW d) Sweep time = auto couple. e) Detector = peak. f) Trace mode = max hold. g) Allow trace to fully stabilize. h) Use peak marker function to determine the peak amplitude level.
Test Result:	PASS

5.3.2. Test Instruments

Name	Manufacturer	Model No.	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jun. 28, 2024
Combiner Box	Ascentest	AT890-RFB	/	/
	(\mathcal{O})	(\mathcal{C})	(\mathcal{C})	(c)

5.4. Emission Bandwidth

5.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB 558074 D01 v05r02
Limit:	>500kHz
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Refer to item 3.1
Test Procedure:	 Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6dB bandwidth must be greater than 500 kHz. Measure and record the results in the test report.
Test Result:	PASS

5.4.2. Test Instruments

Name	Manufacturer	Model No.	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jun. 28, 2024
Combiner Box	Ascentest	AT890-RFB	<u> </u>	

5.5. Power Spectral Density

5.5.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (e)					
Test Method:	KDB 558074 D01 v05r02					
Limit:	The peak power spectral density shall not be greater than 8dBm in any 3kHz band at any time interval of continuous transmission.					
Test Setup:						
	Spectrum Analyzer EUT					
Test Mode:	Refer to item 3.1					
Test Procedure:	 The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW): 3 kHz ≤ RBW ≤ 100 kHz. Video bandwidth VBW ≥ 3 x RBW. In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW) Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level. Measure and record the results in the test report. 					
Test Result:	PASS					

5.5.2. Test Instruments

Name	Manufacturer	Model No.	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jun. 28, 2024
Combiner Box	Ascentest	AT890-RFB	/	/

5.6. Conducted Band Edge and Spurious Emission Measurement

5.6.1. Test Specification

TCT通测检测 TESTING CENTRE TECHNOLOGY

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB 558074 D01 v05r02
Limit:	In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).
Test Setup:	
	Spectrum Analyzer EUT
Test Mode:	Refer to item 3.1
	 The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. Set to the maximum power setting and enable the EUT transmit continuously. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band
Test Procedure:	 shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d). 4. Measure and record the results in the test report. 5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.



5.6.2. Test Instruments

Name		Manufacture	r Model No.	Serial Numbe	r Calibration D
Spectrum Analyzer Combiner Box		Agilent	N9020A	MY49100619	Jun. 28, 2024
		Ascentest	AT890-RFB	/	/

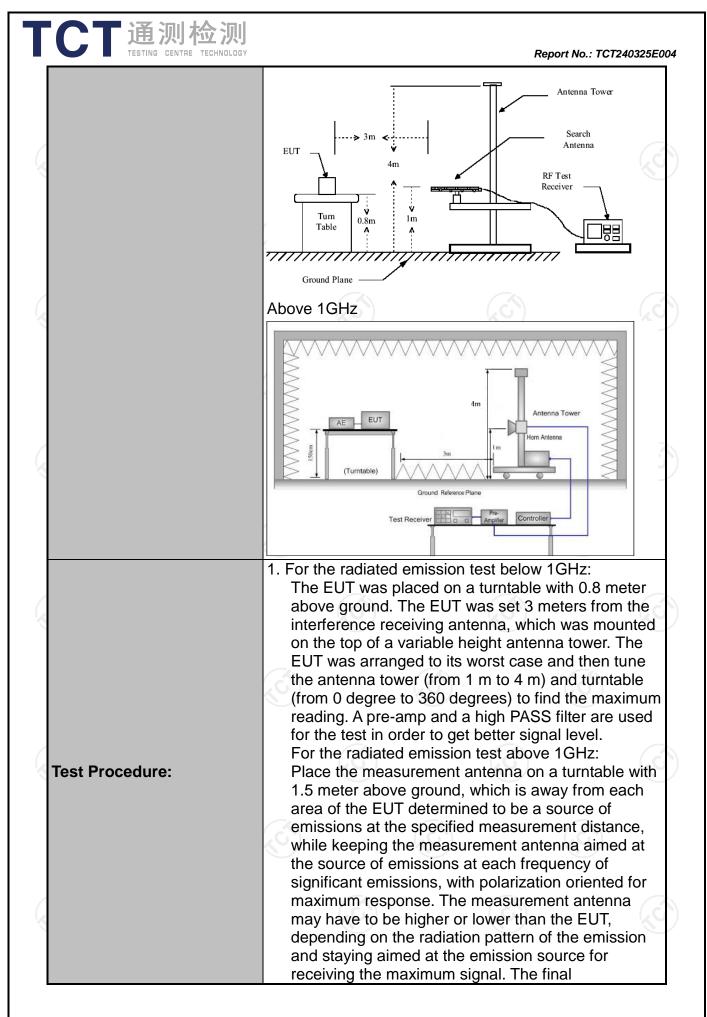
5.7. Radiated Spurious Emission Measurement

5.7.1. Test Specification

TCT 通测检测 TESTING CENTRE TECHNOLOGY

FCC Part15 C Section 15.209							
ANSI C63.10: 2013							
9 kHz to 25 GHz							
3 m							
Horizontal & Vertical							
Refer to item 3.1							
Frequency 9kHz- 150kHz 150kHz-		1	VBW 1kHz 30kHz	Quas	Remark si-peak Value si-peak Value		
30MHz		<u>d</u>)		66			
Above 1GHz	Peak Peak	120KHZ 1MHz 1MHz	300KH2 3MHz 10Hz	Pe	si-peak Value eak Value erage Value		
Frequen	су				asurement nce (meters)		
0.009-0.490		2400/F(KHz)		300		
			(KHz)		30		
				30			
				3			
		200		3			
Above 960		500			3		
		(°)					
Frequency		-	Distan	nce Detector			
Above 1GHz	,	500		6	Average		
		5000	3	N.	Peak		
For radiated emissions below 30MHz							
0.3m	Turn table	I Plane		eceiver			
	ANSI C63.10 9 kHz to 25 0 3 m Horizontal & Refer to item Frequency 9kHz- 150kHz 150kHz- 30MHz-1GHz Above 1GHz Frequency 0.009-0.4 0.490-1.7 1.705-3 30-88 88-210 216-96 Above 9 Frequency Above 1GHz	ANSI C63.10: 2013 9 kHz to 25 GHz 3 m Horizontal & Vertical Refer to item 3.1	ANSI C63.10: 2013 9 kHz to 25 GHz 3 m Horizontal & Vertical Refer to item 3.1 Frequency Detector RBW 9kHz- 150kHz Quasi-peak 200Hz 150kHz- Quasi-peak 120KHz 30MHz-1GHz Quasi-peak 120KHz Above 1GHz Peak 1MHz Peak 1MHz Peak 1MHz Frequency Field Str (microvolts 0.009-0.490 2400/F(0.490-1.705 24000/F(1.705-30 30 30-88 100 88-216 150 216-960 200 Above 960 500 Frequency Field Strength (microvolts/meter) Above 1GHz 500 500 Frequency Field Strength (microvolts/meter) Above 1GHz 500 500 For radiated emissions below 30 missions below 30	ANSI C63.10: 2013 9 kHz to 25 GHz 3 m Horizontal & Vertical Refer to item 3.1	ANSI C63.10: 2013 9 kHz to 25 GHz 3 m Horizontal & Vertical Refer to item 3.1		

Page 17 of 64



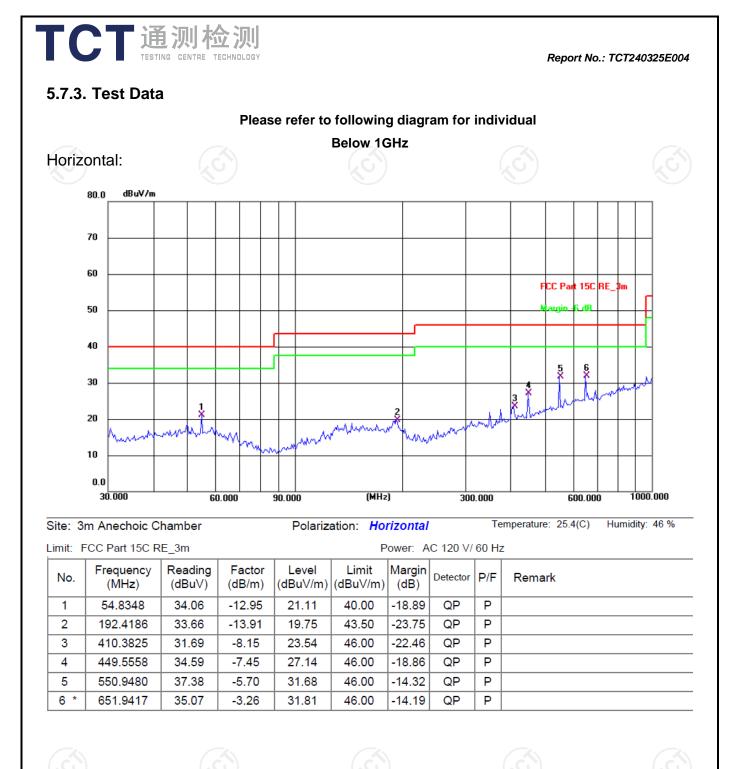
CT通测检测 TESTING CENTRE TECHNOLOGY	Report No.: TCT240325E0
	 measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane. 2. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level 3. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported. 4. Use the following spectrum analyzer settings: (1) Span shall wide enough to fully capture the emission being measured; (2) Set RBW=120 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold; (3) Set RBW = 1 MHz, VBW= 3MHz for f >1 GHz for peak measurement. For average measurement: VBW = 10 Hz, when duty cycle is no less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Test mode:	Refer to section 4.1 for details
Test results:	PASS

5.7.2. Test Instruments

TCT 通测检测 TESTING CENTRE TECHNOLOGY

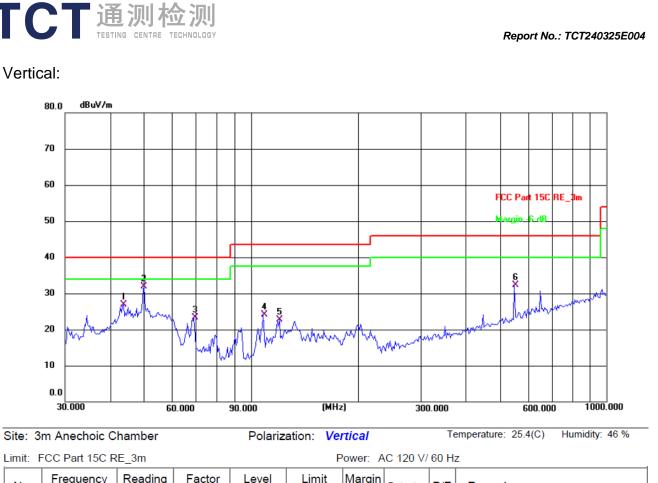
	Radiated Emission Test Site (966)								
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due					
EMI Test Receiver	R&S	ESIB7	100197	Jun. 29, 2024					
Spectrum Analyzer	R&S	FSQ40	200061	Jun. 29, 2024					
Pre-amplifier	SKET	LNPA_0118G- 45	SK2021012 102	Jan. 31, 2025					
Pre-amplifier	e-amplifier SKET		SK2021092 03500	Jan. 31, 2025					
Pre-amplifier	HP	8447D	2727A05017	Jun. 27, 2024					
Loop antenna	antenna Schwarzbeck		00191	Jul. 02, 2024					
Broadband Antenna	Schwarzbeck	VULB9163	340	Jul. 01, 2024					
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jul. 01, 2024					
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Feb. 02, 2025					
Antenna Mast	Keleto	RE-AM		GN					
Coaxial cable	SKET	RC-18G-N-M	1	Jan. 31, 2025					
Coaxial cable	SKET	RC_40G-K-M	1	Jan. 31, 2025					
EMI Test Software	Shurple Technology	EZ-EMC	(SO)	1					

Page 20 of 64



Page 21 of 64





No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark
1	43.8119	39.48	-12.54	26.94	40.00	-13.06	QP	Ρ	
2 *	50.0566	44.57	-12.65	31.92	40.00	-8.08	QP	Ρ	
3	69.1141	37.68	-14.36	23.32	40.00	-16.68	QP	Ρ	
4	108.2667	38.92	-14.76	24.16	43.50	-19.34	QP	Ρ	
5	120.2766	35.99	-13.24	22.75	43.50	-20.75	QP	Ρ	
6	550.9480	37.91	-5.70	32.21	46.00	-13.79	QP	Ρ	

- **Note:** 1. The low frequency, which started from 9KHz~30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported
 - 2. Speed for 1M and 2M modulations of EUT have been tested, but the test data only show the worst case in this report, and we found the worst case is 1M speed modulation. Measurements were conducted in all three channels (high, middle, low), and the worst case Mode (Lowest channel) was submitted only.

3. Freq. = Emission frequency in MHz

Measurement $(dB\mu V/m) = Reading level (dB\mu V) + Corr. Factor (dB)$ Correction Factor= Antenna Factor + Cable loss – Pre-amplifier Limit (dB μ V/m) = Limit stated in standard Margin (dB) = Measurement (dB μ V/m) – Limits (dB μ V/m) * in meaning the worst frequency has been tested in the test form

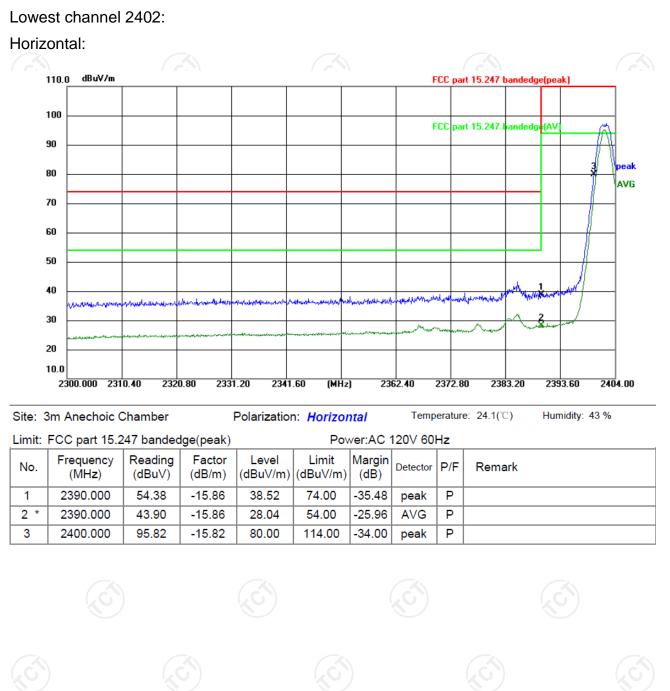
 * is meaning the worst frequency has been tested in the test frequency range

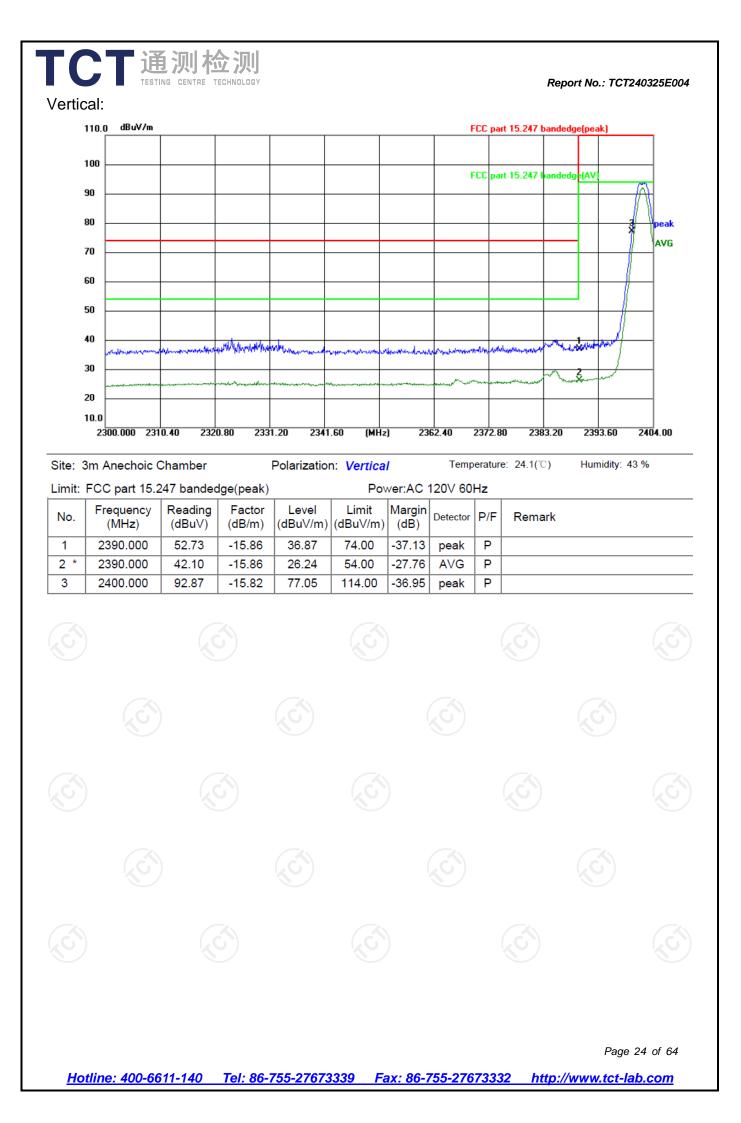
Page 22 of 64

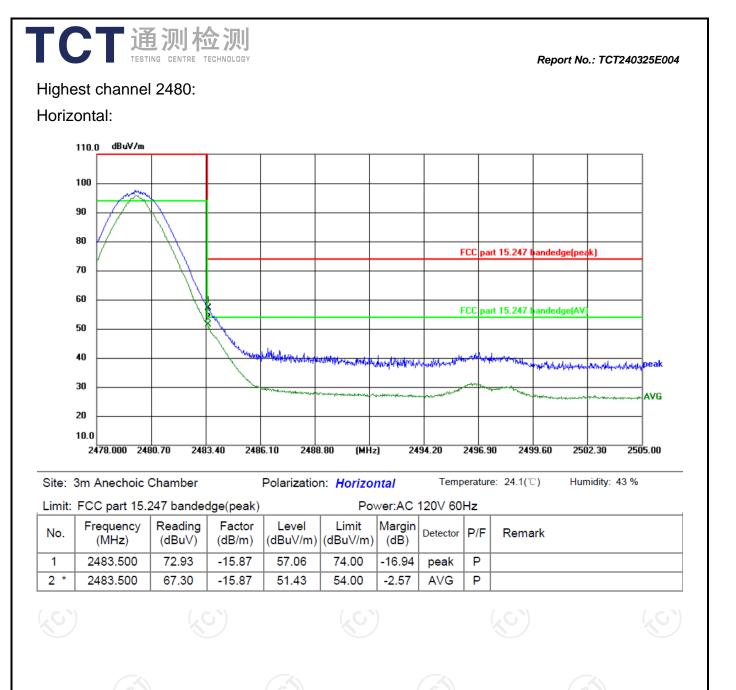


Test Result of Radiated Spurious at Band edges

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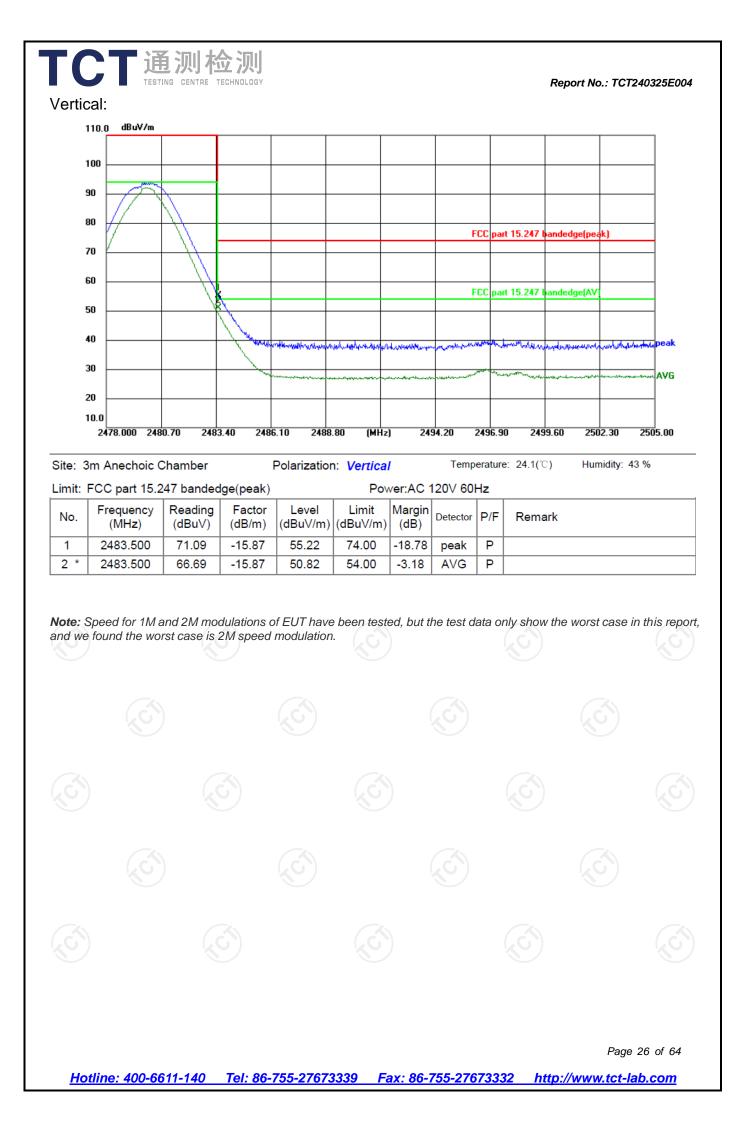








Page 25 of 64



Low char	nel: 2402	MHz							
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBuV)	Correction Factor (dB/m)	Peak	n Level AV (dBµV/m)	Peak limit (dBµV/m)		Margin (dB)
4804	Н	43.03		0.66	43.69		74	54	-10.31
7206	Н	33.74		9.50	43.24		74	54	-10.76
	Н								
			1	1		1	1		
4804	V	43.42		0.66	44.08		74	54	-9.92
7206	V	33.21	-+ <u>-</u> C	9.50	42.71	<u> </u>	74	54	-11.29
	V								

Above 1GHz

Middle channel: 2440 MHz

Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Emissic Peak (dBµV/m)	AV	Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4880	Н	42.99		0.99	43.98		74	54	-10.02
7320	Н	33.56		9.87	43.43		74	54	-10.57
	Н			·	(
			Ň)				KO/	
4880	V	43.84		0.99	44.83	<u> </u>	74	54	-9.17
7320	V	33.30		9.87	43.17		74	54	-10.83
	V								

High channel: 2480 MHz									
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Peak		Peak limit (dBµV/m)	AV limit (dBµV/m)	Margin (dB)
4960	Н	43.77	-+ 6	1.33	45.10		74	54	-8.90
7440	H	35.18		10.22	45.40	<u> </u>	74	54	-8.60
	Н								
			-						
4960	V	42.85		1.33	44.18		74	54	-9.82
7440	V	33.44		10.22	43.66		74	54	-10.34
	V			🤍	J				

Note:

1. Emission Level=Peak Reading + Correction Factor; Correction Factor= Antenna Factor + Cable loss - Pre-amplifier

2. Margin (dB) = Emission Level (Peak) (dB μ V/m)-Average limit (dB μ V/m)

3. The emission levels of other frequencies are very lower than the limit and not show in test report.

4. Measurements were conducted from 1 GHz to the 10th harmonic of highest fundamental frequency.

5. Data of measurement shown "---"in the above table mean that the reading of emissions is attenuated more than 20 dB below the limits or the field strength is too small to be measured.

6. Speed for 1M and 2M modulations of EUT have been tested, but the test data only show the worst case in this report, and we found the worst case is 1M speed modulation.

7. All the restriction bands are compliance with the limit of 15.209.

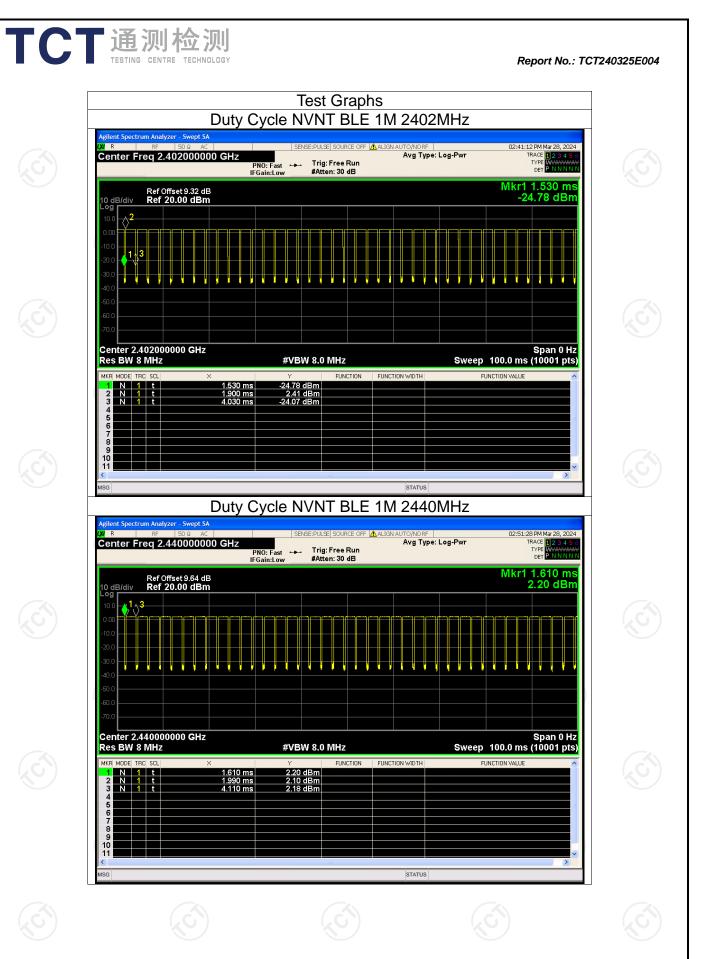


Appendix A: Test Result of Conducted Test

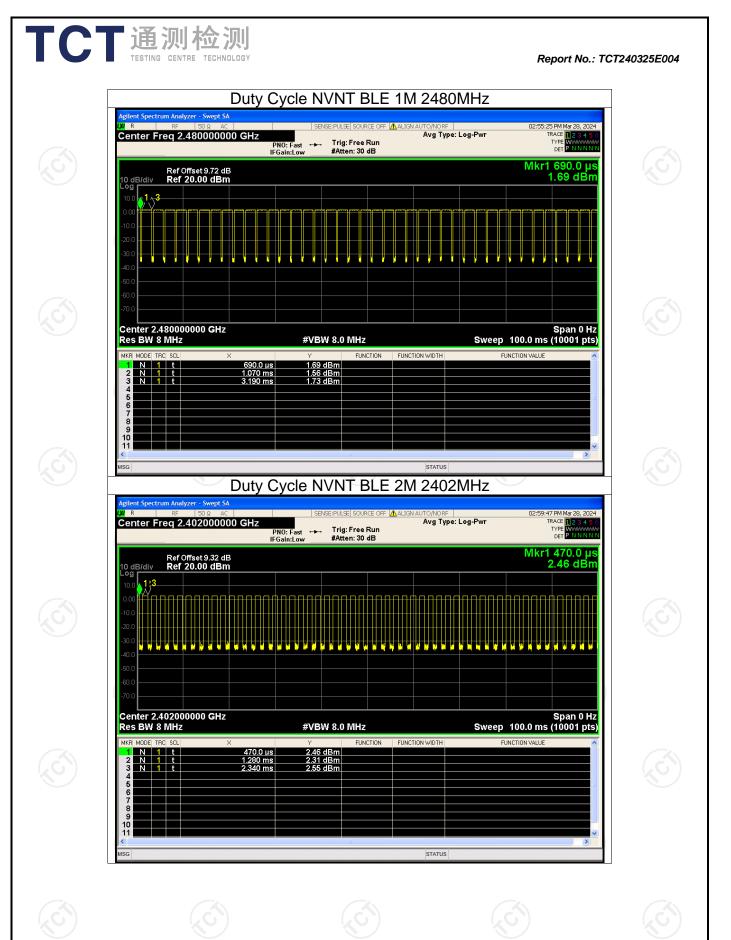
		Duty	Cycle		
Condition	Mode	Frequency (MHz)	Duty Cycle (%)	Correction Factor (dB)	
NVNT	BLE 1M	2402	85.60	0.68	
NVNT	BLE 1M	2440	85.20	0.70	
NVNT	BLE 1M	2480	85.20	0.70	
NVNT	BLE 2M	2402	57.44	2.41	8
NVNT	BLE 2M	2440	57.60	2.40	
NVNT	BLE 2M	2480	57.62	2.39	



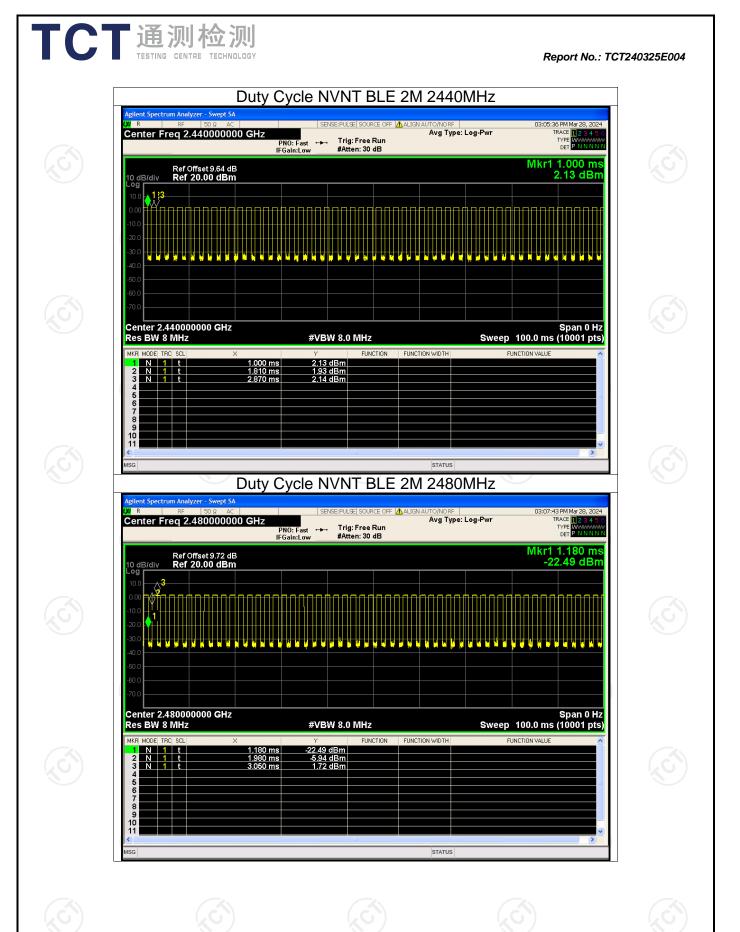
Page 28 of 64



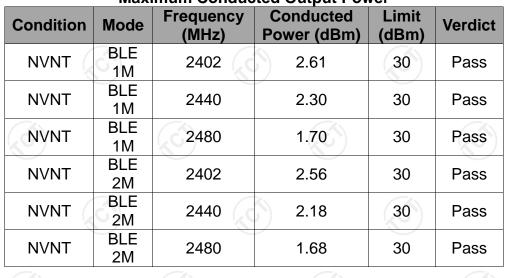
Page 29 of 64



Page 30 of 64



Page 31 of 64



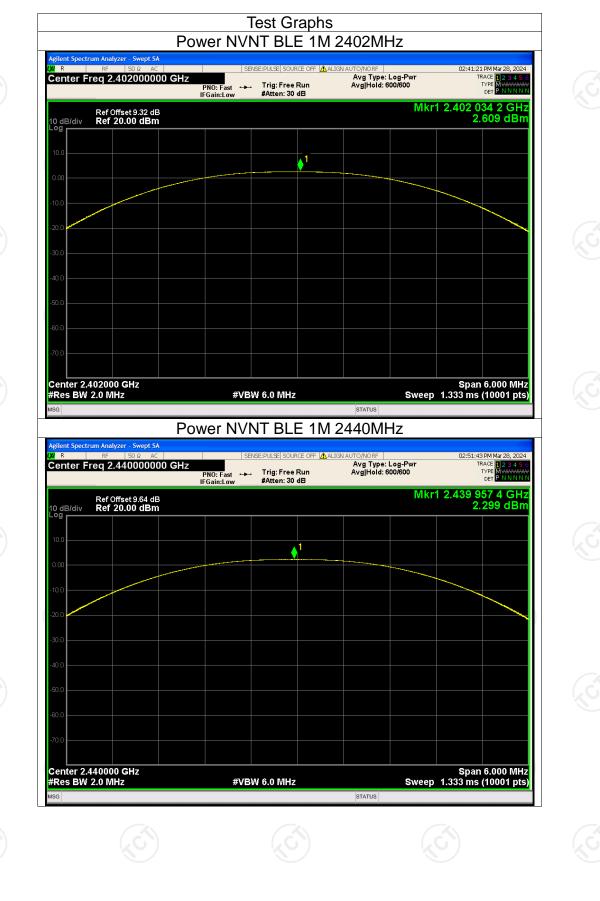
Maximum Conducted Output Power

Page	32	of	64
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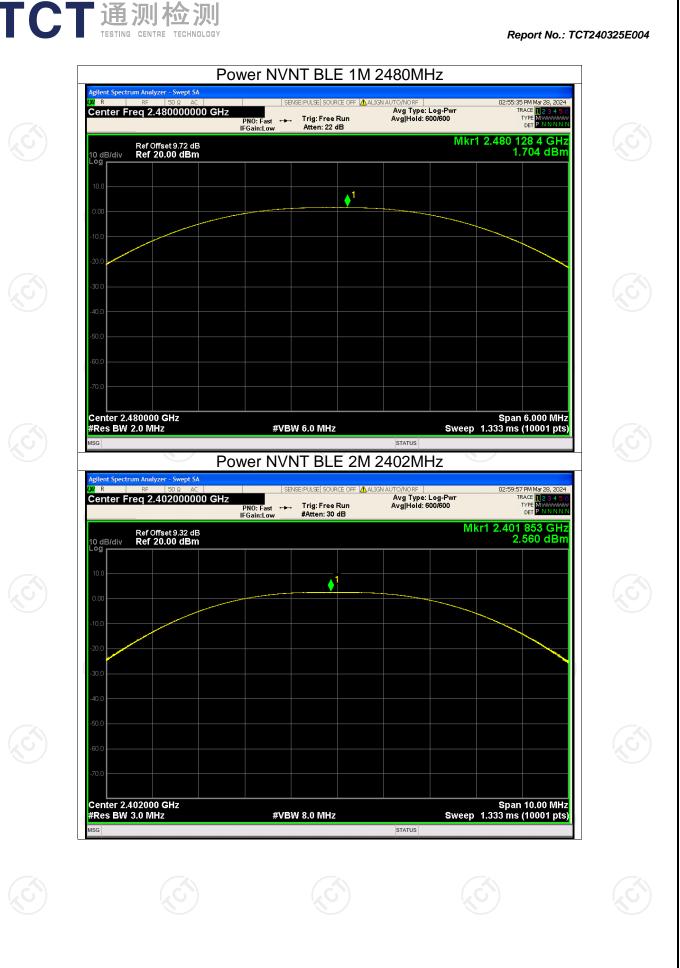
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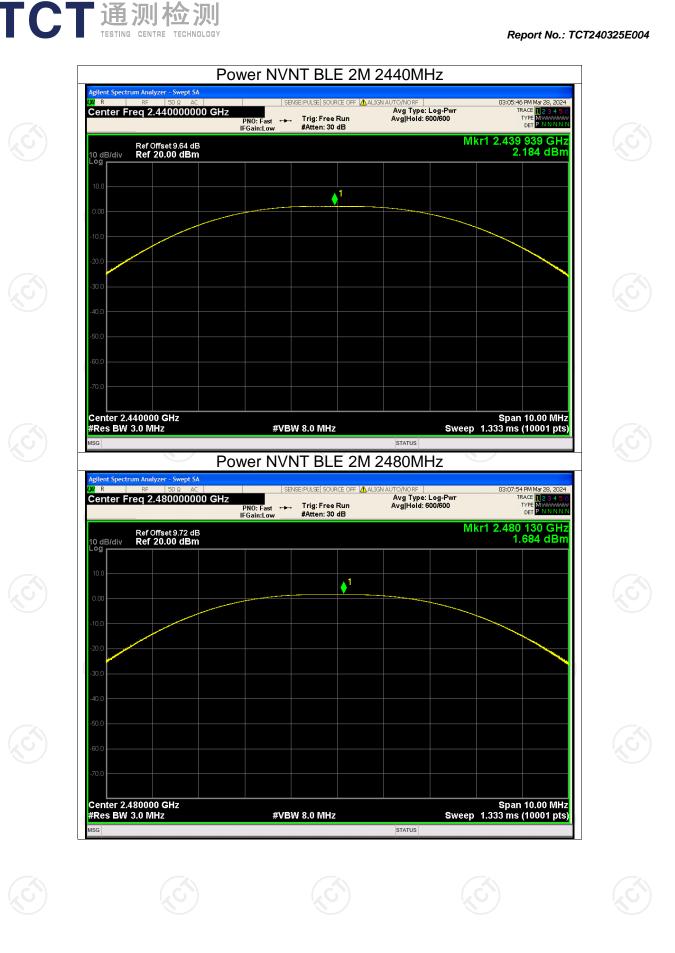
Report No.: TCT240325E004



Page 33 of 64



Page 34 of 64



			Page 36 of 64
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-6dB Bandwidth							
Condition	Mode	Frequency (MHz)	-6 dB Bandwidth (MHz)	Limit -6 dB Bandwidth (MHz)	Verdict		
NVNT	BLE 1M	2402	0.671	0.5	Pass		
NVNT	BLE 1M	2440	0.665	0.5	Pass		
NVNT	BLE 1M	2480	0.667	0.5	Pass		
NVNT	BLE 2M	2402	1.245	0.5	Pass		
NVNT	BLE 2M	2440	1.262	0.5	Pass		
NVNT	BLE 2M	2480	1.197	0.5	Pass		





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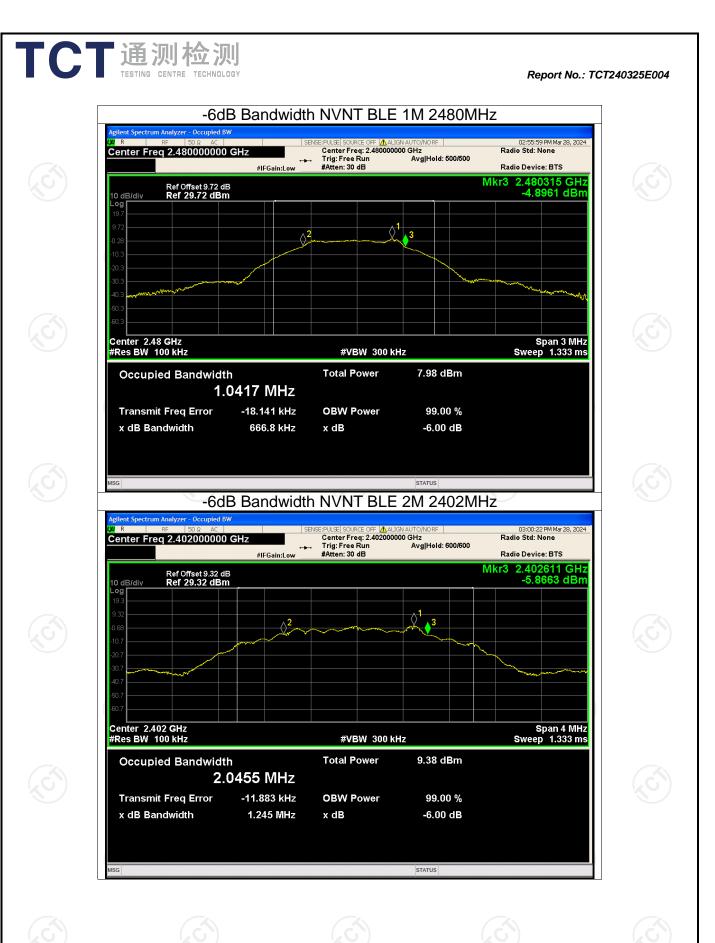
gilent Spectrum Analyzer - Occupied BW

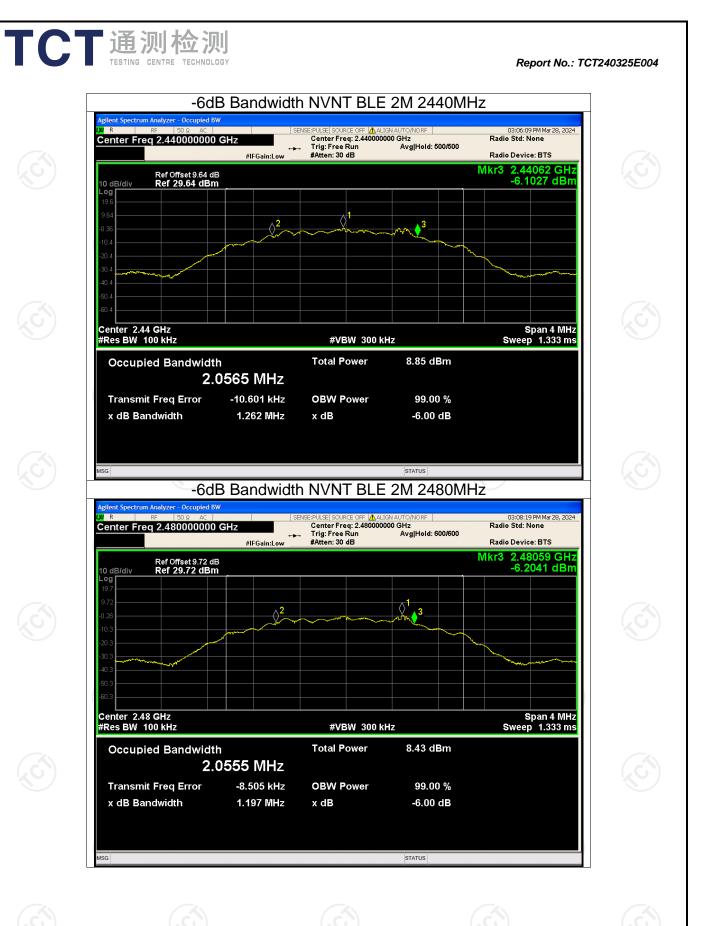
Test Graphs -6dB Bandwidth NVNT BLE 1M 2402MHz Report No.: TCT240325E004

02:41:44 PM Mar 28, 2024 Radio Std: None

Radio Device: BTS

Span 3 MHz Sweep 1.333 ms -6dB Bandwidth NVNT BLE 1M 2440MHz 02:52:05 PM Mar 28, 2024 Radio Std: None Radio Device: BTS Mkr3 2.440314 GHz -4.1303 dBm Center 2.44 GHz #Res BW 100 kHz Span 3 MHz Sweep 1.333 ms #VBW 300 kHz Total Power 8.53 dBm **Occupied Bandwidth** 1.0388 MHz -17.983 kHz **OBW Power** 99.00 % Transmit Freg Error 664.7 kHz x dB -6.00 dB x dB Bandwidth STATUS





Report No.: TCT240325E004	Report	No.:	TCT240325E004
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Condition	Mode	Frequency (MHz)	Conducted PSD (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
NVNT	BLE 1M	2402	-13.45	8	Pass
NVNT	BLE 1M	2440	-13.73	8	Pass
NVNT	BLE 1M	2480	-14.25	8	Pass
NVNT	BLE 2M	2402	-17.01	8	Pass
NVNT	BLE 2M	2440	-17.57	8	Pass
NVNT	BLE 2M	2480	-17.87	8	Pass

Maximum Power Spectral Density Level





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Page 40 of 64

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Page 41 of 64

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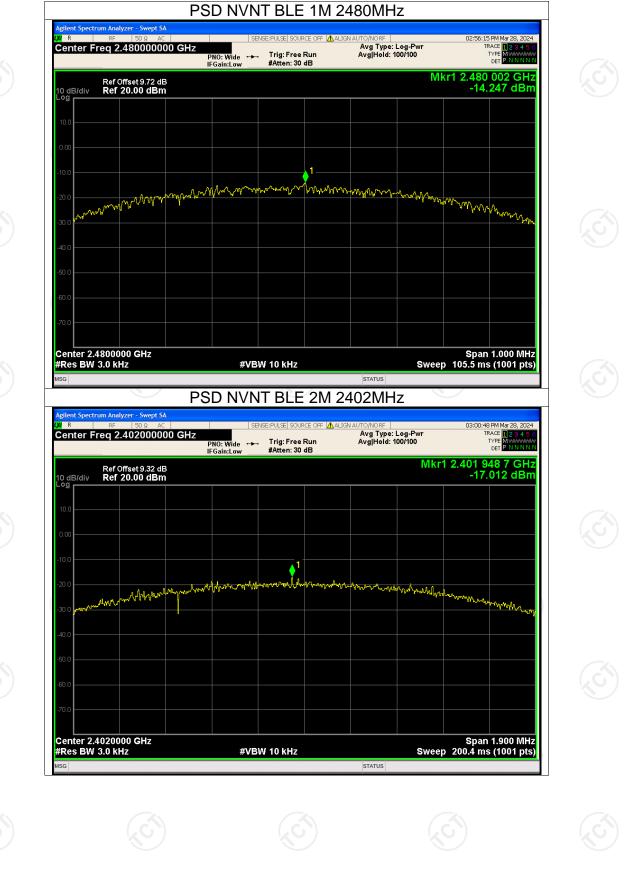
Test Graphs PSD NVNT BLE 1M 2402MHz gilent Spectrum Analyzer - Swept SA R SENSE: PULSE SOURCE OFF 🛕 02:42:00 PM Mar 28, 2024 Center Freq 2.402000000 GHz Avg Type: Log-Pwr Avg|Hold: 100/100 TRACE 123456 TYPE MMMMMM DET PNNNNN PNO: Wide ---- Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.402 002 GHz -13.449 dBm Ref Offset 9.32 dB Ref 20.00 dBm 10 dB/div Log mp www.maran paraparanter mmmmm man monter Center 2.4020000 GHz #Res BW 3.0 kHz Span 1.000 MHz Sweep 105.5 ms (1001 pts) #VBW 10 kHz STATUS PSD NVNT BLE 1M 2440MHz SENSE: PULSE SOURCE OFF ALIGN AU U R 02:52:22 PM Mar 28, 2024 Center Freq 2.440000000 GHz Avg Type: Log-Pwr Avg|Hold: 100/100 PNO: Wide ---- Trig: Free Run IFGain:Low #Atten: 30 dB TYPE DET Mkr1 2.440 002 GHz -13.733 dBm Ref Offset 9.64 dB Ref 20.00 dBm 10 dB/div Log 1 mpmlmlmm handra www. man WWW www. mmmm mm Center 2.4400000 GHz #Res BW 3.0 kHz Span 1.000 MHz Sweep 105.5 ms (1001 pts) #VBW 10 kHz STATUS

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Report No.: TCT240325E004



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Report No.: TCT240325E004

PNO: Wide +++ Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.439 949 6 GHz -17.572 dBm **•**¹

SENSE:PULSE SOURCE OFF ALIGN AUTO/NORF Avg Type: Log-Pwr Trig: Free Run Avg|Hold: 100/100

Center 2.4400000 GHz #Res BW 3.0 kHz Span 1.800 MHz Sweep 189.8 ms (1001 pts)

PSD NVNT BLE 2M 2440MHz

#VBW 10 kHz STATUS

PSD NVNT BLE 2M 2480MHz

	rum Analyzer - Swept SA								
Center F	RF 50Ω AC Treq 2.48000000	00 GHz	NO: Wide ++- Gain:Low	NSE:PULSE SOUR Trig: Free I #Atten: 30	Run	AUTO/NORF Avg Type: Avg Hold: 1	00/100	TF	PM Mar 28, 2024 RACE 1 2 3 4 5 TYPE M WWWW DET P N N N N
10 dB/div	Ref Offset 9.72 dE Ref 20.00 dBm						Mkr	1 2.479 9 -17.	47 8 GH 868 dBr
10.0									
0.00									
10.0				<u> </u>					
20.0	na manual	mantrural	Juria and the	www.	muun	www.ww	www.	Adm.	
30.0 <mark>/////</mark> /	When the first way								www.www.
40.0									
50.0									
70.0									
-70.0									
Center 2. #Res BW	4800000 GHz 3.0 kHz		#VB	W 10 kHz			Sweep	Span 189.8 ms	1.800 MH 5 (1001 pt
ISG						STATUS			



R

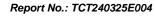
10 dB/div Log

gilent Spectrum Analyzer - Swept SA

Center Freq 2.440000000 GHz

Ref Offset 9.64 dB Ref 20.00 dBm

Manah



03:06:35 PM Mar 28, 2024 TRACE 1 2 3 4 5 TYPE M DET P N N N N

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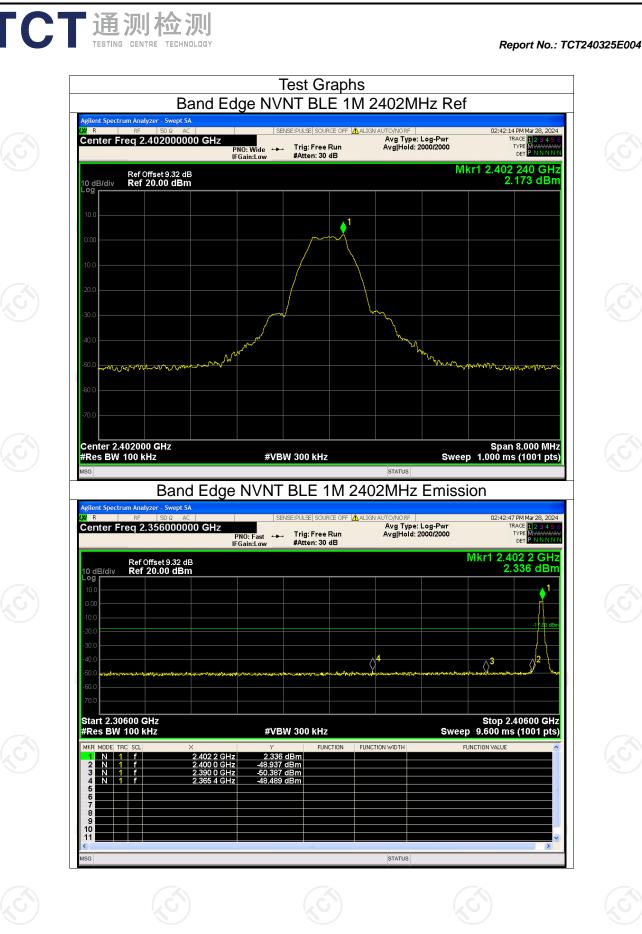


ondition		Free	quency (N	Band Edg IHz) Ma	x Value (d	Bc) Lin	nit (dBc)	Verdic
NVNT	BLE 1M		2402		-50.65		-20	Pass
NVNT NVNT	BLE 1M BLE 2M		2480 2402		-48.95 -49.21		-20 -20	Pass Pass
NVNT	BLE 2M		2480		-48.54		-20	Pass
	<u>_</u> .					I		1

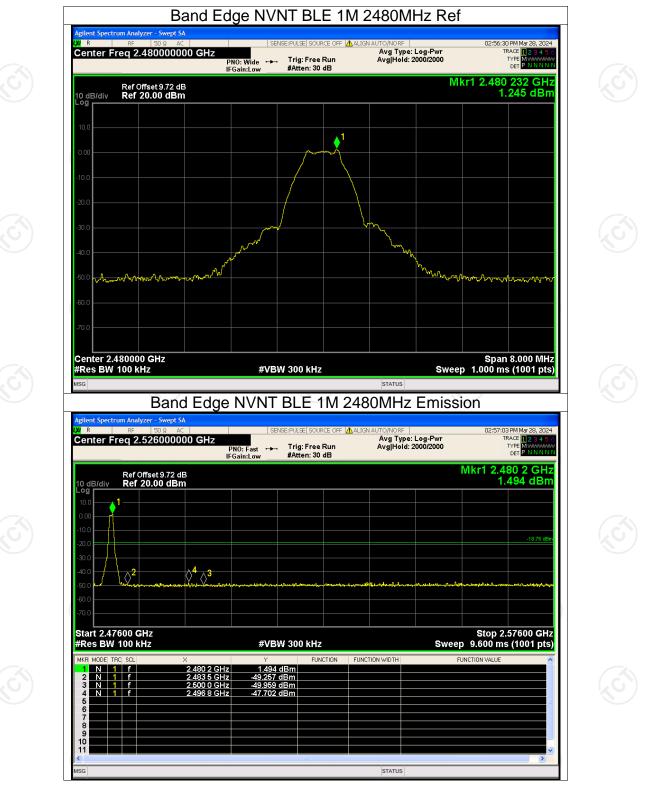
Report No.: TCT240325E004

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Page 45 of 64





Report No.: TCT240325E004

Page 46 of 64







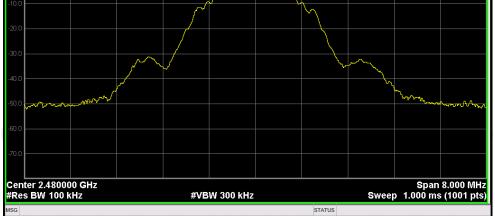


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Report No.: TCT240325E004

Page 47 of 64

Band Edge NVNT BLE 2M 2480MHz Ref SENSE:PULSE SOURCE OFF ALIGN AUTO/NORF Avg Type: Log-Pwr Trig: Free Run Avg|Hold: 2000/2000 03:08:59 PM Mar 28, 20 TRACE 1234 TYPE MWWW DET PNNN PNO: Wide +++ Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.480 488 GHz 0.465 dBm **≜**1



gilent Spectr

Center Freq 2.480000000 GHz

Ref Offset 9.72 dB Ref 20.00 dBm

R

10 dB/div Log

Band Edge NVNT BLE 2M 2480MHz Emission

gilent Spectr R	<mark>um Ana</mark> RE	lyzer - Swept SA 50 Ω AC				SEL COLIPC		ALIGN AUTO/NOR			02:00:2	2 PM Mar 28, 20
		.52600000	00 GHz	PNO: Fast ← FGain:Low	🛌 Trig	j: Free R ten: 30 d	un	Avg Ty	oe: Log-Pw d: 2000/200			RACE 2 3 4 TYPE MWWW DET PNNN
0 dB/div og r		Offset 9.72 dE 20.00 dB m								N	/lkr1 2.4 0.	80 5 GI 404 dB
	1—											
.00												
D.0												
).0												-19.54
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).0 	\\\\2	11 h		e sone bernete a star		the lease	A. A. A. A.	www.wathut	-	المحمد المعرم	which and an and an and	national and an annual transformer of the
).0).0												
D.O												
art 2.47 Res BW				#V	'BW 300	0 kHz				Sweep	Stop 2. 9.600 ms	.57600 G s (1001 p
KR MODE TF	RC SCL		< 2.480 5 GHz	Y	04 dBm	FUNCT	TION	FUNCTION WIDTH		FUI	NCTION VALUE	
2 N 1 3 N 1	f		2.483 5 GHz 2.500 0 GHz	-49.4	13 dBm 07 dBm							
4 N 1	f		2.498 5 GHz	-48.07	76 dBm							
9												
												>



Page 48 of 64

Report No.:	TCT240325E004
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Condition	Mode	Frequency (MHz)	Max Value (dBc)	Limit (dBc)	Verdict					
NVNT	BLE 1M	2402	-39.76	-20	Pass					
NVNT	BLE 1M	2440	-39.15	-20	Pass					
NVNT	BLE 1M	2480	-38.81	-20	Pass					
NVNT	BLE 2M	2402	-38.10	-20	Pass					
NVNT	BLE 2M	2440	-38.05	-20	Pass					
NVNT	BLE 2M	2480	-37.44	-20	Pass					
	5									

Conducted RF Spurious Emission











Page 49 of 64

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Test Graphs Tx. Spurious NVNT BLE 1M 2402MHz Ref

SENSE:PULSE SOURCE OFF 🛕

PNO: Wide ---- Trig: Free Run IFGain:Low #Atten: 30 dB Avg Type: Log-Pwr Avg|Hold: 1000/1000

∮¹

R

10 dB/div Log

gilent Spectrum Analyzer - Swept SA

Center Freq 2.402000000 GHz

Ref Offset 9.32 dB Ref 20.00 dBm Report No.: TCT240325E004

02:42:56 PM Mar 28, 2024

Mkr1 2.402 232 5 GHz 2.314 dBm

TRACE 123456 TYPE MMMMMM DET PNNNNN

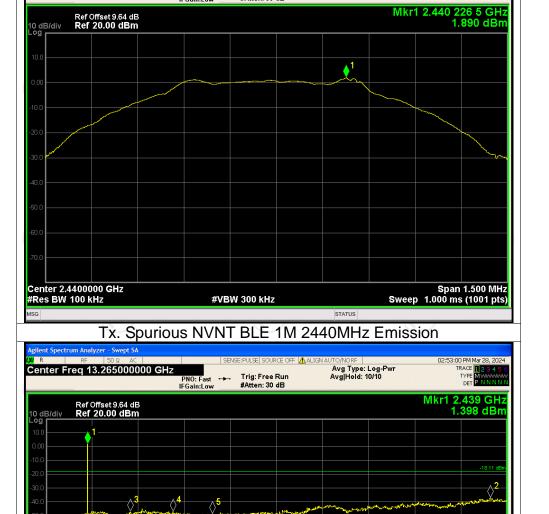
Page 50 of 64

#VBW 300 kHz

-37.262 dBm -47.330 dBm -47.234 dBm -48.954 dBm

2.439 GHz 25.547 GHz 4.874 GHz 7.336 GHz 9.586 GHz FUNCTION

FUNCTION WIDTH



Tx. Spurious NVNT BLE 1M 2440MHz Ref

PNO: Wide 🛶 Trig: Free Run IFGain:Low #Atten: 30 dB

SENSE:PULSE SOURCE OFF ALIGN AUTO/NORF

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gilent Spect

Start 30 MHz #Res BW 100 kHz

> N 1 f N 1 f N 1 f N 1 f N 1 f

MKD MODE

10 11

Center Freq 2.440000000 GHz

R

Report No.: TCT240325E004

02:52:31 PM Mar 28, 2024 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N

Stop 26.50 GHz Sweep 2.530 s (1001 pts)

FUNCTION VALUE

STATUS

Mkr1 2.480 225 0 GHz 1.351 dBm Ref Offset 9.72 dB Ref 20.00 dBm 10 dB/div 0 Center 2.4800000 GHz #Res BW 100 kHz Span 1.500 MHz Sweep 1.000 ms (1001 pts) #VBW 300 kHz STATUS Tx. Spurious NVNT BLE 1M 2480MHz Emission l R SENSE: PULSE SOURCE OFF 44 PM Mar 28, 202 Center Freq 13.265000000 GHz Avg Type: Log-Pwr Avg|Hold: 10/10 TRACE 1234 TYPE MWWW DET PNNN PNO: Fast ---- Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.492 GHz 1.189 dBm Ref Offset 9.72 dB Ref 20.00 dBm 10 dB/di Log **⊘**² 3 \Diamond^4 $\Diamond^{\mathbf{5}}$ Start 30 MHz #Res BW 100 kHz Stop 26.50 GHz Sweep 2.530 s (1001 pts) #VBW 300 kHz FUNCTION WIDTH FUNCTION FUNCTION VALUE N 1 f N 1 f N 1 f N 1 f N 1 f 2.492 GHz 25.018 GHz 4.927 GHz 7.574 GHz 10.115 GHz 1.189 dBm -37.463 dBm -47.106 dBm -47.109 dBm -48.370 dBm 10 11

Tx. Spurious NVNT BLE 1M 2480MHz Ref

PNO: Wide 🛶 Trig: Free Run IFGain:Low #Atten: 30 dB

SENSE:PULSE SOURCE OFF ALIGN AUTO/NORF

TCT通测检测 TESTING CENTRE TECHNOLOGY

gilent Spect

Center Freq 2.480000000 GHz

R

MSG

Report No.: TCT240325E004

02:57:13 PM Mar 28, 20 TRACE 1234 TYPE MWWW DET PNNN



SENSE:PULSE SOURCE OFF ALIGN AUTO/NORF Avg Type: Log-Pwr Trig: Free Run Avg|Hold: 2000/2000 03:01:51 PM Mar 28, 20 TRACE 1234 TYPE MWWWW DET PNNN R Center Freq 2.402000000 GHz PNO: Wide 🛶 Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.402 480 GHz 1.139 dBm Ref Offset 9.32 dB Ref 20.00 dBm 10 dB/div ø Center 2.402000 GHz #Res BW 100 kHz Span 3.000 MHz Sweep 1.000 ms (1001 pts) #VBW 300 kHz STATUS

Tx. Spurious NVNT BLE 2M 2402MHz Ref

Tx. Spurious NVNT BLE 2M 2402MHz Emission SENSE:PULSE SOURCE OFF

Report No.: TCT240325E004

TCT通测检测 TESTING CENTRE TECHNOLOGY

gilent Spect

l R

Center Freq 13.265000000 GHz



gilent Spect SENSE:PULSE SOURCE OFF ALIGN AUTO/NORF Avg Type: Log-Pwr Trig: Free Run Avg|Hold: 1000/1000 03:06:44 PM Mar 28, 20 TRACE 1234 TYPE MWWW DET PNNN R Center Freq 2.440000000 GHz PNO: Wide 🛶 Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.440 483 GHz 0.781 dBm Ref Offset 9.64 dB Ref 20.00 dBm 10 dB/div 1 Center 2.440000 GHz #Res BW 100 kHz Span 3.000 MHz Sweep 1.000 ms (1001 pts) #VBW 300 kHz STATUS

Tx. Spurious NVNT BLE 2M 2440MHz Ref

Tx. Spurious NVNT BLE 2M 2440MHz Emission

SENSE: PULSE SOURCE OFF

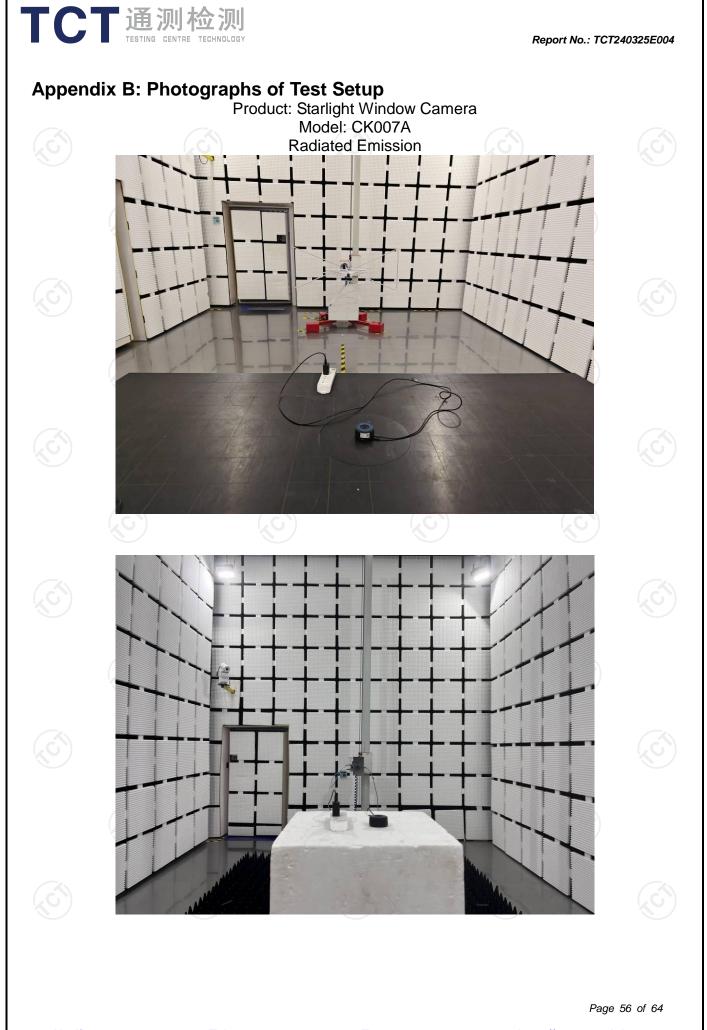
Report No.: TCT240325E004

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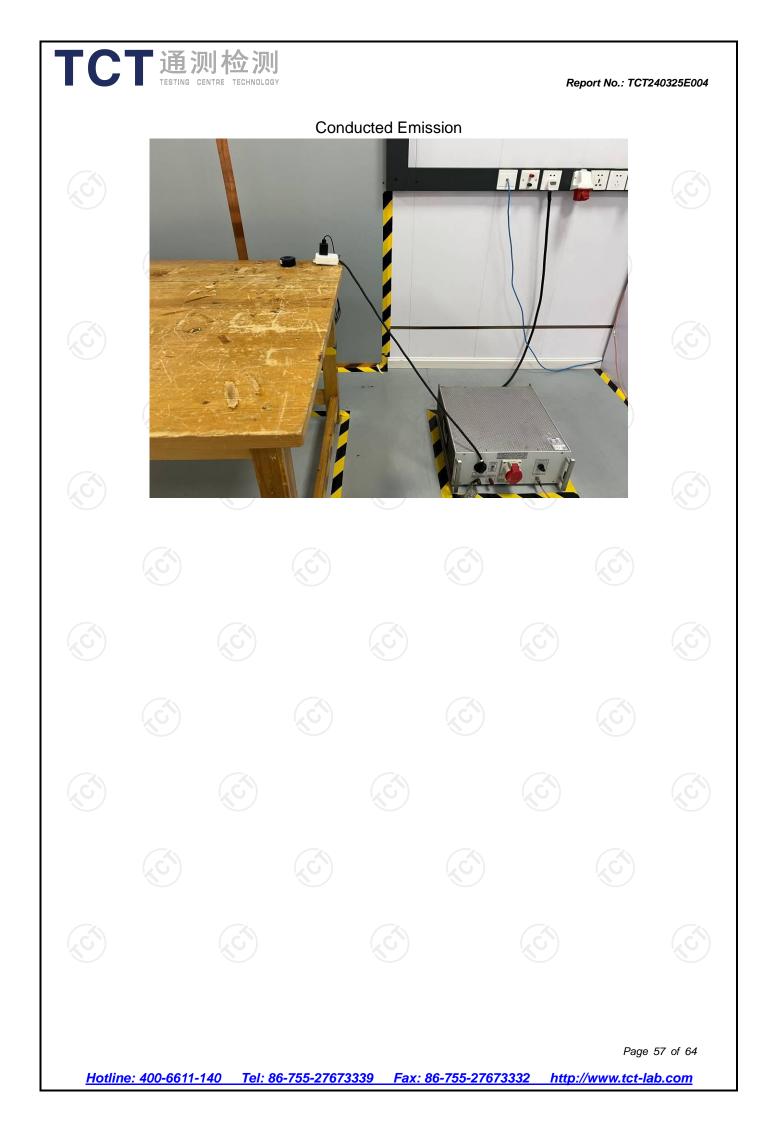
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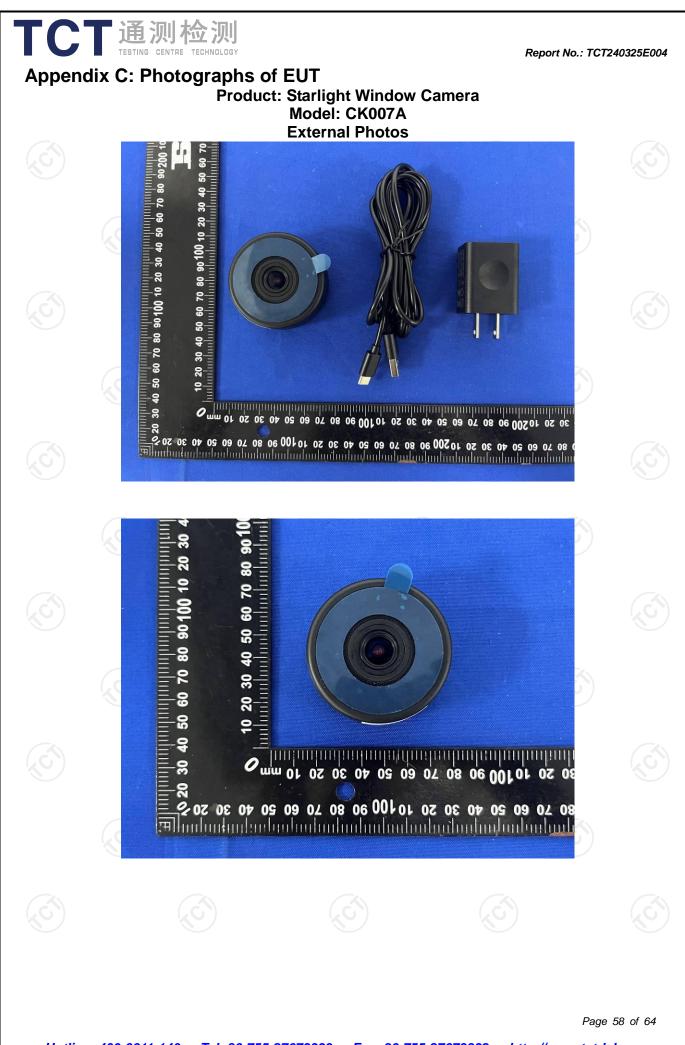
Center Freq 13.265000000 GHz

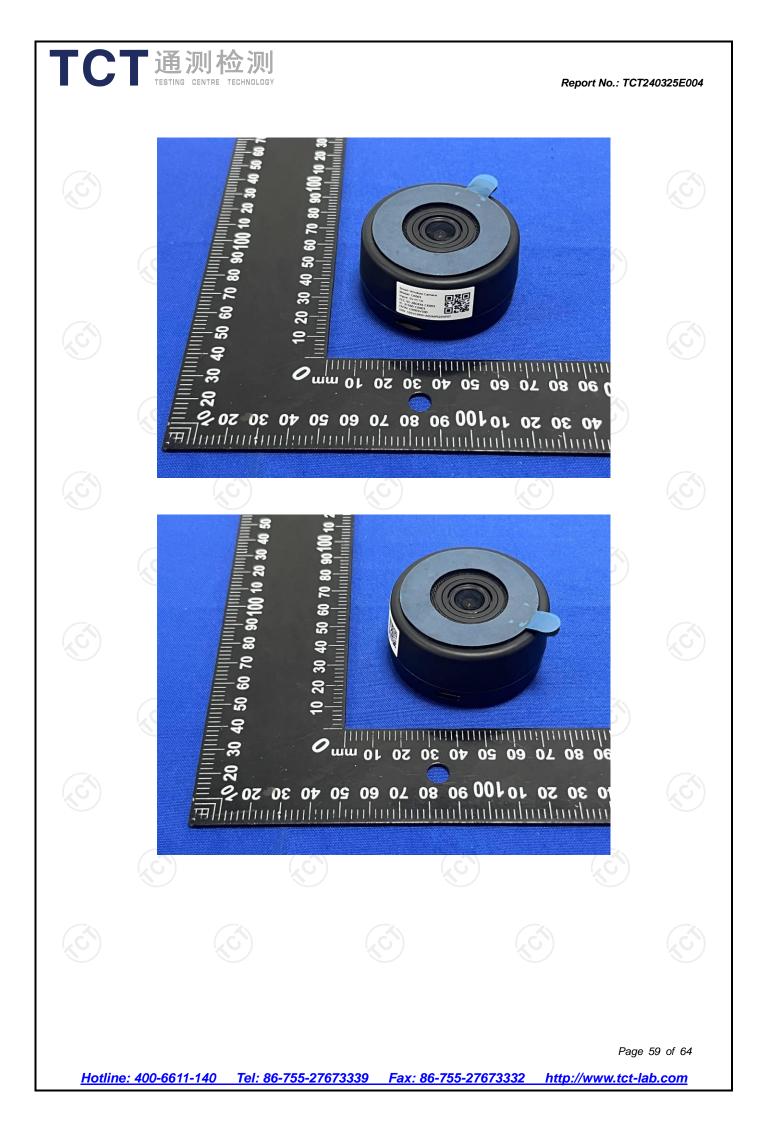


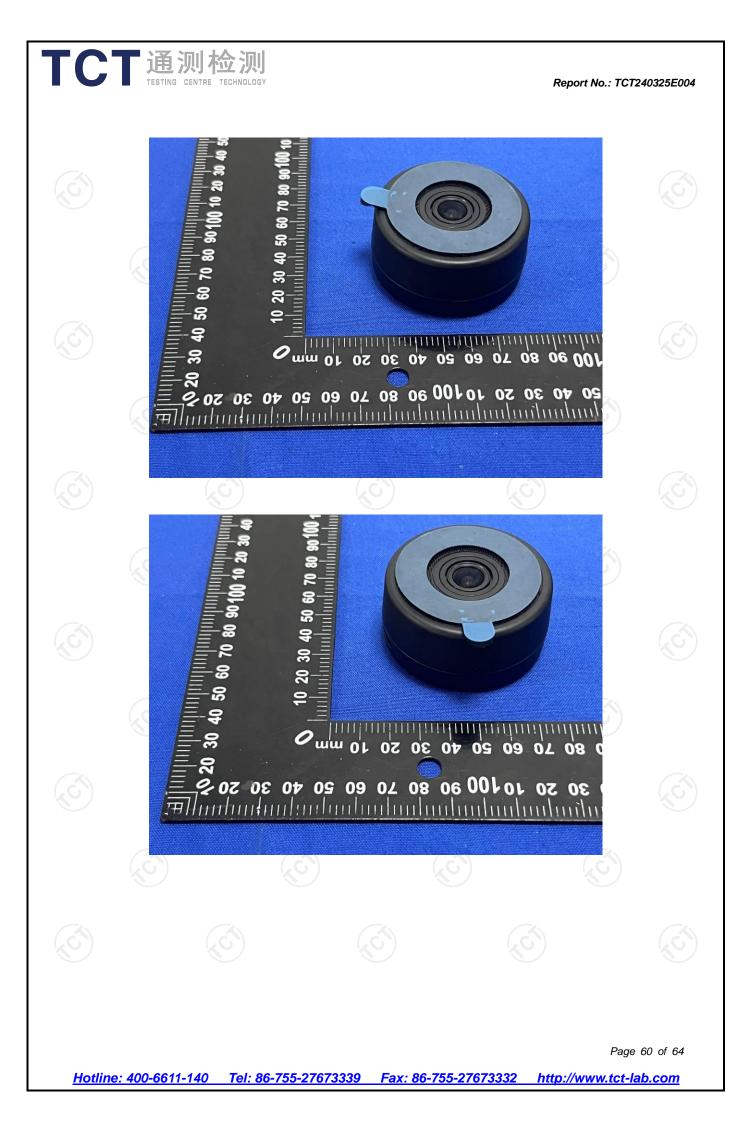


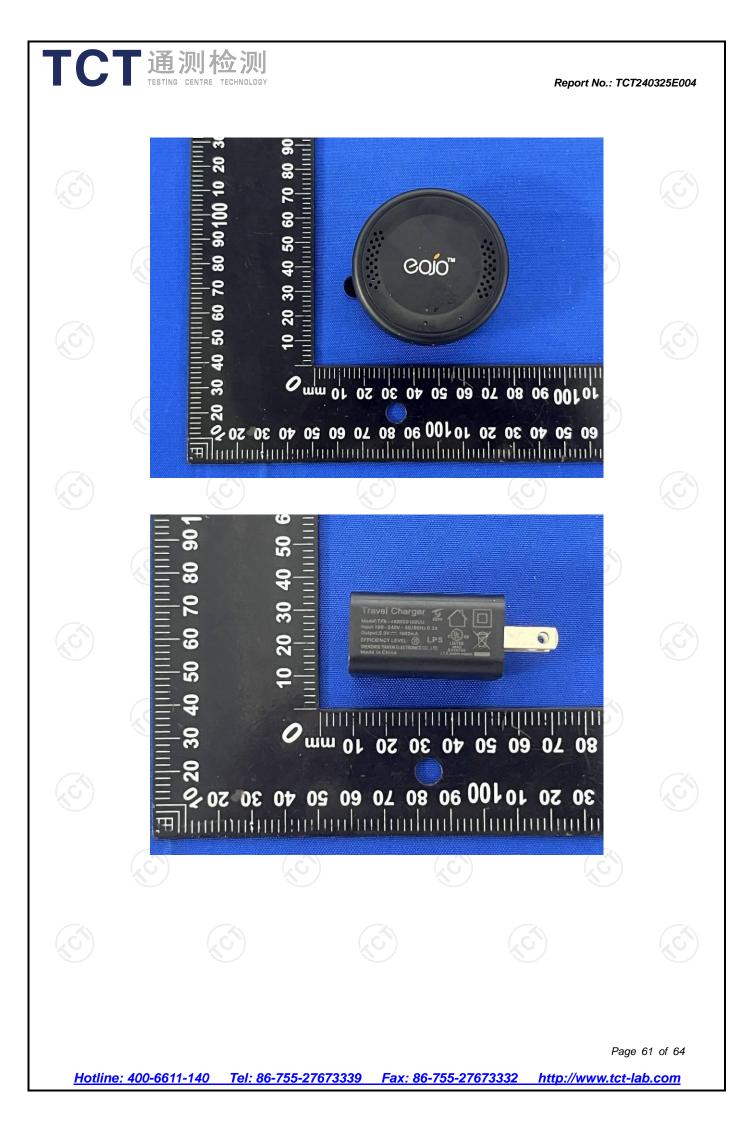
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Report No.: TCT240325E004

