

Test report No: 4923809.50

# **TEST REPORT**

# **Radio Spectrum Matters (RF)**

	Cyna dynamia affact indear atrin				
Identification of item tested	Cync dynamic effect indoor strip,  Cync dynamic effect outdoor strip				
Trademark	GE				
Model and /or type reference	CSTR16CDID/ENS,				
,	CSTR32CDID/ENS,				
	CSTR16CDOD/ENS,				
	CSTR32CDOD/ENS				
FCC ID	PUU-STR-CDID				
Features	Adaptor1#: CLASS 2 POWER UNIT				
	MODEL NO: XY24SR-240100VQ-UW				
	INPUT: 100-240Vac, 50/60Hz, 0.6A MAX				
	OUTPUT: 24Vdc, 1.0A				
	Adaptor2#: CLASS 2 POWER UNIT				
	MODEL NO: XY24SR-240100VQ-ZP				
	INPUT: 100-120Vac, 50/60Hz, 0.6A MAX				
	OUTPUT: 24Vdc, 1.0A				
Applicant's name / address	Savant Technologies LLC, dba GE Lighting, a Savant Company 1975 Noble Road, Cleveland, OH, 44112, US.				
Test method requested, standard	FCC CFR Title 47 Part15 Subpart C Section 15.247;				
	KDB558074 D01v05r02;				
Verdict Summary	COMPLIANCE				
Tested by (name & signature)					
	Jazz Liang				
Approved by (name & signature)	Jazz Liang Jass Gang Timyan				
. <u></u>	Tim Yan				
Date of issue	2024-08-22				

Report no.: 4923809.50 Page 1 / 57

#### DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



Report template No	TRF_EMC 2017-06- FCC_Part15C_247

Report no.: 4923809.50 Page 2 / 57



## **INDEX**

			PAGE
Gen	eral c	onditions	4
Unce	ertaint	y	4
Envi	ronme	ental conditions	4
Poss	sible te	est case verdicts	4
Defi	nition	of symbols used in this test report	5
Abbı	reviati	ons	5
Doc	ument	History	5
Rem	narks a	and Comments	5
1	Gen	eral Information	6
	1.1	General Description of the Item(s)	6
	1.2	Test data	10
	1.3	The environment(s) in which the EUT is intended to be used	10
2	Desc	cription of Test Setup	11
	2.1	Operating mode(s) used for tests	11
	2.2	Support / Auxiliary equipment / unit / software for the EUT	11
	2.3	Test Configuration / Block diagram used for tests	11
	2.4	Measurement procedure	11
3	Verd	lict summary section	12
	3.1	Standards	12
	3.2	Deviation(s) from the Standard(s) / Test Specification(s)	12
	3.3	Overview of results	12
4	Tran	smitter Test Results	13
	4.1	AC Power Line Conducted Emission	13
	4.2	Emissions in non-restricted frequency bands	18
	4.3	Emissions in restricted frequency bands	31
	4.4	Band Edge	38
	4.5	Duty cycle	41
	4.6	DTS Bandwidth	43
	4.7	Fundamental emission output power	48
	4.8	Power Density	51
5	lden	tification of the Equipment Under Test	53
Anne	ex 1 –	Measurement Uncertainty	54
Anne	ex 2 -	Used Equipment	55
Anne	ex 3 -	Test Photos	57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 https://www.dekra.com



#### **GENERAL CONDITIONS**

- 1. This report is only referred to the item that has undergone the test.
- 2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or Competent Authorities.
- 3. This document is only valid if complete; no partial reproduction can be made without previous written permission of DEKRA.
- 4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of DEKRA.
- 5. This report will not be used for social proof function in China market.

#### **UNCERTAINTY**

For all measurements where guidance for the calculation of the instrumentation uncertainty of a measurement is specified in EN 55016-4-2 (CISPR 16-4-2), EN/IEC 61000-4 series or a product standard, the measurement instrumentation uncertainty has been calculated and applied in accordance with these standards.

Uncertainties have been calculated according to the DEKRA internal document. The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.

#### **ENVIRONMENTAL CONDITIONS**

The climatic conditions during the tests are within the limits specified by the manufacturer for the operation of the EUT and the test equipment. The climatic conditions during the tests were within the following limits:

Ambient temperature	-40 °C – 105 °C
Relative Humidity air	30% - 60%
Atmospheric pressure	86 kPa – 106 kPa

If explicitly required in the basic standard or applied product / product family standard the climatic values are recorded and documented separately in this test report.

#### POSSIBLE TEST CASE VERDICTS

Test case does not apply to test object	N/A
Test object does meet requirement	P (Pass) / PASS
Test object does not meet requirement	F (Fail) / FAIL
Not tested	N/T

Report no.: 4923809.50 Page 4 / 57

Tel +86 20 6661 2000 Fax +86 20 6661 2001 https://www.dekra.com



#### **DEFINITION OF SYMBOLS USED IN THIS TEST REPORT**

☑ Indicates that the listed condition, standard or equipment is applicable for this report/test/EUT.								
☐ Indicates that the listed condition, standard or equipment is not applicable for this report/test/EUT.								
Decimal separator used in this report   Comma (,)   Point (.)								

#### **ABBREVIATIONS**

For the purposes of the present document, the following abbreviations apply:

EUT : Equipment Under Test

QP : Quasi-Peak
CAV : CISPR Average

AV : Average

CDN : Coupling Decoupling Network
SAC : Semi-Anechoic Chamber

OATS : Open Area Test Site

BW: Bandwidth

AM : Amplitude Modulation
PM : Pulse Modulation

HCP : Horizontal Coupling Plane VCP : Vertical Coupling Plane

U<sub>N</sub> : Nominal voltageTx : TransmitterRx : Receiver

N/A : Not Applicable N/M : Not Measured

#### **DOCUMENT HISTORY**

Report nr.	Date	Description
4918539.50	2024-06-19	First release.
4923809.50	2024-08-22	Second release, 1, add model CSTR16CDOD/ENS,CSTR32CDOD/ENS. The difference from the original model is the connetor of the DC port. 2, add alternative adaptor 2#

#### REMARKS AND COMMENTS

The equipment under test (EUT) does meet the essential requirements of the stated standard(s)/test(s).

Report no.: 4923809.50 Page 5 / 57

Tel +86 20 6661 2000 Fax +86 20 6661 2001 https://www.dekra.com



## 1 **GENERAL INFORMATION**

## 1.1 General Description of the Item(s)

Description of the item:	Cync dynamic effect indoor strip,
	Cync dynamic effect outdoor strip
Trademark:	GE
Model / Type number	CSTR16CDID/ENS, CSTR32CDID/ENS,
	CSTR16CDOD/ENS,
	CSTR32CDOD/ENS
FCC ID	PUU-STR-CDID
Hardware	N/A
Software:	N/A
Firmware:	N/A
Ratings:	Adaptor1#: CLASS 2 POWER UNIT
	MODEL NO: XY24SR-240100VQ-UW
	INPUT: 100-240Vac, 50/60Hz, 0.6A MAX
	OUTPUT: 24Vdc, 1.0A
	Adaptor2#: CLASS 2 POWER UNIT
	MODEL NO: XY24SR-240100VQ-ZP
	INPUT: 100-120Vac, 50/60Hz, 0.6A MAX
	OUTPUT: 24Vdc, 1.0A
Manufacturer	Same as applicant
Factory 1:	Dongguan ZOYO Electronics Technology Co., Ltd.
	NO.11, Nange west Road, Nanya Village, Daojiao Town, Dongguan,
	Guangdong, China
Factory 2:	SILVER AGE VIETNAM TECHNOLOGY COMPANY LIMITED.
	Lot A2, Gia Le industrial zone, Dong Xuan commune, Dong Hung district,
	Thai Binh province, VietNam.

Rated power supply:		Voltage and Fraguency		Reference poles				
	Voltage and Frequency -		L1	L2	L3	N	PE	
	$\boxtimes$	AC: 100-240 V, 50/60 Hz				$\boxtimes$		
	$\boxtimes$	AC: 100-120 V, 50/60 Hz				$\boxtimes$		
	DC:							
		Battery:						
Mounting position:	$\boxtimes$	Table top equipment						
		Wall/Ceiling mounted equipment						
	Floor standing equipment							
		Other:						

Report no.: 4923809.50 Page 6 / 57

#### DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



Based on customer description: Wireless module Characteristic

Wireless module No	JXC8720-18
Operating frequency range(s) – Tx.:	2412 – 2462 MHz for 2.4G WIFI
Operating frequency range(s) – 1x	2402 – 2480 MHz for Bluetooth
Operating frequency range(s) By:	2412 – 2462 MHz for 2.4G WIFI
Operating frequency range(s) – Rx:	2402 – 2480 MHz for Bluetooth
Type of Modulation:	WLAN 2.4GHz: IEEE 802.11b: DSSS (CCK, QPSK, BPSK); IEEE 802.11g: OFDM (BPSK, QPSK, 16QAM, 64QAM); IEEE 802.11n HT20: OFDM (BPSK, QPSK, 16QAM, 64QAM) Bluetooth LE:GFSK
Antenna type:	Integrate antenna
Antenna gain:	0.5 dBi
Operation temperature range	-20 − 40 °C

#### Antenna List

Ante	nna Model No.			N/A							
Ante	nna Manufactu	rer		N/A	N/A						
Ante	nna Delivery				☐ 1*TX+1*RX ☐ 2*TX+2*RX ☐ 3*TX+3*RX						
Ante	nna Technolog	у		$\boxtimes$	SISO						
							Basic methodology				
					MIMO		Sectorized antenna systems				
							Cross-polarized antennas				
							Unequal antenna gains, with equal transmit powers				
							Spatial Multiplexing				
							Cyclic Delay Diversity (CDD)				
Ante	nna Type			Integrate antenna							
Ante	nna Gain										
Antonno Toobnology			Ant Gain(eth1)								
Antenna Technology			(dBi)								
	eleo	$\boxtimes$	Ant1				0.5				
	SISO		Ant2		·		-				

The radio module (Bluetooth) operating channels are:

BLE:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	14	2430	28	2458
1	2404	15	2432	29	2460
2	2406	16	2434	30	2462
3	2408	17	2436	31	2464
4	2410	18	2438	32	2466
5	2412	19	2440	33	2468
6	2414	20	2442	34	2470

Report no.: 4923809.50 Page 7 / 57

#### DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



7	2416	21	2444	35	2472
8	2418	22	2446	36	2474
9	2420	23	2448	37	2476
10	2422	24	2450	38	2478
11	2424	25	2452	39	2480
12	2426	26	2454	-	-
13	2428	27	2456	-	-

## The WIFI mode operating channels are:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2412	7	2447
1	2417	8	2452
2	2422	9	2457
3	2427	10	2462
4	2432	-	-
5	2437	-	-
6	2442	-	-

Report no.: 4923809.50 Page 8 / 57

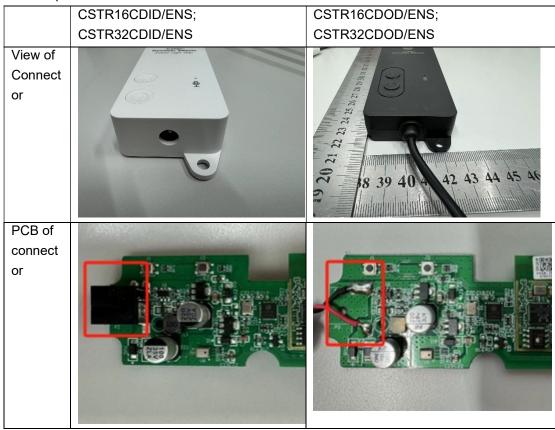


#### Intended use of the Equipment Under Test (EUT)

The apparatus as supplied for the test is Cync dynamic effect indoor strip which intended for residential use, the product contains electronic circuitry and without earth connection. It contains a Wireless module, so it would be controlled by other Wi-Fi devices through APPs.

Based on customer description,

- 1, models CSTR16CDID/ENS, CSTR32CDID/ENS are identical except for the length of the LED strip(5m for model CSTR16CDID/ENS, 10m for model CSTR32CDID/ENS).
- 2, Models CSTR16CDOD/ENS, CSTR32CDOD/ENS are identical except for the length of the LED strip(5m for model CSTR16CDOD/ENS, 10m for model CSTR32CDOD/ENS).
- 3, Models: CSTR16CDOD/ENS; CSTR32CDOD/ENS and CSTR16CDID/ENS; CSTR32CDID/ENS are based on them being electrically identical except the DC connector which has not electronic components. Such as photos:



Hence, model CSTR32CDID/ENS was chosen for full test. Model CSTR32CDOD/ENS was chosen to repeat conducted emission, radiated emission(30M-1GHz) test for complaince verification.

Copy of marking plate:

Refer to document label.

Report no.: 4923809.50 Page 9 / 57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



## 1.2 Test data

	DEKRA Testing and Certification (Shanghai) Ltd.				
Test Location	Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China				
	FCC Designation Number: CN1324;				
Date of receipt of test item	2024-07-22				
Date (s) of performance of tests	2024-07-22 to 2024-08-02				
	Normal sample: CSTR32CDID/ENS (lab no.4918539-1)				
Toot comple	Normal sample: CSTR32CDOD/ENS (lab no.4923809-1)				
Test sample	RF conducted sample: CSTR32CDID/ENS (lab no.4918539-2)				
	RF radiated sample: CSTR32CDID/ENS (lab no.4918539-3)				

## 1.3 The environment(s) in which the EUT is intended to be used

The equipment under test (EUT) is intended to be used in the following environment(s):

$\boxtimes$	Residential (domestic) environment.
$\boxtimes$	Commercial and light-industrial environment.
	Industrial environment.

Report no.: 4923809.50 Page 10 / 57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 https://www.dekra.com



#### 2 **DESCRIPTION OF TEST SETUP**

## 2.1 Operating mode(s) used for tests

During the tests the following operating mode(s) has(have) been used.

Operating	Operating mode description	Used for methos					
mode	Operating mode description	Conducted	Radiated				
1	Transmitting at 1 Mbit/s,	$\boxtimes$	$\boxtimes$				
2	LED 4000K on mode; Supply power by AC/DC adaptor	$\boxtimes$	$\boxtimes$				
3							
4							
Supplemen	Supplemental information:						

## 2.2 Support / Auxiliary equipment / unit / software for the EUT

The EUT has been tested with the following auxiliary equipment / unit / software:

Auxiliary equipment / unit / software	Type / Version	Manufacturer	Supplied by
Laptop	Latitude 5488	DELL	DEKRA
AmebaZ2_mptool_1V3 (soft ware)	-	-	Client
Realtek Bluetooth MP Kit Setup Package (soft ware)	-	-	Client
Adaptor1 Name: CLASS 2 POWER UNIT	XY24SR- 240100VQ-UW	GE Lighting, a Savant Company / XING YUAN ELETRONICS CO.,LTD	Client
Adaptor2 Name: CLASS 2 POWER UNIT	XY24SR- 240100VQ-ZP	GE Lighting, a Savant Company / XING YUAN ELETRONICS CO.,LTD	Client
Supplemental information:		,	

## 2.3 Test Configuration / Block diagram used for tests

Refer to Annex 3.

## 2.4 Measurement procedure

The EUT was controlled by a serial PCB(TUYA) which provided by test lab which connected to laptop through the com port. After connected, run the software "Realtek Bluetooth MP Kit Setup Package" supplied by manufacturer to control the EUT work in required test mode as below table.

RF Mode	Set_channel(MHz)	Set_power in software		
	2402	0x2a		
BLE_1M	2440	0x2a		
	2480	0x2a		

Report no.: 4923809.50 Page 11 / 57



## 3 **VERDICT SUMMARY SECTION**

This chapter presents an overview of standards and results. Refer to the next chapters for details of measured test results and applied test levels.

#### 3.1 Standards

Standard	Year	Description
FCC CFR Title 47 Part 15	2022	Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and
Subpart C Section 15.247		5725–5850 MHz.
KDB 558074 D01 v05r02	2019	Guidance for performing compliance measurements on Digital
		Transmission System (DTS) operating under section 15.247
ANSI C63.10	2013	American National Standard of Procedures for Compliance Testing
		of Unlicensed Wireless Devices

## 3.2 Deviation(s) from the Standard(s) / Test Specification(s)

The following deviation(s) was / were made from the published requirements of the listed standards: N/A.

#### 3.3 Overview of results

FCC measurement			
Requirement – Test case	Basic standard(s)	Verdict	Remark
AC Power Line Conducted Emission	FCC 15.207	PASS	
Emissions in non-restricted frequency bands	FCC 15.247(d), FCC 15.209	PASS	
Emissions in restricted frequency bands	FCC 15.247(b)(3)	PASS	
Duty cycle	ANSI C63.10:2013	PASS	
Band Edge	FCC 15.247(d)	PASS	
Fundamental emission output power	FCC 15.247(d), FCC 15.209	PASS	
DTS Bandwidth	FCC 15.247(a)(2)	PASS	
Power Spectral Density	FCC 15.247(e)	PASS	
Antenna Requirement	FCC 15.203	PASS	
Supplementary information:	1.00.10.200		

The measurement result is considered in conformance with the requirement if it is within the prescribed limit, It is not necessary to calculate the uncertainty associated with the measurement result.

Report no.: 4923809.50 Page 12 / 57



## 4 TRANSMITTER TEST RESULTS

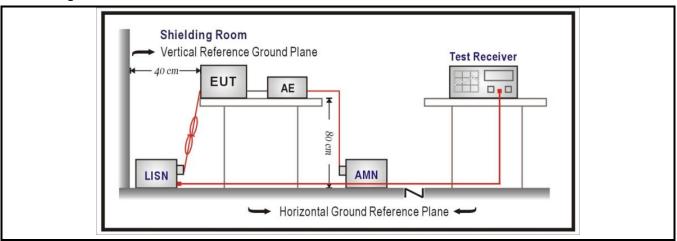
## 4.1 AC Power Line Conducted Emission VERDICT: PASS

#### Limits

FCC Part 15 Subpart C Paragraph 15.207								
Frequency range [MHz]	Limit: QP [dB(μV) <sup>1)</sup> ]	Limit: AV [dB(μV) <sup>1)</sup> ]	IF BW	Detector(s)				
0,15 - 0,50	66 – 56 <sup>2)</sup>	56 - 46 <sup>2)</sup>	9 KHz	QP, AV				
0,50 - 5,0	56	46	9 KHz	QP, AV				
5,0 - 30	60	50	9 KHz	QP, AV				

<sup>&</sup>lt;sup>1)</sup> At the transition frequency, the lower limit applies.

#### **Test Configuration**



## **Performed measurements**

				_							
Port under test			Terminal								
$\boxtimes$	AC mains input power			$\boxtimes$	N	$\boxtimes$	L1		L2		L3
	DC input power			☐ Positive (+) ☐ Negative (-)					1		
Test	method applied		Artificial mains net	work							
			Voltage probe								
Test	Test setup		Table top	Artificial hand applied							
			Floor standing	Other:							
	Refer to th		to the Annex 2 for	test se	tup photo	(s).					
Oper	Operating mode(s) used Mode 2										
	ment condition perature; humidiry)	23,0 °C; 45,0 %									
Rema	ark	-									

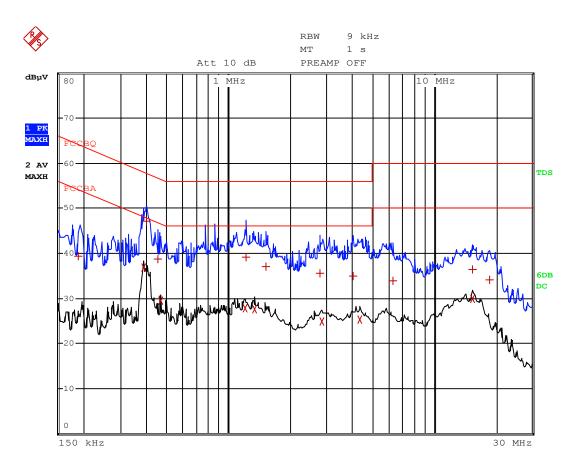
Report no.: 4923809.50 Page 13 / 57

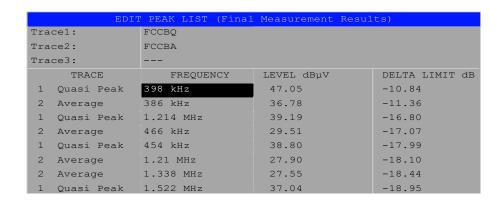
<sup>&</sup>lt;sup>2)</sup> The limit decreases linearly with the logarithm of the frequency.



Model	CSTR32CDID/ENS with adaptor 1#
Operation Mode (worst case)	Mode 2
Test voltage	120 Vac, 60 Hz

## Results Live





#### Remarks:

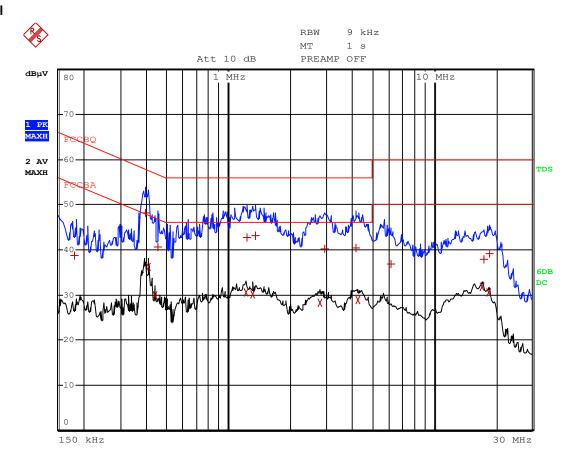
- 1) Level (final measurement) = received value + transducer (Lisn+cable)
- 2) Delta = Level Limit

No other significant emissions were measured at the frequency range of interest employing both the QP and AV detectors.

Report no.: 4923809.50 Page 14 / 57



#### Neutral



EDIT	PEAK LIST (Final	Measurement Resul	ts)
Trace1:	FCCBQ		
Trace2:	FCCBA		
Trace3:			
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Quasi Peak	394 kHz	48.10	-9.87
2 Average	406 kHz	36.22	-11.50
1 Quasi Peak	1.35 MHz	43.09	-12.90
1 Quasi Peak	1.23 MHz	42.82	-13.17
2 Average	1.222 MHz	30.44	-15.55
1 Quasi Peak	4.19 MHz	40.36	-15.64
1 Quasi Peak	2.93 MHz	40.24	-15.75
2 Average	1.306 MHz	30.13	-15.86
1 Quasi Peak	450 kHz	40.55	-16.32
2 Average	4.246 MHz	28.80	-17.19
2 Average	438 kHz	29.84	-17.25

#### Remarks:

- 1) Level (final measurement) = received value + transducer (Lisn+cable)
- 2) Delta = Level Limit

No other significant emissions were measured at the frequency range of interest employing both the QP and AV detectors.

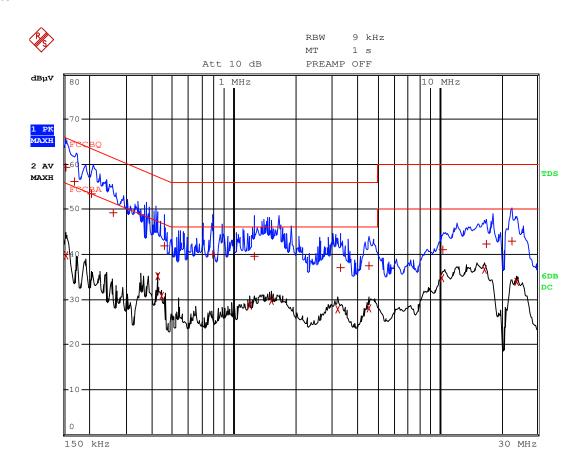
Report no.: 4923809.50 Page 15 / 57

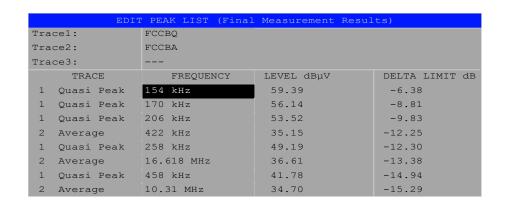


Model	CSTR32CDOD/ENS with adaptor 2#
Operation Mode (worst case)	Mode 2
Test voltage	120 Vac, 60 Hz

#### Results

#### Live





#### Remarks:

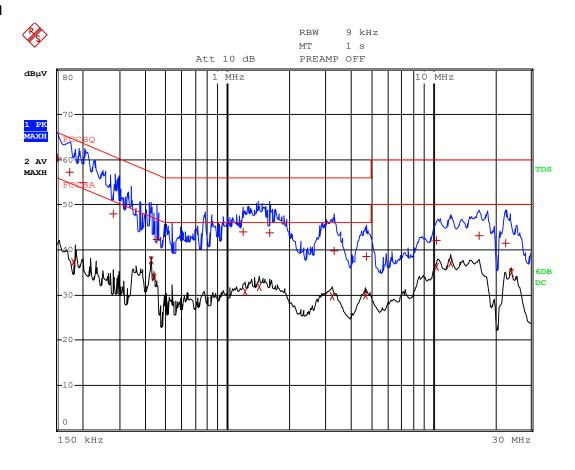
- 1) Level (final measurement) = received value + transducer (Lisn+cable)
- 2) Delta = Level Limit

No other significant emissions were measured at the frequency range of interest employing both the QP and AV detectors.

Report no.: 4923809.50 Page 16 / 57



#### Neutral



	EDI	r PEAK LIST (Final	Measurement Resul	ts)
Tra	ace1:	FCCBQ		
Tra	ace2:	FCCBA		
Tra	ace3:			
	TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Quasi Peak	150 kHz	60.34	-5.65
1	Quasi Peak	174 kHz	57.31	-7.45
1	Quasi Peak	202 kHz	54.97	-8.55
2	Average	422 kHz	37.77	-9.63
1	Quasi Peak	1.198 MHz	43.94	-12.05
1	Quasi Peak	1.598 MHz	43.79	-12.20
1	Quasi Peak	282 kHz	48.03	-12.72
2	Average	12.19 MHz	36.97	-13.02
2	Average	438 kHz	33.88	-13.21
2	Average	10.394 MHz	36.12	-13.87
2	Average	1.43 MHz	31.87	-14.12
1	Quasi Peak	454 kHz	42.25	-14.54

#### Remarks:

- 1) Level (final measurement) = received value + transducer (Lisn+cable)
- 2) Delta = Level Limit

No other significant emissions were measured at the frequency range of interest employing both the QP and AV detectors.

Report no.: 4923809.50 Page 17 / 57



## 4.2 Emissions in non-restricted frequency bands VERDICT: PASS

Emissions Limit 15.209(a	a)		
Frequency (MHz)	Field strength (μV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 <sub>(Note 1)</sub>
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 <sub>(Note 1)</sub>
1.705 - 30	30	29.5	30 <sub>(Note 1)</sub>
30 - 88	100	40	3 <sub>(Note 2)</sub>
88 - 216	150	43.5	3 <sub>(Note 2)</sub>
216 - 960	200	46	3(Note 2)
Above 960	500	54	3(Note 2)

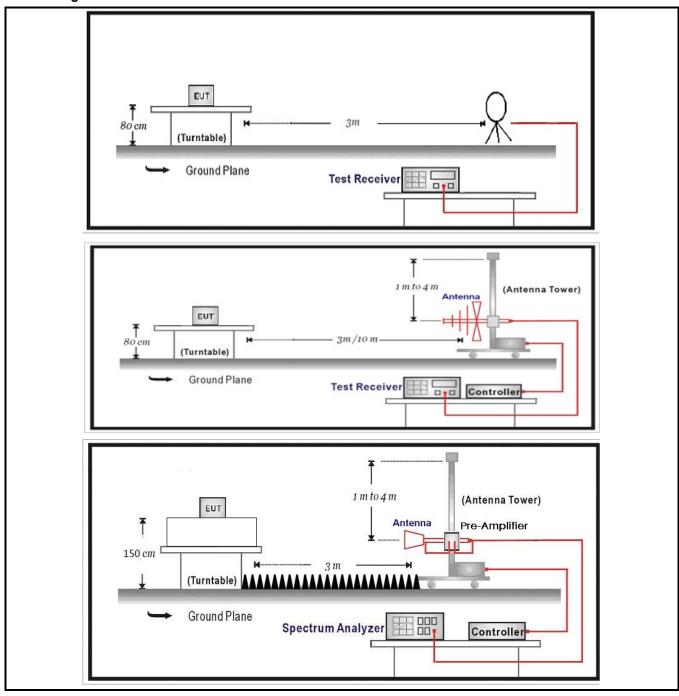
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

Report no.: 4923809.50 Page 18 / 57



## **Test Configuration**



Report no.: 4923809.50 Page 19 / 57

#### DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



## **Performed measurements**

Port under test	Enclosure port		
Test method applied	☐ Conducted measurement		
	Radiated measurement		
Test setup	Refer to the Annex 3 for test setup photo(s).		
Operating mode(s) used	Mode 1-2		
	1)The test frequency range, 9kHz~30MHz, 18GHz~26GHz, both of the worst		
	case are at least 20dB below the limits, therefore no data appear in the report.		
Remark			
	2)The EUT are tested in three orientations. The record is the worst orientation		
	which refer to the Annex 3 for test setup photo(s).		

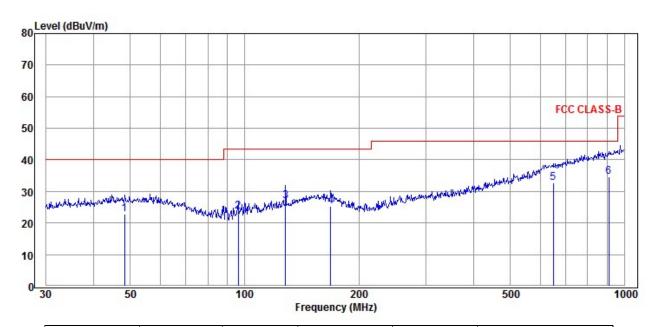
Report no.: 4923809.50 Page 20 / 57



## Results of 30 - 1000 MHz

Model	CSTR32CDID/ENS with adaptor 1#
Operation Mode	Mode 2 (worst case)
Test voltage	120Vac

## Results Horizontal



Freq (MHz)	Reading (dBuV)	C.F (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin=limit-result (dB)
48.33	2.33	20.51	22.84	40.00	17.16
96.10	8.12	15.50	23.62	43.50	19.88
128.11	7.87	19.14	27.01	43.50	16.49
168.41	4.49	20.79	25.28	43.50	18.22
649.66	2.73	29.94	32.67	46.00	13.33
909.67	1.04	33.64	34.68	46.00	11.32

#### Remarks:

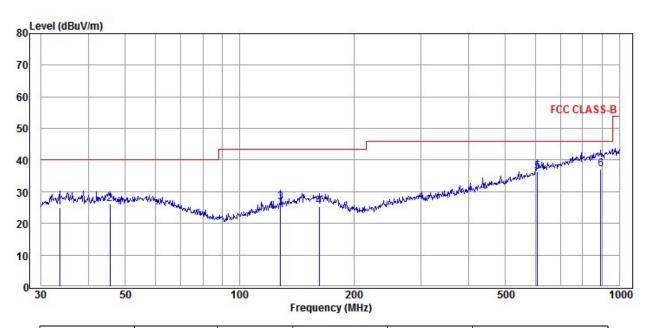
- 1) C.F (Correction Factor) = Antenna factor + Cable loss Preamp gain
- 2) Result = Reading + C.F (Correction Factor)

No other significant emissions were measured at the frequency range of interest employing the QP detectors.

Report no.: 4923809.50 Page 21 / 57



#### **Vertical**



Freq (MHz)	Reading (dBuV)	C.F (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin=limit-result (dB)
33.56	6.01	19.12	25.13	40.00	14.87
45.54	5.62	20.39	26.01	40.00	13.99
128.11	7.46	19.14	26.60	43.50	16.90
162.04	4.26	21.09	25.35	43.50	18.15
607.79	6.73	29.46	36.19	46.00	9.81
893.86	3.58	33.50	37.08	46.00	8.92

#### Remarks:

- 1) C.F (Correction Factor) = Antenna factor + Cable loss Preamp gain
- 2) Result = Reading + C.F (Correction Factor)

No other significant emissions were measured at the frequency range of interest employing the QP detectors.

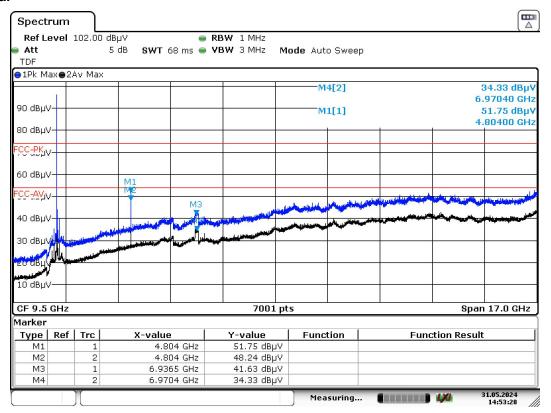
Report no.: 4923809.50 Page 22 / 57



#### Results of 1 - 18 GHz

Model	CSTR32CDID/ENS with adaptor 1#
Operation Mode (worst case)	Mode 1 @2402 MHz
Test voltage	120Vac

## Results Horizontal



Date: 31.MAY.2024 14:53:29

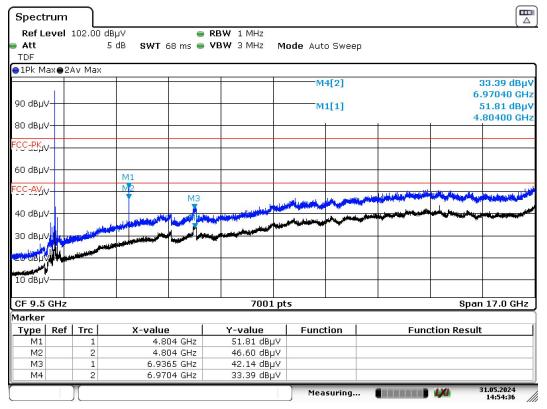
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Report no.: 4923809.50 Page 23 / 57



#### **Vertical**



Date: 31.MAY.2024 14:54:36

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

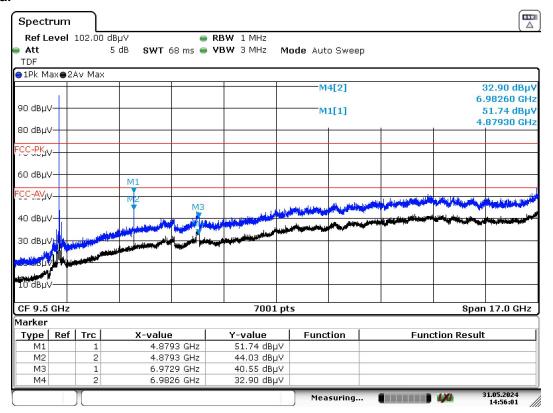
No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Report no.: 4923809.50 Page 24 / 57



Model	CSTR32CDID/ENS with adaptor 1#
Operation Mode (worst case)	Mode 1 @2440 MHz
Test voltage	120Vac

## Results Horizontal



Date: 31.MAY.2024 14:56:01

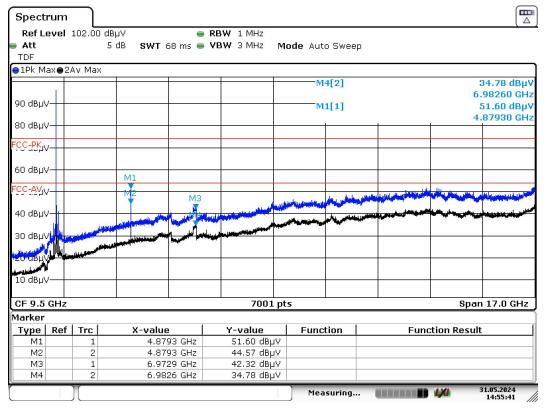
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Report no.: 4923809.50 Page 25 / 57



#### **Vertical**



Date: 31.MAY.2024 14:55:41

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

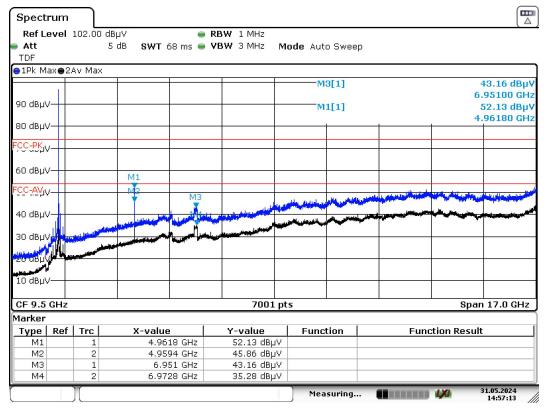
No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Report no.: 4923809.50 Page 26 / 57



Model	CSTR32CDID/ENS with adaptor 1#
Operation Mode (worst case)	Mode 1 @2480 MHz
Test voltage	120Vac

## Results Horizontal



Date: 31.MAY.2024 14:57:14

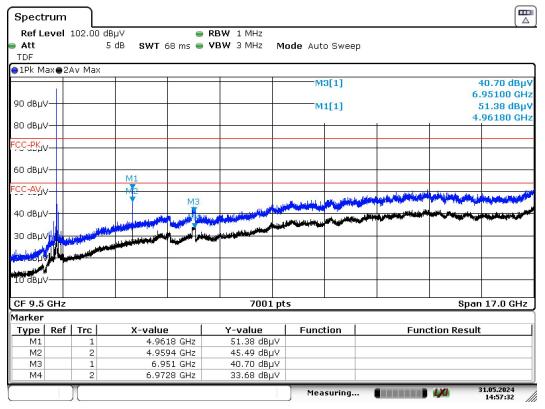
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Report no.: 4923809.50 Page 27 / 57



#### **Vertical**



Date: 31.MAY.2024 14:57:32

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

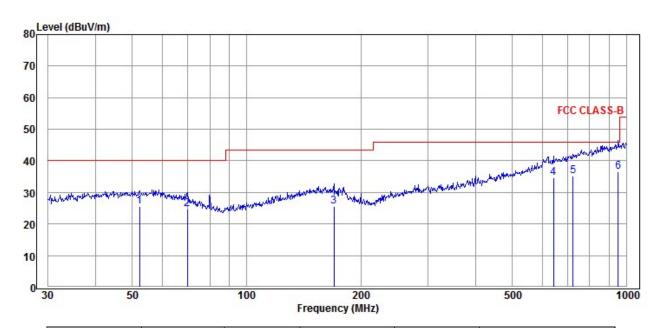
Report no.: 4923809.50 Page 28 / 57



#### Results of 30 - 1000 MHz

Model	CSTR32CDOD/ENSBLE with adaptor 2#
Operation Mode	Mode 2 (worst case)
Test voltage	120Vac

## Results Horizontal



Freq (MHz)	Reading (dBuV)	C.F (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin=limit-result (dB)
52.21	5.13	20.52	25.65	40.00	14.35
69.85	6.39	18.48	24.87	40.00	15.13
169.60	4.95	20.70	25.65	43.50	17.85
642.86	4.62	29.92	34.54	46.00	11.46
724.26	3.86	31.19	35.05	46.00	10.95
952.09	2.43	34.10	36.53	46.00	9.47

## Remarks:

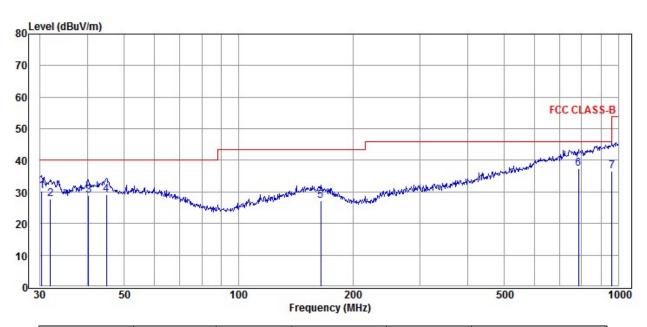
- 1) C.F (Correction Factor) = Antenna factor + Cable loss Preamp gain
- 2) Result = Reading + C.F (Correction Factor)

No other significant emissions were measured at the frequency range of interest employing the QP detectors.

Report no.: 4923809.50 Page 29 / 57



#### **Vertical**



Freq (MHz)	Reading (dBuV)	C.F (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin=limit-result (dB)
30.32	11.67	18.46	30.13	40.00	9.87
31.96	8.95	18.82	27.77	40.00	12.23
40.28	8.97	19.95	28.92	40.00	11.08
44.90	8.91	20.36	29.27	40.00	10.73
164.33	6.10	21.04	27.14	43.50	16.36
785.09	5.28	32.15	37.43	46.00	8.57
962.16	2.35	34.24	36.59	54.00	17.41

#### Remarks:

- 1) C.F (Correction Factor) = Antenna factor + Cable loss Preamp gain
- 2) Result = Reading + C.F (Correction Factor)

No other significant emissions were measured at the frequency range of interest employing the QP detectors.

Report no.: 4923809.50 Page 30 / 57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



## 4.3 Emissions in restricted frequency bands VERDICT: PASS

Restricted Bands of oper	ation of FCC		
Frequency	Frequency	Frequency	Frequency
(MHz)	(MHz)	(MHz)	(GHz)
0.090 - 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 - 0.505	16.69475 –16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 - 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 - 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 - 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 - 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 - 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 - 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975-12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675-12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			
Restricted Bands of oper	ation for IC		
0.090 - 0.110	13.36 - 13.41	960 - 1427	9.0 - 9.2
0.495 - 0.505	16.42 - 16.423	1435 - 1626.5	9.3 - 9.5
2.1735 - 2.1905	16.69475 - 16.69525	1645.5 - 1646.5	10.6 - 12.7
3.020 - 3.026	16.80425 - 16.80475	1660 - 1710	13.25 - 13.4
4.125 - 4.128	25.5 - 25.67	1718.8 - 1722.2	14.47 - 14.5
4.17725 - 4.17775	37.5 - 38.25	2200 - 2300	15.35 - 16.2
4.20725 - 4.20775	73 - 74.6	2310 - 2390	17.7 - 21.4
5.677 - 5.683	74.8 - 75.2	2483.5 - 2500	22.01 - 23.12
6.215 - 6.218	108 - 138	2655 - 2900	23.6 - 24.0
6.26775 - 6.26825	149.9 - 150.05	3260 - 3267	31.2 - 31.8
6.31175 - 6.31225	156.52475 - 156.52525	3332 - 3339	36.43 - 36.5
8.291 - 8.294	156.7 - 156.9	3345.8 - 3358	Above 38.6
8.362 - 8.366	162.0125 - 167.17	3500 - 4400	
8.37625 - 8.38675	167.72 - 173.2	4500 - 5150	
8.41425 - 8.41475	240 - 285	5350 - 5460	
12.29 - 12.293	322 - 335.4	7250 - 7750	
12.51975 - 12.52025	399.9 - 410	8025 - 8500	
12.57675 - 12.57725	608 - 614		

Report no.: 4923809.50 Page 31 / 57

#### DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 https://www.dekra.com

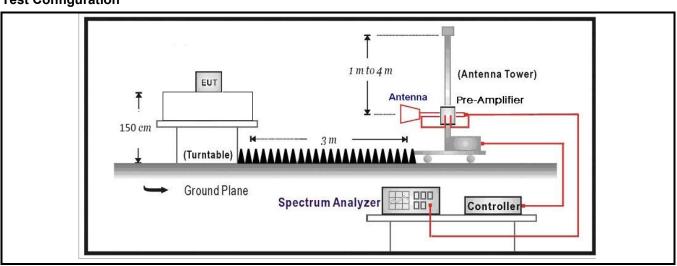


Restricted Band Emission	ns Limit		
Frequency (MHz)	Field strength (μV/m)	Field strength (dBµV/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 <sub>(Note 1)</sub>
1.705 - 30	30	29.5	30 <sub>(Note 1)</sub>
30 - 88	100	40	3 <sub>(Note 2)</sub>
88 - 216	150	43.5	3(Note 2)
216 - 960	200	46	<b>3</b> (Note 2)
Above 960	500	54	<b>3</b> (Note 2)

Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

#### **Test Configuration**



Report no.: 4923809.50 Page 32 / 57

#### DEKRA Testing and Certification (Shanghai) Ltd. Guangzhou Branch

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



## **Performed measurements**

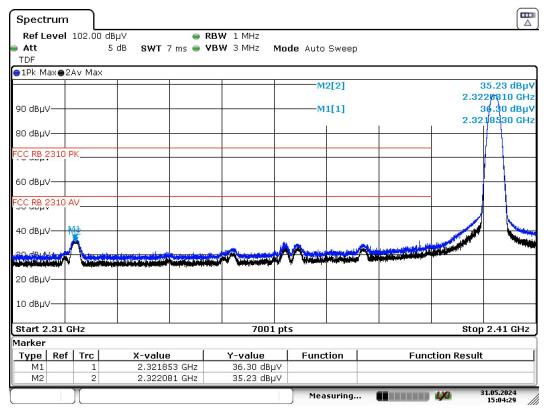
Port under test	Enclosure port	
Test method applied		Conducted measurement
	$\boxtimes$	Radiated measurement
Test setup	Refer to the Annex 3 for test setup photo(s).	
Operating mode(s) used	Mode 1-2	
Remark		

Report no.: 4923809.50 Page 33 / 57



Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 2 @2402 MHz
Test voltage	120Vac

## Results Horizontal



Date: 31.MAY.2024 15:04:30

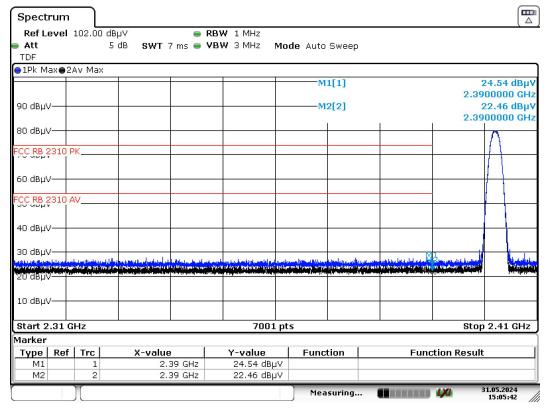
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Report no.: 4923809.50 Page 34 / 57



#### **Vertical**



Date: 31.MAY.2024 15:05:43

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

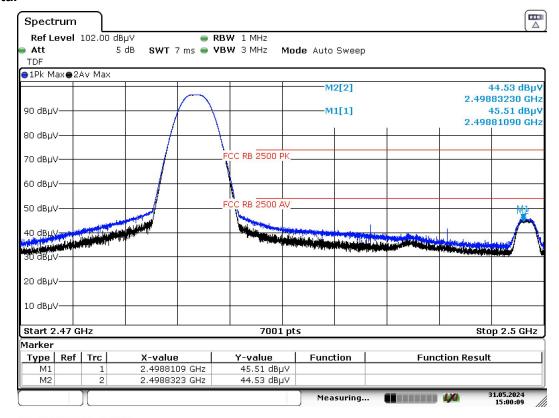
No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Report no.: 4923809.50 Page 35 / 57



Model	CSTR32CDID/ENS
Operation Mode (worst case)	Mode 2 @2480 MHz
Test voltage	5Vdc

## Results Horizontal



Date: 31.MAY.2024 15:00:09

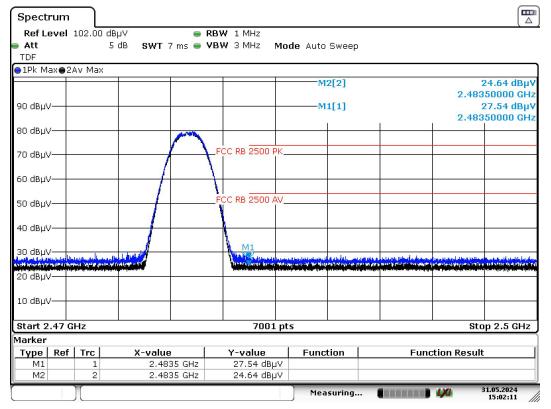
Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Report no.: 4923809.50 Page 36 / 57



#### **Vertical**



Date: 31.MAY.2024 15:02:11

Remarks: Y-Value = received value + Correction Factor (Antenna factor + Cable loss - Preamp gain)

No other significant emissions were measured at the frequency range of interest employing the PK and AV detectors.

Report no.: 4923809.50 Page 37 / 57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 https://www.dekra.com



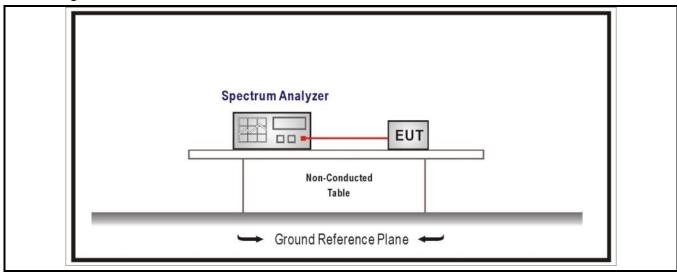
# 4.4 Band Edge VERDICT: PASS

Standard	FCC Part 15 Subpart C Parag	raph 15.247(d)
RF Output power (	Detection methods)	Limit(dB)
RF Output power(	(Average detector)	30dBc(Note1)
RF Output pow	er(PK detector)	20dBc(Note2)

Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at by LEast 30 dB relative to the maximum in-band peak PSD by LEvel in 100 kHz (i.e., 30 dBc).

Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at by least 20 dB relative to the maximum in-band peak PSD by level in 100 kHz (i.e., 20 dBc).

#### **Test Configuration**



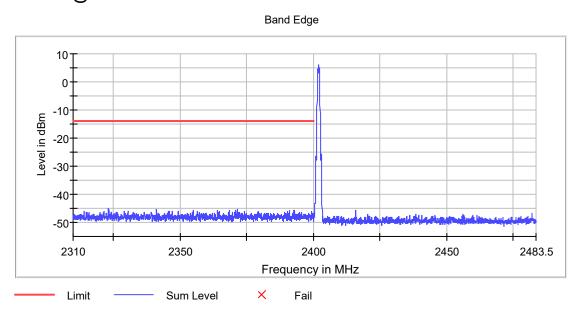
#### **Performed measurements**

Port under test	Ante	Antenna port		
Test method applied				
		Radiated measurement		
Test setup	Refe	Refer to the Annex 3 for test setup photo(s).		
Operating mode(s) used	Mode	Mode 1		
Remark				

Report no.: 4923809.50 Page 38 / 57



## Result of mode1 @2402 MHz



#### **Inband Peak**

Frequency	Level
(MHz)	(dBm)
2402.0000	6

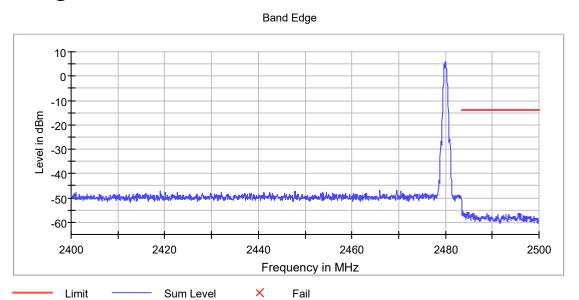
#### Measurements

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2323.325000	-45.0	31.0	-14.0	PASS
2341.325000	-45.5	31.4	-14.0	PASS
2341.275000	-45.5	31.5	-14.0	PASS
2371.425000	-45.5	31.5	-14.0	PASS
2368.625000	-45.6	31.5	-14.0	PASS
2370.975000	-45.6	31.5	-14.0	PASS
2323.275000	-45.6	31.6	-14.0	PASS
2370.925000	-45.7	31.6	-14.0	PASS
2391.025000	-45.7	31.6	-14.0	PASS
2368.575000	-45.7	31.7	-14.0	PASS
2392.825000	-45.7	31.7	-14.0	PASS
2323.375000	-45.8	31.7	-14.0	PASS
2391.075000	-45.8	31.7	-14.0	PASS
2392.775000	-45.8	31.8	-14.0	PASS
2355.075000	-45.8	31.8	-14.0	PASS

Report no.: 4923809.50 Page 39 / 57



## Result mode1 @2480 MHz



#### **Inband Peak**

Frequency	Level
(MHz)	(dBm)
2480.0000	6.0

#### Measurements

Frequency	Level	Margin	Limit	Result
(MHz)	(dBm)	(dB)	(dBm)	
2483.775000	-55.7	41.7	-14.0	PASS
2483.725000	-55.8	41.8	-14.0	PASS
2485.025000	-55.9	41.9	-14.0	PASS
2484.725000	-55.9	41.9	-14.0	PASS
2484.675000	-56.0	42.0	-14.0	PASS
2495.575000	-56.2	42.2	-14.0	PASS
2495.625000	-56.2	42.3	-14.0	PASS
2496.025000	-56.3	42.4	-14.0	PASS
2484.125000	-56.4	42.4	-14.0	PASS
2485.775000	-56.4	42.4	-14.0	PASS
2486.075000	-56.5	42.5	-14.0	PASS
2486.125000	-56.5	42.5	-14.0	PASS
2488.825000	-56.5	42.5	-14.0	PASS
2483.875000	-56.5	42.5	-14.0	PASS
2484.775000	-56.5	42.6	-14.0	PASS

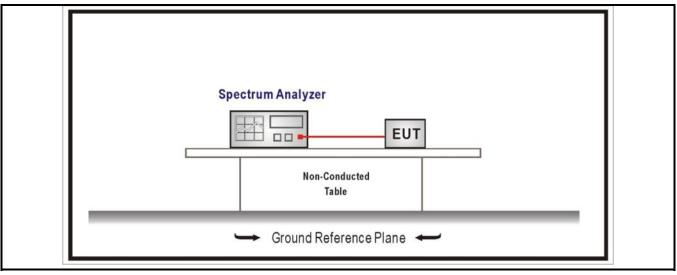
Report no.: 4923809.50 Page 40 / 57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



# 4.5 Duty cycle VERDICT: PASS

## **Test Configuration**



#### **Performed measurements**

Port under test	Antenna port			
Test method applied				
		Radiated measurement		
Test setup	Refer to the Annex 3 for test setup photo(s).			
Operating mode(s) used	Mode	Mode 1		
Remark				

Report no.: 4923809.50 Page 41 / 57

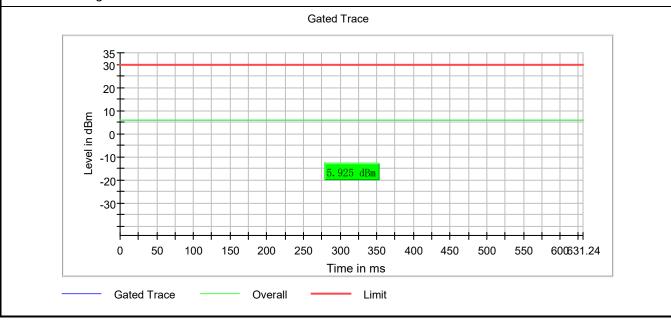
Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 https://www.dekra.com



Test Mode	Tx On (ms)	Tx On + Tx Off (ms)	Duty Cycle
Mode 1			63.324%

Note 1: T means 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.

Note 2: According to KDB 558074, when test for Radiated Emission Band Edge and Radiated Emission, for average detector set: VBW ≥ 1/T will be used.



Report no.: 4923809.50 Page 42 / 57

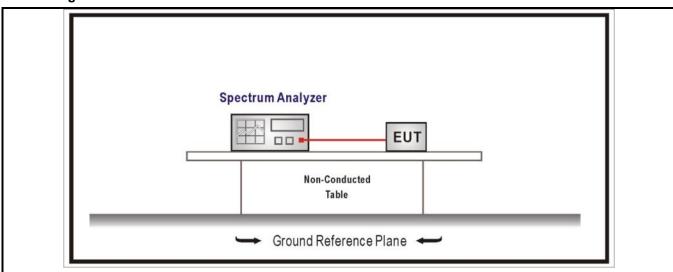


# 4.6 DTS Bandwidth VERDICT: PASS

Standard FCC Part 15 Subpart C Paragraph 15.247 (a)(2)

Systems using digital modulation techniques operate in the 2400-2483.5 MHz .The minimum 6 dB bandwidth shall be at by least 500 kHz

### **Test Configuration**



#### **Performed measurements**

Port under test	Antenna port		
Test method applied			
		Radiated measurement	
Test setup	Refer to the Annex 3 for test setup photo(s).		
Operating mode(s) used	Mode 1		
Remark			

Report no.: 4923809.50 Page 43 / 57

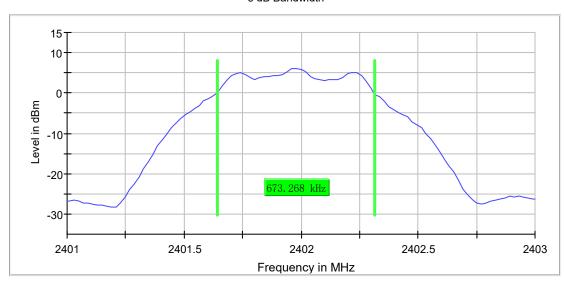


Mode	CH.	Test Freq. (MHz)	6dB Occupied Bandwidth (kHz)	Limit (kHz)	Result
	0	2402	673.268	>500	Pass
1	19	2440	673.268	>500	Pass
	39	2480	693.070	>500	Pass

## 6dB Occupied Bandwidth

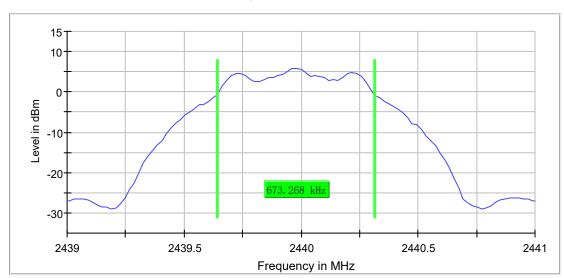
## Mode 1 / CH0 (2402MHz)

#### 6 dB Bandwidth



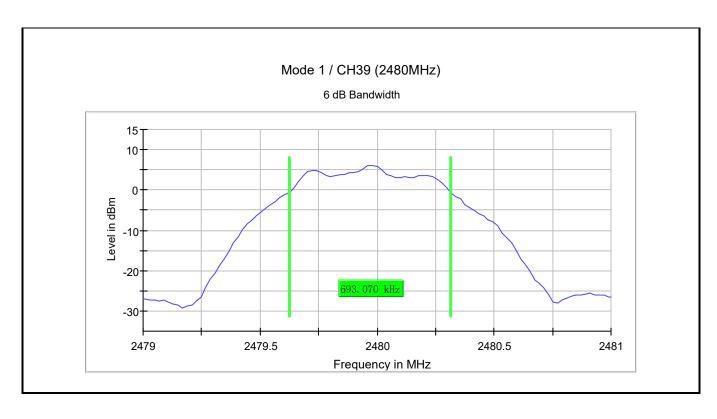
## Mode 1 / CH19 (2440MHz)

#### 6 dB Bandwidth



Report no.: 4923809.50 Page 44 / 57





Report no.: 4923809.50 Page 45 / 57

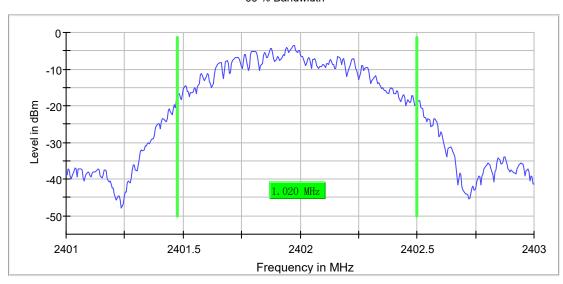


Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (MHz)	Limit	Result
	0	2402	1.020	Within frequency range	Pass
1	19	2440	1.040	Within frequency range	Pass
	39	2480	1.025	Within frequency range	Pass

## 99% Occupied Bandwidth

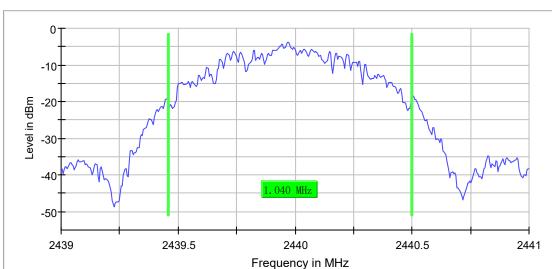
#### Mode 1 / CH0 (2402 MHz)

99 % Bandwidth



## Mode 1 / CH19 (2440 MHz)

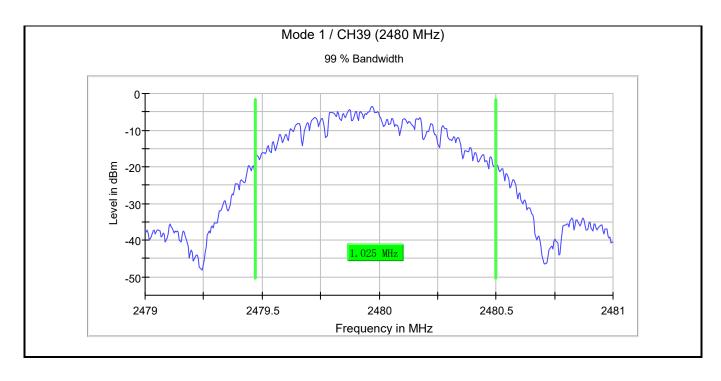
99 % Bandwidth



Report no.: 4923809.50 Page 46 / 57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>





Report no.: 4923809.50 Page 47 / 57

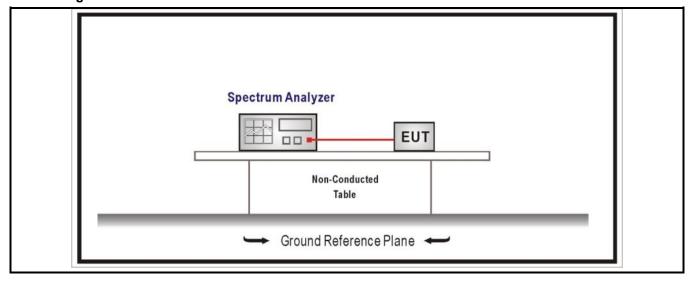
Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



# 4.7 Fundamental emission output power VERDICT: PASS

Stan	Standard FCC Pa		FCC Pa	art 15 Subpart C Paragraph 15.247 (b)(3)	
$\boxtimes$	GTX < 6dBi			Pout≤30dBm	
	GTX >	>6dBi			
		Non-Fix point-point		Pout≤30-( GTX -6)	
		Fix point-point		Pout≤30-[(GTX-6)]/3	
		Point-to-multipoint		Pout≤30-(GTX-6)	
		Overlap Beams		Pout≤30-[(GTX-6)]/3	
		Aggregate power transmitted simultaneously on all beams		Pout≤30-[(GTX-6)]/3	
	singby LE directional beam		I	Pout≤30-[(GTX-6)]/3+8dB	
	Note 1 : GTX directional gain of transmitting antennas. Note 2 : Pout is maximum peak conducted output power .				

## **Test Configuration**



#### **Performed measurements**

Port under test	Anter	Antenna port		
Test method applied	$\boxtimes$	Conducted measurement		
		Radiated measurement		
Test setup	Refe	to the Annex 3 for test setup photo(s).		
Operating mode(s) used	Mode 1			
Remark				

Report no.: 4923809.50 Page 48 / 57



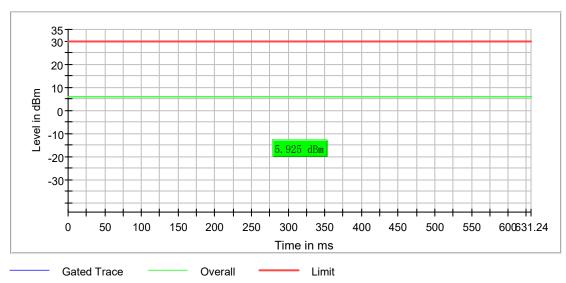
#### Results

Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm)	EIRP (dBm)	EIRP Limit (dBm)	Result
	0	2402	5.9	≤30	6.4	≤36	Pass
Mode 1	19	2440	5.7	≤30	6.2	≤36	Pass
	39	2480	5.9	≤30	6.4	≤36	Pass

Antenna gain is 0.5dBi

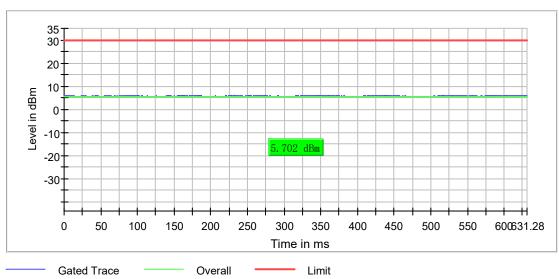
Mode 1 / CH0 (2402 MHz)





Mode 1 / CH19 (2440 MHz)

**Gated Trace** 



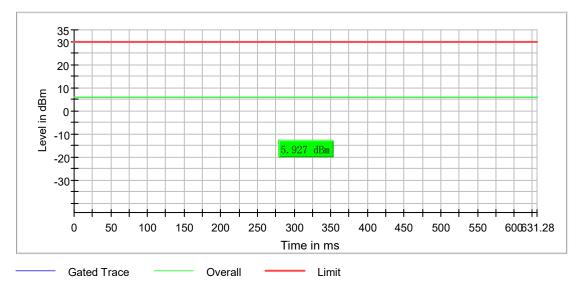
Report no.: 4923809.50 Page 49 / 57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



## Mode 1 / CH39 (2480 MHz)

#### Gated Trace



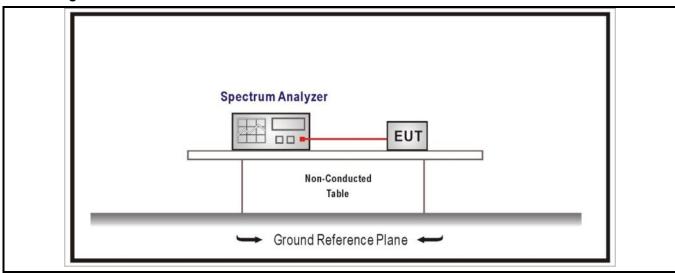
Report no.: 4923809.50 Page 50 / 57



# 4.8 Power Density VERDICT: PASS

Standard	FCC Part 15 Subpart C Paragraph 15.247 (b)(3)				
Power Spectral Density≤8dBm	/3kHz				

## **Test Configuration**



#### **Performed measurements**

Port under test	Anter	Antenna port		
Test method applied		Conducted measurement		
		Radiated measurement		
Test setup	Refe	to the Annex 3 for test setup photo(s).		
Operating mode(s) used	Mode	Mode 1		
Remark				

#### **Results**

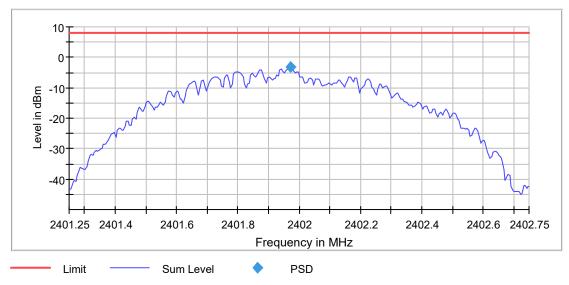
Mode	Channel	Test Frequency (MHz)	Power Output (dBm)	Limit (dBm/3kHz)	Result
	0	2402	-3.19	≤8	Pass
Mode 1	19	2440	-3.49	≤8	Pass
	39	2480	-3.16	≤8	Pass

Report no.: 4923809.50 Page 51 / 57

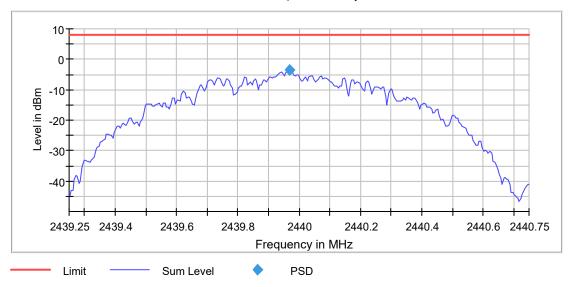


### Data of mode 1

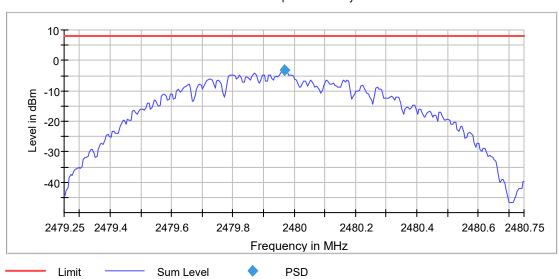
#### Peak Power Spectral Density



#### Peak Power Spectral Density



#### Peak Power Spectral Density



Report no.: 4923809.50 Page 52 / 57



## 5 **IDENTIFICATION OF THE EQUIPMENT UNDER TEST**

The photographs show the tested device.

Refer to documents External photo and Internal photo.

Report no.: 4923809.50 Page 53 / 57



## **ANNEX 1 – MEASUREMENT UNCERTAINTY**

Test Item	Uncertainty
Occupied Channel Bandwidth	±0,7%
RF Output power, conducted	±0,6dB
Power Spectral Density, Conducted	±0,6dB
Unwanted Emissions, Conducted	±0.7dB
Spurious (30-1000MHz)	±4,4dB
Spurious (1-12,75GHz)	±4,4dB

Report no.: 4923809.50 Page 54 / 57



## **ANNEX 2 - USED EQUIPMENT**

For Continuous disturbances conducted (150 kHz to 30 MHz)

Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
Shielding Room	Changzhou Feite	/	/	G/L861	2025/05/31
EMI Receiver	R&S	ESCI	101206	G/L857	2025/07/02
LISN	R&S	ENV216	101337	G/L859	2025/07/02

## For Radiated Emission (30MHz-1000MHz)

Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
3m Chamber	ETS	FACT3-2.0	CT000344-1100	G/L856	2025/06/04
EMI receiver	R&S	ESCI	101205	G/L858	2025/07/02
Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	506	G/L864	2024/12/05
Antenna (30MHz-2GHz)	SCHWARZBECK	VULB9168	01229	GZ2018	2025/03/12
CMAD	TESEQ	CMAD 20B	49023	GZ1756	2024/09/08
CMAD	TESEQ	CMAD 20B	49024	GZ1757	2024/09/08
CMAD	TESEQ	CMAD 20B	49026	GZ1758	2024/09/08
CDNE	TESEQ	M310	48706	GZ1759	2024/09/07
CDNE	TESEQ	M210	540133	GZ1906	2025/05/07
Test software	AUDIX	e3	Version 6.130520		

## For Radiated Emission (1GHz-18GHz)

Instrumentation	Manufacturer	Model No.	Serial No.	DEKRA No.	Cal. Due date
3m Chamber	ETS	FACT3-2.0	CT000344-1100	G/L856	2025/06/04
Antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2025/04/10
Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2025/02/21
Antenna (1GHz-18GHz)	SCHWARZBECK	BBHA 9120D	02408	GZ2019	2025/01/16
Horn antenna preamplifier	EMC Instruments corporation	EMC051845 SE	980778	GZ2009	2024/12/04
Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2025/01/09

Report no.: 4923809.50 Page 55 / 57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 https://www.dekra.com



## FOR RF

OK KE					
Instrumentation	Manufacturer	Model	Serial no.	DEKRA No.	Cal Due date
Spectrum analyzer	R&S	FSV	SN101012	G/L1235	2025/03/07
Chamber	ETS	1	1	G/L856	2025/06/04
Horn antenna (1GHz-18GHz)	R&S	HF907	102306	G/L1236	2025/04/10
Horn antenna preamplifier	Schwarzbeek	SCU-18	102234	G/L1236-1	2025/02/03
Horn antenna (18GHz-26.5GHz)	ETS	3160-09	00164643	G/L1237	2025/01/09
Horn antenna preamplifier	1	SCU-26D	1879064	G/L1237-1	2025/01/24
EMI receiver	R&S	ESCI	101205	G/L857	2024/07/02
Antenna	SCHWARZBECK	VULB9168	01229	GZ2018	2025/03/12
(30MHz-2GHz)					
Antenna	SCHWARZBECK	VULB9163	506	G/L864	2024/06/04
(30MHz-3GHz)					202 1,00,01
OSP	R&S	OSP 150	101907	GZ1894	2025/02/01
Signal generator	R&S	SMB 100A	181317	GZ1895	2025/02/01
Vector signal	R&S	SMBV100A	263671	GZ1896	2025/02/01
generator					
Wireless connectivity	R&S	CMW 270	100990	GZ1893	2025/02/01
tester					
Manual step	Keysight	8494B	TH60074118	GZ2086	2025/07/07
attenuator					
(11dB)					
Manual step	Keysight	8495D	TH60074471	GZ2087	2025/07/07
attenuator					
(70dB)					
Band filter	HX Microwave	HXLBQ-	23110101-2	GZ2540	2024-11-26
		DZA118			
Band filter	HX Microwave	HXLBQ-	23110101-1	GZ2541	2024-11-26
		DZA104	-		-
Band filter	HX Microwave	HXLBQ-	23080804-1	GZ2464	2024-08-29
		DZA219			
RMI artificial antenna	/	1	/	GZ1988	2025-05-14
Programmable	ASTUOD	TT-5166	52689	GZ2209	2025/05/08
Temperature &					
Humidity Chamber					
Test software	R&S	EMC32			Version
					11.30.00
					11.00.00

Report no.: 4923809.50 Page 56 / 57

Block 5, No.3, Qiyun Road, Huangpu District, Guangzhou, Guangdong, China Tel +86 20 6661 2000 Fax +86 20 6661 2001 <a href="https://www.dekra.com">https://www.dekra.com</a>



## **ANNEX 3 - TEST PHOTOS**

Refer to document Test setup.

--- END ---

Report no.: 4923809.50 Page 57 / 57