TEST REPORT FCC ID					
Test Report No. : TCT220722E905 Date of issue : Jul. 29, 2022 Testing laboratory : SHENZHEN TONGCE TESTING LAB 2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuha Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China Applicant's name : Trulyway Electronic Development Co., Ltd Address : : : : Standard(s) : : : : FCC CFR Title 47 Part 15 Subpart C Section 15.247 : : FCC CFR Title 47 Part 15 Subpart C Section 15.247 : : FCC CKDB 558074 D01 15.247 Meas Guidance v05r02 : : ANSI C63.10:2013 : : : Product Name : : : : Model/Type reference : : : : : Model/Type reference : : :			RT		
Date of issue jul. 29, 2022 Testing laboratory SHENZHEN TONGCE TESTING LAB Testing location/ address: 2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuha Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China Applicant's name Trulyway Electronic Development Co., Ltd Address 4th Floor, A Building, No. 268 of Baoshi East Road, Baoan District, Shenzhen, Guangdong, China Manufacturer's name Trulyway Electronic Development Co., Ltd Address 4th Floor, A Building, No. 268 of Baoshi East Road, Baoan District, Shenzhen, Guangdong, China FCC CFR Title 47 Part 15 Subpart C Section 15.247 FCC CFR Title 47 Part 15 Subpart C Section 15.247 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 True wireless earbuds Trade Mark Trulyway J56, J68, J100, J101, J152, X1, X2, X10, X11, X20, YX02, YX06, Y18, Y28, Y68, Y138, H8, H9, H10, PRO 3, PRO 4, 18S, 19S, VQWRENLA, VQWRENCK, DOONKYX Phoenix Rating(s) Rechargeable Li-ion Battery DC 3.7V Date of receipt of test item Jul. 22, 2022 Date of performance of test. Jun. 17, 2022 ~ Jul. 29, 2022 Tested by (+signature) Aaron MO	FCC ID	2AVIZ-J56			
Testing laboratory SHENZHEN TONGCE TESTING LAB 2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuha Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China Applicant's name Trulyway Electronic Development Co., Ltd Address : Manufacturer's name :: Trulyway Electronic Development Co., Ltd Address :: Manufacturer's name :: Trulyway Electronic Development Co., Ltd Address :: FCC CFR Title 47 Part 15 Subpart C Section 15.247 FCC CKDB 558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10:2013 Product Name :: True wireless earbuds Trade Mark :: Trulyway Model/Type reference : V38, Y38, H38, H3, H9, H10, PRO 3, PRO 4, 185, 195, VQWRENCK, DOONKYX Phoenix	Test Report No:	TCT220722E905			
2101 & 2201, Zhenchang Factory Renshan Industrial Zone, Fuha Subdistrict, Bao'an District, Shenzhen, Guangdong, 518103, People's Republic of China Applicant's name: Trulyway Electronic Development Co., Ltd Address	Date of issue:	Jul. 29, 2022			
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Address 4th Floor, A Building, No. 268 of Baoshi East Road, Baoan District, Shenzhen, Guangdong, China Manufacturer's name : Trulyway Electronic Development Co., Ltd Address : Address : Trulyway Electronic Development Co., Ltd Address : Address : Trulyway Electronic Development Co., Ltd Address : Address : Baoan District, Shenzhen, Guangdong, China 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 : True wireless earbuds Trade Mark : Trulyway Model/Type reference : Y8, Y68, Y138, H8, H9, H10, PRO 3, PRO 4, 18S, 19S, YQWRENLA, VQWRENCK, DOONKYX Phoenix Rating(s) : Rechargeable Li-ion Battery DC 3.7V Date of receipt of test item : Jul. 22, 2022 : Date (s) of performance of test. : General (s) of performance of test. : Check by (+signature) :<	Testing location/ address:	Subdistrict, Bao'an District, SI	· ·		
Address District, Shenzhen, Guangdong, China Manufacturer's name Trulyway Electronic Development Co., Ltd Address 4th Floor, A Building, No. 268 of Baoshi East Road, Baoan District, Shenzhen, Guangdong, China 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 True wireless earbuds Trade Mark Trulyway Model/Type reference J56, J68, J100, J101, J152, X1, X2, X10, X11, X20, YX02, YX06, Y18, Y28, Y68, Y138, H8, H9, H10, PRO 3, PRO 4, 18S, 19S, VQWRENLA, VQWRENCK, DOONKYX Phoenix Rating(s) Rechargeable Li-ion Battery DC 3.7V Date of receipt of test item Jul. 22, 2022 Date (s) of performance of test Jun. 17, 2022 ~ Jul. 29, 2022 Tested by (+signature) Aaron MO Check by (+signature) Beryl ZHAO	Applicant's name: :	Trulyway Electronic Developn	nent Co., Ltd		
Manufacturer's name::Trulyway Electronic Development Co., LtdAddress::4th Floor, A Building, No. 268 of Baoshi East Road, Baoan District, Shenzhen, Guangdong, ChinaStandard(s)::FCC CFR Title 47 Part 15 Subpart C Section 15.247 FCC KDB 558074 D01 15.247 Meas Guidance v05r02 ANSI C63.10:2013Product Name::True wireless earbudsTrade Mark::TrulywayModel/Type reference:J56, J68, J100, J101, J152, X1, X2, X10, X11, X20, YX02, YX06, Y18, Y28, Y68, Y138, H8, H9, H10, PRO 3, PRO 4, 18S, 19S, VQWRENLA, VQWRENCK, DOONKYX PhoenixRating(s)::Rechargeable Li-ion Battery DC 3.7VDate of receipt of test item test:Jul. 22, 2022Date (s) of performance of testJun. 17, 2022 ~ Jul. 29, 2022Tested by (+signature)::Aaron MOCheck by (+signature)Beryl ZHAO	Address:				
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Trade MarkTrulywayModel/Type referenceJ56, J68, J100, J101, J152, X1, X2, X10, X11, X20, YX02, YX06, Y18, Y28, Y68, Y138, H8, H9, H10, PRO 3, PRO 4, 18S, 19S, VQWRENLA, VQWRENCK, DOONKYX PhoenixRating(s)Rechargeable Li-ion Battery DC 3.7VDate of receipt of test item 	Standard(s) :	FCC CFR Title 47 Part 15 Subpart C Section 15.247 FCC KDB 558074 D01 15.247 Meas Guidance v05r02			
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Model/Type reference: Y18, Y28, Y68, Y138, H8, H9, H10, PRO 3, PRO 4, 18S, 19S, VQWRENLA, VQWRENCK, DOONKYX Phoenix Rating(s): Rechargeable Li-ion Battery DC 3.7V Date of receipt of test item: Jul. 22, 2022 Date (s) of performance of test:: Jun. 17, 2022 ~ Jul. 29, 2022 Tested by (+signature):: Aaron MO Check by (+signature):: Beryl ZHAO	Trade Mark:	Trulyway			
Date of receipt of test item Jul. 22, 2022 Date (s) of performance of test: Jun. 17, 2022 ~ Jul. 29, 2022 Tested by (+signature): Aaron MO Check by (+signature): Beryl ZHAO	Model/Type reference :	Y18, Y28, Y68, Y138, H8, H9	, H10, PRO 3, PRO 4, 18S, 19S,		
Jul. 22, 2022 Date (s) of performance of test	Rating(s):	Rechargeable Li-ion Battery	DC 3.7V		
test: Juli: 17, 2022 ~ Juli: 29, 2022 Tested by (+signature): Aaron MO Check by (+signature): Beryl ZHAO	Date of receipt of test item	Jul. 22, 2022			
	Date (s) of performance of test:	Jun. 17, 2022 ~ Jul. 29, 2022			
	Tested by (+signature) :	Aaron MO	Aaron No Marco		
	Check by (+signature) :	Beryl ZHAO	Boyl than the for		
	Approved by (+signature):	Tomsin	Tomsin Lats By		

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-		



1. General Product Information

1.1. EUT description

Product Name:	True wireless earbuds	
Model/Type reference:	J56	
Sample Number	TCT220617E016-0101	
Bluetooth Version:	V5.3(This report is for BDR+EDR)	
Operation Frequency:	2402MHz~2480MHz	
Transfer Rate:	1/2 Mbits/s	
Number of Channel:	79	
Modulation Type:	GFSK, π/4-DQPSK	
Modulation Technology:	FHSS	
Antenna Type:	Chip Antenna	
Antenna Gain:	1.15dBi	
Rating(s):	Rechargeable Li-ion Battery DC 3.7V	

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

No.	Model No.	Tested with
1	J56	\boxtimes
Other models	J68, J100, J101, J152, X1, X2, X10, X11, X20, YX02, YX06, Y18, Y28, Y68, Y138, H8, H9, H10, PRO 3, PRO 4, 18S, 19S, VQWRENLA, VQWRENCK, DOONKYX Phoenix	3) 🗆

Note: J56 is tested model, other models are derivative models. The models are identical in circuit and PCB layout, only different on the model names. So the test data of J56 can represent the remaining models.

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1.3. Operation Frequency

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	20	2422MHz	40	2442MHz	60	2462MHz
1	2403MHz	21	2423MHz	41	2443MHz	61	2463MHz
Ø	0	D	🖉	Ð	X	<i>D</i>	
10	2412MHz	30	2432MHz	50	2452MHz	70	2472MHz
11	2413MHz	31	2433MHz	51	2453MHz	71	2473MHz
	<u>(</u> 0)		<u>(</u>)		<u>(</u>)		<u>(</u> ()
18	2420MHz	38	2440MHz	58	2460MHz	78	2480MHz
19	2421MHz	39	2441MHz	59	2461MHz		-
Remark: mode.	Channel 0, 3	9 & 78 ha	ave been te	sted for G	FSK, π/4-D	QPSK m	odulation



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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)(1)	PASS
20dB Occupied Bandwidth	§15.247 (a)(1)	PASS
Carrier Frequencies Separation	§15.247 (a)(1)	PASS
Hopping Channel Number	§15.247 (a)(1)	PASS
Dwell Time	§15.247 (a)(1)	PASS
Radiated Emission	§15.205/§15.209	PASS
Band Edge	§15.247(d)	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.

3. General Information

3.1. Test environment and mode

Operating Environment:							
Condition Conducted Emission Radiated Emission							
Temperature:	25.3 °C 25 °C						
Humidity:	56 % RH 55 % RH						
Atmospheric Pressure:	1010 mbar 1010 mbar						
Test Software:							
Software Information: FCC Assist 1.0.1.2							
Power Level: 10							
Test Mode:							
Engineering mode: Keep the EUT in continuous transmitting by select channel and modulations with Fully-charged battery							
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. DH1 DH3 DH5 all have been tested, only worse case DH1 is reported.							

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.

Adapter JD-050200 2012010907576735 / JD	Equipment	Model No.	Serial No.	FCC ID	Trade Name
	Adapter	JD-050200	2012010907576735	1	JD

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, 20dB Occupied Bandwidth, Carrier Frequencies Separation, Hopping Channel Number, Dwell Time, 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

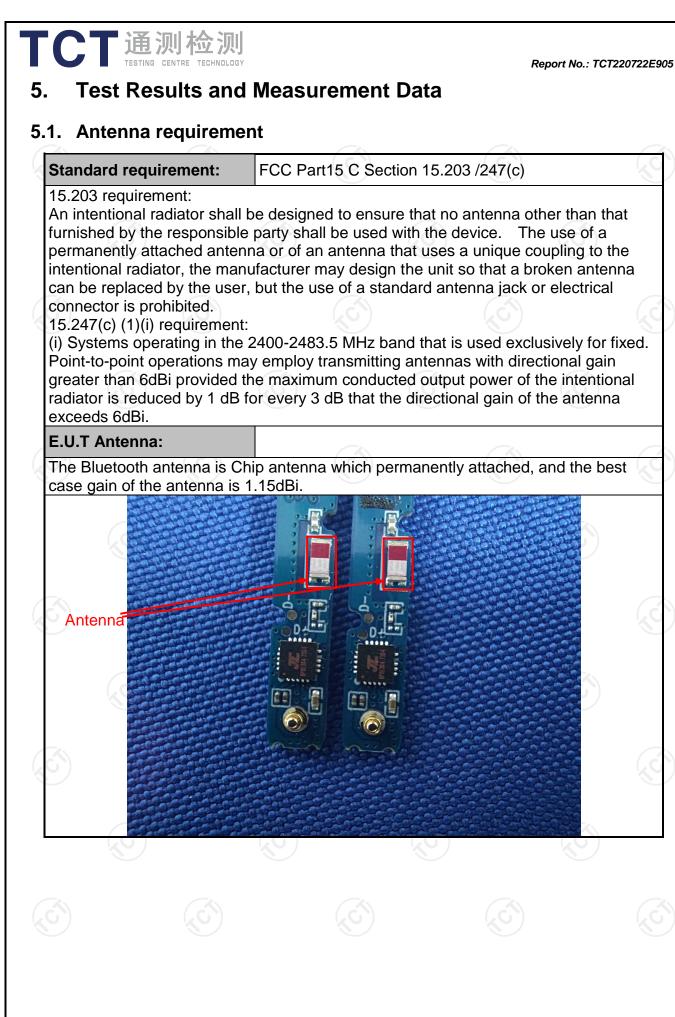
SHENZHEN TONGCE TESTING LAB

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





5.2. Conducted Emission

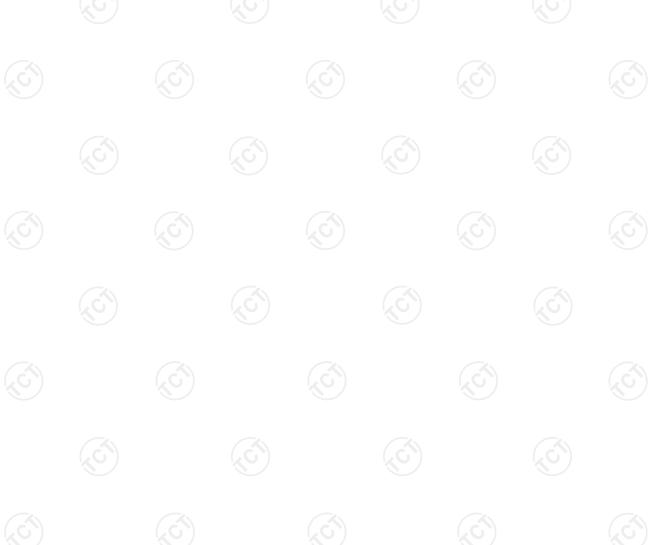
5.2.1. Test Specification

			(
Test Requirement:	FCC Part15 C Section 15.207						
Test Method:	ANSI C63.10:2013						
Frequency Range:	150 kHz to 30 MHz	(C)	$\langle \zeta \rangle$				
Receiver setup:	RBW=9 kHz, VBW=30	kHz, Sweep time	e=auto				
	Frequency range	Limit (dBuV)				
	(MHz)	Quasi-peak	Áverage				
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:	40cm 80cm Filter AC power Filter AC power Filter AC power ENI EMI Remark EU.T: Equipment Under Test LISN: Line Impedence Stabilization Network Test table height=0.8m						
Test Mode:	Charging + Transmitting Mode						
Test Procedure:	 The E.U.T is connering edance stabilizing provides a 500hm/s measuring equipme The peripheral device power through a Licoupling impedance refer to the block photographs). Both sides of A.C. conducted interferent emission, the relative the interface cables ANSI C63.10:2013 of the context of the co	cation network 50uH coupling im nt. ces are also conne ISN that provides with 50ohm tern diagram of the line are checken nce. In order to fin e positions of equ must be changed	(L.I.S.N.). This pedance for the ected to the main a 500hm/50uh nination. (Please test setup and ed for maximum nd the maximum ipment and all of according to				
Test Procedure:	 impedance stabiliz provides a 50ohm/s measuring equipme 2. The peripheral device power through a Li coupling impedance refer to the block photographs). 3. Both sides of A.C. conducted interferent emission, the relative the interface cables 	cation network 50uH coupling im nt. ces are also conne ISN that provides with 50ohm tern diagram of the line are checken nce. In order to fin e positions of equ must be changed	(L.I.S.N.). This pedance for the ected to the main a 50ohm/50uh nination. (Please test setup and ed for maximun nd the maximun ipment and all o according to				



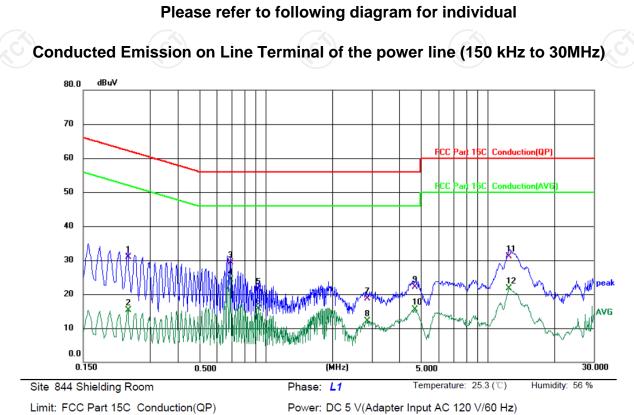
5.2.2. Test Instruments

Conducted Emission Shielding Room Test Site (843)									
Equipment	Equipment Manufacturer Model Serial Number		Calibration Due						
EMI Test Receiver	R&S	ESCI3	100898	Jul. 03, 2023					
Line Impedance Stabilisation Newtork(LISN)	Schwarzbeck	NSLK 8126	8126453	Feb. 24, 2023					
Line-5	ТСТ	CE-05	/	Jul. 03, 2024					
EMI Test Software	Shurple Technology	EZ-EMC	1	1					



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5.2.3. Test data



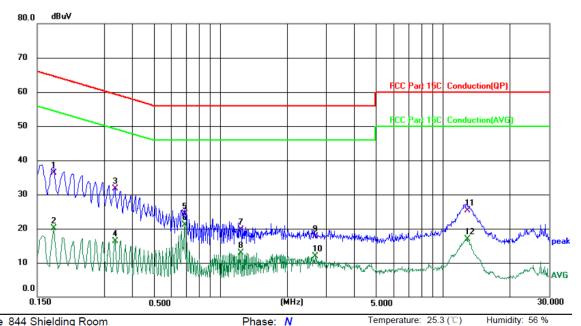
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2379	20.55	10.32	30.87	62.17	-31.30	QP	
2		0.2379	5.03	10.32	15.35	52.17	-36.82	AVG	
3		0.6900	19.20	10.14	29.34	56.00	-26.66	QP	
4	*	0.6900	14.15	10.14	24.29	46.00	-21.71	AVG	
5		0.9260	11.38	10.14	21.52	56.00	-34.48	QP	
6		0.9260	5.47	10.14	15.61	46.00	-30.39	AVG	
7		2.8580	8.69	10.08	18.77	56.00	-37.23	QP	
8		2.8580	2.03	10.08	12.11	46.00	-33.89	AVG	
9		4.7060	12.02	10.16	22.18	56.00	-33.82	QP	
10		4.7060	5.35	10.16	15.51	46.00	-30.49	AVG	
11		12.4580	20.89	10.29	31.18	60.00	-28.82	QP	
12		12.4580	11.42	10.29	21.71	50.00	-28.29	AVG	

Note:

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.

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

Site 844 Shielding Room Phase: N Temperature: 25.3 (°C) Humidity: 56 % Limit: FCC Part 15C Conduction(QP) Power: DC 5 V(Adapter Input AC 120 V/60 Hz) Humidity: 56 %

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1779	25.76	10.52	36.28	64.58	-28.30	QP	
2		0.1779	9.66	10.52	20.18	54.58	-34.40	AVG	
3		0.3339	21.47	10.27	31.74	59.35	-27.61	QP	
4		0.3339	6.04	10.27	16.31	49.35	-33.04	AVG	
5		0.6900	14.10	10.14	24.24	56.00	-31.76	QP	
6	*	0.6900	10.92	10.14	21.06	46.00	-24.94	AVG	
7		1.2379	9.55	10.15	19.70	56.00	-36.30	QP	
8		1.2379	2.73	10.15	12.88	46.00	-33.12	AVG	
9		2.6700	7.48	10.18	17.66	56.00	-38.34	QP	
10		2.6700	1.78	10.18	11.96	46.00	-34.04	AVG	
11		12.8580	14.95	10.41	25.36	60.00	-34.64	QP	
12		12.8580	6.59	10.41	17.00	50.00	-33.00	AVG	

Note1:

TCT通测检测 TCT通测检测

> 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:

Measurements were conducted in all three channels (high, middle, low) and two modulation (GFSK, Pi/4 DQPSK), and the worst case Mode (Highest channel and Pi/4 DQPSK) was submitted only.



5.3. Conducted Output Power

5.3.1. Test Specification

Test Requirement:	FCC Part15 C Section 15	5.247 (b)(1)
Test Method:	KDB 558074 D01 v05r02	2
Limit:	power of the intentional ra following: (1) For frequen in the 2400-2483.5 MHz I non-overlapping hopping	
Test Setup:	Spectrum Analyzer	EUT
Test Mode:	Transmitting mode with n	nodulation
Test Procedure:	centered on a hopping ch RBW > the 20 dB bandwi measured VBW ≥ RBW Sweep = auto Detector function = peak Trace = max hold Allow the trace to stabilize	5 times the 20 dB bandwidth, nannel idth of the emission being
Test Result:	PASS	

5.3.2. Test Instruments

Name	Manufacturer	Model No.	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB		





5.4. 20dB Occupy Bandwidth

5.4.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	KDB 558074 D01 v05r02
Limit:	N/A
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
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. Use the following spectrum analyzer settings for 20dB Bandwidth measurement. Span = approximately 2 to 5 times the 20 dB bandwidth, centered on a hopping channel; 1%≤RBW≤5% of the 20 dB bandwidth; VBW≥3RBW; Sweep = auto; Detector function = peak; Trace = max hold. 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	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB	/	/



5.5. Carrier Frequencies Separation

5.5.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	KDB 558074 D01 v05r02
Limit:	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Hopping mode
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. Enable the EUT hopping function. Use the following spectrum analyzer settings: Span = wide enough to capture the peaks of two adjacent channels; RBW is set to approximately 30% of the channel spacing, adjust as necessary to best identify the center of each individual channel; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. Record the value in report.
Test Result:	PASS

5.5.2. Test Instruments

Name	Manufacturer	Model No.	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB		1

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5.6. Hopping Channel Number

5.6.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	KDB 558074 D01 v05r02
Limit:	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Hopping mode
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. Enable the EUT hopping function. Use the following spectrum analyzer settings: Span = the frequency band of operation; set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller; VBW≥RBW; Sweep = auto; Detector function = peak; Trace = max hold. The number of hopping frequency used is defined as the number of total channel. Record the measurement data in report.
Test Result:	PASS

5.6.2. Test Instruments

Name	Manufacturer	Model No.	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB	/	/

5.7. Dwell Time

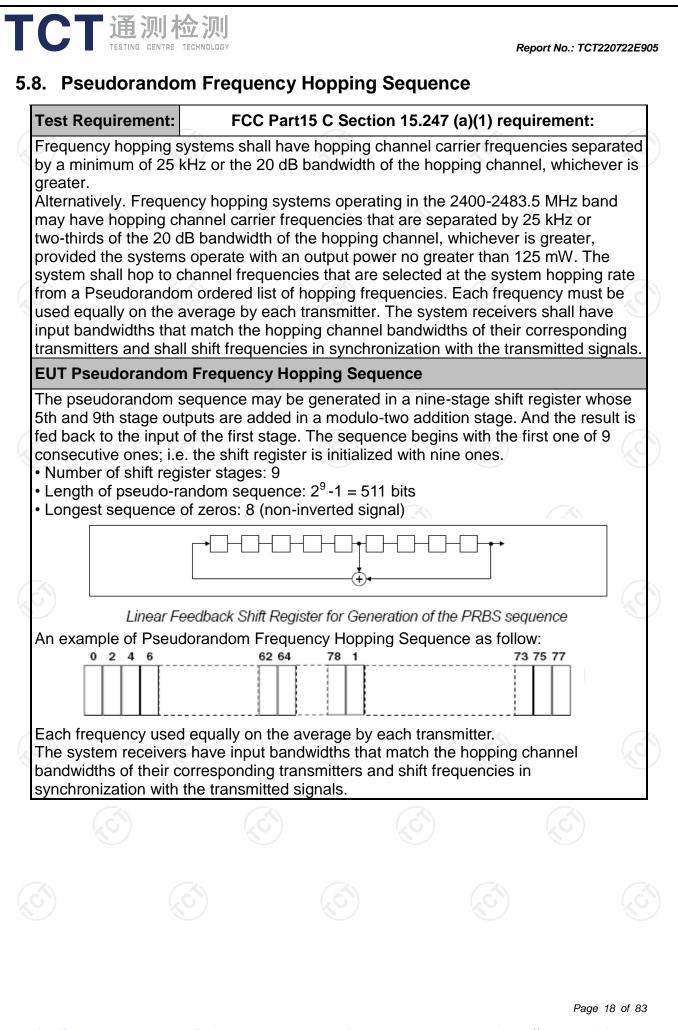
5.7.1. Test Specification

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Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	KDB 558074 D01 v05r02
Limit:	The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Hopping mode
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. Enable the EUT hopping function. Use the following spectrum analyzer settings: Span = zero span, centered on a hopping channel; RBW shall be ≤ channel spacing and where possible RBW should be set >> 1 / T, where T is the expected dwell time per channel; VBW≥RBW; Sweep = as necessary to capture the entire dwell time per hopping channel; Detector function = peak; Trace = max hold. Measure and record the results in the test report.
Test Result:	PASS

5.7.2. Test Instruments

Name	Manufacturer	Model No.	Serial Number	Calibration Due	
Spectrum Analyzer	R&S	FSV40-N	102188	Feb. 24, 2023	
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5.9. Conducted Band Edge Measurement

5.9.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB 558074 D01 v05r02
Limit:	In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
Test Procedure:	 Set to the maximum power setting and enable the EUT transmit continuously. Set RBW = 100 kHz (≥1% span=10MHz), VBW = 300 kHz (≥RBW). Band edge emissions must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100kHz RBW. The attenuation shall be 30 dB instead of 20 dB when RMS conducted output power procedure is used. Enable hopping function of the EUT and then repeat step 2 and 3. Measure and record the results in the test report.
Test Result:	PASS

5.9.2. Test Instruments

Name	Manufacturer	Model No.	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB	/	/



5.10. Conducted Spurious Emission Measurement

5.10.1. Test Specification

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB 558074 D01 v05r02
Limit:	In any 100 kHz bandwidth outside the intentional radiation frequency band, the radio frequency power shall be at least 20 dB below the highest level of the radiated power. In addition, radiated emissions which fall in the restricted bands must also comply with the radiated emission limits.
Test Setup:	Spectrum Analyzer EUT
Test Mode:	Transmitting mode with modulation
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. Set RBW = 100 kHz, VBW = 300kHz, scan up through 10th harmonic. All harmonics / spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW. Measure and record the results in the test report. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
Test Result:	PASS

5.10.2. Test Instruments

Name	Manufacturer	Model No.	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	N9020A	MY49100619	Jul. 04, 2023
Combiner Box	Ascentest	AT890-RFB		

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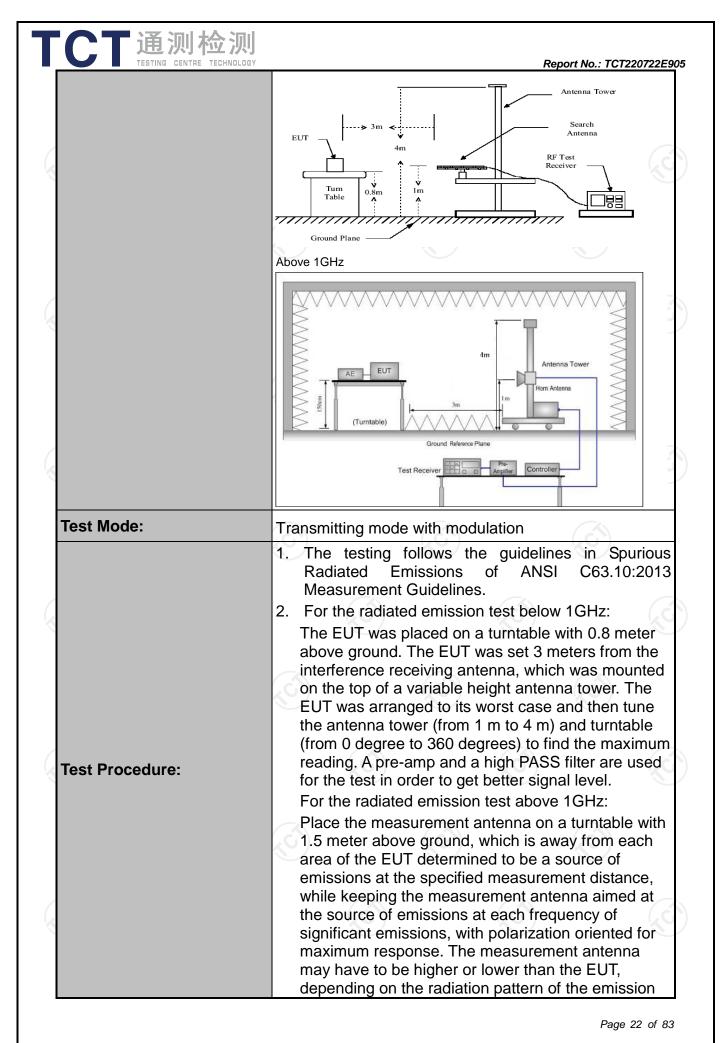


5.11. Radiated Spurious Emission Measurement

5.11.1. Test Specification

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Test Requirement:	FCC Part15 C Section 15.209						
Test Method:	ANSI C63.10):2013					
Frequency Range:	9 kHz to 25 (GHz	Z			6	
Measurement Distance:	3 m						
Antenna Polarization:	Horizontal &	Vertical					
	Frequency 9kHz- 150kHz	Detector Quasi-peak		VBW 1kHz	Remark Quasi-peak Value		
Receiver Setup:	150kHz- 30MHz 30MHz-1GHz	Quasi-peak Quasi-peak		30kHz 300KHz		si-peak Value	
	Above 1GHz	Peak Peak	1MHz 1MHz	3MHz 10Hz	P	eak Value erage Value	
	Frequen		Field Stre (microvolts	/meter)		asurement nce (meters)	
	0.009-0.4		2400/F(I			300	
	0.490-1.7		24000/F(30	(NПZ)		<u>30</u> 30	
	30-88		100		30		
	88-216		150		3		
Limit:	216-96 Above 9			200 500		3	
		Frequency Field Strength (microvolts/mete Above 1GHz 500 500 5000		(meters) 3 Ave		Detector Average Peak	
Test setup:	For radiated emis	stance = 3m Turn table			Compu		
			(,	C)			
						Page 21 of 8	



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	re m ar ar at 3. S 4. U (ceiving the maxim easurement anten aximizes the emission tenna elevation for estricted to a range pove the ground or cet to the maximum UT transmit continue (1) Span shall wide emission being (2) Set RBW=120 K for f>1GHz ; VE Sweep = auto; = max hold for (3) For average m correction factor	bectrum analyzer sett e enough to fully captu measured; kHz for f < 1 GHz, RE BW≥RBW; Detector function = p peak leasurement: use dut or method per cycle = On time/100 n	that which nent is shall be m to 4 m ane. enable the tings: ure the BW=1MHz beak; Trace y cycle nilliseconds
	Ì	On time =N1*L ² Where N1 is n length of type Average Emiss Level + 20*log Corrected Read	sion Level = Peak Em (Duty cycle) ling: Antenna Factor -	es, L1 is hission + Cable
Test results:	PASS	On time =N1*L2 Where N1 is n length of type Average Emiss Level + 20*log Corrected Read Loss + Read Le	umber of type 1 pulse 1 pulses, etc. sion Level = Peak Em (Duty cycle)	es, L1 is hission + Cable
Test results:	PASS	On time =N1*L2 Where N1 is n length of type Average Emiss Level + 20*log Corrected Read Loss + Read Le	umber of type 1 pulse 1 pulses, etc. sion Level = Peak Em (Duty cycle) ding: Antenna Factor -	es, L1 is nission + Cable
Test results:	PASS	On time =N1*L2 Where N1 is n length of type Average Emiss Level + 20*log Corrected Read Loss + Read Le	umber of type 1 pulse 1 pulses, etc. sion Level = Peak Em (Duty cycle) ding: Antenna Factor -	es, L1 is hission + Cable
Test results:	PASS CO CO	On time =N1*L2 Where N1 is n length of type Average Emiss Level + 20*log Corrected Read Loss + Read Le	umber of type 1 pulse 1 pulses, etc. sion Level = Peak Em (Duty cycle) ding: Antenna Factor ·	es, L1 is hission + Cable



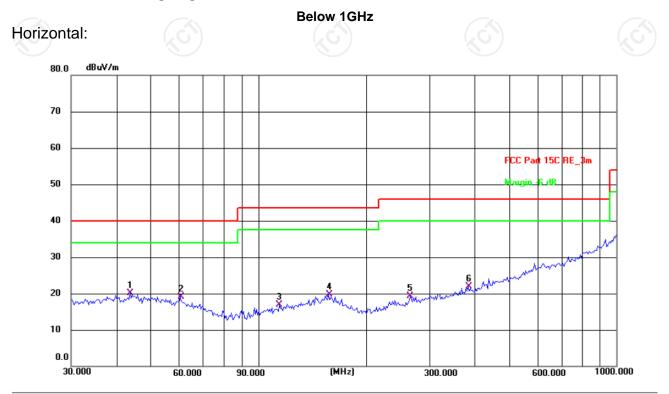
5.11.2. Test Instruments

	Radiated En	nission Test Site	e (966)	
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI Test Receiver	R&S	ESIB7	100197	Jul. 03, 2023
Spectrum Analyzer	R&S	FSQ40	200061	Jul. 03, 2023
Pre-amplifier	SKET	LNPA_0118G- 45	SK2021012 102	Feb. 24, 2023
Pre-amplifier	SKET	LNPA_1840G- 50	SK2021092 03500	Feb. 24, 2023
Pre-amplifier	HP	8447D	2727A05017	Jul. 03, 2023
Loop antenna	Schwarzbeck	FMZB1519B	00191	Jun. 11, 2024
Broadband Antenna	Schwarzbeck	VULB9163	340	Jul. 05, 2024
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Jul. 05, 2024
Horn Antenna	Schwarzbeck	BBHA 9170	00956	Apr. 10, 2023
Antenna Mast	Keleto	RE-AM	/	1
Coaxial cable	SKET	RC-18G-N-M) /	Feb. 24, 2024
Coaxial cable	SKET	RC_40G-K-M	/	Feb. 24, 2024
EMI Test Software	Shurple Technology	EZ-EMC	R	, «



5.11.3. Test Data

Please refer to following diagram for individual



Site #1 3m Anechoic Chamber Limit: FCC Part 15C RE_3m					ation: Ho			Te	emperature: 25(C)	Humidity: 55 %
Limit:				Power	: DC 3.7 V					
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark	
1 *	43.8119	6.42	13.63	20.05	40.00	-19.95	QP	Ρ		
2	60.4918	7.01	12.12	19.13	40.00	-20.87	QP	Ρ		
3	114.5146	5.73	11.13	16.86	43.50	-26.64	QP	Ρ		
4	157.0073	6.41	13.28	19.69	43.50	-23.81	QP	Ρ		
5	265.6757	6.71	12.56	19.27	46.00	-26.73	QP	Ρ		
6	385.2804	6.14	15. <mark>6</mark> 8	21.82	46.00	-24.18	QP	Ρ		

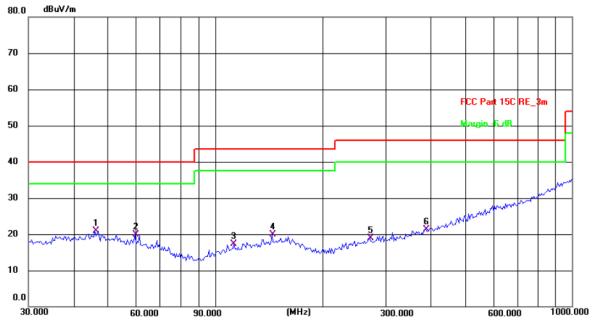
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Vertical:

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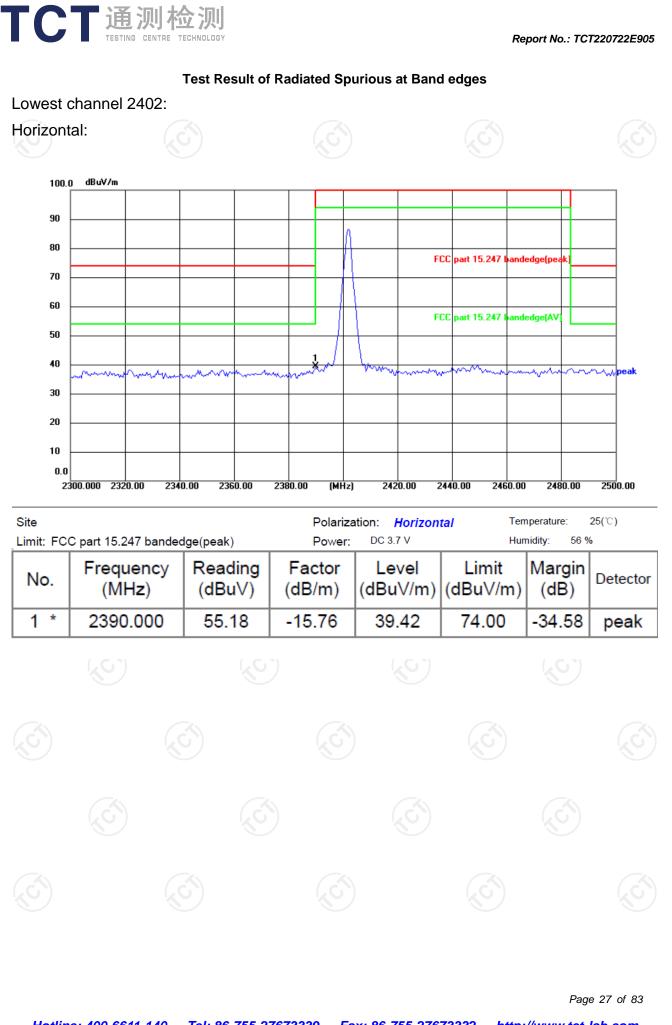
Site #1 3m Anechoic Chamber Polarization: Vertical						Te	mperature: 25(C)	Humidity: 55 %		
Limit: FCC Part 15C RE_3m Power: DC 3.7 V										
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F	Remark	
1 *	46.0164	7.35	13.57	20.92	40.00	-19.08	QP	Ρ		
2	59.6493	7.73	12.23	19.96	40.00	-20.04	QP	Ρ		
3	112.9196	6.41	10.99	17.40	43.50	-26.10	QP	Ρ		
4	144.3348	7.19	12.80	19.99	43.50	-23.51	QP	Ρ		
5	271.3246	6.23	12.76	18.99	46.00	-27.01	QP	Ρ		
6	387.9920	5.51	15.75	21.26	46.00	-24.74	QP	Ρ		

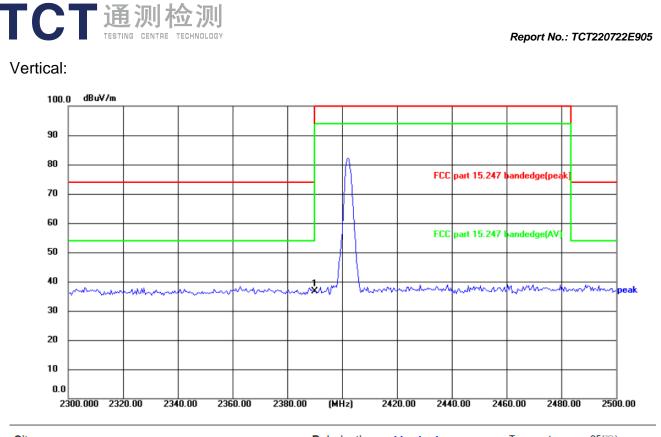
Note: 1. The low frequency, which started from 9KHz~30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

2. Measurements were conducted in all three channels (high, middle, low) and two modulation (GFSK, Pi/4 DQPSK) and the worst case Mode (Highest channel and Pi/4 DQPSK)) 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 $(dB\mu V/m) = Limit$ stated in standard $Over (dB) = Measurement (dB\mu V/m) - Limits (dB\mu V/m)$
- * is meaning the worst frequency has been tested in the test frequency range.

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Site			Polariza	ation: Vertical	Ter	nperature:	25(°℃)
Limit: FC	C part 15.247 banded	lge(peak)	Power:	DC 3.7 V	Hur	midity: 56 9	%
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2390.000	52.30	-15.76	36.54	74.00	-37.46	peak

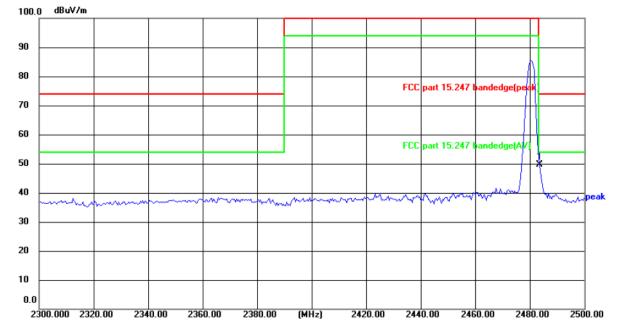


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Highest channel 2480:

Horizontal:



Site Limit: FC	C part 15.247 banded	lge(peak)	Polariza Power:	tion: Horizon DC 3.7 V		nperature: nidity: 56 %	25(℃) 6
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2483.500	64.95	-15.41	49.54	74.00	-24.46	peak

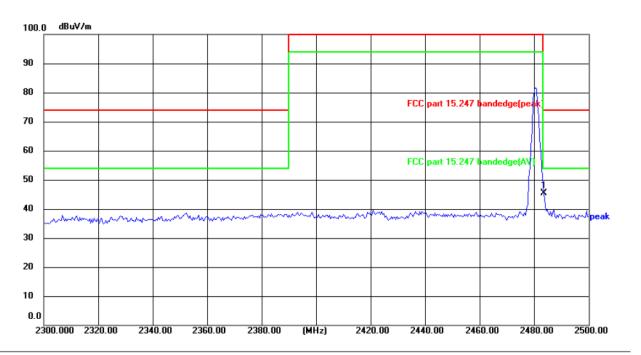


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Vertical:

Т



Site			Polariza	tion: Vertical	Tem	nperature:	25(° ℃)
Limit: FC	C part 15.247 banded	lge(peak)	Power:	DC 3.7 V	Hun	nidity: 56 %	6
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2483.500	60.75	-15.41	45.34	74.00	-28.66	peak

Note: Measurements were conducted in all two modulation (GFSK, Pi/4 DQPSK), and the worst case Mode (Pi/4 DQPSK) was submitted only.

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Above 1GHz

	Modulation	Type: Pi/4	4 DQPSK							
I	Low chann	el: 2402 N	1Hz							
	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)	AV limit (dBµV/m)	Margin (dB)
	4804	Н	43.45		0.66	44.11		74	54	-9.89
Ī	7206	Н	34.87		9.50	44.37		74	54	-9.63
Ī		Н								
Ī	4804	V	43.16		0.66	43.82		74	54	-10.18
Ī	7206	V	35.19		9.50	44.69		74	54	-9.31
Ī		V								
	N I									G

Middle cha	nnel: 2441	MHz		K.)		(0)		20
Frequency (MHz)	Ant. Pol. H/V	Peak reading (dBµV)	AV reading (dBµV)	Correction Factor (dB/m)	Peak		Peak limit (dBµV/m)		Margin (dB)
4882	H	44.14		0.99	45.13	<u> </u>	74	54	-8.87
7323	ζOH)	34.61	-120	9.87	44.48	0	74	54	-9.52
	Ŧ)			<u> </u>			
4882	V	43.38		0.99	44.37		74	54	-9.63
7323	V	32.92		9.87	42.79		74	54	-11.21
	V			<i>©</i>	J				<u> </u>

High channel: 2480 MHz

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Frequency	Ant Pol	Peak	AV	Correction	Emissic	on Level	Peak limit	AV/ limit	Margin
(MHz)	H/V	reading (dBµV)	reading (dBµV)	Factor (dB/m)	Peak (dBµV/m)	AV		(dBµV/m)	
4960	Н	44.75		1.33	46.08		74	54	-7.92
7440	Н	35.64		10.22	45.86		74	54	-8.14
	Н			(X				
(G [*])		(20)					(20)		
4960	V	44.83		1.33	46.16		74	54	-7.84
7440	V	35.79		10.22	46.01		74	54	-7.99
	V								

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. Measurements were conducted in all two modulation (GFSK, Pi/4 DQPSK), and the worst case Mode (Pi/4 DQPSK) was submitted only.
- 7. All the restriction bands are compliance with the limit of 15.209.

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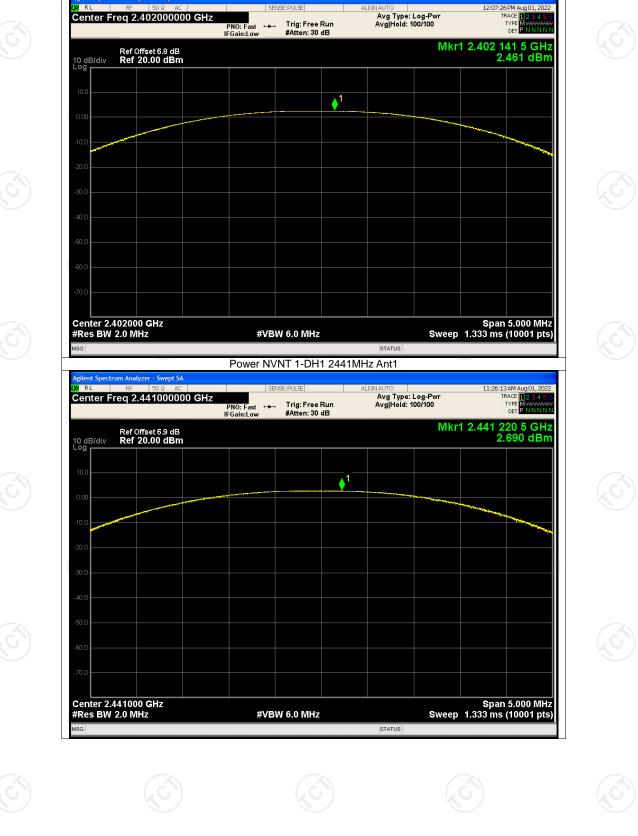


Appendix A: Test Result of Conducted Test

Maximum Conducted Output Power									
Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict				
NVNT	1-DH1	2402	2.46	21	Pass				
NVNT	1-DH1	2441	2.69	21	Pass				
NVNT	1-DH1	2480	2.90	21	Pass				
NVNT	2-DH1	2402	3.23	21	Pass				
NVNT	2-DH1	2441	3.39	21	Pass				
	2-DH1	2480	3.52	21	Pass				



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Test Graphs Power NVNT 1-DH1 2402MHz Ant1

SENSE:PULSE

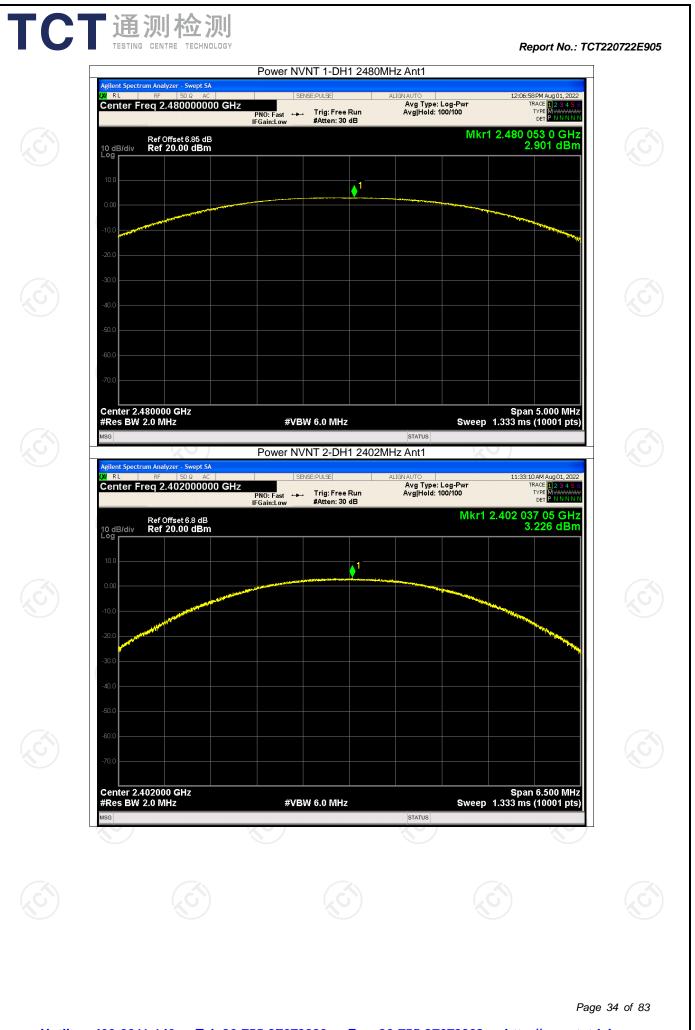
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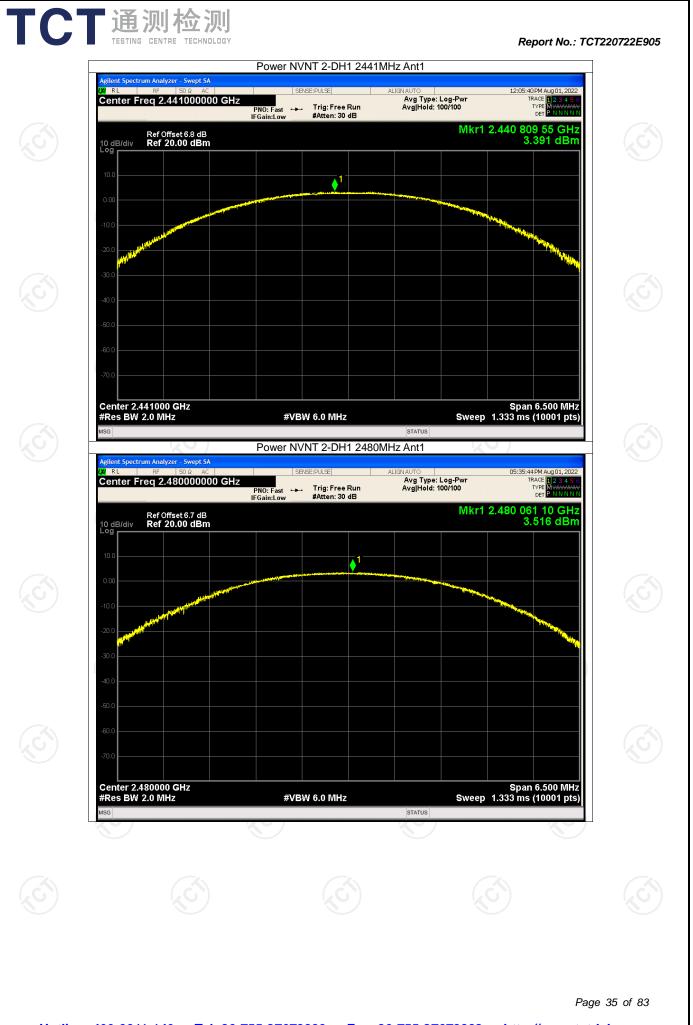
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RL

Swept SA

Report No.: TCT220722E905





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Condition	Mode	Frequency (MHz)	-20 dB Bandwidth (MHz)	Verdict						
NVNT	1-DH1	2402	0.922	Pass						
NVNT	1-DH1	2441	0.975	Pass						
NVNT	1-DH1	2480	0.930	Pass						
NVNT	2-DH1	2402	1.265	Pass						
NVNT	2-DH1	2441	1.258	Pass						
NVNT	2-DH1	2480	1.249	Pass						
	NVNT NVNT NVNT NVNT NVNT	NVNT1-DH1NVNT1-DH1NVNT1-DH1NVNT2-DH1NVNT2-DH1	NVNT 1-DH1 2402 NVNT 1-DH1 2441 NVNT 1-DH1 2441 NVNT 1-DH1 2480 NVNT 2-DH1 2402 NVNT 2-DH1 2441	Condition Mode Frequency (MHz) Bandwidth (MHz) NVNT 1-DH1 2402 0.922 NVNT 1-DH1 2441 0.975 NVNT 1-DH1 2480 0.930 NVNT 2-DH1 2402 1.265 NVNT 2-DH1 2441 1.258						

-20dB Bandwidth

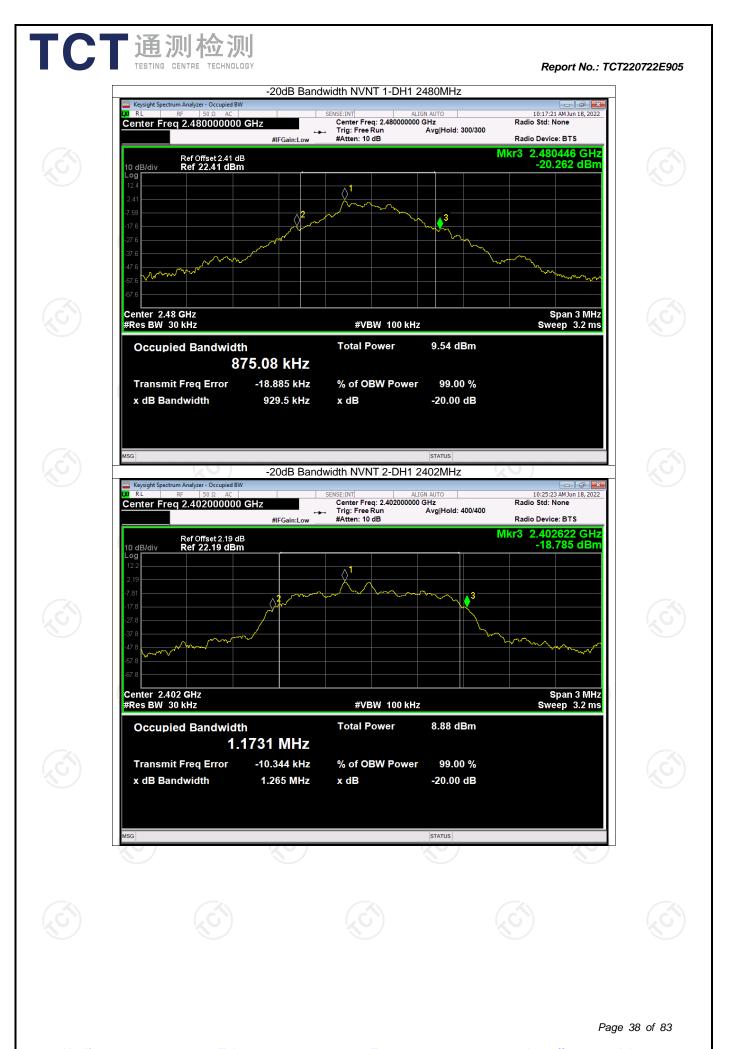


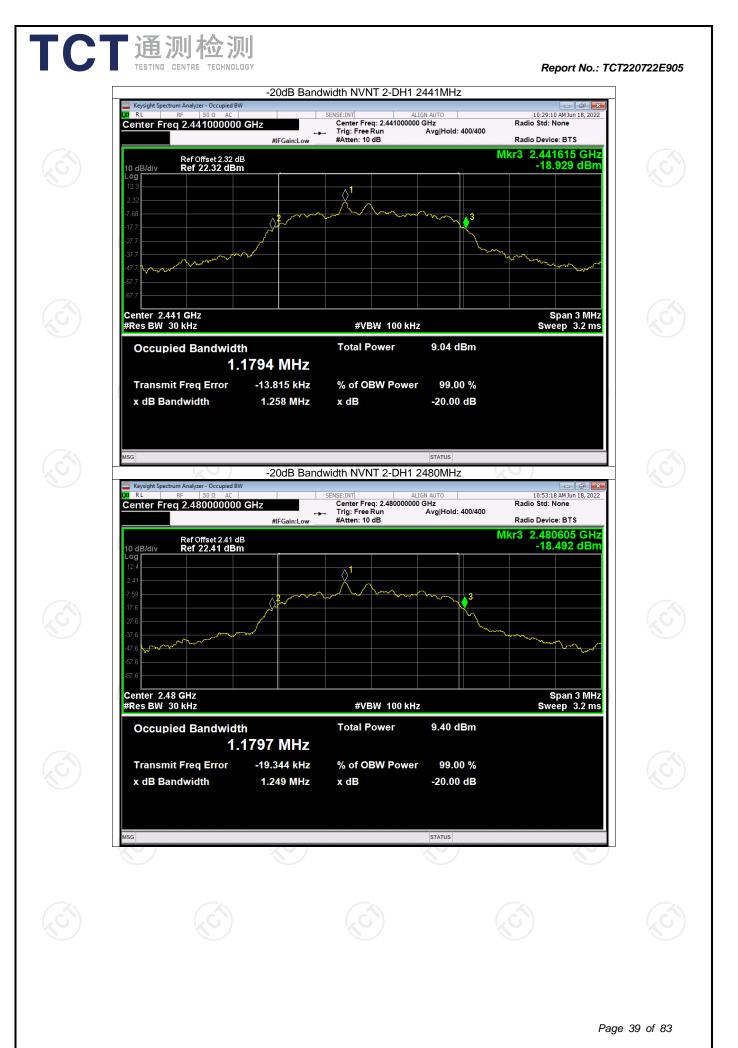
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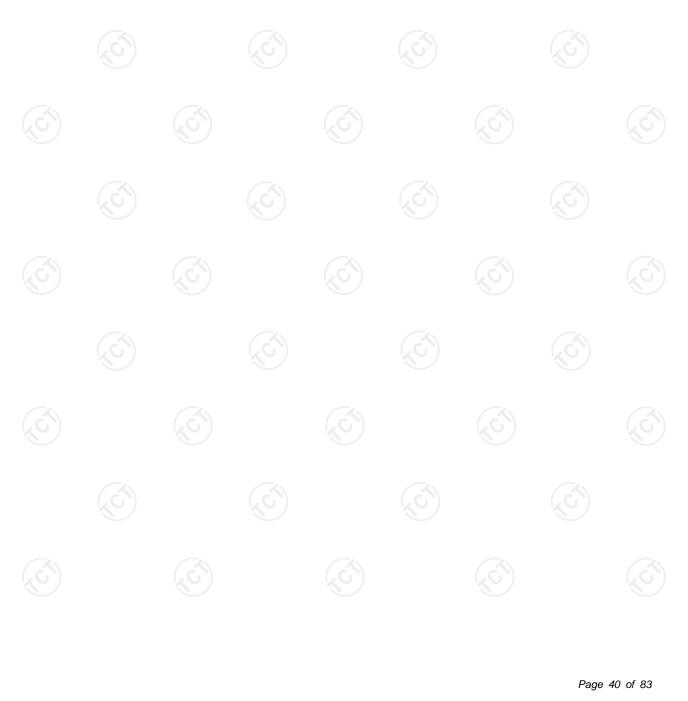


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Carrier Frequencies Separation





Report No.: TCT220722E905



Test Graphs CFS NVNT 1-DH1 2402MHz

Avg Type: Log-Pwr Avg|Hold:>100/100







10:13:31 AM Jun 18, 2022

TYP DE

12345 MWWWW PNNNN

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	Keysight Spectrum Analyzer - Swept SA	CFS NVNT 1-DH1 2			
	RL RF 50 Ω AC Senter Freq 2.479500000 GH	Z PNO: Wide IFGain:Low #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	10:19:19 AM Jun 18, 2022 TRACE 1 2 3 4 5 6 TYPE M WWWWW DET P N N N N N	
1	Ref Offset 2.41 dB 0 dB/div Ref 20.00 dBm °g			1 2.478 832 GHz 2.662 dBm	
			2		
	20.0				
~	40.0				
-	50.0 70.0				
	Center 2.479500 GHz Res BW 100 kHz	#VBW 300 kHz	Sweep	Span 2.000 MHz 1.000 ms (1001 pts)	
N	IKR MODE TRC SCL X 1 N 1 f 2.478 832 2 N 1 f 2.479 830	Y FUNCTION CGHz 2.662 dBm CGHz 2.640 dBm	FUNCTION WIDTH FU	ICTION VALUE	
	3 4 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6			E	
	7 8 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10				
	5G	 	STATUS		
LX.	Keysight Spectrum Analyzer - Swept SA	CFS NVNT 2-DH1 2-	402MHz		
		SENSE:INT	ALIGN AUTO	10:28:16 AM Jun 18, 2022	
C	RL RF 50Ω AC Senter Freq 2.402500000 GH	Z PNO: Wide IFGain:Low #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 AM Jun 18, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNN	
1	Ref Offset 2.19 dB 0 dB/div Ref 20.00 dBm	Z PNO: Wide 😱 Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 AM Jun 18, 2022	2
1	Ref Offset 2.19 dB	Z PNO: Wide 😱 Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 AM Jun 18, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNN	
1	Ref Offset 2.19 dB 0 dB/div Ref 20.00 dBm	Z PNO: Wide 😱 Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 AM Jun 18, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNN	
	Ref Offset 2.19 dB 0 dB/div 9 10 0 10 0 10 0 10 0 10 0 10 0 10 0 10	Z PNO: Wide 😱 Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 AM Jun 18, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNN	
	Ref Offset 2.19 dB 0 dB/div Ref Offset 2.19 dB Ref 20.00 dBm 10.0 0 dB/div 10.0 0 dB/div	Z PNO: Wide 😱 Trig: Free Run	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 ANJUN 18, 2022 TRACE [] 2:34:56 TYPE MUMUU DET PINNUN r1 2.4001 832 GHz 2.224 dBm	
1	Ref Offset 2.19 dB 0 dB/div Ref 20.00 dBm 9 9 10 0 0 00 0 0 0 0 0 0 0 0 0 0 0	Z PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 AM Jun 18, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNN	
1	Ref Offset 2.19 dB 0 dB/div Ref 20.00 dBm 1 n 1 f 2 n 1 f 1 n 1 f 1 dB 2.402 834	Z PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 ANJUN 18, 2022 TRACE [] 2:34:5 TYPE MUMUU DET PINNUM 12:4401 832 GHz 2:224 dBm	
1	Ref Offset 2.19 dB 0 dB/div Ref 20.00 dBm 9 1 0 000	Z PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 ANJUN 18, 2022 TRACE [] 2:34:5 TYPE MUMUU DET PINNUM 12:4401 832 GHz 2:224 dBm	
1	Ref Offset 2.19 dB 0 dB/div Ref Offset 2.19 dB 0 ag 1 1 bg 2.401 832 1 bg 2.402 834 1 bg 1 1 bg 1 1 bg 1 1 bg	Z PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 ANJUN 18, 2022 TRACE [] 2:34:5 TYPE MUMUU DET PINNUM 12:4401 832 GHz 2:224 dBm	
	Ref Offset 2.19 dB 0 dB/div Ref Offset 2.19 dB 0 dB/div Ref 20.00 dBm	Z PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 ANJ UN 18, 2022 TRACE [] 2 3 4 5 C TYPE MUNITURE DET PINNINN 1 2.4401 832 GHz 2.224 dBm Span 2.000 MHz 1.000 ms (1001 pts) ICTION VALUE	
	Ref Offset 2.19 dB 0 dB/div Ref Offset 2.19 dB 0 dB/div Ref 20.00 dBm 0 dB/div 0 dB/div <td>Z PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB</td> <td>Avg Type: Log-Pwr Avg Hold:>100/100</td> <td>10:28:16 ANJ UN 18, 2022 TRACE [] 2 3 4 5 C TYPE MUNITURE DET PINNINN 1 2.4401 832 GHz 2.224 dBm Span 2.000 MHz 1.000 ms (1001 pts) ICTION VALUE</td> <td></td>	Z PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 ANJ UN 18, 2022 TRACE [] 2 3 4 5 C TYPE MUNITURE DET PINNINN 1 2.4401 832 GHz 2.224 dBm Span 2.000 MHz 1.000 ms (1001 pts) ICTION VALUE	
	Ref Offset 2.19 dB 0 dB/div Ref Offset 2.19 dB 0 dB/div Ref 20.00 dBm 0 dB/div 0 dB/div <td>Z PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB</td> <td>Avg Type: Log-Pwr Avg Hold:>100/100</td> <td>10:28:16 ANJ UN 18, 2022 TRACE [] 2 3 4 5 C TYPE MUNITURE DET PINNINN 1 2.4401 832 GHz 2.224 dBm Span 2.000 MHz 1.000 ms (1001 pts) ICTION VALUE</td> <td></td>	Z PNO: Wide IFGain:Low Trig: Free Run #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold:>100/100	10:28:16 ANJ UN 18, 2022 TRACE [] 2 3 4 5 C TYPE MUNITURE DET PINNINN 1 2.4401 832 GHz 2.224 dBm Span 2.000 MHz 1.000 ms (1001 pts) ICTION VALUE	

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	CFS NVNT 2-DH1 2441MH	łz	
M RF 50 Ω AC Center Freq 2.441500000 GH	Z PNO: Wide C Trig: Free Run	N AUTO 10:52:33 MJ un II Avg Type: Log-Pwr TRACE Avg[Hold:>100/100 TPE DET P N	3, 2022
Ref Offset 2.32 dB 10 dB/div Ref 20.00 dBm	IFGain:Low #Atten: 30 dB	Mkr1 2.440 832 0 2.395 d	GHz
10.0 10.0			
-10.0			
-20.0			
-40.0 -50.0 -60.0			
-70.0			
Center 2.441500 GHz #Res BW 100 kHz	#VBW 300 kHz	Span 2.000 Sweep 1.000 ms (1001	MHz pts)
MKR MODE TRC SCL X 1 N 1 f 2.440.83; 2 N 1 f 2.441.83; 3 1 f 2.441.83;	Y FUNCTION FUNCTION 2 GHz 2.395 dBm 2 2 GHz 2.388 dBm 4	N WIDTH FUNCTION VALUE	
4 5 6			=
7 8 9 9 10			
11	III.	STATUS	• •
Keysight Spectrum Analyzer - Swept SA	CFS NVNT 2-DH1 2480MH		
Image: Ref S0 Ω AC Image: Ref S0 Ω AC Center Freq 2.479500000 GF	Z PNO: Wide 🕞 Trig: Free Run	N AUTO 10:56:49 AM Jun II Avg Type: Log-Pwr TRACE Avg[Hold:>100/100 DET P	8,2022
Ref Offset 2.41 dB	IFGain:Low #Atten: 30 dB	Mkr1 2.478 832 0 2.692 d	
10 dB/div Ref 20.00 dBm		2	
-10.0			
-20.0			
-40.0			
-60.0			
Center 2.479500 GHz #Res BW 100 kHz	#VBW 300 kHz	Span 2.000 Sweep 1.000 ms (1001	MHz pts)
MKR MODE TRC SCL X 1 N 1 f 2.478 833 2 N 1 f 2.479 833 3 1 f 2.479 833	Y FUNCTION FUNCTION 2 GHz 2.692 dBm 2 2 GHz 2.671 dBm 4	N WIDTH FUNCTION VALUE	
4 5 6 6			
7 8 9 9 10			
11		STATUS	
		K K	

			Danu Euge			
Condition	Mode	Frequency (MHz)	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	No-Hopping	-53.57	-20	Pass
NVNT	1-DH1	2480	No-Hopping	-55.31	-20	Pass
NVNT	2-DH1	2402	No-Hopping	-53.23	-20	Pass
NVNT	2-DH1	2480	No-Hopping	-52.83	-20	Pass
/						

Band Edge

Report No.: TCT220722E905

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10:11:44 AM Jun 18, 2022 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N Center Freq 2.402000000 GHz Avg Type: Log-Pwr Avg|Hold: 1000/1000 PNO: Wide ---- Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.401 840 GHz 2.222 dBm Ref Offset 2.19 dB Ref 20.00 dBm ø

Test Graphs Band Edge NVNT 1-DH1 2402MHz No-Hopping Ref

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Center 2.402000 GHz #Res BW 100 kHz		#VBW 300	kHz		Sweep	Span 8.000 MHz 1.000 ms (1001 pts
ISG				STATUS		
<u> </u>	ž –	IVNT 1-DH1 2	402MHz	No-Hopping E	mission	
Keysight Spectrum Analyzer - Swep RL RF 50 Ω	AC AC	SENSE:INT	1 1	ALIGN AUTO		10:12:01 AM Jun 18, 2022
Center Freq 2.356000	0000 GHz	East 🛶 Trig:	Free Run n: 30 dB	Avg Type: Avg Hold:		TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N
Ref Offset 2.19 10 dB/div Ref 20.00 d					N	lkr1 2.401 8 GH; 2.281 dBm
- og 10.0						1_
0.00						
-10.0						-17.78 dBn
-20.0						
-40.0					4	
-50.0		non haard a diritta loog ta		La cal album	www.www.	3 Junior and the second
60.0 what has the structure of the structure	en de la companya de			dagagir inig dolling men tipa menor and a		
						04 0 40000 OU
Start 2.30600 GHz #Res BW 100 kHz		#VBW 300	kHz		Sweep	Stop 2.40600 GH: 9.600 ms (1001 pts
MKR MODE TRC SCL	Х	Y	FUNCTION	FUNCTION WIDTH	FUN	CTION VALUE
1 N 1 f	2.401 8 GHz 2.400 0 GHz	2.281 dBm -48.018 dBm				
3 N 1 f	2.390 0 GHz	-54.926 dBm				
4 N 1 f	2.381 5 GHz	-51.357 dBm				
6						
7 8						
9						
11						
<			"			Þ

Report No.: TCT220722E905

Mar Martin



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STATUS



MSG

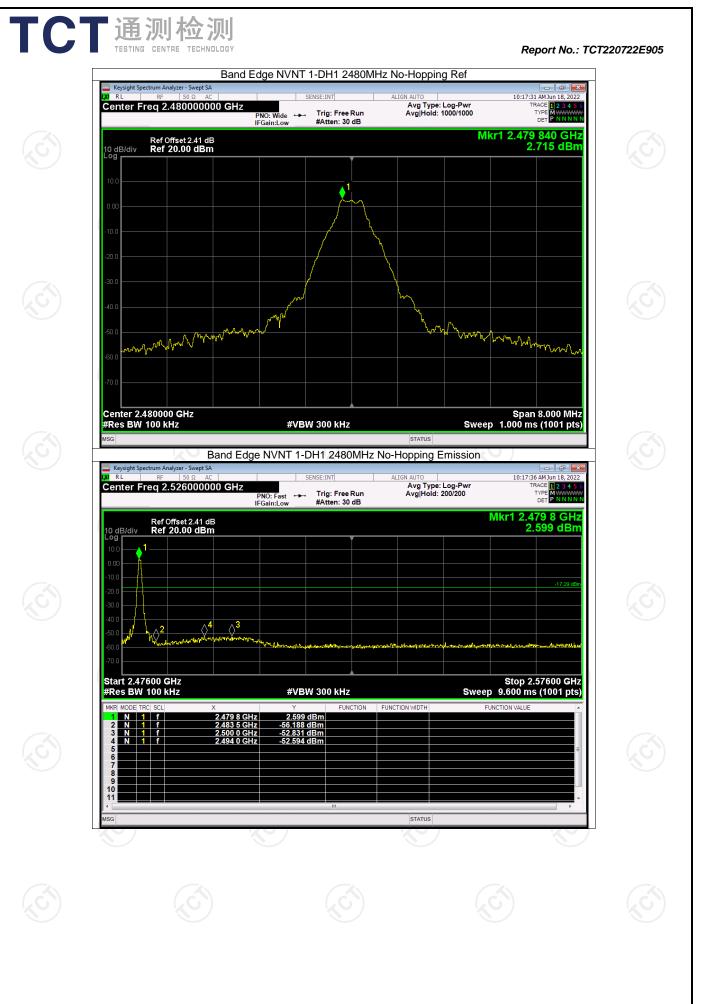


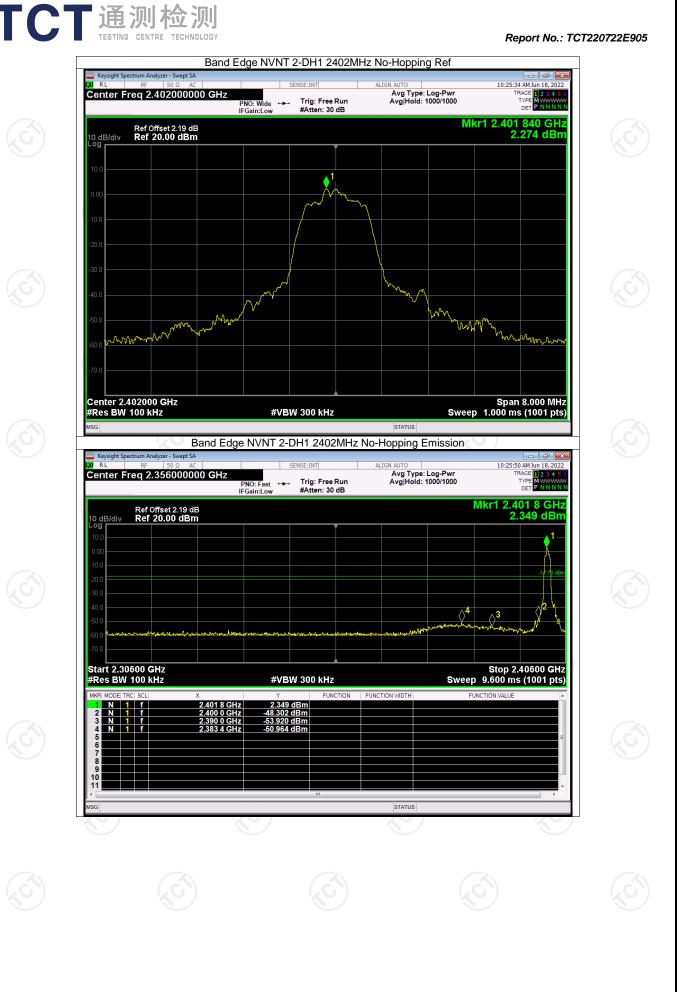
TCT通测检测 TECTING CENTRE TECHNOLOGY

10 dB/div Loa

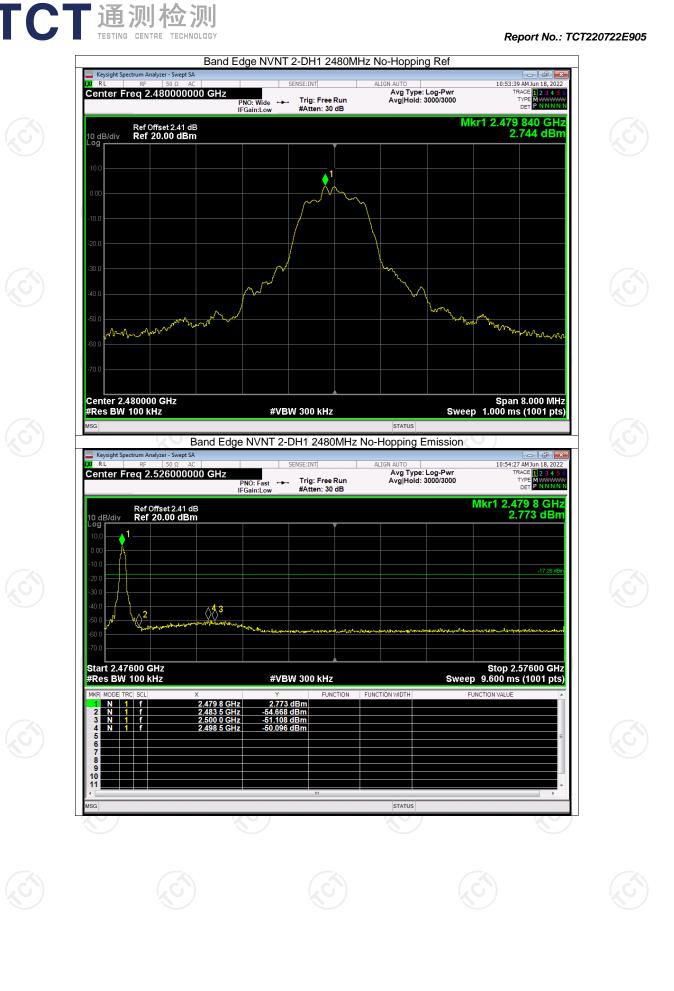
Keysight Spectrum Analyzer - Swept SA

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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Condition	Mode	Frequency (MHz)	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	Hopping	-54.56	-20	Pass
NVNT	1-DH1	2480	Hopping	-53.91	-20	Pass
NVNT	2-DH1	2402	Hopping	-53.41	-20	Pass
NVNT	2-DH1	2480	Hopping	-53.35	-20	Pass

Band Edge(Hopping)



Report No.: TCT220722E905

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	GHZ PNO: Wide -→- Trig: Free Run IFGain:Low #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 4000/4000	10:57:38 AM Jun 18, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N N
Ref Offset 2.19 dB 10 dB/div Ref 20.00 dBm		Mkr1	2.405 840 GHz 2.214 dBm
Log			
0.00			
-10.0	Marian	Mun Warnen Marine	y many
-20.0			
-30.0			
-40.0			
-50.0	www.		
-60.0			
-70.0			
Center 2.402000 GHz #Res BW 100 kHz	#VBW 300 kHz	Sweep 1	Span 8.000 MHz 000 ms (1001 pts)
MSG Dond E	dae/Llenning) NV/NT 2 DU1 2/		
Keysight Spectrum Analyzer - Swept SA	dge(Hopping) NVNT 2-DH1 24		10:58:41 AM Jun 18, 2022
Center Freq 2.356000000 C	GHZ PNO: Fast →→→ Trig: Free Run IFGain:Low #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold: 4000/4000	TRACE 123456 TYPE MWWWW DET PNNNNN
Ref Offset 2.19 dB 10 dB/div Ref 20.00 dBm		Mk	1 2.402 8 GHz 2.326 dBm
10.0			1-
-10.0			-1 7.79 dBm
-20.0			
-40.0	al Anno an and an an and the total of the second states of the second st	advances and a state of the sta	3 2
-50.0			
-50.0 -60.0 -70.0			
-60.0 -00000	#VBW 300 kHz		Stop 2.40600 GHz 600 ms (1001 pts)
60.0 View View View View View View View View	22 8 GHz 2.326 dBm 00 0 GHz -51.500 dBm	Sweep 9.	
60.0 0 0 0 70.0 0 0 0 Start 2.30600 GHz #Res BW 100 kHz 0 #Res BW 100 kHz 0 0 MKR MODE TRC SCL X 1 1 1 f 2.40 3 N 1 f 2.38 4 N 1 f 2.38 5 0 0 0	Y FUNCTION 2 8 GHz 2.326 dBm	Sweep 9.	600 ms (1001 pts)
60.0	Y FUNCTION 22 8 GHz 2.326 dBm 00 0 GHz -51.500 dBm 00 0 GHz -53.225 dBm	Sweep 9.	600 ms (1001 pts)
60.0 1000000000000000000000000000000000000	Y FUNCTION 22 8 GHz 2.326 dBm 00 0 GHz -51.500 dBm 00 0 GHz -53.225 dBm	Sweep 9.	600 ms (1001 pts)
60.0 0	Y FUNCTION 22 8 GHz 2.326 dBm 00 0 GHz -51.500 dBm 00 0 GHz -53.225 dBm 36 8 GHz -51.209 dBm	Sweep 9.	600 ms (1001 pts)

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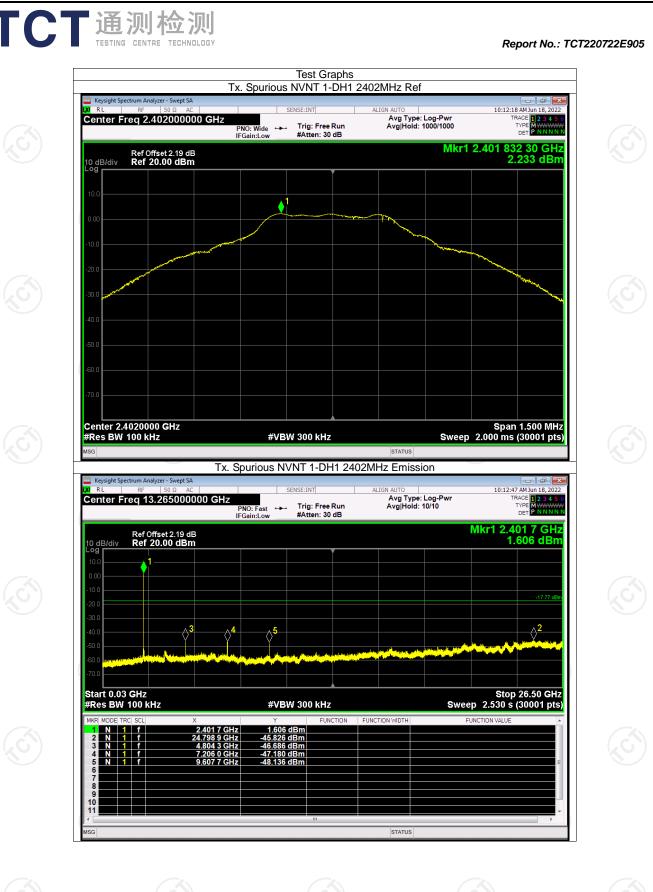


Report No.: TCT220722E905



Conducted RF Spurious Emission

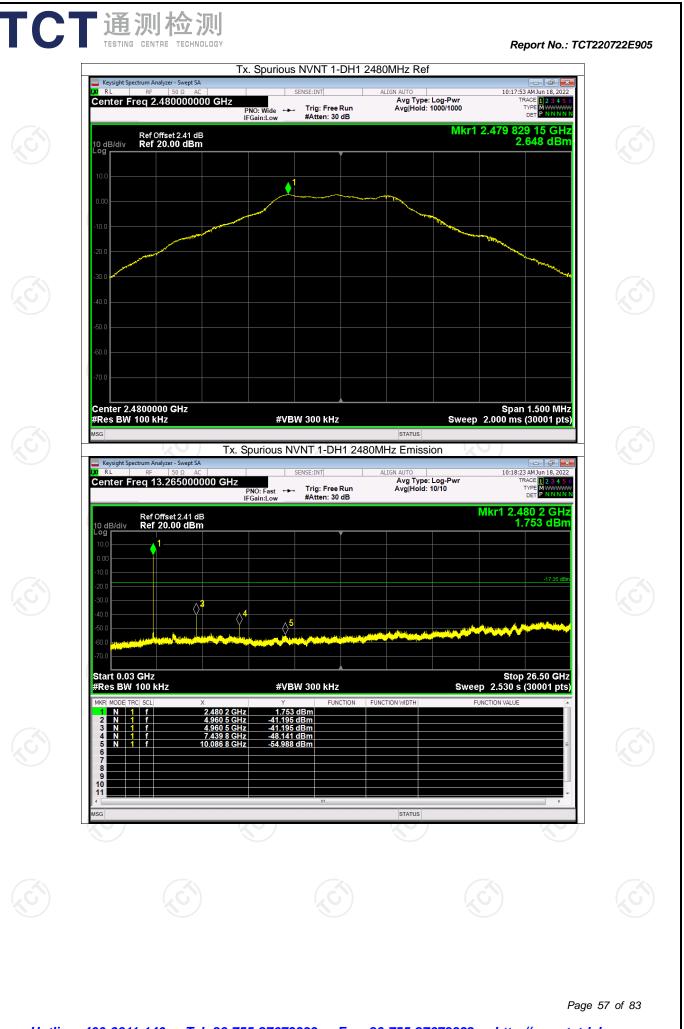
Condition	Mode	Frequency (MHz)	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH1	2402	-48.05	-20	Pass
NVNT	1-DH1	2441	-47.35	-20	Pass
NVNT	1-DH1	2480	-43.84	-20	Pass
NVNT	2-DH1	2402	-47.33	-20	Pass
NVNT	2-DH1	2441	-47.89	-20	Pass
NVNT	2-DH1	2480	-45.90	-20	Pass



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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

LXI RI		Tx. Spurious NVNT 1-DH1	ALIGN AUTO	0:14:31 AM Jun 18, 2022	
Cen	ter Freq 2.441000000 GH	Z PNO: Wide⊫ Trig: Free Run IFGain:Low #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold: 1000/1000	TRACE 1 2 3 4 5 6 TYPE MWWWW DET PNNNNN	
10 dE Log	Ref Offset 2.32 dB Vdiv Ref 20.00 dBm		Mkr1 2.4	40 832 35 GHz 2.346 dBm	
10.0					
0.00					
-10.0					
-20.0					
-30.0					
-40.0					
-60.0					
-70.0					
	er 2.4410000 GHz			Span 1.500 MHz	
#Res MSG	5 BW 100 kHz	#VBW 300 kHz	STATUS	00 ms (30001 pts)	
LX R	sight Spectrum Analyzer - Swept SA	Tx. Spurious NVNT 1-DH1 24	A1MHZ Emission	10:15:01 AM Jun 18, 2022	
Cen	ter Freq 13.265000000 G		Avg Type: Log-Pwr Avg Hold: 10/10	TRACE 123456 TYPE MWWWWW DET PNNNN	
10 dl Log	Ref Offset 2.32 dB 3/div Ref 20.00 dBm		Mkr	1 2.440 5 GHz 2.337 dBm	
10.0	1				
-10.0 -20.0				-17.65 dBm	
-30.0 -40.0				<mark>2</mark>	
-50.0 -60.0					
	t 0.03 GHz			Stop 26.50 GHz	
MKR	BW 100 KHz	#VBW 300 kHz	Sweep 2.	530 s (30001 pts)	
23	N 1 f 2.440 N 1 f 24.414 N 1 f 4.882 N 1 f 7.323	5 GHz 2.337 dBm 2 GHz -45.004 dBm 0 GHz -47.176 dBm 4 GHz -47.596 dBm			
5 6 7 8	N 1 f 9.763	9 GHz -52.451 dBm		Ŧ	
9 10 11				-	
MSG			STATUS	•	
C					
C					
)					



Keysight Spectrum Analyzer - Swept SA	Tx. Spurious NVNT 2-DH1		e đ 🖻
RL RF 50 Ω AC enter Freq 2.402000000 GH	Z PNO: Wide →→ Trig: Free Run IFGain:Low #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 1000/1000	10:26:08 AM Jun 18, 2022 TRACE 1 2 3 4 5 TYPE M WWWW DET P N N N
Ref Offset 2.19 dB) dB/div Ref 20.00 dBm		Mkr1	2.401 835 40 GHz 2.245 dBn
b g			
.00			
0.0			- My
0.0			
0.0			
0.0			
enter 2.4020000 GHz Res BW 100 kHz g	#VBW 300 kHz		Span 1.500 MH: 2.000 ms (30001 pts
	Tx. Spurious NVNT 2-DH1 240	2MHz Emission	57
Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC enter Freq 13.265000000 G		ALIGN AUTO Avg Type: Log-Pwr Avg Hold: 10/10	10:26:38 AM Jun 18, 2022 TRACE 1 2 3 4 5 TYPE MWWWW DET PNNN
Ref Offset 2.19 dB	PNO: Fast		Akr1 2.401 7 GH2
dB/div Ref 20.00 dBm			110112.4011.011
og 🔤			-3.427 dBm
			-3.427 dBm
og 0.0 1.00 → 1			-3.427 dBm -17.76 dBm
og 0.0 0.00 0.00 0.00			-3.427 dBm
			-3.427 dBm
eg 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.			-3.427 dBm
og 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.	#VBW 300 kHz 7 GHz -3.427 dBm	Swee	-3.427 dBm
99 1 00 1 00 3 00 3 00 3 00 3 00 3 00 3 00 3 00 3 00 3 00 1 01 1 02 1 1 1 1 1 2 1 1 1 2 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 <t< td=""><td>#VBW 300 kHz 7 GHz -3.427 dBm 3 GHz -45.084 dBm 4 GHz -47.778 dBm 0 GHz -49.037 dBm</td><td>Swee</td><td>-3.427 dBm</td></t<>	#VBW 300 kHz 7 GHz -3.427 dBm 3 GHz -45.084 dBm 4 GHz -47.778 dBm 0 GHz -49.037 dBm	Swee	-3.427 dBm
9g 1 0.0 1 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 4 0.0 4 0.0 5 1 1 1 1 2 N 1 1 2 N 1 1 2 N 1 1 2 N 1 1 2 N 1 1 2 N 1 1 2 N 3 N 1 1 3 9.607 6 -	#VBW 300 kHz 7 GHz -3.427 dBm 3 GHz -45.084 dBm 4 GHz -47.778 dBm 0 GHz -49.037 dBm	Swee	-3.427 dBm
og 1 0.0 1 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 4 0.0 4 0.0 4 0.0 5 1 1 1 1 2 N 1 1 2 N 1 1 7 1	#VBW 300 kHz 7 GHz -3.427 dBm 3 GHz -45.084 dBm 4 GHz -47.778 dBm 0 GHz -49.037 dBm	Swee	-3.427 dBm
9g 1 000 1 000 3 000 3 000 3 000 3 000 3 000 3 000 3 000 3 1 1 1 1 2 N 1 1 2 N 1 1 2 N 1 1 2 N 1 1 2 N 1 1 2 N 3 N 1 1 2 N 3 N 4 N 1 1 9 9 0 1	Yes Function 7 GHz -3.427 dBm 3 GHz -45.084 dBm 4 GHz -49.037 dBm 7 GHz -48.040 dBm	Swee	-3.427 dBm
og 1 0.0 1 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 1 0.0 1 0.0 1 0.0 1 0.0 1 0.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Yes Function 7 GHz -3.427 dBm 3 GHz -45.084 dBm 4 GHz -49.037 dBm 7 GHz -48.040 dBm	FUNCTION WIDTH FU	-3.427 dBm
og 1 0.0 1 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 3 0.0 1 0.0 1 0.0 1 0.0 1 0.0 1 0.0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Yes Function 7 GHz -3.427 dBm 3 GHz -45.084 dBm 4 GHz -49.037 dBm 7 GHz -48.040 dBm	FUNCTION WIDTH FU	-3.427 dBm
99 1 00 1 00 1 00 3 00 3 00 3 00 3 00 3 00 3 00 1 00 3 00 1 00 1 00 1 00 1 00 1 00 1 00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Yes Function 7 GHz -3.427 dBm 3 GHz -45.084 dBm 4 GHz -49.037 dBm 7 GHz -48.040 dBm	FUNCTION WIDTH FU	-3.427 dBm

Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC	Tx. Spurious NVNT 2-DH1	ALIGN AUTO	10:29:39 AM Jun 18, 2022
Center Freq 2.441000000	CHz PNO: Wide →→→ Trig: Free Run IFGain:Low #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold: 2000/2000	TRACE 1 2 3 4 5 TYPE MWWWW DET PNNNN
Ref Offset 2.32 dB O dB/div Ref 20.00 dBm		Mkr1 2	440 831 55 GHz 2.359 dBm
10.0			
0.00			
10.0			\sim
20.0			
30.0			۲
40.0			
50.0			
60.0			
70.0			
Center 2.4410000 GHz #Res BW 100 kHz	#VBW 300 kHz	Sweep 2	Span 1.500 MHz .000 ms (30001 pts
ISG	Tx. Spurious NVNT 2-DH1 24	status 141MHz Emission	
Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC	SENSE:INT	ALIGN AUTO	10:30:09 AM Jun 18, 2022
Center Freq 13.265000000	PNO: Fast →→→ Trig: Free Run IFGain:Low #Atten: 30 dB	Avg Type: Log-Pwr Avg Hold: 10/10	TRACE 12345 TYPE MWWWW DET PNNNN
Ref Offset 2.32 dB 10 dB/div Ref 20.00 dBm		M	kr1 2.440 5 GHz 2.268 dBm
-10.0			-17.64 dBm
-30.0			
	\diamond \diamond ⁵		A Marine Mari
-50.0	المستقلب حادينا فالمتلاطي ومباطي بالمراجع ومباذع يدوره وأراحا والملاح يتطو		
-50 0 -60 0 -70 0			
500 60.0 700 Start 0.03 GHz #Res BW 100 kHz	#VBW 300 kHz	Sweep	Stop 26.50 GHz 2.530 s (30001 pts)
500 500 <td>40 5 GHz 2.268 dBm 61 5 GHz -45,538 dBm</td> <td>Sweep</td> <td>Stop 26.50 GHz 2.530 s (30001 pts) TION VALUE</td>	40 5 GHz 2.268 dBm 61 5 GHz -45,538 dBm	Sweep	Stop 26.50 GHz 2.530 s (30001 pts) TION VALUE
500	Y FUNCTION	Sweep	2.530 s (30001 pts)
200 200 <td>Y FUNCTION 40 5 GHz 2.268 dBm 61 5 GHz 45.538 dBm 82 0 GHz 48.030 dBm 23 4 GHz 47.111 dBm</td> <td>Sweep</td> <td>2.530 s (30001 pts)</td>	Y FUNCTION 40 5 GHz 2.268 dBm 61 5 GHz 45.538 dBm 82 0 GHz 48.030 dBm 23 4 GHz 47.111 dBm	Sweep	2.530 s (30001 pts)
500	Y FUNCTION 40 5 GHz 2.268 dBm 61 5 GHz 45.538 dBm 82 0 GHz 48.030 dBm 23 4 GHz 47.111 dBm	Sweep	2.530 s (30001 pts)
200 200 <td>Y FUNCTION 40 5 GHz 2.268 dBm 61 5 GHz -45.538 dBm 20 GHz -48.030 dBm 23 4 GHz -47.111 dBm 63 9 GHz -51.370 dBm</td> <td>Sweep</td> <td>2.530 s (30001 pts)</td>	Y FUNCTION 40 5 GHz 2.268 dBm 61 5 GHz -45.538 dBm 20 GHz -48.030 dBm 23 4 GHz -47.111 dBm 63 9 GHz -51.370 dBm	Sweep	2.530 s (30001 pts)
500	Y FUNCTION 40 5 GHz 2.268 dBm 61 5 GHz -45.538 dBm 20 GHz -48.030 dBm 23 4 GHz -47.111 dBm 63 9 GHz -51.370 dBm	Sweep	2.530 s (30001 pts)
500	Y FUNCTION 40 5 GHz 2.268 dBm 61 5 GHz -45.538 dBm 20 GHz -48.030 dBm 23 4 GHz -47.111 dBm 63 9 GHz -51.370 dBm	Sweep	2.530 s (30001 pts)
0.03 GHz BW 100 kHz DDE TRC SCL X N 1 f 24.8 N 1 f 4.88 N 1 f 4.88 N 1 f 7.3	Y FUNCTION 40 5 GHz 2.268 dBm 61 5 GHz -45.538 dBm 20 GHz -48.030 dBm 23 4 GHz -47.111 dBm 63 9 GHz -51.370 dBm	Sweep	2.530 s (30001 pts

Keysight Spectrum Analyzer - Swept SA	Tx. Spurious NVNT 2-DH1 2	ALIGN AUTO Avg Type: Log-Pwr	10:54:46 AM Jun 18, 2022
Center Freq 2.48000000	O CHZ PNO: Wide ↔→ Trig: Free Run IFGain:Low #Atten: 30 dB	Avg Hold: 1000/1000	TRACE 123456 TYPE MWWWW DET PNNNNN
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Center 2.4800000 GHz #Res BW 100 kHz	#VBW 300 kHz	Buzon 2	Span 1.500 MHz 000 ms (30001 pts)
		STATUS	500 ms (3000 mts)
Keysight Spectrum Analyzer - Swept SA	Tx. Spurious NVNT 2-DH1 248		
M RL RF 50 Ω AC Center Freq 13.26500000	SENSE:INT	ALIGN AUTO	10:55:15 AM Jun 18, 2022
	PNO: Fast +++ Irig: Free Run	Avg Type: Log-Pwr Avg Hold: 10/10	
Ref Offset 2.41 dB	PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB	Avg Hold: 10/10	
	PNO: Fast +++ Irig: Free Run	Avg Hold: 10/10	TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N N
Ref Offset 2.41 dB 10 dB/div Ref 20.00 dBm	PNO: Fast +++ Irig: Free Run	Avg Hold: 10/10	r1 2.480 2 GHz 2.458 dBm
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Ref Offset 2.41 dB 10 dB/div Ref 20.00 dBm 100 100 -100	PNO: Fast Irig: Free Run IFGain:Low #Atten: 30 dB	Avg Hold: 10/10	r1 2.480 2 GHz 2.458 dBm
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Ref Offset 2.41 dB 10 dB/div Ref 20.00 dBm 100 000 -100 -200 -300 -400 -500 -500 -500 -500 -500 -700 Start 0.03 GHz	PNO: Fast \rightarrow Trig: Free Run IFGain:Low #Atten: 30 dB	Avg Hold: 10/10	TRACE 12 2 4 5 6 TYPE MYWWW DET PINNINN CT 2.480 2 GHz 2.458 dBm
Ref Offset 2.41 dB O dB/div Ref 20.00 dBm O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d O d Start 0.03 GHz Res BW 100 kHz	PNO: Fast Ing: Free Kun IFGain:Low #Atten: 30 dB	Avg Hold: 10/10	TRACE 11 23 4 5 6 TYPE MWWWW DET PINNINN r1 2.480 2 GHz 2.458 dBm
Ref Offset 2.41 dB O dB/div Ref 20.00 dBm O dB/div Image: Start 0.03 GHz #Res BW 100 kHz X Image: Model The Start 0.03 GHz X Image: Note The Start 0.03 GHz <t< td=""><td>PNO: Fast Irig: Free Run IFGain:Low #Atten: 30 dB</td><td>Avg Hold: 10/10</td><td>TRACE 12 24 5 6 Type Mixtweet per Mixtweet per Mixtweet per Mixtweet per Mixtweet 2.458 dBm</td></t<>	PNO: Fast Irig: Free Run IFGain:Low #Atten: 30 dB	Avg Hold: 10/10	TRACE 12 24 5 6 Type Mixtweet per Mixtweet per Mixtweet per Mixtweet per Mixtweet 2.458 dBm
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Ref Offset 2.41 dB 10 dB/div Ref 20.00 dBm 10 d 1 0 dB/div Ref 20.00 dBm 10 d 1 0 dB/div 1 20 dV 2	PNO: Fast Irig: Free Run IFGain:Low #Atten: 30 dB	Avg Hold: 10/10	TRACE 12 24 5 6 Type Mixtweet per Mixtweet per Mixtweet per Mixtweet per Mixtweet 2.458 dBm
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Ref Offset 2.41 dB Log Ref 20.00 dBm 10.0 0.00 0.00 1 0.00 1 0.00 1 0.00 1 0.00 1 0.00 1 0.00 1 0.00 1 30.0 1 30.0 1 30.0 1 30.0 1 40.0 1 50.0 1 50.0 1 50.0 1 50.0 1 70.0 1 70.0 1 70.0 1 70.0 1 70.0 1 70.0 1 8 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 <t< td=""><td>PNO: Fast Ing: Free Run IFGain:Low #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz 2.480 2 GHz 4.3 225 dBm 959 6 GHz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 920 1 GHz 4.5 2425 dBm</td><td>Avg Hold: 10/10</td><td>TRACE 12 24 5 6 Type Mixtweet per Mixtweet per Mixtweet per Mixtweet per Mixtweet 2.458 dBm</td></t<>	PNO: Fast Ing: Free Run IFGain:Low #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz 2.480 2 GHz 4.3 225 dBm 959 6 GHz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 920 1 GHz 4.5 2425 dBm	Avg Hold: 10/10	TRACE 12 24 5 6 Type Mixtweet per Mixtweet per Mixtweet per Mixtweet per Mixtweet 2.458 dBm
Ref Offset 2.41 dB Log Ref 20.00 dBm 10.0 0.00 0.00 1 0.00 1 0.00 1 0.00 1 0.00 1 0.00 1 0.00 1 0.00 1 30.0 1 30.0 1 30.0 1 30.0 1 40.0 1 50.0 1 50.0 1 50.0 1 50.0 1 70.0 1 70.0 1 70.0 1 70.0 1 70.0 1 70.0 1 8 1 7 1 7 1 7 1 7 1 7 1 7 1 7 1 <t< td=""><td>PNO: Fast Ing: Free Run IFGain:Low #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz 2.480 2 GHz 4.3 225 dBm 959 6 GHz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 920 1 GHz 4.5 2425 dBm</td><td>Avg Hold: 10/10</td><td>TRACE 12 24 5 6 Type Mixtweet per Mixtweet per Mixtweet per Mixtweet per Mixtweet 2.458 dBm</td></t<>	PNO: Fast Ing: Free Run IFGain:Low #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz 2.480 2 GHz 4.3 225 dBm 959 6 GHz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 920 1 GHz 4.5 2425 dBm	Avg Hold: 10/10	TRACE 12 24 5 6 Type Mixtweet per Mixtweet per Mixtweet per Mixtweet per Mixtweet 2.458 dBm
Ref Offset 2.41 dB OdB/div Ref 20.00 dBm Og Image: Constraint of the second	PNO: Fast Ing: Free Run IFGain:Low #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #Atten: 30 dB #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz #VBW 300 kHz 2.480 2 GHz 4.3 225 dBm 959 6 GHz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 959 9 G Hz 4.3 225 dBm 920 1 GHz 4.5 2425 dBm	Avg Hold: 10/10	TRACE 12 24 5 6 Type Mixtweet per Mixtweet per Mixtweet per Mixtweet per Mixtweet 2.458 dBm

Condition NVNT NVNT	Mode 1-DH 2-DH	e 1	f Hoppin Hopping N 79 79	lumber	Limit 15 15	Verd Pas Pas	SS

MKR MODE TRC SCL X 1 N 1 f 2.401 837 0 2 N 1 f 2.479 993 0	GHz 2.081 dBm	FUNCTION WIDTH FUNCT	ON VALUE
5 6 7			
8 9 10			
MSG		STATUS	
Keysight Spectrum Analyzer - Swept SA	Hopping No. NVNT 2-DH1	2441MHz	
027 RL RF 50 Ω AC Center Freq 2.441750000 GHz	PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB	ALIGN AUTO Avg Type: Log-Pwr Avg Hold:>100/100	11:02:32 AM Jun 18, 2022 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P N N N N N
Ref Offset 2.32 dB 10 dB/div Ref 20.00 dBm		Mkr1 2	.401 837 0 GHz 2.488 dBm
0.00 	MMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMMM	www.www.www.	mmm
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-40.0 -50.0 -60.0 -70.0			Stop 2.48350 GHz
-40.0 -50.0 -70.0 Start 2.40000 GHz #Res BW 100 kHz	#VBW 300 kHz	-	Stop 2.48350 GHz .000 ms (1001 pts)
-40.0 -50.0 -60.0 -70.0 Start 2.40000 GHz #Res BW 100 kHz MKR MODE TRC SCL X 1 N 1 f 2.401 837 0	Y FUNCTION GHz 2.488 dBm	-	
-40.0 -50.0 -70.0 Start 2.40000 GHz #Res BW 100 KHz MKR MODE TRC SCL X 1 N 1 f 2.401 837 0 2 N 1 f 2.479 993 0 3 4	Y FUNCTION GHz 2.488 dBm	-	.000 ms (1001 pts)
-40.0 -50.0 -70.0 Start 2.40000 GHz #Res BW 100 kHz MKR MODE TRC SCL X 1 N 1 f 2.401 837 0 2 A01 837 0 3 A 1 f 2.479 993 0 3 A 5 6 6 6 7 A 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	Y FUNCTION GHz 2.488 dBm	-	.000 ms (1001 pts)
-40.0 -50.0 -70.0 Start 2.40000 GHz #Res BW 100 KHz MRR MODE TRC SCL X 1 N 1 f 2.401 837 0 2 N 1 f 2.409 893 0 3 4 5 6 6 6 7 8 8 9	Y FUNCTION GHz 2.488 dBm	-	.000 ms (1001 pts)
-40.0 -50.0 -50.0 -70.0 Start 2.40000 GHz #Res BW 100 kHz MKR MODE TRC SCL X 1 N 1 f 2.401 837 0 2 N 1 f 2.479 993 0 3 4 5 5 6 6 7 7 8	Y FUNCTION GHz 2.488 dBm	-	.000 ms (1001 pts)
-40.0 -50.0 -70.0 Start 2.40000 GHz #Res BW 100 kHz MKR MODE TRC SCL X 1 N 1 f 2.401 837 0 2 N 1 f 2.407 993 0 3 4 5 6 6 6 7 8 8 9 9 9 10	Y FUNCTION GHz 2.488 dBm GHz 2.115 dBm	-	.000 ms (1001 pts)
-40.0 -50.0 -70.0 Start 2.40000 GHz #Res BW 100 KHz MKR MODE TRC SCL X 1 N 1 f 2.401 837 0 2 N 1 f 2.401 837 0 3 4 5 6 6 6 7 8 9 9 10 11 4 7 8 8 9 9 10 11 4 7 8 8 9 9 10 11 1 7 1 7 1 7 1 7 1 7 1 7 1 7	Y FUNCTION GHz 2.488 dBm GHz 2.115 dBm	FUNCTION WIDTH FUNCT	.000 ms (1001 pts)

Test Graphs Hopping No. NVNT 1-DH1 2441MHz

PNO: Fast Trig: Free Run IFGain:Low #Atten: 30 dB Avg Type: Log-Pwr Avg|Hold:>100/100

10 dB/div Log

Keysight Spectrum Analyzer - Swept SA RL RF 50 Ω AC

Center Freq 2.441750000 GHz

Ref Offset 2.32 dB Ref 20.00 dBm

T

Report No.: TCT220722E905

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10:22:50 AM Jun 18, 2

RAL TYF DE

Mkr1 2.401 837 0 GHz 2.081 dBm

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ТСТ		 检测				Rep	ort No.: TCI	7220722E905
			Dwe	II Time				
Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Burst Count	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	0.38	120.46	317	31600	400	Pass
NVNT	1-DH3	2441	1.64	265.68	162	31600	400	Pass
NVNT	1-DH5	2441	2.89	294.78	102	31600	400	Pass

0.39

1.64

2.89

124.41

260.76

271.66

2-DH1

2-DH3

2-DH5

2441

2441

2441

NVNT

NVNT

NVNT

319

159

94

31600

31600

31600

400

400

400

Pass

Pass

Pass

							Page	63 of 83
<u>Hotlin</u>	<u>e: 400-6611-</u>	<u>.140 Tel: 8</u>	86-755-27673	<u>3339 Fax:</u>	<u>86-755-2767</u>	<u>3332 http</u>	://www.tct-la	<u>ab.com</u>

ΔMkr1 380.0 μs 0.94 dB Ref Offset 2.32 dB Ref 20.00 dBm og 1Δ2 in the second Center 2.441000000 GHz Res BW 1.0 MHz Span 0 Hz Sweep 10.00 ms (10001 pts) #VBW 3.0 MHz FUNCTION WIDTH 1 t (Δ) 1 t 380.0 μs (Δ) 498.0 μs 0.94 dB 1.43 dBm Λ2 F 10 11 Dwell NVNT 1-DH1 2441MHz Accumulated Keysight Spectrum Analyzer - Swept SA 10:23:31 AM Jun 18, 2022 KI RL ALIGN AUT Avg Type: Log-Pwr TRACE 1 2 3 4 5 TYPE WWWWW DET P NNNN Center Freq 2.441000000 GHz Trig: Free Run #Atten: 30 dB PNO: Fast IFGain:Low ----Ref Offset 2.32 dB Ref 20.00 dBm 10 dB/div line de la constante de la cons il on all Center 2.441000000 GHz Res BW 1.0 MHz Span 0 Hz Sweep 31.60 s (10001 pts) #VBW 3.0 MHz STATUS

Test Graphs Dwell NVNT 1-DH1 2441MHz One Burst

> Trig Delay-500.0 µs Trig: Video #Atten: 30 dB

PNO: Fast ↔→ IFGain:Low Avg Type: Log-Pwr

[CT通测检测

KI RI

TESTING CENTRE TECHNOLOGY

Keysight Spectrum Analyzer - Swept SA

Center Freq 2.441000000 GHz

Report No.: TCT220722E905

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10:22:57 AM Jun 18, 20

12345 WWWWWWW

TYP.

	通测检测 TESTING CENTRE TECHNOLOGY Report No.: TCT Dwell NVNT 1-DH3 2441MHz One Burst	
LXI	Keysight Spectrum Analyzer - Swept SA C <thc< th=""> C C</thc<>	
	IFGain:Low #Atten: 30 dB Det PINNIN Ref Offset 2.32 dB ΔMkr1 1.640 ms	
La	dB/div Ref 20.00 dBm -23.75 dB	
	10	
-6		
	enter 2.441000000 GHz Span 0 Hz es BW 1.0 MHz #VBW 3.0 MHz Sweep 10.00 ms (10001 pts)	
	R MODE[TRC] SCL X Y FUNCTION FUNCTION WIDTH FUNCTION VALUE Δ2 1 t Δ 1.640 ms (Δ) -23.75 dB F 1 t 498.0 μs -5.87 dBm -5.87 dBm	
1		
MSC	Dwell NVNT 1-DH3 2441MHz Accumulated	
LXI	Keysight Spectrum Analyzer - Swept SA Constraint Constrai	
	IFGain:Low #Atten: 30 dB DET PINNIN	
10 Lo	Ref Offset 2.32 dB dB/div Ref 20.00 dBm	
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-10		
-20		
-40		
-50	o veritile were allowed and being and determined at the and the advice to add the transferred to be the determined to the transferred to be the second the second termined at the	
-60		
-70		
Ce	enter 2.441000000 GHz Span 0 Hz es BW 1.0 MHz #VBW 3.0 MHz Sweep 31.60 s (10001 pts)	
MSC		

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ΓCΤ	通测检测 TESTING CENTRE TECHNOLOGY Report No.: TCT	220722E905
L)XI	Keysight Spectrum Analyzer - Swept SA Image: Constraint of the system	
LL 1 -1 -2	IFGain:Low #Atten: 30 dB Det PINNIN Ref Offset 2.32 dB ΔMkr1 2.890 ms -30.70 dB OdB/div Ref 20.00 dBm -30.70 dB -30.70 dB V 1/2 1/2 1/2 1/2	
-5 -8 -7 C C R M	0.0 0.0 </td <td></td>	
	2 F 1 t 498.0 μs 1.20 dBm 3 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 6 5	
1 (-11 -2	Avg Type: Log-Pwr TRACE II 2 2 3 5 6 TYPE WWWWW Det PNO: Fast IFGain:Low Trig: Free Run #Atten: 30 dB	
-5 -5 -7 -7	an <u>Allanda and Allanda and Allanda Ender 2.4410000000 GHz es BW 1.0 MHz #VBW 3.0 MHz Sweep 31.60 s (10001 pts) G</u>	
		66 of 83

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	Keysight Spectrum Analyzer - Swept SA	NVNT 2-DH1 2441MHz One Bu	- 6 💌	
	RL RF 50 Ω AC enter Freq 2.441000000 GHz PNO: Fa IFGain:Lr	ast 🛶 Trig: Video	11:02:40 AM Jun 18, 2022 TRACE 1234 5 0 TYPE V DET P.NINNIN	
۲ ۱	Ref Offset 2.32 dB 0 dB/div Ref 20.00 dBm		ΔMkr1 390.0 μs 3.59 dB	(c
	0.0		TRIG LVL	
	00.0			
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	enter 2.441000000 GHz		Span 0 Hz	(c
	es BW 1.0 MHz κR MODE TRC SCL X 1 Δ2 1 t (Δ) 390.0 μs (Δ)	¥VBW 3.0 MHz Y FUNCTION FUNCTION WIDTH 3.59 dB Image: Contract of the second sec	Sweep 10.00 ms (10001 pts)	
	2 F 1 t 498.0 µs 3 4 4	-2.83 dBm		
	5 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		E	
	9 0 1		·	
M		" statt VNT 2-DH1 2441MHz Accumul		- 66
	Keysight Spectrum Analyzer - Swept SA R L RF 50 Ω AC	SENSE:INT ALIGN AUTO	11:03:14 AM Jun 18, 2022	
	enter Freq 2.441000000 GHz PNO: Fa IFGain:Lu	ast 🛶 Trig: Free Run	ype: Log-Pwr TRACE 23456 TYPE WWWWWW DET PNNNNN	
11 L	Ref Offset 2.32 dB 0 dB/div Ref 20.00 dBm			
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-	o o <mark>kala ala karan diringkaran karana karan baran karan kar</mark>	nd er, sindhalmer og sam half en blad never ander blad haver.	n (ha taa jalaan taa jaliin ka taanka ah yoo mila, aadin ta ka jaliin taa aaya	
	0.0			(c)
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C	enter 2.441000000 GHz es BW 1.0 MHz	#VBW 3.0 MHz	Span 0 Hz Sweep 31.60 s (10001 pts)	
MS	G	STATU		

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Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

	も か た か の し い の の の の の の の の の の の の の の の の の	well NVNT 2-DH3 2441MHz One B	Report No.: 1 Burst	СТ220722E9
		PNO: Fast 🛶 Trig: Video		
10 dBJ 10.0 0.00 -10.0 -20.0 -30.0	Ref Offset 2.32 dB	FGain:Low #Atten: 30 dB	ΔMkr1 1.640 ms 0.08 dB	
-40.0 -50.0 -60.0 -770.0	antino An	e de l'assemble de la de la contra de la contr La contra de la contr La contra de la cont	fer besche fahren spesselsen bigen som en af delse skine state store beliefer i beste besom en at A kan beste store beste store store store store store store A kan beste store sto	
	r 2.441000000 GHz W 1.0 MHz	#VBW 3.0 MHz	Span 0 Hz Sweep 10.00 ms (10001 pts)	
<u>1</u> Δ	DE TRC SCL X 2 1 t (Δ) 1.640 ms 1 t 498.0 μs	0.55 dBm	FUNCTION VALUE	
<u>()</u>	Dwo	ell NVNT 2-DH3 2441MHz Accum		
LXI RL	er Freq 2.441000000 GHz	PNO: Fast ++++ Trig: Free Run		
10.0 -20.0 -40.0	Ref Offset 2.32 dB Ref 20.00 dBm	FGain:Low #Atten: 30 dB		
-60.0	ar an		na kanana ka Marana kanana	
	r 2.441000000 GHz		Span 0 Hz Sweep 31.60 s (10001 pts)	
Kes B MSG	W 1.0 MHz	#VBW 3.0 MHz		

CT	通测检测 TESTING CENTRE TECHNOLOGY Report No.: TCT220722	2E905
	Dwell NVNT 2-DH5 2441MHz One Burst	
	d RL RF 50 Ω AC SENSE:INT ALIGN AUTO 11:16:31 AM Jun 18,2022 Center Freq 2.441000000 GHz Trig Delay-500.0 μs Avg Type: Log-Pwr TRACE 12.345 σ PNO: Fast →→ IFGain:Low #Atten: 30 dB σET	
S	Ref Offset 2.32 dB ΔMkr1 2.890 ms 10 dB/div Ref 20.00 dBm -3.23 dB	
	Center 2.441000000 GHz Span 0 Hz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 10.00 ms (10001 pts)	
	MKR< MODET TRC: SCL X Y FUNCTION FUNCTION VIDTH FUNCTION VALUE 1 Δ2 1 t (Δ) 2.890 ms (Δ) -3.23 dB 2 F 1 t 354.0 µs -8.91 dBm	
	III STATUS	
	Dwell NVNT 2-DH5 2441MHz Accumulated Keysight Spectrum Analyzer - Swept SA C	
Č	Center Freq 2.441000000 GHz Avg Type: Log-Pwr TRACE D 34.5.5 PNO: Fast →→ Trig: Free Run Avg Type: Log-Pwr Tree With With the State Stat	
	Ref Offset 2.32 dB 0 dB/div Ref 20.00 dBm	
	•°g	
C)		
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	60.0	
G)	70.0	
<u> </u>	Center 2.441000000 GHz Span 0 Hz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 31.60 s (10001 pts)	
	STATUS	

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