Radio Test Report

Report No.:STS2404092W01

Issued for

Shenzhen Jonter Digital Co., Ltd

3F/4B, Hezhou Jinfo Industrial Park, Hezhou, Xixiang Street, Baoan District, Shenzhen, Guangdong, China

Product Name:	Bluetooth Speaker
Brand Name:	N/A
Model Name:	D127
Series Model(s):	N/A
FCC ID:	2AB9S-D127
Test Standards:	FCC Part15.247

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.



TEST REPORT

Applicant's Name	Shenzhen Jonter Digital Co., Ltd	
Address	3F/4B, Hezhou Jinfo Industrial Park, Hezhou, Xixiang Street, Baoan District, Shenzhen, Guangdong, China	
Manufacturer's Name	Shenzhen Jonter Digital Co., Ltd	
Address	3F/4B, Hezhou Jinfo Industrial Park, Hezhou, Xixiang Street, Baoan District, Shenzhen, Guangdong, China	
Product Description		
Product Name	Bluetooth Speaker	
Brand Name:	N/A	
Model Name:	D127	
Series Model(s)	N/A	

Test Standards	FCC Part15.247

Test Procedure: ANSI C63.10-2020

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

The test results presented in this report relate only to the object tested. This report shall not be reproduced, except in full, without the written approval of the Shenzhen STS Test Services Co., Ltd.

Date of Test.....

Date of receipt of test item: 18 Apr. 2024

Date (s) of performance of tests : 18 Apr. 2024~ 23 Apr. 2024

Date of Issue: 23 Apr. 2024

Test Result: Pass

Testing Engineer

Jan Bu

(Aaron Bu)

Technical Manager

Authorized Signatory :

cher

(Chris Chen)

hover





(Bovey Yang)



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Revision History

Rev.	Issue Date	Report No.	Effect Page	Contents
00	23 Apr. 2024	STS2404092W01	ALL	Initial Issue
			9	9





1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards: KDB 558074 D01 15.247 Meas Guidance v05r02.

FCC Part 15.247,Subpart C				
Standard Section	Test Item	Judgment	Remark	
15.207	Conducted Emission	PASS		
15.247(a)(1)	Hopping Channel Separation	PASS		
15.247(a)(1)&(b)(1)	Output Power	PASS		
15.209	Radiated Spurious Emission PASS		-	
15.247(d)	Conducted Spurious & Band Edge Emission	PASS	1	
15.247(a)(1)(iii)	Number of Hopping Frequency	PASS		
15.247(a)(1)(iii)	Dwell Time PASS			
15.247(a)(1)	Bandwidth	PASS		
15.205	Restricted bands of operation PASS			
Part 15.247(d)/part 15.209(a)	Band Edge Emission PASS		-	
15.203	Antenna Requirement PASS		9	

NOTE:

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

(2) All tests are according to ANSI C63.10-2020.



1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD Add. : 101, Building B, Zhuoke Science Park, No.190 Chongqing Road, ZhanChengShequ, Fuhai Sub-District, Bao'an District, Shenzhen, Guang Dong, China FCC test Firm Registration Number: 625569 IC test Firm Registration Number: 12108A A2LA Certificate No.: 4338.01

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1.2 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	Uncertainty
1	RF output power, conducted	±0.755dB
2	Unwanted Emissions, conducted	±2.874dB
3	All emissions, radiated 9K-30MHz	±3.80dB
4	All emissions, radiated 30M-1GHz	±4.18dB
5	All emissions, radiated 1G-6GHz	±4.90dB
6	All emissions, radiated>6G ±5.24dB	
7	Conducted Emission (9KHz-150KHz)	±2.19dB
8	Conducted Emission (150KHz-30MHz)	±2.53dB
9	Occupied Channel Bandwidth	±3.5%
10	Duty Cycle	±3.2%



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

e
Bluetooth Speaker
N/A
D127
N/A
N/A
Please refer to the Note 3.
Frequency:2402 – 2480 MHz Modulation: GFSK(1Mbps), π/4-DQPSK(2Mbps), 8DPSK(3Mbps)
BR+EDR
РСВ
2.75 dBi
Input: 5V 1A
VA.0
V2
Please refer to the Note 1.

Note:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the User Manual.
- 2. The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report. Due to the incorrect antenna information, a series of problems such as the accuracy of the test results will be borne by the customer.



Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		



2.2 DESCRIPTION OF THE TEST MODES

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

Worst Mode	Description	Data Rate/Modulation
Mode 1	TX CH00	1Mbps/GFSK
Mode 2	TX CH39	1Mbps/GFSK
Mode 3	TX CH78	1Mbps/GFSK
Mode 4	TX CH00	2 Mbps/π/4-DQPSK
Mode 5	TX CH39	2 Mbps/π/4-DQPSK
Mode 6	TX CH78	2 Mbps/π/4-DQPSK
Mode7	TX CH00	3 Mbps/8DPSK
Mode 8	TX CH39	3 Mbps/8DPSK
Mode 9	TX CH78	3 Mbps/8DPSK
Mode 10	Hopping	GFSK
Mode 11	Hopping	π/4-DQPSK
Mode 12	Hopping	8DPSK

Note:

(1) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported.

(2) We tested for all available U.S. voltage and frequencies (For 120V, 50/60Hz and 240V, 50/60Hz) for which the device is capable of operation, and the worst case of 120V/ 60Hz is shown in the report.

(3) The battery is fully-charged during the radiated and RF conducted test.

For AC Conducted Emission

	Test Case
AC Conducted Emission	Mode 13 : Keeping BT TX

2.3 FREQUENCY HOPPING SYSTEM REQUIREMENTS

(1)Standard and Limit

According to FCC Part 15.247(a)(1), The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

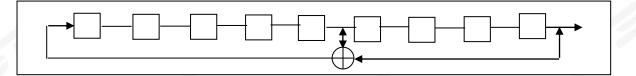


The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hop sets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

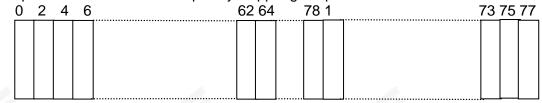
(2)The Pseudorandom sequence may be generated in a nin-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first one of 9 consecutive ones: i.e. the shift register is initialized with nine ones.

Numver of shift register stages:9

Length of pseudo-random sequence:2⁹-1=511bits Longest sequence of zeros: 8(non-inverted signal)



Liner Feedback Shift Register for Generator of the PRBS sequence An example of Pseudorandom Frequency Hoppong Sequence as follow:



Each frequency used equally on the average by each transmitter. The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies ini synchronization with the transmitted signals.

(3) Frequency Hopping System

This transmitter device is frequency hopping device, and complies with FCC part 15.247 rule.

This device uses Bluetooth radio which operates in 2400-2483.5 MHz band. Bluetooth uses a radio technology called frequency-hopping spread spectrum, which chops up the data being sent and transmits chunks of it on up to 79 bands (1 MHz each; centred from 2402 to 2480 MHz) in the range 2,400-2,483.5MHz. The transmitter switches hop frequencies 1,600 times per second to assure a high degree of data security. All Bluetooth devices participating in a given piconet are synchronized to the frequency-hopping channel for the piconet. The frequency hopping sequence is determined by the master's device address and the phase of the hopping sequence (the frequency to hop at a specific time) is determined by the master's internal clock. Therefore, all slaves in a piconet must know the master's device address and must synchronize their clocks with the master's clock.

Adaptive Frequency Hopping (AFH) was introduced in the Bluetooth specification to provide an effective way for a Bluetooth radio to counteract normal interference. AFH identifies "bad" channels, where either other wireless devices are interfering with the Bluetooth signal or the Bluetooth signal is interfering with another device. The AFH-enabled Bluetooth device will then communicate with other devices within its piconet to share details of any identified bad channels. The devices will then switch to alternative available "good" channels, away from the areas of interference, thus having no impact on the bandwidth used.

This device was tested with a bluetooth system receiver to check that the device maintained hopping synchronization, and the device complied with these requirements FCC Part 15.247 rule.



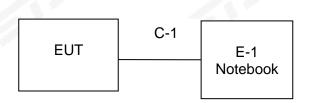
2.4 TABLE OF PARAMETERS OF TEST SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS.

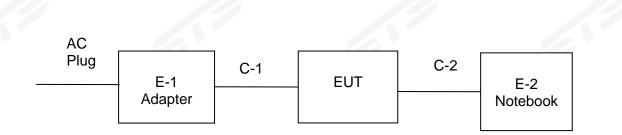
	Test program: Bluetooth				
(Control software) Parameters(1/2/3Mbps)	Packet type: DH1:4:27 2DH1:20:54 3DH1:24:83	Packet type: DH3:11:183 2DH3:26:367 3DH3:27:552	Packet type: DH5:15:339 2DH5:30:679 3DH5:31:1021		

Fu	RF unction	Туре	Mode Or Modulation type	ANT Gain(dBi)	Power Class	Software For Testing
			GFSK	0.8	10	
	ВТ	BR+EDR	π/4-DQPSK	0.8	10	FCC_assist1.0.4
			8DPSK	0.8	10	

2.5 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED Radiated Spurious Emission Test



Conducted Emission Test





2.6 DESCRIPTION OF NECESSARY ACCESSORIES AND 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.

	Necessary accessories						
Item	equipment	Mfr/Brand	Model/Type No.	Length	Note		
N/A	N/A	N/A	N/A	N/A	N/A		

Support units

Iter	n Equipment	Mfr/Brand	Model/Type No.	Length	Note
	Adapter	HUAWEI	HW-050450C00	N/A	N/A
	DC Cable	N/A	N/A	120cm	NO
	Personal computer	DELL	Inspiron 14-3467	N/A	N/A

Note:

- (1) For detachable type I/O cable should be specified the length in cm in $\[\]$ Length $\[\]$ column.
- (2) "YES" is means "with core"; "NO" is means "without core".



2.7 EQUIPMENTS LIST

	RF Radia	tion Test Equipme	nt	1	1.
Kind of Equipment	Manufacturer	Туре No.	Serial No.	Last Calibration	Calibrated Until
Temperature & Humidity	SW-108	SuWei	N/A	2024.03.15	2025.03.14
Pre-Amplifier(0.1M-3GHz)	EM	EM330	060665	2024.02.23	2025.02.22
Pre-Amplifier(1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2023.09.26	2024.09.2
Pre-Amplifier(18G-40GHz)	SKET	LNPA_1840-50	SK2018101801	2024.02.23	2025.02.2
Active loop Antenna	ZHINAN	ZN30900C	16035	2023.02.28	2025.02.2
Bilog Antenna	TESEQ	CBL6111D	34678	2022.09.30	2024.09.2
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2023.09.24	2025.09.2
Horn Antenna	A-INFOMW	LB-180400-KF	J211020657	2023.10.10	2025.10.0
Positioning Controller	MF	MF-7802	MF-780208587	N/A	N/A
Signal Analyzer	R&S	FSV 40-N	101823	2023.09.26	2024.09.2
Switch Control Box	N/A	N/A	N/A	N/A	N/A
Filter Box	BALUN Technology	SU319E	BL-SZ1530051	N/A	N/A
Antenna Mast	MF	MFA-440H	N/A	N/A	N/A
Turn Table	MF	SC100_1	60531	N/A	N/A
AC Power Source	APC	KDF-11010G	F214050035	N/A	N/A
DC power supply	HONGSHENGFENG	DPS-305AF	17064939	2023.09.26	2024.09.2
Test SW	EZ-EMC		Ver.STSLAB-03	A1 RE	1
	Conduct	ion Test equipme	nt	100	
Kind of Equipment	Manufacturer	Туре No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2023.09.25	2024.09.2
LISN	R&S	ENV216	101242	2023.09.25	2024.09.2
LISN	EMCO	3810/2NM	23625	2023.09.25	2024.09.2
Temperature & Humidity	SW-108	SuWei	N/A	2023.09.25	2024.09.2
Test SW	EZ-EMC		Ver.STSLAB-03	A1 CE	100
	RF C	Connected Test		1	1
Kind of Equipment	Manufacturer	Туре No.	Serial No.	Last calibration	Calibrated until
Signal Analyzer	Agilent	N9020A	MY51510623	2024.02.23	2025.02.2
Power Sensor	Keysight	U2021XA	MY55520005	2023.09.26	2024.09.2
Temperature & Humidity	SW-108	SuWei	N/A	2024.03.15	2025.03.1
Test SW	MW		MTS 8310_2.0	0.0.0	
	1				1



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

The radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table.

	Conducted Emissionlimit (dBuV)		
FREQUENCY (MHz)	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	
0.50 -5.0	56.00	46.00	
5.0 -30.0	60.00	50.00	

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of "*" marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

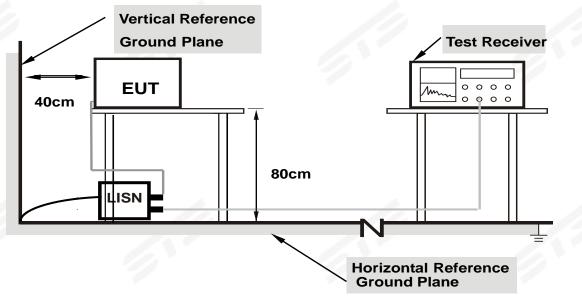
Receiver Parameters	Setting		
Attenuation	10 dB		
Start Frequency	0.15 MHz		
Stop Frequency	30 MHz		
IF Bandwidth	9 kHz		



3.1.2 TEST PROCEDURE

- a. The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN is at least 80 cm from the nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

3.1.3 TEST SETUP



Note: 1. Support units were connected to second LISN.

2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes support units.

3.1.4 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.



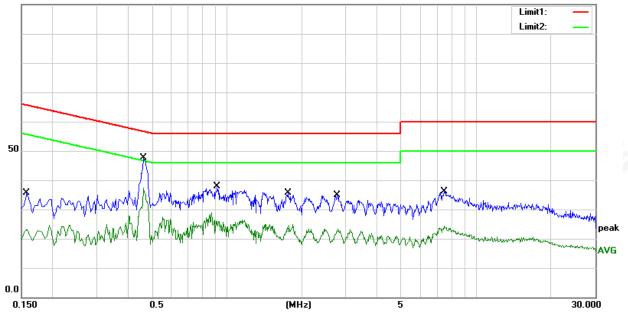
3.1.5 TEST RESULT

Temperature:	25.1(C)	Relative Humidity:	59%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	Mode 13	65	65

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1580	15.86	19.76	35.62	65.57	-29.95	QP
2	0.1580	4.92	19.76	24.68	55.57	-30.89	AVG
3	0.4660	27.52	19.99	47.51	56.58	-9.07	QP
4	0.4660	17.41	19.99	37.40	46.58	-9.18	AVG
5	0.9140	18.10	19.79	37.89	56.00	-18.11	QP
6	0.9140	9.02	19.79	28.81	46.00	-17.19	AVG
7	1.7620	15.86	19.85	35.71	56.00	-20.29	QP
8	1.7620	4.97	19.85	24.82	46.00	-21.18	AVG
9	2.7700	15.05	19.92	34.97	56.00	-21.03	QP
10	2.7700	3.35	19.92	23.27	46.00	-22.73	AVG
11	7.4260	16.37	19.87	36.24	60.00	-23.76	QP
12	7.4260	4.46	19.87	24.33	50.00	-25.67	AVG

Remark:

- All readings are Quasi-Peak and Average values
 Margin = Result (Result =Reading + Factor)–Limit
 Factor=LISN factor+Cable loss+Limiter (10dB)
 100.0 dBuV





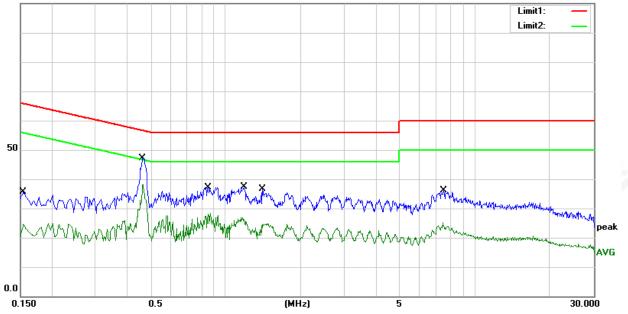
Temperature:	25.1(C)	Relative Humidity:	59%RH
Test Voltage:	AC 120V/60Hz	Phase:	N
Test Mode:	Mode 13	17	1.7

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	0.1540	15.87	19.75	35.62	65.78	-30.16	QP
2	0.1540	5.15	19.75	24.90	55.78	-30.88	AVG
3	0.4660	27.03	19.99	47.02	56.58	-9.56	QP
4	0.4660	18.17	19.99	38.16	46.58	-8.42	AVG
5	0.8500	17.40	19.81	37.21	56.00	-18.79	QP
6	0.8500	8.46	19.81	28.27	46.00	-17.73	AVG
7	1.1860	17.50	19.79	37.29	56.00	-18.71	QP
8	1.1860	7.12	19.79	26.91	46.00	-19.09	AVG
9	1.4060	16.71	19.82	36.53	56.00	-19.47	QP
10	1.4060	4.98	19.82	24.80	46.00	-21.20	AVG
11	7.4900	16.14	19.87	36.01	60.00	-23.99	QP
12	7.4900	5.20	19.87	25.07	50.00	-24.93	AVG

Remark:

- All readings are Quasi-Peak and Average values
 Margin = Result (Result = Reading + Factor)–Limit
- 3. Factor=LISN factor+Cable loss+Limiter (10dB)







3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS

In any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the Restricted band specified on Part15.205 (a)&209(a) limit in the table and according to ANSI C63.10-2020 below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (0.009MHz - 1000MHz)

Frequencies	Field Strength	Measurement Distance
(MHz)	(micorvolts/meter)	(meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (1GHz-25 GHz)

FREQUENCY (MHz)	(dBuV/m) (at 3M)		
	PEAK	AVERAGE	
Above 1000	74	54	
Materia			

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RESTRICTED FREQUENCY BANDS

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505 16.69475-16.69		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
8.41425-8.41475	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	Above 38.6
13.36-13.41			



For Radiated Emission

Spectrum Parameter	Setting		
Attenuation	Auto		
Detector	Peak/QP/AV		
Start Frequency	9 KHz/150KHz(Peak/QP/AV)		
Stop Frequency	150KHz/30MHz(Peak/QP/AV)		
	200Hz (From 9kHz to 0.15MHz)/		
RB / VB (emission in restricted	9KHz (From 0.15MHz to 30MHz);		
band)	200Hz (From 9kHz to 0.15MHz)/		
	9KHz (From 0.15MHz to 30MHz)		

Spectrum Parameter	Setting	
Attenuation	Auto	
Detector	Peak/QP	
Start Frequency	30 MHz(Peak/QP)	
Stop Frequency	1000 MHz (Peak/QP)	
RB / VB (emission in restricted		
band)	120 KHz / 300 KHz	

	Spectrum Parameter	Setting	
	Attenuation	Auto	
	Detector	Peak/AV	
ſ	Start Frequency	1000 MHz(Peak/AV)	
ſ	Stop Frequency	10th carrier hamonic(Peak/AV)	
Ī	RB / VB (emission in restricted	1 MHz / 3 MHz(Peak)	
	band)	1 MHz/1/T MHz(AVG)	

For Restricted band

	Spectrum Parameter	Setting		
d	Detector	Peak/AV		
	Start/Stop Frequency	Lower Band Edge: 2310 to 2410 MHz		
		Upper Band Edge: 2476 to 2500 MHz		
		1 MHz / 3 MHz(Peak)		
	RB / VB	1 MHz/1/T MHz(AVG)		

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Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

- a. The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree to determine the position of the highest radiation.
- c. The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarization of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and QuasiPeak detector mode will be re-measured.
- e. If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos. Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

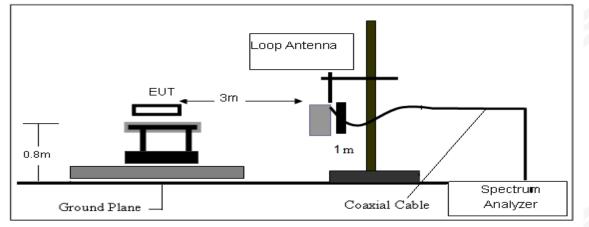
3.2.3 DEVIATION FROM TEST STANDARD

No deviation.

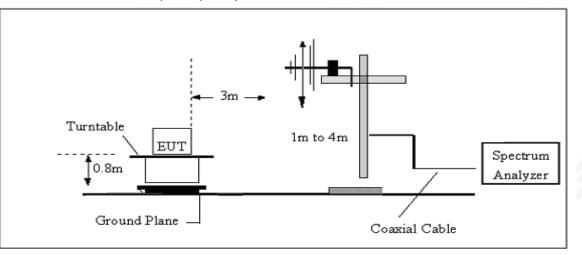


3.2.4 TESTSETUP

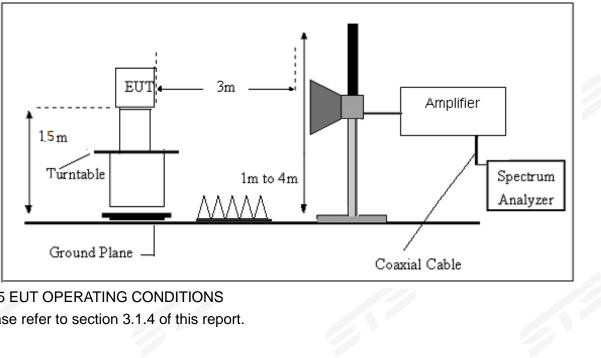
(A) Radiated Emission Test-Up Frequency Below 30MHz

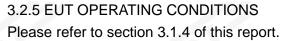


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz







3.2.6 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AGWhere FS = Field Strength CL = Cable Attenuation Factor (Cable Loss) RA = Reading Amplitude AG = Amplifier Gain

AF = Antenna Factor

For example

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBµV/m)	(dBµV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

Factor=AF+CL-AG











3.2.7 TEST RESULTS

(9KHz-30MHz)

Temperature:	23.1(C)	Relative Humidity:	60%RH
Test Voltage:	DC 3.7V	Test Mode:	TX Mode

Freq.	Reading	Limit	Margin	State	Toot Dooult	
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F	Test Result	
					PASS	
					PASS	

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB); Limit line = specific limits (dBuv) + distance extrapolation factor.



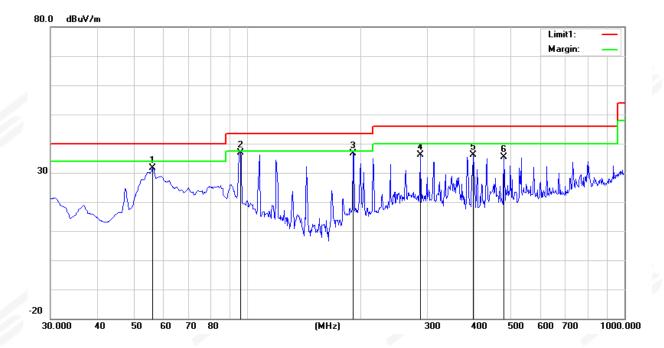
(30MHz-1000MHz)

Temperature:	23.1(C)	Relative Humidity:	60%RH
Test Voltage:	DC 3.7V	Phase:	Horizontal
Test Mode:	Mode 1/2/3/4/5/6/7/8/9(Mode	4 worst mode)	1

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	56.1900	56.99	-25.30	31.69	40.00	-8.31	peak
2	95.9600	57.46	-20.67	36.79	43.50	-6.71	peak
3	191.0200	57.64	-21.01	36.63	43.50	-6.87	peak
4	288.0200	51.37	-15.26	36.11	46.00	-9.89	peak
5	398.6000	47.40	-11.20	36.20	46.00	-9.80	peak
6	479.1100	44.14	-8.68	35.46	46.00	-10.54	peak

Remark:

- 1. Margin = Result (Result = Reading + Factor)-Limit
- 2. Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain
- 3. All modes have been tested, only show the worst case.



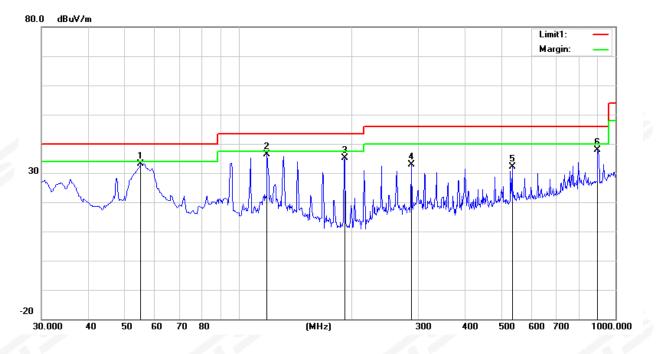


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Temperature:	23.1(C)	Relative Humidity:	60%RH			
Test Voltage:	DC 3.7V	Phase:	Vertical			
Test Mode:	Mode 1/2/3/4/5/6/7/8/9(Mode	Mode 1/2/3/4/5/6/7/8/9(Mode 4 worst mode)				

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	55.2200	58.28	-25.04	33.24	40.00	-6.76	peak
2	119.2400	54.69	-18.38	36.31	43.50	-7.19	peak
3	191.9900	56.17	-21.04	35.13	43.50	-8.37	peak
4	288.0200	48.23	-15.26	32.97	46.00	-13.03	peak
5	532.4600	39.52	-7.31	32.21	46.00	-13.79	peak
6	900.0900	38.34	-0.45	37.89	46.00	-8.11	peak
emark: Margin – Result (Result – Reading + Factor) Limit							

- Margin = Result (Result = Reading + Factor)–Limit
 Factor= Antenna factor+Cable attenuation factor(cable loss)-Amplifier gain





(1GHz~25GHz) Spurious emission Requirements

Frequency	Meter Reading	Amplifier	Loss	Antenna Factor	Corrected Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBµV)	(dB)	(dB)	(dB/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
Low Channel (8DPSK/2402 MHz)										
3264.81	60.96	44.70	6.70	28.20	-9.80	51.16	74.00	-22.84	PK	Vertical
3264.81	50.95	44.70	6.70	28.20	-9.80	41.15	54.00	-12.85	AV	Vertical
3264.77	61.78	44.70	6.70	28.20	-9.80	51.98	74.00	-22.02	PK	Horizontal
3264.77	50.53	44.70	6.70	28.20	-9.80	40.73	54.00	-13.27	AV	Horizontal
4804.44	59.54	44.20	9.04	31.60	-3.56	55.98	74.00	-18.02	PK	Vertical
4804.44	49.70	44.20	9.04	31.60	-3.56	46.14	54.00	-7.86	AV	Vertical
4804.53	59.52	44.20	9.04	31.60	-3.56	55.96	74.00	-18.04	PK	Horizontal
4804.53	50.33	44.20	9.04	31.60	-3.56	46.77	54.00	-7.23	AV	Horizontal
5359.63	48.35	44.20	9.86	32.00	-2.34	46.01	74.00	-27.99	PK	Vertical
5359.63	39.16	44.20	9.86	32.00	-2.34	36.82	54.00	-17.18	AV	Vertical
5359.62	47.16	44.20	9.86	32.00	-2.34	44.82	74.00	-29.18	PK	Horizontal
5359.62	38.48	44.20	9.86	32.00	-2.34	36.14	54.00	-17.86	AV	Horizontal
7205.78	54.93	43.50	11.40	35.50	3.40	58.33	74.00	-15.67	PK	Vertical
7205.78	43.89	43.50	11.40	35.50	3.40	47.29	54.00	-6.71	AV	Vertical
7205.79	54.83	43.50	11.40	35.50	3.40	58.23	74.00	-15.77	PK	Horizontal
7205.79	44.05	43.50	11.40	35.50	3.40	47.45	54.00	-6.55	AV	Horizontal
	•	•		Middle C	hannel (8DPSI	√2441 MHz)	I			I
3264.83	60.92	44.70	6.70	28.20	-9.80	51.12	74.00	-22.88	PK	Vertical
3264.83	50.43	44.70	6.70	28.20	-9.80	40.63	54.00	-13.37	AV	Vertical
3264.71	61.22	44.70	6.70	28.20	-9.80	51.42	74.00	-22.58	PK	Horizontal
3264.71	51.07	44.70	6.70	28.20	-9.80	41.27	54.00	-12.73	AV	Horizontal
4882.51	58.42	44.20	9.04	31.60	-3.56	54.86	74.00	-19.14	PK	Vertical
4882.51	49.69	44.20	9.04	31.60	-3.56	46.13	54.00	-7.87	AV	Vertical
4882.56	59.16	44.20	9.04	31.60	-3.56	55.60	74.00	-18.40	PK	Horizontal
4882.56	49.70	44.20	9.04	31.60	-3.56	46.14	54.00	-7.86	AV	Horizontal
5359.60	49.01	44.20	9.86	32.00	-2.34	46.67	74.00	-27.33	PK	Vertical
5359.60	40.00	44.20	9.86	32.00	-2.34	37.66	54.00	-16.34	AV	Vertical
5359.61	47.59	44.20	9.86	32.00	-2.34	45.25	74.00	-28.75	PK	Horizontal
5359.61	38.46	44.20	9.86	32.00	-2.34	36.12	54.00	-17.88	AV	Horizontal
7323.77	53.62	43.50	11.40	35.50	3.40	57.02	74.00	-16.98	PK	Vertical
7323.77	44.20	43.50	11.40	35.50	3.40	47.60	54.00	-6.40	AV	Vertical
7323.87	54.68	43.50	11.40	35.50	3.40	58.08	74.00	-15.92	PK	Horizontal
7323.87	43.59	43.50	11.40	35.50	3.40	46.99	54.00	-7.01	AV	Horizontal



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	High Channel (8DPSK/2480 MHz)									
3264.60	61.92	44.70	6.70	28.20	-9.80	52.12	74.00	-21.88	PK	Vertical
3264.60	51.66	44.70	6.70	28.20	-9.80	41.86	54.00	-12.14	AV	Vertical
3264.74	61.78	44.70	6.70	28.20	-9.80	51.98	74.00	-22.02	PK	Horizontal
3264.74	50.81	44.70	6.70	28.20	-9.80	41.01	54.00	-12.99	AV	Horizontal
4960.36	58.13	44.20	9.04	31.60	-3.56	54.57	74.00	-19.43	PK	Vertical
4960.36	50.47	44.20	9.04	31.60	-3.56	46.91	54.00	-7.09	AV	Vertical
4960.41	58.27	44.20	9.04	31.60	-3.56	54.71	74.00	-19.29	PK	Horizontal
4960.41	49.79	44.20	9.04	31.60	-3.56	46.23	54.00	-7.77	AV	Horizontal
5359.60	48.43	44.20	9.86	32.00	-2.34	46.09	74.00	-27.91	PK	Vertical
5359.60	40.11	44.20	9.86	32.00	-2.34	37.77	54.00	-16.23	AV	Vertical
5359.67	47.21	44.20	9.86	32.00	-2.34	44.87	74.00	-29.13	PK	Horizontal
5359.67	39.20	44.20	9.86	32.00	-2.34	36.86	54.00	-17.14	AV	Horizontal
7439.78	54.91	43.50	11.40	35.50	3.40	58.31	74.00	-15.69	PK	Vertical
7439.78	44.90	43.50	11.40	35.50	3.40	48.30	54.00	-5.70	AV	Vertical
7439.83	53.87	43.50	11.40	35.50	3.40	57.27	74.00	-16.73	PK	Horizontal
7439.83	43.54	43.50	11.40	35.50	3.40	46.94	54.00	-7.06	AV	Horizontal

Note:

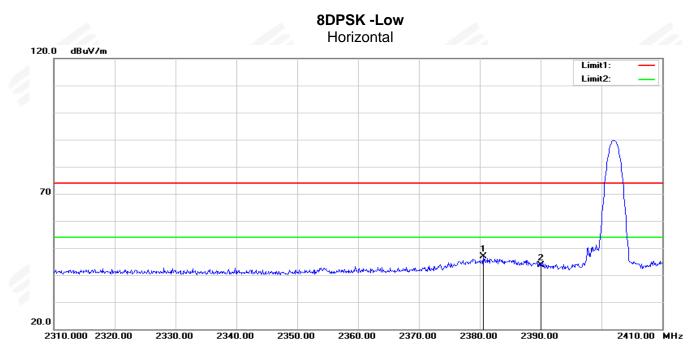
- 1) Scan with GFSK, π /4-DQPSK, 8DPSK, the worst case is 8DPSK Mode.
- 2) Factor = Antenna Factor + Cable Loss Pre-amplifier.

Emission Level = Reading + Factor

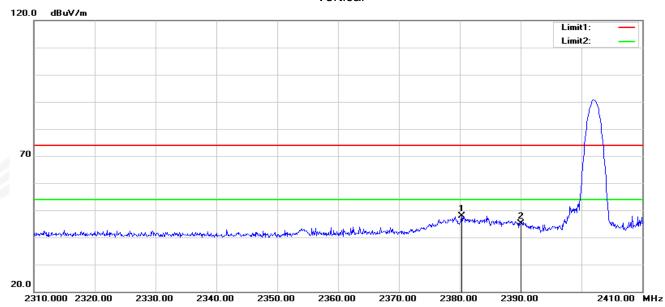
3) The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.



Restricted band Requirements



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2380.600	42.77	4.19	46.96	74.00	-27.04	peak
2	2390.000	39.19	4.34	43.53	74.00	-30.47	peak

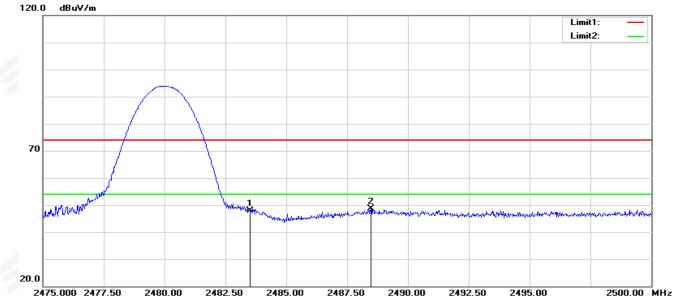


Reading Frequency Correct Result Limit Margin No. Remark (dBuV) Factor(dB/m) (dBuV/m) (dBuV/m) (MHz) (dB) 1 2380.300 43.67 4.19 47.86 74.00 -26.14 peak 2 2390.000 40.74 4.34 45.08 74.00 -28.92 peak

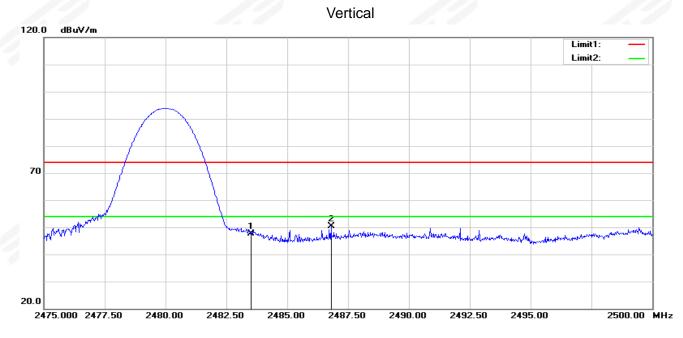
Vertical



8DPSK -High Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	43.23	4.60	47.83	74.00	-26.17	peak
2	2488.475	43.93	4.62	48.55	74.00	-25.45	peak



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2483.500	43.15	4.60	47.75	74.00	-26.25	peak
2	2486.800	45.84	4.62	50.46	74.00	-23.54	peak

Note: GFSK, π /4-DQPSK, 8DPSK of the nohopping and hopping mode all have been test, the worst case is 8DPSK of the nohopping mode, this report only show the worst case.



4. CONDUCTED SPURIOUS & BAND EDGE EMISSION

4.1 LIMIT

According to FCC section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

4.2 TEST PROCEDURE

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

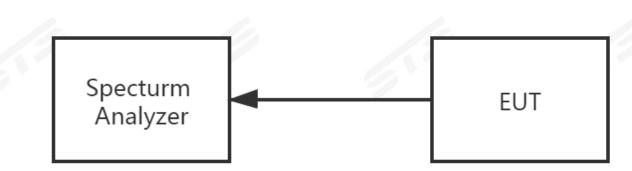
For Band edge

Spectrum Parameter	Setting
Detector	Peak
	Lower Band Edge: 2300 – 2407 MHz
Start/Stop Frequency	Upper Band Edge: 2475 – 2500 MHz
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold

For Hopping Band edge

Spectrum Parameter	Setting
Detector	Peak
	Lower Band Edge: 2300– 2403 MHz
Start/Stop Frequency	Upper Band Edge: 2479 – 2500 MHz
RB / VB (emission in restricted band)	100 KHz/300 KHz
Trace-Mode:	Max hold





The EUT is connected to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. Tune the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, the span is set to be greater than RBW.

4.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

4.5 TEST RESULTS



5. NUMBER OF HOPPING CHANNEL

5.1 LIMIT

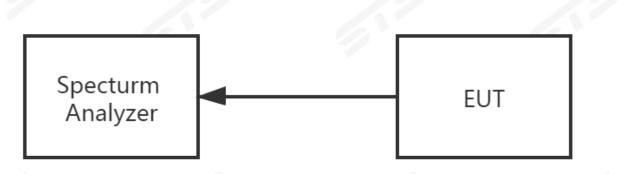
	FCC Pa	art 15.247,Subpa	rt C	
Section	Test Item	Limit	FrequencyRange (MHz)	Result
15.247 (a)(1)(iii)	Number of Hopping Channel	≥15	2400-2483.5	PASS

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating FrequencyRange
RB	100KHz
VB	300KHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW= 100KHz, VBW=300KHz, Sweep time = Auto.

5.3 TEST SETUP



5.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

5.5 TEST RESULTS



6. AVERAGE TIME OF OCCUPANCY

6.1 LIMIT

FCC Part 15.247,Subpart C					
Section	Test Item	Limit	FrequencyRange (MHz)	Result	
15.247 (a)(1)(iii)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS	

6.2 TEST PROCEDURE

- a. The transmitter output (antenna port) was connected to the spectrum analyzer.
- b. Set RBW =1MHz/VBW =3MHz.
- c. Use a video trigger with the trigger level set to enable triggering only on full pulses.
- d. Sweep Time is more than once pulse time.
- Set the center frequency on any frequency would be measure and set the frequency span to e. zero span.
- f. Measure the maximum time duration of one single pulse.
- g. Set the EUT for DH5, DH3 and DH1 packet transmitting.
- h. Measure the maximum time duration of one single pulse.
- i. DH5 Packet permit maximum 1600/ 79 / 6 = 3.37 hops per second in each channel (5 time slots RX, 1 time slot TX). So the number of pulses in the observation period of 31.6 seconds is $3.37 \times 31.6 = 106.6$.
- j. DH3 Packet permit maximum 1600 / 79 / 4 = 5.06 hops per second in each channel (3 time slots RX, 1 time slot TX). So the number of pulses in the observation period of 31.6 seconds is $5.06 \times 31.6 = 160$.
- k. DH1 Packet permit maximum 1600 / 79 / 2 = 10.12 hops per second in each channel (1 time slot RX, 1 time slot TX). So the number of pulses in the observation period of 31.6 seconds is $10.12 \times 31.6 = 320$.

6.3 TEST SETUP



6.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

6.5 TEST RESULTS



7. HOPPING CHANNEL SEPARATION MEASUREMEN

7.1 LIMIT

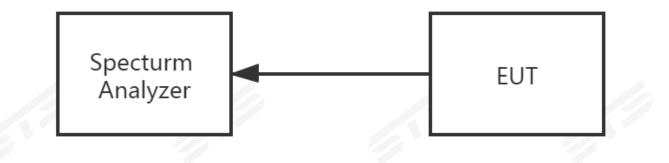
Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that 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.

Spectrum Parameter	Setting		
Attenuation	Auto		
Span Frequency	> 20 dB Bandwidth or Channel Separation		
RB	30 kHz (20dB Bandwidth) / 30 kHz (Channel Separation)		
VB	100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)		
Detector	Peak		
Trace	Max Hold		
Sweep Time	Auto		

7.2 TEST PROCEDURE

- a. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
- b. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for 20 dB bandwidth measurement.
- c. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for channel separation measurement.

7.3 TEST SETUP



7.4 EUT OPERATION CONDITIONS

The EUT was programmed to be in continuously transmitting mode.

7.5 TEST RESULTS



8. BANDWIDTH TEST

8.1 LIMIT

FCC Part15 15.247,Subpart C					
Section	Test Item	Limit	FrequencyRange (MHz)	Result	
15.247 (a)(1)	Bandwidth	N/A	2400-2483.5	PASS	

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 30 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

8.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below.
- b. Spectrum Setting: RBW= 30KHz, VBW=100KHz, Sweep time = Auto.

8.3 TEST SETUP



8.4 EUT OPERATION CONDITIONS

Please refer to section 3.1.4 of this report.

8.5 TEST RESULTS



9. OUTPUT POWER TEST

9.1 LIMIT

	8				
			FCC Part 15.247,Subpart	C	
Sec	tion	Test Item	Limit	Frequency Range (MHz)	Result
		1	1 W or 0.125W		
	247 &(b)(1)	Output Power	if channel separation > 2/3 bandwidthprovided thesystems operatewith an output power no greater than125 mW(20.97dBm)	2400-2483.5	PASS

9.2 TEST PROCEDURE

This is an RF-conducted test to evaluate maximum peak output power. Use a direct connection between the antenna port of the unlicensed wireless device and the spectrum analyzer, through suitable attenuation. The hopping shall be disabled for this test:

a) Use the following spectrum analyzer settings:

1) Span: Approximately five times the 20 dB bandwidth, centered on a hopping channel.

2) RBW > 20 dB bandwidth of the emission being measured.

3) VBW ≥ RBW.

4) Sweep: Auto.

5) Detector function: Peak.

6) Trace: Max hold.

b) Allow trace to stabilize.

c) Use the marker-to-peak function to set the marker to the peak of the emission.

d) The indicated level is the peak output power, after any corrections for external attenuators and cables.

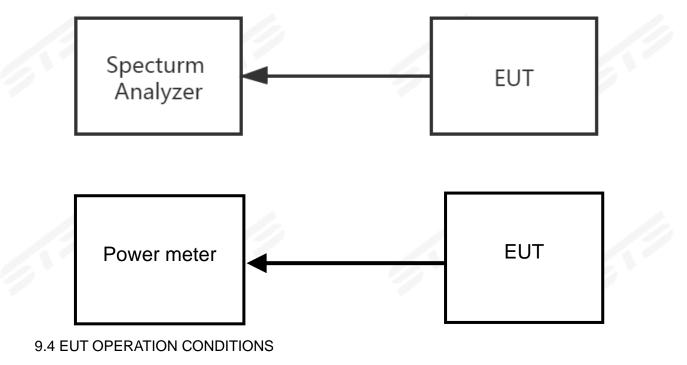
e) A plot of the test results and setup description shall be included in the test report.

NOTE—A peak responding power meter may be used, where the power meter and sensor system video bandwidth is greater than the occupied bandwidth of the unlicensed wireless device, rather than a spectrum analyzer.

PKPM1 Peak power meter method:

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DSS bandwidth and shall use a fast-responding diode detector.





Please refer to section 3.1.4 of this report.

9.5 TEST RESULTS

Note: The test data please refer to APPENDIX 1.



10. ANTENNA REQUIREMENT

10.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

10.2 EUT ANTENNA

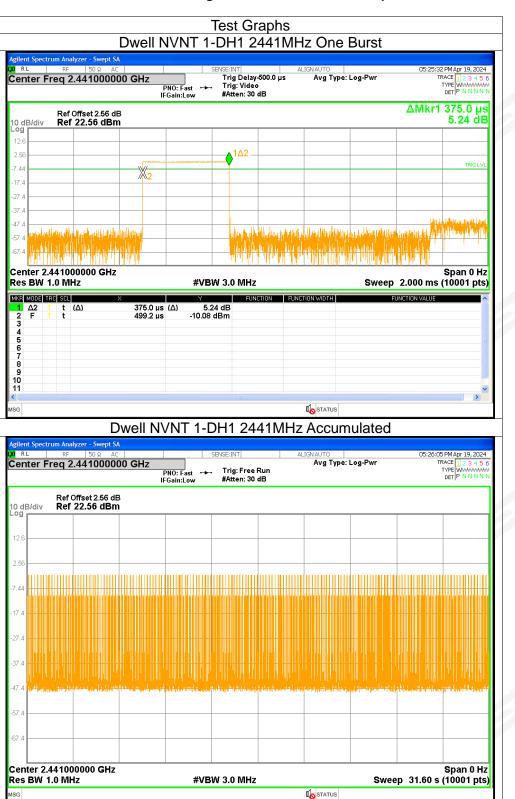
The EUT antenna is PCB Antenna. It comply with the standard requirement.



1. Dwell Time

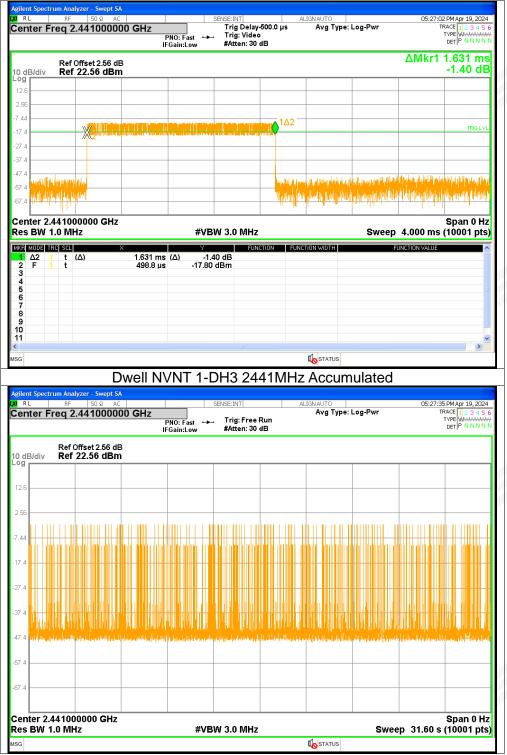
							and the second	
Condition	Mode	Frequency	Pulse	Total Dwell	Burst	Period	Limit	Verdict
		(MHz)	Time (ms)	Time (ms)	Count	Time (ms)	(ms)	
NVNT	1-DH1	2441	0.375	119.625	319	31600	<=400	Pass
NVNT	1-DH3	2441	1.631	259.329	159	31600	<=400	Pass
NVNT	1-DH5	2441	2.879	296.537	103	31600	<=400	Pass
NVNT	2-DH1	2441	0.385	122.815	319	31600	<=400	Pass
NVNT	2-DH3	2441	1.638	265.356	162	31600	<=400	Pass
NVNT	2-DH5	2441	2.886	320.346	111	31600	<=400	Pass
NVNT	3-DH1	2441	0.386	122.362	317	31600	<=400	Pass
NVNT	3-DH3	2441	1.636	265.032	162	31600	<=400	Pass
NVNT	3-DH5	2441	2.888	291.688	101	31600	<=400	Pass
100							1.0	





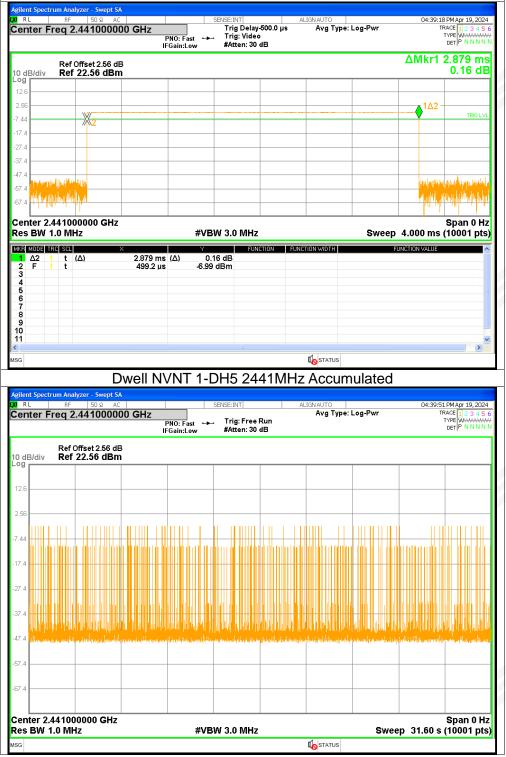


Dwell NVNT 1-DH3 2441MHz One Burst



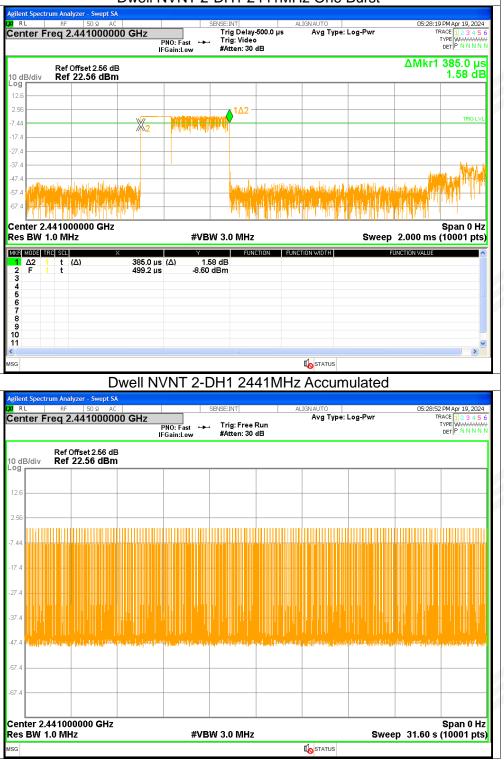


Dwell NVNT 1-DH5 2441MHz One Burst



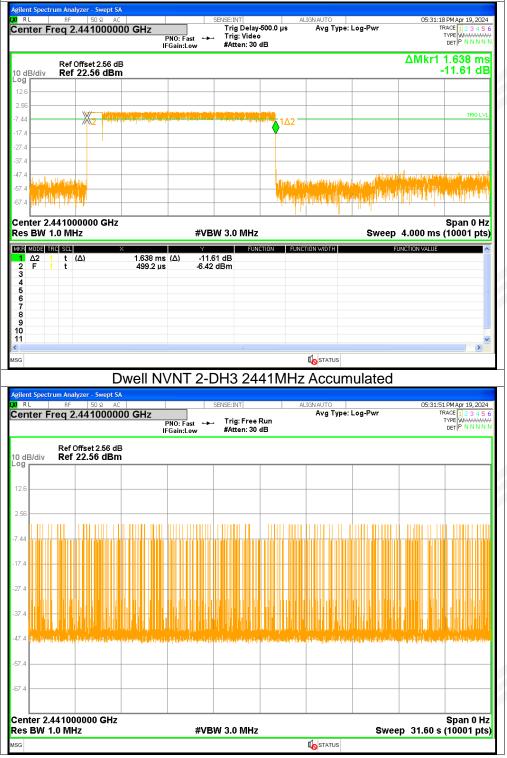








Dwell NVNT 2-DH3 2441MHz One Burst



1

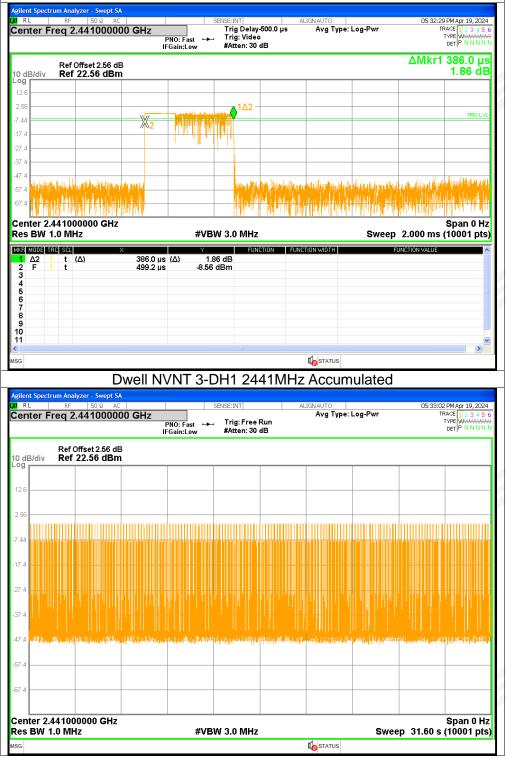


Dwell NVNT 2-DH5 2441MHz One Burst





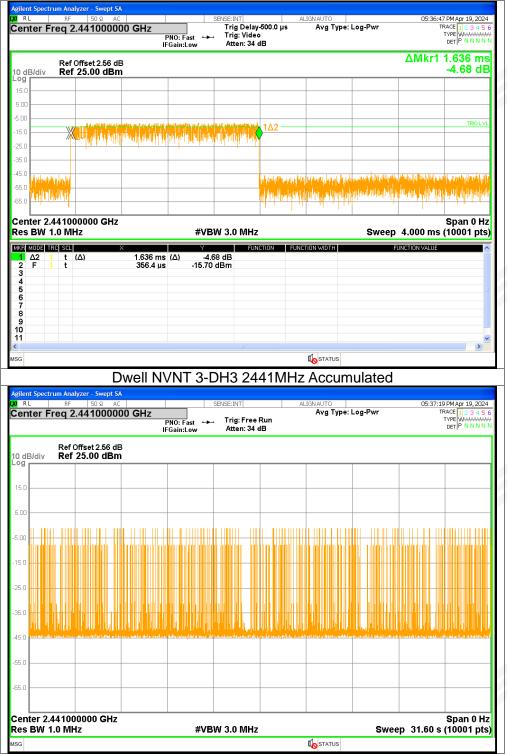
Dwell NVNT 3-DH1 2441MHz One Burst



1



Dwell NVNT 3-DH3 2441MHz One Burst





Dwell NVNT 3-DH5 2441MHz One Burst



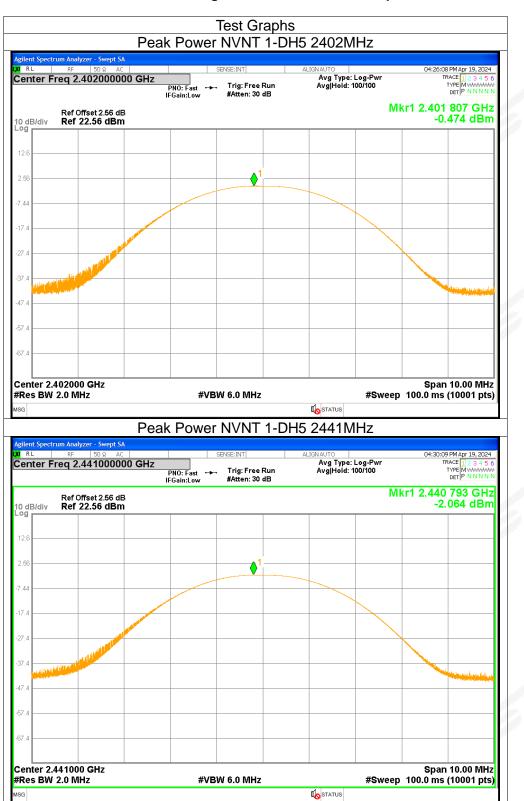


2. Maximum Peak Conducted Output Power

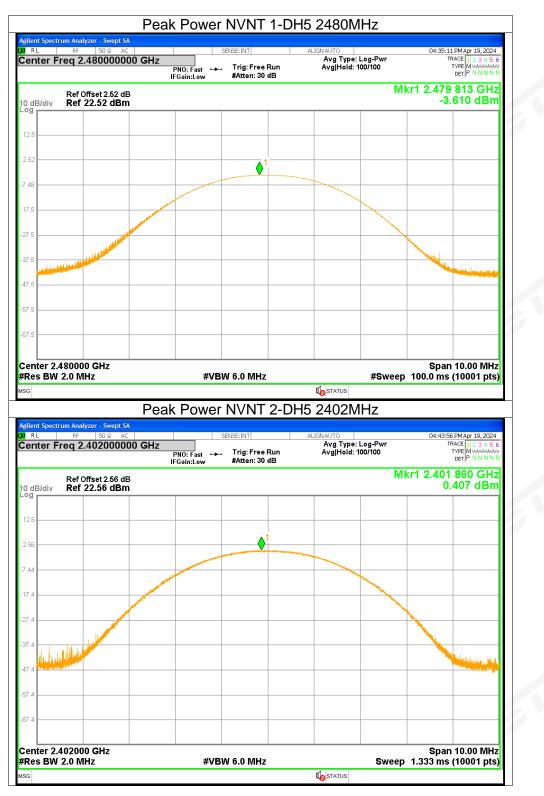
Condition	Mode	Frequency (MHz)	Conducted Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	-0.47	<=21	Pass
NVNT	1-DH5	2441	-2.06	<=21	Pass
NVNT	1-DH5	2480	-3.61	<=21	Pass
NVNT	2-DH5	2402	0.41	<=21	Pass
NVNT	2-DH5	2441	-1.2	<=21	Pass
NVNT	2-DH5	2480	-2.71	<=21	Pass
NVNT	3-DH5	2402	0.85	<=21	Pass
NVNT	3-DH5	2441	-0.81	<=21	Pass
NVNT	3-DH5	2480	-2.3	<=21	Pass



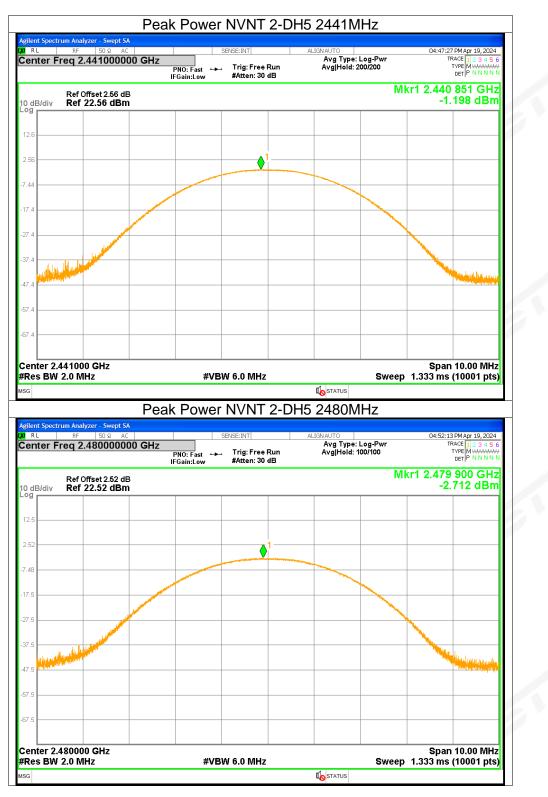
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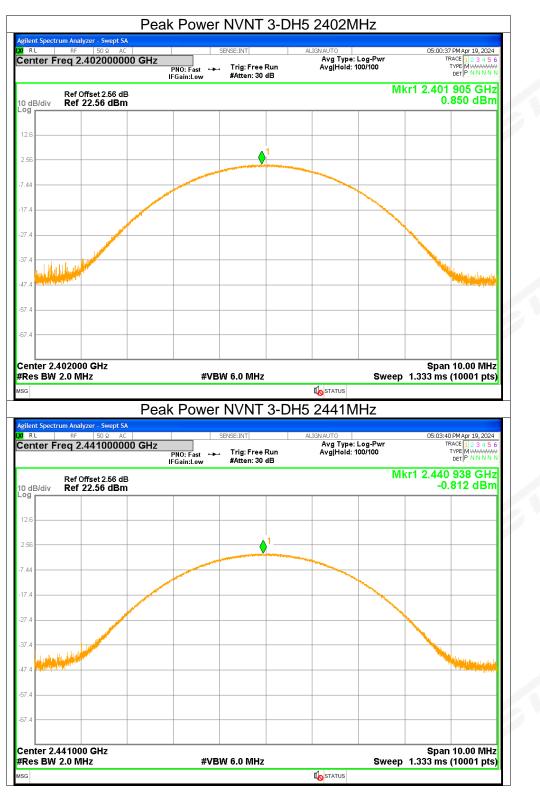




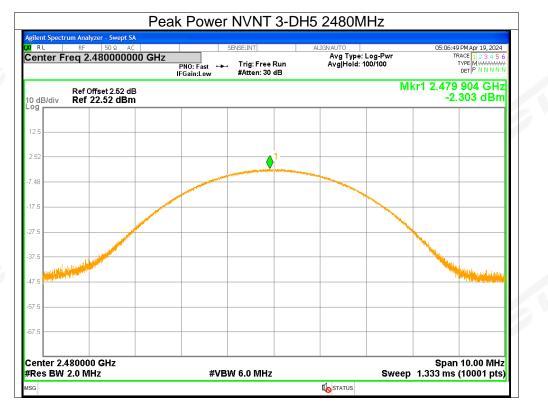














3. -20dB Bandwidth

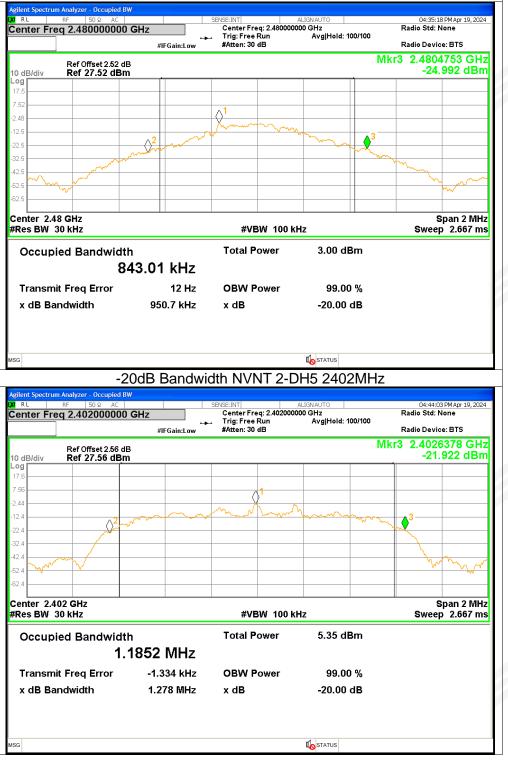
Condition	Mode	Frequency (MHz)	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	0.9512	Pass
NVNT	1-DH5	2441	0.9494	Pass
NVNT	1-DH5	2480	0.9507	Pass
NVNT	2-DH5	2402	1.2782	Pass
NVNT	2-DH5	2441	1.3166	Pass
NVNT	2-DH5	2480	1.277	Pass
NVNT	3-DH5	2402	1.2937	Pass
NVNT	3-DH5	2441	1.3017	Pass
NVNT	3-DH5	2480	1.2808	Pass





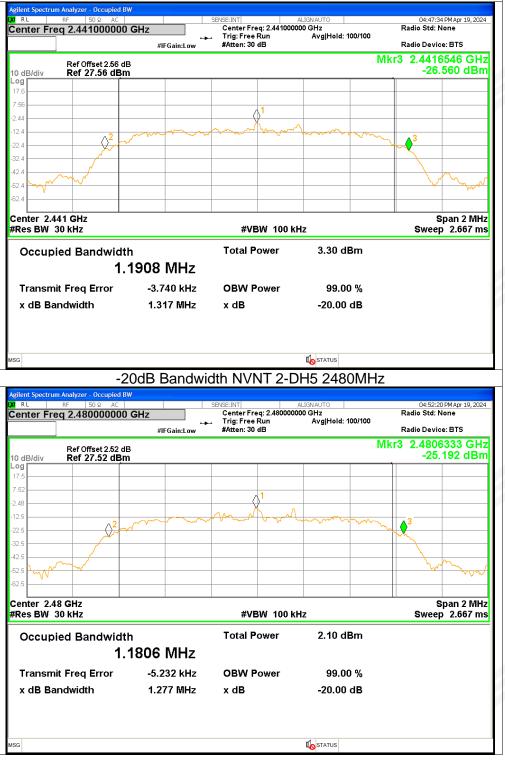


-20dB Bandwidth NVNT 1-DH5 2480MHz



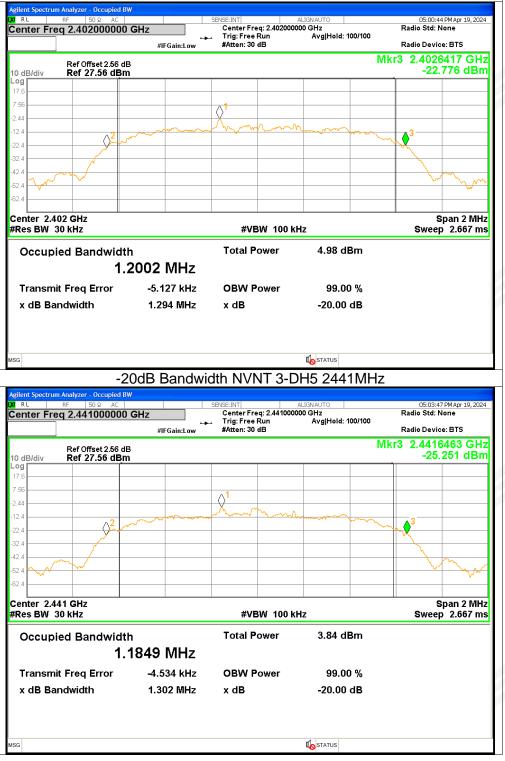


-20dB Bandwidth NVNT 2-DH5 2441MHz



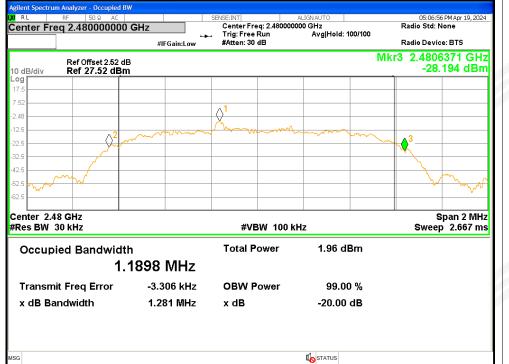


-20dB Bandwidth NVNT 3-DH5 2402MHz





-20dB Bandwidth NVNT 3-DH5 2480MHz





4. Carrier Frequencies Separation

Condition	Mode	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	2401.996	2403.062	1.066	>=0.634	Pass
NVNT	1-DH5	2440.83	2442.016	1.186	>=0.633	Pass
NVNT	1-DH5	2478.984	2479.97	0.986	>=0.634	Pass
NVNT	2-DH5	2401.88	2402.996	1.116	>=0.852	Pass
NVNT	2-DH5	2440.834	2442.342	1.508	>=0.878	Pass
NVNT	2-DH5	2478.866	2480.14	1.274	>=0.851	Pass
NVNT	3-DH5	2401.856	2403.154	1.298	>=0.862	Pass
NVNT	3-DH5	2441	2441.996	0.996	>=0.868	Pass
NVNT	3-DH5	2478.854	2480.014	1.16	>=0.854	Pass

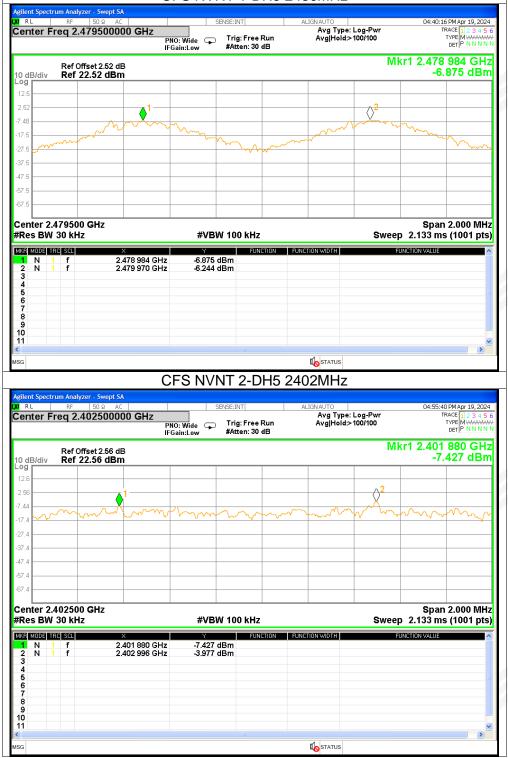


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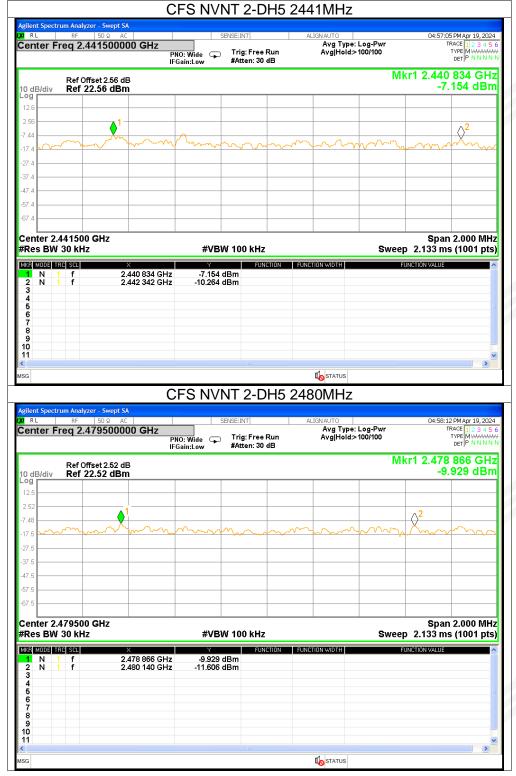


CFS NVNT 1-DH5 2480MHz





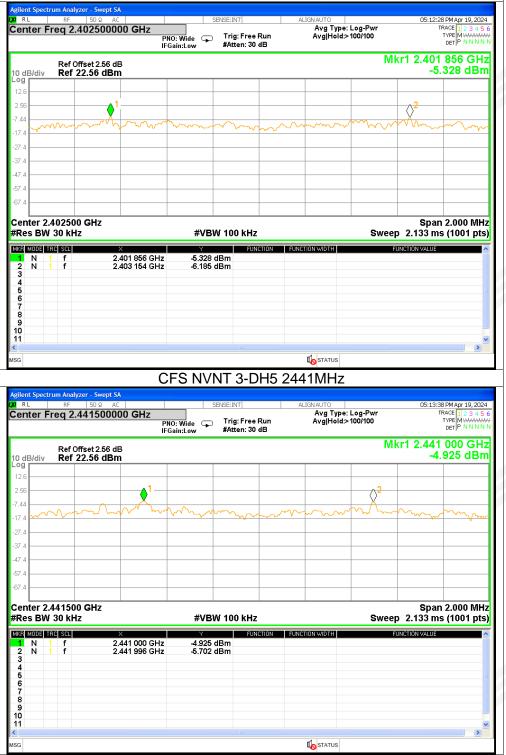
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ent Spectrum Analyzer - Swept SA			
RL RF 50 Ω AC nter Freq 2.479500000 GHz	PNO: Wide Figain:Low #Atten: 30 dB	ALIGNAUTO Avg Type: Log-Pwr Avg Hold>100/100	05:14:42 PMApr 19, 2024 TRACE 1 2 3 4 5 6 TYPE M MMMMM DET P N N N N N
Ref Offset 2.52 dB B/div Ref 22.52 dBm		Μ	kr1 2.478 854 GHz -8.043 dBm
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5			
nter 2.479500 GHz es BW 30 kHz	#VBW 100 kHz	Swee	Span 2.000 MHz p 2.133 ms (1001 pts)
MODE TRC SCI X N 1 f 2.478 854 GF N 1 f 2.480 014 GF		FUNCTION WIDTH F	SUNCTION VALUE
			×
		STATUS	











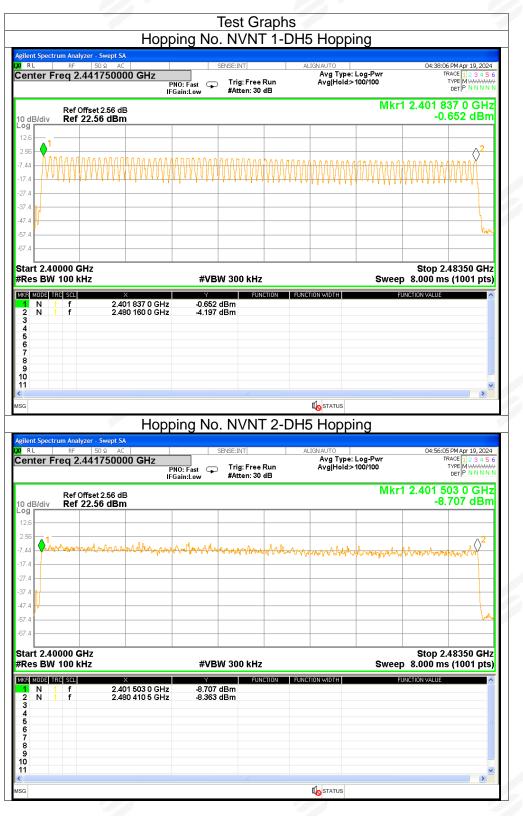






5. Number of Hopping Channel

Condition	Mode	Hopping Number	Limit	Verdict
NVNT	1-DH5	79	>=15	Pass
NVNT	2-DH5	79	>=15	Pass
NVNT	3-DH5	79	>=15	Pass





Hopping No. NVNT 3-DH5 Hopping

Agilent Spectrum Analyze	er - Swept SA				
LXIRL RF	50 Ω AC	SENSE:IN1	Г	ALIGNAUTO	05:12:53 PM Apr 19, 2024
Center Freq 2.4	41750000 GHz	Tria:	Free Run	Avg Type: Log-Pw Avg Hold>100/100	 TRACE 1 2 3 4 5 6 TYPE MINIMUM
	IF IF		n: 30 dB		DET P N N N N
					Vkr1 2.401 503 0 GHz
	set 2.56 dB 2.56 dBm				-7.979 dBm
Log					
12.6					
2.56					
-7.44 Ymy My	warman fl parauly	<mark>๛๛๛๛๚๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛๛</mark>	manner	When march All Almont	vwwwwwwwwwwwwwwwwwww
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-27.4					
-37.4					
-47.4					
-57.4					
-67.4					
Start 2.40000 GH	7				Stop 2.48350 GHz
#Res BW 100 kH		#VBW 300	kHz	s	weep 8.000 ms (1001 pts)
MKR MODE TRC SCL	×	× 1	FUNCTION FL	JNCTION WIDTH	FUNCTION VALUE
1 N 1 f	2.401 503 0 GHz	-7.979 dBm			TONONON IN LOC
2 N 1 f 3	2.479 993 0 GHz	-4.798 dBm			
4					
5					F
6 7					
8					
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11					×
ISG					
				Norriso 1	



6. Band Edge

Condition	Mode	Frequency (MHz)	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	No-Hopping	-50.61	<=-20	Pass
NVNT	1-DH5	2480	No-Hopping	-48.78	<=-20	Pass
NVNT	2-DH5	2402	No-Hopping	-47.86	<=-20	Pass
NVNT	2-DH5	2480	No-Hopping	-48.99	<=-20	Pass
NVNT	3-DH5	2402	No-Hopping 🌍	-50.5	<=-20	Pass
NVNT	3-DH5	2480	No-Hopping	-50	<=-20	Pass









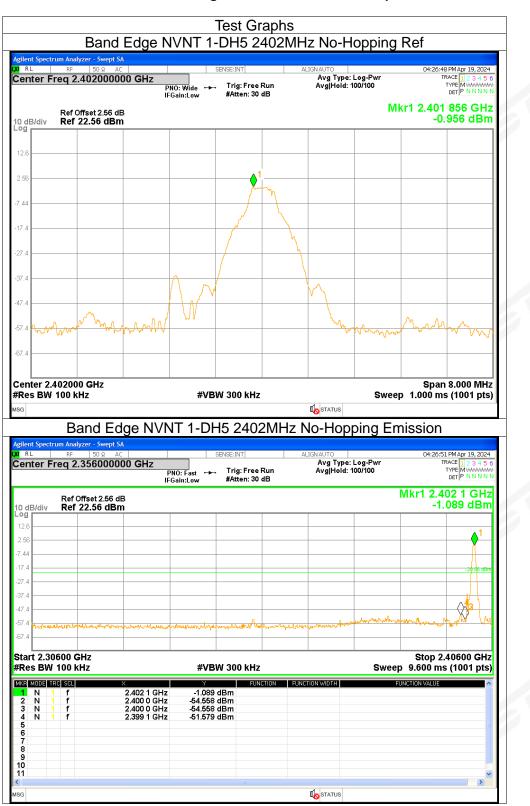














lent Spectrum Analyze RL RF		SENS	SE:INT	ALIGN AUTO		04:35:24 PM Apr 1	19, 2024
enter Freq 2.4			Trig: Free Run #Atten: 30 dB	Avg Type: Lo Avg Hold: 10	og-Pwr 0/100	TRACE 1 2 TYPE MW DET P N	3456
	set 2.52 dB . 52 dBm				Mkr1	2.479 896 -4.371	
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	1	#VBW :	300 kHz		Sweep 1	.000 ms (100	
	-			I status		.000 ms (100	
Bar	nd Edge NVI			-		.000 ms (100	
Bar ent Spectrum Analyze RL RF	nd Edge NVN ד- Swept SA	NT 1-DH5		z No-Hopp	oing Emis	.000 ms (100 SION	1 pts)
Bar ent Spectrum Analyze RL RF	nd Edge NVI r - Swept SA 50 g AC 26000000 GHz		5 2480MH	z No-Hopp	oing Emis	000 ms (100 SSION 04:35:27 PM Apr 1 TRACE 12 TYPE M 4	1 pts)
Bar ent Spectrum Analyze RL RF nter Freq 2.52 Ref Offit	nd Edge NVN r - Swept SA SO & AC 26000000 GHz		2480MH:	Z NO-HOPP	og-Pwr	.000 ms (100 SSION 04:35:27 PMApr 1 TRACE 12 TYPE MM DET P N (r1 2.479 9	1 pts) 19,2024 3456 11 N N N GHz
Bar ent Spectrum Analyze RL RF enter Freq 2.52 dB/div Ref 22 g	nd Edge NVI r - Swept SA 50 Q AC 260000000 GHz		2480MH:	Z NO-HOPP	og-Pwr	04:35:27 PMApr 1 TRACE 1 TYPE MW DET P N	1 pts) 19,2024 3 4 5 6 10 N N N GHz
Bar Bent Spectrum Analyze RL RF enter Freq 2.55 dB/dlv Ref 0ffs g g g g f f f f f f f f f f f f f f	nd Edge NVN r - Swept SA SO & AC 26000000 GHz		2480MH:	Z NO-HOPP	og-Pwr	.000 ms (100 SSION 04:35:27 PMApr 1 TRACE 12 TYPE MM DET P N (r1 2.479 9	1 pts) 19,2024 3 4 5 6 10 N N N GHz
Bar ent Spectrum Analyze RL RF enter Freq 2.55 dB/dlv Ref Offs Ref Offs Ref 22 9 1 1	nd Edge NVN r - Swept SA SO & AC 26000000 GHz		2480MH:	Z NO-HOPP	og-Pwr	0.000 ms (100 SSION 04:35:27 PMApr 1 TRACE 12 TYPE M DET P N CT1 2.479 9 -3.997 (1 pts)
Bar ent Spectrum Analyze RL RF enter Freq 2.55 dB/div Ref Offs Ref Offs Ref 22 g dB/div Ref 22 g dB/div Ref 0 f f f f f f f f f f f f f	nd Edge NVN r - Swept SA SO & AC 26000000 GHz		2480MH:	Z NO-HOPP	og-Pwr	0.000 ms (100 SSION 04:35:27 PMApr 1 TRACE 12 TYPE M DET P N CT1 2.479 9 -3.997 (1 pts) 19,2024 3 4 5 6 10 N N N GHz
Bar ent Spectrum Analyze RL RF enter Freq 2.52 Bldiv Ref Offs Ref Offs Ref 22 1 4 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8	nd Edge NVN r - Swept SA SO & AC 26000000 GHz		2480MH:	Z NO-HOPP	og-Pwr	0.000 ms (100 SSION 04:35:27 PMApr 1 TRACE 12 TYPE M DET P N CT1 2.479 9 -3.997 (1 pts)
Bar Bar Inter Spectrum Analyze Enter Freq 2.55 Bar Bar Bar Bar Bar Bar Bar Bar Bar Bar	nd Edge NVN r - Swept SA SO & AC 26000000 GHz		2480MH:	Z NO-HOPP	og-Pwr	0.000 ms (100 SSION 04:35:27 PMApr 1 TRACE 12 TYPE M DET P N CT1 2.479 9 -3.997 (1 pts)
Bar ent Spectrum Analyze enter Freq 2.53 Bar Bar Ref Offer Ref 22 Bar Bar Ref 22 Bar Bar Ref 22 Bar Bar Ref 22 Bar Bar Ref 22 Bar Bar Ref 22 Bar Bar Bar Bar Bar Bar Bar Bar	nd Edge NVN r - Swept SA SO Q AC 26000000 GHz set 2.52 dB .52 dBm		2480MH:	Z NO-HOPP	og-Pwr o/100 Mk	.000 ms (100 SION 04:35:27 PMApr 1 TRACE 12 TYPE M TYPE M DET P N -3.997 (-2 -2	1 pts) 9,2024 3 3 4 5 6 3 4 5 6 GHz dBm
Bar ent Spectrum Analyze RL RF inter Freq 2.53 dB/div Ref 22	r Swept SA S0 & AC 26000000 GHz set 2.52 dB .52 dB .52 dB .52 dB .52 dB .52 dB .52 dB	NT 1-DH5	300 kHz	z No-Hopp	og-Pwr 0/100 Mk	.000 ms (100 SION 04:35:27 PMApr 1 TRACE [] TYPE M DET P N -3.997 (-3.997 (-2 avc,-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 pts) 9,2024 3 4 5 6 3 4 5 6 4 37 dBm
Bar ent Spectrum Analyze enter Freq 2.52 dB/div Ref 0ffr Ref 0ffr Ref 22 9 5 5 5 5 5 5 5 5 5 5 5 5 5	nd Edge NVN r - Swept SA SO Q AC 260000000 GHz set 2.52 dB .52 dBm .52 dBm .52 dBm .52 dBm .52 dBm .52 dBm .52 dB B .52 dB B	NT 1-DH5	300 kHz	Z NO-HOPP	og-Pwr 0/100 Mk	.000 ms (100 SION 04:35:27 PMApr 1 TRACE 1:2 TYPE MM DET P N .71 2.479 9 -3.997 (1 pts) 9,2024 3 4 5 6 3 4 5 6 4 37 dBm
Bar ent Spectrum Analyze enter Freq 2.52 dB/div Ref 0ffr Ref 0ffr Ref 22 9 5 5 5 5 5 5 5 5 5 5 5 5 5	And Edge NVN r-Swept SA SO & AC 260000000 GHz set 2.52 dB 	NT 1-DH5	3 2480MH:	z No-Hopp	og-Pwr 0/100 Mk	.000 ms (100 SION 04:35:27 PMApr 1 TRACE [] TYPE M DET P N -3.997 (-3.997 (-2 avc,-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 pts) 9,2024 3 4 5 6 3 4 5 6 4 37 dBm
Bar ent Spectrum Analyze enter Freq 2.55 dB/div Ref Offs Ref 22 dB/div Ref 22 dB/div Ref 25 dB/div Ref 2	nd Edge NVN r - Swept SA S0 Q AC 2 26000000 GHz set 2.52 dB 2.52 dB 2.52 dB 2.52 dB 2.52 dB 2.52 dB 2.479 9 GHz 2.483 5 GHz 2.483 5 GHz 2.483 5 GHz 2.600 0 GHz	NT 1-DH5	3 2480MH:	z No-Hopp	og-Pwr 0/100 Mk	.000 ms (100 SION 04:35:27 PMApr 1 TRACE [] TYPE M DET P N -3.997 (-3.997 (-2 avc,-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 pts) 9,2024 3 4 5 6 3 4 5 6 4 37 dBm
Bar ent Spectrum Analyze RL RF inter Freq 2.52 Boot Section 2 Ref Offs Ref Offs Ref 22 Ref Offs Ref 22 A and a section 2 Ref Offs Ref 22 A and a section 2 Ref Offs Ref 22 A and a section 2 Ref 0 Ref 0 Ref 22 A and a section 2 Ref 0 Ref 0 Ref 0 Ref 22 A and a section 2 Ref 0 Ref	nd Edge NVN r - Swept SA S0 Q AC 2 26000000 GHz set 2.52 dB 2.52 dB 2.52 dB 2.52 dB 2.52 dB 2.52 dB 2.479 9 GHz 2.483 5 GHz 2.483 5 GHz 2.483 5 GHz 2.600 0 GHz	NT 1-DH5	3 2480MH:	z No-Hopp	og-Pwr 0/100 Mk	.000 ms (100 SION 04:35:27 PMApr 1 TRACE [] TYPE M DET P N -3.997 (-3.997 (-2 avc,-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 pts) 9,2024 3 4 5 6 3 4 5 6 4 37 dBm
Bar Bar Bar Bar Bar Bar Bar Bar	nd Edge NVN r - Swept SA S0 Q AC 2 26000000 GHz set 2.52 dB 2.52 dB 2.52 dB 2.52 dB 2.52 dB 2.52 dB 2.479 9 GHz 2.483 5 GHz 2.483 5 GHz 2.483 5 GHz 2.600 0 GHz	NT 1-DH5	3 2480MH:	z No-Hopp	og-Pwr 0/100 Mk	.000 ms (100 SION 04:35:27 PMApr 1 TRACE [] TYPE M DET P N -3.997 (-3.997 (-2 avc,-,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1 pts) 9,2024 3 4 5 6 3 4 5 6 4 37 dBm



nt Spectrum Analyzer - L RF 5	Swept SA 0 Ω AC	SENSE:INT		ALIGNAUTO	<u>∩4•44•</u>	08 PM Apr 19, 2024
ter Freq 2.402	000000 GHz	PNO:Wide 🛶 Trig:F	ree Run 1: 30 dB	Avg Type: Log-Pwr Avg Hold: 100/100	, ,	TRACE 1 2 3 4 5 TYPE MWAAAAA DET P N N N N
Ref Offset B/div Ref 22.5	2.56 dB				Mkr1 2.40: -1	2 016 GH: .776 dBn
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David				K STATUS	_	
					_	
nt Spectrum Analyzer -	Swept SA 0 Ω AC 0000000 GHz	NT 2-DH5 24	102MHz	NO-HOpping	Emission 04:44:	11 PM Apr 19, 2024
n <mark>t Spectrum Analyzer</mark> - L RF 5	Swept SA 0 Ω AC 0000000 GHz			NO-Hopping	Emission 04:44:	11 PM Apr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N
n <mark>t Spectrum Analyzer</mark> - L RF 5	Swept SA □ Ω AC 0000000 GHz :2.56 dB		102MHz	NO-HOpping	Emission ^{04:44:} Mkr1 2.4	11 PM Apr 19, 2024 TRACE 12 3 4 5 TYPE MWWWW DET P N N N 101 9 GH2
nt Spectrum Analyzer - L RF S Iter Freq 2.356 Ref Offset B/div Ref 22.5	Swept SA □ Ω AC 0000000 GHz :2.56 dB		102MHz	NO-HOpping	Emission ^{04:44:} Mkr1 2.4	
nt Spectrum Analyzer - L RF 5 Iter Freq 2.356 Ref Offset B/div Ref 22.5	Swept SA □ Ω AC 0000000 GHz :2.56 dB		102MHz	NO-HOpping	Emission ^{04:44:} Mkr1 2.4	11 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N 101 9 GHz
nt Spectrum Analyzer - L RF S Iter Freq 2.356 Ref Offset B/div Ref 22.5	Swept SA □ Ω AC 0000000 GHz :2.56 dB		102MHz	NO-HOpping	Emission ^{04:44:} Mkr1 2.4	11 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N 101 9 GHz
nt Spectrum Analyzer - L RF S Iter Freq 2.356 Ref Offset B/div Ref 22.5	Swept SA □ Ω AC 0000000 GHz :2.56 dB		102MHz	NO-HOpping	Emission ^{04:44:} Mkr1 2.4	11 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N 101 9 GHz
nt Spectrum Analyzer - Is L RF S Iter Freq 2.356 B/div Ref 22.5	Swept SA □ Ω AC 0000000 GHz :2.56 dB		102MHz	NO-HOpping	Emission ^{04:44:} Mkr1 2.4	11 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N 101 9 GHz
nt Spectrum Analyzer - L RF S Iter Freq 2.356 Ref Offset B/div Ref 22.5	Swept SA □ Ω AC 0000000 GHz :2.56 dB		102MHz	NO-HOpping	Emission ^{04:44:} Mkr1 2.4	11 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N 101 9 GHz
Ref Offset B/div Ref 2.356	Swept SA □ Ω AC 0000000 GHz :2.56 dB	NT 2-DH5 24	io2MHz iree Run : 30 dB	ALIGNAUTO Avg Type: Log-Pwr Avg Hold: 100/100	Emission 04:44: Mkr1 2.4 -1	11 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE IN WINNIN 101 9 GH2 .597 dBr 1 2775 dBr 1 2775 dBr 1 2475 dBr 2475
Ref Offset B/div Ref 2.356	Swept 5A D2 AC 0000000 GHz 2.566 dB 6 dBm	NT 2-DH5 24 SENSE:INT PNO: Fast → Trig: F FGain:Low → Trig: C Autor Autor Kungu Chu-Merce Autor Kungu Chu-Mer	ince Run : 30 dB	ALIGNAUTO Avg Type: Log-Pwr Avg Hold: 100/100	Emission 04:44: Mkr1 2.4 -1	11 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWWW DOT P NNNN 101 9 GH2 .597 dBm 1 -275 dBm -275 dBm -
Ref Offset B/div Ref 2.356	Swept 5A 0:0 AC 0:00000 GHz :2.56 dB 6 dBm	NT 2-DH5 24	ince Run : 30 dB	ALIGN AUTO AVIG TYPE: Log-Pwir Avig Type: Log-Pwir AvigHold: 100/100	Emission 04:44: -1 -1	11 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWWW DOT P NNNN 101 9 GH2 .597 dBm 1 -275 dBm -275 dBm -
Ref Offset B/div Ref 2.356	Swept 5A 02 AC 0000000 GHz :2.56 dB 6 dBm	NT 2-DH5 24 SENSE:INT PNO: Fast → Trig: F FGain:Low → Trig: Atten # # #Atten # # #Atten # #Atten # # # # # # # # #	ince Run : 30 dB	ALIGN AUTO AVIG TYPE: Log-Pwir Avig Type: Log-Pwir AvigHold: 100/100	Emission 04:44: -1 -1	11 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWWW DOT P NNNN 101 9 GH2 .597 dBm 1 -275 dBm -275 dBm -
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nter Freq 2.480	PN		ree Run	LIGNAUTO Avg Type: Log-Pwr Avg Hold: 100/100	04:52:25 PM Apr 19, 2024 TRACE 1 2 3 4 5 TYPE M WWWW DET P N N N N
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Ban	d Edae NVN	T 2-DH5 24	180MHz 1	-	
ent Spectrum Analyzer	- Swept SA			No-Hopping E	mission
ent Spectrum Analyzer R L RF S	- Swept SA 50 Ω AC	SENSE:INT	Α	NO-HOpping E	04:52:28 PM Apr 19, 2024
ent Spectrum Analyzer R L RF S	- Swept SA 50 Ω AC 50	SENSE:INT			04:52:28 PMApr 19, 2024
ent Spectrum Analyzer - RL RF S nter Freq 2.520 Ref Offse	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024 TRACE 12:3 4 5 TYPE MWWWWW DET P NNNN Mkr1 2,480 2 GH2
RL RF R RL RF R nter Freq 2.526 Ref Offse dB/div Ref 2.5	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024
RL RF C	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024 TRACE 12:3 4 5 TYPE MWWWWW DET P NNNN Mkr1 2,480 2 GH2
RL RF C	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024 TRACE 12:3 4 5 TYPE MWWWWW DET P NNNN Mkr1 2,480 2 GH2
ent Spectrum Analyzer RL RF 1 Inter Freq 2.526 dB/div Ref 22.5 dB/div Ref 22.5 a	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWWM DET P N N N Mkr1 2.480 2 GH2 -4.310 dBm
RL RF C	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024 TRACE 12:3 4 5 TYPE MWWWWW DET P NNNN Mkr1 2,480 2 GH2
RE RE CONSERVICE AND ANALYZET REL RE CONSERVICE AND ANALYZET REF CONSERVICE AND ANALYZET ANALYZET ANALYZET AND ANALYZET ANAL	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWWM DET P N N N Mkr1 2.480 2 GH2 -4.310 dBm
RL RF I RL RF I nter Freq 2.526 dB/div Ref 22.5 dB/div Ref 23.5 dB/div Ref 23.5 dB/di	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWWM DET P N N N Mkr1 2.480 2 GH2 -4.310 dBm
ent Spectrum Analyzer - RL RF S nter Freq 2.520 Ref Offse	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWWM DET P N N N Mkr1 2.480 2 GH2 -4.310 dBm
RE PF I RE PF I nter Freq 2.52(Ref Offse dB/div Ref 22.5	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	ree Run	NO-HOpping E	04:52:28 PMApr 19, 2024
RE PF I RE PF I nter Freq 2.52(Ref Offse dB/div Ref 22.(1 1 2 4 4 5 5 5 5 5 5 5 5 5 6 6 6 6 6 7 7 8 1 1 1 1 1 1 1 1 1 1 1 1 1	- Swept SA 50 Ω AC 6000000 GHz PI IFC at 2.52 dB	SENSE:INT	iree Run : 30 dB	Avg Type: Log-Pwr Avg Type: Log-Pwr AvgHold: 100/100	04:52:28 PMApr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWWM DET P N N N Mkr1 2.480 2 GH2 -4.310 dBm
Ref Offse RE Ref Offse Ref Offse Ref 22.3	- Swept SA 50 @ AC 50 000000 GHz P P FC at 2.52 dB 52 dBm 4 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 3 4 4 3 4 4 3 4 4 3 4 4 4 4 4 3 4 5 5 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5	SENSE:INT NO: Fast → Trig: F Sain:Low #Atter	iree Run : 30 dB	No-Hopping E Avg Type: Log-Pwr Avg Hold: 100/100	Mission 04:52:28 PMApr 19, 2024 TRACE 12 3 4 5 TYPE MANNA OUT P NNNN Mkr1 2.480 2 GHz -4.310 dBm -24.41 dBm -24.41 dBm -24.41 dBm -24.41 dBm -24.41 dBm -24.41 dBm
Ref Offse RE Ref Offse Ref Offs	Swept SA 50 & AC 6000000 GHz PI IFC at 2.52 dB 52 dBm 4 4 2.480 2 GHz 2.480 2 GHz 2.483 5 GHz	SENSE:INT NO: Fast → Trig: F Sain:Low #Atter #Atter #VBW 300 I 4.310 dBm -55.325 dBm	iree Run : 30 dB 	No-Hopping E Avg Type: Log-Pwr Avg Hold: 100/100	04:52:28 PMApr 19, 2024 TRACE 1 ≥ 3 4 5 TYPE WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
RE Spectrum Analyzer RL PF I nter Freq 2.526 Ref Offse dB/div Ref 22.5 Ref Offse dB/div Ref 22.5 art 2.47600 GHz es BW 100 kHz N 1 f N 1 f N 1 f	2 Swept SA 50 2 AC 6000000 GHz PI IFC 12 .52 dB 52 dBm 4 4 3 	SENSE:INT NO: Fast → Trig: F Sain:Low #Atter	iree Run : 30 dB 	No-Hopping E Avg Type: Log-Pwr Avg Hold: 100/100	04:52:28 PMApr 19, 2024 TRACE 1 ≥ 3 4 5 TYPE WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
RE Spectrum Analyzer RL RF I nter Freq 2.526 Ref Offse dB/div Ref 22.6 dB/div Ref 20.6 dB/div Ref 20.6 dB/di Ref 20.6 dB/di Ref 20.6 dB/di Ref 20.6 d	Swept SA 50 g. AC 6000000 GHz PI IFC t 2.52 dB 52 dBm 4 3 2.480 2 GHz 2.483 5 GHz 2.483 6 GHz 2.483 6 GHz	SENSE:INT NO: Fast → Trig: F Sain:Low #Atter #Atter #VBW 300 I 4.310 dBm -56.325 dBm -56.321 dBm	iree Run : 30 dB 	No-Hopping E Avg Type: Log-Pwr Avg Hold: 100/100	04:52:28 PMApr 19, 2024 TRACE 1 ≥ 3 4 5 TYPE WWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWWW
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Band Edge NVNT 2-DH5 2480MHz No-Hopping Ref



nter Freq 2.402	P	NO: Wide 🗰	SE:INT	ALIGNAUTO Avg Type: Avg Hold:	Log-Pwr 100/100	TRA TY	M Apr 19, 2024 CE 1 2 3 4 5 PE M WWWWW ET P N N N N
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	d Edge NVN Swept SA	NT 3-DH5	5 2402MI	_	ping Err	nission	
n <mark>t Spectrum Analyzer</mark> - L RF 51	Swept SA D Ω AC		5 2402MH se:int	_		05:00:52 F TRA	CE 1 2 3 4 5
n <mark>t Spectrum Analyzer</mark> - L RF 51	Swept SA D Q AC 0 000000 GHz	SEN		HZ NO-HOP	Log-Pwr	05:00:52 F TRA TY	CE 1 2 3 4 5 PE M WWWW
nt Spectrum Analyzer - L RF S nter Freq 2.356 Ref Offset	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN PNO: Fast ↔	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY 0 Mkr1 2.40	CE 1 2 3 4 5 PE MWWW ET P NNNN 1 9 GH:
nt Spectrum Analyzer - L RF Si nter Freq 2.356 Ref Offset IB/div Ref 22.5	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN PNO: Fast ↔	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY 0 Mkr1 2.40	CE 1 2 3 4 5 PE MWWW ET P NNNN 1 9 GH:
nt Spectrum Analyzer - L RF St nter Freq 2.356 Ref Offset IB/div Ref 22.5	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN PNO: Fast ↔	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY 0 Mkr1 2.40	CE 1 2 3 4 5 PE MWWW ET P NNNN 1 9 GH:
nt Spectrum Analyzer - L RF Si Iter Freq 2.356 Ref Offset IB/div Ref 22.5	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN PNO: Fast ↔	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY 0 Mkr1 2.40	CE 1 2 3 4 5 PE MWWW ET P NNNN 1 9 GH:
nt Spectrum Analyzer - IL RF SI Inter Freq 2.356 Ref Offset IB/div Ref 22.5	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN PNO: Fast ↔	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY 0 Mkr1 2.40	Mapr 19, 2024 CE 112 3 4 5 FE[M NNNN 1 9 GH: 74 dBn 1- -20 05 081
nt Spectrum Analyzer - IL RF SI Inter Freq 2.356 Ref Offset IB/div Ref 22.5	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN PNO: Fast ↔	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY 0 Mkr1 2.40	CE 12345 PE MWWWW ET P NNNN 19GH:
nt Spectrum Analyzer - IL RF SI Inter Freq 2.356 Ref Offset IB/div Ref 22.5	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN PNO: Fast ↔	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY 0 Mkr1 2.40	CE 12345 PE MWWWW ET P NNNN 19GH:
nt Spectrum Analyzer - IL RF SI hter Freq 2.356 Ref Offset IB/div Ref 22.5	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN PNO: Fast ↔	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY 0 Mkr1 2.40	CE 12345 PE MWWWW ET P NNNN 19GH:
nt Spectrum Analyzer - L RF Si Itter Freq 2.356 B/div Ref 22.5	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN PNO: Fast ↔	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY C Mkr1 2.40 -3.6	1 9 GH: 74 dBn
nt Spectrum Analyzer - L RF Si Inter Freq 2.356 B/div Ref 22.5	Swept SA D Q AC 0000000 GHz F IF 2.56 dB	SEN -Gain:Low	SE:INT Trig: Free Run #Atten: 30 dB	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY C Mkr1 2.40 -3.6	1 9 GH: 74 dBn
nt Spectrum Analyzer - L RF Si hter Freq 2.356 B/div Ref 22.5 	Swept SA 22 AC 000000 GHz 16 2.56 dB 6 dBm 	SEN -Gain:Low → :	SE:INT	HZ NO-HOP ALIGNAUTO Avg Type:	Log-Pwr 100/100	05:00:52 F TRA TY C Mkr1 2.40 -3.6	1 9 GH: 74 dBn
nt Spectrum Analyzer - L RF Si Iter Freq 2.356 B/div Ref 22.5 B/div Ref 22.5 Transformed and a spectrum an	Swept SA D Q AC 000000 GHz I 2.56 dB 6 dBm 	SEN -Gain:Low	SE:INT Trig: Free Run #Atten: 30 dB	ALIGNAUTO AVG Type: AvgJHold:	Log-Pwr 100/100	05:00:52 F TRA P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 9 GH: 74 dBn
Ref Offset	Swept SA	PNO: Fast -Gain:Low -Gain:Low -Gai	SEINT	ALIGNAUTO AVG Type: AvgJHold:	Log-Pwr 100/100	05:00:52 F TRA P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 9 GH: 74 dBn
nt Spectrum Analyzer - L RF Si Iter Freq 2.356 Ref Offset B/div Ref 22.5	Swept SA	PNO: Fast -Gain:Low -Gain:Low -Gai	SEINT	ALIGNAUTO AVG Type: AvgJHold:	Log-Pwr 100/100	05:00:52 F TRA P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 9 GH: 74 dBn
nt Spectrum Analyzer - L RF Si Iter Freq 2.356 Ref Offset B/div Ref 22.5	Swept SA	PNO: Fast -Gain:Low -Gain:Low -Gai	SEINT	ALIGNAUTO AVG Type: AvgJHold:	Log-Pwr 100/100	05:00:52 F TRA P 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 9 GH: 74 dBn



RL RF Senter Freq 2.480	Р		rig: Free Run	ALIGNAUTO Avg Type: Log-Pwi Avg Hold: 100/100		7:01 PM Apr 19, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N
Ref Offse		-Gain:Low #/	Atten: 30 dB		Mkr1 2.48	30 000 GHz
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es BW 100 kHz	nz	#VBW 3	00 kHz	S Status	Sweep 1.000	
es BW 100 kHz Band				STATUS	Sweep 1.000 I	ms (1001 pts)
Ban ent Spectrum Analyzer	d Edge NVN - Swept SA	NT 3-DH5	2480MHz	to status z No-Hopping	Sweep 1.000	ms (1001 pts) า
Ban ent Spectrum Analyzer RL RF S	d Edge NVN Swept SA SO Q AC 5000000 GHz	NT 3-DH5	2480MHz	X NO-HOPPING ALIGNAUTO Avg Type: Log-Pwi	Sweep 1.000 I	ms (1001 pts)
Ban ent Spectrum Analyzer RL RF S	d Edge NVN Swept SA S000 AC		2480MHz	Ko status z No-Hopping alignauto	Emission	ms (1001 pts) 7:04 PMApr 19, 2024 TRACE 12 3 4 5 6 TYPE MAMMANA DET P N N N N
Bani ent Spectrum Analyzer RL RF 1 nter Freq 2.520 Ref Offse dB/div Ref 22.5	d Edge NVN Swept SA 50000000 GHz f t2.52 dB	NT 3-DH5 SENSE	2480MHz	X NO-HOPPING ALIGNAUTO Avg Type: Log-Pwi	Emission	ms (1001 pts)
Banı ent Spectrum Analyzer RL RF S nter Freq 2.520 Ref Offse dB/div Ref 22.4	d Edge NVN Swept SA 50000000 GHz f t2.52 dB	NT 3-DH5 SENSE	2480MHz	X NO-HOPPING ALIGNAUTO Avg Type: Log-Pwi	Emission	ms (1001 pts)
Bani ent Spectrum Analyzer RL RF S nter Freq 2.526 B/div Ref 22.5	d Edge NVN Swept SA 50000000 GHz f t2.52 dB	NT 3-DH5 SENSE	2480MHz	X NO-HOPPING ALIGNAUTO Avg Type: Log-Pwi	Emission	ms (1001 pts)
Bani ent Spectrum Analyzer RL RF S nter Freq 2.520 Bl/div Ref 22.5	d Edge NVN Swept SA 50000000 GHz f t2.52 dB	NT 3-DH5 SENSE	2480MHz	X NO-HOPPING ALIGNAUTO Avg Type: Log-Pwi	Emission	ms (1001 pts)
Bani ent Spectrum Analyzer RL RF S Inter Freq 2.520 Bl/div Ref 22.3	d Edge NVN Swept SA 50000000 GHz f t2.52 dB	NT 3-DH5 SENSE	2480MHz	X NO-HOPPING ALIGNAUTO Avg Type: Log-Pwi	Emission	ms (1001 pts)
Bani ent Spectrum Analyzer RL RF S Inter Freq 2.520 Block Ref 22.3	d Edge NVN Swept SA 50000000 GHz f t2.52 dB	NT 3-DH5 SENSE	2480MHz	X NO-HOPPING ALIGNAUTO Avg Type: Log-Pwi	Emission	ms (1001 pts)
Banı ent Spectrum Analyzer RL RF S mter Freq 2.520	d Edge NVN Swept SA 50000000 GHz f t2.52 dB	NT 3-DH5 SENSE	2480MHz	X NO-HOPPING ALIGNAUTO Avg Type: Log-Pwi	Emission	ms (1001 pts)
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Bani ent Spectrum Analyzer RL RF Confise dB/div Ref 22.3	d Edge NVN	NT 3-DH5 SENSE	2480MHz	ALIGNAUTO AVG TYPE: Log-Pwi AvgHold: 100/100	Sweep 1.000 i Emission os:o: r Mkr1 2.	ms (1001 pts)
Bani ent Spectrum Analyzer RL RF Confise dB/div Ref 22.5 dB/div Ref 23.5 dB/div Ref 23.5 dB/dB	d Edge NVN	NT 3-DH5	2480MHz	ALIGNAUTO AVG TYPE: Log-Pwi AvgHold: 100/100	sweep 1.000 i Emission 05:07 r Mkr1 2.	ms (1001 pts)
Bann ent Spectrum Analyzer RL RF 15 nter Freq 2.526 dB/div Ref 0ffse dB/div Ref 22.4 a a a a a a a a a a a a a	d Edge NVN	NT 3-DH5	2480MHz	ALIGNAUTO AVIG TYPE: Log-Pwi AvigHold: 100/100	Sweep 1.000 r	ms (1001 pts)
Banı ent Spectrum Analyzer Inter Freq 2.520 Ref Offse. Banı Ref Offse. Ref Offse. Ref 22.5 All All All All All All All All All All	d Edge NVN	NT 3-DH5 SENSE PRO: Fast → T Gain:Low → T #//	2480MHz	ALIGNAUTO AVIG TYPE: Log-Pwi AvigHold: 100/100	Sweep 1.000 r	ms (1001 pts)
Bani ent Spectrum Analyzer nter Freq 2.5200 Banicer Freq 2.5200 Ba	d Edge NVN Swept SA 300 A C S 100 A C S	NT 3-DH5 SENSE PRO: Fast → T Gain:Low → T #//	2480MHz	ALIGNAUTO AVIG TYPE: Log-Pwi AvigHold: 100/100	Sweep 1.000 r	ms (1001 pts)
Bann ent Spectrum Analyzer RL RF S nter Freq 2.526 B B C C C C C C C C C C C C C	d Edge NVN Swept SA 300 A C S 100 A C S	NT 3-DH5 SENSE PRO: Fast → T Gain:Low → T #//	2480MHz	ALIGNAUTO AVIG TYPE: Log-Pwi AvigHold: 100/100	Sweep 1.000 r	ms (1001 pts)

Band Edge NVNT 3-DH5 2480MHz No-Hopping Ref



7. Band Edge(Hopping)

Condition	Mode	Frequency (MHz)	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Hopping	-51.59	<=-20	Pass
NVNT	1-DH5	2480	Hopping	-50.13	<=-20	Pass
NVNT	2-DH5	2402	Hopping	-52.66	<=-20	Pass
NVNT	2-DH5	2480	Hopping	-50.14	<=-20	Pass
NVNT	3-DH5	2402	Hopping	-52.3	<=-20	Pass
NVNT	3-DH5	2480	Hopping	-51.14	<=-20	Pass























Band Edge(Hopping) NVNT 1-DH5 2480MHz Hopping Ref 33 PM Apr 19, 202 TRACE 1 2 3 4 5 TYPE MWWW DET P N N N 1 R L Center Freq 2.480000000 GHz Avg Type: Log-Pwr Avg|Hold: 2000/2000 Trig: Free Run #Atten: 30 dB PNO: Wide IFGain:Low -----Mkr1 2.477 056 GHz Ref Offset 2.52 dB Ref 22.52 dBm -4.024 dBm 10 dB/div ٥ 7 48 47. Center 2.480000 GHz Span 8.000 MHz #VBW 300 kHz Sweep 1.000 ms (1001 pts) #Res BW 100 kHz **I**STATUS SG Band Edge(Hopping) NVNT 1-DH5 2480MHz Hopping Emission gilent Spectrum Analyzer - Swept SA B L 50 PM Apr 19, Avg Type: Log-Pwr Avg|Hold: 1000/1000 Center Freq 2.526000000 GHz TYPE M WWWWW DET P N N N N PNO: Fast +++ Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.476 9 GHz Ref Offset 2.52 dB Ref 22.52 dBm -3.811 dBm 10 dB/div 7.48 -24.02 d $\sqrt{3}$ \bigcirc^4 47. ()² unmulliman Stop 2.57600 GHz Start 2.47600 GHz #VBW 300 kHz Sweep 9.600 ms (1001 pts) #Res BW 100 kHz FUNCTION VALUE MKR MODE TRC SCL FUNCTION FUNCTION WIDTH -3.811 dBm -54.716 dBm -56.454 dBm -54.155 dBm 2.476 9 GHz 2.483 5 GHz 2.500 0 GHz 2.491 7 GHz N N N 1 2 3 4 5 6 7 8 9 10 **I**STATUS SG



Band Edge(Hopping) NVNT 2-DH5 2402MHz Hopping Ref 23 PM Apr 19, 202 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N R L Center Freq 2.402000000 GHz Avg Type: Log-Pwr Avg|Hold: 2000/2000 Trig: Free Run #Atten: 30 dB PNO: Wide 🔸 Mkr1 2.403 168 GHz Ref Offset 2.56 dB Ref 22.56 dBm -0.616 dBm 10 dB/div 7 4 47. Center 2.402000 GHz Span 8.000 MHz #VBW 300 kHz Sweep 1.000 ms (1001 pts) #Res BW 100 kHz **I**STATUS ISG Band Edge(Hopping) NVNT 2-DH5 2402MHz Hopping Emission gilent Spectrum Analyzer - Swept SA B L 40 PM Apr 19, Center Freq 2.356000000 GHz Avg Type: Log-Pwr Avg|Hold: 1000/1000 BACE TYPE MWWWWW DET PNNNN PNO: Fast +++ Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.404 9 GHz Ref Offset 2 56 dB -0.623 dBm 10 dB/div Ref 22.56 dBm 2.5 4 \ominus^4 47. Stop 2.40600 GHz Start 2.30600 GHz #VBW 300 kHz Sweep 9.600 ms (1001 pts) #Res BW 100 kHz MKR MODE TRC SCL FUNCTION FUNCTION WIDTH FUNCTION VALUE -0.623 dBm -53.495 dBm -55.100 dBm -53.281 dBm 2.404 9 GHz 2.400 0 GHz 2.390 0 GHz 2.383 1 GHz N N N 1 2 3 4 5 6 7 8 9 10 **STATUS** SG



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oan 8.000 MH: ms (1001 pts
58:47 PM Apr 19, 2024 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N N
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-24.10 dBm
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o 2.57600 GHz ms (1001 pts
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Band Edge(Hopping) NVNT 3-DH5 2402MHz Hopping Ref 5:13:11 PM Apr 19, 202 TRACE 1 2 3 4 5 TYPE MWWWW DET P N N N B L Center Freq 2.402000000 GHz Avg Type: Log-Pwr Avg|Hold: 2000/2000 Trig: Free Run #Atten: 30 dB PNO: Wide 🔸 Mkr1 2.405 176 GHz Ref Offset 2.56 dB Ref 22.56 dBm -0.811 dBm 10 dB/div 7 4 47. Center 2.402000 GHz Span 8.000 MHz #VBW 300 kHz Sweep 1.000 ms (1001 pts) #Res BW 100 kHz **I**STATUS ISG Band Edge(Hopping) NVNT 3-DH5 2402MHz Hopping Emission gilent Spectrum Analyzer - Swept SA B L 05:13:14 PM Apr 19, 2 TYPE MWWWWW DET P N N N N Center Freq 2.356000000 GHz Avg Type: Log-Pwr Avg|Hold: 100/100 PNO: Fast +++ Trig: Free Run IFGain:Low #Atten: 30 dB Mkr1 2.405 6 GHz Ref Offset 2 56 dB -4.709 dBm 10 dB/div Ref 22.56 dBm 2.5 4 <<mark>∕</mark>2 47. \oplus Stop 2.40600 GHz Start 2.30600 GHz #Res BW 100 kHz #VBW 300 kHz Sweep 9.600 ms (1001 pts) MKR MODE TRC SCL FUNCTION FUNCTION WIDTH FUNCTION VALUE -4.709 dBm -52.898 dBm -53.237 dBm -53.115 dBm 2.405 6 GHz 2.400 0 GHz 2.390 0 GHz 2.385 0 GHz N N N 1 2 3 4 5 6 7 8 9 10 **K**STATUS SG



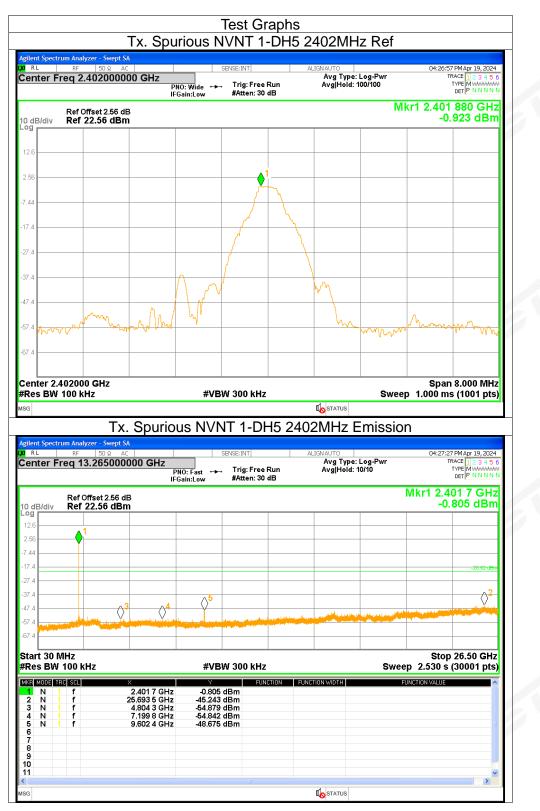
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		<mark>lyzer - Swept S</mark> 50 Ω AC			SENSE:INT	A	LIGNAUTO		05:15:0	0 PM Apr 19, 2024
		2.4800000	00 GHz	PNO: Wide 🔸 FGain:Low	. Trig: Free #Atten: 30	Run	Avg Type: Avg Hold: 2			TYPE MWWWWW DET P N N N N N
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Res BV G G I I I I I I I I I I I I I I I I I	¥ 100 I Ban(trum Ana 	(Hz d Edge) Nyzer - Swept S	00 GHz	ng) NVN	IT 3-DH	15 248(A)MHz H	lopping	p 1.000 m Emiss	s (1001 pts) İON
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Res BW ssg gilent Spec RL center 12.5 2.52 7.48 17.5 57.5 </td <td>x 100 l Ban(trum Ana FFreq 2 Ref Ref 1 1 1 1 76000 (1 1 1 1 1 1 1 1</td> <td>KHZ d Edge so a so a 2.5260000 offset 2.52 d 22.52 dBr 22.52 dBr anternational anternat</td> <td>A 00 GHz I B n 4 4 2.480 1 GHz</td> <td>PNO: Fast FGain:Low #VB</td> <td>V 300 kHz</td> <td>15 2480</td> <td>MHZ H</td> <td>Log-Pwr 00/100</td> <td>p 1.000 m Emiss 05:15: Mkr1 2.4 -7 -7 </td> <td>s (1001 pts)</td>	x 100 l Ban(trum Ana FFreq 2 Ref Ref 1 1 1 1 76000 (1 1 1 1 1 1 1 1	KHZ d Edge so a so a 2.5260000 offset 2.52 d 22.52 dBr 22.52 dBr anternational anternat	A 00 GHz I B n 4 4 2.480 1 GHz	PNO: Fast FGain:Low #VB	V 300 kHz	15 2480	MHZ H	Log-Pwr 00/100	p 1.000 m Emiss 05:15: Mkr1 2.4 -7 -7 	s (1001 pts)
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8. Conducted RF Spurious Emission

Condition	Mode	Frequency (MHz)	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	-44.32	<=-20	Pass
NVNT	1-DH5	2441	-42.15	<=-20	Pass
NVNT	1-DH5	2480	-41.19	<=-20	Pass
NVNT	2-DH5	2402	-44.05	<=-20	Pass
NVNT	2-DH5	2441	-40.64	<=-20	Pass
NVNT	2-DH5	2480	-41.43	<=-20	Pass
NVNT	3-DH5	2402	-44.31	<=-20	Pass
NVNT	3-DH5	2441	-43.09	<=-20	Pass
NVNT	3-DH5	2480	-42.23	<=-20	Pass

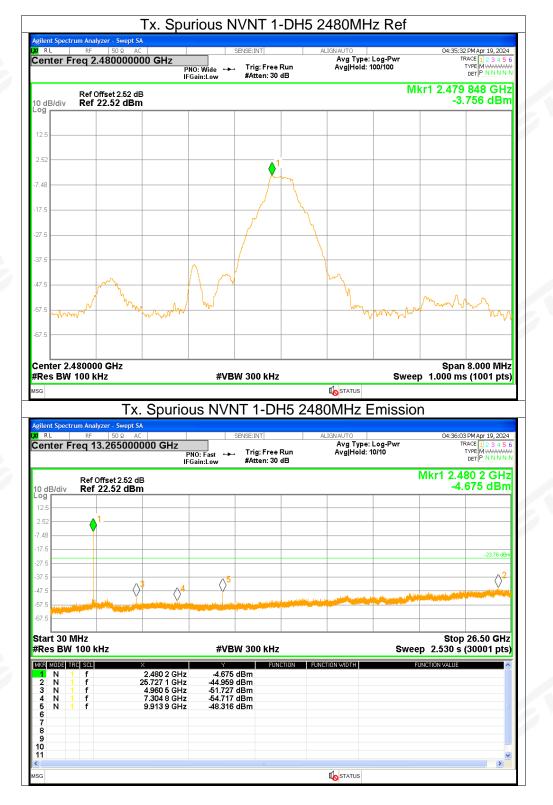




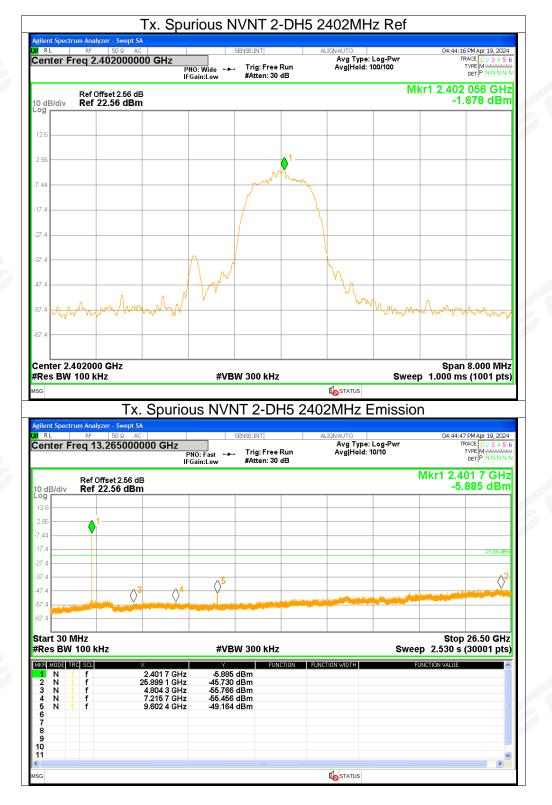










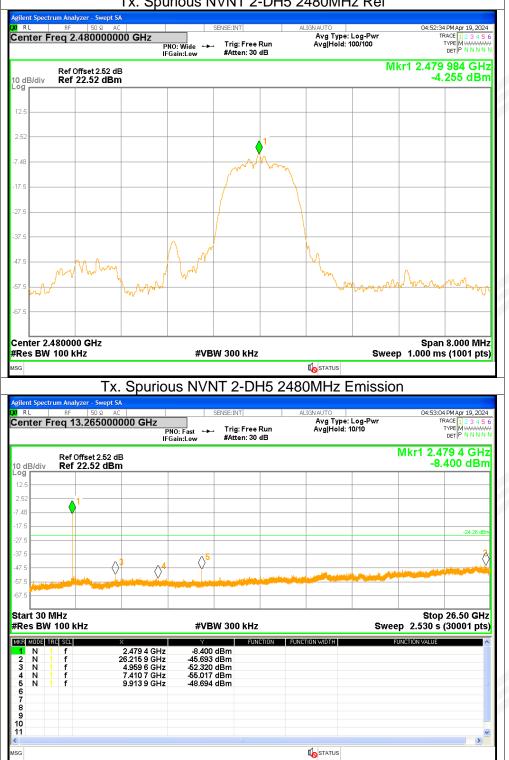




nt Spectrum Analyzer - Sw L RF 50 s Iter Freq 2.4410	P		g:FreeRun ten:30 dB	ALIGN AUTO Avg Type: Log Avg Hold: 100/1	-Pwr	04:48:59 PM Apr 19, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWW DET P N N N N N	
Ref Offset 2.	56 dB	Gain:Low #Att	(en: 30 dB		Mkr1 2	.441 152 GHz -5.182 dBm	
3/div Ref 22.56	abm						
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er 2.441000 GHz							
					9	Span 8.000 MHz	
BW 100 kHz		#VBW 30	0 kHz	The status		Span 8.000 MHz)0 ms (1001 pts)	
					Sweep 1.00		
Spectrum Analyzer - Sv	Tx. Spurio			tostatus 141MHz Em	Sweep 1.00		
Spectrum Analyzer - Sw RF 50 S	Tx. Spurio	UUS NVNT 2	2-DH5 24	ALIGNAUTO Avg Type: Log	Sweep 1.00	00 ms (1001 pts)	
: <mark>Spectrum Analyzer - Sw</mark> . RF 50 S	Tx. Spurio		2-DH5 24	141MHz Em	Sweep 1.00	Do ms (1001 pts) 14:49:29 PMApr 19,2024 TRACE 12 2 3 4 5 6 TYPE M MWWWWW DET P N N N N N	
Spectrum Analyzer - Sv RF 50 S ter Freq 13.265 Ref Offset 2	Tx. Spurio		2-DH5 24	ALIGNAUTO Avg Type: Log	Sweep 1.00	00 ms (1001 pts)	
Spectrum Analyzer - Sw RF 50 C ter Freq 13.265 Ref Offset 2	Tx. Spurio		2-DH5 24	ALIGNAUTO Avg Type: Log	Sweep 1.00	20 ms (1001 pts) 24:49:29 PMApr 19,2024 TRACE 11 2 3 4 5 6 TYPE M NM N DET P N NM N 2.441 4 GHz	
Spectrum Analyzer - Sw RF 50 C ter Freq 13.265 Ref Offset 2	Tx. Spurio		2-DH5 24	ALIGNAUTO Avg Type: Log	Sweep 1.00	20 ms (1001 pts) 24:49:29 PMApr 19,2024 TRACE 11 2 3 4 5 6 TYPE M NM N DET P N NM N 2.441 4 GHz	
Spectrum Analyzer - Sw RF 50 C ter Freq 13.265 Ref Offset 2	Tx. Spurio		2-DH5 24	ALIGNAUTO Avg Type: Log	Sweep 1.00	20 ms (1001 pts) 24:49:29 PMApr 19,2024 TRACE 11 2 3 4 5 6 TYPE M NM N DET P N NM N 2.441 4 GHz	
t Spectrum Analyzer - Sv RF 50 S ter Freq 13.265 Ref Offset 2	Tx. Spurio		2-DH5 24	ALIGNAUTO Avg Type: Log	Sweep 1.00	00 ms (1001 pts) 04:49:29 PMApr 19, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P NNNN 2.441 4 GHz -2.599 dBm	
t Spectrum Analyzer - Sw RF 50 C ter Freq 13.265 Ref Offset 2	Tx. Spurio		2-DH5 24	ALIGNAUTO Avg Type: Log	Sweep 1.00	00 ms (1001 pts) 04:49:29 PMApr 19, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P NNNN 2.441 4 GHz -2.599 dBm	
Spectrum Analyzer - Sw RF 50 G ter Freq 13.265 Ref Offset 2	Tx. Spurio		2-DH5 24	ALIGNAUTO Avg Type: Log Avg Hold: 10/10	Sweep 1.00	00 ms (1001 pts) 04:49:29 PMApr 19, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P NNNN 2.441 4 GHz -2.599 dBm	
Spectrum Analyzer - Sv Ser Freq 13.265 Ref Offset 2 Vdiv Ref 22.56	Tx. Spurio		2-DH5 24	ALIGNAUTO Avg Type: Log Avg Hold: 10/10	Sweep 1.00	00 ms (1001 pts) 04:49:29 PMApr 19, 2024 TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P NNNN 2.441 4 GHz -2.599 dBm	
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Spectrum Analyzer Sv RF 50 St ter Freq 13.265 St Ref Offset 2 St 3/div Ref 22.56 1 1 5 BW 100 KHz 100 FRE 1 1 1 1	Tx. Spurio	US NVNT 2 SENSE: II PNO: Fast → Trig Gain: Low → #Att 55 4 4 4 4 5 5 4 5 4 5 6 3 1 1 1 1 1 1 1 1 1 1 1 1 1	2-DH5 24	ALIGNAUTO Avg Type: Log Avg Hold: 10/10	Sweep 1.00	Di ms (1001 pts) Di 49:29 PMApr 19,2024 TRACE 12 3 4 5 6 TYPE NNNN 2.441 4 GHz -2.599 dBm -2518 dBm -25	
Ref Offset 2 Ref Offset 2 3/div Ref 22.56 1 1 1 1 1 1 1 1 1 1 1 1 1	Tx. Spurio	US NVNT 2 SENSE: II PNO: Fast → Trig Gain: Low → #Att 55 4 4 4 4 5 5 4 5 4 5 6 3 1 4 5 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 4 5 5 5 5 5 6 1 1 1 1 1 1 1 1 1 1 1 1 1	2-DH5 24	ALIGNAUTO Avg Type: Log Avg Hold: 10/10	Sweep 1.00	Di ms (1001 pts) Di 49:29 PMApr 19,2024 TRACE 12 3 4 5 6 TYPE NNNN 2.441 4 GHz -2.599 dBm -2518 dBm -25	
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Tx. Spurious NVNT 2-DH5 2441MHz Ref



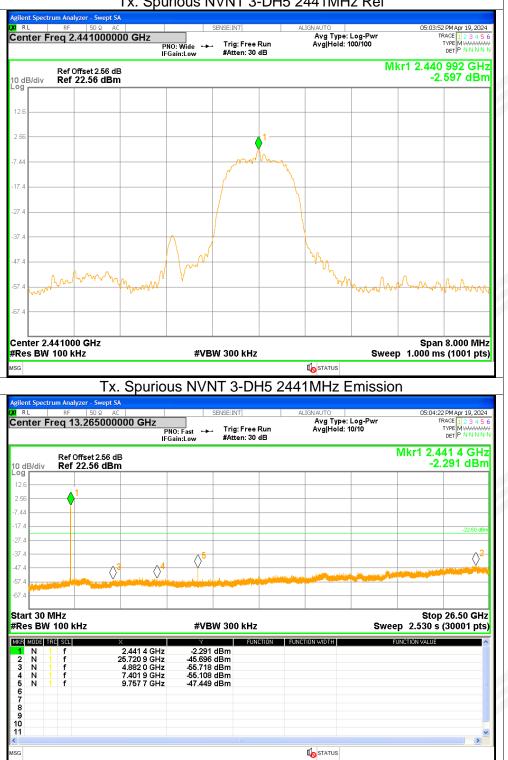


Tx. Spurious NVNT 2-DH5 2480MHz Ref



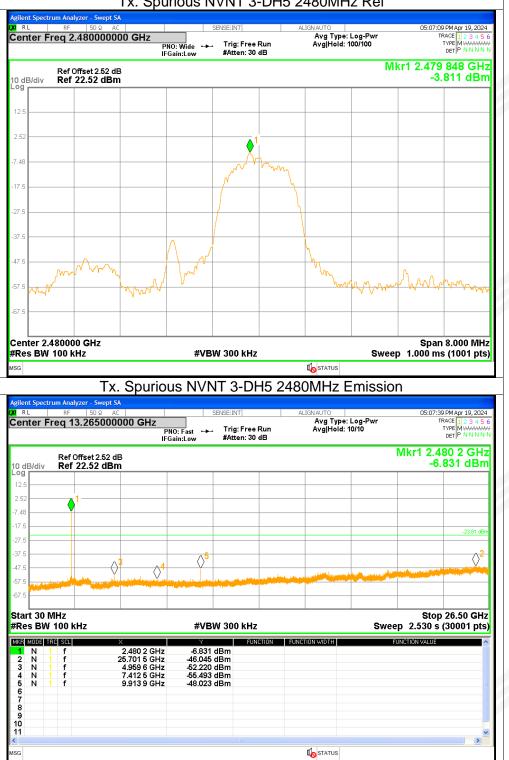
rilent Spectrum Analyzer - Swe RL RF 50 Ω	AC		SENSE:INT	ALIGNAUTO		05-00 5	7 PM Apr 19, 2024
enter Freq 2.40200	00000 GHz	NO: Wide +++ Gain:Low	Trig: Free Run #Atten: 30 dB	Avg Type: Lo Avg Hold: 100	og-Pwr 0/100	Т	RACE 1 2 3 4 5 TYPE M WWWWW DET P N N N N
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rg g <mark>ilent Spectrum Analyzer - Swa</mark> R L RF 50 Ω	AC	us NVN		2402MHz Er	nissio	p 1.000 m n 05:01:2	s (1001 pts
ig gilent Spectrum Analyzer - Swe	ept SA AC 1000000 GHz P	us NVN	IT 3-DH5 2	2402MHz Er	Missio 29-Pwr	p 1.000 m n 	7 PMApr 19, 2024 RACE 1 2 3 4 5
rg ilent Spectrum Analyzer - Swe RL RF 50 Ω enter Freq 13.2650 Ref Offset 2.6	AC 000000 GHz P IF1 56 dB		IT 3-DH5 2 SENSE:INT Trig: Free Run		nissio 29-Pwr 10	p 1.000 m n 05:01:2 T Mkr1 2.4	7 PMApr 19, 2024 RACE 12 3 4 5 TYPE MINIMAN DET P N N N 01 7 GH2
rs glent Spectrum Analyzer - Swa RL RF 50 Q enter Freq 13.2650 Ref Offset 2.6 0 dB/div Ref 22.56 c	AC 000000 GHz P IF1 56 dB		IT 3-DH5 2 SENSE:INT Trig: Free Run		nissio 29-Pwr 10	p 1.000 m n 05:01:2 T Mkr1 2.4	7 PMApr 19, 2024 RACE 12 3 4 5 TYPE MINIMAN DET P N N N 01 7 GH2
rg ilent Spectrum Analyzer - Swe RL RF 50 Ω enter Freq 13.2650 Ref Offset 2.5 0 dB/div Ref 22.56 o	AC 000000 GHz P IF1 56 dB		IT 3-DH5 2 SENSE:INT Trig: Free Run		nissio 29-Pwr 10	p 1.000 m n 05:01:2 T Mkr1 2.4	7 PMApr 19, 2024 RACE 12 3 4 5 TYPE MINIMAN DET P N N N 01 7 GH2
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Image: Second state	2.401 7 GHz 25.904 4 GHz	US NVN	IT 3-DH5 2	ALIGNAUTO Avg Type: Lo Avg Hold: 10/	missio pg-Pwr 10	p 1.000 m 05:01:2 T Mkr1 2.4 -3. Stop	2 PMApr 19, 2024
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rg rilent Spectrum Analyzer - Swe RL RF [50 Q enter Freq 13.2650 Ref Offset 2.5 0 dB/div Ref 22.56 9 1 12.6 1 256 1 7.4 1 7.4 1 47.4 1 47.4 1 47.4 1 47.4 1 47.4 1 57.4 1 17.4 1 17.4 1 17.4 1 17.4 1 17.4 1 17.4 1 17.4 1 17.4 1 17.4 1 17.4 1 17.4 1 17.4 1 18.1 1 19.1 1 19.1 1 19.1 1 19.1 1 19.1 1 19.1 1 19.1 1	PPL SA AC PPL SA PPL S	US NVN	IT 3-DH5 2	2402MHz Er ALIGNAUTO Avg Type: Lc Avg Hold: 10/	missio pg-Pwr 10	p 1.000 m 0 05:01:2 T Mkr1 2.4 -3. Stop p 2.530 s	2 PMApr 19, 2024 RACE 12 3 4 5 TYPE MWANN DET P NNNN 01 7 GH2 978 dBm -20.61 dBr





Tx. Spurious NVNT 3-DH5 2441MHz Ref





Tx. Spurious NVNT 3-DH5 2480MHz Ref



APPENDIX 2-PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

* * * * * END OF THE REPORT * * * *