



ertificate #4298 01

### **Prepared for**

Shenzhen Youxin International Technology Co., Ltd.

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### Prepared by

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### Report No.: S22011302502001

### **1 TEST RESULT CERTIFICATION**

Applicant's Name	Shenzhen Youxin International Technology Co., Ltd.	
Address	Room 02,14th floor, building a, Jiahe Huaqiang building, 3006	
	Shennan Middle Road, Huahang community, Huaqiang North Street,	
	Futian District, Shenzhen, Guangdong China	
Manufacturer's Name	Dilante Electronic Technology Co. , Ltd.	
Address:	1/f, Chunxing Industrial Building, North Huachang road, Dalang	
	Street, Longhua New District, Shenzhen China	
Product description		
Product name:	TWS bluetooth headset	
Model and/or type reference:	TWS-24	
Family Model	TWS-22, TWS-27,TWS-16,TWS-23,F1,GM-25,GM-28,GM-29,	
	GM-30,GM-31,GM-32,P3,im-1,im-2,im-3,P95 mini,P72 mini,	
	P71 mini,AirP98, T9	

Measurement Procedure Used:

APPLICABLE STANDARDS		
STANDARD/ TEST PROCEDURE	TEST RESULT	
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart C KDB 174176 D01 Line Conducted FAQ v01r01 ANSI C63.10-2013	Complied	

This device described above has been tested by Shenzhen NTEK Testing Technology Co., Ltd., and 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.

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The test results of this report relate only to the tested sample identified in this report.

Date of Test	: Jan 13.2022 ~ Mar 31.2022
Testing Engineer	:(Mary Hu)
Authorized Signatory	Ales
Authorized Signatory	:(Alex Li)



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#### 2 SUMMARY OF TEST RESULTS

	FCC Part15 (15.247), Subpart	С			
Standard Section	Test Item	Verdict	Remark		
15.207 Conducted Emission PASS					
15.209 (a) 15.205 (a)Radiated Spurious EmissionPASS					
15.247(a)(1)	Hopping Channel Separation	PASS			
15.247(b)(1)	Peak Output Power	PASS			
15.247(a)(iii)	Number of Hopping Frequency	PASS			
15.247(a)(iii)	Dwell Time	PASS			
15.247(a)(1)	Bandwidth	PASS			
15.247 (d)	Band Edge Emission	PASS			
15.247 (d)	Spurious RF Conducted Emission	PASS			
15.203	Antenna Requirement	PASS			

Remark:

 "N/A" denotes test is not applicable in this Test Report.
 All test items were verified and recorded according to the standards and without any deviation during the test.





### **3 FACILITIES AND ACCREDITATIONS**

### 3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen 518126 P.R. China.

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

### 3.2 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description	
CNAS-Lab.	: The Certificate Registration Number is L5516.
IC-Registration	The Certificate Registration Number is 9270A.
	CAB identifier:CN0074
FCC- Accredited	Test Firm Registration Number: 463705.
	Designation Number: CN1184
A2LA-Lab.	The Certificate Registration Number is 4298.01
	This laboratory is accredited in accordance with the recognized
	International Standard ISO/IEC 17025:2005 General requirements for
	the competence of testing and calibration laboratories.
	This accreditation demonstrates technical competence for a defined
	scope and the operation of a laboratory quality management system
	(refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).
Name of Firm	: Shenzhen NTEK Testing Technology Co., Ltd.
Site Location	: 1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang
	Street, Bao'an District, Shenzhen 518126 P.R. China.

### 3.3 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	Uncertainty
1	Conducted Emission Test	±2.80dB
2	RF power, conducted	±0.16dB
3	Spurious emissions, conducted	±0.21dB
4	All emissions, radiated(30MHz~1GHz)	±2.64dB
5	All emissions, radiated(1GHz~6GHz)	±2.40dB
6	All emissions, radiated(>6GHz)	±2.52dB
7	Temperature	±0.5°C
8	Humidity	±2%
9	All emissions, radiated(9KHz~30MHz)	±6dB



### 4 GENERAL DESCRIPTION OF EUT

Product Feature and Specification			
Equipment	TWS bluetooth headset		
Trade Mark	N/A		
FCC ID	2A5VZ-TWS-24		
Model No.	TWS-24		
Series no.	S220113025001		
Family Model	TWS-22, TWS-27,TWS-16,TWS-23,F1,GM-25,GM-28,GM-29,GM-30, GM-31,GM-32,P3,im-1,im-2,im-3,P95 mini,P72 mini,P71 mini,AirP98, T9		
Model Difference	All models are the same circuit and RF module, except the appearance and color.		
Operating Frequency	2402MHz~2480MHz		
Modulation	GFSK, π/4-DQPSK, 8-DPSK		
Number of Channels	79 Channels		
Antenna Type	Chip antenna		
Antenna Gain	2.2 dBi		
Power supply	DC supply: Earphone: DC 3.7V/ 40mAh from Battery or DC 5V form Charging case Charging case: DC 3.8V/ 1000mAh from Battery or DC 5V from type-C port		
HW Version	TWS22-5376A2-V2.0		
SW Version	L:FB848C61_CF96AF4F R:FB848C61_CF96C579		
EUT serial number	S220113025001		

Note: Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.





### **Revision History**

Revision History			
Report No.	Version	Description	Issued Date
S22011302502001	Rev.01	Initial issue of report	Mar 31.2022

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### 5 DESCRIPTION OF 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.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (1Mbps for GFSK modulation; 2Mbps for  $\pi$ /4-DQPSK modulation; 3Mbps for 8-DPSK modulation) were used for all test.

The EUT was pretested with 3 orientations placed on the table for the radiated emission measurement -X, Y, and Z-plane. The X-plane results were found as the worst case and were shown in this report.

Channel	Frequency(MHz)
0	2402
1	2403
39	2441
40	2442
77	2479
78	2480

Note: fc=2402MHz+k×1MHz k=0 to 78

The following summary table is showing all test modes to demonstrate in compliance with the standard.

For AC Conducted Emission			
Final Test Mode	Description		
Mode 1	Charging		

Note: AC power line Conducted Emission was tested under maximum output power.

	For Radiated Test Cases			
Final Test Mode Description				
Mode 2	normal link mode			
Mode 3 CH00(2402MHz)				
Mode 4	CH39(2441MHz)			
Mode 5	CH78(2480MHz)			

Note: For radiated test cases, the worst mode data rate 2Mbps on left and 2Mbps on right was reported only, because this data rate has the highest RF output power at preliminary tests, and no other significantly frequencies found in conducted spurious emission.

For Conducted Test Cases						
Final Test Mode	Description					
Mode 3	CH00(2402MHz)					
Mode 4	CH39(2441MHz)					
Mode 5	CH78(2480MHz)					
Mode 6	Mode 6 Hopping mode					
Note: The manufactur	Note: The manufacturer provides engineering testing softwareand the EUT was programmed to be in					

continuously transmitting mode, the power level is the software default value.

1. AC power line Conducted Emission was tested under maximum output power.



#### SETUP OF EQUIPMENT UNDER TEST 6

### 6.1 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM

		AC PLUG
	EUT C-1 AE-1 Adapter	
	Adapter	
Radiated Test C	ases	
	EUT	
r Conducted Test	Cases	
	C-2	
Measurement Instrument	EUT	
motramont		

- and this temporary antenna connector is listed in the equipment list.
- 2. EUT built-in battery-powered, the battery is fully-charged.



### 6.2 SUPPORT EQUIPMENT

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.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
AE-1	Adapter	N/A	N/A	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length
C-1	USB Cable	NO	NO	0.3m
C-2	RF Cable	YES	NO	0.1m

### Notes:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in [Length] column.
- (3) "YES" is means "shielded" "with core"; "NO" is means "unshielded" "without core".



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### 6.3 EQUIPMENTS LIST FOR ALL TEST ITEMS

### Radiation& Conducted Test equipment

_		na conducted i	ooroquipinoin					
lt	em	Kind of Equipment	Manufacturer Type No.		Serial No.	Last calibration	Calibrated until	Calibrati on period
	1	Spectrum Analyzer	Aglient	E4407B	MY45108040	2021.04.27	2022.04.26	1 year
	2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2021.07.01	2022.06.30	1 year
	3	Spectrum Analyzer	R&S	FSV40	101417	2021.07.01	2022.06.30	1 year
	4	Test Receiver	R&S	ESPI7	101318	2021.04.27	2022.04.26	1 year
	5	Bilog Antenna	TESEQ	CBL6111D	31216	2021.03.29	2022.03.28	1 year
	6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
	7	Horn Antenna	EM	EM-AH-1018 0	2011071402	2021.03.29	2022.03.28	1 year
	8	Broadband Horn Antenna	SCHWARZBE CK	BBHA 9170	803	2021.11.07	2022.11.06	1 year
	9	Amplifier	EMC	EMC051835 SE	980246	2021.07.01	2022.06.30	1 year
	10	Active Loop Antenna	SCHWARZBE CK	FMZB 1519 B	055	2021.11.07	2022.11.06	1 year
	11	Power Meter	DARE	RPR3006W	15I00041SN 084	2021.07.01	2022.06.30	1 year
	12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
	13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2019.08.06	2022.08.05	3 year
	14	High Test Cable(1G-40G Hz)	N/A	R-03	N/A	2019.06.28	2022.06.27	3 year
	15	High Test Cable(1G-40G Hz)	N/A	R-04	N/A	2019.08.06	2022.08.05	3 year
	16	Filter	TRILTHIC	2400MHz	29	2021.07.01	2022.06.30	1 year
	17	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

Note:

We will use the temporary antenna connector (soldered on the PCB board) When conducted test And this temporary antenna connector is listed within the instrument list





#### AC Conduction Test equipment Kind of Last Calibrated Calibration Manufacturer Type No. Serial No. Item period Equipment calibration until 2021.04.27 2022.04.26 1 Test Receiver R&S ESCI 101160 1 year 2 LISN R&S **ENV216** 101313 2021.04.27 2022.04.26 1 year **SCHWARZBE** 3 LISN NNLK 8129 8129245 2021.04.27 2022.04.26 1 year CK 50Ω Coaxial ANRITSU 4 MP59B 6200983704 2020.05.11 2023.05.10 3 year Switch CORP Test Cable 5 (9KHz-30MH N/A C01 N/A 2020.05.11 2023.05.10 3 year Z) Test Cable (9KHz-30MH N/A C02 N/A 6 2019.6.28 2022.6.27 3 year Z) Test Cable 7 (9KHz-30MH C03 N/A N/A 2020.05.11 2023.05.10 3 year Z)

Note: Each piece of equipment is scheduled for calibration once a year except the Aux Equipment & Test Cable which is scheduled for calibration every 2 or 3 years.





### 7 TEST REQUIREMENTS

### 7.1 CONDUCTED EMISSIONS TEST

### 7.1.1 Applicable Standard

According to FCC Part 15.207(a)

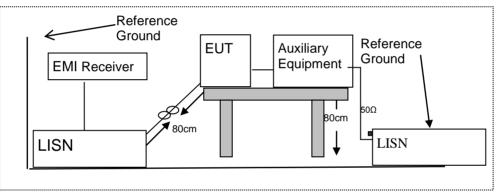
### Conformance Limit

Frequency(MHz)	Conducted Emission Limit			
	Quasi-peak	Average		
0.15-0.5	66-56*	56-46*		
0.5-5.0	56	46		
5.0-30.0	60	50		

Note: 1. \*Decreases with the logarithm of the frequency

- 2. The lower limit shall apply at the transition frequencies
- 3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

### 7.1.2 Test Configuration



### 7.1.3 Test Procedure

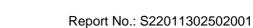
According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

- 1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
- 2. The EUT was placed on a table which is 0.8m above ground plane.
- 3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 4. 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 40cm long.
- 5. 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.
- 6. LISN at least 80 cm from nearest part of EUT chassis.
- 7. The frequency range from 150KHz to 30MHz was searched.
- 8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
- 9. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 7.1.4 Test Results

Pass





#### 7.1.5 **Test Results**

### Left

on			
EUT:	TWS bluetooth headset	Model Name :	TWS-24
Temperature:	20.5 ℃	Relative Humidity:	51%
Pressure:	1010hPa	Phase :	L
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode:	Mode 1

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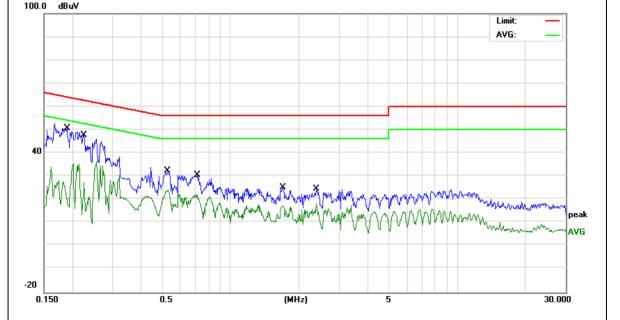
Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Remark
0.1900	41.15	9.65	50.80	64.03	-13.23	QP
0.1900	18.17	9.65	27.82	54.03	-26.21	AVG
0.2242	38.17	9.63	47.80	62.66	-14.86	QP
0.2242	25.58	9.63	35.21	52.66	-17.45	AVG
0.5260	22.59	9.65	32.24	56.00	-23.76	QP
0.5260	14.62	9.65	24.27	46.00	-21.73	AVG
0.7139	20.78	9.74	30.52	56.00	-25.48	QP
0.7139	12.41	9.74	22.15	46.00	-23.85	AVG
1.7019	15.35	9.76	25.11	56.00	-30.89	QP
1.7019	7.63	9.76	17.39	46.00	-28.61	AVG
2.3860	14.86	9.74	24.60	56.00	-31.40	QP
2.3860	8.58	9.74	18.32	46.00	-27.68	AVG

### Remark:

1. All readings are Quasi-Peak and Average values.

2. Factor = Insertion Loss + Cable Loss.

100.0 dBuV



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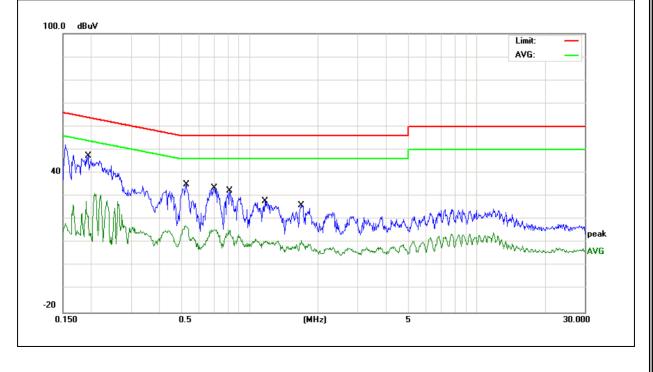
EUT:	TWS bluetooth headset	Model Name :	TWS-24
Temperature:	<b>20.5</b> ℃	Relative Humidity:	51%
Pressure:	1010hPa	Phase :	Ν
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode:	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Domork
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Remark
0.1940	37.87	9.63	47.50	63.86	-16.36	QP
0.1940	18.28	9.63	27.91	53.86	-25.95	AVG
0.5260	25.40	9.73	35.13	56.00	-20.87	QP
0.5260	7.59	9.73	17.32	46.00	-28.68	AVG
0.6976	24.01	9.64	33.65	56.00	-22.35	QP
0.6976	5.89	9.64	15.53	46.00	-30.47	AVG
0.8137	22.65	9.68	32.33	56.00	-23.67	QP
0.8137	5.77	9.68	15.45	46.00	-30.55	AVG
1.1657	17.99	9.73	27.72	56.00	-28.28	QP
1.1657	1.03	9.73	10.76	46.00	-35.24	AVG
1.6977	16.47	9.69	26.16	56.00	-29.84	QP
1.6977	1.39	9.69	11.08	46.00	-34.92	AVG

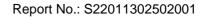
### Remark:

1. All readings are Quasi-Peak and Average values.

2. Factor = Insertion Loss + Cable Loss.







Rig	Right							
	EUT:	TWS bluetooth headset	Model Name :	TWS-24				
	Temperature:	20.5 ℃	Relative Humidity:	51%				
	Pressure:	1010hPa	Phase :	L				
	Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode:	Mode 1				

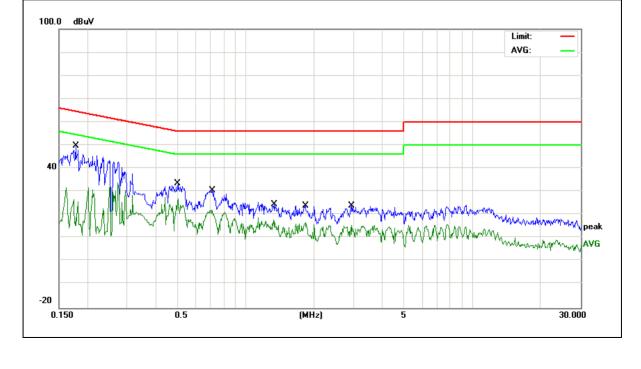
AC Certificate #4298.01

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Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	- Remark
0.1779	40.00	9.67	49.67	64.58	-14.91	QP
0.1779	16.89	9.67	26.56	54.58	-28.02	AVG
0.5020	23.86	9.64	33.50	56.00	-22.50	QP
0.5020	17.20	9.64	26.84	46.00	-19.16	AVG
0.7138	20.78	9.74	30.52	56.00	-25.48	QP
0.7138	12.41	9.74	22.15	46.00	-23.85	AVG
1.3380	14.75	9.75	24.50	56.00	-31.50	QP
1.3380	7.70	9.75	17.45	46.00	-28.55	AVG
1.8380	14.09	9.76	23.85	56.00	-32.15	QP
1.8380	6.98	9.76	16.74	46.00	-29.26	AVG
2.9340	14.38	9.72	24.10	56.00	-31.90	QP
2.9340	5.71	9.72	15.43	46.00	-30.57	AVG

Remark:

All readings are Quasi-Peak and Average values.
 Factor = Insertion Loss + Cable Loss.



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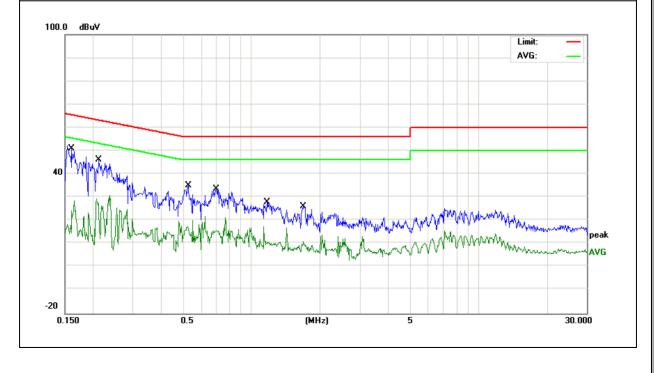
EUT:	TWS bluetooth headset	Model Name :	TWS-24
Temperature:	<b>20.5</b> ℃	Relative Humidity:	51%
Pressure:	1010hPa	Phase :	Ν
Test Voltage :	DC 5V from Adapter AC 120V/60Hz	Test Mode:	Mode 1

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Domork
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Remark
0.1607	41.37	9.63	51.00	65.42	-14.42	QP
0.1607	18.85	9.63	28.48	55.42	-26.94	AVG
0.2116	36.47	9.63	46.10	63.14	-17.04	QP
0.2116	19.64	9.63	29.27	53.14	-23.87	AVG
0.5260	25.40	9.73	35.13	56.00	-20.87	QP
0.5260	7.59	9.73	17.32	46.00	-28.68	AVG
0.6976	24.01	9.64	33.65	56.00	-22.35	QP
0.6976	6.97	9.64	16.61	46.00	-29.39	AVG
1.1656	17.99	9.73	27.72	56.00	-28.28	QP
1.1656	7.70	9.73	17.43	46.00	-28.57	AVG
1.6976	16.47	9.69	26.16	56.00	-29.84	QP
1.6976	1.39	9.69	11.08	46.00	-34.92	AVG

### Remark:

1. All readings are Quasi-Peak and Average values.

2. Factor = Insertion Loss + Cable Loss.







### 7.2 RADIATED SPURIOUS EMISSION

### 7.2.1 Applicable Standard

According to FCC Part 15.247(d) and 15.209 and ANSI C63.10-2013

### 7.2.2 Conformance Limit

According to FCC Part 15.247(d): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)). According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	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	(2)
13.36-13.41			

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	24000/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)		
	PEAK	AVERAGE	
Above 1000	74	54	

Remark :1. Emission level in dBuV/m=20 log (uV/m)

Measurement was performed at an antenna to the closed point of EUT distance of meters.
 For Frequency 9kHz~30MHz:

Distance extrapolation factor =40log(Specific distance/ test distance)(dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor.

For Frequency above 30MHz:

Distance extrapolation factor =20log(Specific distance/ test distance)(dB);

Limit line=Specific limits(dBuV) + distance extrapolation factor.

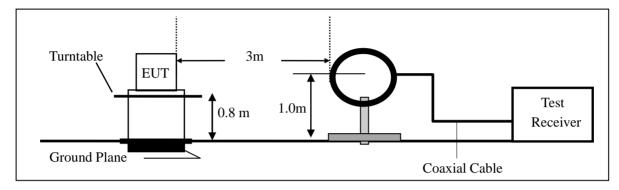


### 7.2.3 Measuring Instruments

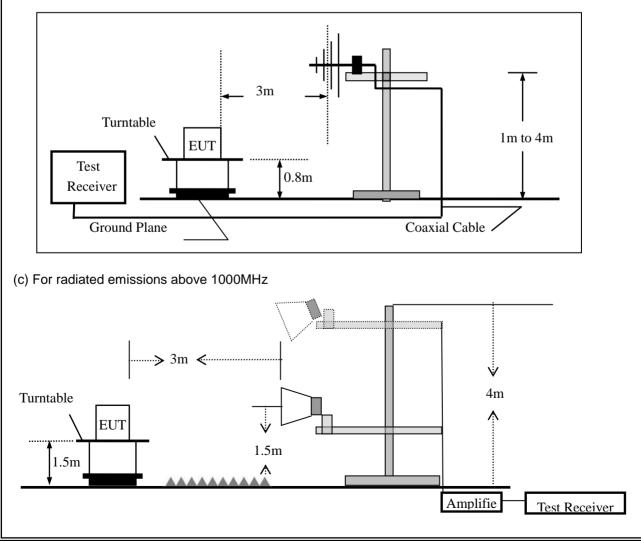
The Measuring equipment is listed in the section 6.3 of this test report.

### 7.2.4 Test Configuration

### (a) For radiated emissions below 30MHz



### (b) For radiated emissions from 30MHz to 1000MHz





### 7.2.5 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 1MHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For the radiated emission test above 1GHz: Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
- e. 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 then Quasi Peak detector mode re-measured.
- f. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- g. 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





During the radiated emission test, the Spectrum Analyzer was set with the following configurations:						
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth			
30 to 1000	QP	120 kHz	300 kHz			
	Peak	1 MHz	1 MHz			
Above 1000	Average	1 MHz	1 MHz			

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10\*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

### 7.2.6 Test Results

Spurious Emission below 30MHz (9KHz to 30MHz)

EUT:	TWS bluetooth headset	Model No.:	TWS-24
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode3/Mode4/Mode5	Test By:	Mary Hu

Freq.	Ant.Pol.	Emission L	.evel(dBuV/m)	Limit 3	m(dBuV/m)	Over	r(dB)
(MHz)	H/V	PK	AV	PK	AV	PK	AV

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

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■ Spurious Emission below 1GHz (30MHz to 1GHz)

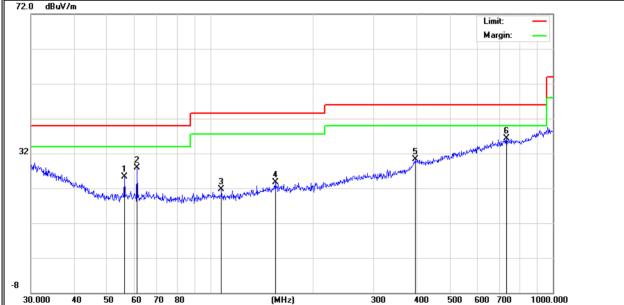
All the modulation modes have been tested, and the worst result was report as below:

EUT:	TWS bluetooth headset	Model Name :	TWS-24	
Temperature:	<b>24.5</b> ℃	Relative Humidity:	51%	
Pressure:	1010hPa	Test Mode:	π/4-DQPSK -CH39	
Test Voltage :	DC 5V from Adapter AC 120V/60Hz (Left)			

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	56.1974	10.89	14.36	25.25	40.00	-14.75	QP
V	61.1316	13.37	14.45	27.82	40.00	-12.18	QP
V	107.8876	6.83	14.87	21.70	43.50	-21.80	QP
V	155.3643	6.79	16.91	23.70	43.50	-19.80	QP
V	396.2415	5.79	24.46	30.25	46.00	-15.75	QP
V	731.9202	7.34	29.00	36.34	46.00	-9.66	QP

### Remark:

Emission Level= Meter Reading+ Factor, Margin= Emission Level- Limit





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Polar	Fre	quenc	су		eter ading	Fac	tor	Emiss Leve		Li	mits		Ма	rgin	Ren	nark
(H/V)	(	MHz)		(dl	BuV)	(dl	3)	(dBuV	//m)	(dB	uV/m	1)	(0	dB)		
Н	71	.8320	)	6	.56	14.	76	21.3	2	4	0.00		-18	8.68	C	۱P
Н	98	3.1419	)	6	.70	15.	16	21.8	6	43	3.50		-2	1.64	C	۱P
Н	15	5.3643	3	6	.75	16.	91	23.6	6	43	3.50		-19	9.84	C	۱P
Н	26	5.6757	7	7	.17	19.	76	26.9	3	4	6.00		-19	9.07	C	λb
Н	403	3.2500	0	6	5.19	24.	76	30.9	15	4	6.00		-1	5.05	C	λb
Н	75	2.7432	2	7	.61	29.	29	36.9	0	4	6.00		-9	.10	C	λb
Emission 72.0 dBu		I= Me	er F	Readir	ng+ ⊦a	ctor, M	argin=	Emiss	ion Le	vel- Li	mit		nit:		1	
				f									argin:			
	mar and a state of the state of	harmaturen	1	Munitoriti	2 mmmmmuu	an takan dan dan dan dan dan dan dan dan dan d	ан манана		nytetheserve	and the second						
-8	40	50 6	60 70	80			IHz)		300	400	500	600	700	1000.	000	





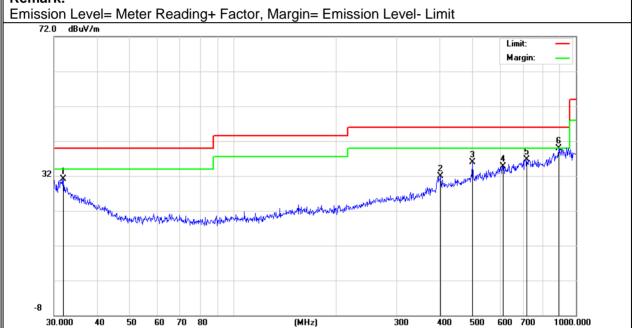
EUT:	TWS bluetooth headset	Model Name :	TWS-24					
Temperature:	<b>24.5</b> ℃	Relative Humidity:	51%					
Pressure:	1010hPa	Test Mode:	π/4-DQPSK -CH00					
Test Voltage :	DC 5V from Adapter AC 120V/60Hz (Right)							

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Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	31.9542	8.61	22.59	31.20	40.00	-8.80	QP
V	403.2500	7.24	24.76	32.00	46.00	-14.00	QP
V	499.4245	10.24	25.76	36.00	46.00	-10.00	QP
V	614.2142	7.46	27.24	34.70	46.00	-11.30	QP
V	719.1992	8.05	28.75	36.80	46.00	-9.20	QP
V	890.7278	8.93	30.97	39.90	46.00	-6.10	QP

Remark:

ila





Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
(H/V)	(MHz)	lz) (dBuV) (dB)		(dBuV/m)	(dBuV/m)	(dB)	
Н	32.1794	7.52	22.48	30.00	40.00	-10.00	QP
Н	413.2706	7.12	24.48	31.60	46.00	-14.40	QP
Н	601.4265	7.01	27.09	34.10	46.00	-11.90	QP
Н	737.0714	7.02	29.08	36.10	46.00	-9.90	QP
Н	848.0561	8.10	29.80	37.90	46.00	-8.10	QP
Н	932.2712	7.66	31.83	39.49	46.00	-6.51	QP
						Limit: Margin:	
32 W			weighter Appende Mars	4, 54 Hallotter - 16" 14 Hallotter - 16"	Manual Marker California and Marker Marker California and Californ	WWW HAM	
-8	00 40 50 6	0 70 80	(MI	12)	300 400 500	600 700	1000.000

ACCREDITED Certificate #4298.01



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JT:		TWS bl	uetooth he	adset	Model	No.:		FWS-24	
emperature	):	<b>20</b> ℃			Relativ	elative Humidity: 48%			
est Mode:		Mode3/	Mode4/Mc	ode5	Test B	y:	ſ	Mary Hu	
l the modul eft	ation mo	des have	been test	ted, and th	ne worst re	sult was rep	oort as I	below:	
Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margii	n Remark	Comment
(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµV/m)	(dB)		
			Low Chann	el (2402 M	Hz)( π/4-D0	QPSK)Abo	ve 1G		
4804.56	64.84	5.21	35.59	44.30	61.34	74.00	-12.66	6 Pk	Vertical
4804.56	43.06	5.21	35.59	44.30	39.56	54.00	-14.44	4 AV	Vertical
7206.41	62.92	6.48	36.27	44.60	61.07	74.00	-12.93	3 Pk	Vertical
7206.41	42.54	6.48	36.27	44.60	40.69	54.00	-13.3′	1 AV	Vertical
4804.86	61.70	5.21	35.55	44.30	58.16	74.00	-15.84	4 Pk	Horizontal
4804.86	43.79	5.21	35.55	44.30	40.25	54.00	-13.75	5 AV	Horizontal
7206.66	60.34	6.48	36.27	44.52	58.57	74.00	-15.43	3 Pk	Horizontal
7206.66	43.85	6.48	36.27	44.52	42.08	54.00	-11.92	2 AV	Horizontal
			Mid Channe	el (2441 MI	Hz)( π/4-DC	PSK)Abo	ve 1G		
4882.77	64.49	5.21	35.66	44.20	61.16	74.00	-12.84	4 Pk	Vertical
4882.77	43.93	5.21	35.66	44.20	40.60	54.00	-13.40	) AV	Vertical
7323.93	60.74	7.10	36.50	44.43	59.91	74.00	-14.09	9 Pk	Vertical
7323.93	42.77	7.10	36.50	44.43	41.94	54.00	-12.06	6 AV	Vertical
4882.33	61.03	5.21	35.66	44.20	57.70	74.00	-16.30	) Pk	Horizontal
4882.33	43.61	5.21	35.66	44.20	40.28	54.00	-13.72	2 AV	Horizontal
7324.79	63.33	7.10	36.50	44.43	62.50	74.00	-11.50	) Pk	Horizontal
7324.79	42.57	7.10	36.50	44.43	41.74	54.00	-12.26	6 AV	Horizontal
			ligh Chann	el (2480 M	Hz)( π/4-D0	QPSK) Abo	ove 1G		
4959.14	65.82	5.21	35.52	44.21	62.34	74.00	-11.66	6 Pk	Vertical
4959.14	43.26	5.21	35.52	44.21	39.78	54.00	-14.22		Vertical
7439.23	63.80	7.10	36.53	44.60	62.83	74.00	-11.17	7 Pk	Vertical
7439.23	43.76	7.10	36.53	44.60	42.79	54.00	-11.21		Vertical
4960.14	62.75	5.21	35.52	44.21	59.27	74.00	-14.73	3 Pk	Horizontal
4960.14	40.70	5.21	35.52	44.21	37.22	54.00	-16.78	B AV	Horizontal
7440.55	62.29	7.10	36.53	44.60	61.32	74.00	-12.68	B Pk	Horizontal
7440.55	42.20	7.10	36.53	44.60	41.23	54.00	-12.77	7 AV	Horizontal



### Report No.: S22011302502001

Right									
Frequency	Read Level	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Remark	Comment
(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµV/m)	(dB)		
			Low Chan	nel (2402 N	/Hz)( π/4-D	QPSK)Abo	ove 1G	-	
4804.86	67.15	5.21	35.59	44.30	63.65	74.00	-10.35	Pk	Vertical
4804.86	43.93	5.21	35.59	44.30	40.43	54.00	-13.57	AV	Vertical
7206.60	61.82	6.48	36.27	44.60	59.97	74.00	-14.03	Pk	Vertical
7206.60	43.85	6.48	36.27	44.60	42.00	54.00	-12.00	AV	Vertical
4804.61	60.01	5.21	35.55	44.30	56.47	74.00	-17.53	Pk	Horizontal
4804.61	40.23	5.21	35.55	44.30	36.69	54.00	-17.31	AV	Horizontal
7206.16	61.62	6.48	36.27	44.52	59.85	74.00	-14.15	Pk	Horizontal
7206.16	40.77	6.48	36.27	44.52	39.00	54.00	-15.00	AV	Horizontal
			Mid Chanr	nel (2441 M	1Hz)( π/4-D	QPSK)Abc	ove 1G	1	
4882.75	64.19	5.21	35.66	44.20	60.86	74.00	-13.14	Pk	Vertical
4882.75	43.39	5.21	35.66	44.20	40.06	54.00	-13.94	AV	Vertical
7323.22	62.48	7.10	36.50	44.43	61.65	74.00	-12.35	Pk	Vertical
7323.22	43.41	7.10	36.50	44.43	42.58	54.00	-11.42	AV	Vertical
4882.25	62.71	5.21	35.66	44.20	59.38	74.00	-14.62	Pk	Horizontal
4882.25	43.61	5.21	35.66	44.20	40.28	54.00	-13.72	AV	Horizontal
7324.05	63.52	7.10	36.50	44.43	62.69	74.00	-11.31	Pk	Horizontal
7324.05	43.13	7.10	36.50	44.43	42.30	54.00	-11.70	AV	Horizontal
			High Chanı	nel (2480 N	/Hz)( π/4-D	QPSK) Ab	ove 1G	I	
4959.85	66.97	5.21	35.52	44.21	63.49	74.00	-10.51	Pk	Vertical
4959.85	43.80	5.21	35.52	44.21	40.32	54.00	-13.68	AV	Vertical
7439.39	60.75	7.10	36.53	44.60	59.78	74.00	-14.22	Pk	Vertical
7439.39	43.54	7.10	36.53	44.60	42.57	54.00	-11.43	AV	Vertical
4960.38	64.13	5.21	35.52	44.21	60.65	74.00	-13.35	Pk	Horizontal
4960.38	42.80	5.21	35.52	44.21	39.32	54.00	-14.68	AV	Horizontal
7440.02	60.70	7.10	36.53	44.60	59.73	74.00	-14.27	Pk	Horizontal
7440.02	41.19	7.10	36.53	44.60	40.22	54.00	-13.78	AV	Horizontal

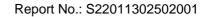
Note:

(1) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor (2)All other emissions more than 20dB below the limit.



UT:		TWS blue headset	ətooth	Mode	el No.:	TW	S-24				
emperature	e:	20 ℃		Rela	tive Humidit	y: 48%	/ 0				
est Mode:		Mode3/ N	Jode5	Test			Mary Hu				
	ulation mo				and the worst result was report as below:						
Frequency	Meter Reading	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector	Comment		
(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµV/m)	) (dB)	Туре			
			1N	/bps(GFSI	K)- Non-hop	ping					
2310.00	53.97	2.97	27.80	43.80	40.94	74.00	-33.06	Pk	Horizonta		
2310.00	40.36	2.97	27.80	43.80	27.33	54.00	-26.67	AV	Horizonta		
2310.00	50.13	2.97	27.80	43.80	37.10	74.00	-36.90	Pk	Vertical		
2310.00	45.92	2.97	27.80	43.80	32.89	54.00	-21.11	AV	Vertical		
2390.00	52.21	3.14	27.21	43.80	38.76	74.00	-35.24	Pk	Vertical		
2390.00	44.44	3.14	27.21	43.80	30.99	54.00	-23.01	AV	Vertical		
2390.00	53.60	3.14	27.21	43.80	40.15	74.00	-33.85	Pk	Horizonta		
2390.00	40.91	3.14	27.21	43.80	27.46	54.00	-26.54	AV	Horizonta		
2483.50	52.22	3.58	27.70	44.00	39.50	74.00	-34.50	Pk	Vertical		
2483.50	44.65	3.58	27.70	44.00	31.93	54.00	-22.07	AV	Vertical		
2483.50	50.53	3.58	27.70	44.00	37.81	74.00	-36.19	Pk	Horizonta		
2483.50	41.12	3.58	27.70	44.00	28.40	54.00	-25.60	AV	Horizonta		
				1Mbps (G	FSK)- hoppir	ıg					
2310.00	50.13	2.97	27.80	43.80	37.10	74.00	-36.90	Pk	Vertical		
2310.00	44.71	2.97	27.80	43.80	31.68	54.00	-22.32	AV	Vertical		
2310.00	54.87	2.97	27.80	43.80	41.84	74.00	-32.16	Pk	Horizonta		
2310.00	44.51	2.97	27.80	43.80	31.48	54.00	-22.52	AV	Horizonta		
2390.00	53.87	3.14	27.21	43.80	40.42	74.00	-33.58	Pk	Vertical		
2390.00	44.55	3.14	27.21	43.80	31.10	54.00	-22.90	AV	Vertical		
2390.00	50.53	3.14	27.21	43.80	37.08	74.00	-36.92	Pk	Horizonta		
2390.00	44.44	3.14	27.21	43.80	30.99	54.00	-23.01	AV	Horizonta		
2483.50	51.08	3.58	27.70	44.00	38.36	74.00	-35.64	Pk	Vertical		
2483.50	41.91	3.58	27.70	44.00	29.19	54.00	-24.81	AV	Vertical		
2483.50	53.02	3.58	27.70	44.00	40.30	74.00	-33.70	Pk	Horizonta		
2483.50	41.88	3.58	27.70	44.00	29.16	54.00	-24.84	AV	Horizonta		





light									
Frequency	Meter Reading	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
			11	Mbps(GFSK	()- Non-hop	ping			
2310.00	56.91	2.97	27.80	43.80	43.88	74.00	-30.12	Pk	Horizontal
2310.00	44.47	2.97	27.80	43.80	31.44	54.00	-22.56	AV	Horizontal
2310.00	50.45	2.97	27.80	43.80	37.42	74.00	-36.58	Pk	Vertical
2310.00	44.51	2.97	27.80	43.80	31.48	54.00	-22.52	AV	Vertical
2390.00	51.65	3.14	27.21	43.80	38.20	74.00	-35.80	Pk	Vertical
2390.00	40.96	3.14	27.21	43.80	27.51	54.00	-26.49	AV	Vertical
2390.00	54.70	3.14	27.21	43.80	41.25	74.00	-32.75	Pk	Horizontal
2390.00	40.30	3.14	27.21	43.80	26.85	54.00	-27.15	AV	Horizontal
2483.50	54.64	3.58	27.70	44.00	41.92	74.00	-32.08	Pk	Vertical
2483.50	43.39	3.58	27.70	44.00	30.67	54.00	-23.33	AV	Vertical
2483.50	53.08	3.58	27.70	44.00	40.36	74.00	-33.64	Pk	Horizontal
2483.50	44.53	3.58	27.70	44.00	31.81	54.00	-22.19	AV	Horizontal
				1Mbps (G	FSK)- hoppir	ng			
2310.00	50.72	2.97	27.80	43.80	37.69	74.00	-36.31	Pk	Vertical
2310.00	44.99	2.97	27.80	43.80	31.96	54.00	-22.04	AV	Vertical
2310.00	54.98	2.97	27.80	43.80	41.95	74.00	-32.05	Pk	Horizontal
2310.00	43.35	2.97	27.80	43.80	30.32	54.00	-23.68	AV	Horizontal
2390.00	51.09	3.14	27.21	43.80	37.64	74.00	-36.36	Pk	Vertical
2390.00	42.04	3.14	27.21	43.80	28.59	54.00	-25.41	AV	Vertical
2390.00	51.73	3.14	27.21	43.80	38.28	74.00	-35.72	Pk	Horizontal
2390.00	41.98	3.14	27.21	43.80	28.53	54.00	-25.47	AV	Horizontal
2483.50	50.84	3.58	27.70	44.00	38.12	74.00	-35.88	Pk	Vertical
2483.50	43.48	3.58	27.70	44.00	30.76	54.00	-23.24	AV	Vertical
2483.50	51.35	3.58	27.70	44.00	38.63	74.00	-35.37	Pk	Horizontal
2483.50	40.35	3.58	27.70	44.00	27.63	54.00	-26.37	AV	Horizontal

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Note: (1) All other emissions more than 20dB below the limit.



EUT:		TWS blue headset	etooth	N	/lode	l No.:		TWS-2	24		
Temperature	:	<b>20</b> ℃		R	Relative Humidity:			48%			
Test Mode:		Mode3/ Mode5			est E	Зу:		Mary H	Hu		
All the modulation modes have been tested, and the worst result was report as below: _eft											
Frequency	Reading Level	ReadingCableAntennaPreampEmissionLevelLossFactorFactorLevel		mits	Margin	Detector	Comment				
(MHz)	(dBµV)	(dB)	dB/m	(dE	3)	(dBµV/m)	(dB	µV/m)	(dB)	Туре	
3260	62.70	4.04	29.57	44.	70	51.61	74		-22.39	Pk	Vertical
3260	48.16	4.04	29.57	44.	70	37.07	54		-16.93	AV	Vertical
3260	54.24	4.04	29.57	44.	70	43.15		74	-30.85	Pk	Horizonta
3260	45.40	4.04	29.57	44.	70	34.31	:	54	-19.69	AV	Horizonta
3332	63.29	4.26	29.87	44.4	40	53.02		74	-20.98	Pk	Vertical
3332	44.99	4.26	29.87	44.4	40	34.72	:	54	-19.28	AV	Vertical
3332	63.79	4.26	29.87	44.4	40	53.52		74	-20.48	Pk	Horizonta
3332	46.61	4.26	29.87	44.4	40	36.34		54	-17.66	AV	Horizonta
17797	50.63	10.99	43.95	43.	50	62.07		74	-11.93	Pk	Vertical
17797	38.48	10.99	43.95	43.	50	49.92		54	-4.08	AV	Vertical
17788	55.73	11.81	43.69	44.0	60	66.63		74	-7.37	Pk	Horizonta
17788	34.39	11.81	43.69	44.0	60	45.29		54	-8.71	AV	Horizonta

### Right

Frequency	Reading Level	Cable Loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector	Comment
(MHz)	(dBµV)	(dB)	dB/m	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Туре	
3260	58.30	4.04	29.57	44.70	47.21	74	-26.79	Pk	Vertical
3260	49.88	4.04	29.57	44.70	38.79	54	-15.21	AV	Vertical
3260	55.16	4.04	29.57	44.70	44.07	74	-29.93	Pk	Horizontal
3260	43.64	4.04	29.57	44.70	32.55	54	-21.45	AV	Horizontal
3332	63.27	4.26	29.87	44.40	53.00	74	-21.00	Pk	Vertical
3332	47.38	4.26	29.87	44.40	37.11	54	-16.89	AV	Vertical
3332	64.50	4.26	29.87	44.40	54.23	74	-19.77	Pk	Horizontal
3332	43.68	4.26	29.87	44.40	33.41	54	-20.59	AV	Horizontal
17797	50.19	10.99	43.95	43.50	61.63	74	-12.37	Pk	Vertical
17797	34.37	10.99	43.95	43.50	45.81	54	-8.19	AV	Vertical
17788	56.89	11.81	43.69	44.60	67.79	74	-6.21	Pk	Horizontal
17788	38.23	11.81	43.69	44.60	49.13	54	-4.87	AV	Horizontal

Note: (1) All other emissions more than 20dB below the limit.





### 7.3 NUMBER OF HOPPING CHANNEL

### 7.3.1 Applicable Standard

According to FCC Part 15.247(a)(1) (iii)and ANSI C63.10-2013

### 7.3.2 Conformance Limit

Frequency hopping systems in the 2400-2483.5MHz band shall use at least 15 channels.

### 7.3.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

### 7.3.4 Test Setup

Please refer to Section 6.1 of this test report.

### 7.3.5 Test Procedure

The testing follows ANSI C63.10-2013 clause 7.8.3 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. The EUT must have its hopping function enabled. Use the following spectrum analyzer settings: Span = the frequency band of operation RBW : To identify clearly the individual channels, set the RBW to less than 30% of the channel spacing or the 20 dB bandwidth, whichever is smaller. VBW  $\geq$  RBW Sweep = auto Detector function = peak Trace = max hold

### 7.3.6 Test Results

EUT:	TWS bluetooth headset	Model No.:	TWS-24
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode 5(1Mbps)	Test By:	Mary Hu

Test data reference attachment.



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### 7.4 HOPPING CHANNEL SEPARATION MEASUREMENT

### 7.4.1 Applicable Standard

According to FCC Part 15.247(a)(1) and ANSI C63.10-2013

### 7.4.2 Conformance 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 2400-2483.5MHz band shall have hopping channel carrier frequencies that are separated by 25kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

### 7.4.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

### 7.4.4 Test Setup

Please refer to Section 6.1 of this test report.

### 7.4.5 Test Procedure

The testing follows ANSI C63.10-2013 clause 7.8.2 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. The EUT was operating in controlled its channel. Use the following spectrum analyzer settings: Span = Measurement Bandwidth or Channel Separation RBW: Start with the RBW set to approximately 3% of the channel spacing; adjust as necessary to best identify the center of each individual channel. VBW  $\geq$  RBW Sweep = auto Detector function = peak Trace = max hold





### 7.4.6 Test Results

EUT:	TWS bluetooth headset	Model No.:	TWS-24
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode3/Mode4/Mode5	Test By:	Mary Hu

Test data reference attachment.



### 7.5 AVERAGE TIME OF OCCUPANCY (DWELL TIME)

### 7.5.1 Applicable Standard

According to FCC Part 15.247(a)(1)(iii) and ANSI C63.10-2013

### 7.5.2 Conformance Limit

The average time of occupancy on any channel shall not be greater than 0.4s within a period of 0.4s multiplied by the number of hopping channels employed.

### 7.5.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

### 7.5.4 Test Setup

Please refer to Section 6.1 of this test report.

### 7.5.5 Test Procedure

The testing follows ANSI C63.10-2013 clause 7.8.4

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.

The EUT must have its hopping function enabled.

Use the following spectrum analyzer settings:

Span = zero span, centered on a hopping channel

 $RBW \ge 1MHz$ 

 $\mathsf{VBW} \geq \mathsf{RBW}$ 

Sweep = as necessary to capture the entire dwell time per hopping channel

Detector function = peak

Trace = max hold

Measure the maximum time duration of one single pulse.

Set the EUT for DH5, DH3 and DH1 packet transmitting.

Measure the maximum time duration of one single pulse.





### 7.5.6 Test Results

EUT:	TWS bluetooth headset	Model No.:	TWS-24
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode3/Mode4/Mode5	Test By:	Mary Hu

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Note:

A Period Time = (channel number)\*0.4 DH1 Dwell time: Reading \* (1600/2)\*31.6/(channel number) DH3 Dwell time: Reading \* (1600/4)\*31.6/(channel number) DH5 Dwell time: Reading \* (1600/6)\*31.6/(channel number)

For Example:

- 1. In normal mode, hopping rate is 1600 hops/s with 6 slots in 79 hopping channels. With channel hopping rate (1600 / 6 / 79) in Occupancy Time Limit  $(0.4 \times 79)$  (s), Hops Over Occupancy Time comes to  $(1600 / 6 / 79) \times (0.4 \times 79) = 106.67$  hops.
- In AFH mode, hopping rate is 800 hops/s with 6 slots in 20 hopping channels. With channel hopping rate (800 / 6 / 20) in Occupancy Time Limit (0.4 x 20) (s), Hops Over Occupancy Time comes to (800 / 6 / 20) x (0.4 x 20) = 53.33 hops.
- 3. Dwell Time(s) = Hops Over Occupancy Time (hops) x Package Transfer Time



### 7.6 20DB BANDWIDTH TEST

### 7.6.1 Applicable Standard

According to FCC Part 15.247(a)(1) and ANSI C63.10-2013

### 7.6.2 Conformance Limit

No limit requirement.

### 7.6.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

### 7.6.4 Test Setup

Please refer to Section 6.1 of this test report.

### 7.6.5 Test Procedure

The testing follows ANSI C63.10-2013 clause 6.9.2 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. The EUT was operating in controlled its channel. Use the following spectrum analyzer settings: Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel RBW  $\geq$  1% of the 20 dB bandwidth VBW  $\geq$  RBW Sweep = auto Detector function = peak Trace = max hold





# 7.6.6 Test Results

EUT:	TWS bluetooth headset	Model No.:	TWS-24
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode3/Mode4/Mode5	Test By:	Mary Hu

Test data reference attachment.

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# 7.7 PEAK OUTPUT POWER

# 7.7.1 Applicable Standard

According to FCC Part 15.247(b)(1) and ANSI C63.10-2013

# 7.7.2 Conformance Limit

The maximum peak conducted output power of the intentional radiator shall not exceed the following: (1) For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band 0.125 watts.

# 7.7.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

# 7.7.4 Test Setup

Please refer to Section 6.1 of this test report.

# 7.7.5 Test Procedure

The testing follows ANSI C63.10-2013 clause 7.8.5. 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. The EUT was operating in controlled its channel. Use the following spectrum analyzer settings: Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel RBW  $\geq$  the 20 dB bandwidth of the emission being measured VBW  $\geq$  RBW Sweep = auto Detector function = peak Trace = max hold





# 7.7.6 Test Results

EUT:	TWS bluetooth headset	Model No.:	TWS-24
Temperature:	<b>20</b> ℃	Relative Humidity:	48%
Test Mode:	Mode3/Mode4/Mode5	Test By:	Mary Hu

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Test data reference attachment.

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# Report No.: S22011302502001

# 7.8 CONDUCTED BAND EDGE MEASUREMENT

# 7.8.1 Applicable Standard

According to FCC Part 15.247(d) and ANSI C63.10-2013

# 7.8.2 Conformance Limit

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

# 7.8.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

# 7.8.4 Test Setup

Please refer to Section 6.1 of this test report.

# 7.8.5 Test Procedure

The testing follows ANSI C63.10-2013 clause 7.8.6.

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.

The EUT must have its hopping function enabled.

Use the following spectrum analyzer settings:

Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel

RBW = 100KHz

VBW = 300KHz

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.

Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.

Repeat above procedures until all measured frequencies were complete.





# 7.8.6 Test Results

EUT:	TWS bluetooth headset	Model No.:	TWS-24
Temperature:	20 °C	Relative Humidity:	48%
Test Mode:	Mode3 /Mode4/ Mode 5	Test By:	Mary Hu

Test data reference attachment.

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# Report No.: S22011302502001

# 7.9 SPURIOUS RF CONDUCTED EMISSION

# 7.9.1 Applicable Standard

According to FCC Part 15.247(d) and ANSI C63.10-2013.

# 7.9.2 Conformance Limit

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

# 7.9.3 Measuring Instruments

The Measuring equipment is listed in the section 6.3 of this test report.

# 7.9.4 Test Setup

Please refer to Section 6.1 of this test report.

# 7.9.5 Test Procedure

Establish an emission level by using the following procedure:

- a) Set the center frequency and span to encompass frequency range to be measured.
- b) Set the RBW = 100 kHz.
- c) Set the VBW  $\geq$  [3 × RBW].
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the peak marker function to determine the maximum amplitude level.

Then the limit shall be attenuated by at least 20 dB relative to the maximum amplitude level in 100 kHz.

# 7.9.6 Test Results

Remark: The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandege measurement data.

Test data reference attachment.





# 7.10 ANTENNA APPLICATION

# 7.10.1 Antenna 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.

# 7.10.2 Result

The EUT antenna is permanent attached Chip Antenna(Gain:2.2 dBi). It comply with the standard requirement.



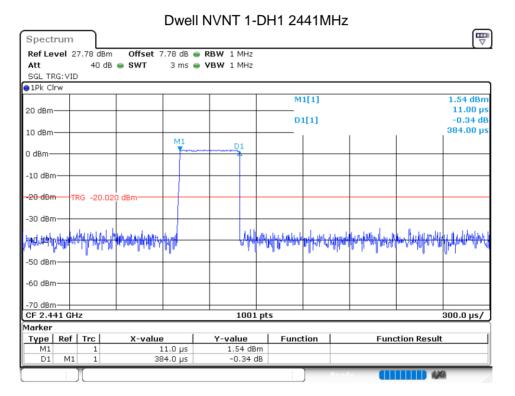


# 8 TEST RESULTS

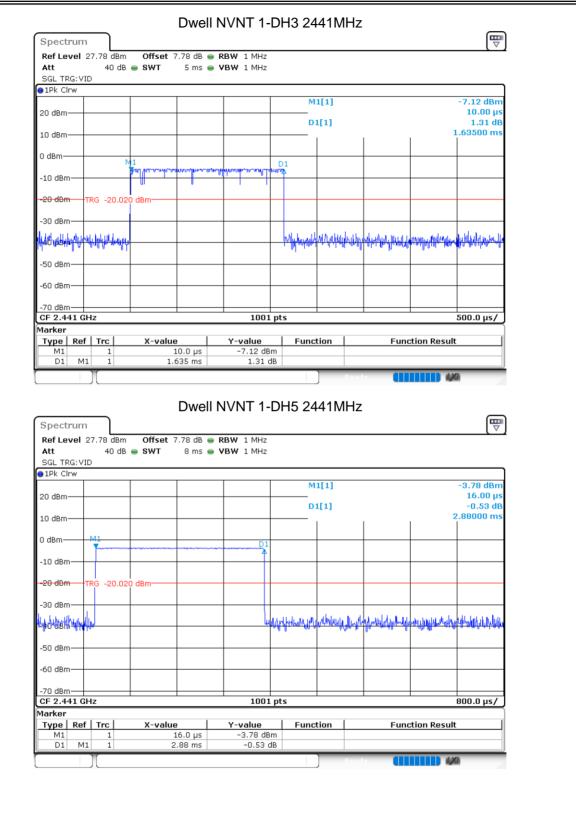
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# 8.1.1 Dwell Time

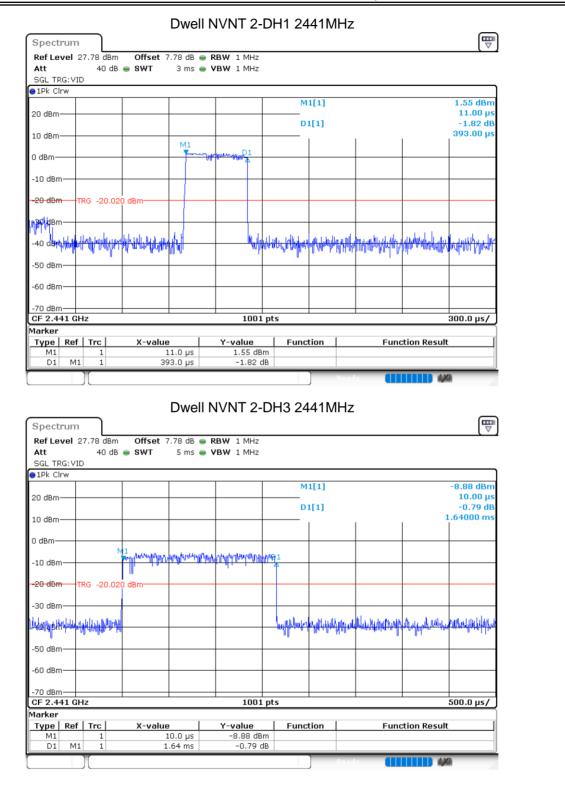
Condition	Mode	Frequency (MHz)	Pulse Time (ms)	Total Dwell Time (ms)	Period Time (ms)	Limit (ms)	Verdict
NVNT	1-DH1	2441	0.384	122.88	31600	400	Pass
NVNT	1-DH3	2441	1.635	261.6	31600	400	Pass
NVNT	1-DH5	2441	2.88	307.2	31600	400	Pass
NVNT	2-DH1	2441	0.393	125.76	31600	400	Pass
NVNT	2-DH3	2441	1.64	262.4	31600	400	Pass
NVNT	2-DH5	2441	2.888	308.053	31600	400	Pass
NVNT	3-DH1	2441	0.393	125.76	31600	400	Pass
NVNT	3-DH3	2441	1.62	259.2	31600	400	Pass
NVNT	3-DH5	2441	2.864	305.493	31600	400	Pass



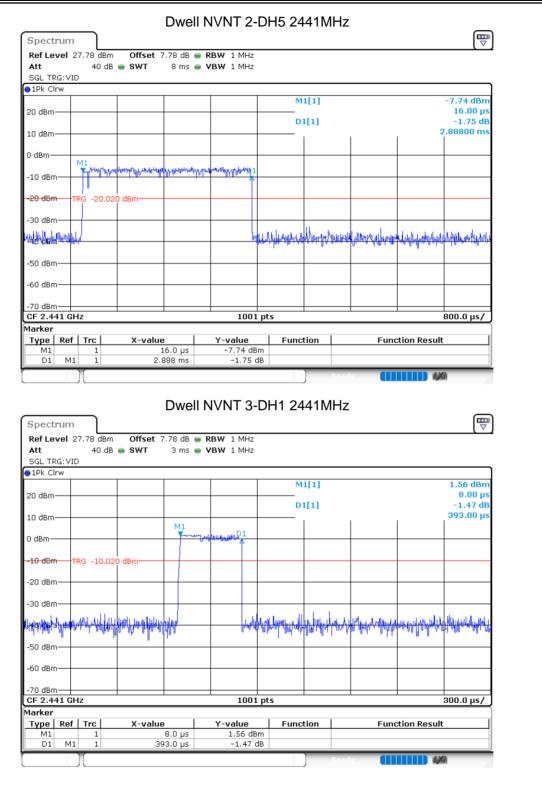






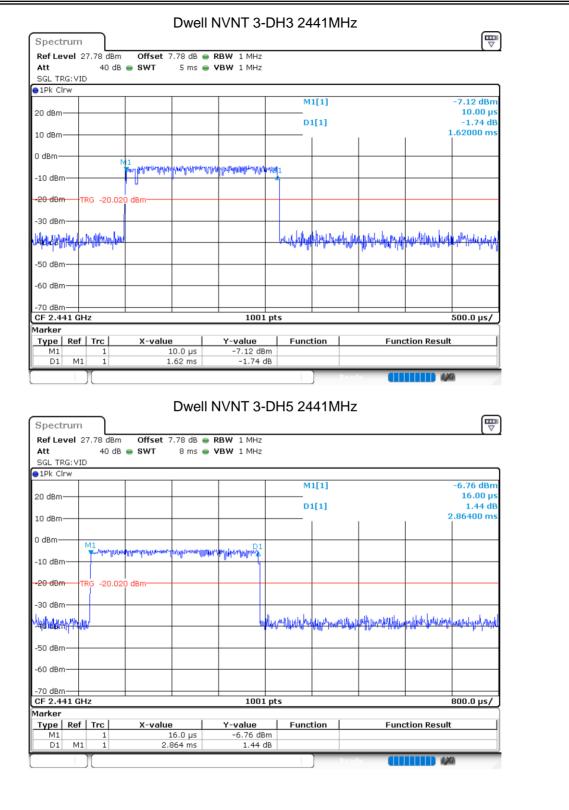






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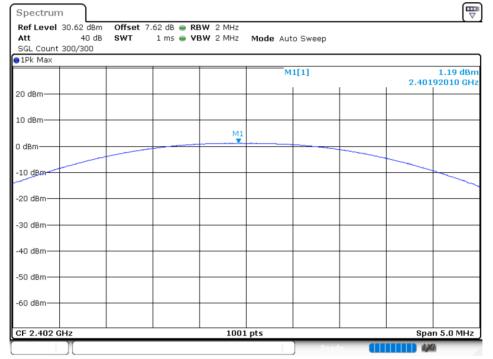


# 8.1.2 Maximum Conducted Output Power

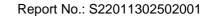
Condition	Mode	Frequency (MHz)	Antenna	Power (dBm)	Limit (dBm)	Verdict
NVNT	1-DH5	2402	Ant 1	1.19	30	Pass
NVNT	1-DH5	2441	Ant 1	1.90	30	Pass
NVNT	1-DH5	2480	Ant 1	0.91	30	Pass
NVNT	2-DH5	2402	Ant 1	1.81	20.97	Pass
NVNT	2-DH5	2441	Ant 1	2.51	20.97	Pass
NVNT	2-DH5	2480	Ant 1	1.59	20.97	Pass
NVNT	3-DH5	2402	Ant 1	2.48	20.97	Pass
NVNT	3-DH5	2441	Ant 1	3.21	20.97	Pass
NVNT	3-DH5	2480	Ant 1	2.31	20.97	Pass

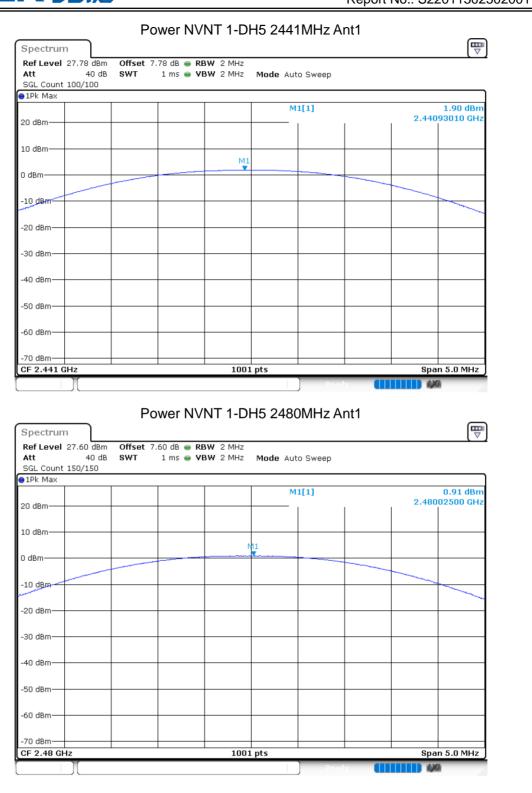
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### Power NVNT 1-DH5 2402MHz Ant1



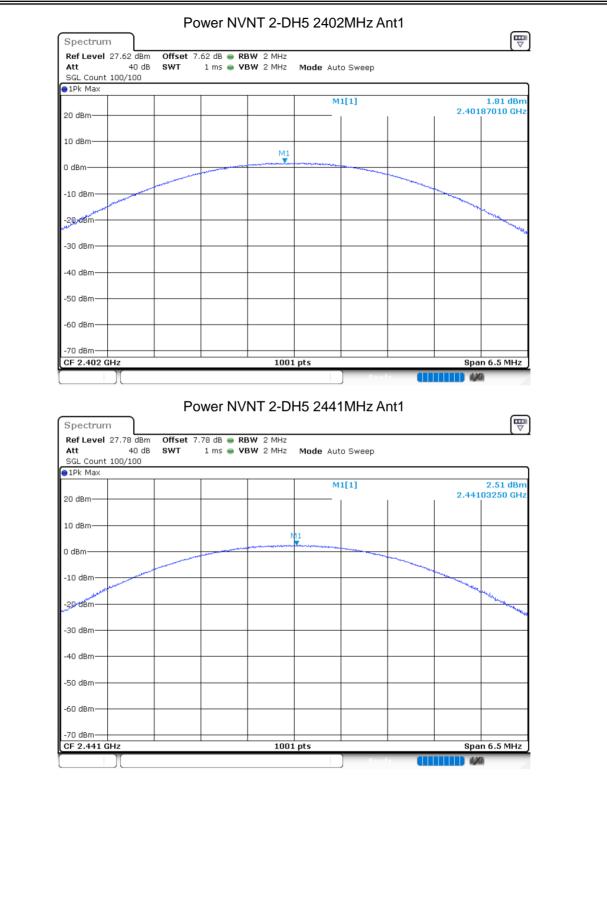




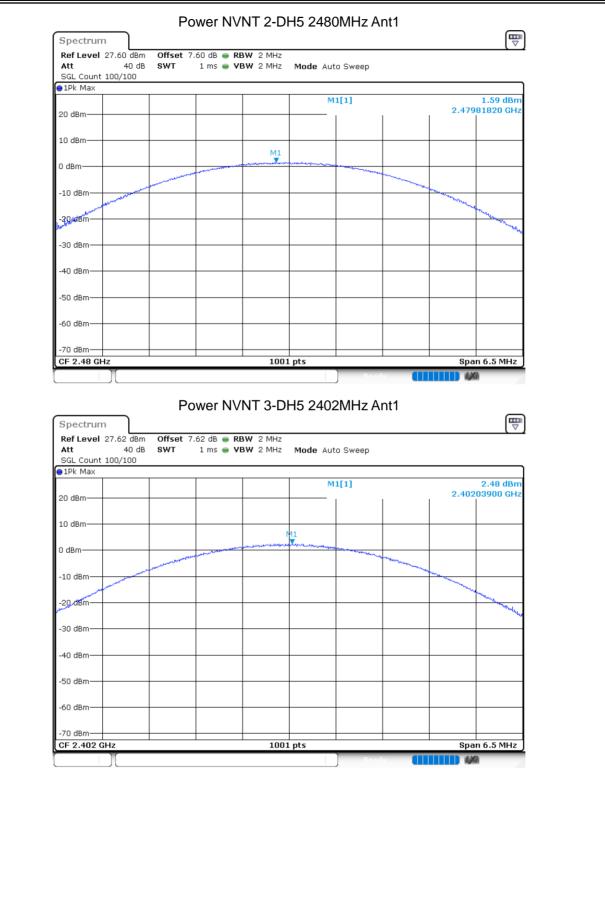


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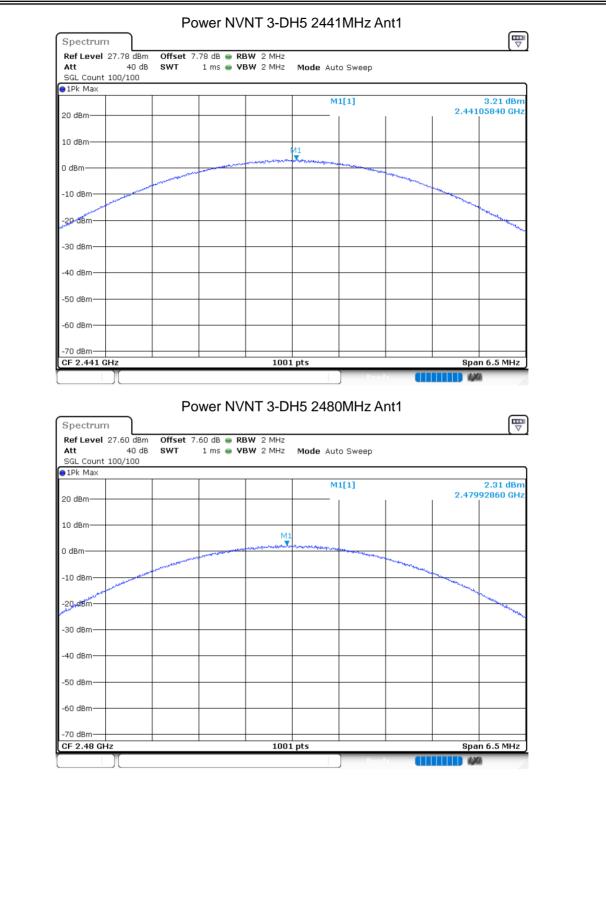






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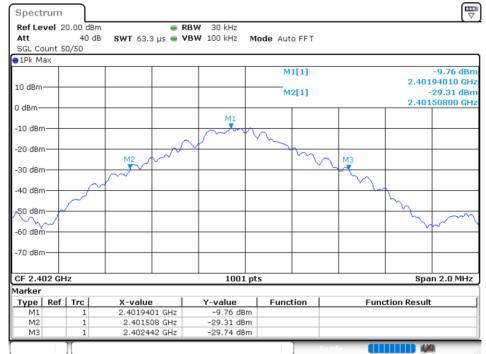
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# 8.1.3 Occupied Channel Bandwidth

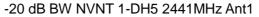
Condition	Mode	Frequency (MHz)	Antenna	-20 dB Bandwidth (MHz)	Verdict
NVNT	1-DH5	2402	Ant 1	0.934	Pass
NVNT	1-DH5	2441	Ant 1	0.944	Pass
NVNT	1-DH5	2480	Ant 1	0.934	Pass
NVNT	2-DH5	2402	Ant 1	0.877	Pass
NVNT	2-DH5	2441	Ant 1	0.860	Pass
NVNT	2-DH5	2480	Ant 1	0.860	Pass
NVNT	3-DH5	2402	Ant 1	0.864	Pass
NVNT	3-DH5	2441	Ant 1	0.852	Pass
NVNT	3-DH5	2480	Ant 1	0.848	Pass

# -20 dB BW NVNT 1-DH5 2402MHz Ant1

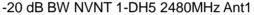




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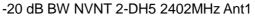


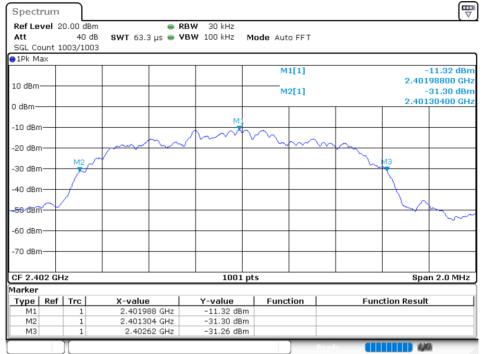


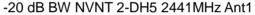


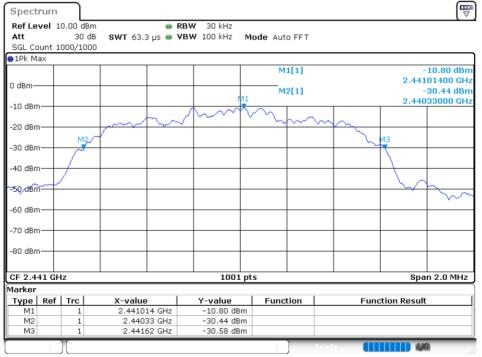
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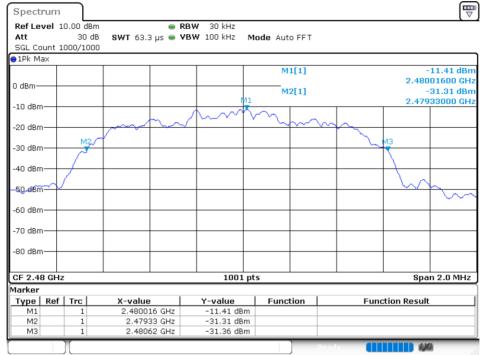




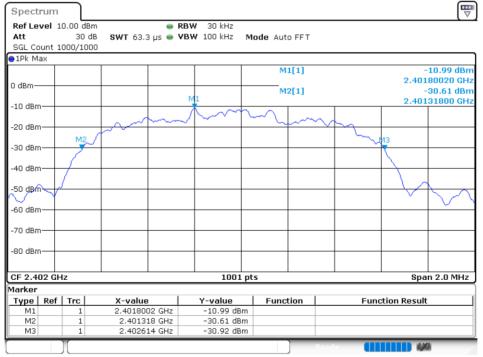
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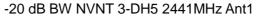


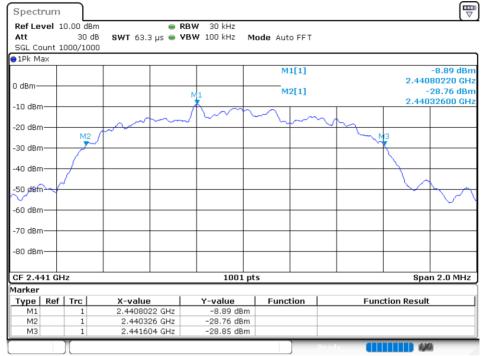


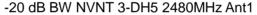


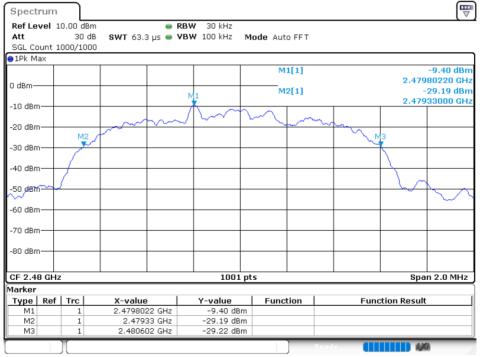


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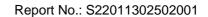








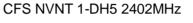
# NTEK 北测<sup>®</sup>

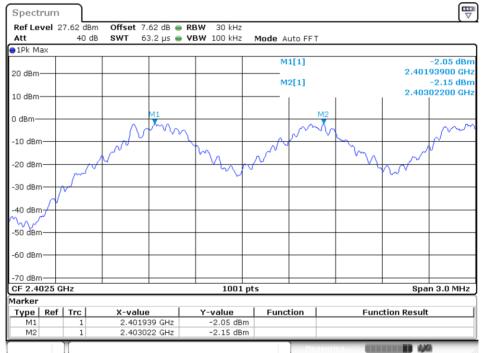


# 8.1.4 Carrier Frequencies Separation

Condition	Mode	Hopping Freq1 (MHz)	Hopping Freq2 (MHz)	HFS (MHz)	Limit (MHz)	Verdict
NVNT	1-DH5	2401.939	2403.022	1.083	0.934	Pass
NVNT	1-DH5	2441.02	2442.019	0.999	0.944	Pass
NVNT	1-DH5	2479.017	2480.019	1.002	0.934	Pass
NVNT	2-DH5	2401.954	2402.953	0.999	0.877	Pass
NVNT	2-DH5	2440.951	2441.953	1.002	0.86	Pass
NVNT	2-DH5	2479.017	2480.019	1.002	0.86	Pass
NVNT	3-DH5	2401.801	2402.803	1.002	0.864	Pass
NVNT	3-DH5	2440.801	2441.803	1.002	0.852	Pass
NVNT	3-DH5	2478.795	2479.8	1.005	0.848	Pass

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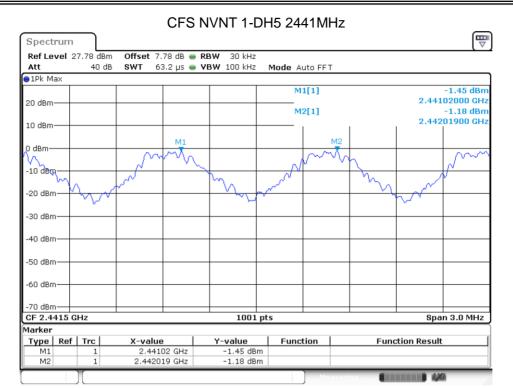




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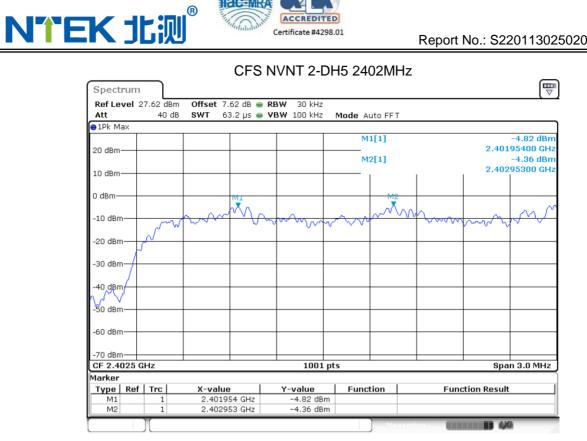
# Report No.: S22011302502001



### CFS NVNT 1-DH5 2480MHz







# CFS NVNT 2-DH5 2441MHz

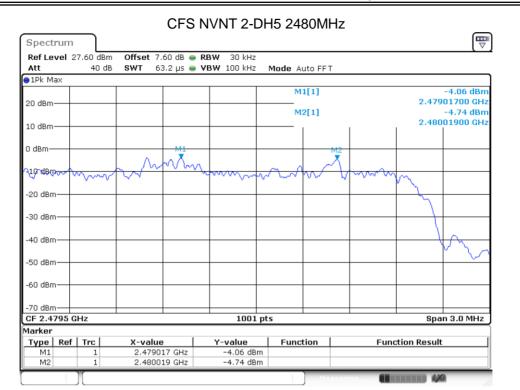
Ref Level 2 Att	27.78 dBm 40 dB		.78 dB 👄	RBW 30 kHz VBW 100 kHz	Mode Au	Ito FET			
1Pk Max	40 UD	341 0	<u>о с на 🖷</u>	<b>100 KHZ</b>	MOUE AU	ato FFT			
					M	1[1]			-3.87 dB
20 dBm				_				2.440	95100 GI
					M:	2[1]			-4.17 dB
10 dBm							1	2.441	95300 GI
0.10									
0 dBm			Xa a			- <u>M2</u>			Λ
-10 dem		ham	ኯ፝፝፝፝፝ኯኯ	Jaho San a	a .0	MM	harm	. n	. Mr
	when	~~~		1			~		ω ··
-20 dBm									
-30 dBm									
-40 dBm							-		
-50 dBm									
60 d0									
-60 dBm									
-70 dBm									
CF 2.4415 (	GHz		1	1001	ots			Spa	n 3.0 MH
Marker									
Type Ref		X-value		Y-value	Funct	ion	Fund	ction Result	
M1	1	2.4409		-3.87 dBm					
M2	1	2.4419	53 GHz	-4.17 dBm					



R

**NTEK** 北测

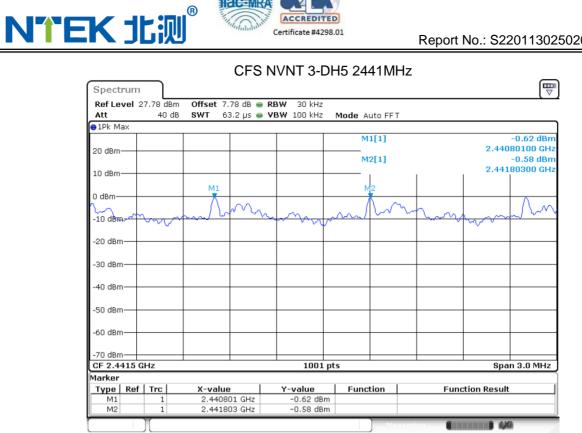
# Report No.: S22011302502001



#### Spectrum Ref Level 27.62 dBm Offset 7.62 dB 👄 RBW 30 kHz 63.2 μs 🔵 **VBW** 100 kHz Att 40 dB SWT Mode Auto FFT ⊖1Pk Max M1[1] -1.40 dBn 2.40180100 GHz 20 dBm M2[1] -1.58 dBm 2.40280300 GHz 10 dBm M1 0 dBm -10 dBm· -20 dBm -30 dBm -40 dBm -Š0 dBm -60 dBm -70 dBm CF 2.4025 GHz 1001 pts Span 3.0 MHz Marker Type Ref Trc Function **Function Result** X-value Y-value 2.401801 GHz 2.402803 GHz -1.40 dBm -1.58 dBm M1 1 M2

# CFS NVNT 3-DH5 2402MHz





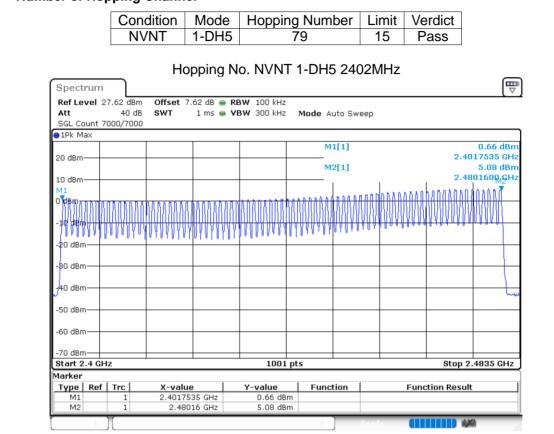
# CFS NVNT 3-DH5 2480MHz

Ref Level Att	27.60 dBm 40 dB		dB 👄 RBW µs 👄 VBW		Mode Auto FFT			
1Pk Max	40 UB	3441 03.2	µ5 <b>— 40</b> 14	100 KHZ	Moue Auto FFT			
-					M1[1]			-5.58 dB
20 dBm —					MOLT		2.478	79500 GI
					M2[1]		2.479	-2.11 dB 80000 GI
LO dBm						1		
) dBm					M2			
		M1			A m	0		
10 dBm	M	for Ant	~~	son to	mad with	Thur my		
	V		1	· ~		- V	$\sim$	
20 dBm							<u> </u>	
ID								
-30 dBm								
-40 dBm								~
10 0.0.11								~ ~~
50 dBm-								v
-60 dBm						-		
-70 dBm								
CF 2.4795	GHz			1001 p	ts		Sna	n 3.0 MH:
larker				1001 p				
Type   Ref	f   Trc	X-value	Y	-value	Function	Fund	tion Result	
M1	1	2.478795		-5.58 dBm				
M2	1	2.4798	GHz	-2.11 dBm				

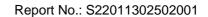




# 8.1.5 Number of Hopping Channel



# NTEK 北测<sup>®</sup>

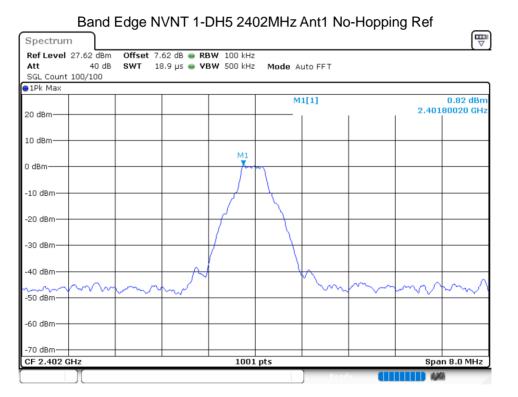


# 8.1.6 Band Edge

Condition	Mode	Frequency (MHz)	Antenna	Hopping Mode	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant 1	No-Hopping	-42.7	-20	Pass
NVNT	1-DH5	2402	Ant 1	Hopping	-41.56	-20	Pass
NVNT	1-DH5	2480	Ant 1	No-Hopping	-42.97	-20	Pass
NVNT	1-DH5	2480	Ant 1	Hopping	-42.91	-20	Pass
NVNT	2-DH5	2402	Ant 1	No-Hopping	-40.75	-20	Pass
NVNT	2-DH5	2402	Ant 1	Hopping	-40.97	-20	Pass
NVNT	2-DH5	2480	Ant 1	No-Hopping	-41.4	-20	Pass
NVNT	2-DH5	2480	Ant 1	Hopping	-41.91	-20	Pass
NVNT	3-DH5	2402	Ant 1	No-Hopping	-41.69	-20	Pass
NVNT	3-DH5	2402	Ant 1	Hopping	-41.32	-20	Pass
NVNT	3-DH5	2480	Ant 1	No-Hopping	-41.35	-20	Pass
NVNT	3-DH5	2480	Ant 1	Hopping	-42.84	-20	Pass

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# Band Edge NVNT 1-DH5 2402MHz Ant1 No-Hopping Emission

Spectrum								
Ref Level 27 Att SGL Count 10	40 dB		<ul> <li>RBW 100 kHz</li> <li>VBW 500 kHz</li> </ul>	Mode Aut	o FFT			
1Pk Max	00, 200							
20 dBm				M1[1	-			0.82 dBm 85000 GHz
10 dBm				M2[1	IJ			45.69 dBm 00000 GHz
0 dBm								Ť
-10 dBm								
-20 dBm-D	1 -19.185	dBm						
-30 dBm			M4					
-40 dBm 	remain	www.www.www.www.		wmwellower	www.	uniduport	MO Imna <b>li</b> , Induru	www.we
-60 dBm								
-70 dBm								
Start 2.306 (	GHz		1001 pt	s			Stop 2	2.406 GHz
Marker								
Type Ref		X-value	Y-value	Function	n	Fund	tion Result	
M1	1	2.40185 GHz	0.82 dBm					
M2	1	2.4 GHz	-45.69 dBm					
M3 M4	1	2.39 GHz 2.3509 GHz	-44.64 dBm -41.88 dBm					
		2.0009 0112	41.00 dbiii					

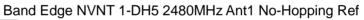


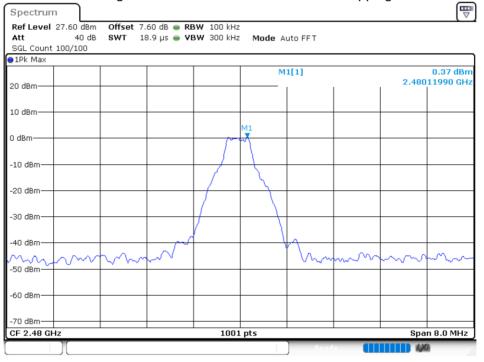




Spectrum Ref Level		Bm Offset	7 40 40	<b>RBW</b> 100 kHz					(▽
Att	27.62 a 40			RBW 100 kHz VBW 300 kHz	Mode /	Auto FF	т		
SGL Count	1200/12	200							
1Pk Max									
					M	1[1]			0.70 dBm
20 dBm —								2.4	0485000 GHz
10 dBm					M	2[1]			-44.96 dBm
IU aBm						I	1	2.4	0000000 GHz Mi
) dBm								_	
									- I MARO
10 dBm								_	
20 dBm	D1 -19.	208 dBm							
-30 dBm									
-40 dBm				M4				МЗ	
abelievelowyth	ulphan	manum	martin	ward and so a so the	to Alexandrow Ro	unshroke	hundrennenheite	water	mound
50 dBm									
-60 dBm			+						
70 40									
-70 dBm—— Start 2.306	CH2			1001	nte			Sto	p 2.406 GHz
larker	3112			1001	pra			310	P 2.700 GH2
	Trc	X-valu	o 1	Y-value	Func	tion	г	nction Res	ult
Type Ref M1	1		485 GHz	0.70 dBr		CION	Fu	Incoor Res	uit
M2	1		2.4 GHz	-44.96 dBr					
M3	1		387 GHz	-43.57 dBr					
M4	1	2.3	513 GHz	-40.77 dBr					

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# Band Edge NVNT 1-DH5 2480MHz Ant1 No-Hopping Emission

Spectrum									
Ref Level 2	27.60 dB	3m Offset 7.60 dB	🔵 RBW 100 kHz						
Att	40 (	dB <b>SWT</b> 227.5µs	🔵 <b>VBW</b> 300 kHz	Mode Auto Fi	τ				
SGL Count 1	100/100								
∋1Pk Max									
				M1[1]		-0.22 dBn			
20 dBm —						2.47995000 GH			
				M2[1]		-44.61 dBn			
10 dBm						2.48350000 GH			
M1									
0 dam									
-10 dBm									
-10 asm									
-20 dBm-0	1 -10 6	528 dBm							
-20 06111	/1 -19.0	120 Ubiii							
-30 cBm									
-40 dBm/2		M4 M3	h u						
red whitereas	halforter	And approximation of the	White hy Unrechattance	when the physical and the	mound dyna	of martin well they we proved			
-50 dBm									
-60 dBm									
-70 dBm									
Start 2.476	GHz		1001 pt	<u>د</u>		Stop 2.576 GHz			
Aarker	GITZ		1001 pt	3		0000 2:070 012			
Type   Ref	Trc	X-value	Y-value	Function	Eur	nction Result			
M1	1	2.47995 GHz	-0.22 dBm	ranction	Fui	ICTION NESUIL			
M2	1	2.4835 GHz	-44.61 dBm						
M3	1	2.5 GHz	-44.72 dBm						
M4	1	2.496 GHz							
1	1					4.3/2			
					Ready				

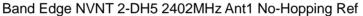


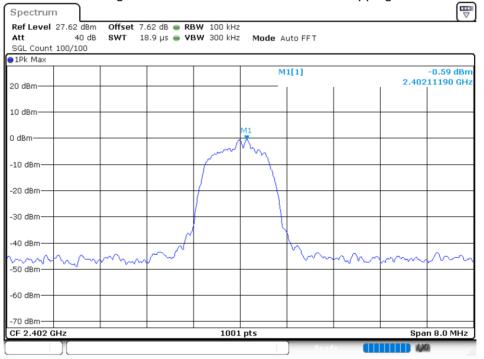




Spectri Ref Lev Att		60 dBm 40 dB		-	<b>RBW</b> 100 kH <b>VBW</b> 300 kH			т.		∀
SGL Cou			3991 22	27.3 µ3 •	• • • • • • • • • • • • • • • • • • •	2 Moue	AULU FF			
1Pk Ma	:					M	1[1]			0.20 dBm
20 dBm—	_								2.477	85000 GHz
						M	2[1]		-	44.49 dBm
.0 dBm—									2.483	50000 GHz
11 dBm—										
10 dBm-	_									
ANA										
20 dBm-	D1	-19.459	dBm							
30 cBm-										
	_		M443							
Wy AU	mans	wellowalle	Munthe	all may may make	whom who who who who	respectively	when	gunanum	mound	al alemment
50 dBm-										
60 dBm-										
70 dBm-										
Start 2.4	176 GI	Hz			1001	nts			Stop	2.576 GHz
arker										
	Ref   1	Trc	X-value	.	Y-value	Func	tion	Fun	ction Result	- 1
M1		1		85 GHz	0.20 dB					
M2		1	2.48	35 GHz	-44.49 dB	m				
MЗ		1	2	.5 GHz	-44.14 dB					
M4		1	2.4	98 GHz	-42.38 dB	m				

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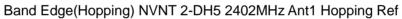






# Band Edge NVNT 2-DH5 2402MHz Ant1 No-Hopping Emission

Spectr	um												₽
Ref Lev Att SGL Cou		27.62 dB 40 c 100/100			● RBW ● VBW 3			\uto FF	т				
😑 1Pk Ma	iх												
20 dBm-	_							1[1] 2[1]				-1.92 05000 46.46	GHz
10 dBm-								2[1]				00000	
0 dBm—												1	11
-10 dBm	_				_				-				1
-20 dBm		)1 -20.5	95 dBm										
-30 dBm					M4						MB		
-50 dBm	Ameri	hundenshiel	nownum	Johnstein	perrenewaller	whereaster	montryphyse	ntunde	hadp	winimmy	www.hudadaw	nty with	h vai
-60 dBm	_				_				_				
-70 dBm													
Start 2.		GHz				1001	pts				Stop 2	2.406 (	GHz
Marker													
Туре	Ref	Trc	X-value			alue	Func	tion		Func	tion Result	:	
M1		1		05 GHz		L.92 dBr							
M2		1		.4 GHz		5.46 dBr							
M3		1		39 GHz		4.16 dBr							
M4		1	2.34	94 GHz	-41	L.35 dBr	n						

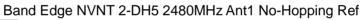


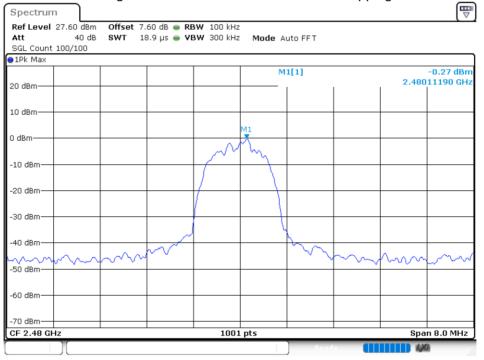




Spectrum									⊽
Ref Level Att SGL Count	40	dB <b>SWT</b> 2		<ul> <li>RBW 100 kHz</li> <li>VBW 300 kHz</li> </ul>		Auto FF	τ		
1Pk Max									
					M	1[1]			-2.80 dBm
20 dBm —			-					2.40	195000 GHz
					M	2[1]			-44.70 dBm
10 dBm							I	2.40	000000 GHz
0 dBm									M1
									Mru
-10 dBm			-						0.00
-20 dBm	D1 -19.	487 dBm							
-30 dBm									
-30 UBIII			M4						
-40 dBm								M3	M2
arbuthtingun	where	erman error of hires	when when the second	ungen wanter	approximationships	merande	where and the m	when a show a show	whoma
-50 dBm —									
-60 dBm									
-70 dBm									
Start 2.306	GHz			1001	nts			Stor	2.406 GHz
larker	GIL			1001					
	Trc	X-valu	e l	Y-value	Func	tion	E1	unction Resu	lt
M1	1		195 GHz	-2.80 dBr					
M2	1		2.4 GHz	-44.70 dBr					
MЗ	1	2	.39 GHz	-42.06 dBr	n				
M4	1	2.3	421 GHz	-40.47 dBr	0				

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# Band Edge NVNT 2-DH5 2480MHz Ant1 No-Hopping Emission

Spectrum									
Ref Level 2 Att SGL Count 1	40	dB <b>SWT</b> 23		RBW 100 kHz VBW 300 kHz	Mode Au	ito FFT			
⊙1Pk Max									
20 dBm					M1[	1]		2.479	-1.03 dBm 95000 GHz
10 dBm					M2[	1]			43.12 dBn 50000 GH:
0 dem									
-10 dBm							_		
-20 cBm D	1 -20.2	272 dBm					_		
-30 aBm									
-40 dBm <sup>2</sup>	when	M4 Monte March	www.hulu	ang the anger of the present of the	Algerty	monary	ing an and a state	howkyrothewy	happflowlacht
-50 dBm									
-60 dBm									
-70 dBm	011-			1001 pt				Oten	2.576 GHz
Marker	GEZ			1001 pt	.5			Stop /	2.370 GHZ
	1	¥	- 1	V	Functio	1	<b>F</b>	ction Result	
Type Ref M1	Trc 1	X-value	95 GHz	<u>Y-value</u> -1.03 dBm	Functio	n	Fun	ction Result	
M1 M2	1		35 GHZ	-43.12 dBm					
M3	1		2.5 GHz	-44.75 dBm					
M4	1		99 GHz	-41.67 dBm					
	][					Re	ady 🚺		7

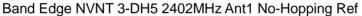


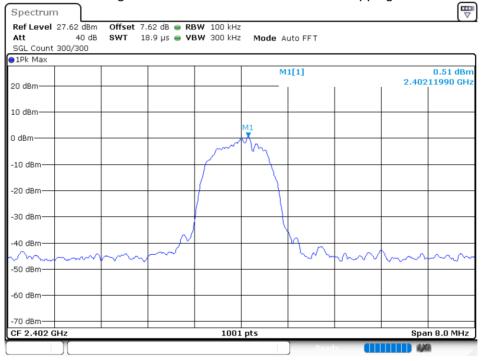




Ref Le	rum vol 2	7 60 d	Bm Offset	7 60 dB	RBW 100	kH2					$\nabla$
Att SGL Co		40	dB <b>SWT</b> 2		• VBW 300		Mode /	Auto FFT			
1Pk M	эх										
							M	1[1]			-0.58 dBm
20 dBm				+		+-				2.476	585000 GHz
							M	2[1]			-45.46 dBm
0 dBm						_		ı		2.483	350000 GHz
l.dBm—											
1.											
10 dBm						—					
1											
20 dBm		1 -20.3	283 dBm			-					
30 dBm											
40 dBn			M4 M3								
10 a bij	Time	connerty	word when the dearly	manapparent	walky your work	whyne	warpar	resultinget	- how have her and	work and	hyungungeled
50 dBm											-
60 dBrr						_					
70 dBm Start 2		011-			10	01 pt	-			Oten	2.576 GHz
arker	.+/0	GEZ			10	or pt	3			acop	2.370 GHZ
	Ref	Trc	X-valu	- I	Y-value		Func	tion	<b>F</b>	ction Result	•
Type M1	Ref	1		e 585 GHz	-0.58		Func	uon	Fun	cuon Resul	L
M2		1		335 GHz	-45.46						
M3		1		2.5 GHz	-44.28						
M4		1		962 GHz	-42.20						

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#### Band Edge NVNT 3-DH5 2402MHz Ant1 No-Hopping Emission

Spectrum									
Ref Level 2	7.62 dBm	Offset 7.6	52 dB 😑 I	RBW 100 kH	z				
Att	40 dB	SWT 227	.5 µs 👄 '	<b>VBW</b> 300 kH	z Mode /	Auto FF	Т		
SGL Count 1	00/100								
●1Pk Max									
					M	1[1]			0.14 dBm
20 dBm								2.401	85000 GHz
					M	2[1]			45.20 dBm
10 dBm								2.400	00000 GHz
0 dBm									M1
U dBm									L L
-10 dBm									
10 000									
-20 dBm-D	1 -19.486	i dBm							
-30 dBm									
				M4					
-40 dBm			al terrar a					M3	M2
way when when and	Matherson	And phane warmented	www.	putin marchard	murdeningh	woulder	of when the house when the	Mulliper Geenm	willing the
-50 dBm									
CO dDay									
-60 dBm									
-70 dBm									
Start 2.306 (	GHz	11		1001	pts			Stop 2	2.406 GHz
Marker									
Type   Ref	Tre	X-value	1	Y-value	Func	tion	Fund	tion Result	· 1
M1	1	2.40185	GHz	0.14 dB			- T une	Alon No Suit	
M2	1		GHz	-45.20 dB					
M3	1		GHz	-46.94 dB	m				
M4	1	2.3511	GHz	-41.18 dB	m				
	1					1			(a)



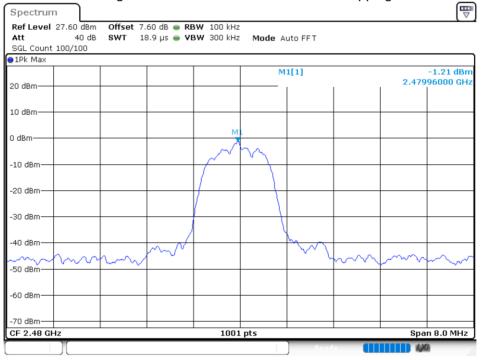




Spectrum Ref Level		Bm Offset 7.62	db 👄 RBW	100 415					♥
Att	27.62 а 40		as e κsw μs e VBW		Mode /	Auto FFT			
SGL Count	1000/10	00	-						
∋1Pk Max									
					M	1[1]			-4.03 dBm
20 dBm —									305000 GHz
					M:	2[1]			-43.99 dBm
10 dBm								2.400	000000 GHz
0 dBm									M1
5 dbiii									. An
-10 dBm									ለባለካ
20 dBm	01 -19.	248 dBm							
-30 dBm —									
-40 dBm			M4					MB	M2
www.hurman	subservery.	hugher by devolution	relanewergen	to a company	monthe	Moundary	naphananyunda	- human	and the second
-50 dBm								<b>V</b>	
-60 dBm									
-70 dBm——									
	GHz			1001 pt	s			Stop	2.406 GHz
Start 2.306									
1arker		X-value	Y-v	alue	Func	tion	Fun	ction Resul	t
1arker Type   Ref	Trc								
1arker Type Ref M1	1	2.40305 G		4.03 dBm					
1arker Type   Ref			Hz -43	4.03 dBm 3.99 dBm 4.27 dBm					

ACCREDITED Certificate #4298.01







## Band Edge NVNT 3-DH5 2480MHz Ant1 No-Hopping Emission

Ref Level 2	27.60 dBr	m Offset 7.60 dB 🖷	• RBW 100 kHz			Ę
Att	40 d	B <b>SWT</b> 227.5 µs 🧉	• <b>VBW</b> 300 kHz	Mode Auto FF	ŦΤ	
SGL Count 1 1Pk Max	.00/100					
) ТРК Мах				M1[1]		-0.27 dB
20 dBm				milij		2.47995000 GF
				M2[1]		-46.68 dB
LO dBm						2.48350000 GH
M1						
) dem						
10 dBm						
10 00111						
	1 -21.20	18 dBm				
30 dBm —						
	ukh Wildowara.	uhuhul M3	Y <sup>an</sup> hang water water	mer marken with a sound	N. L. M.	win with the work of the state
ին և,/ազ/հետե	ul-Wildowson,	which was an an an and a second	Y""North Jurger with the starting	mennin Mexican	pour provident	weby-web-more and a series
-50 dBm	ul-Wildowson,	www.Manumun.man	Y""Not Notice and Not Notice	ourmania	fondetsetterska	with and the second second
ին և/ծաղ/հետե	dhalathara	when man when when the	Y <sup>an</sup> an Tuling na tang ang ang ang ang ang ang ang ang ang	on an	fondetay)ให้เป็นสุดสมให้รูลสุด	man and the second second
الا لي المراجع المراجع 60 dBm	id <sup>h</sup> Willimerany	nun Maun - Mannah	<sup>พุษา</sup> นิจกิญ <sub>ไปจัง</sub> กรุณหนังสงรัญเหติม	ern ann den an d	fontety) <sup>5</sup> นี <sup>2</sup> านุกระทับ <sub>ไป</sub> หน่ง	and the second
0 dBm 60 dBm 70 dBm		nun Maun - un Munich	<sup>V<sup>+</sup>Null<sub>1</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/Null<sub>2</sub>/V<sup>+</sup>Null<sub>2</sub>/Null<sub>2</sub>/Null<sub>2</sub>/Null<sub>2</sub>/Null<sub>2</sub>/Null<sub>2</sub>/Null<sub>2</sub>/N</sup>		(๛.t.n/hม่าน.collinat.iu	Stop 2.576 GH:
50 dBm		num water and a second			(๛.t.n/hม่าน.collinat.iu	
4/ 4/30/44/40 50 dBm 60 dBm 70 dBm 3tart 2.476  arker		X-value				
4/ ()30,4444 50 dBm 60 dBm 70 dBm 70 dBm 3tart 2.476 larker Type Ref M1	GHz	X-value 2.47995 GHz	1001 pt: -0.27 dBm	5		Stop 2.576 GH
M         L/m/4/4           50 dBm         60 dBm           60 dBm         3tart 2.476           Starker         Type           Type         Ref           M1         M2	GHz	X-value 2.47995 GHz 2.4835 GHz	1001 pt: -0.27 dBm -46.68 dBm	5		Stop 2.576 GH
M         L/m/4/4/4           50 dBm         60 dBm           60 dBm         3tart 2.476           Start 2.476         Narker           Type         Ref           M1         M2           M3         M3	GHz	X-value 2.47995 GHz 2.4835 GHz 2.5 GHz	1001 pt: -0.27 dBm -46.68 dBm -46.93 dBm	5		Stop 2.576 GH
M         L/m/4/4           50 dBm         60 dBm           60 dBm         3tart 2.476           Starker         Type           Type         Ref           M1         M2	GHz	X-value 2.47995 GHz 2.4835 GHz	1001 pt: -0.27 dBm -46.68 dBm	5		Stop 2.576 GH







Spectrum	)								
Ref Level 🖇	27.60 d	Bm Offset 7.60	dB 👄 RBW 1	.00 kHz					
Att	40		µs 👄 <b>VBW</b> 3	00 kHz	Mode A	uto FFT			
SGL Count :	1000/10	000							
)1Pk Max									
					M1	l[1]			-0.05 dBm
20 dBm									05000 GH2
LO dBm					M2	2[1]			-44.82 dBm
V1					ı		1	2.483	50000 GHz
dBm									[
Units									
10 dBm-+									
20 (Bm-C	01 -19.	612 dBm							
-30 dBm									
10 - 0 - 0 - 0	M4	MB							
40 dBm <sup>2</sup>	James	upresson the washing we	the south and a start water	Arton Kent	In furning and	100 Million Wash	mound	almost much	In markeyele
50 dBm		· · · · · · · · · · · · · · · · · · ·			· • •	•			• • • • •
oo abiii									
60 dBm									
-70 dBm —									
Start 2.476	GHz			1001 pts	5			Stop	2.576 GHz
1arker									
Type   Ref	Trc	X-value	Y-va		Funct	ion	Func	tion Result	t
M1	1	2.47805 G	Hz -0.	.05 dBm					
M2	1	2.4835 G		82 dBm					
MЗ	1	2.5 G		78 dBm					
M4	1	2.4911 G	Hz -42.	45 dBm					

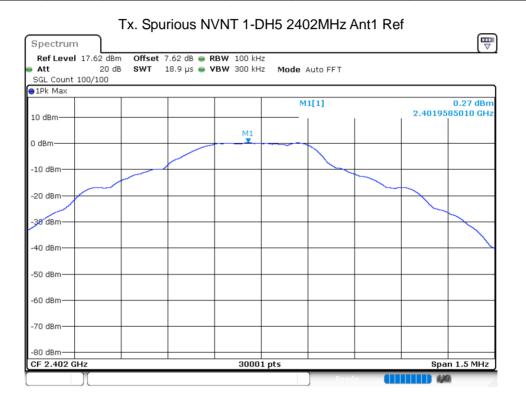
ACCREDITED Certificate #4298.01



# NTEK 北测<sup>®</sup>

# 8.1.7 Conducted RF Spurious Emission

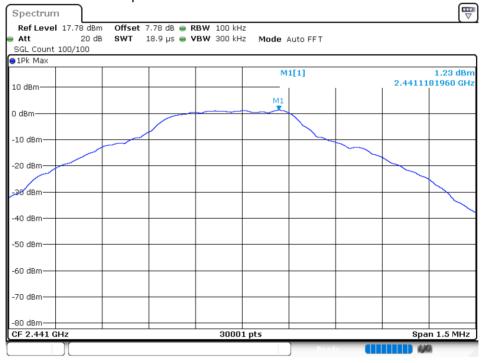
Condition	Mode	Frequency (MHz)	Antenna	Max Value (dBc)	Limit (dBc)	Verdict
NVNT	1-DH5	2402	Ant 1	-52.94	-20	Pass
NVNT	1-DH5	2441	Ant 1	-56.3	-20	Pass
NVNT	1-DH5	2480	Ant 1	-55.33	-20	Pass
NVNT	2-DH5	2402	Ant 1	-56.02	-20	Pass
NVNT	2-DH5	2441	Ant 1	-56.04	-20	Pass
NVNT	2-DH5	2480	Ant 1	-54.66	-20	Pass
NVNT	3-DH5	2402	Ant 1	-51.61	-20	Pass
NVNT	3-DH5	2441	Ant 1	-55.4	-20	Pass
NVNT	3-DH5	2480	Ant 1	-54.45	-20	Pass





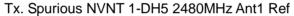
Att GL Co		-	dBm 0 dB			_	3W 100 kH BW 300 kH		Mode 4	uto Si	weep				♥
1Pk Ma	ix .														
) dBm-									M	l[1]				_	0.42 dBm
n anu-	ML														01650 GHz
dBm—	- <b>T</b>								IND	2[1]					-52.67 dBm /65415 GHz
									1		1		1	1.7	
10 dBm						+									
20 dBm		1 10	.732 di	D											
u ubiii	<u>т</u> о.	1 -19.	732 u	DIII											
0 dBm	_												_		
+0 dBm						-									
50 dBM	2														
			MB	M4		MS									
0 dBm		and the first			and the second second	T.	فالالد وفوسي فليه	الدوريا	and the part of the				a de la d	. Included	Multi a Marine
		and the second second	and a second	Sector Sec	and the second	·····{'	halfs and the differ								
0 dBm	_					-							-		
30 dBm															
tart 3		Hz					3000:	1 nt	5					Stor	25.0 GHz
arker						_	0000	- p	-					010	
Type	Ref	Tre		X-value	. 1		Y-value	1	Funct	ion	1	Eu	nction	Result	- 1
M1		1			55 GHz		0.42 dB	m	. and			14			
M2		1		1.7654			-52.67 dB								
MЗ		1		4.80343	32 GHz		-58.36 dB	m							
M4		1		7.046	57 GHz		-59.28 dB	m							
M5		1		9.7857	20 011-		-59.32 dB								

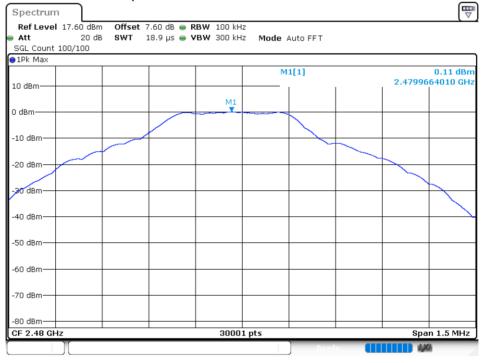






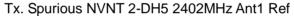
Ref L Att SGL Co			dBm Offset D dB SWT		<ul> <li>RBW 1</li> <li>VBW 3</li> </ul>		Mode 4	uto Sv	/еер			
1Pk M	ax											0.01.40
10 dBm							IVI.	[1]			2	0.81 dBm .440770 GHz
20 000	ML						M	2[1]			-	-55.07 dBm
0 dBm–	-			+							22	.732724 GHz
-10 dBn	דרי											
-20 dBn		1 -18.	774_dBm						_			_
-30 dBn	א_ו			+								
-40 dBn	ד ו											
-50 dBn												412
00 000	·		.™I3	4	M5							T
-60 dBn				diama and a second	الدبية والتأبيكين			(Alanta)			a the second strends	
				f philosophies								
-70 dBn												
Start 3	0.0 M	Hz				30001 pt	s				Ste	op 25.0 GHz
larker												
Type	Ref	Trc	X-valu	e	Y-va	lue l	Funct	ion		Euno	ction Resu	ult l
M1		1		077 GHz		81 dBm	i unci			- and		
M2		1		724 GHz		07 dBm						
MЗ		1		571 GHz		83 dBm						
M4		1	7.276	294 GHz	-59.	17 dBm						
M5		1	0.627	524 GHz	- 50	70 dBm						

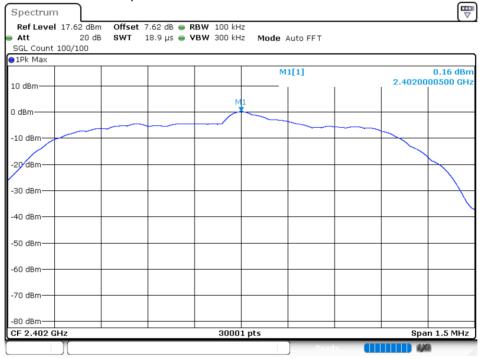






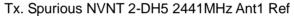
Ref L	rum evel :	L 17.60	dBm Offset	7.60 dB (	<b>RBW</b> 100 kHz						
Att SGL Co	unt 1	-	DdB SWT	250 ms (	● <b>VBW</b> 300 kHz	Mode 4	uto Si	weep			
1Pk M		0/10									
						M	1[1]				-0.39 dBm
10 dBm				<u> </u>						2.4	179890 GHz
) dBm—	M					M:	2[1]				-55.22 dBm
J uBm—										15.9	980836 GHz
-10 dBm											
<del>20 dBn</del>	n D	1 -19.	892 dBm								
30 dBrr											
40 dBm											
50 dBrr	)— <b>—</b> —		мв				- <u>M2</u>				
			A A A A A A A A A A A A A A A A A A A	14	M5	and the local	الم المحمد ال	السنغر		and the second	A characteria
60 dBrr		na na Mada	Constant of States	the second s	The second s	a har a start of the start of the	الي دارجو رو	- mart	and the second	William Barration and	
70 dBh	a bella she	A COMPANY OF	L L	a transferrant from	and the second se						
70 ubn	'										
80 dBm											
start 3	0.0 M	Hz			30001	pts				Sto	25.0 GHz
1arker											
Type	Ref	Trc	X-valu	e	Y-value	Funct	ion	1	Fun	ction Resul	t
M1		1	2.479	189 GHz	-0.39 dBm						
M2		1	15.9808	36 GHz	-55.22 dBm						
MЗ		1		91 GHz	-56.90 dBm						
M4		1		99 GHz	-60.05 dBm						
M5		1	10.0396	41 GHz	-59.61 dBm						

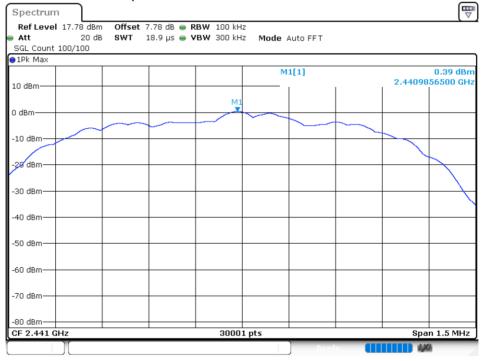






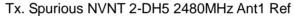
		L	10	041 -			BUL 100.1								l	$\overline{\nabla}$
Ref Le Att	vel		авт ) dB			_	BW 100 kH: BW 300 kH:		Mode 4	uto Si	ween					
SGL Co	unt 1	0/10				_										
1Pk Ma	iх															$\neg$
-									M	l[1]					-2.78 d	Bm
10 dBm-			+			-								2.4	402490 0	Hz
D dBm—	ML								M:	2[1]					-55.87 d	
J aBm—	Ţ													16.	734098 0	ίHz
-10 dBm																_
																- 1
-20 dBm	HD:	1 -19.	838 di	8m <del></del>									-			-
-30 dBm																- 1
30 UBIII																
-40 dBm																_
10 00.00																- 1
-50 dBm			мз			_					M2		_			-
			T	M4		M5				الباسيان	and the second	فرمد فسأستركأ	da dan			
60 dBm	1.1	a la baile	ALLAND A	and the second second	and Selfgerman	and the		aller aller to	and the second second	a share a	1 percent	h. tob. s. page	Page 1	and the second second	and an draw of	
70 dBm	a la se della	مى بىرى يەرىپىر مەربى		<u> </u>	A CONTRACTOR OF STREET	and a									1	
, o abiii																- 1
-80 dBm													_			
Start 30	0.0 M	Hz					3000:	1 pts	5					Sto	p 25.0 Gł	Ηz
1arker																
Туре	Ref	Trc		X-value			Y-value		Funct	ion		Fu	nctior	n Resul	t	
M1		1		2.4024	19 GHz		-2.78 dB									
M2		1		16.73409			-55.87 dB									
M3		1		4.80343			-58.12 dB									
M4		1		7.05572			-59.30 dB									

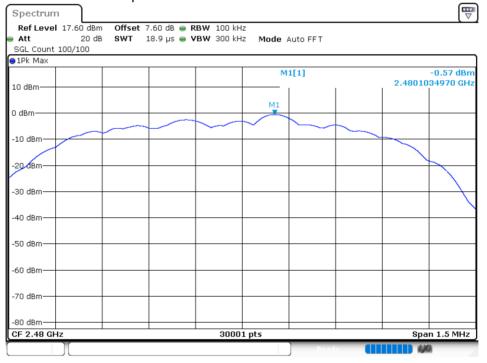






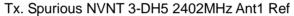
Att GGL Co	unt 1		dBm ) dB			● RBW 100 k ● VBW 300 k		Mode A	luto Swee	p		
Pk M	эх						_	M	1[1]			-2.87 dBm
dBm	_		_				—				2	.440770 GHz
10	м							M2	2[1]			-55.65 dBm
¦Bm−	1										. 16	.302949 GHz
) dBm	) <u> </u>											
) dBm	r <mark>+</mark> Di	1 -19.	605 dB	3m			+					
dBm												
ubii												
dBm	ı		_				_					
dBm	-		M3	M		мб	-		M2			
dBm			T	unation in the	-	MP Truck Lutter	ور خاری	والتعريط استبين	and the state of the second	فالرفر وستعط فأبلغ	and the state of the	حديدان يسخن شخا
		a superior	-	and the second secon	and an entry of the	and passion of the state of the state		and a start	H. Contraction	the formula form	1 Marson and the	the distance of the state
dBir	1 <u></u>						-					
	0.0 M	Hz				300	01 pt	s			Sto	op 25.0 GHz
nrt 3							<u> </u>					<u> </u>
		Trc		X-value	. 1	Y-value	1	Funct	ion	Fun	ction Resu	ılt í
ker	Ref				77 GHz	-2.87 c	dBm					
ker	Ref	1		2.440								
ker pe	Ref			16.3029	49 GHz	-55.65 c	dBm					
rker vpe M1	Ref	1			71 GHz	-55.65 c -59.15 c -60.00 c	dBm					

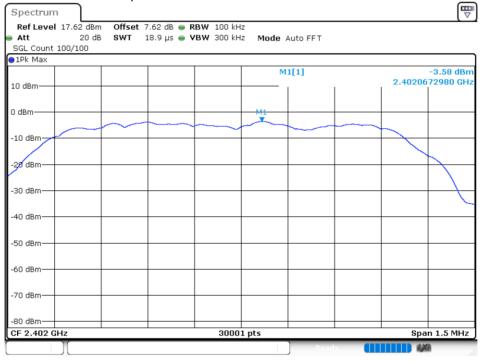






Ref L	rum evel :	L 17.60	dBm Offse	t 7.60 dB	● <b>RBW</b> 100 kHz						
Att		-	D dB SWT	250 ms	● <b>VBW</b> 300 kHz	Mode /	Auto Si	weep			
SGL Co 1Pk M		0/10									
						M	1[1]				-1.32 dBm
10 dBm										2.4	79890 GHz
	M1					M	2[1]			-	55.23 dBm
) dBm—	1									17.7	03766 GHz
10 dBm											
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20 dBrr	н D	1 -20.	569 dBm	_							
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50 dBm				_				1/12			
			MB	M4	M5		distantik of	L. T.			
60 dBrr		appeller/e)	- to the state	and the second second	ters trapped and and an international and a	ار مانانی بادی ادارا می محمد اداری ادارا مارا				The last starting the starting	
70 dBh	And A state	uero MC	- A CARLER AND A CAR	hall hall and other	where the bar of the second			F * ·		Contracting to the	
VU UBII											
80 dBrr	)			_							
Start 3	_	Hz	-		30001	pts				Stop	25.0 GHz
larker											
Type	Ref	Trc	X-va	lue	Y-value	Funct	tion	1	Fund	tion Result	. 1
M1		1	2.4	7989 GHz	-1.32 dBm						
M2		1	17.70	3766 GHz	-55.23 dBm	1					
MЗ		1	4.9	5991 GHz	-58.40 dBm	1					
M4		1	7.62	0048 GHz	-60.16 dBn	1					
M5		1	10.0	2882 GHz	-59.50 dBm	n		1			







	ount 3	2	dBm 0 dB			_	BW 100 kHz BW 300 kHz	Mode /	∖uto Sw	/eep				
1Pk M	ax													
LO dBm								M1[1]				-0.45 dBm 2.402490 GHz		
o abiii	м						M2[1]			-55.20 dBm				
) dBm–	-1		-+								16.355386 GHz			
10 dBn														
10 001	'  [¯					T								
20 dBn	י  -	1 00	500 -	ID									+	
30 dBn		1 -23	.582 a	IBM-										
30 UBII														
40 dBn	א_ר													
50 dBn	ר ד		MB.	M4		M5			M2	-				
50 dBn	1-	and the second		a meril a set	and in surgram in	T.	والمعادية فيستاجيك	and the second second	<b>MARK</b>	ANK.	A BARANA	No. of the local division of the	A Start was a later the	
		and second second	*******		a the second	·····		New York Contraction				Contracting of the second		
70 dBn	דרי													
80 dBn	<u>ا</u> ر													
tart 3	0.0 M	IHz					30001	pts				Sto	p 25.0 GHz	
larker														
Туре	Ref Tro			X-value			Y-value	Function		Function Result				
M1		1		2.40249 GHz			-0.45 dBm							
M2		1		16.355386 GHz		-55.20 dBm								
M3 M4		1		4.803432 GHz 7.041576 GHz		-58.37 dBm -59.02 dBm		-						
M5		1				-59.02 dBn								

