



# **TEST REPORT**

Applicant:	NKOK, Inc.
Address:	5354 Irwindale Ave Unit A Irwindale CA 91706

Manufacturer or Supplier	NKOK, Inc.
Address	5354 Irwindale Ave Unit A Irwindale CA 91706
Product:	R/C Toy
Brand Name:	NKOK, Inc.
Model:	81441
Additional Model & Model Difference	81442, 81621, 81622, 81721, 81722, 81723, 81724, 81725, 81726, 81727, 81731, 81732, 81733, 81734, 81735; see item 3.1
Date of tests:	Jun. 26, 2024 ~ Jul. 07, 2024

the tests have been carried out according to the requirements of the following standard:

#### FCC Part 15, Subpart C, Section 15.249

#### CONCLUSION: The submitted sample was found to <u>COMPLY</u> with the test requirement

Tested by Loren Luo Project Engineer / EMC Department

Approved by Glyn He Assistant Manager / EMC Department

Date: Aug. 05, 2024

This report is governed by, and incorporates by reference, the Conditions of Testing as posted at the date of issuance of this report at <a href="http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/">http://www.bureauveritas.com/home/about-us/our-business/cps/about-us/terms-conditions/</a> and is intended for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. Measurement uncertainty is only provided upon request for accredited tests. Statements of conformity are based on simple acceptance criteria without taking measurement uncertainty into account, unless otherwise requested in writing. You have 60 days from date of issuance of this such notify us of any material error or omission caused by our negligence or if you require measurement uncertainty; provided, however, that such notify us of any material error or omission caused by our negligence or if you require to raise such issue with inthe prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents.

No. 96, Guantai Road (Houjie Section), Houjie Town, Dongguan City, Guangdong Province. 523942. People's Republic of China.



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# **RELEASE CONTROL RECORD**

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF2406WDG0147	Original release	Aug. 05, 2024



# 1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC PART 15, SUBPART C (SECTION 15.249)						
STANDARD SECTION	TEST TYPE AND LIMIT	RESULT	REMARK			
§15.203	Antenna Requirement	PASS	No antenna connector is used			
§15.207 (a)	Conducted Emission	N/A	Powered from battery			
§15.205	Restricted Band of Operation	PASS	Compliant			
§15.209 §15.249(a)	Radiated Emission	PASS	Compliant			
§15.215(c)	20dB Bandwidth Test	PASS	Compliant			

## 2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

MEASUREMENT	FREQUENCY	UNCERTAINTY
	9KHz ~ 30MHz	2.72dB
Radiated emissions	30MHz ~ 1GMHz	4.24dB
	1GHz ~ 18GHz	4.10dB
	18GHz ~ 40GHz	4.10dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.



## **3 GENERAL INFORMATION**

#### 3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	R/C Toy	
MODEL NO.	81441	
ADDITIONAL MODELS	81442, 81621, 81622, 81721, 81722, 81723, 81724, 81725, 81726, 81727, 81731, 81732, 81733, 81734, 81735	
FCC ID XQPZZ052424TX		
NOMINAL VOLTAGE	DC 3V (1.5V*AAA*2) from battery	
MODULATION TECHNOLOGY	GFSK	
OPERATING FREQUENCY 2405MHz ~ 2475MHz		
ANTENNA TYPE	Wire Antenna, with 0dBi gain	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED N/A		

#### NOTES:

- 1. For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.
- 2. For the test results, the EUT had been tested with all conditions, but only the worst case was shown in test report.
- 3. Please refer to the EUT photo document (Reference No.: 2406WDG0147) for detailed product photo.
- 4. Additional models (see above table) are identical with the test model 81441 except the color of the appearance, product name and model name for trading purpose.



## 3.2 DESCRIPTION OF TEST MODES

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and packet type. The worst case was found when the EUT was positioned on Y axis for radiated emission. The EUT was tested under the following mode.

EUT CONFIGURE		APPLIC	ABLE TO		DESCRIPTION DC 3V from Battery	
MODE	RE<1G	RE≥1G	PLC	BW		
А	$\checkmark$	$\checkmark$	-	$\checkmark$		
Where RE	<1G: Radi	ated Emiss	sion below	1GHz	RE≥1G: Radiated Emission above 1GHz	

PLC: Power Line Conducted Emission

**RE≥1G:** Radiated Emission above 1GHz **BW:** 20db bandwidth

NOTE: No need to concern of Conducted Emission due to the EUT is powered by battery.

Following channel(s) was (were) selected for the test as listed below.

TESTED CHANNEL	TESTED FREQUENCY
Low	2405 MHz
Middle	2435 MHz
High	2475 MHz



#### **Channel List**

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
1	2405	10	2427	19	2469
2	2407	11	2428	20	2470
3	2408	12	2435	21	2471
4	2410	13	2445	22	2472
5	2411	14	2451	23	2473
6	2414	15	2452	24	2474
7	2418	16	2453	25	2475
8	2422	17	2454		
9	2425	18	2462		

Note: The more detailed channel, please refer to the product specifications

## **TEST CONDITION:**

APPLICABLE TO	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RE	25deg. C, 55%RH	DC 3V from Battery	Vincent
BW	25deg. C, 56%RH	DC 3V from Battery	Vincent
PLC	-	-	-



## 3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

# FCC Part 15, Subpart C, Section 15.249

ANSI C63.10-2013

All test items have been performed and recorded as per the above standards.

## 3.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together without any other necessary accessories or support units

## 3.5 CONFIGURATION OF SYSTEM UNDER TEST

Turn Table		
	EUT	



## 3.6 DUTY CYCLE OF TESET SIGNAL

Tp =12.1522ms

Ton =0.1957ms

Duty Cycle = Ton / Tp \* 100% = 0.1957/12.1522≈ 1.61%

AV factor=20 log (Duty cycle) = 20Log(1.61%)≈ -35.86dB

Specti	Spectrum 🔆											
Ref Le	Ref Level 11.00 dBm											
Att		30	dB 👄 SWT 15	ms VB	W 3 MHz							
SGL												
●1AP CI	rw											
	D3[1] -0.10 dB											
0 dBm—							1[1]					5.7 μ <mark>s</mark> 5 dBm
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CF 2.40	CF 2.405 GHz 1.5 ms/											
Marker												
Туре	Ref	Trc	X-value		Y-value	Func	tion		Func	tion Result		
M1		1		913 ms	-17.55 dB							
D2 D3	M1 M1	1		522 ms	-0.03 c -0.10 c							
03	INIT	1	15	15.7 μs	-0.10 (	no I						



# 4. TEST TYPES AND RESULTS

## 4.1 RADIATED EMISSION MEASUREMENT

#### 4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

FREQUENCIES (MHz)	FIELD STRENGTH (microvolts/meter)	MEASUREMENT DISTANCE (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

According to §15.249(a), the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental Frequency	Field strength of fundamental (milli-volts/meter)	Field strength of harmonics (micro-volts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in §15.35 for limiting peak emissions apply.

#### NOTES:

- 1. The lower limit shall apply at the transition frequencies.
- 2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
- 3. As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



#### 4.1.2 TEST INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Spectrum Analyzer	Rohde&Schwarz	FSV3044	101326	July 13, 24
EMI Test Receiver	Rohde&Schwarz	ESU8	100372	Apr. 16, 25
Bilog Antenna	SCHWARZBECK	VULB 9168	9168-555	Nov. 07, 25
Pre-Amplifier	Agilent	8447D	2944A10488	July. 26, 24
3m Semi-anechoic Chamber	ETS-Lindgren	9m*6m*6m	D3040003DG-1	July 30, 24
Coaxial RF Cable	Joinfront	JFAA6-NMNM-8000	2100033742	July 10, 24
Coaxial RF Cable	Joinfront	JFAR-NMBNCM-2000	2100033742	July 10, 24
Coaxial RF Cable	Joinfront	JFAR-BNCMSMM-500	2100033742	July 10, 24
Test software	ADT	ADT_Radiated_V7.6.15.9.2	N/A	N/A
Horn Antenna	ETS-Lindgren	3117	00240036	Apr. 20, 25
Horn Antenna	SCHWARZBECK	BBHA 9170	01024	Oct. 16, 25
Pre-Amplifier (1GHz-18GHz)	Rohde&Schwarz	SCU18	102265	Aug. 01, 24
Pre-Amplifier (18GHz-40GHz)	Rohde&Schwarz	SCU40	100437	Oct. 10, 24
Coaxial RF Cable	Joinfront	JFAA6-NMNM-8000	2100033742	July 10, 24
Coaxial RF Cable	Joinfront	JFAA6-NMSMM-2000	2100033742	July 10, 24
Coaxial RF Cable	Joinfront	JFAA6-NMSMM-800	2100033742	July 10, 24

#### NOTES:

1. The test was performed in 966 Chamber.

- 2. Equipment are calibrated by calibration laboratory accredited to ISO/IEC 17025 by a mutually recognized Accreditation.
- 3. The horn antenna is used only for the measurement of emission frequency above1GHz if tested.

4. The FCC Site registration No. is 749762, and the designation number is CN1174.

5. Test site: No. 122, Houjie Avenue West Houjie Town, Dongguan City Guangdong Province, 523960, People's Republic of China.



#### 4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 1.5 meters (above 1GHz) and 0.8 meters (below 1GHz) above the ground at a 3 meters semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. For below 30MHz, a loop antenna with its vertical plane is place 3m from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. And the centre of the loop shall be 1.3m above the ground.
- g. If the emission level of the EUT in peak mode was lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

#### NOTES:

- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for Peak detection at frequency above 1GHz.
- 3. Average value = PK Emission + AV Factor.
- 4. All modes of operation were investigated and the worst-case emissions are reported.
- 5. The testing of the EUT was performed on all 3 orthogonal axes; the worst-case test configuration was reported on the file test setup photo.

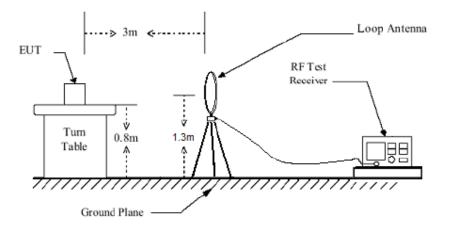
## 4.1.4 DEVIATION FROM TEST STANDARD

No deviation.

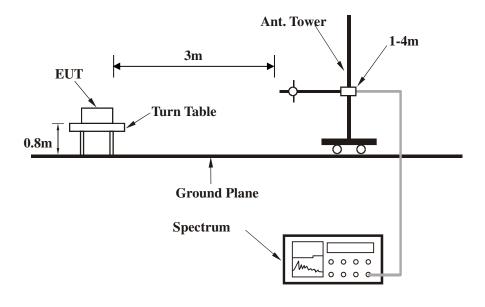


#### 4.1.5 TEST SETUP

#### **Below 30MHz test setup**

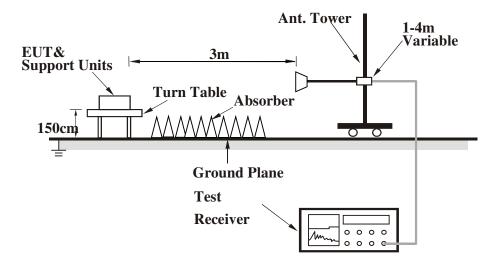


## **Below 1GHz test setup**





## Above 1GHz test setup



**Note:** For the actual test configuration, please refer to the attached file (Test Setup Photo).

#### 4.1.6 EUT OPERATING CONDITIONS

- a) Turned on the power of all equipment.
- b) EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.



## 4.1.7 TEST RESULTS

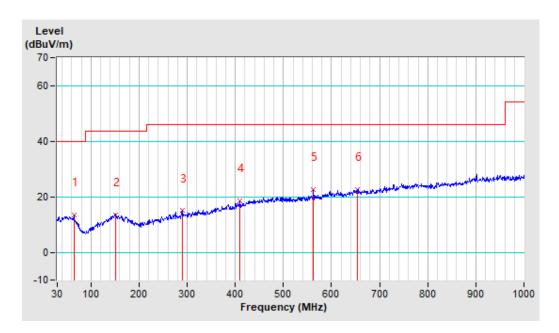
#### **BELOW 1GHz WORST-CASE DATA**

CHANNEL	TX Middle Channel	DETECTOR	Quesi Besk (QD)
FREQUENCY RANGE	9KHz ~ 1GHz	FUNCTION	Quasi-Peak (QP)

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M										
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)			
1	64.92	13.31 QP	40.00	-26.69	2.28 H	63	28.52	-15.21			
2	151.25	13.48 QP	43.50	-30.02	2.17 H	19	27.03	-13.55			
3	289.96	14.94 QP	46.00	-31.06	3.06 H	307	27.82	-12.88			
4	410.24	18.40 QP	46.00	-27.60	1.77 H	184	28.82	-10.42			
5	562.53	22.52 QP	46.00	-23.48	1.17 H	250	30.04	-7.52			
6	654.68	22.54 QP	46.00	-23.46	1.29 H	62	28.05	-5.51			

#### **REMARKS:**

- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The emission levels of other frequencies were greater than 20dB margin.
- 4. 9KHz~30MHz have been test and test data more than 20dB margin.
- 5. Margin value = Emission level Limit value.



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CHANNEL	TX Middle Channel	DETECTOR	Quesi Besk (QD)
FREQUENCY RANGE	9KHz ~ 1GHz	FUNCTION	Quasi-Peak (QP)

	ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	37.76	14.96 QP	40.00	-25.04	2.84 V	184	30.00	-15.04		
2	148.34	13.83 QP	43.50	-29.67	3.26 V	59	27.46	-13.63		
3	380.17	17.16 QP	46.00	-28.84	1.27 V	261	27.75	-10.59		
4	437.40	20.40 QP	46.00	-25.60	2.51 V	108	29.40	-9.00		
5	562.53	26.88 QP	46.00	-19.12	1.67 V	211	34.40	-7.52		
6	656.62	22.50 QP	46.00	-23.50	2.13 V	88	27.99	-5.49		

#### **REMARKS:**

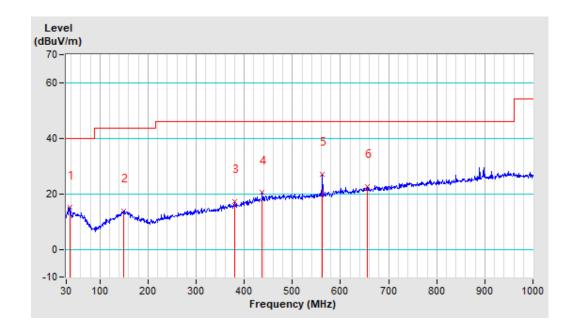
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The emission levels of other frequencies were greater than 20dB margin.

4. 9KHz~30MHz have been test and test data more than 20dB margin.

5. Margin value = Emission level – Limit value.



No. 96, Guantai Road (Houjie Section), Houjie Town, Dongguan City, Guangdong Province. 523942. People's Republic of China.



CHANNEL	TX Low Channel	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	Average (AV)

#### ABOVE 1GHz WORST-CASE DATA:

		ANTENNA F	POLARITY 8		TANCE : HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2400.00	62.92 PK	74.00	-11.08	1.20 H	130	66.66	-3.74
2	2400.00	27.06 AV	54.00	-26.94	1.20 H	130	30.80	-3.74
3	*2405.00	92.83 PK	114.00	-21.17	1.20 H	130	96.57	-3.74
4	*2405.00	56.97 AV	94.00	-37.03	1.20 H	130	60.71	-3.74
5	4810.00	56.98 PK	74.00	-17.02	1.00 H	152	59.16	-2.18
6	4810.00	21.12 AV	54.00	-32.88	1.00 H	152	23.30	-2.18
7	7215.00	58.21 PK	74.00	-15.79	1.00 H	236	57.28	0.93
8	7215.00	22.35 AV	54.00	-31.65	1.00 H	236	21.42	0.93
		ANTENNA	POLARITY	' & TEST DI	STANCE : V	<b>ERTICAL A</b>	Т 3 М	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	2400.00	68.49 PK	74.00	-5.51	1.50 V	160	72.23	-3.74
2	2400.00	32.63 AV	54.00	-21.37	1.50 V	160	36.37	-3.74
3	*2405.00	95.09 PK	114.00	-18.91	1.50 V	160	98.83	-3.74
4	*2405.00	59.23 AV	94.00	-34.77	1.50 V	160	62.97	-3.74
5	4810.00	57.54 PK	74.00	-16.46	1.00 V	125	59.72	-2.18
6	4810.00	21.68 AV	54.00	-32.32	1.00 V	125	23.86	-2.18
7	7215.00	60.72 PK	74.00	-13.28	1.25 V	310	59.79	0.93
8	7215.00	24.86 AV	54.00	-29.14	1.25 V	310	23.93	0.93

#### **REMARK:**

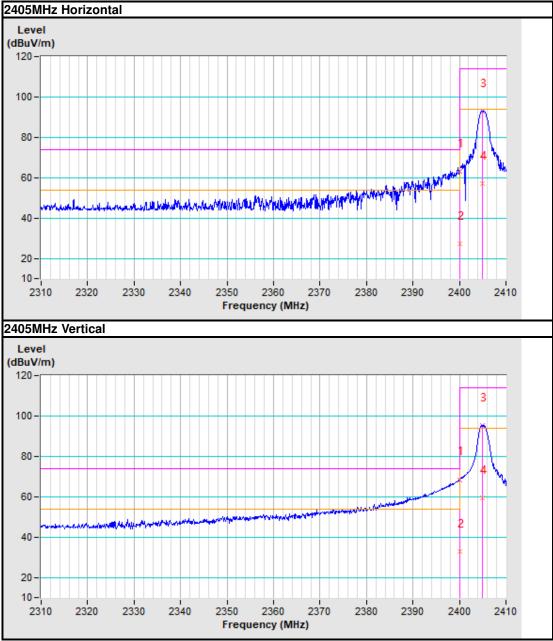
- 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).
- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The emission levels of other frequencies were greater than 20dB margin.
- 4. Margin value = Emission level Limit value.

5. " \* ": Fundamental frequency.

6. Average value =PK Emission +20\*log(duty cycle)Where the duty factor is calculated from following formula:20 log (Duty cycle) =  $20Log(1.61\%) \approx -35.86dB$ , Please see page 9 for plotted duty.









CHANNEL	TX Middle Channel	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	Average (AV)

		ANTENNA F	POLARITY 8	TEST DIS	TANCE : HO	RIZONTAL	AT 3 M	
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2435.00	92.06 PK	114.00	-21.94	1.45 H	236	95.81	-3.75
2	*2435.00	56.20 AV	94.00	-37.80	1.45 H	236	59.95	-3.75
3	4870.00	55.34 PK	74.00	-18.66	2.00 H	185	57.51	-2.17
4	4870.00	19.48 AV	54.00	-34.52	2.00 H	185	21.65	-2.17
5	7305.00	56.20 PK	74.00	-17.80	1.20 H	158	55.65	0.55
6	7305.00	20.34 AV	54.00	-33.66	1.20 H	158	19.79	0.55
		ANTENNA	POLARITY	& TEST DI	STANCE : V	<b>ERTICAL A</b>	Т 3 М	-
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2435.00	93.11 PK	114.00	-20.89	2.00 V	236	96.86	-3.75
2	*2435.00	57.25 AV	94.00	-36.75	2.00 V	236	61.00	-3.75
3	4870.00	54.73 PK	74.00	-19.27	1.20 V	188	56.90	-2.17
4	4870.00	18.87 AV	54.00	-35.13	1.20 V	188	21.04	-2.17
5	7305.00	58.11 PK	74.00	-15.89	1.45 V	230	57.56	0.55
6	7305.00	22.25 AV	54.00	-31.75	1.45 V	230	21.70	0.55

**REMARKS:** 

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The emission levels of other frequencies were greater than 20dB margin.

4. Margin value = Emission level – Limit value.

5. " \* ": Fundamental frequency.

6. Average value =PK Emission +20\*log(duty cycle)Where the duty factor is calculated from following formula:20 log (Duty cycle) =  $20Log(1.61\%) \approx -35.86dB$ , Please see page 9 for plotted duty.



CHANNEL	TX High Channel	DETECTOR	Peak (PK)
FREQUENCY RANGE	1GHz ~ 25GHz	FUNCTION	Average (AV)

	ANTENNA POLARITY & TEST DISTANCE : HORIZONTAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2475.00	91.80 PK	114.00	-22.20	1.45 H	120	95.56	-3.76
2	*2475.00	55.94 AV	94.00	-38.06	1.45 H	120	59.70	-3.76
3	2483.50	59.42 PK	74.00	-14.58	1.45 H	120	63.17	-3.75
4	2483.50	23.56 AV	54.00	-30.44	1.45 H	120	27.31	-3.75
5	4950.00	54.40 PK	74.00	-19.60	1.23 H	200	56.55	-2.15
6	4950.00	18.54 AV	54.00	-35.46	1.23 H	200	20.69	-2.15
7	7425.00	54.23 PK	74.00	-19.77	2.00 H	236	54.17	0.06
8	7425.00	18.37 AV	54.00	-35.63	2.00 H	236	18.31	0.06
	ANTENNA POLARITY & TEST DISTANCE : VERTICAL AT 3 M							
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)
1	*2475.00	94.32 PK	114.00	-19.68	1.50 V	180	98.08	-3.76
2	*2475.00	58.46 AV	94.00	-35.54	1.50 V	180	62.22	-3.76
3	2483.50	60.62 PK	74.00	-13.38	1.50 V	180	64.37	-3.75
4	2483.50	24.76 AV	54.00	-29.24	1.50 V	180	28.51	-3.75
5	4950.00	53.14 PK	74.00	-20.86	1.75 V	230	55.29	-2.15
6	4950.00	17.28 AV	54.00	-36.72	1.75 V	230	19.43	-2.15
7	7425.00	56.78 PK	74.00	-17.22	1.54 V	230	56.72	0.06
8	7425.00	20.92 AV	54.00	-33.08	1.54 V	230	20.86	0.06

#### **REMARK:**

1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m).

2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).

3. The emission levels of other frequencies were greater than 20dB margin.

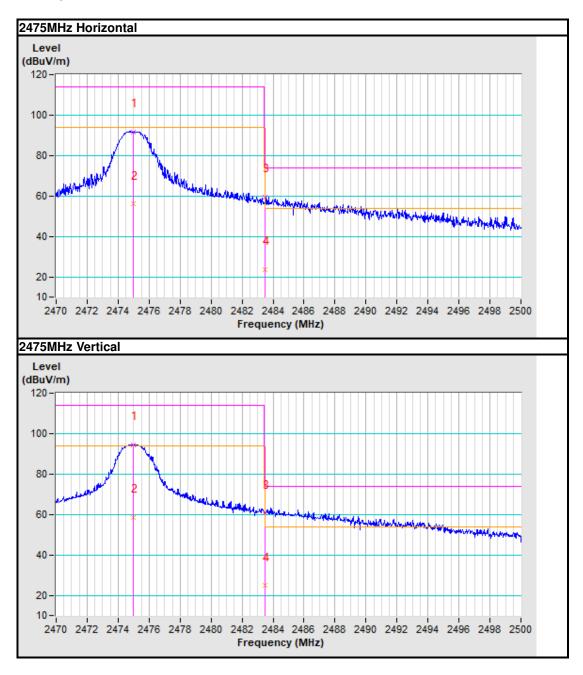
4. Margin value = Emission level – Limit value.

5. " \* ": Fundamental frequency.

6. Average value =PK Emission +20\*log(duty cycle)Where the duty factor is calculated from following formula:20 log (Duty cycle) =  $20Log(1.61\%) \approx -35.86dB$ , Please see page 9 for plotted duty.



**Band edge Plot** 





## 4.2 20dB BANDWIDTH MEASUREMENT

## 4.2.1 LIMITS OF 20dB BANDWIDTH MEASUREMENT

According to FCC 15.215(c), must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

Equipment	Manufacturer	Model No.	Serial No.	Next Cal.
Wireless Connectivity Tester		CMW270	101601	Oct. 15, 24
Spectrum Analyzer	Rohde&Schwarz	FSV40	101003	Jan. 01, 25
Spectrum Analyzer	Rohde&Schwarz	FSV40	101094	Jan. 01, 25
Frequency Analyzer	Keysight	N9010B	MY60240432	Oct. 10, 24
Power Meter	Rohde&Schwarz	NRX	103107	Apr. 09, 25
Power Sensor	Rohde&Schwarz	NRP6A	103356	Apr. 09, 25
Progammble Temperature&Humidit y Chamber	Hongjin	HYC-TH-225DH	DG-180746	Jan. 02, 25
Attenuator	MINI	BW-S10W2+	S130129FGE2	N/A
DC Source	Agilent	E3640A	MY40004013	Jan. 01, 25
Test software	ADT	ADT_RF Test Software V6.6.5.3	N/A	N/A
Test software	ADT	ADT_RF Test Software V6.6.5.4	N/A	N/A

#### **4.2.2 TEST INSTRUMENTS**

#### NOTES:

- 1. The test was performed in RF Test Shielded Room.
- 2. Equipment are calibrated by calibration laboratory accredited to ISO/IEC 17025 by a mutually recognized Accreditation.
- 3. Test site: No. 122, Houjie Avenue West Houjie Town, Dongguan City Guangdong Province, 523960, People's Republic of China.



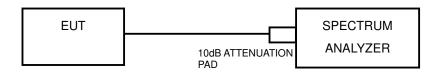
## 4.2.3 TEST PROCEDURE

- a. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
- c. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
- d. Repeat above procedures until all frequencies measured were complete.

## 4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

## 4.2.5 TEST SETUP



## 4.2.6 EUT OPERATING CONDITIONS

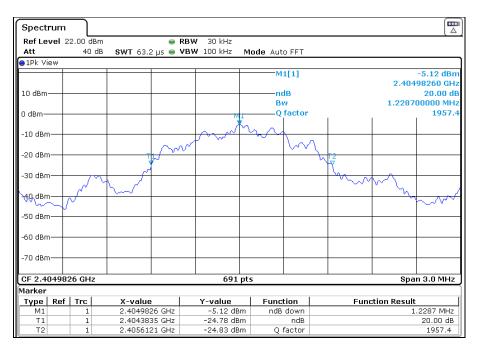
- a) Turned on the power of all equipment.
- b) EUT was operated according to the type used was description in manufacturer's specifications or the User's Manual.



## 4.2.7 TEST RESULTS

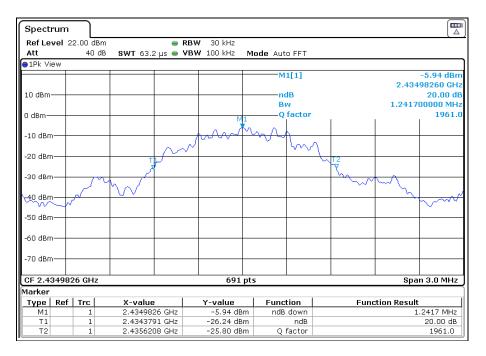
CHANNEL	CHANNEL FREQUENCY (MHz)	20dB BANDWIDTH (MHz)
Low	2405	1.2287
Middle	2435	1.2417
High	2475	1.2243

#### Test Data: Low channel

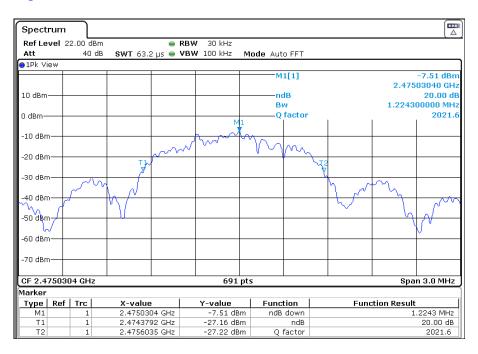




#### Test Data: Middle channel



#### **Test Data: High channel**



Bureau Veritas Shenzhen Co., Ltd. Dongguan Branch

No. 96, Guantai Road (Houjie Section), Houjie Town, Dongguan City, Guangdong Province. 523942. People's Republic of China.



# 5. PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).



## 6. APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

---END----