



## CFR 47 FCC PART 15 SUBPART C ISED RSS-210 Issue 10

### **TEST REPORT**

For

### 1: 10 DUNE RUNNER RC AWD OFF ROAD BUGGY

FCC MODEL NUMBER: 2362385, GV-6587, VL-6554

ISED MODEL NUMBER: VL-6554R

REPORT NUMBER: 4791276476-RF-2

ISSUE DATE: April 25, 2024

FCC ID: 2ASK3GV-6587R

IC: 24796-VL6554R

Prepared for

### AMAX INDUSTRIAL GROUP CHINA CO.,LTD OFFICE NO.3 10/F WITTY COMMERCIAL BUILDING 1A-1L TUNG CHOI STREET MONGKOK KOWLOON HONG KONG

Prepared by

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### **Revision History**

Rev.	Issue Date	Revisions	Revised By
V0	April 25, 2024	Initial Issue	



Summary of Test Results					
Clause	Test Items	FCC/ISED Rules	Test Results		
1	20dB Bandwidth and 99% Occupied Bandwidth	CFR 47 FCC §15.215 (c) ISED RSS-Gen Clause 6.7	Pass		
2	Radiated Emission	CFR 47 FCC §15.249 (a)(d)(e) ISED RSS-210 Annex B B.10 CFR 47 FCC §15.205 and §15.209 RSS-GEN Clause 8.9 RSS-GEN Clause 8.10	Pass		
3	Conducted Emission Test for AC Power Port	CFR 47 FCC §15.207 RSS-GEN Clause 8.8	Pass		
4 Antenna Requirement CFR 47 FCC §15.203 ISED RSS-Gen Clause 6.8 Pass					
Note 1: This test report is only published to and used by the applicant, and it is not for evidence purpose in China. Note 2: The measurement result for the sample received is <pass> according to &lt; CFR 47 FCC PART 15 SUBPART C, ISED RSS-210 ISSUE 10 &gt; when <accuracy method=""> decision</accuracy></pass>					

rule is applied.



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# **1. ATTESTATION OF TEST RESULTS**

#### **Applicant Information**

Company Name:	AMAX INDUSTRIAL GROUP CHINA CO., LTD
Address:	OFFICE NO.3 10/F WITTY COMMERCIAL BUILDING 1A-1L
	TUNG CHOI STREET MONGKOK KOWLOON HONG KONG

#### Manufacturer Information

Company Name:	AMAX INDUSTRIAL GROUP CHINA CO., LTD
Address:	OFFICE NO.3 10/F WITTY COMMERCIAL BUILDING 1A-1L
	TUNG CHOI STREET MONGKOK KOWLOON HONG KONG

EUT Information	
EUT Name:	1: 10 DUNE RUNNER RC AWD OFF ROAD BUGGY
FCC Model:	2362385, GV-6587, VL-6554
ISED Model:	VL-6554R
Model Difference:	2362385, GV-6587, VL-6554, VL-6554R are the same except for the model name.
Sample Received Date:	April 10, 2024
Sample Status:	Normal
Date of Tested:	April 11, 2024 to April 24, 2024

APPLICABLE STANDARDS				
STANDARD	TEST RESULTS			
CFR 47 FCC PART 15 SUBPART C	Pass			
ISED RSS-210 Issue 10				

Prepared By:

Bucure Donny

Denny Huang Senior Project Engineer

Approved By:

Stephentino

Stephen Guo Operations Manager Checked By:

Kebo Zhang Senior Project Engineer



# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with KDB 414788 D01 Radiated Test Site v01r01, FCC CFR 47 Part 2, FCC CFR 47 Part 15, ANSI C63.10-2013, ISED RSS-210 ISSUE 10 and ISED RSS-GEN Issue 5.

# 3. FACILITIES AND ACCREDITATION

	A2LA (Certificate No.: 4102.01)		
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.		
	has been assessed and proved to be in compliance with A2LA.		
	FCC (FCC Designation No.: CN1187)		
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.		
	Has been recognized to perform compliance testing on equipment subject		
	to the Commission's Declaration of Conformity (DoC) and Certification		
	rules		
	ISED (Company No.: 21320)		
Accreditation	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.		
Certificate	has been registered and fully described in a report filed with ISED.		
The Company Number is 21320 and the test lab Conformity As			
Body Identifier (CABID) is CN0046.			
	VCCI (Registration No.: G-20192, C-20153, T-20155 and R-20202)		
	UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch.		
	has been assessed and proved to be in compliance with VCCI, the		
	Membership No. is 3793.		
	Facility Name:		
	Chamber D, the VCCI registration No. is G-20192 and R-20202		
	Shielding Room B, the VCCI registration No. is C-20153 and T-20155		

### Note 1:

All tests measurement facilities use to collect the measurement data are located at Building 10, Innovation Technology Park, No. 1, Li Bin Road, Song Shan Lake Hi-Tech Development Zone Dongguan, 523808, People's Republic of China.

### Note 2:

The test anechoic chamber in UL Verification Services (Guangzhou) Co., Ltd. Song Shan Lake Branch had been calibrated and compared to the open field sites and the test anechoic chamber is shown to be equivalent to or worst case from the open field site.

### Note 3:

For below 30 MHz, lab had performed measurements at test anechoic chamber and comparing to measurements obtained on an open field site. And these measurements below 30 MHz had been correlated to measurements performed on an OFS.



# 4. CALIBRATION AND UNCERTAINTY

# 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations and is traceable to recognized national standards.

# 4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Item	Uncertainty		
Radiated Emission (Included Fundamental Emission) (9 kHz ~ 30 MHz)	2.2 dB		
Radiated Emission (Included Fundamental Emission) (30 MHz ~ 1 GHz)	4.00 dB		
Radiated Emission	5.78 dB (1 GHz ~ 18 GHz)		
(Included Fundamental Emission) (1 GHz to 26 GHz)	5.23 dB (18 GHz ~ 26 GHz)		
Duty Cycle	±0.028%		
DTS and 99% Occupied Bandwidth	±0.0196%		
Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.			

# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

EUT Name:	1: 10 DUNE RUNNER RC AWD OFF ROAD BUGGY		
FCC Model:	2362385, GV-6587, VL-6554		
ISED Model:	VL-6554R		
Model Difference:	2362385, GV-6587, VL-6554, VL-6554R are the same except for the model name.		

Frequency Range:	2422 MHz to 2426 MHz
Type of Modulation:	GFSK
Normal Test Voltage:	DC 7.4 V

### 5.2. CHANNEL LIST

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2422	2	2424	3	2426	/	/

# 5.3. MAXIMUM FIELD STRENGTH

Test Mode	Frequency	Channel	Maximum Peak field	Maximum Average field
	(MHz)	Number	strength (dBµV/m)	strength (dBµV/m)
GFSK	2422 ~ 2426	1-3[3]	97.28	80.92

# 5.4. TEST CHANNEL CONFIGURATION

Test Mode	Test Channel	Frequency
GFSK	CH 1(Low Channel), CH 2(MID Channel), CH 3(High Channel)	2422 MHz, 2424 MHz, 2426 MHz

## 5.5. THE WORSE CASE POWER SETTING PARAMETER

The Worse Case Power Setting Parameter under 2422 MHz ~ 2426 MHz Band					
Test Software Version /					
Modulation Type	Transmit Antenna	Test Channel			
	Number	CH 1	CH 2	CH 3	
GFSK	1	Default	Default	Default	



## 5.6. DESCRIPTION OF AVAILABLE ANTENNAS

Antenna	Frequency (MHz)	Antenna Type	Maximum Antenna Gain (dBi)
1	2422-2426	Wire Antenna	0.8

Test Mode	Transmit and Receive Mode	Description	
GFSK	⊠1TX, 1RX	Antenna 1 can be used as transmitting/receiving antenna.	
Note: The value of the antenna gain was declared by customer			



## 5.7. DESCRIPTION OF TEST SETUP

#### SUPPORT EQUIPMENT

lt	em	Equipment	Brand Name	Model Name	Specification
	1	Adapter	UGREEN	CD143	Input: 100-240V~ 50/60Hz Output: 5Vdc, 2.1A

#### I/O CABLES

Cable No	Port	Connector Type	Cable Type	Cable Length(m)	Remarks
/	/	/	/	/	/

#### ACCESSORY

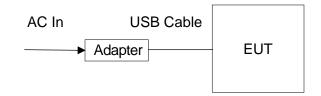
Item	Equipment	Mfr/Brand	Model/Type No.	Specification	Series No.
/	/	/	/	/	/

#### TEST SETUP

The EUT have the engineer mode inside.

### SETUP DIAGRAM FOR TEST

For AC Power Port Conducted Emission Test:



For the others test:

EUT



## 6. MEASURING EQUIPMENT AND SOFTWARE USED

Radiated Emissions					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Due Date
MXE EMI Receiver	KESIGHT	N9038A	MY56400036	Oct.12, 2023	Oct.11, 2024
Hybrid Log Periodic Antenna	TDK	HLP-3003C	130959	Aug.02, 2021	Aug.01, 2024
Preamplifier	HP	8447D	2944A09099	Oct.12, 2023	Oct.11, 2024
EMI Measurement Receiver	R&S	ESR26	101377	Oct.12, 2023	Oct.11, 2024
Horn Antenna	TDK	HRN-0118	130940	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-0118	TRS-305- 00067	Oct.12, 2023	Oct.11, 2024
Horn Antenna	Schwarzbeck	BBHA9170	697	July 20, 2021	July 19, 2024
Preamplifier	TDK	PA-02-2	TRS-307- 00003	Oct.12, 2023	Oct.11, 2024
Preamplifier	TDK	PA-02-3	TRS-308- 00002	Oct.12, 2023	Oct.11, 2024
Loop antenna	Schwarzbeck	1519B	00008	Dec.14, 2021	Dec.13, 2024
Preamplifier	TDK	PA-02-001- 3000	TRS-302- 00050	Oct.12, 2023	Oct.11, 2024
High Pass Filter	Wi	WHKX10- 2700-3000- 18000-40SS	23	Oct.12, 2023	Oct.11, 2024
Band Reject Filter	Wainwright	WRCJV8- 2350-2400- 2483.5- 2533.5-40SS	4	Oct.12, 2023	Oct.11, 2024
		So	ftware		
[	Description		Manufacturer	Name	Version
Test Software	for Radiated E	missions	Farad	EZ-EMC	Ver. UL-3A1



# 7. ANTENNA PORT TEST RESULTS

### 7.1. 20DB BANDWIDTH AND 99% OCCUPIED BANDWIDTH

#### **LIMITS**

CFR 47 FCC Part15 (15.249) Subpart C RSS-Gen Issue 5					
Section	Test Item	Limit	Frequency Range (MHz)		
CFR 47 FCC §15.215 (c)	20dB Bandwidth	for reporting purposes only	2400-2483.5		
ISED RSS-Gen Clause 6.7 Issue 5	99% Occupied Bandwidth	For reporting purposes only.	2400-2483.5		

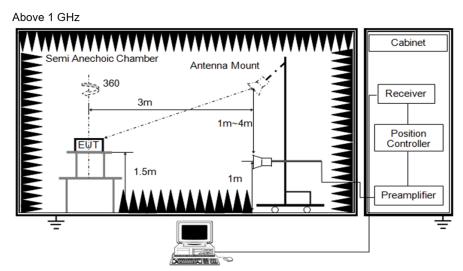
### TEST PROCEDURE

Center Frequency	The center frequency of the channel under test
Detector	Peak
RBW	1% to 5% of the occupied bandwidth
VBW	approximately 3×RBW
Trace	Max hold
Sweep	Auto couple

Connect the UUT to the spectrum analyzer and use the following settings:

Allow the trace to stabilize and measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 20 dB/99% relative to the maximum level measured in the fundamental emission.

#### TEST SETUP



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#### TEST ENVIRONMENT

Temperature	<b>23.5</b> ℃	Relative Humidity	53%
Atmosphere Pressure	101 kPa	Test Voltage	DC 7.4 V

### TEST RESULTS

Frequency	99% Bandwidth	20dB Bandwidth	Result
(MHz)	(MHz)	(MHz)	
2422	12.32	10.97	PASS

Spectrum	F	Receiver	×								
Ref Level	77.00 df	ЗμV	•	<b>RBW</b> 200 kHz	2						
🖷 Att	10	idB 👄 SWT G	100 ms 👄	<b>VBW</b> 500 kHz	: 1	Mode A	uto Sw	еер	Input 1 /	AC	
PS PA											
⊖1Pk View											
						M	1[1]				62.84 dBµ\
70 dBµV	-			M	1						220900 GHz
					Č,	0	cc Bw			12.317	682318 MH
60 dBµV			۸A		17						
50 dBµV			( M June A	A ADA MV	$\mathcal{V}$	MAG					
		X.	h d.,	A 6		0 V.	o. Mala	<u>,</u> 72			
40 dBµV							, , , , , , , , , , , , , , , , , , ,	<u>V</u>	h		
		af le							MMLN .		
30 dBµV		a whend							Why why	<b>1</b>	
	promption	Mann .							Churry Charles	Myran	
20 dBuX	how and a										rafieller care and a log
10 dBµV											
0 dвµV											
-10 dBµV											
-20 dBµV—											
CF 2.422 G	Hz			1001	pts	:				Spa	n 30.0 MHz
Marker											
	Trc	X-value		Y-value		Func	tion		Fund	ction Resu	lt
M1	1		09 GHz	62.84 dBµ							
T1	1	2.41528		44.69 dBµ		0	cc Bw			12.317	682318 MHz
T2		2.42760	44 GHZ	41.71 dBµ	.V						
	Л					Mea	suring	. (		4/4	16.04.2024 18:15:56
-											
Date: 16.APR.2	2024 18:1	5:56									

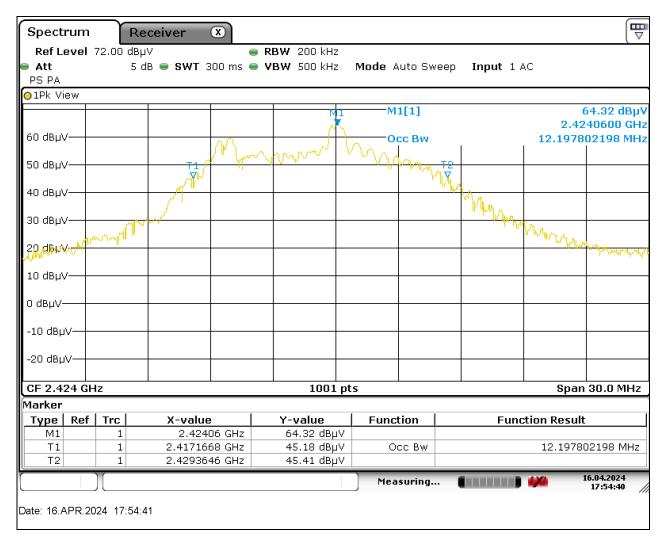
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Spectrum		Receiver	×							
Ref Level	77.00	dBµ∨		<b>.BW</b> 200 kH:	z					`
👄 Att	t	.0 dB 👄 SWT 3	300 ms 👄 V	<b>'BW</b> 500 kH:	z ľ	Mode Au	to Swee	p Input 1	4C	
PS PA										
⊖1Pk View										
						M1[	[1]			64.19 dBµV
70 dBµV				1	1				2.42	20600 GHz
				J.	<b>K</b>	ndB	3			20.00 dB
60 dBµV			ph.			Bw			10.9690	00000 MHz
			Mr. an	provent	$ V^{u} $	W AQ fe	actor			220.8
50 dBµV——			H <u>r o baran n</u>	than .		<del>- V VP</del>	Wind St			+
		with the	T I				ં "₩\n	k i		
40 dBµV——							· · · · ·	12 MARINE		
		JAH '						MALON		
30 dBµV		Jan Martin							uld	-
		polouver and the second s							my all markers	
20 dBuV - 44	Kin land								· 440	weller har and a realistic of the
10 dBµV——										-
0 dBµV										1
-10 dBµV										
-20 dBµV—									_	1
CF 2.422 G	Hz			1001	. pts				Span	30.0 MHz
Marker										
Type Ref	_	X-value		Y-value		Functio		Fund	ction Result	
M1	1		06 GHz	64.19 dBj		ndB d			1	.0.969 MHz
T1	1	2.4156		43.96 dBj			ndB			20.00 dB
T2	1	2.4265	85 GHz	42.67 dBj	ע <u>ר</u>	Q fa	ctor			220.8
	)[					Measu	uring		<b>44</b>	16.04.2024 18:19:58
Date: 16.APR.2	2024 18:	19:59								



Frequency	99% Bandwidth	20dB Bandwidth	Result
(MHz)	(MHz)	(MHz)	
2424	12.20	11.81	PASS





Spectrum	$\neg$	Receiver	×							E
Ref Level	77.00	dBuV		<b>RBW</b> 200 kH	z					
Att		•		<b>VBW</b> 500 kH		Mode Au	ito Swe	eep Input 1	AC	
PS PA	_									
○1Pk View										
-						M1	[1]			64.26 dBµV
70 dBµV										40900 GHz
					ŧ.	nd	в			20.00 dB
60 dBµV——			100		$\square$	——Bw			11.8080	00000 MHz
				mon	V	$\int \Delta \nabla \mathbf{Q} \mathbf{f}$	actor			205.3
50 dBµV			<u> γn </u>	AA.A.		<u> </u>	Ph		_	
		T\$	,,				тŊ	ÊM.		
40 dBµV								- Wata		
								PM		
30 dBµV	J							- V WA	vilvily-holipoury	
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20 d8pview										<mark>ᠹᡣᡢᢑ᠉ᡷᡰᡃᡆᠾᡐᠧᢛᡀ᠈</mark>
10 dBµV——										
0 dBµV										
-10 dBµV										
-то авру										
-20 dBµV—										
CF 2.424 GI	47				   nts				Snan	30.0 MHz
Marker	12			100.	r pes	,			opan	00.0 1.112
Type   Ref	Trc	X-valı		Y-value	- 1	Funct	ion I	Em	nction Result	
M1	1		409 GHz	64.26 dBj	IV I	ndB (		Fui		1.808 MHz
T1	1		227 GHz	41.99 dB		140 (	ndB		1	20.00 dB
T2	1		035 GHz	42.70 dBj		Q fa	actor			205.3
	Ì					Meas	uring			16.04.2024 17:57:55  /
						,				17:57:55
Date: 16.APR.2	024 17:	57:55								



Frequency	99% Bandwidth	20dB Bandwidth	Result
(MHz)	(MHz)	(MHz)	
2426	12.20	11.81	PASS

Spectrum	R	eceiver	×									
Ref Level	77.00 de	lμV	•	RBW 200 kH:	z							
👄 Att	10	db 👄 SWT :	300 ms 👄	<b>VBW</b> 500 kH:	z I	Mode A	uto Swi	еер	Input 1	AC		
PS PA												
⊖1Pk View												
						M.	l[1]				64	.44 dBµV
70 dBµV				ĨV	1					2	.4260	)600 GHz
				N	5	00	c Bw			12.19	7802	198 MHz
60 dBµV			MA		17	<u></u>						
			$\downarrow$ $\sim$	ymm.	V.	$\sqrt{\sqrt{2}}$	<u>.</u>	-				
50 dBµV—		J.				- v -	, the second	NΥ				
40 dBµV		A Contraction						N.				
40 ubµv		P						- L	Nr.			
30 dBµV									- WA	William		
00 00 0	hrull	lan in di							~ ~~	Maria		
20 dehvirt	Jun andi									~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	r Jeren	hallon and the
and pre-												· v
10 dBµV												
0 dвµV												
-10 dBµV												
-20 dBµV												
CF 2.426 G	HZ			1001	pts					S	ban 3	0.0 MHz
Marker							. 1					
Type Ref		X-value		Y-value		Funct	ion		Fun	ction Re:	sult	
M1 T1	1	2.426	06 GHz	64.44 dBµ			c Bw			10.10	7000	198 MHz
T2	1	2.41919 2.43139		44.46 dBµ 45.48 dBµ		00	JU BW			12.19	#78U2	198 MIHZ
	<u> </u>	2.73139		тэ.то upp				_			46.4	4 2024
	ار					Mea	suring					)4.2024 8:08:02  //
Date: 16.APR.2	:024 18:08	:02										

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Spectrum	$\neg$	Receiver	×							₩
Ref Level	77.00 0	ΊΒμ∨		<b>RBW</b> 200 k	Hz					
Att		o db 👄 SWT				Mode Auto Sv	veep In	put 1 A	с	
PS PA							·	•		
⊖1Pk View										
						M1[1]			e	64.52 dBμV
70 dBµV——					MI				2.42	60300 GHz
					۸Ň-	ndB				20.00 dB
60 dBµV			00	_	$H_{c}$	Bw			11.80800	00000 MHz
			11 m	VWW.		V Q factor				205.5
50 dBµV			<u>    · · · · · · · · · · · · · · · · · ·</u>				72.			
40 dBµV			, 				W.			
40 ивру-		$\Lambda$					- Why	La.		
30 dBµV								Mu		
	norm	1						· 70	Avan	
.20,d8+W+++ <sup>44</sup>	Lab. ed		_		_				V Y UKU	10 marthaland and and and and and and and and and
adar										× 0
10 dBµV——					_					
0 dBµV					_					
-10 dBµV										
-20 dBµV									_	
CF 2.426 GH	lz			100	01 pts				Span	30.0 MHz
Marker										
Type Ref		X-valu		<u>Y-value</u>		Function		Func	tion Result	
M1	1		503 GHz	64.52 d		ndB down			1	1.808 MHz
T1 T2	1		227 GHz	44.32 d 43.49 d		ndB Q factor				20.00 dB 205.5
	1 -1	2,431		45.45 u	·	)				6.04.2024
	Л					Measuring.			44	
Date: 16.APR.20	JZ4 18:1	1:15								



### 7.2. DUTY CYCLE

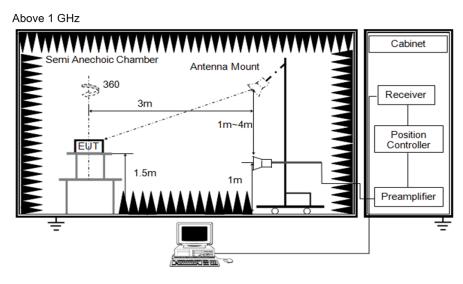
### LIMITS

None; for reporting purposes only.

### TEST PROCEDURE

Refer to ANSI C63.10-2013 clause 11.6 Zero – Span Spectrum Analyzer method.

#### TEST SETUP



### TEST ENVIRONMENT

Temperature	<b>22.3</b> ℃	Relative Humidity	51%
Atmosphere Pressure	101kPa	Test Voltage	DC 3.0 V

#### TEST RESULTS

Mode	On Time (msec)	Period (msec)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (db)
GFSK	15.21	100	0.1521	15.21	-16.36

Note: Duty Cycle Correction Factor=20log(x). Where: x is Duty Cycle

Note: All modes and buttons had been tested, but only the worst data was recorded in the report.

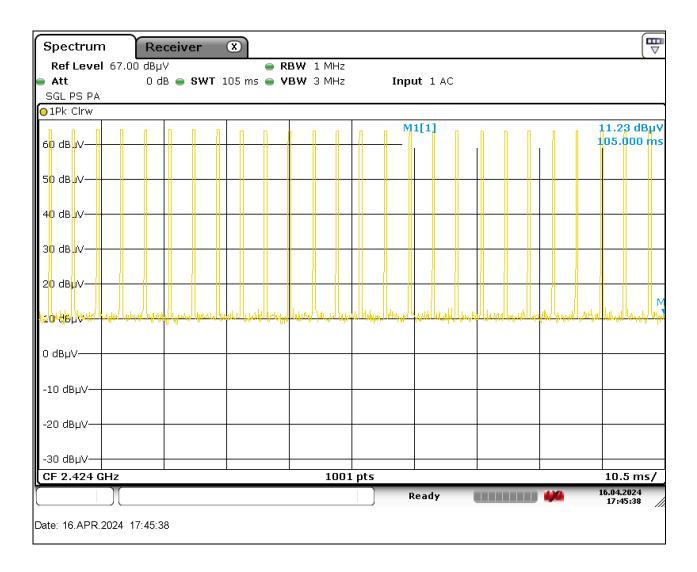
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### REPORT NO.: 4791276476-RF-2 Page 20 of 57

Spect	rum		Rec	eiver	×													₩
Ref L		67.00			<u> </u>	RBW	1 MHz											( ~
Att	6461	01.00		e swt					Inr	out	: 1 AC							
SGL PS	5 PA			• • • • •			0		F									
⊖1Pk Cl	lrw																	
<ul> <li>● 1Pk Cl</li> <li>60 dBµ\</li> <li>50 dBµ\</li> <li>40 dBµ\</li> <li>30 dBµ\</li> <li>20 dBµ\</li> <li>40 dBµ\</li> <li>0 dBµ\</li> <li>0 dBµ\-</li> </ul>		Г			Ь				Г	D2	2[1]		П			Л	-1.	13 dB
60 dBµ\	/																3.920	
50 dBu										M:	1[1]						9.04 12.494	
	Ň				11							1			I		12.494	FU MIS
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30 dBµ\	/												+					
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-30 dBµ [ CF 2.4:																		
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Marker																		
Type M1	Ref	Trc		X-valu		Γ Y	<u>'-value</u>		Fur	10	tion			Fund	tion I	Result		
D1	M1	1			494 ms 585.0 μs		9.04 dB -1.35											
D2	M1	1			3.92 ms		-1.13											
Ţ		)(								P	eady	-			-	-	16.04.20	
<u> </u>									J		,						17:44:	50 //
Date: 16.4	APR.20	024 17:	44:51															







# 8. RADIATED TEST RESULTS

### <u>LIMITS</u>

Please refer to CFR 47 FCC §15.205 and §15.209.

Please refer to ISED RSS-GEN Clause 8.9 and Clause 8.10.

Radiation Disturbance Test Limit for FCC

Emissions radia	Emissions radiated outside of the specified frequency bands above 30 MHz									
Frequency Range (MHz)	Field Strength Limit (uV/m) at 3 m	Field Streng (dBuV/m) Quasi-P	at 3 m							
30 - 88	40									
88 - 216	150	43.5								
216 - 960	200	46								
Above 960	500	54								
Above 1000	Above 1000 500									
Above 1000	300	74	54							

FCC field strength of emissions from intentional radiators operated within these frequency bands						
Frequency (MHz)Field strength of FundamentalField strength of HarmonicsDistance (m)						
902 - 928	50 mV/m (94 dBuV/m)	500 uV/m (54 dBuV/m)	3			
2400 - 2483.5	50 mV/m (94 dBuV/m)	500 uV/m (54 dBuV/m)	3			
5725 – 5875	50 mV/m (94 dBuV/m)	500 uV/m (54 dBuV/m)	3			

The field strength of fundamental and harmonic emissions measured at 3 m shall not exceed the limits in table B2 for ISED.

Table B2 — Field strength limits at various frequencies					
	Field strength (mV/m)				
Frequency bands (MHz) Fundamental emissions Harmonic en					
902-928	50	0.5			
2400-2483.5	50	0.5			
5725-5875	50	0.5			
24000-24250	250	2.5			



FCC Emiss	FCC Emissions radiated outside of the specified frequency bands below 30 MHz				
Frequency (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				

#### ISED General field strength limits at frequencies below 30 MHz

Table 6 – General field strength limits at frequencies below 30 MHz				
Frequency         Magnetic field strength (H-Field) (μA/m)         Measurement distance (m)				
9 - 490 kHz <sup>Note 1</sup>	6.37/F (F in kHz)	300		
490 - 1705 kHz	63.7/F (F in kHz)	30		
1.705 - 30 MHz	0.08	30		

**Note 1:** The emission limits for the ranges 9-90 kHz and 110-490 kHz are based on measurements employing a linear average detector.

### ISED Restricted bands please refer to ISED RSS-GEN Clause 8.10

z	MHz	GHz
90 - 0.110	149.9 - 150.05	9.0 - 9.2
95 - 0.505	158.52475 - 158.52525	9.3 - 9.5
735 - 2.1905	158.7 - 156.9	10.6 - 12.7
20 - 3.028	182.0125 - 187.17	13.25 - 13.4
25 - 4.128	167.72 - 173.2	14.47 - 14.5
7725 - 4.17775	240 - 285	15.35 - 16.2
0725 - 4.20775	322 - 335.4	17.7 - 21.4
77 - 5.683	399.9 - 410	22.01 - 23.12
15 - 6.218	608 - 614	23.6 - 24.0
6775 - 6.26825	980 - 1427	31.2 - 31.8
1175 - 6.31225	1435 - 1628.5	36.43 - 36.5
91 - 8.294	1845.5 - 1848.5	Above 38.6
62 - 8.366	1880 - 1710	
7625 - 8.38675	1718.8 - 1722.2	
1425 - 8.41475	2200 - 2300	
29 - 12.293	2310 - 2390	
51975 - 12.52025	2483.5 - 2500	
57675 - 12.57725	2655 - 2900	
36 - 13.41	3280 - 3287	
42 - 16.423	3332 - 3339	
89475 - 18.69525	3345.8 - 3358	
30425 - 16.80475	3500 - 4400	
5 - 25.67	4500 - 5150	
- 38.25	5350 - 5460	
74.6	7250 - 7750	
- 75.2	8025 - 8500	

Note 1: Certain frequency bands listed in table 7 and in bands above 38.6 GHz are designated for licence-exempt applications. These frequency bands and the requirements that apply to related devices are set out in the 200 and 300 series of RSSs.



### FCC Restricted bands of operation refer to FCC §15.205 (a):

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	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	( <sup>2</sup> )
13.36-13.41			

Note: <sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. <sup>2</sup>Above 38.6c



### TEST PROCEDURE

Below 30 MHz

The setting of the spectrum analyzer

RBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
VBW	200 Hz (From 9 kHz to 0.15 MHz)/ 9 kHz (From 0.15 MHz to 30 MHz)
Sweep	Auto

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.4.

2. The EUT was arranged to its worst case and then turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both Horizontal, Face-on and Face-off polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a 1 m height antenna tower.

5. The radiated emission limits are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz Radiated emission limits in these three bands are based on measurements employing an average detector.

6. For measurement below 1 GHz, 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 and average detector mode remeasured. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak and average detector and reported.

7. Although these tests were performed other than open field site, adequate comparison measurements were confirmed against 30m open field site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field site based on KDB 414788.

8. The limits in CFR 47, Part 15, Subpart C, paragraph 15.209 (a), are identical to those in RSS-GEN Section 8.9, Table 6, since the measurements are performed in terms of magnetic field strength and converted to electric field strength levels (as reported in the table) using the free space impedance of  $377\Omega$ . For example, the measurement frequency X kHz resulted in a level of Y dBuV/m, which is equivalent to Y-51.5 = Z dBuA/m, which has the same margin, W dB, to the corresponding RSS-GEN Table 6 limit as it has to be 15.209(a) limit.



Below 1 GHz and above 30 MHz

The setting of the spectrum analyzer

RBW	120 kHz
VBW	300 kHz
Sweep	Auto
Detector	Peak/QP
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.5.

2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 80 cm above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement below 1 GHz, 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. If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.



#### Above 1 GHz

The setting of the spectrum analyzer

RBW	1 MHz
VBW	3 MHz
Sweep	Auto
Detector	Peak
Trace	Max hold

1. The testing follows the guidelines in ANSI C63.10-2013 clause 6.6.

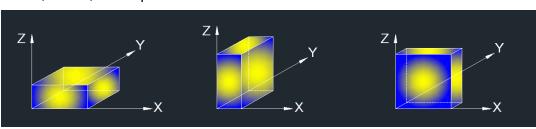
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

3. The EUT was placed on a turntable with 1.5 m above ground.

4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.

5. For measurement above 1 GHz, the emission measurement will be measured by the peak detector. This peak level, once corrected, must comply with the limit specified in Section 15.209.

6. For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 3 MHz for peak measurements. AVG Result=Peak Result + Duty Cycle Correction Factor. For the + Duty Cycle Correction Factor please refer to clause 7.2. ON TIME AND DUTY CYCLE.



X axis, Y axis, Z axis positions:

Note: For all radiated test, EUT in each of three orthogonal axis emissions had been tested, but only the worst case (X axis) data recorded in the report.



For Restricted Bandedge and field strength of intentional emission: Note:

1. Measurement = Reading Level + Correct Factor.

2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.

3. Peak: Peak detector.

4. AVG Result=Peak Result + Duty Cycle Correction Factor.

5. For the transmitting duration, please refer to clause 7.2.

6. Only the worst data was recorded, if it complies with the limit, the other emissions deemed to comply with the limit.

7. Both horizontal and vertical have been tested, only the worst data was recorded in the report. 8. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious emission (9 kHz ~ 30 MHz): Note:

1. Measurement = Reading Level + Correct Factor.

2. If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.

3. All 3 polarizations (Horizontal, Face-on and Face-off) of the loop antenna had been tested, but only the worst data recorded in the report.

4. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious Emission (30 MHz ~ 1 GHz):

Note:

1. Result Level = Read Level + Correct Factor.

If the peak values are less than the QP limit, the QP result is deemed to comply with QP limit.
 All modes, channels and antennas have been tested, only the worst data was recorded in the report.



For Radiate Spurious Emission (1 GHz ~ 3 GHz):

1. Measurement = Reading Level + Correct Factor.

2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.

3. Peak: Peak detector.

4. AVG Result=Peak Result + Duty Cycle Correction Factor.

5. For the transmitting duration, please refer to clause 7.2.

6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for Band reject filter losses.

7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

8. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious Emission (3 GHz ~ 18 GHz): Note:

1. Peak Result = Reading Level + Correct Factor.

2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.

3. Peak: Peak detector.

4. AVG Result=Peak Result + Duty Cycle Correction Factor.

5. For the transmitting duration, please refer to clause 7.2.

6. Filter losses were only considered in the spurious frequency bands and the authorized band was not corrected for High Pass Filter losses.

7. Proper operation of the transmitter prior to adding the filter to the measurement chain.

8. All modes, channels and antennas have been tested, only the worst data was recorded in the report.

For Radiate Spurious emission (18 GHz ~ 26 GHz): Note:

1. Measurement = Reading Level + Correct Factor.

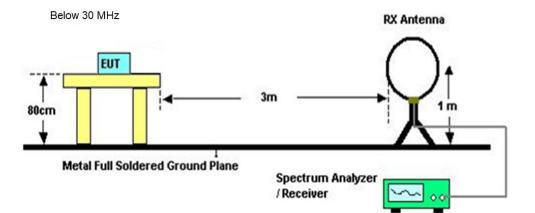
2. If the peak values are less than the average limit of 54 dBuV/m, the average result is deemed to comply with average limit.

3. Peak: Peak detector.

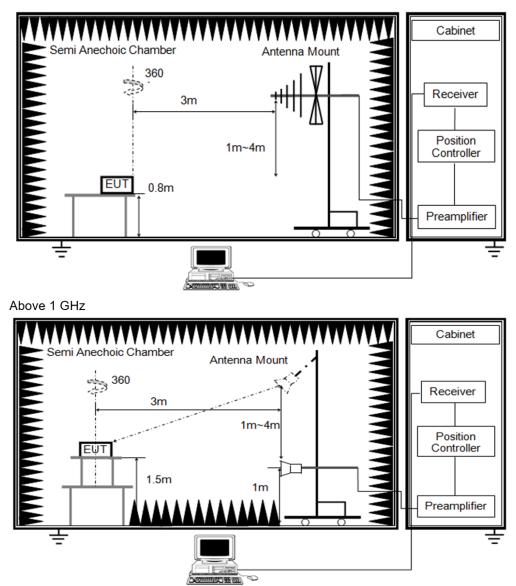
4. All modes, channels and antennas have been tested, only the worst data was recorded in the report.



### TEST SETUP



Below 1 GHz and above 30 MHz



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#### **TEST ENVIRONMENT**

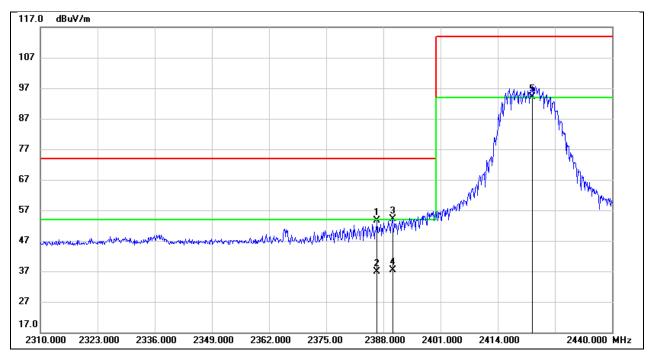
Temperature	<b>23.9</b> ℃	Relative Humidity	59%
Atmosphere Pressure	101 kPa	Test Voltage	DC 7.4 V

TEST RESULTS



# 8.1. RESTRICTED BANDEDGE

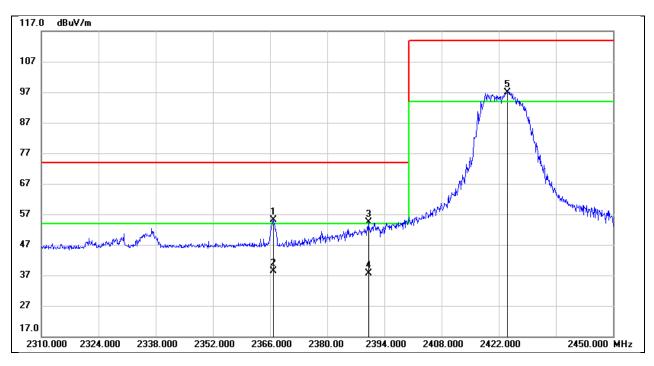
Test Mode:	2.4GHz	Frequency(MHz):	2422
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2386.570	20.79	32.91	53.70	74.00	-20.30	peak
2	2386.570	/	/	37.34	54.00	-16.66	AVG
3	2390.000	21.21	32.92	54.13	74.00	-19.87	peak
4	2390.000	/	/	37.77	54.00	-16.23	AVG
5	2422.000	61.28	32.97	94.25	114.00	-19.75	Fundamental
6	2422.000	/	/	77.89	94.00	-16.11	Fundamental



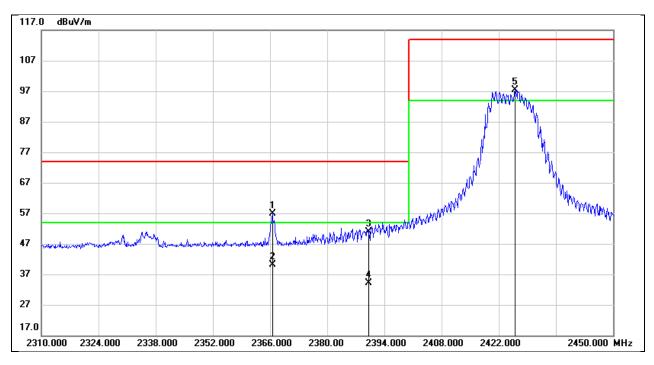
Test Mode:	2.4GHz	Frequency(MHz):	2424
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2366.840	22.33	32.79	55.12	74.00	-18.88	peak
2	2366.840	/	/	38.76	54.00	-15.24	AVG
3	2390.000	21.40	32.92	54.32	74.00	-19.68	peak
4	2390.000	/	/	37.96	54.00	-16.04	AVG
5	2424.000	63.88	32.97	96.85	114.00	-17.15	Fundamental
6	2424.000	/	/	80.49	94.00	-13.51	Fundamental



Test Mode:	2.4GHz	Frequency(MHz):	2426
Polarity:	Horizontal	Test Voltage:	DC 7.4 V

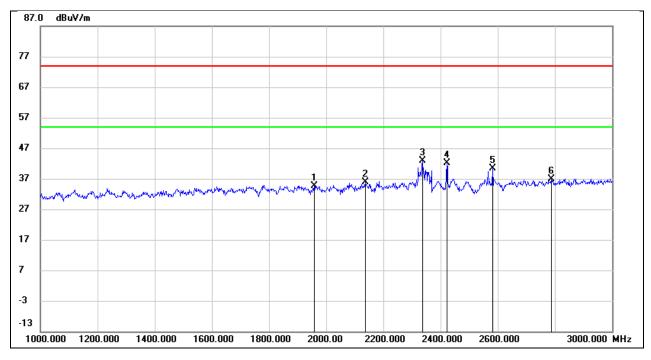


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	2366.560	24.08	32.79	56.87	74.00	-17.13	peak
2	2366.560	/	/	40.51	54.00	-13.49	AVG
3	2390.000	18.08	32.92	51.00	74.00	-23.00	peak
4	2390.000	/	/	34.64	54.00	-19.36	AVG
5	2426.000	64.31	32.97	97.28	114.00	-16.72	Fundamental
6	2426.000	/	/	80.92	94.00	-13.08	Fundamentai



## 8.2. SPURIOUS EMISSIONS (1 GHZ ~ 3 GHZ)

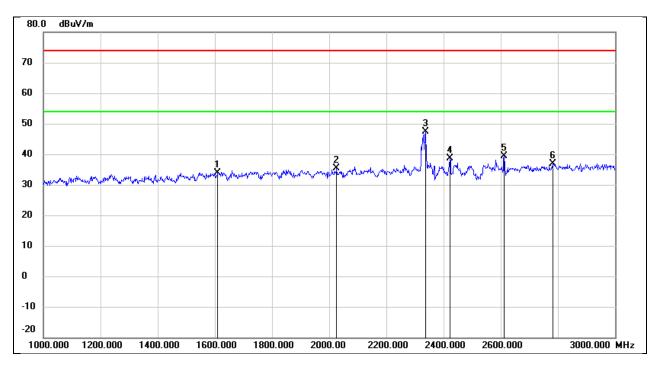
Test Mode:	2.4GHZ	Frequency(MHz):	2422
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1958.000	44.69	-10.14	34.55	74.00	-39.45	peak
2	2136.000	45.03	-9.27	35.76	74.00	-38.24	peak
3	2336.000	50.84	-7.87	42.97	74.00	-31.03	peak
4	2422.000	49.43	-7.41	42.02	/	/	Fundamental
5	2582.000	47.95	-7.64	40.31	74.00	-33.69	peak
6	2788.000	43.79	-6.85	36.94	74.00	-37.06	peak



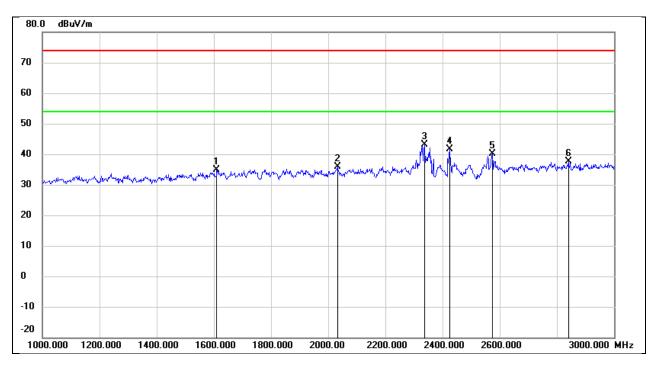
Test Mode:	2.4GHZ	Frequency(MHz):	2422
Polarity:	Vertical	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1610.000	45.06	-11.13	33.93	74.00	-40.07	peak
2	2026.000	45.44	-9.95	35.49	74.00	-38.51	peak
3	2336.000	55.34	-7.87	47.47	74.00	-26.53	peak
4	2422.000	46.08	-7.41	38.67	/	/	Fundamental
5	2612.000	46.93	-7.63	39.30	74.00	-34.70	peak
6	2782.000	43.86	-6.87	36.99	74.00	-37.01	peak



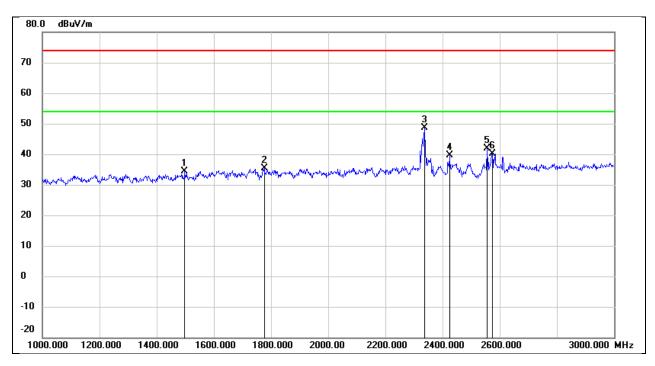
Test Mode:	2.4GHZ	Frequency(MHz):	2424
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1610.000	46.10	-11.13	34.97	74.00	-39.03	peak
2	2032.000	45.76	-9.92	35.84	74.00	-38.16	peak
3	2336.000	51.10	-7.87	43.23	74.00	-30.77	peak
4	2424.000	49.05	-7.42	41.63	/	/	Fundamental
5	2574.000	47.74	-7.64	40.10	74.00	-33.90	peak
6	2840.000	44.16	-6.62	37.54	74.00	-36.46	peak



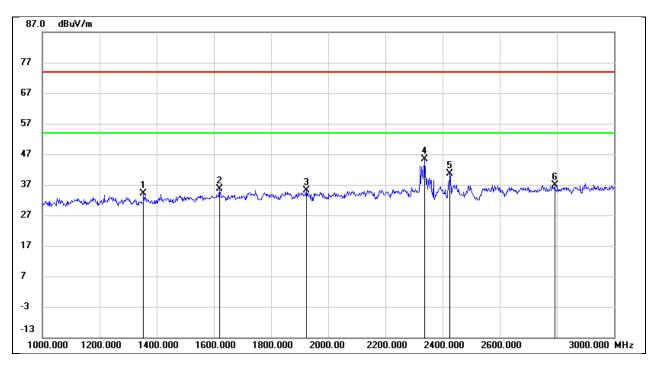
Test Mode:	2.4GHZ	Frequency(MHz):	2424
Polarity:	Vertical	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1498.000	46.23	-11.76	34.47	74.00	-39.53	peak
2	1776.000	45.66	-10.35	35.31	74.00	-38.69	peak
3	2336.000	56.40	-7.87	48.53	74.00	-25.47	peak
4	2424.000	46.94	-7.42	39.52	/	/	Fundamental
5	2556.000	49.40	-7.60	41.80	74.00	-32.20	peak
6	2574.000	47.86	-7.64	40.22	74.00	-33.78	peak



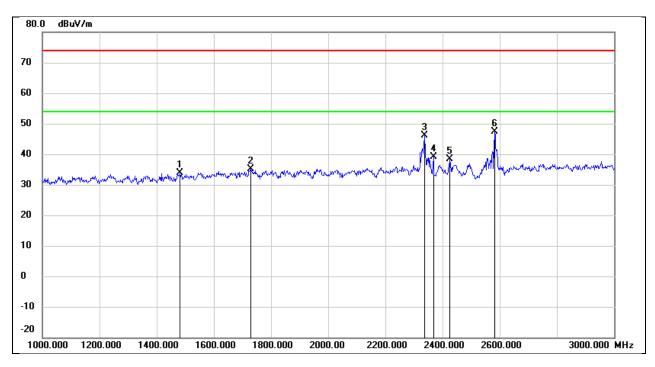
Test Mode:	2.4GHZ	Frequency(MHz):	2426
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1354.000	46.49	-12.47	34.02	74.00	-39.98	peak
2	1620.000	46.62	-11.07	35.55	74.00	-38.45	peak
3	1924.000	45.40	-10.16	35.24	74.00	-38.76	peak
4	2336.000	53.30	-7.87	45.43	74.00	-28.57	peak
5	2426.000	47.97	-7.42	40.55	/	/	Fundamental
6	2792.000	43.61	-6.84	36.77	74.00	-37.23	peak



Test Mode:	2.4GHZ	Frequency(MHz):	2426
Polarity:	Vertical	Test Voltage:	DC 7.4 V

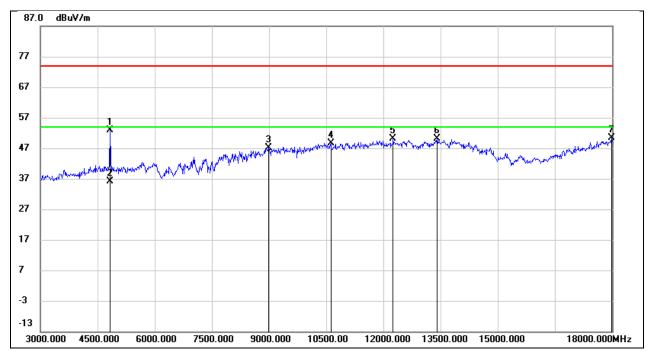


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	1482.000	45.77	-11.86	33.91	74.00	-40.09	peak
2	1728.000	45.75	-10.57	35.18	74.00	-38.82	peak
3	2338.000	54.03	-7.85	46.18	74.00	-27.82	peak
4	2368.000	46.64	-7.63	39.01	74.00	-34.99	peak
5	2426.000	45.77	-7.42	38.35	/	/	Fundamental
6	2582.000	55.05	-7.64	47.41	74.00	-26.59	peak



## 8.3. SPURIOUS EMISSIONS (3 GHZ ~ 18 GHZ)

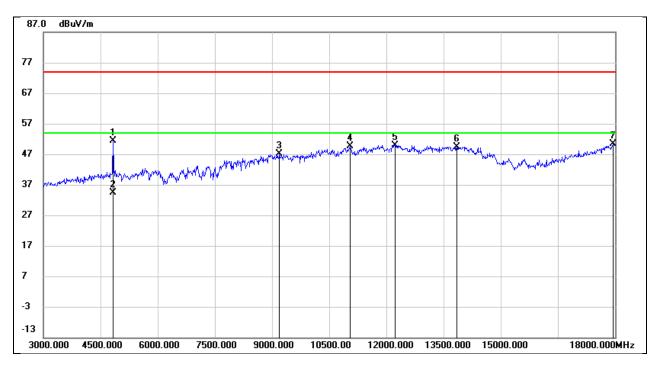
Test Mode:	2.4GHZ	Frequency(MHz):	2422
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4830.000	52.40	0.51	52.91	74.00	-21.09	peak
2	4830.000	/	/	36.55	54.00	-17.45	AVG
3	8985.000	36.16	10.97	47.13	74.00	-26.87	peak
4	10620.000	34.76	13.95	48.71	74.00	-25.29	peak
5	12255.000	31.61	18.50	50.11	74.00	-23.89	peak
6	13410.000	28.54	21.48	50.02	74.00	-23.98	peak
7	17985.000	23.55	26.77	50.32	74.00	-23.68	peak



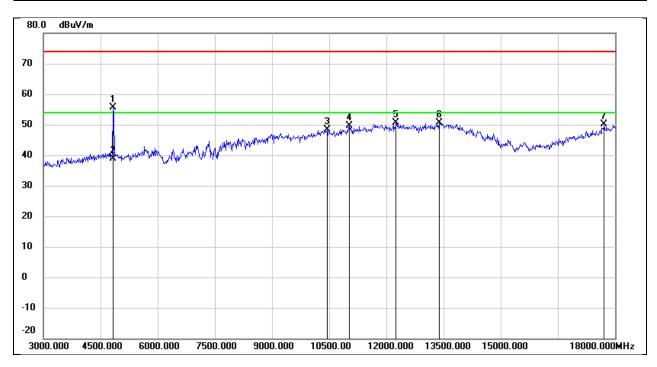
Test Mode:	2.4GHZ	Frequency(MHz):	2422
Polarity:	Vertical	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4830.000	50.75	0.51	51.26	74.00	-22.74	peak
2	4830.000	/	/	34.9	54.00	-19.10	AVG
3	9195.000	37.07	10.03	47.10	74.00	-26.90	peak
4	11040.000	34.74	15.01	49.75	74.00	-24.25	peak
5	12225.000	31.59	18.40	49.99	74.00	-24.01	peak
6	13845.000	26.78	22.67	49.45	74.00	-24.55	peak
7	17955.000	23.64	26.66	50.30	74.00	-23.70	peak



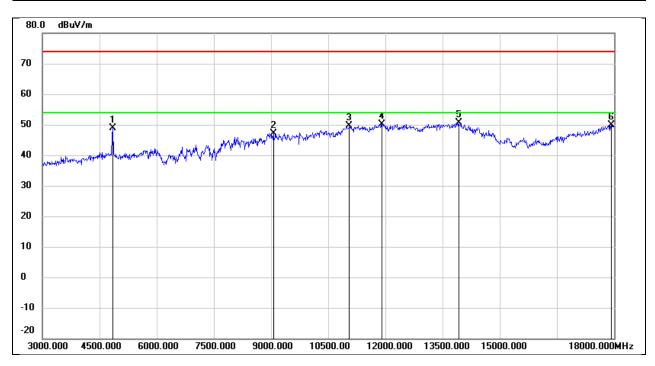
Test Mode:	2.4GHZ	Frequency(MHz):	2424
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4830.000	55.22	0.51	55.73	74.00	-18.27	peak
2	4830.000	/	/	39.37	54.00	-14.63	AVG
3	10455.000	34.89	13.59	48.48	74.00	-25.52	peak
4	11025.000	34.66	14.97	49.63	74.00	-24.37	peak
5	12255.000	32.08	18.50	50.58	74.00	-23.42	peak
6	13380.000	29.18	21.33	50.51	74.00	-23.49	peak
7	17715.000	24.74	25.31	50.05	74.00	-23.95	peak



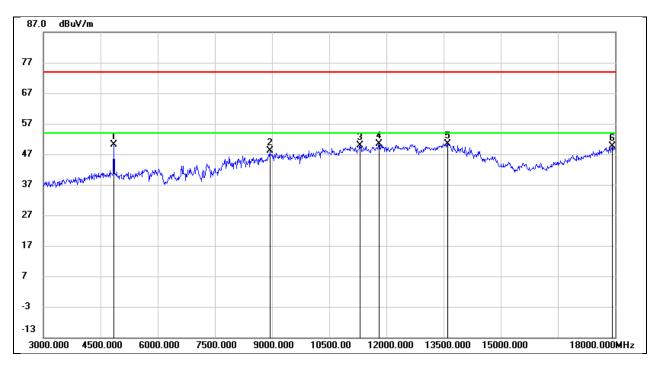
Test Mode:	2.4GHZ	Frequency(MHz):	2424
Polarity:	Vertical	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4845.000	48.43	0.54	48.97	74.00	-25.03	peak
2	9060.000	36.36	10.82	47.18	74.00	-26.82	peak
3	11055.000	34.51	15.04	49.55	74.00	-24.45	peak
4	11910.000	31.96	18.11	50.07	74.00	-23.93	peak
5	13920.000	27.99	22.71	50.70	74.00	-23.30	peak
6	17925.000	23.29	26.55	49.84	74.00	-24.16	peak



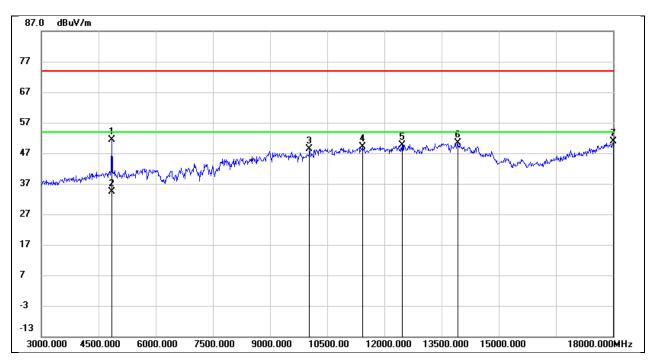
Test Mode:	2.4GHZ	Frequency(MHz):	2426
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4845.000	49.62	0.54	50.16	74.00	-23.84	peak
2	8940.000	37.84	10.35	48.19	74.00	-25.81	peak
3	11310.000	33.89	16.02	49.91	74.00	-24.09	peak
4	11805.000	32.65	17.65	50.30	74.00	-23.70	peak
5	13605.000	28.82	21.68	50.50	74.00	-23.50	peak
6	17925.000	22.98	26.55	49.53	74.00	-24.47	peak



Test Mode:	2.4GHZ	Frequency(MHz):	2426
Polarity:	Vertical	Test Voltage:	DC 7.4 V

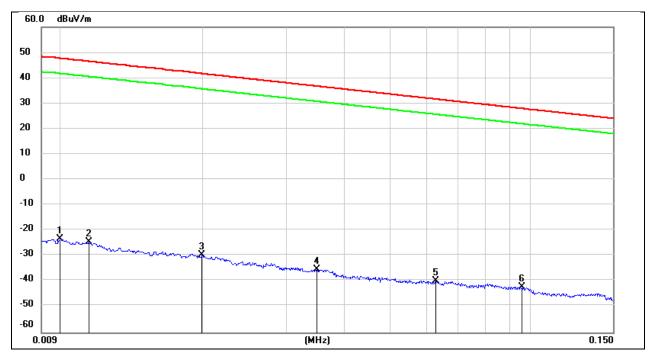


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4845.000	50.73	0.54	51.27	74.00	-22.73	peak
2	4845.000	/	/	34.91	54.00	-19.09	AVG
3	10035.000	35.85	12.48	48.33	74.00	-25.67	peak
4	11430.000	32.39	16.64	49.03	74.00	-24.97	peak
5	12465.000	31.03	18.69	49.72	74.00	-24.28	peak
6	13920.000	27.72	22.71	50.43	74.00	-23.57	peak
7	18000.000	23.94	26.83	50.77	74.00	-23.23	peak



## 8.4. SPURIOUS EMISSIONS (9 KHZ ~ 30 MHZ)

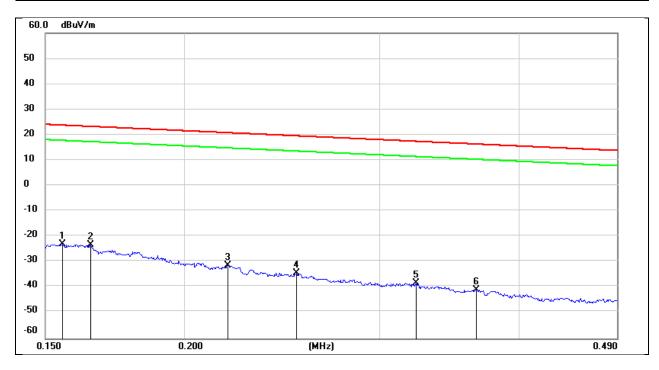
Test Mode:	2.4GHz	Frequency(MHz):	2426
Polarity:	Loop Antenna Face On To The EUT	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Result	Limit	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuA/m)	(dBuV/m)	(dBuA/m)	(dB)	
1	0.01	78.22	-101.4	-23.18	-74.68	47.6	-3.9	-70.78	peak
2	0.0114	76.88	-101.4	-24.52	-76.02	46.46	-5.04	-70.98	peak
3	0.0198	71.78	-101.34	-29.56	-81.06	41.67	-9.83	-71.23	peak
4	0.0349	66.03	-101.41	-35.38	-86.88	36.75	-14.75	-72.13	peak
5	0.0627	61.65	-101.53	-39.88	-91.38	31.66	-19.84	-71.54	peak
6	0.0956	59.63	-101.76	-42.13	-93.63	27.99	-23.51	-70.12	peak



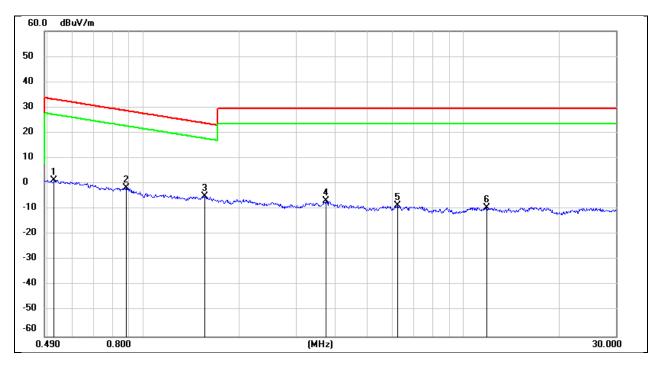
Test Mode:	2.4GHz	Frequency(MHz):	2426
Polarity:	Loop Antenna Face On To The EUT	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Result	Limit	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuA/m)	(dBuV/m)	(dBuA/m)	(dB)	
1	0.1554	78.77	-101.65	-22.88	-74.38	23.77	-27.73	-46.65	peak
2	0.1647	78.26	-101.66	-23.4	-74.90	23.27	-28.23	-46.67	peak
3	0.219	70.27	-101.75	-31.48	-82.98	20.79	-30.71	-52.27	peak
4	0.2522	67.39	-101.8	-34.41	-85.91	19.57	-31.93	-53.98	peak
5	0.3234	63.48	-101.88	-38.4	-89.90	17.41	-34.09	-55.81	peak
6	0.3662	61.08	-101.93	-40.85	-92.35	16.33	-35.17	-57.18	peak



Test Mode:	2.4GHz	Frequency(MHz):	2426
Polarity:	Loop Antenna Face On To The EUT	Test Voltage:	DC 7.4 V

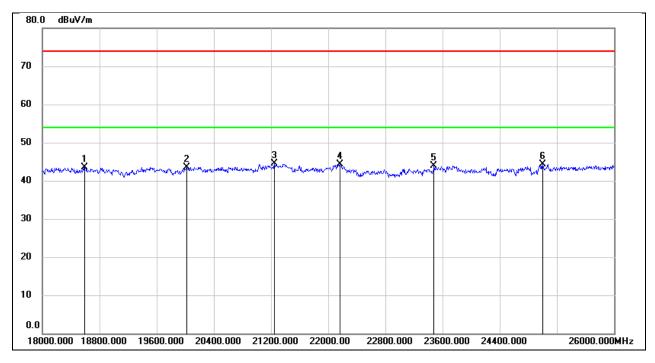


No.	Frequency	Reading	Correct	Result	Result	Limit	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuA/m)	(dBuV/m)	(dBuA/m)	(dB)	
1	0.5252	63.56	-62.07	1.49	-50.01	33.2	-18.3	-31.71	peak
2	0.882	60.69	-62.19	-1.5	-53.00	28.69	-22.81	-30.19	peak
3	1.5564	57.18	-62.02	-4.84	-56.34	23.76	-27.74	-28.60	peak
4	3.71	54.7	-61.41	-6.71	-58.21	29.54	-21.96	-36.25	peak
5	6.2445	52.63	-61.32	-8.69	-60.19	29.54	-21.96	-38.23	peak
6	11.8513	51.56	-60.88	-9.32	-60.82	29.54	-21.96	-38.86	peak



## 8.5. SPURIOUS EMISSIONS (18 GHZ ~ 26 GHZ)

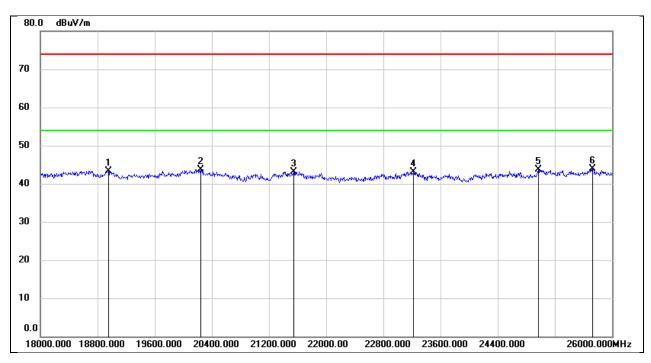
Test Mode:	2.4GHz	Frequency(MHz):	2426
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	18592.000	48.75	-5.31	43.44	74.00	-30.56	peak
2	20016.000	49.06	-5.47	43.59	74.00	-30.41	peak
3	21248.000	49.29	-4.77	44.52	74.00	-29.48	peak
4	22160.000	48.58	-4.31	44.27	74.00	-29.73	peak
5	23480.000	47.04	-3.16	43.88	74.00	-30.12	peak
6	25000.000	46.36	-2.10	44.26	74.00	-29.74	peak



Test Mode:	2.4GHz	Frequency(MHz):	2426
Polarity:	Vertical	Test Voltage:	DC 7.4 V

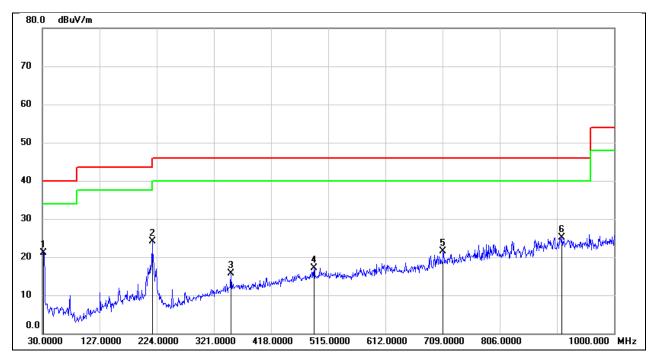


No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	18952.000	48.64	-5.26	43.38	74.00	-30.62	peak
2	20240.000	49.32	-5.61	43.71	74.00	-30.29	peak
3	21544.000	47.76	-4.63	43.13	74.00	-30.87	peak
4	23224.000	46.43	-3.37	43.06	74.00	-30.94	peak
5	24968.000	45.76	-2.14	43.62	74.00	-30.38	peak
6	25728.000	44.61	-0.72	43.89	74.00	-30.11	peak



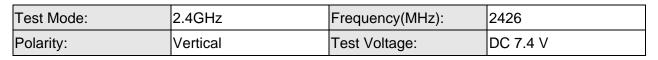
## 8.6. SPURIOUS EMISSIONS (30 MHZ ~ 1 GHZ)

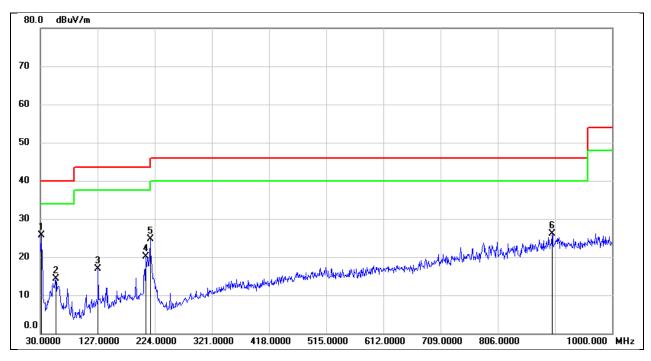
Test Mode:	2.4GHz	Frequency(MHz):	2426
Polarity:	Horizontal	Test Voltage:	DC 7.4 V



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	31.9400	34.78	-13.62	21.16	40.00	-18.84	QP
2	216.2400	36.92	-12.89	24.03	46.00	-21.97	QP
3	350.1000	25.36	-9.58	15.78	46.00	-30.22	QP
4	490.7500	24.95	-7.81	17.14	46.00	-28.86	QP
5	709.9699	25.83	-4.35	21.48	46.00	-24.52	QP
6	911.7300	26.59	-1.41	25.18	46.00	-20.82	QP







No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	31.9400	39.37	-13.62	25.75	40.00	-14.25	QP
2	56.1900	29.62	-15.38	14.24	40.00	-25.76	QP
3	127.9700	31.50	-14.66	16.84	43.50	-26.66	QP
4	208.4800	32.66	-12.48	20.18	43.50	-23.32	QP
5	216.2400	37.62	-12.89	24.73	46.00	-21.27	QP
6	898.1500	27.51	-1.39	26.12	46.00	-19.88	QP



# 9. AC POWER LINE CONDUCTED EMISSION

### <u>LIMITS</u>

Please refer to CFR 47 FCC §15.207 (a) and ISED RSS-Gen Clause 8.8

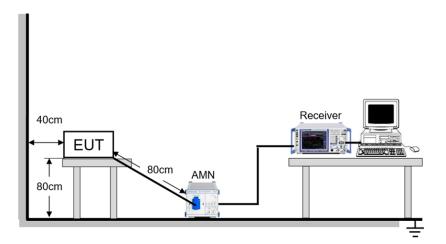
FREQUENCY (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

#### TEST PROCEDURE

The EUT is put on a table of non-conducting material that is 80 cm high. The vertical conducting wall of shielding is located 40 cm to the rear of the EUT. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.). A EMI Measurement Receiver (R&S Test Receiver ESR3) is used to test the emissions from both sides of AC line. According to the requirements in Section 6.2 of ANSI C63.10-2013.Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode. The bandwidth of EMI test receiver is set at 9 kHz.

The arrangement of the equipment is installed to meet the standards and operating in a manner, which tends to maximize its emission characteristics in a normal application.

#### TEST SETUP



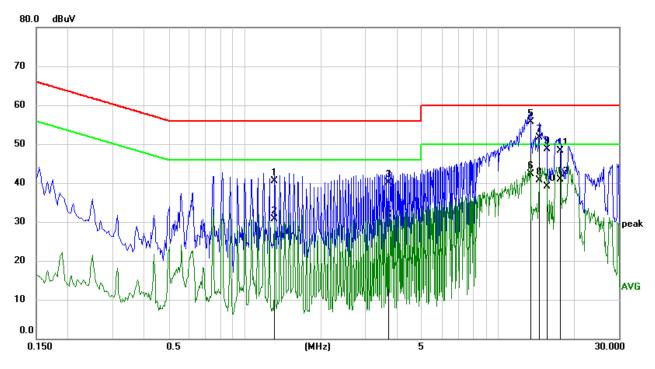
#### **TEST ENVIRONMENT**

Temperature	<b>22.5</b> ℃	Relative Humidity	54%
Atmosphere Pressure	101 kPa	Test Voltage	AC 120 V, 60 Hz



### TEST RESULTS

Test Mode:	2.4GHz	Frequency(MHz):	2426
Line	L		



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	1.3145	30.57	9.89	40.46	56.00	-15.54	QP
2	1.3145	20.80	9.89	30.69	46.00	-15.31	AVG
3	3.6934	29.82	10.28	40.10	56.00	-15.90	QP
4	3.6934	21.61	10.28	31.89	46.00	-14.11	AVG
5	13.4589	45.22	10.58	55.80	60.00	-4.20	QP
6	13.4589	31.77	10.58	42.35	50.00	-7.65	AVG
7	14.5841	41.04	10.62	51.66	60.00	-8.34	QP
8	14.5841	30.17	10.62	40.79	50.00	-9.21	AVG
9	15.5867	38.01	10.68	48.69	60.00	-11.31	QP
10	15.5867	28.49	10.68	39.17	50.00	-10.83	AVG
11	17.5914	37.42	10.80	48.22	60.00	-11.78	QP
12	17.5914	30.02	10.80	40.82	50.00	-9.18	AVG

Note:

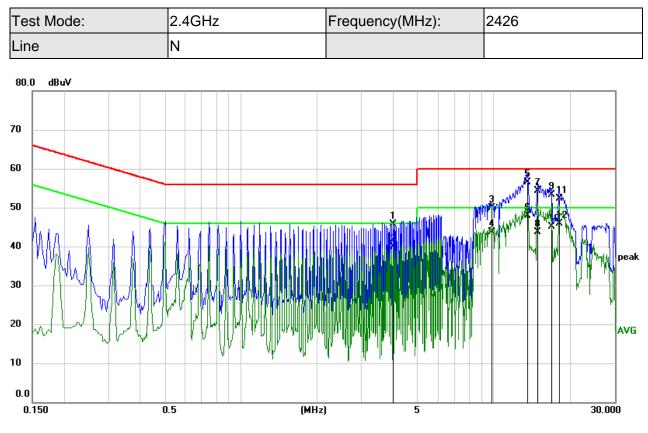
1. Result = Reading + Correct Factor.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).

4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.





No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dB)	
1	4.0062	35.46	10.33	45.79	56.00	-10.21	QP
2	4.0062	29.60	10.33	39.93	46.00	-6.07	AVG
3	9.8278	39.38	10.43	49.81	60.00	-10.19	QP
4	9.8278	33.18	10.43	43.61	50.00	-6.39	AVG
5	13.5870	45.85	10.58	56.43	60.00	-3.57	QP
6	13.5870	37.42	10.58	48.00	50.00	-2.00	AVG
7	14.9015	43.64	10.64	54.28	60.00	-5.72	QP
8	14.9015	33.16	10.64	43.80	50.00	-6.20	AVG
9	16.8380	42.61	10.75	53.36	60.00	-6.64	QP
10	16.8380	34.27	10.75	45.02	50.00	-4.98	AVG
11	18.1514	41.40	10.83	52.23	60.00	-7.77	QP
12	18.1514	35.14	10.83	45.97	50.00	-4.03	AVG

Note:

1. Result = Reading + Correct Factor.

2. If QP Result complies with AV limit, AV Result is deemed to comply with AV limit.

3. Test setup: RBW: 200 Hz (9 kHz ~ 150 kHz), 9 kHz (150 kHz ~ 30 MHz).

4. Step size: 80 Hz (0.009 MHz ~ 0.15 MHz), 4 kHz (0.15 MHz ~ 30 MHz), Scan time: auto.

Note: All the modes have been tested, only the worst data was recorded in the report.



# **10. ANTENNA REQUIREMENT**

### REQUIREMENT

#### Please refer to FCC part 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

#### DESCRIPTION

Pass

# **END OF REPORT**