

FCC Test Report

Report No.: AGC07434240318FR01

FCC ID	:	2ARXB-B31A
APPLICATION PURPOSE	:	Original Equipment
PRODUCT DESIGNATION	:	Label Printer
BRAND NAME	:	NIIMBOT
MODEL NAME	:	NIIMBOT B31
APPLICANT	:	Wuhan Jingchen Intelligent Identification Technology Co., Ltd.
DATE OF ISSUE	:	May 10, 2024
STANDARD(S)	:	FCC Part 15 Subpart C §15.247
REPORT VERSION	:	V1.0







Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	May 10, 2024	Valid	Initial Release



Table of Contents

1. General Information	5
2. Product Information	6
2.1 Product Technical Description	
2.2 Test Frequency List	
2.3 Related Submittal(S) / Grant (S)	7
2.4 Test Methodology	7
2.5 Special Accessories	7
2.6 Equipment Modifications	7
2.7 Antenna Requirement	7
3. Test Environment	
3.1 Address of the Test Laboratory	
3.2 Test Facility	
3.3 Environmental Conditions	9
3.4 Measurement Uncertainty	9
3.5 List of Equipment Use	
4.System Test Configuration	
4.1 EUT Configuration	
4.2 EUT Exercise	
4.3 Configuration of Tested System	
4.4 Equipment Used In Tested System	
4.5 Summary of Test Results	
5. Description of Test Modes	
6. Duty Cycle Measurement	
7. RF Output Power Measurement	
7.1 Provisions Applicable	
7.2 Measurement Procedure	
7.3 Measurement Setup (Block Diagram of Configuration)	
7.4 Measurement Result	
8. 6dB Bandwidth Measurement	
8.1 Provisions Applicable	
8.2 Measurement Procedure	
8.3 Measurement Setup (Block Diagram of Configuration)	
8.4 Measurement Results	21
9. Power Spectral Density Measurement	
9.1 Provisions Applicable	
9.2 Measurement Procedure	
9.3 Measurement Setup (Block Diagram of Configuration)	
9.4 Measurement Results	
10. Conducted Band Edge And Out-of-Band Emissions	



10.1 Dravisions Applicable	20
10.1 Provisions Applicable	
10.2 Measurement Procedure	
10.3 Measurement Setup (Block Diagram of Configuration)	
10.4 Measurement Results	
11. Radiated Spurious Emission	
11.1 Measurement Limit	
11.2 Measurement Procedure	
11.3 Measurement Setup (Block Diagram of Configuration)	
11.4 Measurement Result	
12. AC Power Line Conducted Emission Test	
12.1 Measurement Limit	
12.2 Measurement Setup (Block Diagram of Configuration)	
12.3 Preliminary Procedure of Line Conducted Emission Test	
12.4 Final Procedure of Line Conducted Emission Test	
12.5 Measurement Results	
Appendix I: Photographs of Test Setup	
Appendix II: Photographs of Test EUT	



1. General Information

Applicant	Wuhan Jingchen Intelligent Identification Technology Co., Ltd.
Address	No. 5, Creative Workshop, Creative World, Yezhihu West Road, Hongshan District, Wuhan, China
Manufacturer	Wuhan Jingchen Intelligent Identification Technology Co., Ltd.
Address	No. 5, Creative Workshop, Creative World, Yezhihu West Road, Hongshan District, Wuhan, China
Factory	Dongxihu branch of Wuhan Jingchen Intelligent Identification Technology Co., Ltd.
Address	No. 20, Xincheng Shiba Road, Changqing Street, Dongxihu District, Wuhan, Hubei Province, China
Product Designation	Label Printer
Brand Name	NIIMBOT
Test Model	NIIMBOT B31
Series Model	N/A
Declaration of Difference	N/A
Date of receipt of test item	Mar. 29, 2024
Date of Test	Mar. 29, 2024 to May 09, 2024
Deviation from Standard	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Test Report Form No	AGCER-FCC-BLE-V1

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

to li Prepared By Cici Li May 10, 2024 (Project Engineer) vin Lin **Reviewed By** Calvin Liu May 10, 2024 (Reviewer) Approved By Max Zhang May 10, 2024 Authorized Officer



2. Product Information

2.1 Product Technical Description

Frequency Band	2400MHz-2483.5MHz
	24001/112-2403.31/112
Operation Frequency Range	2402MHz-2480MHz
Bluetooth Version	V5.2
Modulation Type	BLE GFSK 1Mbps GFSK 2Mbps
Number of channels	40
Carrier Frequency of Each Channel	40 Channels (37 Data channels + 3 advertising channels)
Channel Separation	2 MHz
Maximum Transmitter Power	-1.209dBm
Hardware Version	V2.01
Software Version	V2.02
Antenna Designation	PCB Antenna
Antenna Gain	-1.028dBi
Power Supply	DC 7.4V by battery or DC 5V by adapter

2.2 Test Frequency List

Frequency Band	Channel Number	Frequency		
	0	2402 MHz		
	1	2404 MHz		
2400~2483.5MHz	:	:		
	19	2440MHz		
	:	:		
	38	2478 MHz		
	39	2480 MHz		
Note: f = 2402 + 2*k MHz, k = 0,, 39 f is the operating frequency (MHz); k is the operating channel.				



2.3 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for FCC ID: 2ARXB-B31A, filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

2.4 Test Methodology

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices
4	KDB 558074 D01 15.247 Meas Guidance v05r02	Guidance for compliance measurements on Digital Transmission Systems, Frequency Hopping Spread Spectrum system, and Hybrid system devices operating under Section 15.247 of the FCC rules

2.5 Special Accessories

Not available for this EUT intended for grant.

2.6 Equipment Modifications

Not available for this EUT intended for grant.

2.7 Antenna Requirement

Standard Requirement

15.203 requirement:

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, 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.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi

EUT Antenna:

The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna is -1.028dBi.



3. Test Environment

3.1 Address of the Test Laboratory

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L5488

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to follow CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories).

A2LA-Lab Cert. No.: 5054.02

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to follow ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

FCC-Registration No.: 975832

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

IC-Registration No.: 24842 (CAB identifier: CN0063)

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.



3.3 Environmental Conditions

	Normal Conditions
Temperature range (°C)	15 - 35
Relative humidity range	20 % - 75 %
Pressure range (kPa)	86 - 106
Power supply	DC 7.4V by battery or DC 5V by adapter

3.4 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%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 2.9 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 3.9 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.9 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of spurious emissions, conducted	U _c = ±2 %
Uncertainty of Occupied Channel Bandwidth	U _c = ±2 %



3.5 List of Equipment Use

• R	RF Conducted Test System							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)	
\boxtimes	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2023-06-01	2024-05-31	
\boxtimes	AGC-ER-E062	Power Sensor	Agilent	U2021XA	MY54110007	2024-02-01	2025-01-31	
\boxtimes	AGC-ER-E063	Power Sensor	Agilent	U2021XA	MY54110009	2024-02-01	2025-01-31	
\boxtimes	AGC-EM-A152	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08	
\boxtimes	AGC-ER-E083	Signal Generator	Agilent	E4421B	US39340815	2023-06-01	2024-05-31	
	N/A	RF Connection Cable	N/A	1#	N/A	Each time	N/A	
\boxtimes	N/A	RF Connection Cable	N/A	2#	N/A	Each time	N/A	

• F	Radiated Spurious Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)	
	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2024-02-01	2025-01-31	
\boxtimes	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2023-06-03	2024-06-02	
\boxtimes	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2023-06-01	2024-05-31	
\boxtimes	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04	
\boxtimes	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-05-11	2025-05-10	
	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2024-03-31	2025-03-30	
\square	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-09-24	2025-09-23	
\square	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2022-08-04	2024-08-03	
\square	AGC-EM-A119	2.4G Filter	SongYi	N/A	N/A	2023-06-01	2024-05-31	
\square	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08	
	AGC-EM-A139	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2024-06-08	

AC Power Line Conducted Emission									
Used	Equipment No. Test Equipment Manufacturer Model No. Serial No.			Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)				
\boxtimes	AGC-EM-E045	EMI Test Receiver	R&S	ESPI	101206	2023-06-03	2024-06-02		
\boxtimes	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2023-06-09	2024-06-08		
\square	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2023-06-03	2024-06-02		



• Te	Test Software							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information			
	AGC-EM-S001	CE Test System	R&S	ES-K1	V1.71			
	AGC-EM-S003	RE Test System	FARA	EZ-EMC	VRA-03A			
	AGC-ER-S012	BT/WIFI Test System	Tonscend	JS1120-2	2.6			
	AGC-EM-S011	RSE Test System	Tonscend	TS+-Ver2.1(JS36-RSE)	4.0.0.0			



4.System Test Configuration

4.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

4.2 EUT Exercise

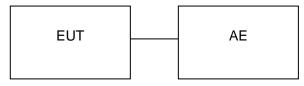
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

4.3 Configuration of Tested System

Radiated Emission Configure:



Conducted Emission Configure:



4.4 Equipment Used In Tested System

The following peripheral devices and interface cables were connected during the measurement:

☑ Test Accessories Come From The Laboratory

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
1	Adapter	HW-200440C00	HUAWEI		
2	Control Box	USB-TTL			

Test Accessories Come From The Manufacturer

No.	Equipment	Model No.	Manufacturer	Specification Information	Cable
1					



4.5 Summary of Test Results

Item	FCC Rules	Description of Test	Result
1	§15.203&15.247(b)(4)	Antenna Equipment	Pass
2	§15.247 (b)(3)	RF Output Power	Pass
3	§15.247 (a)(2)	6 dB Bandwidth	Pass
4	§15.247 (e)	Power Spectral Density	Pass
4	§15.247 (d)	Conducted Band Edge and Out-of-Band Emissions	Pass
5	§15.209	Radiated Emission& Band Edge	Pass
6	§15.207	AC Power Line Conducted Emission	Pass



5. Description of Test Modes

	Summary Table of Test Cases
	Data Rate / Modulation
Test Item	Bluetooth – LE(1Mbps) / GFSK
	Mode 1: Bluetooth Tx CH00_2402 MHz_1Mbps(Battery powered or AC/DC adapter)
Radiated & Conducted Test Cases	Mode 2: Bluetooth Tx CH19_2440 MHz_1Mbps(Battery powered or AC/DC adapter)
	Mode 3: Bluetooth Tx CH39_2480 MHz_1Mbps(Battery powered or AC/DC adapter)
AC Conducted Emission	Mode 1: Bluetooth Link + Battery + USB Cable (Charging from AC Adapter)

Note:

- Only the result of the worst case was recorded in the report, if no other cases. 1.
- The battery is full-charged during the test.
- 2. 3. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
- 4. For Conducted Test method, a temporary antenna connector is provided by the manufacture.
 - Software Setting Diagram

E:\桌面文件位置\B31 YC3122-I_FCC\Fcc_test_tool\ini\YC1308AF.ini Select INI	Bluetooth FCC test	
可以直接拖动ini文件和下载固件到程序	Frequency 2480MHZ	▼ SELECT
Select ROM Download	ModulationRate GFSK	SELECT
ROM Path: E:\桌面文件位置\B31	TX/RX TX	▼ SELECT
YC3122-I_FCC\Fcc_test_too\program\24MHz_crystal_oscillato	BT/BLE/BLE BLE	▼ SELECT
	Carrier/data Data	▼ SELECT
set [bt/ble] success!	Data Length dh5	▼ SELECT
set [data] success!	Freq hop/fix fix	▼ SELECT
set [data length] success!	Frequency Offset	SET
set [freq hop/fx] success!	Power	SELECT
set [select] success!		
set [select] success!	发包切换 other	▼ select
set [freq] success!	频篇调试 0×00	• select
set [tx/rx] success!		
set [bt/ble] success!		
set [data] success!		
set [data length] success!		
set [freq hop/fix] success!		
set [select] success!		
set [select] success!		



6. Duty Cycle Measurement

The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = Peak. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Operating mode	T(µs)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/ T Minimum VBW (kHz)
BLE_1Mbps	2808	78.00	1.08	0.36
BLE_2Mbps	N/A	N/A	N/A	N/A

Remark:

2. The duty cycle of each frequency band mode reflects the determination requirements of the low channel measurement value

Bluetooth – LE for 1Mbps	Bluetooth – LE for 2Mbps
Weyneld Spectrum Andyres - Sweet MA Stock MF Access Mark Frequency Center Freq 2.480000000 GHz Frequency Mark Type: Log-Purr Truck Weyneld Spectrum Conter Freq 2.480000000 GHz Frequency Mark Type: Log-Purr Truck Weyneld Spectrum Actio Tune Conter Freq 2.480000000 GHz Center Freq Center Freq Center Freq Center Freq Conter Freq 2.480000000 GHz Center Freq Center Freq Center Freq Center Freq Conter Freq 2.480000000 GHz Center Freq Center Freq Center Freq Center Freq Center 2.480000000 GHz FVBW 50 MHz Sweep 12.00 ms (1001 pts) Storp Freq Center Greq Center Solution V Function Function Function Freq Offset Center Solution Sesson 107 dBm Function Function Freq Offset Center Solution Sesson 107 dBm Function Functi	N/A

The test plots as follows:

^{1.} Duty Cycle factor = 10 * log (1/ Duty cycle)



7. RF Output Power Measurement

7.1 Provisions Applicable

For DTSs employing digital modulation techniques operating in the bands 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W.

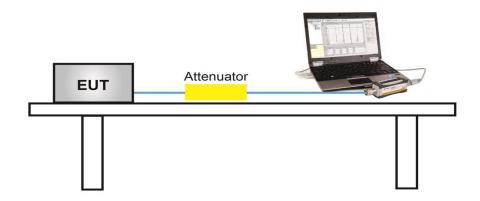
7.2 Measurement Procedure

For Peak Power, the testing follows ANSI C63.10 Section 11.9.1.1 Method Max peak power:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the RBW > DTS bandwidth
- 3. Set the VBW \geq [3 x RBW].
- 4. Span≥[3 x RBW].
- 5. Sweep= auto couple.
- 6. Detector Function= Peak.
- 7. Trace mode= Max hold.
- 8. Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.
- For Average power, the testing follows ANSI C63.10 Section 11.9.2.3.2 Method AVGPM-G:
- 1. The RF output of EUT was connected to the power meter by RF cable and attenuator.
- 2. The path loss was compensated to the results for each measurement.
- 3. Set to the maximum power setting and enable the EUT transmit continuously.
- 4. Measure the conducted output power and record the results in the test report.

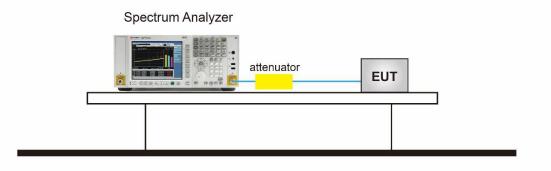
7.3 Measurement Setup (Block Diagram of Configuration)

For Average power test setup





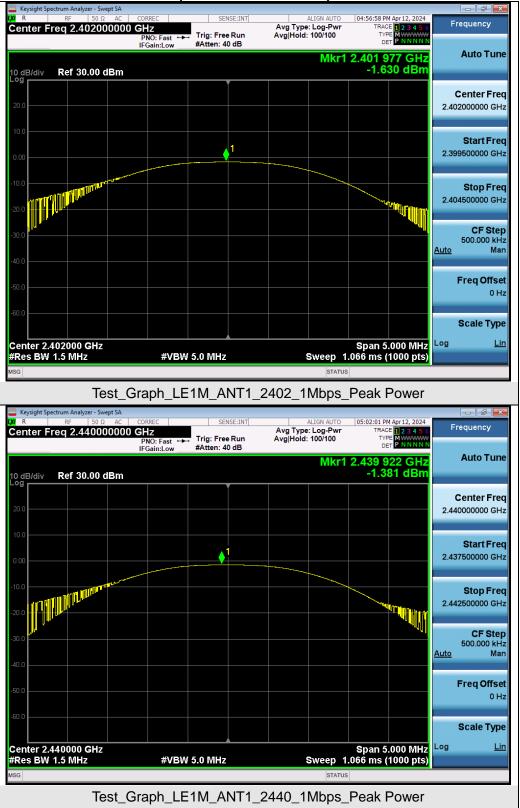
For peak power test setup



7.4 Measurement Result

Test Data of Conducted Output Power							
Test Mode Test Frequency (MHz)		Peak Power (dBm)	Limits (dBm)	Pass or Fail			
	2402	-1.630	≤30	Pass			
GFSK_1Mbps	2440	-1.381	≪30	Pass			
	2480	-1.209	≪30	Pass			





Test Graphs of Conducted Output Power







8. 6dB Bandwidth Measurement

8.1 Provisions Applicable

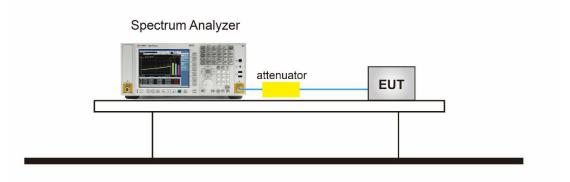
The minimum 6 dB bandwidth shall be 500 kHz.

8.2 Measurement Procedure

The testing follows the ANSI C63.10 Section 6.9.3 (OBW) and 11.8.1 (6dB BW).

- 1. 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.
- 2. Set to the maximum power setting and enable the EUT transmit continuously.
- Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
- For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the OBW and set the Video bandwidth (VBW) ≥ 3 * RBW.
- 5. Measure and record the results in the test report.

8.3 Measurement Setup (Block Diagram of Configuration)





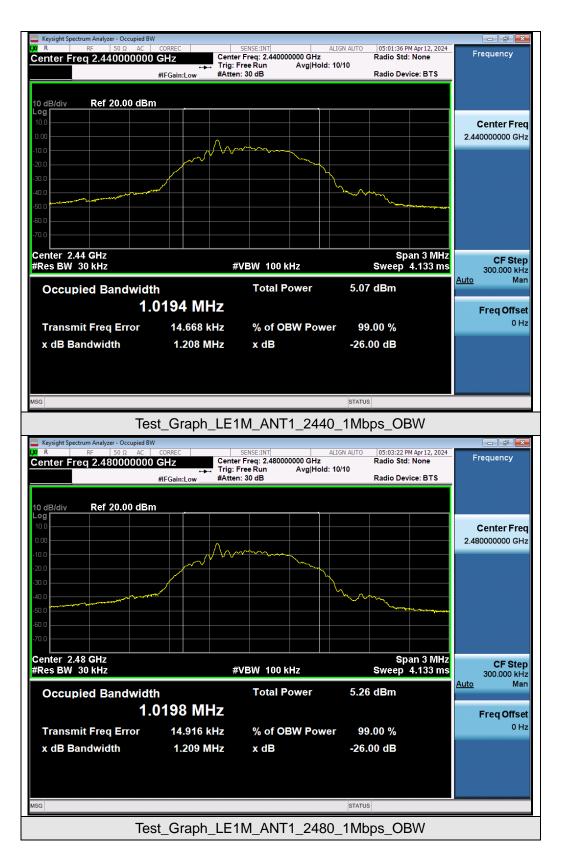
8.4 Measurement Results

Test Data of Occupied Bandwidth and DTS Bandwidth								
Test Mode Test Frequency (MHz)		Occupied Bandwidth (MHz)	DTS BW (MHz)					
GFSK_1Mbps	2402	1.020	0.667	≥0.5	Pass			
	2440	1.019	0.668	≥0.5	Pass			
	2480	1.020	0.666	≥0.5	Pass			

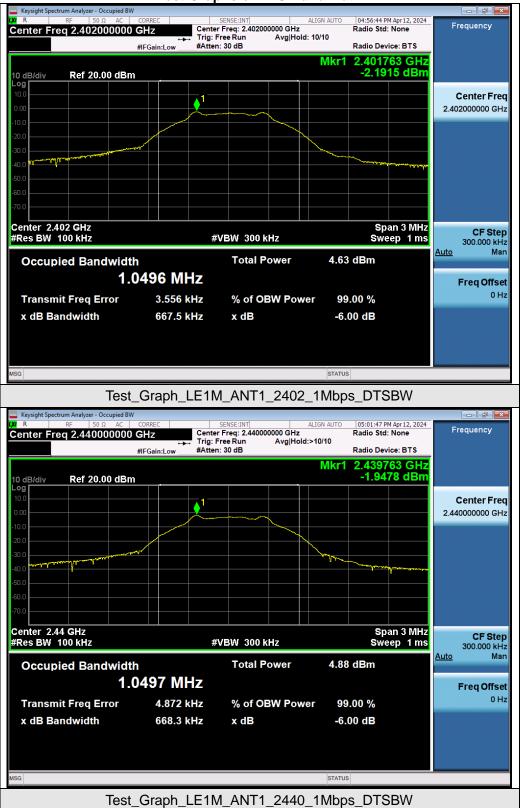


Test Graphs of Occupied Bandwidth









Test Graphs of DTS Bandwidth



Keysight Spectrum Analyzer - Occupied BV	V							
R RF 50 Ω AC Center Freg 2.480000000	CORREC GH7	SENSE:INT Center Freq: 2.48000		LIGN AUTO	05:03:33 PM Radio Std:		Freq	uency
ochter 110q 2.40000000		Trig: Free Run #Atten: 30 dB	Avg Hold:	10/10	Radio Devid			
	#IFGain:Low	#Atten: 30 dB		Miced				
10 dB/div Ref 20.00 dBn	n			WIKFT	2.47970	1 dBm		
Log 10.0		A1					Cei	nter Freq
0.00							2.48000	00000 GHz
-10.0								
-20.0	~							
-30.0				- And	~			
-40.0						and the second s		
-50.0								
-70.0								
-70.0								
Center 2.48 GHz #Res BW 100 kHz		#VBW 3001	(H7			n 3 MHz ep 1 ms		CF Step
WICCS DVV TOO KITZ						sp i ma	30 Auto	0.000 kHz Man
Occupied Bandwidt	h	Total P	ower	5.09	dBm			
1.	0504 MH	Z					Ere	eq Offset
Transmit Freq Error	5.002 kł	Hz % of O	BW Powe	r qq	.00 %			0 Hz
x dB Bandwidth	666.0 kl				00 dB			
	000.0 KI			-0.	JUUB			
MSG				STATUS				
Test	Graph L	E1M_ANT1	2480	1Mbp	s DTS	BW		



9. Power Spectral Density Measurement

9.1 Provisions Applicable

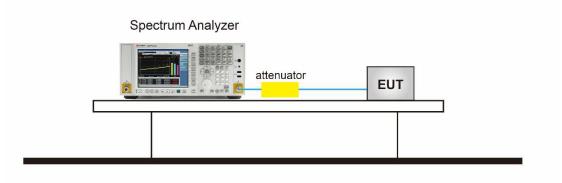
The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

9.2 Measurement Procedure

The testing follows the ANSI C63.10 Section 11.10.2 Method PKPSD.

- 1. 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.
- 2. Set to the maximum power setting and enable the EUT transmit continuously.
- Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 3 kHz. Video bandwidth VBW = 10 kHz in order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW)
- 4. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level.
- 5. Measure and record the results in the test report.
- The Measured power density (dBm)/ 100kHz is a reference level and used as 20dBc down limit line for Conducted Band Edges and Conducted Spurious Emission.

9.3 Measurement Setup (Block Diagram of Configuration)





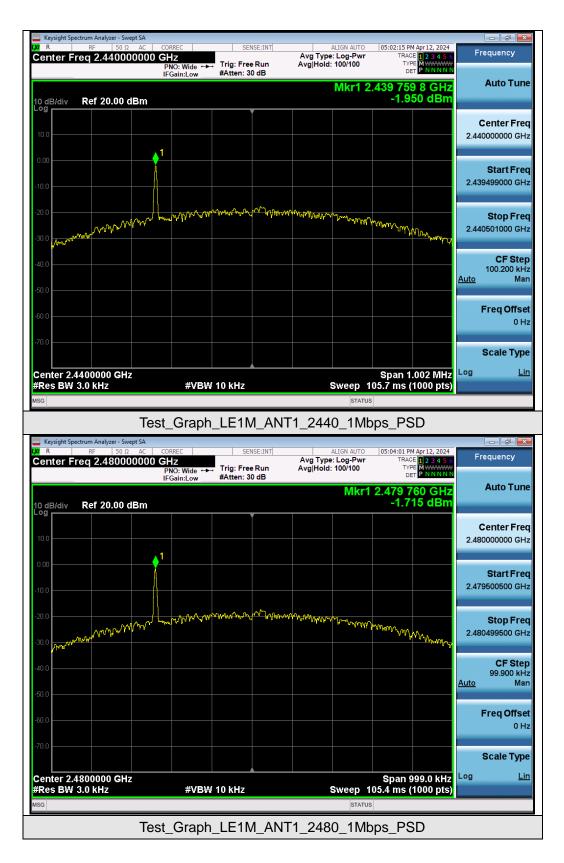
9.4 Measurement Results

Test Data of Conducted Output Power Spectral Density				
Test Mode	Test Frequency Power density (MHz) (dBm/3kHz)		Limit (dBm/3kHz)	Pass or Fail
	2402	-2.184	≪8	Pass
GFSK_1Mbps	2440	-1.950	≪8	Pass
	2480	-1.715	≤8	Pass

Test Graphs of Conducted Output Power Spectral Density

	ectrum Analyzer - Swept SA	1 1				
X/ R Center F	RF 50 Ω AC req 2.40200000		SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	04:57:12 PM Apr 12, 2024 TRACE 1 2 3 4 5 6	Frequency
		PNO: Wide ↔	, Trig: Free Run #Atten: 30 dB	Avg Hold: 100/100	DET P N N N N	
		IFGalli:Low	written: oo ub	Mkr1 2	401 760 1 GHz	Auto Tune
10 dB/div	Ref 20.00 dBm				-2.184 dBm	
			The second secon			0
10.0						Center Free
10.0						2.402000000 GH
0.00		<u>1</u>				
0.00		X				Start Fre
-10.0		<u> </u>				2.401499750 GH
-20.0	MAR WWWWW		www.www.www.	ananalanan manahala		Oton Ero
	a man Mm	r por al a second	i i i i i i i i i i i i i i i i i i i	MANNA - A Chanker and A	MANNA ma	Stop Free 2.402500250 GH
-30.0	Mar Mar -				" V" MULANNA A	2.402500250 GH
mo						
-40.0						CF Ste
						100.050 kH Auto Ma
-50.0						
						Ener Offer
-60.0						Freq Offse 0 H
						UH
-70.0						
						Scale Typ
Center 2	4020000 GHz				Span 1.001 MHz	Log <u>Li</u>
#Res BW		#VBV	√ 10 kHz	Sweep 1	05.5 ms (1000 pts)	
ISG STATUS						
	Test_Graph_LE1M_ANT1_2402_1Mbps_PSD					







10. Conducted Band Edge and Out-of-Band Emissions

10.1 Provisions Applicable

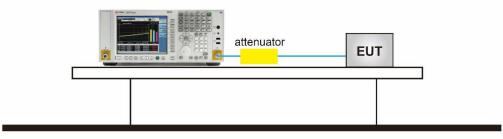
The limit for out-of-band spurious emissions at the band edge is 20dB below the fundamental emission level, as determined from the in-band power measurement of the DTS channel performed in a 100kHz bandwidth per the PSD procedure.

10.2 Measurement Procedure

- Reference level measurement
- 1. Set instrument center frequency to DTS channel center frequency
- 2. Set the span to \geq 1.5 times the DTS bandwidth
- 3. Set the RBW = 100 kHz
- 4. Set the VBW \geq 3 x RBW
- 5. Detector = peak
- 6. Sweep time = auto couple
- 7. Trace mode = max hold
- 8. Allow trace to fully stabilize
- Emission level measurement
- 1. Set the center frequency and span to encompass frequency range to be measured
- 2. RBW = 100kHz
- 3. VBW = 300kHz
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep time = auto couple
- 7. The trace was allowed to stabilize

10.3 Measurement Setup (Block Diagram of Configuration)

Spectrum Analyzer





10.4 Measurement Results

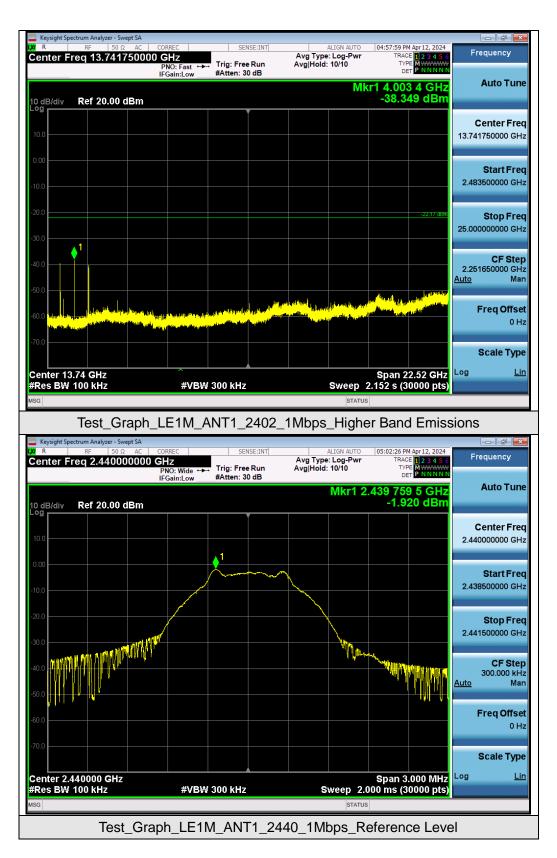


Test Graphs of Spurious Emissions in Non-Restricted Frequency Bands

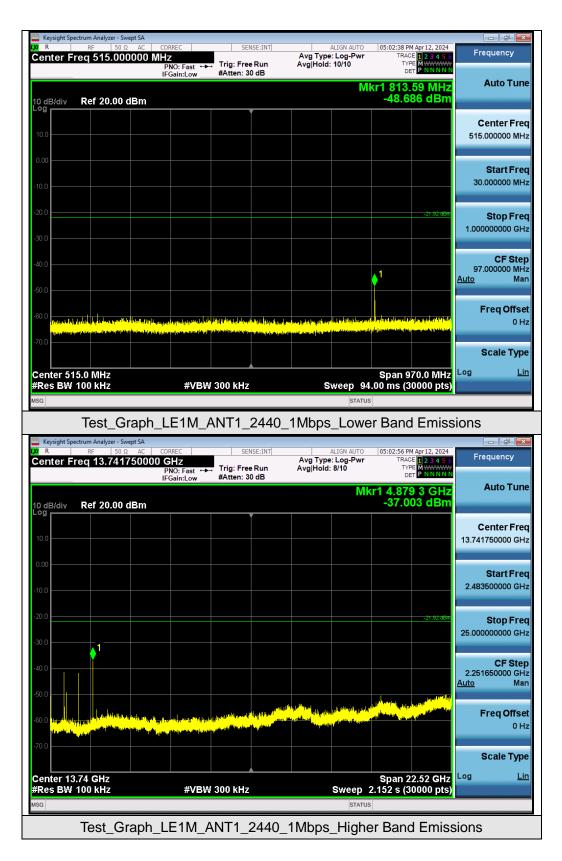
Any report having not

esting/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

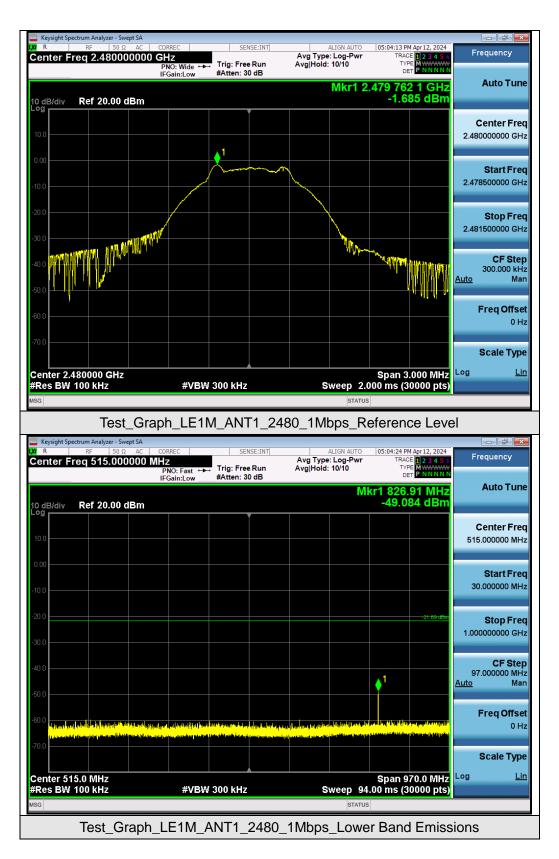




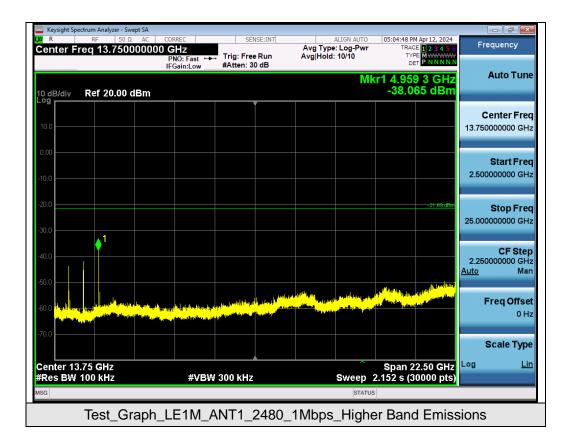




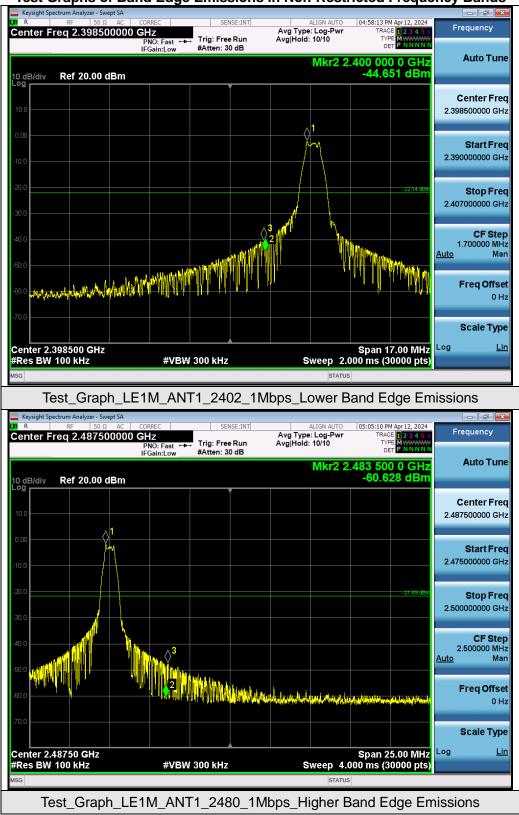












Test Graphs of Band Edge Emissions in Non-Restricted Frequency Bands



11. Radiated Spurious Emission

11.1 Measurement Limit

FCC Part 15.209 Limit in the below table to be followed

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

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.

11.2 Measurement Procedure

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
- 2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
- 3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
- 4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
- 5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
- 6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. 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.
- 7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds.



As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.

- 8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
- 9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High Low scan is not required in this case.

Spectrum Parameter	Setting
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
Start ~Stop Frequency	1GHz~26.5GHz
	1MHz/3MHz for Peak, 1MHz/3MHz for Average

The following table is the setting of spectrum analyzer and receiver.

Receiver Parameter	Setting
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



• Quasi-Peak Measurements below 1GHz

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. Span was set greater than 1MHz
- 3. RBW = as shown in the table above
- 4. Detector = CISPR quasi-peak
- 5. Sweep time = auto couple
- 6. Trace was allowed to stabilize

Peak Measurements above 1GHz

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW = 3MHz
- 4. Detector = peak
- 5. Sweep time = auto couple
- 6. Trace mode = max hold
- 7. Trace was allowed to stabilize

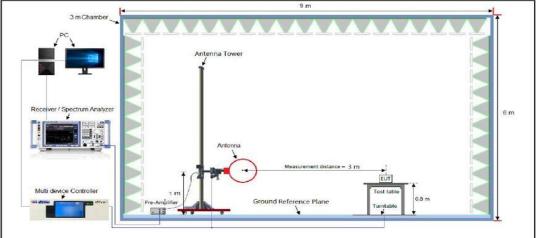
<u>Average Measurements above 1GHz (Method VB)</u>

- 1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
- 2. RBW = 1MHz
- 3. VBW setting requirements are as follows:
- 4. If the EUT is configured to transmit with duty cycle \ge 98%, set VBW = 10 Hz.
- 5. If the EUT duty cycle is < 98%, set VBW \geq 1/T. T is the minimum transmission duration.
- 6. Detector = Peak
- 7. Sweep time = auto
- 8. Trace mode = max hold
- 8. Trace was allowed to stabilize

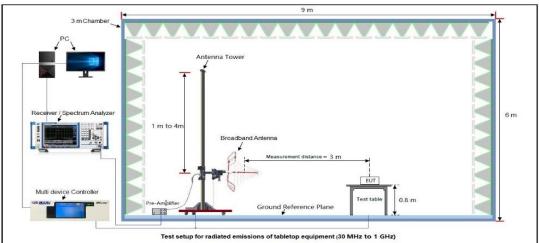


11.3 Measurement Setup (Block Diagram of Configuration)

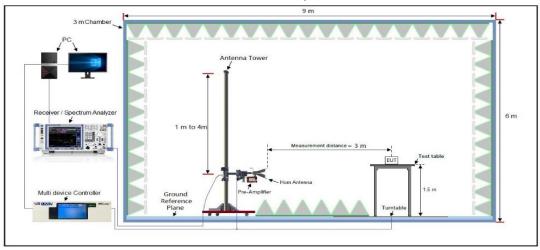




Radiated Emission Test Setup 30MHz-1000MHz



Radiated Emission Test Setup Above 1000MHz



Any report having not been signed by authorized approver, or having been altered without authorization, or having not been stamped by the "Dedicated Testing/Inspection Stamp" is deemed to be invalid. Copying or excerpting portion of, or altering the content of the report is not permitted without the written authorization of AGC. The test results presented in the report apply only to the tested sample. Any objections to report issued by AGC should be submitted to AGC within 15days after the issuance of the test report. Further enquiry of validity or verification of the test report should be addressed to AGC by agc01@agccert.com.

 Attestation of Global Compliance(Shenzhen)Co., Ltd

 Attestation of Global Compliance(Shenzhen)Std & Tech Co., Ltd

 Tel: +86-755 2523 4088
 E-mail: agc@agccert.com



11.4 Measurement Result

Radiated Emission Below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20 dB below the permissible value need not be reported.

			Ra	diate	ed Emissi	on lest Res	suits at sui	/IHZ-1GH	Z	
EUT Name	Label	Print	ter				Model	Name	1	NIIMBOT B31
Temperature	22.6℃	С					Relativ	/e Humid	lity t	59.8%
Pressure	960hl	Pa					Test Vo	oltage	I	DC 7.4V by batter
Test Mode	Mode	3					Anteni	na Polari	ty l	Horizontal
72.0	dBuV/m									
32								3 2410 0		mit: argin:
-8 30.00	w/~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	^{الس} ام سلم الم		70 80			Aummunnunnun 1000 - 10000 - 10000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1000 - 1	400	500 600	700 1000.000
-8	00 40	50	60 7	70 8	Reading	(MHz)	300 Measure-	400		
-8		50	60 7	70 8	Reading Level	(MHz) Correct Factor	300 Measure- ment	400 Limit	Over	
-8	00 40 No. M	50 K.	60 7 Freq MHz	70 80	Reading Level dBuV	(MHz) Correct Factor dB	300 Measure- ment dBuV/m	400 Limit dBuV/m	Over dB	Detector
-8	00 40 No. Mi	50 k.	60 7 Freq MHz 9.589	70 80]. 9	Reading Level dBuV 14.11	(MHz) Correct Factor dB 14.59	300 Measure- ment dBuV/m 28.70	400 Limit dBuV/m 43.50	Over dB -14.80	Detector) peak
-8	00 40 No. Mi 1 2	50 k. 89	60 7 Freq MHz 9.589	70 80]- 9 0	Reading Level dBuV 14.11 17.73	(мнг) Соггест Factor dB 14.59 13.55	300 Measure- ment dBuV/m 28.70 31.28	400 Limit dBuV/m 43.50 43.50	Over dB -14.80 -12.22	Detector) peak 2 peak
-8	00 40 No. Mi 1 2 3	50 k. 191 383	60 7 Freq MHz 9.589 1.745 3.931	70 81 1. 9 0 8	Reading Level dBuV 14.11 17.73 16.16	(мнг) Соггест Factor dB 14.59 13.55 18.63	300 Measure- ment dBuV/m 28.70 31.28 34.79	400 Limit dBuV/m 43.50 43.50 46.00	Over dB -14.80 -12.22 -11.21	Detector peak peak peak
-8	00 40 No. Mi 1 2 3 4	50 k. 191 383 661	60 7 Freq MHz 9.589 1.745 3.931 1.150	70 80 1. 9 0 8 3	Reading Level dBuV 14.11 17.73 16.16 11.91	(MHz) Correct Factor dB 14.59 13.55 18.63 23.57	300 Measure- ment dBuV/m 28.70 31.28 34.79 35.48	400 Limit dBuV/m 43.50 43.50 46.00 46.00	Over dB -14.80 -12.22 -11.21 -10.52	Detector peak peak peak peak
-8	00 40 No. Mi 1 2 3	50 k. 191 383 661 744	60 7 Freq MHz 9.589 1.745 3.931	70 80 1. 9 0 8 3 9	Reading Level dBuV 14.11 17.73 16.16	(мнг) Соггест Factor dB 14.59 13.55 18.63	300 Measure- ment dBuV/m 28.70 31.28 34.79	400 Limit dBuV/m 43.50 43.50 46.00	Over dB -14.80 -12.22 -11.21	Detector peak peak peak peak peak



			Rad	liated	Emiss	ion Test R	esults at	t 30N	IHz-1GH	z		
EUT Name	Lab	el Prin	ter				M	odel	Name		NIIN	/BOT B31
Temperature	22.6°C Relative Humidity				lity	59.8	3%					
Pressure	960	hPa					Те	Test Voltage			DC 7.4V by battery	
Test Mode	Мос	de 3					Ar	ntenr	na Polari	ty	Vert	ical
72.0	dBu¥/m											
											imit: 1argin:	
-8	h _{er} ennere	sh ^{hater} a Abi	m	~~~~	the second se	2 mar walked	Mungaria	* /h.urd	AND	umu	e mile	
			1. / / / / / / / / / / / / / / / / / / /		h h h h h h h h h h h h h h h h h h h	(MHz)		300	×		, nul i , 700	
-8		50	60 70 Freq.	Re	ading			300 Ure-			1 700	
-8	00 40	50		Re		Correct	Meas	300 Ure- nt	400	500 600 Over	r	
-8	00 40	50 Mk.	Freq.	Re	evel	Correct	Meas	300 ure- nt /m	400	500 600 Over) 700 r	1000.000
-8	00 40 No. I	50 Mk.	Freq. MHz	Re Lo o	evel iBuV	Correct Factor dB	Meas mei dBuV	300 ure- nt //m 22	400 Limit dBuV/m	500 600 Ove dB	r D	1000.000
-8	00 40 No. I	50 Mk. * 59	Freq. MHz 9.8588	Re Lo d 1 2 1	evel ^{iBuV} 6.12	Correct Factor dB 17.10	Meas mer dBuV 33.2	300 ure- nt /m 22 0	400 Limit 40.00	500 600 Over dB -6.78	r D	1000.000 Petector peak
-8	00 40 No. I 1 ³ 2	50 Mk. 9(19	Freq. MHz 9.8588 3.1132	Re Lo 3 10 2 1 0 1	evel iBu∨ 6.12 7.97	Correct Factor dB 17.10 15.13	Meas mei dBuV 33.2 33.1	300 ure- nt //m 22 0 70	400 Limit dBuV/m 40.00 43.50	500 600 Over dB -6.78 -10.4	r D	1000.000 Petector peak peak
-8	00 40 No. I 1 ' 2 3	50 Mk. 93 19 ⁴ 283	Freq. MHz 9.8588 3.1132 1.7450	Re L() 1() 1() 1() 1(evel iBu∨ 6.12 7.97 4.55	Correct Factor dB 17.10 15.13 18.15	Meas mer dBuV 33.2 33.1 32.7	300 ure- nt //m 22 0 70 66	400 Limit dBuV/m 40.00 43.50 43.50	500 600 Over dB -6.78 -10.4 -10.8	r 700 r 7000 r 700 r 7000 r	Detector peak peak peak

RESULT: Pass

Note: 1. Factor=Antenna Factor + Cable loss, Over=Measurement-Limit.



|

Εl	JT Name		Label Printe	ər		Mode	I Name	NIIMBO	Г В31		
Те	mperature		22.6 ℃			Relative Humidity		59.8%			
Pr	essure		960hPa			Test	Voltage	DC 7.4V	DC 7.4V by battery		
Те	st Mode		Mode 1			Anter	nna Polarity	Horizont	al		
ĺ	Frequency	Me	eter Reading	Factor	Emissio	n Level	Limits	Margin			
	(MHz)		(dBµV)	(dB)	(dBµ\	//m)	(dBµV/m)	(dB)	Value Type		
	4804.000		47.93	0.08	48.0)1	74	-25.99	peak		
	4804.000		38.44	0.08	38.5	52	54	-15.48	AVG		
	7206.000		42.72	2.21	44.9	93	74	-29.07	peak		
	7206.000		31.9	2.21	34.1	11	54	-19.89	AVG		
- F	Remark:										
ļ	Factor = Anten	na F	actor + Cab	<u>le Loss – Pre-ar</u>	mplifier.						
Εl	JT Name		Label Printe	er		Mode	I Name	NIIMBO	Г В31		
Те	mperature		22.6 ℃			Relat	ive Humidity	59.8%			
Pr	essure		960hPa			Test V	Voltage	DC 7.4V	by battery		
Те	st Mode		Mode 1			Anter	nna Polarity	Vertical			
	_										
ŀ	Frequency	Me	eter Reading	Factor	Emissio		Limits	Margin	Value Type		
ŀ	(MHz)		(dBµV)	(dB)	(dBµ\	//m)	(dBµV/m)	(dB)			

Radiated Emissions Test Results for Above 1GHz

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type
4804.000	48.74	0.08	48.82	74	-25.18	peak
4804.000	38.51	0.08	38.59	54	-15.41	AVG
7206.000	41.62	2.21	43.83	74	-30.17	peak
7206.000	32.51	2.21	34.72	54	-19.28	AVG

RESULT: Pass



UT Name		Label Printe	er		Mode	l Name	NIIMBO	T B31	
emperature		22.6 ℃			Relati	ive Humidity	59.8%		
ressure		960hPa			Test \	/oltage	DC 7.4V	DC 7.4V by battery	
est Mode		Mode 2			Anter	nna Polarity	Horizont	tal	
Frequency	Ν	Meter Reading	Factor	Emission	Level	Limits	Margin	- Value Type	
(MHz)		(dBµV)	(dB)	(dBµV/r	'n)	(dBµV/m)	(dB)	value Type	
4880.000		48.52	0.14	48.66	6	74	-25.34	peak	
4880.000		37.43	0.14	37.57	7	54	-16.43	AVG	
7320.000		42.19	2.36	44.55	5	74	-29.45	peak	
7320.000		31.66	2.36	34.02	2	54	-19.98	AVG	
	+								
								1	
Remark:									
Factor = Anter	nna	Factor + Cabl	e Loss – Pre-	amplifier.					
	nna	Factor + Cabl			Mode	I Name	NIIMBO	T B31	
Factor = Anter	nna					l Name ive Humidity	NIIMBO 59.8%	T B31	
Factor = Anter	nna	Label Printe		_	Relati		59.8%	T B31 / by battery	
Factor = Anter		Label Printe			Relati Test \	ive Humidity	59.8%		
Factor = Anter		Label Printe 22.6℃ 960hPa Mode 2	er		Relati Test \ Anter	ive Humidity /oltage nna Polarity	59.8% DC 7.4V Vertical	/ by battery	
Factor = Anter		Label Printe 22.6°C 960hPa Mode 2	er Factor	Emission	Relati Test \ Anter	ive Humidity /oltage nna Polarity Limits	59.8% DC 7.4V Vertical		
Factor = Anter		Label Printe 22.6°C 960hPa Mode 2 //eter Reading (dBµV)	er Factor (dB)	Emission (dBµV/r	Relati Test \ Anter Level m)	ive Humidity /oltage nna Polarity Limits (dBµV/m)	59.8% DC 7.4V Vertical Margin (dB)	/ by battery Value Type	
Factor = Anter		Label Printe 22.6℃ 960hPa Mode 2 Meter Reading (dBµV) 46.35	Factor (dB) 0.14	Emission (dBµV/r 46.49	Relati Test \ Anter Level m) 9	ive Humidity /oltage nna Polarity Limits (dBµV/m) 74	59.8% DC 7.4V Vertical Margin (dB) -27.51	/ by battery	
Factor = Anter		Label Printe 22.6°C 960hPa Mode 2 //eter Reading (dBµV) 46.35 36.72	Factor (dB) 0.14 0.14	Emission (dBµV/r 46.49 36.86	Relati Test V Anter Level m) 9 6	ive Humidity /oltage nna Polarity Limits (dBµV/m)	59.8% DC 7.4V Vertical Margin (dB) -27.51 -17.14	/ by battery Value Type peak	
Factor = Anter		Label Printe 22.6℃ 960hPa Mode 2 Meter Reading (dBµV) 46.35	Factor (dB) 0.14	Emission (dBµV/r 46.49	Relati Test \ Anter Level m) 9 6 4	ive Humidity /oltage na Polarity Limits (dBµV/m) 74 54	59.8% DC 7.4V Vertical Margin (dB) -27.51	/ by battery Value Type peak AVG	
Factor = Anter EUT Name remperature ressure rest Mode Frequency (MHz) 4880.000 4880.000 7320.000		Label Printe 22.6℃ 960hPa Mode 2 //eter Reading (dBµV) 46.35 36.72 40.18	Factor (dB) 0.14 0.14 2.36	Emission (dBµV/r 46.49 36.86 42.54	Relati Test \ Anter Level m) 9 6 4	ive Humidity /oltage nna Polarity Limits (dBµV/m) 74 54 74	59.8% DC 7.4V Vertical Margin (dB) -27.51 -17.14 -31.46	/ by battery Value Type peak AVG peak	
Factor = Anter EUT Name emperature ressure est Mode Frequency (MHz) 4880.000 7320.000 7320.000		Label Printe 22.6℃ 960hPa Mode 2 //eter Reading (dBµV) 46.35 36.72 40.18	Factor (dB) 0.14 0.14 2.36	Emission (dBµV/r 46.49 36.86 42.54	Relati Test \ Anter Level m) 9 6 4	ive Humidity /oltage nna Polarity Limits (dBµV/m) 74 54 74	59.8% DC 7.4V Vertical Margin (dB) -27.51 -17.14 -31.46	/ by battery Value Type peak AVG peak	
Factor = Anter EUT Name remperature ressure rest Mode Frequency (MHz) 4880.000 4880.000 7320.000		Label Printe 22.6℃ 960hPa Mode 2 Meter Reading (dBµV) 46.35 36.72 40.18 30.47	Factor (dB) 0.14 0.14 2.36 2.36	Emission (dBµV/r 46.49 36.86 42.54 32.83	Relati Test \ Anter Level m) 9 6 4	ive Humidity /oltage nna Polarity Limits (dBµV/m) 74 54 74	59.8% DC 7.4V Vertical Margin (dB) -27.51 -17.14 -31.46	/ by battery Value Type peak AVG peak	

Radiated Emissions Test Results for Above 1GHz

RESULT: Pass



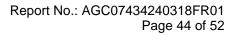
UT Name	Label Printe	er	Mod	el Name	NIIMBOT	⁻ B31	
emperature	22.6 ℃		Rela	tive Humidity	59.8%		
Pressure	960hPa		Test	Voltage	DC 7.4V	DC 7.4V by battery	
est Mode	Mode 3		Ante	nna Polarity	Horizonta	al	
	·		·				
Frequency	Meter Reading	Factor	Emission Leve	Limits	Margin		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type	
4960.000	47.68	0.22	47.9	74	-26.1	peak	
4960.000	38.51	0.22	38.73	54	-15.27	AVG	
7440.000	41.34	2.64	43.98	74	-30.02	peak	
7440.000	32.42	2.64	35.06	54	-18.94	AVG	
Remark:				•		•	
	na Factor + Cab	le Loss – Pre-	amplifier.				
	na Factor + Cab			el Name	NIIMBOT	- B31	
Factor = Anter			Mod	el Name tive Humidity	NIIMBOT 59.8%	- B31	
Factor = Anter	Label Printe		Mod Rela		59.8%	B31	
Factor = Anter	Label Printe		Mod Rela Test	tive Humidity	59.8%		
Factor = Anter	Label Printe 22.6℃ 960hPa Mode 3	۲ 	Mode Rela Test Ante	tive Humidity Voltage nna Polarity	59.8% DC 7.4V Vertical		
Factor = Anter	Label Printe 22.6°C 960hPa Mode 3 Meter Reading	Factor	Mode Rela Test Ante Emission Leve	tive Humidity Voltage nna Polarity Limits	59.8% DC 7.4V Vertical		
Factor = Anter	Label Printe 22.6℃ 960hPa Mode 3 Meter Reading (dBµV)	r Factor (dB)	Mode Rela Test Ante Emission Leve (dBµV/m)	tive Humidity Voltage nna Polarity Limits (dBµV/m)	59.8% DC 7.4V Vertical Margin (dB)	by battery Value Type	
Factor = Anter EUT Name Temperature Pressure Test Mode Frequency (MHz) 4960.000	Label Printe 22.6℃ 960hPa Mode 3 Meter Reading (dBµV) 48.76	Factor (dB) 0.22	Mode Rela Test Ante Emission Leve (dBµV/m) 48.98	tive Humidity Voltage nna Polarity Limits (dBµV/m) 74	59.8% DC 7.4V Vertical Margin (dB) -25.02	by battery Value Type peak	
Factor = Anter EUT Name Temperature Pressure Test Mode Frequency (MHz) 4960.000 4960.000	Label Printe 22.6 °C 960hPa Mode 3 Meter Reading (dBµV) 48.76 39.35	Factor (dB) 0.22 0.22	Mode Rela Test Ante Emission Leve (dBµV/m) 48.98 39.57	tive Humidity Voltage nna Polarity Limits (dBµV/m) 74 54	59.8% DC 7.4V Vertical Margin (dB) -25.02 -14.43	by battery Value Type peak AVG	
Factor = Anter EUT Name Temperature Pressure Test Mode Frequency (MHz) 4960.000 7440.000	Label Printe 22.6 ℃ 960hPa Mode 3 Meter Reading (dBµV) 48.76 39.35 42.32	Factor (dB) 0.22 0.22 2.64	Моd Rela Test Ante Emission Leve (dBµV/m) 48.98 39.57 44.96	tive Humidity Voltage nna Polarity Limits (dBµV/m) 74 54 74	59.8% DC 7.4V Vertical Margin (dB) -25.02 -14.43 -29.04	by battery Value Type peak AVG peak	
Factor = Anter EUT Name Temperature Pressure Test Mode Frequency (MHz) 4960.000 4960.000	Label Printe 22.6 °C 960hPa Mode 3 Meter Reading (dBµV) 48.76 39.35	Factor (dB) 0.22 0.22	Mode Rela Test Ante Emission Leve (dBµV/m) 48.98 39.57	tive Humidity Voltage nna Polarity Limits (dBµV/m) 74 54	59.8% DC 7.4V Vertical Margin (dB) -25.02 -14.43	by battery Value Type peak AVG	
Factor = Anter EUT Name Temperature Pressure Test Mode Frequency (MHz) 4960.000 7440.000	Label Printe 22.6 ℃ 960hPa Mode 3 Meter Reading (dBµV) 48.76 39.35 42.32	Factor (dB) 0.22 0.22 2.64	Моd Rela Test Ante Emission Leve (dBµV/m) 48.98 39.57 44.96	tive Humidity Voltage nna Polarity Limits (dBµV/m) 74 54 74	59.8% DC 7.4V Vertical Margin (dB) -25.02 -14.43 -29.04	by battery Value Type peak AVG peak	

Radiated Emissions Test Results for Above 1GHz

RESULT: Pass

Note:

- 1. The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.
- 2. Factor = Antenna Factor + Cable loss Pre-amplifier gain, Margin = Emission Level-Limit.
- 3. The "Factor" value can be calculated automatically by software of measurement system.

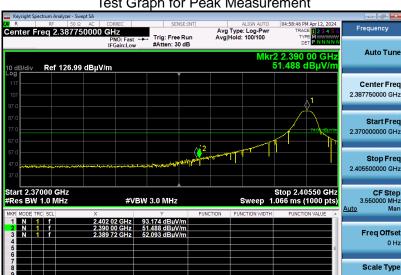


Lir



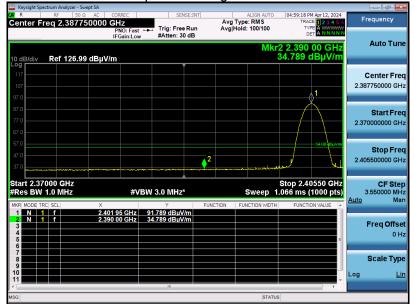
EUT Name	Label Printer	Model Name	NIIMBOT B31
Temperature	22.6 ℃	Relative Humidity	59.8%
Pressure	960hPa	Test Voltage	DC 7.4V by battery
Test Mode	Mode 1	Antenna Polarity	Horizontal

Band Edge Emission Test Results for Restricted Bands

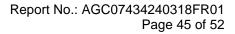


Test Graph for Peak Measurement

Test Graph for Average Measurement



RESULT: Pass



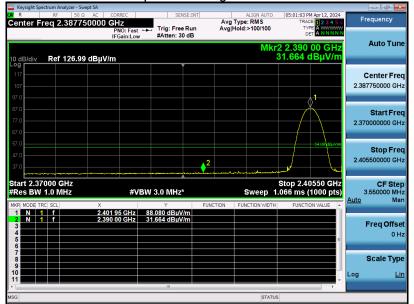


EUT Name	Label Printer	Model Name	NIIMBOT B31
Temperature	22.6 ℃	Relative Humidity	59.8%
Pressure	960hPa	Test Voltage	DC 7.4V by battery
Test Mode	Mode 1	Antenna Polarity	Vertical



Test Graph for Peak Measurement

Test Graph for Average Measurement



RESULT: Pass



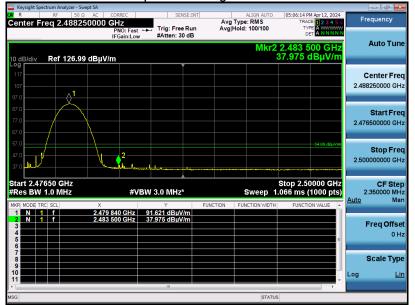
Band Edge Emission Test R	Results for Restricted Bands
---------------------------	------------------------------

EUT Name	Label Printer	Model Name	NIIMBOT B31
Temperature	22.6 ℃	Relative Humidity	59.8%
Pressure	960hPa	Test Voltage	DC 7.4V by battery
Test Mode	Mode 3	Antenna Polarity	Horizontal

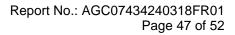


Test Graph for Peak Measurement

Test Graph for Average Measurement



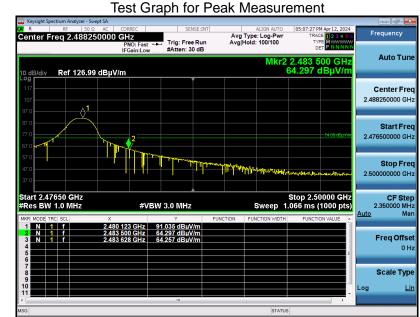
RESULT: Pass



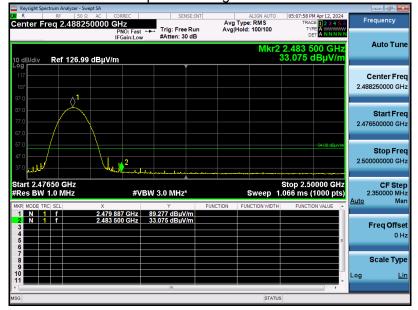


EUT Name	Label Printer	Model Name	NIIMBOT B31
Temperature	22.6 ℃	Relative Humidity	59.8%
Pressure	960hPa	Test Voltage	DC 7.4V by battery
Test Mode	Mode 3	Antenna Polarity	Vertical

Band Edge Emission Test Results for Restricted Bands



Test Graph for Average Measurement



RESULT: Pass

Note: The factor had been edited in the "Input Correction" of the Spectrum Analyzer.



12. AC Power Line Conducted Emission Test

12.1 Measurement Limit

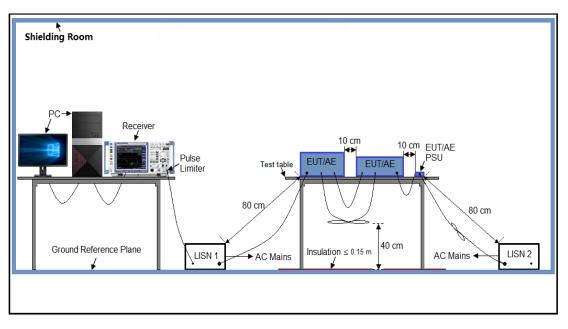
Frequency	Maximum RF Line Voltage	
	Q.P. (dBµV)	Average (dBµV)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.

2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

12.2 Measurement Setup (Block Diagram of Configuration)





12.3 Preliminary Procedure of Line Conducted Emission Test

- 1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
- 2. Support equipment, if needed, was placed as per ANSI C63.10.
- 3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
- 4. All support equipment received AC120V/60Hz power from a LISN, if any.
- 5. The EUT received DC 5V power from adapter which received AC120V/60Hz power from a LISN.
- 6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
- 7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
- 8. During the above scans, the emissions were maximized by cable manipulation.
- 9. The test mode(s) were scanned during the preliminary test.

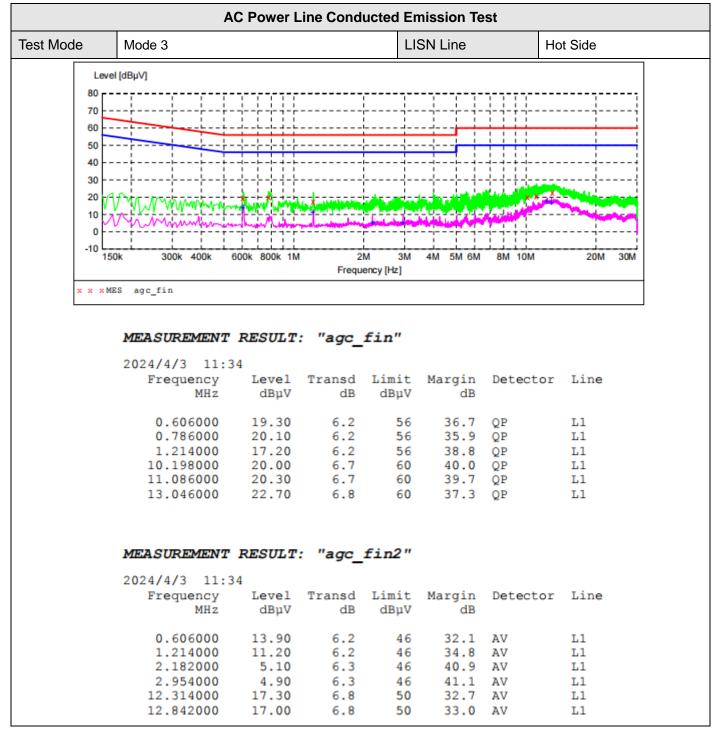
Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

12.4 Final Procedure of Line Conducted Emission Test

- 1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
- A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
- 3. The test data of the worst case condition(s) was reported on the Summary Data page.

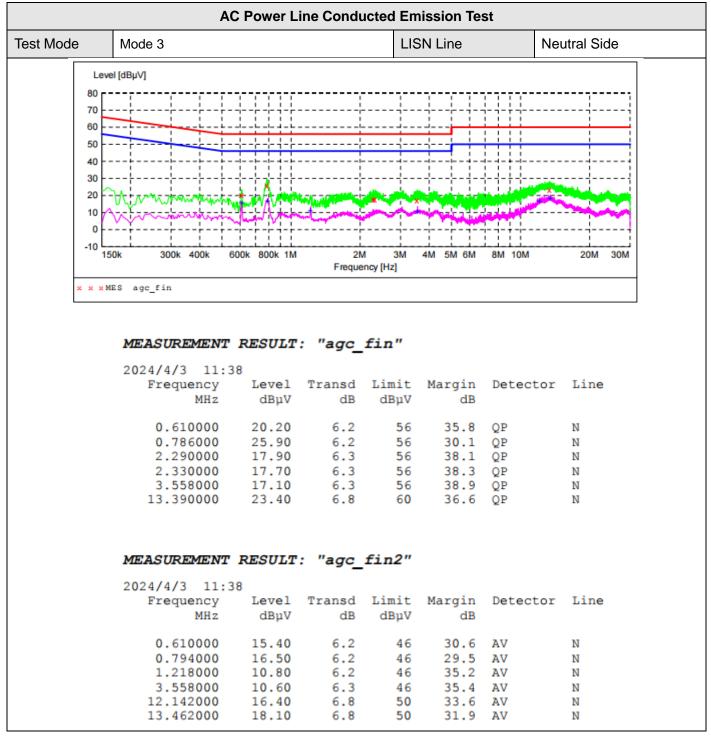
12.5 Measurement Results





RESULT: Pass





RESULT: PASS



Report No.: AGC07434240318FR01 Page 52 of 52

Appendix I: Photographs of Test Setup

Refer to the Report No.: AGC07434240318AP02

Appendix II: Photographs of Test EUT

Refer to the Report No.: AGC07434240318AP03

-----End of Report-----



Conditions of Issuance of Test Reports

1. All samples and goods are accepted by the Attestation of Global Compliance (Shenzhen) Co., Ltd (the "Company") solely for testing and reporting in accordance with the following terms and conditions. The company provides its services on the basis that such terms and conditions constitute express agreement between the company and any person, firm or company requesting its services (the "Clients").

2. Any report issued by Company as a result of this application for testing services (the "Report") shall be issued in confidence to the Clients and the Report will be strictly treated as such by the Company. It may not be reproduced either in its entirety or in part and it may not be used for advertising or other unauthorized purposes without the written consent of the Company. The Clients to whom the Report is issued may, however, show or send it, or a certified copy thereof prepared by the Company to its customer, supplier or other persons directly concerned. The Company will not, without the consent of the Clients, enter into any discussion or correspondence with any third party concerning the contents of the Report, unless required by the relevant governmental authorities, laws or court orders.

3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.

4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.

5. Samples submitted for testing are accepted on the understanding that the Report issued cannot form the basis of, or be the instrument for, any legal action against the Company.

6. The Company will not be liable for or accept responsibility for any loss or damage however arising from the use of information contained in any of its Reports or in any communication whatsoever about its said tests or investigations.

7. Clients wishing to use the Report in court proceedings or arbitration shall inform the Company to that effect prior to submitting the sample for testing.

8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.

9. Subject to the variable length of retention time for test data and report stored hereinto as otherwise specifically required by individual accreditation authorities, the Company will only keep the supporting test data and information of the test report for a period of six years. The data and information will be disposed of after the aforementioned retention period has elapsed. Under no circumstances shall we provide any data and information which has been disposed of after retention period. Under no circumstances shall we be liable for damage of any kind, including (but not limited to) compensatory damages, lost profits, lost data, or any form of special, incidental, indirect, consequential or punitive damages of any kind, whether based on breach of contract of warranty, tort (including negligence), product liability or otherwise, even if we are informed in advance of the possibility of such damages.