

FCC Test Report

Application No.:	DNT2502180197R1132-01375
Applicant:	Hanlin Yue (Shenzhen) Technology Co., Ltd
Address of Applicant:	1115, Yousong Business Building, No. 88 Minqing Road, Fukang Community, Longhua Street, Longhua District, Shenzhen
EUT Description:	Bluetooth page turning remote control
Model No.:	E2 Control
FCC ID:	2BLUQ-E2CONTROL
Power Supply:	Input:DC 5V & DC 3.7V from rechargeable lithium-ion battery
Trade Mark:	Hanlinyue
	47 CFR FCC Part 2, Subpart J
Standards:	47 CFR Part 15, Subpart C
	ANSI C63.10: 2013
Date of Receipt:	2025/02/20
Date of Test:	2025/02/20 to 2025/02/26
Date of Issue:	2025/02/27
Test Result:	PASS

Wayne Jon (Testing Engineer) <u>Penyils chen</u> (Project Engineer) <u>Merre</u> Ahan **Prepared By: Reviewed By: Approved By:** (Manager)



Note: If there is any objection to the results in this report, please submit a written inquiry to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp, and is issued by the company in accordance with the requirements of the "Conditions of Issuance of Test Reports" printed in the attached page. Unless otherwise stated, the results presented in this report only apply to the samples tested this time. Partial reproduction of this report is not allowed unless approved by the company in writing.

Dongguan DN Testing Co., Ltd.

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Report Revise Record

Report Version	Revise Time	Issued Date	Issued Date Valid Version Notes	
V2.0		Feb.27, 2025	27, 2025 Valid Original Report	



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1 Test Summary

Test Item	Test Requirement	Test Method	Test Result	Result
Antenna Requirement	15.203/247(b)	2-2	Clause 3.1	PASS
Duty Cycle		· · · · ·	Clause 3.2	PASS
DTS (6 dB) Bandwidth	15.247 (a)(2)	ANSI C63.10: 2013	Clause 3.3	PASS
Conducted Output Power	15.247 (b)(3)	ANSI C63.10: 2013	Clause 3.4	PASS
Power Spectral Density	15.247 (e)	ANSI C63.10: 2013	Clause 3.5	PASS
Band-edge for RF Conducted Emissions	15.247(d)	ANSI C63.10: 2013	Clause 3.6	PASS
RF Conducted Spurious Emissions	15.247(d)	ANSI C63.10: 2013	Clause 3.7	PASS
Radiated Spurious Emissions	15.247(d);15.205/15.209	ANSI C63.10: 2013	Clause 3.8	PASS
Restricted bands around fundamental frequency (Radiated Emission)	15.247(d);15.205/15.209	ANSI C63.10: 2013	Clause 3.9	PASS
AC Power Line Conducted Emission	15.207	ANSI C63.10: 2013	Clause 3.10	PASS

Note:

1. "N/A" denotes test is not applicable in this test report.



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2 General Information

2.1 Test Location

Company:	Dongguan DN Testing Co., Ltd
Address:	No. 1, West Fourth Street, South Xinfa Road, Wusha Liwu, Chang ' an Town, Dongguan City, Guangdong P.R.China
Test engineer:	Wayne Lin

2.2 General Description of EUT

Manufacturer:	Hanlin Yue (Shenzhen) Technology Co., Ltd				
Address of Manufacturer:	1115, Yousong Business Building, No. 88 Minqing Road, Fukang Community, Longhua Street, Longhua District, Shenzhen				
EUT Description:	Bluetooth page turning remote control				
Test Model No.:	E2 Control				
Additional Model(s):					
Chip Type:	AC6323A				
Serial Number	PR2502180197R1132				
Power Supply	Input:DC 5V & DC 3.7V from rechargeable lithium-ion battery				
Trade Mark:	Hanlinyue				
Hardware Version:	V1.0				
Software Version:	1.0.0				
Operation Frequency:	2402 MHz to 2480 MHz				
Type of Modulation:	GFSK				
Sample Type:	Portable Device, Module, Mobile Device				
Antenna Type:	□ External, ⊠ Integrated				
Antenna Ports	🛛 🖂 Ant 1, 🗌 Ant 2, 🗌 Ant 3				
Antonno Opinti	Provided by applicant				
Antenna Gain*:	-0.58dBi				
	☐ Provided by applicant				
RF Cable*:	0.5dB(0.6~1GHz); 0.8dB(1.4~2GHz); 1.0dB(2.1~2.7GHz); 1.5dB(3~4GHz); 1.8dB(4.4~6GHz);				

Remark:

*All models are just name differences, motherboard, PCB circuit board, chip, electronic components, appearance is all the same.

*Since the above data and/or information is provided by the applicant relevant results or conclusions of this report are only made for these data and/or information, DNT is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.



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2.3 Channel List

	Operation Frequency of each channel						
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	10	2422MHz	20	2442MHz	30	2462MHz
1	2404MHz	11	2424MHz	21	2444MHz	31	2464MHz
2	2406MHz	12	2426MHz	22	2446MHz	32	2466MHz
3	2408MHz	13	2428MHz	23	2448MHz	33	2468MHz
4	2410MHz	14	2430MHz	24	2450MHz	34	2470MHz
5	2412MHz	15	2432MHz	25	2452MHz	35	2472MHz
6	2414MHz	16	2434MHz	26	2454MHz	36	2474MHz
7	2416MHz	17	2436MHz	27	2456MHz	37	2476MHz
8	2418MHz	18	2438MHz	28	2458MHz	38	2478MHz
9	2420MHz	19	2440MHz	29	2460MHz	39	2480MHz

2.4 Test Environment and Mode

Operating Environment:	
Temperature:	20~25.0 °C
Humidity:	45~56 % RH
Atmospheric Pressure:	101.0~101.30 KPa
Test mode:	
Transmitting mode:	Keep the EUT in transmitting mode with all kind of modulation and all kind of data rate.

2.5 Power Setting of Test Software

Software Name	FCC_assist_1.0.2.2			
Frequency(MHz)	2402	2440	2480	
BLE 1M Setting	Default	Default	Default	
BLE 2M Setting	Default	Default	Default	

2.6 Description of Support Units

The EUT has been tested independent unit.



2.7 Test Facility

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

Lab A:

• FCC, USA

Designation Number: CN1348

A2LA (Certificate No. 7050.01)

DONGGUAN DN TESTING CO., LTD. is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 7050.01.

Innovation, Science and Economic Development Canada

DONGGUAN DN TESTING CO., LTD. EMC Laboratory has been recognized by ISED as an accredited testing laboratory. CAB identifier is CN0149.

IC#: 30755.

2.8 Measurement Uncertainty (95% confidence levels, k=2)

No.	Item	Measurement Uncertainty	
1	DTS Bandwidth	±0.0196%	
2	Maximum Conducted Output Power	±0.686 dB	
3	Maximum Power Spectral Density Level	±0.743 dB	
4	Band-edge Compliance	±1.328 dB	
5	Unwanted Emissions In Non-restricted Freq Bands	9KHz-1GHz:±0.746dB 1GHz-26GHz: ±1.328dB	

No.	b. Item Measurement Uncertainty				
1	Conduction Emission	Conduction Emission ± 3.0dB (150kHz to 30MHz)			
<u> </u>		± 4.8dB (Below 1GHz)			
2	Dedicted Enviroin	± 4.8dB (1GHz to 6GHz)			
	Radiated Emission	± 4.5dB (6GHz to 18GHz)			
		± 5.02dB (Above 18GHz)			



2.9 Equipment List

	For Conne	ect EUT Anten	na Terminal	Test	
Description	Manufacturer	Model	Serial Number	Cal date	Due date
Signal Generator	Keysight	N5181A-6G	MY48180415	2024-10-23	2025-10-22
Signal Generator	Keysight	N5182B	MY57300617	2024-10-23	2025-10-22
Power supply	Keysight	E3640A	ZB2022656	2024-10-23	2025-10-22
Radio Communication Tester	R&S	CMW500	105082	2024-10-23	2025-10-22
Spectrum Analyzer	Aglient	N9010A	MY52221458	2024-10-23	2025-10-22
BT/WIFI Test Software	Tonscend	JS1120 V3.1.83	NA	NA	NA
RF Control Unit	Tonscend	JS0806-2	22F8060581	NA	NA
Power Sensor	Anritsu	ML2495A	2129005	2024-10-23	2025-10-22
Pulse Power Sensor	Anritsu	MA2411B	1911397	2024-10-23	2025-10-22
temperature and humidity box	SCOTEK	SCD-C40-80PRO	6866682020008	2024-10-23	2025-10-22

	Test Equipr	ment for Cond	ucted Emissi	on	
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Receiver	R&S	ESCI3	101152	2024-10-23	2025-10-22
LISN	R&S	ENV216	102874	2024-10-23	2025-10-22
ISN	R&S	ENY81-CA6	1309.8590.03	2024-10-23	2025-10-22

Test Ed	quipment for F	Radiated Emis	sion(30MHz·	-1000MHz	<u>z)</u>
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Receiver	R&S	ESR7	102497	2024-10-23	2025-10-22
Test Software	ETS-LINDGREN	TILE-FULL	NA	NA	NA
RF Cable	ETS-LINDGREN	RFC-NMS-100- NMS-350-IN	NA	2024-10-23	2025-10-22
Log periodic antenna	ETS-LINDGREN	VULB 9168	01475	2022-11-28	2025-11-27
Pre-amplifier	Schwarzbeck	BBV9743B	00423	2024-10-23	2025-10-22



Test E	quipment for I	Radiated Emis	ssion(Above	1000MHz)
Description	Manufacturer	Model	Serial Number	Cal Date	Due Date
Frequency analyser	Keysight	N9010A	MY52221458	2024-10-23	2025-10-22
RF Cable	ETS-LINDGREN	RFC-NMS-100- NMS-350-IN	NA	2024-10-23	2025-10-22
Horn Antenna	ETS-LINDGREN	3117	00252567	2022-11-28	2025-11-27
Double ridged waveguide antenna	ETS-LINDGREN	3116C	00251780	2022-11-28	2025-11-27
Test Software	ETS-LINDGREN	TILE-FULL	NA	NA	NA
Pre-amplifier	ETS-LINDGREN	3117-PA	252567	2024-10-23	2025-10-22
Pre-amplifier	ETS-LINDGREN	3116C-PA	251780	2024-10-23	2025-10-22

2.10 Assistant equipment used for test

	Code	Equipment	Manufacturer	Model No.	Equipment No.
ľ	1	Adapter	GaoFanDe	GFDQ3- 0502000U	NA
	2	Computer	acer	N22C8	EMC notebook01



3 Test results and Measurement Data

3.1 Antenna Requirement

Standard requirement:	47 CFR Part 15C Section 15.203 /247(c)

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.

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is -0.58dBi.



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3.2 Duty Cycle

Refer to section : Appendix A

Note:

- 1.If duty cycle <98 %, the conducted average output power and average power spectral density should be add duty factor.
- 2.If duty cycle ≥98 %,the EUT is consider to be transmitting continuously,the conducted average output power and average power spectral density no need to add duty factor(consider to be zero).
- 3. The conducted peak output power and peak power spectral density no need to consider duty factor.
- 4. The on-time time is transmission duration(T).



3.3 DTS (6 dB) Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)	\sim
Test Method:	ANSI C63.10: 2013 Section 11.8.1 Option 1	~
Test Setup:	Spectrum Analyzer E.U.T	10 - 10 10
	Non-Conducted Table	8
	Ground Reference Plane	5
Instruments Used:	Refer to section 2.9 for details	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates	
Final Test Mode:	Through Pre-scan, find the the worst case of GFSK	0
Limit:	≥ 500 kHz	~
Test Results:	Pass	× 1

The detailed test data see: Appendix B



3.4 Conducted Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(3)
Test Method:	ANSI C63.10: 2013 Section 11.9.1.3
Test Setup:	POWER METER E.U.T Non-Conducted Table
	Ground Reference Plane
Test Instruments:	Refer to section 2.9 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the the worst case of GFSK
Limit:	30dBm
Test Results:	Pass

The detailed test data see: Appendix C



3.5 Power Spectral Density

Test Requirement:	47 CFR Part 15C Section 15.247 (e)	
Test Method:	ANSI C63.10: 2013 Section 11.10.2	~
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table	
	Ground Reference Plane	
Test Instruments:	Refer to section 2.9 for details	
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates	×
Final Test Mode:	Through Pre-scan, find the the worst case of GFSK	1
Limit:	≤8.00dBm/3kHz	2
Test Results:	Pass	

The detailed test data see: Appendix D



3.6 Band-edge for RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)		
Test Method:	ANSI C63.10: 2013 Section 11.13		
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane		
Instruments Used:	Refer to section 2.9 for details		
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates		
Final Test Mode:	Through Pre-scan, find the the worst case of GFSK		
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.		
Test Results:	Pass		

The detailed test data see: Appendix E



3.7 RF Conducted Spurious Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)
Test Method:	ANSI C63.10: 2013 Section 11.11
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane
Instruments Used:	Refer to section 2.9 for details
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates
Final Test Mode:	Through Pre-scan, find the worst case of GFSK;
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.
Test Results:	Pass

The detailed test data see: Appendix F



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3.8 Radiated Spurious Emissions

Test Requirement:	47 CFR Part 15C Sectio	n 15.209 and 15.20	05		
Test Method:	ANSI C63.10: 2013 Sec	tion 11.12			\sim \sim
Test Site:	Measurement Distance:	3m or 10m (Semi-/	Anechoic Ch	amber)	
Receiver Setup:	Frequency	Detector	RBW	VBW	Remark
	0.009MHz-0.090MHz	Peak	10kHz	30kHz	Peak
	0.009MHz-0.090MHz	Average	10kHz	30kHz	Average
	0.090MHz-0.110MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	0.110MHz-0.490MHz	Peak	10kHz	30kHz	Peak
	0.110MHz-0.490MHz	Average	10kHz	30kHz	Average
	0.490MHz -30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak
	30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak
		Peak	1MHz	3MHz	Peak
	Above 1GHz	Peak	1MHz	10Hz (DC≥0.98) ≥1/T	Average
			\sim	(DC<0.98)	6 6
Limit:	Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measuremen distance (m)
	0.009MHz-0.490MHz	2400/F(kHz)	<u> </u>	×	300
	0.490MHz-1.705MHz	24000/F(kHz)	<u> </u>	2-1	30
	1.705MHz-30MHz	30	× -	· · ·	30
	30MHz-88MHz	100	40.0	Quasi-peak	3
	88MHz-216MHz	150	43.5	Quasi-peak	3
	216MHz-960MHz	200	46.0	Quasi-peak	3
	960MHz-1GHz	500	54.0	Quasi-peak	3
	Above 1GHz	500	54.0	Average	3
	Remark: 15.35(b),Unles emissions is 20dB above applicable to the equipm emission level radiated b	e the maximum per lent under test. This	mitted avera	ige emission lir	nit



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 Test Setup:
 Image: Constraint of the set of

Test Receiver

Turntable Ground Reference Plan

Figure 3. Above 1 GHz
a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The EUT was set 3 or 10 meters away from the interference-receiving

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters(for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

- h. Test the EUT in the lowest channel, the middle channel ,the Highest channel.
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, And found the X axis positioning which it is worse case.
 Repeat above procedures until all frequencies measured was complete.

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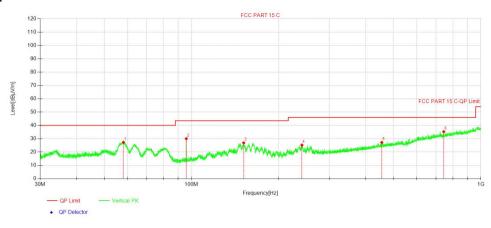
Report No.: DNT	2502180197R1132-01375 Date: February 27, 2025 Page: 19 / 54
Test Configuration:	Measurements Below 1000MHz• RBW = 120 kHz• VBW = 300 kHz• Detector = Peak• Trace mode = max holdPeak Measurements Above 1000 MHz• RBW = 1 MHz• VBW \geq 3 MHz• Detector = Peak• Sweep time = auto• Trace mode = max holdAverage Measurements Above 1000MHz• RBW = 1 MHz• VBW \geq 3 MHz• Detector = Peak• Sweep time = auto• Trace mode = max holdAverage Measurements Above 1000MHz• RBW = 1 MHz• VBW = 10 Hz, when duty cycle is no less than 98 percent.• VBW \geq 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates. Charge + Transmitting mode.
Final Test Mode:	Pretest the EUT at Charging+Transmitting mode. Through Pre-scan, find the worst case of GFSK,Only the worst case is recorded in the report.
Instruments Used:	Refer to section 2.9 for details
Test Results:	Pass

Dongguan DN Testing Co., Ltd.

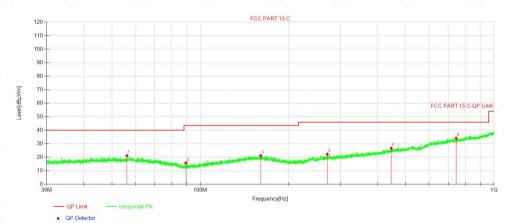
....



Test data For 30-1000MHz



NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	58.22	35.92	-8.57	27.35	40.00	12.65	100	350	PK	Vertical
2	96.00	43.27	-13.22	30.05	43.50	13.45	100	241	PK	Vertical
3	151.54	34.74	-7.82	26.92	43.50	16.58	100	271	PK	Vertical
4	240.83	34.46	-9.22	25.24	46.00	20.76	100	212	PK	Vertical
5	454.63	29.95	-2.73	27.22	46.00	18.78	100	168	PK	Vertical
6	744.34	32.02	3.27	35.29	46.00	10.71	100	282	PK	Vertical

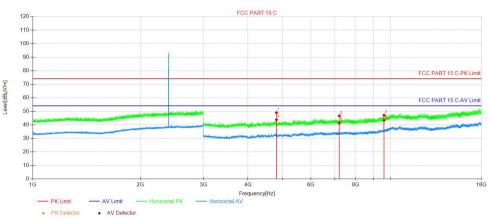


		C11 PD2 10 PD3 10 PD								
NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	56.28	29.57	-8.37	21.20	40.00	18.80	100	184	PK	Horizontal
2	89.43	29.72	-13.86	15.86	43.50	27.64	100	30	PK	Horizontal
3	160.57	29.03	-7.80	21.23	43.50	22.27	100	312	PK	Horizontal
4	270.66	30.33	-8.00	22.33	46.00	23.67	100	359	PK	Horizontal
5	446.88	29.51	-2.91	26.60	46.00	19.40	100	30	PK	Horizontal
6	743.04	30.88	3.23	34.11	46.00	11.89	100	198	PK	Horizontal
	·									

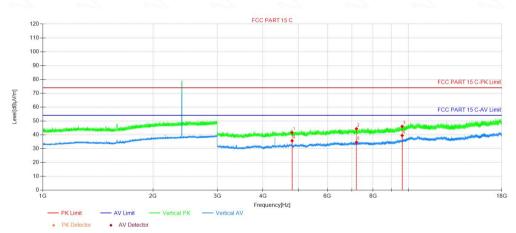


For above 1GHz

BLE 1M 2402MHz



NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4803.84	53.55	-4.61	48.94	74.00	25.06	150	250	Peak	Н
2	7206.21	48.37	-1.76	46.61	74.00	27.39	150	269	Peak	Н
3	9607.83	46.26	0.87	47.13	74.00	26.87	150	288	Peak	Н
4	4804.59	48.37	-4.61	43.76	54.00	10.24	150	269	AV	Н
5	7206.96	43.14	-1.76	41.38	54.00	12.62	150	288	AV	Н
6	9608.58	42.37	0.88	43.25	54.00	10.75	150	305	AV	Н

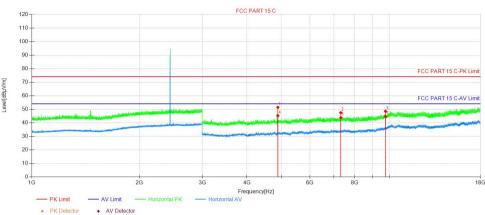


NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	AV Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4804.59	46.23	-4.61	41.62	74.00	32.38	150	356	Peak	V
2	7206.21	46.13	-1.76	44.37	74.00	29.63	150	6	Peak	V
3	9608.58	45.19	0.88	46.07	74.00	27.93	150	286	Peak	V
4	4804.59	40.32	-4.61	35.71	54.00	18.29	150	75	AV	V
5	7206.21	36.47	-1.76	34.71	54.00	19.29	150	21	AV	V
6	9608.58	38.64	0.88	39.52	54.00	14.48	150	306	AV	V

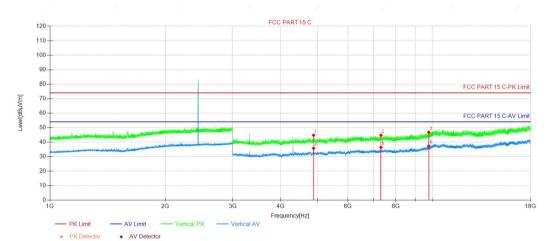


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BLE 1M 2440MHz



NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	AV Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4880.34	56.16	-4.71	51.45	74.00	22.55	150	54	Peak	Н
2	7320.22	49.00	-1.49	47.51	74.00	26.49	150	268	Peak	Н
3	9760.09	46.94	1.62	48.56	74.00	25.44	150	180	Peak	Н
4	4881.09	49.94	-4.71	45.23	54.00	8.77	150	54	AV	Н
5	7320.97	45.33	-1.49	43.84	54.00	10.16	150	286	AV	Н
6	9760.84	43.19	1.63	44.82	54.00	9.18	150	180	AV	Н

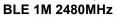


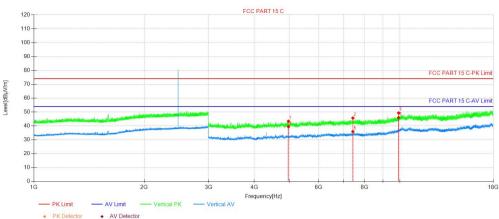
Reading Correct Result Freq. AV Limit Margin Height Angle NO. Polarity Level Factor Level Detector [MHz] [dBµV/m] [dB] [°] [cm] [dBµV] [dB/m] [dBµV/m] 4880.34 49.51 -4.71 44.80 74.00 29.20 150 71 Peak 1 V 2 7320.22 46.23 -1.49 44.74 74.00 29.26 150 36 Peak V 3 9760.09 45.17 1.62 46.79 74.00 27.21 150 36 Peak V 4 4880.34 40.49 -4.71 35.78 54.00 18.22 150 357 AV V 5 7320.22 37.89 -1.49 36.40 54.00 17.60 150 36 AV V 6 9760.09 35.76 1.62 37.38 54.00 16.62 150 18 AV V



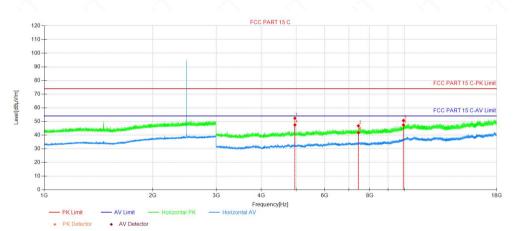


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NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	AV Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4960.60	48.23	-4.86	43.37	74.00	30.63	150	0	Peak	V
2	7440.22	47.03	-1.34	45.69	74.00	28.31	150	17	Peak	V
3	9919.85	47.07	2.26	49.33	74.00	24.67	150	17	Peak	V
4	4960.60	44.27	-4.86	39.41	54.00	14.59	150	356	AV	V
5	7440.22	37.23	-1.34	35.89	54.00	18.11	150	2	AV	V
6	9920.60	43.71	2.27	45.98	54.00	8.02	150	17	AV	V



NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	AV Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	4959.85	57.21	-4.86	52.35	74.00	21.65	150	50	Peak	Н
2	7440.22	48.17	-1.34	46.83	74.00	27.17	150	270	Peak	Н
3	9919.85	48.46	2.26	50.72	74.00	23.28	150	288	Peak	Н
4	4960.60	52.33	-4.86	47.47	54.00	6.53	150	50	AV	Н
5	7440.97	43.11	-1.34	41.77	54.00	12.23	150	288	AV	Н
6	9920.60	45.17	2.27	47.44	54.00	6.56	150	305	AV	Н



Note:

1. The Measurement (Result Level) is calculated by Reading Level adding the Correct Factor(maybe including Ant.Factor and the Cable Factor etc.), The basic equation is as follows:

Result Level= Reading Level + Correct Factor(including Ant.Factor, Cable Factor etc.)

2. The amplitude of 9KHz to 30MHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

3. The amplitude of 18GHz to 25GHz spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be report.

4. All channels had been pre-test, BLE 1M is the worst case, only the worst case was reported.



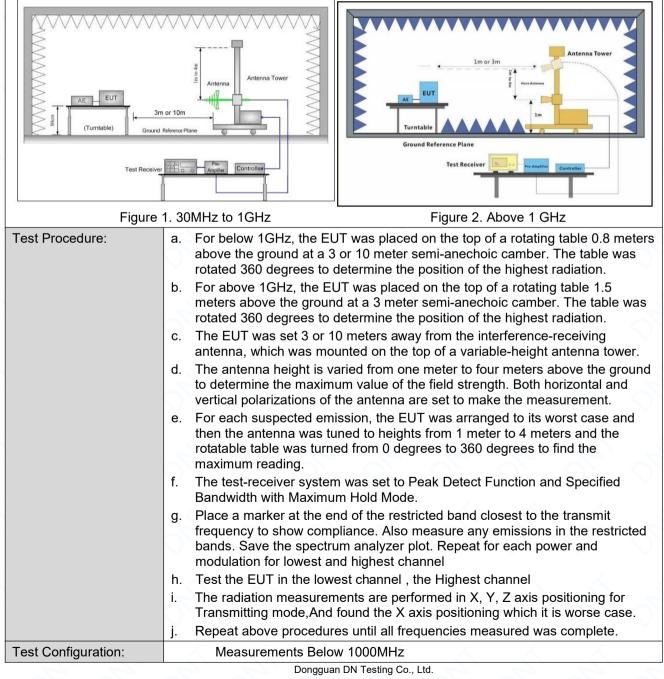
Date: February 27, 2025

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3.9 Restricted bands around fundamental frequency

Test Requirement:	47 CFR Part 15C Section 1	5.209 and 15.205								
Test Method:	ANSI C63.10: 2013 Section	ANSI C63.10: 2013 Section 11.12								
Test Site:	Measurement Distance: 3m	or 10m (Semi-Anechoic C	hamber)							
Limit:	Frequency	Limit (dBuV/m)	Remark							
	30MHz-88MHz	40.0	Quasi-peak							
	88MHz-216MHz	43.5	Quasi-peak							
	216MHz-960MHz	46.0	Quasi-peak							
	960MHz-1GHz	54.0	Quasi-peak							
		54.0	Average Value							
	Above 1GHz	74.0	Peak Value							

Test Setup:



 Add: No. 1, West Fourth Street, Xingfa South Road, Wusha Community, Chang 'an Town, Dongguan City, Guangdong P.R.China

 Web: www.dn-testing.com
 Tel:+86-769-88087383

 E-mail: service@dn-testing.com

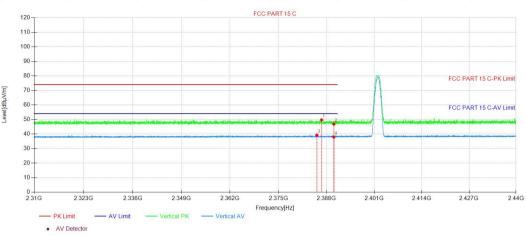


Report No.:	DNT2502180197R1132-01375 Date: February 27, 2025 Page: 26 / 54
	 RBW = 120 kHz VBW = 300 kHz Detector = Peak Trace mode = max hold Peak Measurements Above 1000 MHz RBW = 1 MHz VBW ≥ 3 MHz Detector = Peak Sweep time = auto Trace mode = max hold Average Measurements Above 1000MHz RBW = 1 MHz VBW = 10 Hz, when duty cycle is no less than 98 percent. VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates. Transmitting mode.
Final Test Mode:	Pretest the EUT at Charge + Transmitting mode. Through Pre-scan, find the worst case of GFSK Only the worst case is recorded in the report.
Instruments Used:	Refer to section 2.9 for details
Test Results:	Pass

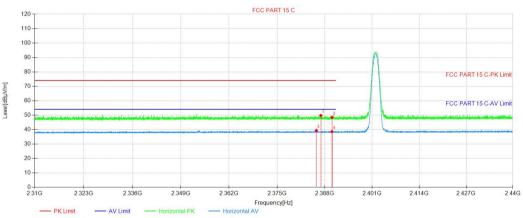
4



Test Date BLE 1M 2402MHz



NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	AV Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2386.68	50.50	-0.81	49.69	74.00	24.31	150	245	Peak	V
2	2390.01	47.66	-0.80	46.86	74.00	27.14	150	0	Peak	V
3	2385.41	40.09	-0.81	39.28	54.00	14.72	150	143	AV	V
4	2390.01	38.73	-0.80	37.93	54.00	16.07	150	132	AV	V



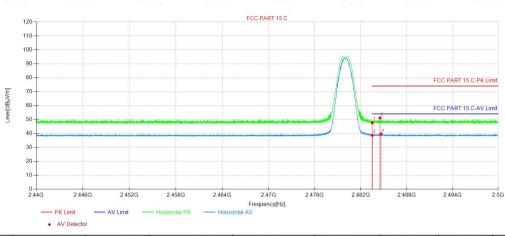
AV Detector

NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	AV Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2386.97	50.56	-0.81	49.75	74.00	24.25	150	303	Peak	Н
2	2390.01	49.27	-0.80	48.47	74.00	25.53	150	258	Peak	Н
3	2385.72	40.15	-0.81	39.34	54.00	14.66	150	57	AV	Н
4	2390.01	39.45	-0.80	38.65	54.00	15.35	150	3	AV	Н

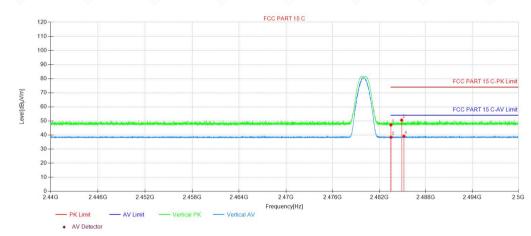


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~	NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	AV Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
	1	2483.50	47.94	-0.29	47.65	74.00	26.35	150	25	Peak	Н
	2	2484.51	51.42	-0.28	51.14	74.00	22.86	150	266	Peak	Н
	3	2483.50	38.90	-0.29	38.61	54.00	15.39	150	278	AV	Н
	4	2484.65	40.00	-0.27	39.73	54.00	14.27	150	314	AV	Н



NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	AV Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	2483.50	47.42	-0.29	47.13	74.00	26.87	150	82	Peak	V
2	2484.90	50.83	-0.27	50.56	74.00	23.44	150	277	Peak	V
3	2483.50	38.71	-0.29	38.42	54.00	15.58	150	300	AV	V
4	2485.18	39.44	-0.27	39.17	54.00	14.83	150	0	AV	V

Note:

1. The BLE 1M is the worse case.

2. The Measurement (Result Level) is calculated by Reading Level adding the Correct Factor(maybe

including Ant.Factor and the Cable Factor etc.), The basic equation is as follows:

Result Level= Reading Level + Correct Factor(including Ant.Factor ,Cable Factor etc.)



3.10AC Power Line Conducted Emissions

47 CFR Part 15C Section 1	5.207	
ANSI C63.10: 2013		\rightarrow \rightarrow \rightarrow
150kHz to 30MHz		0 0 V
	Limit (d	BuV)
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50
* Decreases with the logarit	hm of the frequency.	6 6 6
 room. 2) The EUT was connected Impedance Stabilization Net impedance. The power cab a second LISN 2, which wa plane in the same way as the multiple socket outlet strip was ingle LISN provided the rational structure of the tabletop EUT was performed of the tabletop EUT was performed of the EUT shall be 0.4 m frequence plane. The LISN unit under test and bonded mounted on top of the group between the closest points the EUT and associated eq In order to find the maximum equipment and all of the interval stabilization of the interval structure interval and all of the interval and structure interval and all of the interval and structure interval	I to AC power source throw twork) which provides a 5 les of all other units of the s bonded to the ground re- ne LISN 1 for the unit bein vas used to connect multip ting of the LISN was not e laced upon a non-metallic d for floor-standing arrang bund reference plane, with a vertical ground refe om the vertical ground refe ane was bonded to the ho 1 was placed 0.8 m from the to a ground reference plane and reference plane. This d of the LISN 1 and the EUT upment was at least 0.8 m m emission, the relative po-	ugh a LISN 1 (Line 0Ω/50µH + 5Ω linear EUT were connected to ference g measured. A ole power cables to a xceeded. table 0.8m above the ement, the EUT was erence plane. The rear erence plane. The rear erence plane. The rizontal ground he boundary of the he for LISNs istance was 7. All other units of h from the LISN 2. ositions of
Shielding Room	AE	Test Receiver
	ANSI C63.10: 2013 150kHz to 30MHz Frequency range (MHz) 0.15-0.5 0.5-5 5-30 * Decreases with the logarit 1) The mains terminal distu- room. 2) The EUT was connected Impedance Stabilization Ne impedance. The power cabl a second LISN 2, which was plane in the same way as the multiple socket outlet strip was single LISN provided the rate 3) The tabletop EUT was p ground reference plane. And placed on the horizontal group 4) The test was performed of the EUT shall be 0.4 m frevertical ground reference plane. The LISN unit under test and bonded mounted on top of the group between the closest points of the EUT and associated equin order to find the maximum equipment and all of the inter ANSI C63.10 2013 on cond	150kHz to 30MHz Limit (d Frequency range (MHz) Quasi-peak 0.15-0.5 66 to 56* 0.5-5 56 5-30 60 * Decreases with the logarithm of the frequency. 1) The mains terminal disturbance voltage test was croom. 2) The EUT was connected to AC power source throo Impedance Stabilization Network) which provides a 50 impedance. The power cables of all other units of the a second LISN 2, which was bonded to the ground replane in the same way as the LISN 1 for the unit bein multiple socket outlet strip was used to connect multiple single LISN provided the rating of the LISN was not et a) The tabletop EUT was placed upon a non-metallic ground reference plane. And for floor-standing arrang placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. 4) The test was performed with a vertical ground reference plane. The LISN 1 was placed 0.8 m from th unit under test and bonded to a ground reference plane mounted on top of the ground reference plane. This dibetween the closest points of the LISN 1 and the EUT the EUT and associated equipment was at least 0.8 m In order to find the maximum emission, the relative po equipment and all of the interface cables must be char ANSI C63.10 2013 on conducted measurement.



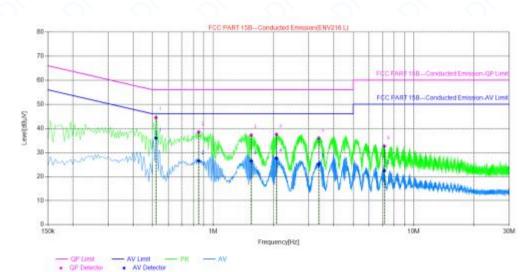
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel. Charge + Transmitting mode.
Final Test Mode:	Through Pre-scan, find the the worst case of GFSK
Instruments Used:	Refer to section 2.9 for details
Test Results:	Pass



Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

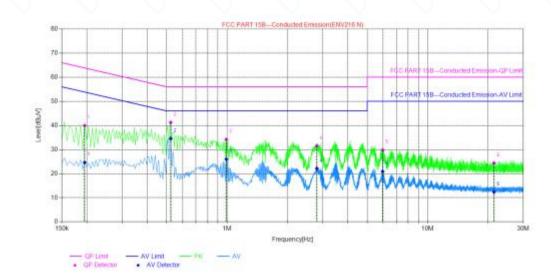
Live Line:



Final	Data Lis	:t					10 e		
NO.	Freq. [MHz]	Factor [dB]	QP Value [dBuV]	QP Limit [dBuV]	QP Margin [dB]	AV Value [dBuV]	AV Limit [dBuV]	AV Margin (dB)	Verdict
1	0.519	9.87	44.49	56.00	11.51	35.95	46.00	10.05	PASS
2	0.8475	9.74	38.47	56.00	17.53	26.43	46.00	19.57	PASS
3	1.5495	9.73	37.20	56.00	18.80	26.42	46.00	19.58	PASS
4	2.0715	9.73	37.51	56.00	18.49	27.58	46.00	18.42	PASS
5	3.372	9.75	35.8-5	56.00	20.15	25.14	46.00	20.86	PASS
6	7.143	9.87	32.60	60.00	27.40	22.38	50.00	27.62	PASS



Neutral Line:



NO.	Freq.	Factor	QP Value	QP Limit	QP Margin	AV Value	AV Limit	AV Margin	Verdict
	[MHz]	[dB]	[dBuV]	[dBuV]	[dB]	[dBuM]	[dBuV]	[dB]	
1	0.195	9.86	39.93	63.82	23.89	24.61	53.82	29.21	PASS
2	0.5235	9.72	41.22	56.00	14.78	34.51	46.00	11.49	PASS
3	0.9915	9.69	34.21	56.00	21.79	25.98	46.00	20.02	PASS
4	2.805	9.85	31.50	56.00	24.50	22.13	46.00	23.87	PASS
5	5.964	9.98	29.76	60.00	30.24	20.88	50.00	29.12	PASS
6	21.435	10.09	24.37	60.00	35.63	12.40	50.00	37.60	PASS

Remark:

1. The BLE 1M is the worse case.

2. The following Quasi-Peak and Average measurements were performed on the EUT:

3. The Measurement (Result Level) is calculated by Reading Level adding the Correct Factor(maybe

including LISN Factor and the Cable Factor etc.), The basic equation is as follows:

Result Level= Reading Level + Correct Factor(including LISN Factor, Cable Factor etc.)



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4 Appendix

Appendix A: Duty Cycle

Test Result

TestMode	Antenna	Freq(MHz)	ON Time [ms]	Period [ms]	Х	DC [%]	xFactor	Limit	Verdict
		2402	2.14	2.50	0.8560	85.60	0.68		
BLE_1M	Ant1	2440	2.14	2.50	0.8560	85.60	0.68		<u> </u>
		2480	2.14	2.50	0.8560	85.60	0.68	· (<u> </u>
	$\hat{\mathbf{O}}$	2402	1.08	2.50	0.4320	43.20	3.65		
BLE_2M	Ant1	2440	1.10	2.50	0.4400	.4400 44.00 3.57		>	~
		2480	1.08	2.50	0.4320	43.20	3.65		



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Test Graphs

	2000000 G	PNO: Fast 🔸	Trig Delay-2. Trig: Video	000 ms #A		TRACE	123456	Frequency
	et 14.31 dB	FGain:Low	#Atten: 20 db	i	Ĺ	Mkr3 2.4	500 ms	Auto Tur
						1	341	Center Fro 2.402000000 G
							TRIG _VL	Start Fr 2.402000000 G
~		····	*0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~		Stop Fr 2.402000000 G
8 MHz	00 GHz	#VBW	8.0 MHz			20.00 ms (1	001 pts)	CF Ste 8.000000 M Auto M
t t (Δ) t (Δ)	2	.140 ms (Δ)	-7.09 dBm -0.16 dB -0.04 dB	FUNCTION	FUNCTION WIDTH	FUNCTIO		Freq Offs
	Ref Offse Ref 24. 40200000 3 MHz	req 2.40200000 G Ref Offset 14.31 dB Ref 24.31 dBm 402000000 GHz MHz t (Δ) 2	req 2.40200000 GHz PRO Fait	reg 2.40200000 GHz PROF Field IF Galaxies PROF Field IF Galaxies Ref Offset 14.31 dB Ref 24.31 dBm 402000000 GHz WHz 402000000 GHz WHz 402000000 GHz WHz 402000000 GHZ WHZ 402000000 GHZ 1 (2) (596 ms 7.09 dBm (2) (2) (2) (2) (2) (2) (2) (2) (2) (2)	reg 2.40200000 GHz Trig Delay-2000 Harmonia #A If Galax 2000 GHz Trig Udeo #A Ref Offset 14.31 dB Ref Offset 14.31 dB Quert 1000 Quert 10000 Quert 1000000 Quert 1000000 Quert 1000000 Quert 1000000 Quert 1000000 Quert 1000000 Quert 10000000 Quert 10000000 Quert 1000000 Quert 1000000 Quert 10000000 Quert 10000000 Quert 10000000 Quert 1000000000000000000000000000000000000	reg 2.40200000 GHz Trig Delay-2000 #Avg Type: RMS PROF. Fair Trig Udeo #Avg Type: RMS Ref Offset 14.31 dB Z Z Ref 24.31 dBm Z Z VIG. PMORE Z Z	req 2.40200000 GHz IFGaln.tew Trig Delay-200 ms Trig Video #Avg Type: RMS Image Type Trig Video Ref Offset14.31 dB Ref 24.31 dBm ΔMkr3 2.4 Question of the trig Video ΔMkr3 2.4 Video Δ Δ Δ Δ Δ Δ Δ Video Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ	reg 2.40200000 GHz IFGalm.tow Frig Delay-200m #Are Trig Video Max E 22 4 5 6 Frig Video Ref Offset 14.31 dB Ref 24.31 dBm ΔMkr3 2.500 ms A/Mkr3 2.500 ms .0.04 dB .0.04 dB .0.05 dB .0.05 dB .0.05 dB .0.05 dB .0.05 dB .0.05 dB .0.05 dB .0.05 dB

BLE_1M_Ant1_2440

Offset 14.31 dB 24.31 dBm	PNO: Fast → IFGain:Low	#Atten: 20 dl	3		ΔMkr3 2.	500 ms 0.02 dB	Auto Tur Center Fre 2.44000000 Gł Start Fre 2.44000000 Gł
ug			4	N		TRIG _VL	2.44000000 Gł Start Fre 2.44000000 Gł
Lange Contraction of the second secon				P.	ni)		2.440000000 Gł
							Stop Er
							2.440000000 Gi
0000 GHz	#VBV	V 8.0 MHz			20.00 ms (CF Sto 8.000000 M Auto M
Δ)		0.06 dE					Freq Offs 0
	× Δ) Δ)	× 16.96 ms Δ) 2.140 ms (Δ)	16.96 ms -6.26 dBm Δ) 2.140 ms (Δ) 0.06 dB	X Y FUNCTION 16.96 ms -6.26 dBm Δ) 2.140 ms (Δ) 0.06 dB	X Y FUNCTION FUNCTION WIDT 16.96 ms -6.26 dBm -	X Y FUNCTION FUNCTION FUNCTION FUNCTION 16.96 ms -5.26 dBm	X Function Fu

BLE_1M_Ant1_2480

	ectrum		lyzer - Swept SA									
XI RL Center	Fre	RF q 2	50 Ω DC			Trig Delay-			ALIGNAUTO Type: RMS	TRAC TYP	Feb 24, 2025 E 1 2 3 4 5 6 E WWWWWW	Frequency
10 dB/di			Offset 14.31 o 24.31 dBm	IFGain:Lo	w	#Atten: 20			L	\	500 ms 0.01 dB	Auto Tune
14.3 4.31 -5.69										1	341	Center Freq 2.480000000 GHz
-15.7 -25.7 -35.7											1786 . VL	Start Freq 2.480000000 GHz
-45.7 -55.7 -65.7		-										Stop Freq 2.48000000 GHz
Center Res BW			00000 GHz	#	vвw	8.0 MHz			Sweep 2	S 20.00 ms (*	pan 0 Hz 1001 pts)	CF Step 8.000000 MHz
MRF M0000 1 N 2 Δ1 3 Δ1 4 5 6 7 8 9 10 11		t t t	(Δ)	16.96 ms 2.140 ms 2.500 ms	(Δ)	Y -7.35 dBr 0.00 d 0.01 d	в	TION	FUNCTION WIDTH	FUNCTIO		<u>Auto</u> Man Freq Offset 0 Hz
< NSG						3			STATU	JS		



Date: February 27, 2025

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ente	er Freq		50 Ω)200	DC 0000	PN	0: Fast	••	Trig D)elay-2 Video	ILSE SOURC .000 ms	#Avg		LIGNAUT RMS	0	04:50:5 T	TYPE	eb 24, 2 1 2 3 4 WWWW P P P P	56	Fr	equency
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og 14.3 - 4.31 -				_											⊘ ¹	Q ²	2Δ13/	1		enter Fre
5.7 5.7	Henry W		Loude			ر. مامر	_							المراجع			TRIG	_	2.402	Start Fre
15.7 — 15.7 — 16.7 —	10-10-10-10-10-10-10-10-10-10-10-10-10-1		Libert.	541		*****	_	by when canyone		presidentingenf	v	+1.1.44M	*	440	hour.		***		2.402	Stop Fr 2000000 G
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6 7 8 9 0																				
1					_	_		3)	~		

BLE_2M_Ant1_2440

Ref Offset 14.31 dB Rod Bidly ΔMkr3 2.500 ms 0.03 dB Auto Tr 0.03 dB 10 dBidly Ref 24.31 dB Ref 24.31 dB Ref 24.31 dB Center F 2.40000000 Center F 2.40000000 431 431 431 431 431 431 431 431 431 431	Center Freq 2.440	PNO: Fast	SENSE: PULSE SOURD Trig Delay-2.000 ms Trig: Video #Atten: 20 dB		0 04:53:54 AM Feb 24, 2 TRACE 1 2 3 4 TYPE WWWW DET P P P F	Frequency
14.3 3Δ1 Center F 4.31 3Δ1 563 663 3Δ1 563 7 3Δ1 563 7 3Δ1 563 7 3Δ1 563 7 301 563 7 301 563 7 37 301 7 37 301 7 37 301 7 37 301 7 37 301 7 37 301 7 37 301 857 301 301 67 301 301 7 301 301 868 3000000 9 301 9 301 9 301 9 301 9 301 9 300000 9 300000 9 300000 9 300000 9 3000000 9 3000000 9 3000000 9 3000000 9 30000000 9 30000000 9 3000000000000000000000000000000000000	10 dB/div Ref 24.3	t 14.31 dB	BAtten: 20 dB		ΔMkr3 2.500 r	ns Auto Tun
Start F Start F <t< th=""><th>4.31</th><th></th><th>2∆1 ♦3∆1</th><th></th><th></th><th>Center Fre 2.440000000 GH</th></t<>	4.31		2∆1 ♦3∆1			Center Fre 2.440000000 GH
457 5 2 4 6 5 5 5 5 5 5 5 5 2 4 6 7 6 7 6 7 <th7< th=""> 7 <th7< th=""> <th7< th=""></th7<></th7<></th7<>	15.7					2.440000000 GH
Les BW 8 MHz #VBW 8.0 MHz Sweep 20.00 ms (1001 pts) Auto Dig Model (156 Set) X X Street (156 Set) Auto Auto Dig Model (156 Set) X X Street (156 Set) Street (156 Set) Street (156 Set) Auto Auto Dig Model (156 Set) X Street (156 Set) Street (156 Set) Street (156 Set) Auto Auto 21 A1 1 L (10) 1.000 ms (10) Set (156 Set) Set (156 Set) Freq Off 31 A1 1 L (10) 2.500 ms (10) Set (156 Set) Set (156 Set) </td <td>55.7</td> <td>sectore todala prior</td> <td></td> <td>4-961-541</td> <td>Anthrone Advances</td> <td>Stop Fre 2.440000000 GH</td>	55.7	sectore todala prior		4-961-541	Anthrone Advances	Stop Fre 2.440000000 GH
1 N 1 t 6580 ms 5.17 dBm 2 Δ1 t t 1.00 ms (Δ) 5.89 dB 5.00 ms 3 Δ1 t t 1.00 ms (Δ) 0.03 dB 5.00 ms 4 5 5 5 5 5 5 5	es BW 8 MHz	#VBW			20.00 ms (1001 p	8.000000 MH
6	1 N 1 t 2 Δ1 1 t (Δ) 3 Δ1 1 t (Δ) 4 5	6.960 ms 1.100 ms (Δ)	-6.17 dBm -5.89 dB		PORCIONVALUE	Freq Offs 01
	7 8 9 10					

BLE_2M_Ant1_2480

Agilent	t Spec	trum	Ana	ilyzer	- Sw	ept S	A																	
Cent	ter l	Fre	RF q 2	.48	50 Q	DC 000	00 (GH	z		Trig		2.000 m				RMS	TO	04:5	TRA	M Feb 24 28 1 2 3 PE W W	45	6	Frequency
10 45	7/410				et 14				0: Fas ain:Lo			en: 20						Δ	Mkr	D 3 2.	500 0.06	m	P S	Auto Tune
10 de 14.3 4.31	Sint		\CI	24										0	10	2∆1	♦ ^{3∆}	1						Center Freq 2.48000000 GHz
-15.7 -25.7 -35.7		المراجع	~		want	Helen		-um	H		mana		******			14.40	u		Angeldage		TF Augulau		<u>u</u>	Start Freq 2.48000000 GHz
-45.7 -55.7 -65.7																								Stop Freq 2.48000000 GHz
Cent Res	BW	8 №	1Hz	000	00 0		×		#\	∕в₩	/ 8.0 N	ЛНz	5	INCT	1041	_	weep	_	_	ms (pan 1001	pts)	CF Step 8.000000 MHz Auto Man
1	Ν Δ1 Δ1	1	tt	(Δ) (Δ)				1.08	6 ms 0 ms 0 ms	(Δ)	-	08 dBi 0.16 d 0.06 d	m B											Freq Offset 0 Hz
MSG																	ST	ATUS						

Dongguan DN Testing Co., Ltd.

 Add: No. 1, West Fourth Street, Xingfa South Road, Wusha Community, Chang 'an Town, Dongguan City, Guangdong P.R.China

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 E-mail: service@dn-testing.com



Report No.: DNT2502180197R1132-01375 Appendix B: DTS Bandwidth

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Test Result

	restresult	-						
	TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
			2402	0.668	2401.676	2402.344	0.5	PASS
	BLE_1M	Ant1	2440	0.668	2439.684	2440.352	0.5	PASS
			2480	0.684	2479.692	2480.376	0.5	PASS
			2402	1.152	2401.436	2402.588	0.5	PASS
	BLE_2M	Ant1	2440	1.136	2439.456	2440.592	0.5	PASS
			2480	1.152	2479.464	2480.616	0.5	PASS



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Test Graphs

		В	LE_1M	I_Ant1	_2402		
UXI RL	rum Analyzer - Sw RF 50 Ω req 2.40200	DC 00000 GHz PNO: Wide +-	Trig: Free Ru		ALIGNAUTO Type: RMS Iold: 100/100	04:42:50 AM Feb 24, 2025 TRACE 1 2 3 4 5 6 TYPE MWANWAY DET P P P P P P	
10 dB/div	Ref Offset 14 Ref 30.00		#Atten: 40 dB		1	ΔMkr3 668 kHz 0.473 dB	Auto Tune
20.0							Center Freq 2.402000000 GHz
-10.0 -20.0 -30.0			- Streem	3∆1	~	-13.65 aBm	Start Freq 2.400000000 GHz
-40.0 -50.0 -50.0	son on one	Josephine Marine Ma Marine Marine Ma Marine Marine Ma Marine Marine Mari			Www.www.	3wa-,~~~~~~~~~~~~~	Stop Freq 2.404000000 GHz
Center 2. #Res BW		#VB	N 300 kHz	FUNCTION	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	CF Step 400.000 kHz Auto Man
1 N 1 2 N 1 3 ∆1 1 4 5 6	f f f (Δ)	2.401 676 GHz 2.402 248 GHz 668 kHz (Δ	-13.530 dBm -7.653 dBm) 0.473 dB				Freq Offset 0 Hz
7 8 9 10 11						,*	
MSG					STATU		L

BLE_1M_Ant1_2440

Center Pred Z.4400000 GHZ Trig: Free Run Ref Offset 1.431 dB Anglield: 100/100 Trig: Pree Run Ref Offset 1.431 dB Auto 200 0 0 0.040 dB 0.040 dB Center 2.4400000 GHZ Center 2.4400000 GHZ Start St						alyzer - Swept SA			
Control <				SENSE:PUL	011				
Ref Offset (143) dB Δ/M/K7 b 088 KH2 98 0.040 dB 99 0.040 dB 90 0.040 dB	DET P P P P P P	Hold: 100/100			PNO: Wide	2.440000000	Freq	iter i	en
96 00 0		۱۵						B/div	0 d
N 1 <th1< th=""> <th1< th=""> <th1< th=""> <th1< th=""></th1<></th1<></th1<></th1<>	Center Fr 2.44000000 G								20.0
N f 2.433 824 GHz 12.13 80m Fragment Auto Δ1 f 2.44282 GHz 6.693 Hz 0.04 GHz Fragment 400.0			\$23∆1	June				-	0.0
0.0 Span 4.000 GHz Span 4.000 MHz Cr Res BW 100 kHz #VBW 300 kHz Sweep 1.000 ms (100 1 pts) 4000 1 N 1 2.438 694 GHz 12.418 GBm Auto Auto 2 N 1 2.438 694 GHz 12.418 GBm Fluxetown Fluxetown <t< td=""><td></td><td>mon</td><td></td><td></td><td>mohan</td><td>ar an an</td><td>~~~~</td><td></td><td>0.0</td></t<>		mon			mohan	ar an	~~~ ~		0.0
A babe (ad bec) 2 4/38 624 GHz 12 419 dBm 2000000 1200-12000H 20000H 2000H 20000H 20000H 2000H 2	Span 4.000 MHz CF St 5 1.000 ms (1001 pts) 400.000 k			300 kHz	#VBW			nter 2	en
3 Δ1 1 f (Δ) 668 kHz (Δ) 0.040 dB Freq (FUNCTION WIDTH	FUNCTION	-12.419 dBm		2.439	1 f	N	1
	Freq Offe								3 4 5
									7 8 9
	×			4					

BLE_1M_Ant1_2480

		ctru		alyzer - Sw											
NU P Cer		Fre	RF eq 2		0000 GH	iz IO: Wide		SENSE			Type	LIGNAUTO : RMS 100/100	TR	AM Feb 24, 2025 ACE 1 2 3 4 5 6	Frequency
	B/di			Offset 14	.31 dB	iO: wide Gain:Low		#Atten: 40					∆Mkr3	684 kHz 0.063 dB	Auto Tune
20.0 10.0									.2						Center Freq 2.480000000 GHz
-10.0 -20.0 -30.0						ىر	~	J.	2	3∆1	\ \			-14.U7 OBN	Start Freq 2.478000000 GHz
-40.0 -50.0 -60.0	-	<u></u> Д	***	~~^~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	h,n ^r					~	when	1 ⁰	**************************************	Stop Freq 2.482000000 GHz
#Re	2enter 2.480000 GHz Span 4.000 MHz Span 4.000 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.000 ms (1001 pts)												CF Step 400.000 kHz Auto Man		
1 2 3 4 5 6 7 8 9 10 11 <	N N Δ1	1	f f	(Δ)	× 2.479 692 2.480 011 66			13.989 dE -8.066 dE 0.063	8m 8m	FUNCTION	FUNI	CTION WIDTH	FUNC		Freq Offset 0 Hz
MSG												STATU	s		L



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Encoded of the process of the proces of the proces of the process of the process of the	r3 1.152 MHz		Avg Hold: 1		Trig: Fre	0: Wide 🔸		2.40200	Freq	ter
2.40200000	0.901 dBL	∆Mkr3		U dB	#Atten: 4	iain:Low	31 dB			B/div
241				.2						
		Anna and a start and a start a	3Δ1	hove	<u>የ</u> ረት ምምም		, and the second			
								Ar Mar		J.V.
	00 ms (1001 pts)	weep 1.000				#VBW	×	kHz	2.4020 W 100	s Bl
				Bm	-7.823 d	1 GHz	2.402 02	(Δ)	1 f 1 f 1 f	Ν Δ1
										_

BLE_2M_Ant1_2440

Agilent Spectrum Analyzer - Sv					
RL RF 50: Center Freg 2.4400		SENSE:PULSE SO	#Avg Type: RMS	04:54:05 AM Feb 24, 2025 TRACE 1 2 3 4 5 6	Frequency
enter Freq 2.4400	PNO: Wide ++ IFGain:Low	Trig: Free Run #Atten: 40 dB	Avg Hold: 100/100	TYPE MWWWWW DET P P P P P P	
Ref Offset 1 0 dB/div Ref 30.00			ΔN	1kr3 1.136 MHz -0.219 dB	Auto Tun
og 20.0 10.0					Center Fre 2.440000000 GH
0.00	month	and and a second	3∆1	-13 30 uBm	Start Fre 2.438000000 G⊦
50.0				and and a second se	Stop Fre 2.442000000 G⊦
enter 2.440000 GHz Res BW 100 kHz		300 kHz	Sweep 1	Span 4.000 MHz .000 ms (1001 pts)	CF Ste 400.000 kł
XF MODE THE SEL		-12.403 dBm	INCTION FUNCTION WIDTH	FUNCTION WALLIE	<u>Auto</u> Ma
2 N 1 f 3 Δ1 1 f (Δ) 4 5	2.440 000 GHz 1.136 MHz (Δ)	-7.295 dBm -0.219 dB			Freq Offs 0 H
6 7 8 9					
10 11 C				×	
10			CTATIN		

BLE_2M_Ant1_2480

Agilent Spectrum Analyzer - S	wept SA									
	Ω DC 000000 GHz	sense:Pulse sou	RCE OFF ALIGNAUTO #Avg Type: RMS AvglHold: 100/100	04:56:46 AM Feb 24, 2025 TRACE 1 2 3 4 5 6 TYPE MWWWWW	Frequency					
Ref Offset 1	PNO: Wide +++ IFGain:Low 4.31 dB	#Atten: 40 dB	-	DET PPPPPP	Auto Tune					
10 dB/div Ref 30.00 20.0 10.0				-0.402 dB	Center Freq 2.480000000 GHz					
0.00 -10.0 -20.0 -30.0	2 million and the	New Marine	March 1	-14.80 abm	Start Freq 2.478000000 GHz					
-40.0 0000000000000000000000000000000000				W. Martin	Stop Freq 2.482000000 GHz					
Center 2.480000 GH #Res BW 100 kHz	Center 2.480000 GHz Span 4.000 MHz #Res BW 100 kHz #VBW 300 kHz Sweep 1.000 ms (1001 pts)									
NORE NORE FIG SEE 1 N 1 f f 2 N 1 f () 3 A11 1 f () 4 - - - - 6 - - - - 7 - - - - 9 - - - - 10 - 11 - - 11 - - - - 6 - - - - 9 - - - - 11 - - - - MGG - - - -	× 2.479 464 GHz 2.479 500 GHz 1.152 MHz (Δ)	Y BU: -14.287 dBm -8.800 dBm -0.402 dB	STATUS		Auto Man Freq Offset 0 Hz					



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Appendix C: Maximum conducted output power

Test Result

TestMode	Antenna	Freq(MHz)	Conducted Peak Powert[dBm]	Conducted Limit[dBm]	Verdict
		2402	-5.18	≤30	PASS
BLE_1M	Ant1	2440	-3.54	≤30	PASS
		2480	-5.05	≤30	PASS
	Ant1	2402	-5.36	≤30	PASS
BLE_2M		2440	-3.51	≤30	PASS
		2480	-4.95	≤30	PASS



Test Graphs

