

# **FCC Test Report**

Application No.:	DNT2502130118R0992-01235			
Applicant:	Shenzhen guo-link Technology Co.,Ltd.			
Address of Applicant:	Room 10102, Workshop 4, No. 1 Road, Shangxue Technology City, Xinxue Community, Bantian Sub-district, Longgang District, Shenzhen City, China			
EUT Description: Locator device				
Model No.:	K5, k6			
FCC ID:	2BGM6-K5			
Power Supply:	Input:DC 5V/1A From Wireless charging; DC 3.7V From Battery			
Trade Mark:	GUO-LINK			
	47 CFR FCC Part 2, Subpart J			
Standards:	47 CFR Part 15, Subpart C			
	ANSI C63.10: 2013			
Date of Receipt:	2025/02/18			
Date of Test:	2025/02/18 to 2025/03/05			
Date of Issue:	2025/03/07			
Test Result:	PASS			

Prepared By: Reviewed By:

Approved By:

Wayne Jon Jenuils chen Vierse ahan (Testing Engineer) (Project Engineer) (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.

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**Report Revise Record** 

Report Version Revise Time		Issued Date	Valid Version	Notes
V2.0		Mar.07, 2025	Valid	Original Report



1

Report No.: DNT2502130118R0992-01235

## Test Summary

Test Item	Test Requirement	Test Method	Test Result	Result
Antenna Requirement	15.203/247(b)	<u> </u>	Clause 3.1	PASS
Duty Cycle	, <del>, ,</del> , , , , , , , , , , , , , , , ,	· · · · · · · · · · · · · · · · · · ·	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:	Shenzhen guo-link Technology Co.,Ltd.
Address of Manufacturer:	Room 10102, Workshop 4, No. 1 Road, Shangxue Technology City, Xinxue Community, Bantian Sub-district, Longgang District, Shenzhen City, China
EUT Description:	Locator device
Test Model No.:	k5
Additional Model(s):	k6
Chip Type:	OM66269
Serial Number	PR2502130118R0992
Power Supply	Input:DC 5V/1A From Wireless charging; DC 3.7V From Battery
Trade Mark:	GUO-LINK
Hardware Version:	V1.0
Software Version:	V1.0
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 Coin*:	⊠ Provided by applicant
Antenna Gain*:	2.67dBi
	⊠ 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 appearance differences, motherboard, PCB circuit board, chip, electronic components 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.



### 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		662x_FCC_Rev2.1	
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.	Item Measurement Uncertainty		
1	Conduction Emission	± 3.0dB (150kHz to 30MHz)	
		± 4.8dB (Below 1GHz)	
2		± 4.8dB (1GHz to 6GHz)	
2	Radiated Emission	± 4.5dB (6GHz to 18GHz)	
		± 5.02dB (Above 18GHz)	



## 2.9 Equipment List

For Connect EUT Antenna 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 S	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 Equipment for Conducted Emission								
Description Manufacturer Model Serial Number Cal Date Due I								
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								

Test Ec	quipment for F	Radiated Emis	sion(30MHz-	-1000MHz	z)	
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.
	Adapter	Ao tong	GA-1202000C	JS-DN-RF-027
2	Wireless Charging	Manyi	ZGJ221	1
3	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 2.67dBi.



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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  $\geq$  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).



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## 3.3 DTS (6 dB) Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(2)	
Test Method:	ANSI C63.10: 2013 Section 11.8.1 Option 1	~
Test Setup:	Spectrum Analyzer E.U.T	on on
	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	0
Limit:	≥ 500 kHz	
Test Results:	Pass	~

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
Limit:	≤8.00dBm/3kHz
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



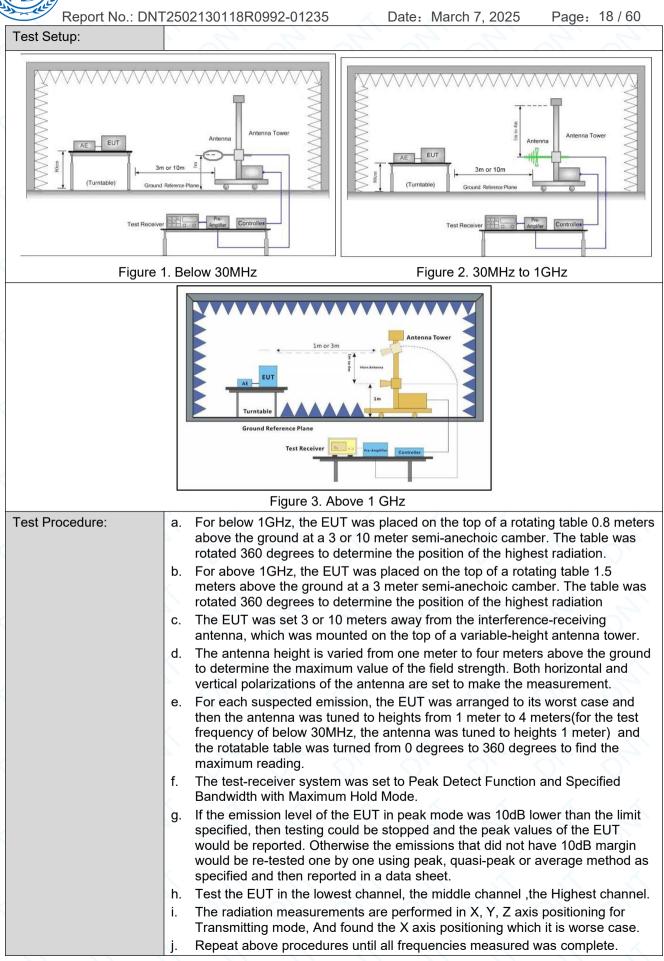
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### 3.8 Radiated Spurious Emissions

47 CFR Part 15C Section 15.209 and 15.205								
ANSI C63.10: 2013 Sect	ANSI C63.10: 2013 Section 11.12							
Measurement Distance: 3m or 10m (Semi-Anechoic Chamber)								
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)	Average				
5 2 2	2 2	2	≥1/T (DC<0.98)	2 2				
Frequency	Field strength (microvolt/meter)	Limit (dBuV/m)	Remark	Measurement distance (m)				
0.009MHz-0.490MHz	2400/F(kHz)	<u> </u>	<u> </u>	300				
0.490MHz-1.705MHz	24000/F(kHz)	$\mathcal{S}^{-}$	2 - 2	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				
	ANSI C63.10: 2013 Sect Measurement Distance: Frequency 0.009MHz-0.090MHz 0.009MHz-0.090MHz 0.090MHz-0.110MHz 0.110MHz-0.490MHz 0.110MHz-0.490MHz 0.490MHz -30MHz 30MHz-1GHz Above 1GHz Frequency 0.009MHz-0.490MHz 0.490MHz-1.705MHz 1.705MHz-30MHz 30MHz-88MHz 88MHz-216MHz 216MHz-960MHz 960MHz-1GHz	ANSI C63.10: 2013 Section 11.12         Measurement Distance: 3m or 10m (Semi-A         Frequency       Detector         0.009MHz-0.090MHz       Peak         0.009MHz-0.090MHz       Average         0.009MHz-0.110MHz       Quasi-peak         0.110MHz-0.490MHz       Peak         0.110MHz-0.490MHz       Average         0.490MHz -30MHz       Quasi-peak         30MHz-1GHz       Quasi-peak         Peak       Peak         Above 1GHz       Field strength (microvolt/meter)         0.009MHz-0.490MHz       2400/F(kHz)         0.490MHz-1.705MHz       24000/F(kHz)         1.705MHz-30MHz       30         30MHz-1.705MHz       24000/F(kHz)         1.705MHz-30MHz       30         30MHz-88MHz       100         88MHz-216MHz       150         216MHz-960MHz       200         960MHz-1GHz       500	ANSI C63.10: 2013 Section 11.12         Measurement Distance: 3m or 10m (Semi-Anechoic Ch         Frequency       Detector       RBW         0.009MHz-0.090MHz       Peak       10kHz         0.009MHz-0.090MHz       Average       10kHz         0.009MHz-0.110MHz       Quasi-peak       10kHz         0.110MHz-0.490MHz       Peak       10kHz         0.110MHz-0.490MHz       Average       10kHz         0.110MHz-0.490MHz       Average       10kHz         0.490MHz -30MHz       Quasi-peak       10kHz         30MHz-1GHz       Quasi-peak       120kHz         Above 1GHz       Peak       1MHz         Peak       1MHz       Peak         Moore 1GHz       Field strength (microvolt/meter)       Limit (dBuV/m)         0.009MHz-0.490MHz       2400/F(kHz)       -         0.490MHz-1.705MHz       24000/F(kHz)       -         1.705MHz-30MHz       30       -         30MHz-18HZ       100       40.0         88MHz-216MHz       150       43.5         216MHz-960MHz       200       46.0         960MHz-1GHz       500       54.0	$\begin{array}{ c c c c c c c c c c c c c c c c c c c$				



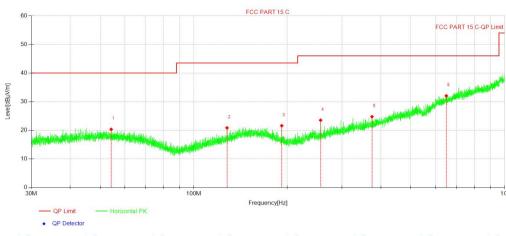




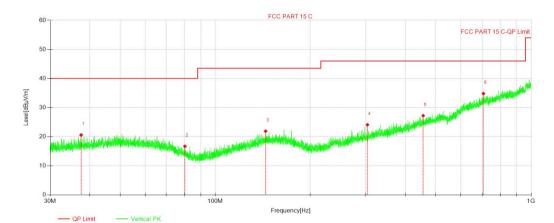
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Test Configuration:	Measurements Below 1000MHz   • RBW = 120 kHz  • VBW = 300 kHz  • Detector = Peak  • Trace mode = max hold
	Peak Measurements Above 1000 MHz • RBW = 1 MHz • VBW $\ge$ 3 MHz
	<ul> <li>Detector = Peak</li> <li>Sweep time = auto</li> <li>Trace mode = max hold</li> </ul>
	<ul> <li>Average Measurements Above 1000MHz</li> <li>RBW = 1 MHz</li> <li>VBW = 10 Hz, when duty cycle is no less than 98 percent.</li> <li>VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum</li> </ul>
	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



### 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	54.22	28.57	-8.22	20.35	40.00	19.65	100	276	PK	Horizontal
2	127.93	30.48	-9.62	20.86	43.50	22.64	100	164	PK	Horizontal
3	191.95	32.32	-10.70	21.62	43.50	21.88	100	360	PK	Horizontal
4	255.98	32.30	-8.77	23.53	46.00	22.47	100	6	PK	Horizontal
5	374.62	29.75	-4.99	24.76	46.00	21.24	100	4	PK	Horizontal
6	649.66	30.61	1.44	32.05	46.00	13.95	100	205	PK	Horizontal

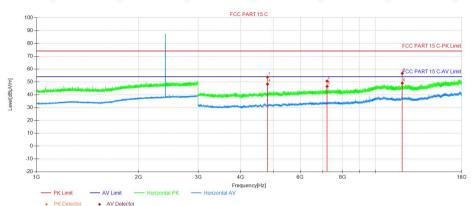


		QP Detector								
NO.	Freq. [MHz]	Reading Level [dBµV]	Correct Factor [dB/m]	Result Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Detector	Polarity
1	37.63	29.72	-9.10	20.62	40.00	19.38	100	246	PK	Vertical
2	80.19	29.33	-12.60	16.73	40.00	23.27	100	80	PK	Vertical
3	144.39	30.11	-8.20	21.91	43.50	21.59	100	222	PK	Vertical
4	303.33	31.00	-6.89	24.11	46.00	21.89	100	360	PK	Vertical
5	455.43	29.93	-2.70	27.23	46.00	18.77	100	180	PK	Vertical
6	706.45	32.36	2.46	34.82	46.00	11.18	100	274	PK	Vertical

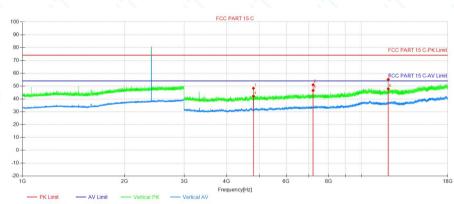


For above 1GHz

### 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	4805.34	58.37	-4.61	53.76	74.00	20.24	150	342	PK	Н
2	7204.71	52.44	-1.77	50.67	74.00	23.33	150	36	PK	Н
3	12012.45	54.35	2.28	56.63	74.00	17.37	150	324	PK	Н
4	4804.59	52.92	-4.61	48.31	54.00	5.69	150	342	AV	Н
5	7206.96	48.27	-1.76	46.51	54.00	7.49	150	19	AV	Н
6	12013.20	46.74	2.28	49.02	54.00	4.98	150	324	AV	Н



PK Detector
 AV Detecto

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	4803.84	52.90	-4.61	48.29	74.00	25.71	150	108	PK	V
2	7207.71	52.78	-1.76	51.02	74.00	22.98	150	214	PK	V
3	12007.95	52.89	2.29	55.18	74.00	18.82	150	214	PK	V
4	4803.84	46.76	-4.61	42.15	54.00	11.85	150	108	AV	V
5	7206.96	48.32	-1.76	46.56	54.00	7.44	150	357	AV	V
6	12010.95	45.51	2.29	47.80	54.00	6.20	150	339	AV	V

Dongguan DN Testing Co., Ltd.

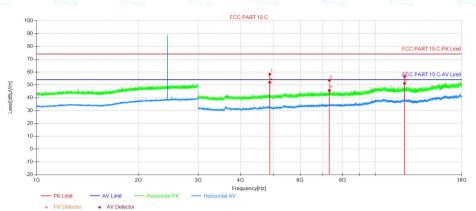
 Add: No. 1, West Fourth Street, Xingfa South Road, Wusha Community, Chang 'an Town, Dongguan City, Guangdong P.R.China

 Web: www.dn-testing.com
 Tel:+86-769-88087383
 E-mail: <a href="mailto:service@dn-testing.com">service@dn-testing.com</a>

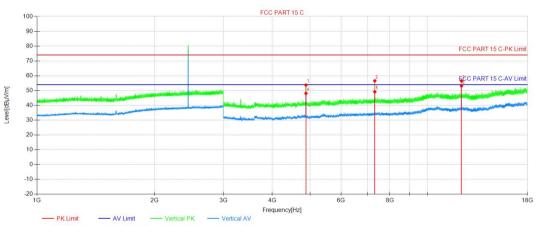


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BLE 1M 2440MHz



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	4881.09	63.02	-4.71	58.31	74.00	15.69	150	216	PK	н
2	7321.72	55.13	-1.49	53.64	74.00	20.36	150	18	PK	Н
3	12202.21	54.31	2.16	56.47	74.00	17.53	150	349	PK	Н
4	4881.09	56.74	-4.71	52.03	54.00	1.97	150	149	AV	Н
5	7320.97	47.17	-1.49	45.68	54.00	8.32	150	67	AV	Н
6	12200.71	49.04	2.15	51.19	54.00	2.81	150	358	AV	Н



PK Detector
 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	4878.84	58.40	-4.70	53.70	74.00	20.30	150	119	PK	V
2	7320.97	58.05	-1.49	56.56	74.00	17.44	150	52	PK	V
3	12199.96	54.38	2.15	56.53	74.00	17.47	150	35	PK	V
4	4879.59	52.80	-4.70	48.10	54.00	5.90	150	104	AV	V
5	7321.72	50.64	-1.49	49.15	54.00	4.85	150	35	AV	V
6	12200.71	50.93	2.15	53.08	54.00	0.92	150	35	AV	V

Dongguan DN Testing Co., Ltd.

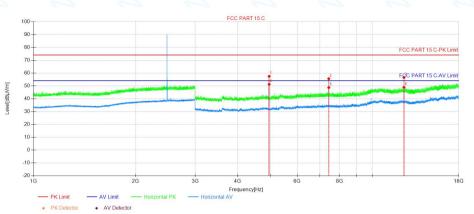
 Add: No. 1, West Fourth Street, Xingfa South Road, Wusha Community, Chang 'an Town, Dongguan City, Guangdong P.R.China

 Web: www.dn-testing.com
 Tel:+86-769-88087383
 E-mail: <a href="mailto:service@dn-testing.com">service@dn-testing.com</a>

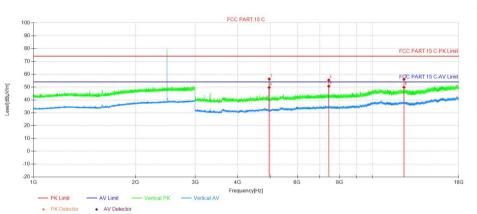


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BLE 1M 2480MHz



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	62.32	-4.86	57.46	74.00	16.54	150	284	PK	н
2	7437.97	56.91	-1.33	55.58	74.00	18.42	150	20	PK	Н
3	12397.22	54.05	2.44	56.49	74.00	17.51	150	37	PK	Н
4	4959.85	56.12	-4.86	51.26	54.00	2.74	150	212	AV	Н
5	7440.97	50.03	-1.34	48.69	54.00	5.31	150	4	AV	Н
6	12402.47	46.46	2.46	48.92	54.00	5.08	150	37	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	4961.35	61.16	-4.86	56.30	74.00	17.70	150	108	PK	V
2	7439.47	56.80	-1.34	55.46	74.00	18.54	150	57	PK	V
3	12402.47	53.57	2.46	56.03	74.00	17.97	150	161	PK	V
4	4959.85	54.52	-4.86	49.66	54.00	4.34	150	108	AV	V
5	7440.97	52.01	-1.34	50.67	54.00	3.33	150	39	AV	V
6	12400.97	47.39	2.45	49.84	54.00	4.16	150	161	AV	V

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 Web: www.dn-testing.com Tel:+86-769-88087383 E-mail: service@dn-testing.com



#### 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, only the worst case was reported.

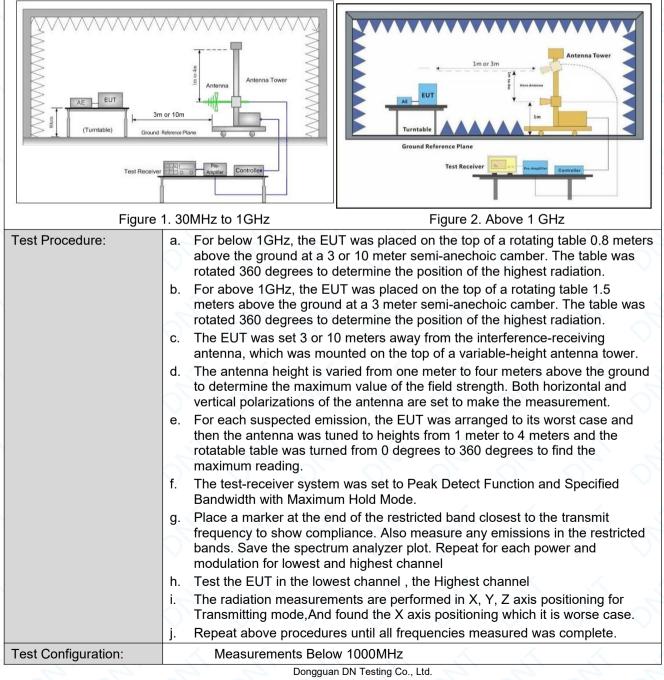


Report No.: DNT2502130118R0992-01235 Date: March 7, 2025 Page: 25/60

### 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:



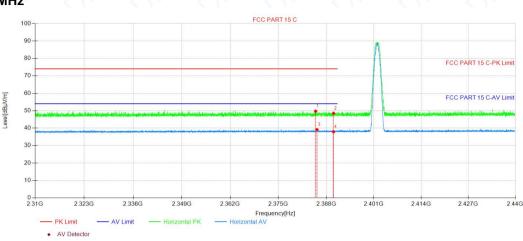
Add: No. 1, West Fourth Street, Xingfa South Road, Wusha Community, Chang 'an Town, Dongguan City, Guangdong P.R.China E-mail: service@dn-testing.com



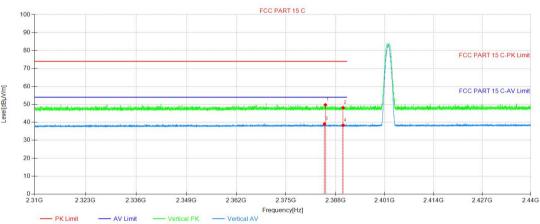
Report No.:	DNT2502130118R0992-01235 🛛 🔨 Date: March 7, 2025 Page: 26 / 60
	<ul> <li>RBW = 120 kHz</li> <li>VBW = 300 kHz</li> <li>Detector = Peak</li> <li>Trace mode = max hold</li> <li>Peak Measurements Above 1000 MHz</li> <li>RBW = 1 MHz</li> <li>VBW ≥ 3 MHz</li> <li>Detector = Peak</li> <li>Sweep time = auto</li> <li>Trace mode = max hold</li> <li>Average Measurements Above 1000MHz</li> <li>RBW = 1 MHz</li> <li>VBW = 10 Hz, when duty cycle is no less than 98 percent.</li> <li>VBW ≥ 1/T, when duty cycle is less than 98 percent where T is the minimum</li> <li>transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.</li> </ul>
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates.
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



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	2385.12	50.56	-0.81	49.75	74.00	24.25	150	249	Peak	Н
2	2390.01	49.31	-0.80	48.51	74.00	25.49	150	6	Peak	Н
3	2385.50	39.95	-0.81	39.14	54.00	14.86	150	216	AV	н
4	2390.01	38.72	-0.80	37.92	54.00	16.08	150	324	AV	Н



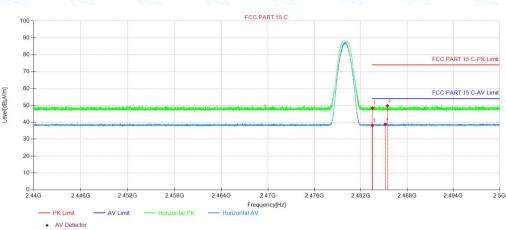
AV Detector

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	2385.34	50.54	-0.81	49.73	74.00	24.27	150	164	Peak	V
2	2390.01	48.97	-0.80	48.17	74.00	25.83	150	294	Peak	V
3	2385.10	39.90	-0.81	39.09	54.00	14.91	150	305	AV	V
4	2390.01	39.21	-0.80	38.41	54.00	15.59	150	112	AV	V

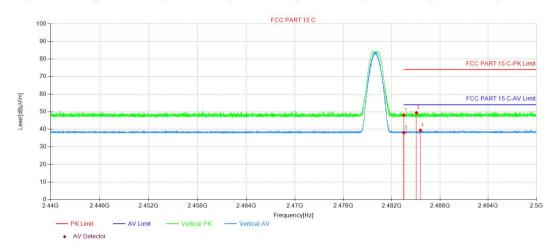


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BLE 2480MHz



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	48.70	-0.29	48.41	74.00	25.59	150	294	PK	Horizontal
2	2485.45	50.06	-0.27	49.79	74.00	24.21	150	230	PK	Horizontal
3	2483.50	38.49	-0.29	38.20	54.00	15.80	150	40	AV	Horizontal
4	2485.17	39.21	-0.27	38.94	54.00	15.06	150	294	AV	Horizontal



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	48.32	-0.29	48.03	74.00	25.97	150	35	PK	Vertical
2	2485.06	49.69	-0.27	49.42	74.00	24.58	150	25	PK	Vertical
3	2483.50	38.29	-0.29	38.00	54.00	16.00	150	154	AV	Vertical
4	2485.57	39.71	-0.27	39.44	54.00	14.56	150	240	AV	Vertical

#### 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. )



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### **3.10AC Power Line Conducted Emissions**

Test Requirement:	47 CFR Part 15C Section 15	.207							
Test Method:	ANSI C63.10: 2013								
Test Frequency Range:	150kHz to 30MHz	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	5 5						
Limit:		Limit (c	lBuV)						
	Frequency range (MHz)	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 logarithm of the frequency.								
Test Procedure:	<ol> <li>The mains terminal distur- room.</li> <li>The EUT was connected Impedance Stabilization Netri impedance. The power cable a second LISN 2, which was plane in the same way as the multiple socket outlet strip w single LISN provided the rati 3) The tabletop EUT was plat ground reference plane. And placed on the horizontal groud 4) The test was performed w of the EUT shall be 0.4 m from vertical ground reference plat reference plane. The LISN 1 unit under test and bonded to mounted on top of the groun between the closest points of the EUT and associated equil In order to find the maximum equipment and all of the inte ANSI C63.10 2013 on condu</li> </ol>	to AC power source throwork) which provides a 5 es of all other units of the bonded to the ground re- bonded to the ground re- bonded to the ground re- bonded to the unit bein as used to connect multi- ing of the LISN was not en- aced upon a non-metallice for floor-standing arrange und reference plane, with a vertical ground refer- me was bonded to the ho- was placed 0.8 m from the or a ground reference plane d reference plane. This of f the LISN 1 and the EU- ipment was at least 0.8 m emission, the relative per- face cables must be char-	bugh a LISN 1 (Line $0\Omega/50\mu$ H + $5\Omega$ linear EUT were connected ofference in g measured. A ple power cables to a exceeded. In table 0.8m above the gement, the EUT was erence plane. The rear ference plane. The rear ference plane. The rear ference plane. The prizontal ground the boundary of the ne for LISNs distance was T. All other units of m from the LISN 2. positions of						
Test Setup:	Shielding Room	AE unog	Test Receiver						
		Ground Reference Plane	C Mains						



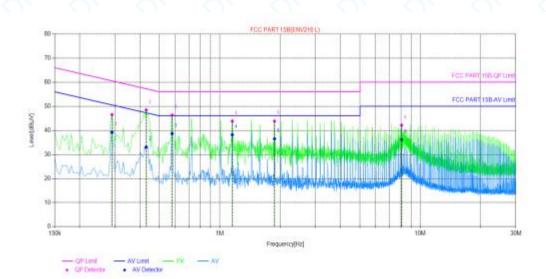
Exploratory Test Mode:	Transmitting with all kind of modulations, data rates at lowest, middle and highest channel.
	Charge + Transmitting mode.
Final Test Mode:	Through Pre-scan, find the the worst case of GFSK
Instruments Used:	Refer to section 2.9 for details
Test Results:	Pass



#### 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.

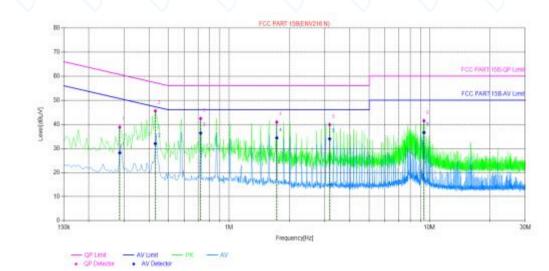
Live Line:



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	0.2895	9.90	46.48	60.54	14.06	39.16	50.54	11.38	PASS
2	0.429	9.80	48.45	57.27	8.82	33.04	47.27	14.23	PASS
3	0.5775	9.83	46.28	56.00	9.72	38.65	46.00	7.35	PASS
4	1.1535	9.72	43.82	56.00	12.18	38.15	46.00	7.85	PASS
5	1.8735	9.73	43.82	56.00	12.18	36.47	46.00	9.53	PASS
6	8.0745	9.87	42.14	60.00	17.86	36.14	50.00	13.86	PASS



Neutral Line:



Final Data List												
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	0.285	9.88	38.83	60.67	21.84	28.14	50.67	22.53	PASS			
2	0.429	9.83	45.56	57.27	11.71	31.99	47.27	15.28	PASS			
3	0.7215	9.85	42.40	56.00	13.60	36.35	46.00	9.65	PASS			
4	1.7295	9.75	40.92	56.00	15.08	34.32	46.00	11.68	PASS			
5	3.174	9.89	39.86	56.00	16.14	33.96	46.00	12.04	PASS			
6	9.375	9.84	41.47	60.00	18.53	36.57	50.00	13.43	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.)



Date: March 7, 2025 Pag

## 4 Appendix

## Appendix A: Duty Cycle

Test Result

Antenna	Freq(MHz)	ON Time	Period	DC [%]
		្រាទ្យ	្រាទ្យ	
	2402	0.44	0.63	69.84
Ant1	2440	0.44	0.63	69.84
	2480	0.44	0.63	69.84
	2402	0.25	0.63	39.68
Ant1	2440	0.25	0.62	40.32
	2480	0.25	0.62	40.32
	Ant1	Ant1 2402 2440 2480 2402 Ant1 2440	Antenna         Freq(MHZ)         [ms]           2402         0.44           2440         0.44           2480         0.44           2480         0.44           2402         0.25           Ant1         2440         0.25	Antenna         Freq(MHZ)         [ms]         [ms]           2402         0.44         0.63           Ant1         2440         0.44         0.63           2480         0.44         0.63           2402         0.25         0.63           Ant1         2440         0.25         0.62



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### Test Graphs

enter Freq 2.402	000000 GHz Trig I PN0: East +++ Trig:	ENSE:PULSE SOURCE OFF ALIGNAUTO Delay-2.000 ms #Avg Type: RMS Video n: 20 dB	10:03:13 AM Feb 18, 2025 TRACE 1 2 3 4 5 6 TYPE WWWWWW DET P P P P P P	Frequency
Ref Offset dB/div Ref 24.3	:14.31 dB		ΔMkr3 630.0 μs 2.93 dB	Auto Tun
4.3 1.31 69	3Δ1			Center Fre 2.402000000 GH
5.7			TRIGLVL	Start Fre 2.402000000 GH
5.7 <b>14/14/14</b> 5.7	Vjetnefeti	abg-Lunsifak	hanvidhuvente	<b>Stop Fre</b> 2.402000000 GH
enter 2.40200000 es BW 8 MHz	0 GHz #VBW 8.0 M		Span 0 Hz 2.000 ms (1001 pts)	CF Ste 8.000000 MH Auto Ma
KF         MODE         TRC         SCL           1         N         1         t           2         Δ1         1         t         (Δ)           3         Δ1         1         t         (Δ)           4         -         -         -         -           5         -         6         -         -	120.0 μs -3.3 440.0 μs (Δ) -40	FUNCTION FUNCTION WIDTH 3 dBm 		Freq Offs
7 8 9 0				

#### BLE\_1M\_Ant1\_2440

Center Freq 2.440	PNO: East Trig	SENSE: PULSE SOURCE OFF ALIGNAUTO Delay-2.000 ms #Avg Type: RMS ;: Video	TRACE 1 2 3 4 5 6	Frequency
Ref Offse I0 dB/div Ref 24.3	IFGain:Low #Att	en: 20 dB	ΔMkr3 630.0 μs 42.77 dB	Auto Tur
-09 14.3 4.31		2∆1 ♦3∆1		Center Fr 2.440000000 G
25.7			TRIG LVL	Start Fr 2.440000000 G
56.7 56.7	prostoryquality		htterikyrth	Stop Fr 2.440000000 G
enter 2.44000000 es BW 8 MHz	#VBW 8.01		Span 0 Hz 2.000 ms (1001 pts)	CF St 8.000000 M Auto M
XRE MODE         TFIC         SEL           1         N         1         t           2         Δ1         1         t         (Δ)           3         Δ1         1         t         (Δ)	440.0 μs (Δ) 3	FUNCTION FUNCTION WIDT 40 dBm 19.17 dB 12.77 dB	H FUNCTION VALUE	Freq Offs
4 5 6 7 8				0
9				

#### BLE\_1M\_Ant1\_2480

		ctru		ilyzer -													
Cen		Fre	RF Paq 2	5 2.480	ים 000		GH	Z O: Fast		Trig Dela				ERMS		1 AM Feb 18, 2025 RACE 1 2 3 4 5 1 TYPE WWWWWW	5 Frequency
10 d	B/div			Offset			IFG	U: Fasi ain:Lov	N	#Atten: 20				1	∆Mkr3	630.0 μs 2.76 dB	P Auto Tune
Log 14.3 4.31		Ŷ	1				7		♦ <sup>3.</sup>	∆1		1	Г			-	Center Freq 2.480000000 GHz
-15.7 -25.7 -35.7								Δ1								TRIG LVL	Start Freq 2.480000000 GHz
-45.7 -55.7 -65.7	'y dey	NN.					Ϋ́Υ	santar f	Ψ			lyshowy.	Vн			ywelinius	Stop Freq 2.480000000 GHz
Res	BW	8	MH	00000 Z	GH			#\	вw	8.0 MHz						Span 0 Hz s (1001 pts	
1	ΝΟΟΞ Δ1 Δ1	1	t	(Δ) (Δ)		X	440	0.0 µs 0.0 µs 0.0 µs	(Δ) (Δ)	-3.37 dE -38.64 2.76	3m dB	NCTION	FUN	CTION WIDTH	FUN	CTION VALUE	Freq Offset 0 Hz
9 10 11 <										Ĵ.				STATU	5		



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Center Free	RF 50 Ω A0 <b>2.4020000</b>	00 GHz PNO: Fast ++	Trig Delay-2.00 Trig: Video	SOURCE OFF Dms #Avg Ty	ALIGNAUTO /pe: RMS	TRAC TY	M Feb 18, 2025 26 1 2 3 4 5 6 26 WWWWWW 27 P P P P P P P	Frequency					
10 dB/div F	нсальсом висел. 20 db Ref Offset 14.31 dB 2) dB/div Ref 24.31 dBm 4.42 dE												
-og 14.3 4.31 5.69					J	2Δ1	3∆1	Center Fre 2.402000000 GH					
25.7							TRIG LVL	Start Fre 2.402000000 GH					
45.7 mmulu 55.7 65.7	407463	nonipertualistation for	suijeter 	yddagaegedlanae	]	hildinge	apparent water	Stop Fre 2.402000000 GH					
Res BW 8 M		#VBW	( 8.0 MHz			2.000 ms (		CF Ste 8.000000 MH Auto Ma					
2 Δ1 1 3 Δ1 1 4 5	t t (Δ) t (Δ)	× 1.370 ms 250.0 μs (Δ) 630.0 μs (Δ)	4.55 dBm 4.28 dB 4.42 dB	FUNCTION	UNCTION WIDT	FUNCTIO		Freq Offso 0 ⊦					
							<u> </u>						
10 11							<u>×</u>						

#### BLE\_2M\_Ant1\_2440

	2.440000000	PNO: Fast -+-	Frig: Video Atten: 20 dB	s #Avg Type:RMS	TY	2E 1 2 3 4 5 6 PE WWWWWW ET P P P P P P	Frequency
dB/div Re	'Offset 14.31 dB f 24.31 dBm				ΔMkr3 6 -4	20.0 µs 2.98 dB	Auto Tun
9 1.3 31 59					2Δ1		Center Fre 2.440000000 GH
.7							Start Fre 2.440000000 GH
7 <b>******</b>	ynnanta	ingerdenstelliger	<del>เม</del> าส์เจ้าก <sub>ั</sub> นที	r.Jaunajhabitad	lininativisia	what when we have	Stop Fre 2.44000000 GH
enter 2.4400 es BW 8 MH	z	#VBW 8			p 2.000 ms (	/	CF Ste 8.000000 MH Auto Ma
MODE         TRC         SEL           N         1         t           Δ1         1         t           Δ1         1         t	(Δ) (Δ)	1.370 ms 250.0 μs (Δ) 620.0 μs (Δ)	-1.74 dBm 1.31 dB -42.98 dB	INCTION FUNCTION W	IDTH FUNCTI	DN VALUE	Freq Offs
8 9 9							

#### BLE\_2M\_Ant1\_2480

Agilen	it Spectr	um An	alyzer - !	Swept SA											
Cen	ter Fi	RF req 2	50 2.480	ο 1Ω AC 000000	0 GH	Z IO: Fast		Trig Dela	y-2.000 n	DURCE OFF	AI Type:	IGNAUTO RMS	n	1 AM Feb 18, 2025 RACE 1 2 3 4 5 6 TYPE WWWWWW	Frequency
10 di Log	B/div			14.31 dE 1 dBm	IFG	iain:Lov		#Atten: 20	dB				∆Mkr3	<sup>рет Р Р Р Р Р Р Р Р Р Р Р Р Р Р Р Р Р Р Р</sup>	Auto Tune
14.3 4.31 -5.69		_		7							0		2Δ1		Center Free 2.480000000 GH:
-15.7														TRIGLVL	Start Free
-25.7 -35.7														3∆1	2.480000000 GH
-45.7 -55.7 -65.7	labiliting			Wippind	(atal)	4.7 Wit	*		er an	Nelling and the second s	(** 		likeritesi ji	kattoji malujimu	Stop Free 2.480000000 GH:
Res	ter 2.4 BW 8	MH	z	) GHz		#\	/BW	8.0 MHz			_	<u> </u>		Span 0 Hz s (1001 pts)	CF Step 8.000000 MH
MKE 1	NODE TE	ic sei t		X	13	70 ms		-0.51 di		UNCTION	FUNC	TION WIDTH	FUNC	CTION VALUE	Adio Mai
2 3 4 5	Δ1 1 Δ1 1	t	(Δ) (Δ)		25	0.0 µs 0.0 µs		-0.18 -42.73	dB						Freq Offse
6 7 8 9															
10 11 <					_			.8						~	
MSG												STAT	JS		

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### Appendix B: DTS Bandwidth

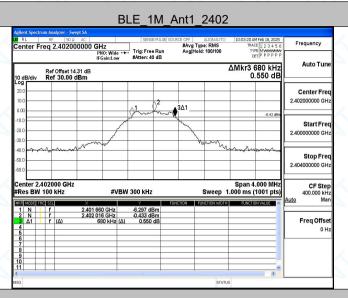
#### **Test Result**

TestMode	Antenna	Freq(MHz)	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
	$\sim$	2402	0.680	2401.660	2402.340	0.5	PASS
BLE_1M	Ant1	2440	0.676	2439.664	2440.340	0.5	PASS
		2480	0.688	2479.660	2480.348	0.5	PASS
		2402	1.164	2401.412	2402.576	0.5	PASS
BLE_2M	Ant1	2440	1.152	2439.412	2440.564	0.5	PASS
		2480	1.192	2479.412	2480.604	0.5	PASS



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#### **Test Graphs**



#### BLE\_1M\_Ant1\_2440

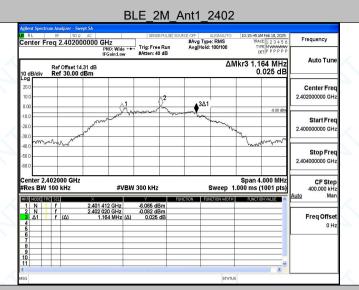
	um Analyzer - Sv								
RL	RF 50 9		11-	SENSE:P	LSE SOURCE OFF	ALIGNAUTO Type: RMS	10:06:03 AM	eb 18, 2025	Frequency
enter F	req 2.4400		HZ PNO: Wide ↔ FGain:Low	. Trig: Free R #Atten: 40 d	un Avg	Hold: 100/100	TYPE	PPPPP	
) dB/div	Ref Offset 1 Ref 30.00					1	∆Mkr3 6 -0.0	76 kHz 008 dB	Auto Tu
									Center Fr
00				A1 02	▲3∆1				2.440000000 G
				Ym	James			-6.42 dBm	
0.0			1		m	\ \			Start Fr 2.438000000 G
1.0 1.0 - Ayday	~~~~~~	m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			Hunn	-	~~~Q~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Stop Fr
0.0									2.442000000 G
	140000 GHz 100 kHz	2	#VBV	/ 300 kHz		Sweep 1	Span 4.0 .000 ms (1	001 pts)	CF St 400.000 k
R MODE TR		×		Y	FUNCTION	FUNCTION WIDTH	FUNCTION	VALUE	Auto M
1 N 1 2 N 1	f f f (Δ)	2.440 0	64 GHz 12 GHz 576 kHz (Δ)	-5.951 dBm -0.422 dBm -0.008 dB				_	FreqOffs
1	1 (Δ)			-0.008 dE				-	0
5 7 3									
3			-					<u> </u>	
1								×	
3						STATU			

#### BLE\_1M\_Ant1\_2480

		ctrur		alyzer - Sw												
		Ere	RF	50 Q	AC 0000 G	La.		SENSE	PULSE SC			ALIGNAUTO		M Feb 18, 2025	Frec	uency
Cer	iler	FIE	iq i	2.40000	Р	NO: Wide		Trig: Free				100/100	Т	PE MWWWWW	<u> </u>	
_					IF	Gain:Lov	N	#Atten: 40	dB							uto Tune
				Offset 14										688 kHz		ato rune
10 c Log	B/div	/	Rei	30.00	Bm						_			.160 dB		
20.0	-		_			-	_				_				Ce	nter Freg
10.0							_				_					00000 GHz
0.00								$\Lambda \tilde{V}$		▲3∆1_						
-10.0								y~~	m	<b>X</b>				-6.65 dBm		
-20.0							/			m						Start Freq
-30.0						مر ا				1	2				2.4780	00000 GHz
-30.0					m	4m					.,	mm				
	E		20-		1								1	40 m q	:	Stop Freq
-50.0																00000 GHz
-60.0			+													
Cer	nter	2.4	300	00 GHz		-	_				-		Span	.000 MHz		CF Step
#Re	s B	W 1	00	kHz		#V	ß₩	300 kHz			s	Sweep 1		(1001 pts)	4	00.000 kHz
MKE	MODE	TRC	SCL		x			Y	F	UNCTION	FUN	CTION WIDTH	FUNCT	ION VALUE	Auto	Man
1	N	1	f		2.479 66	O GHz	_	-6.508 dE	3m							
3	Δ1	1		(Δ)		88 kHz	(Δ)	0.052 02							Fr	eq Offset
4	-										-					0 Hz
6	_								_						<u> </u>	
7	-		_						-		-					
9 10	_								_		_					
11														~		
<																
MSG												STATU	S			



#### Date: March 7, 2025 Page: 38 / 60



#### BLE\_2M\_Ant1\_2440

RL	RF 50 Ω	AC OLL	SENSE:PULSE	SOURCE OFF ALIGNAL #Avg Type: RMS		
enter Fr	eq 2.44000	PNO: Wide	Trig: Free Run	Avg Hold: 100/10	DET P P P P	ŵ
		IFGain:Low	#Atten: 40 dB			Auto Tun
0 dB/div	Ref Offset 14. Ref 30.00 d				ΔMkr3 1.152 MH 0.742 di	z
og 20.0	_					Center Fre
10.0						2.440000000 GH
0.00		Ā	1 <u>0</u> 2	_3∆1		
10.0			James of the	mont	-6.26 dB	11
20.0		month		- www.www	η Ι	Start Free
30.0		who have been a second			man and a second	2.438000000 GH
40.0	mont				Marian	۰. ۱
50.0						Stop Free
						2.442000000 GH
60.0						1
	40000 GHz				Span 4.000 MH	
#Res BW 1	100 kHz	#V	BW 300 kHz	Sweet	o 1.000 ms (1001 pts	
KR MODE TRO		×	Y ID	FUNCTION FUNCTION W	IDTH FUNCTION VALUE	Auto Ma
1 N 1 2 N 1	f	2.439 412 GHz 2.440 032 GHz	-6.115 dBm -0.258 dBm			
3 <u>Δ1</u> 1	f (Δ)	1.152 MHz	Δ) 0.742 dB			Freq Offse
5						он
6						
8						
9						
11						<b>•</b>
¢					>	

#### BLE\_2M\_Ant1\_2480

Agilent Spect	rum Analyzer -	Swept SA							
Contor F	RF 50	Ω AC 000000 GH		SENSE:PU	LSE SOURCE OFF	ALIGNAUTO		1Feb 18, 2025	Frequency
Centerr	req 2.460	PNC	): Wide 🔸	Trig: Free Ru #Atten: 40 dE	un Avg Hole	1: 100/100	TYP	E MWWWWW T P P P P P P	
		IFGa	ain:Low	#Atten: 40 dE	3				Auto Tune
	Ref Offset					ΔN	1kr3 1.19	92 MHZ 146 dB	
10 dB/div Log	Ref 30.0	0 dBm				-	-0.	140 UB	
20.0									Center Freq
10.0				- 2					2.48000000 GHz
0.00			-01	X	3∆	1			
-10.0			N Y	answer	mound			-6.45 dBm	01-11
-20.0		and the second s				mon			Start Freq 2.478000000 GHz
-30.0		and a second					m		2.4/800000 GH2
-40.0	mon						mm	www	
-50.0									Stop Freq
-60.0									2.482000000 GHz
	480000 GH	lz						000 MHz	CF Step
#Res BW	100 kHz		#VBW	300 kHz		Sweep 1	.000 ms (1	1001 pts)	400.000 kHz
MKR MODE T		×		Y		INCTION WIDTH	FUNCTIO	N VALUE	<u>Auto</u> Man
1 N 2 N	f	2.479 412 2.480 028	GHz	-6.297 dBm -0.445 dBm					
3 Δ1 ·	f (Δ)	1.192	MHz (∆)	-0.146 dB					Freq Offset
5									0 Hz
6 7 8 9			-						
8									
10									
11								~	
11 KI						STATUS			L
						STATUS	1		

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Appendix C: Maximum conducted output power

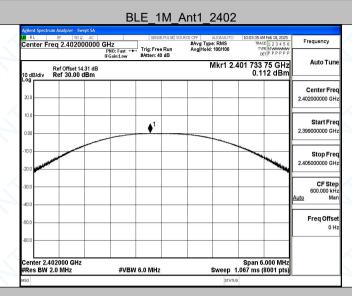
Test Result

<	TestMode	Antenna	Freq(MHz)	Conducted Peak Powert[dBm]	Conducted Limit[dBm]
			2402	0.11	≤30
	BLE_1M	Ant1	2440	-0.02	≤30
	•		2480	-0.08	≤30
			2402	0.31	_ ≤30
$\langle \rangle$	BLE_2M	Ant1	2440	0.15	≤30
			2480	0.06	≤30



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#### **Test Graphs**



#### BLE\_1M\_Ant1\_2440

RL	RF 50 Ω AC		SENSE:PULSE SO		GNAUTO	10:06:14 AM Feb 18, 2025	Frequency
Center F	req 2.44000000	PNO: Fast +	Trig: Free Run #Atten: 40 dB	#Avg Type: I Avg Hold: 10		TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P	Frequency
10 dB/div	Ref Offset 14.31 dB Ref 30.00 dBm	IFGain:Low	sAtten: 40 db	MI	kr1 2.4	439 690 25 GHz -0.016 dBm	
20.0							Center Fre 2.440000000 GI
0.00					_		Start Fr 2.437000000 G
-10.0							Stop Fr 2.443000000 G
40.0							CF St 600.000 k Auto M
50.0							Freq Offs 0
-60.0	440000 GHz					Span 6.000 MHz	
#Res BW		#VBW	6.0 MHz	SV	veep 1	.067 ms (8001 pts)	
ISG					STATU		

#### BLE\_1M\_Ant1\_2480

	n Analyzer - Swept SA					
Center Fre	RF 50 Ω AC g 2.48000000	0 GHz	SENSE:PULSE SC	#Avg Type: RMS	10:08:29 AM Feb 18, 2025 TRACE 1 2 3 4 5 6	Frequency
	•	PNO: Fast 🔸	#Atten: 40 dB		TYPE MWWWWW DET P P P P P 479 750 25 GHz	Auto Tune
	Ref Offset 14.31 dE Ref 30.00 dBm	3			-0.080 dBm	
20.0						Center Free 2.480000000 GH:
0.00			<b>♦</b> <sup>1</sup>			Start Free 2.477000000 GH
-10.0						Stop Free 2.483000000 GH
30.0						CF Ste 600.000 kH Auto Ma
50.0						Freq Offse
60.0						
Center 2.48 #Res BW 2.		#VBW	6.0 MHz	Sweep 1	Span 6.000 MHz .067 ms (8001 pts)	
MSG				STATU	5	

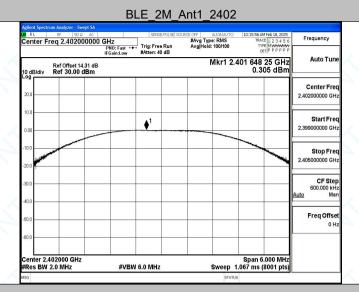
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#### BLE\_2M\_Ant1\_2440

RL RF Center Freq 2.44	50 9 AC	SENSE:PULSE S	#Avg Type: RMS	TRACE 1 2 3 4 5 6	Frequency	
	PNO: F IFGain:L	ast ↔→ Trig: Free Run ow #Atten: 40 dB	Avg Hold: 100/100	DET P P P P P		
	et 14.31 dB 00 dBm		Mkr1 2	.439 572 50 GHz 0.154 dBm		
20.0					Center Fre 2.440000000 GH	
10.0		<b>A</b> 1			Start Fre	
0.00		•`			2.437000000 GH	
20.0					Stop Fre 2.443000000 GH	
30.0					CF Ste 600.000 kH Auto Ma	
40.0						
50.0					FreqOffse 0⊢	
60.0						
Center 2.440000 G #Res BW 2.0 MHz		VBW 6.0 MHz	Sween	Span 6.000 MHz 1.067 ms (8001 pts)		

#### BLE\_2M\_Ant1\_2480

	trum Analyzer - Swept SA					
Center F	RF 50 Ω AC Freq 2.48000000	0 GHz	SENSE:PULSE S	#Avg Type: RMS	10:20:59 AM Feb 18, 2025 TRACE 1 2 3 4 5 6	Frequency
	Ref Offset 14.31 di	PNO: Fast 🔸 IFGain:Low	<sup>1</sup> Trig: Free Run #Atten: 40 dB	Avg Hold: 100/100 Mkr1 2.	480 319 50 GHz 0.064 dBm	Auto Tune
10 dB/div	Ref 30.00 dBm	1			0.004 0.011	
20.0						Center Fred 2.480000000 GHz
10.0						
0.00			•	1		Start Fred 2.477000000 GHz
-10.0	-					Stop Fred 2.483000000 GHz
-30.0						CF Step 600.000 kH: Auto Mar
-40.0						
-50.0						Freq Offset 0 Hz
-60.0						
	.480000 GHz / 2.0 MHz	#VBW	6.0 MHz	Sweep	Span 6.000 MHz 1.067 ms (8001 pts)	
MSG				STATU	JS	t

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### Appendix D: Maximum power spectral density

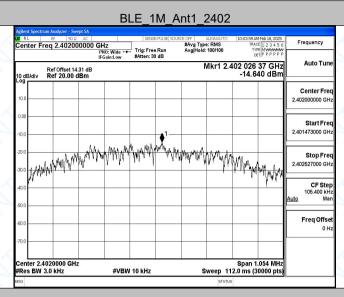
#### Test Result

TestMode	Antenna	Freq(MHz)	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
	2 A	2402	-14.64	≤8.00	PASS
BLE_1M	Ant1	2440	-15.13	≤8.00	PASS
		2480	-15.34	≤8.00	PASS
	/ /	2402	-14.63	≤8.00	PASS
BLE_2M	Ant1	2440	-15.20	≤8.00	PASS
		2480	-14.99	≤8.00	PASS

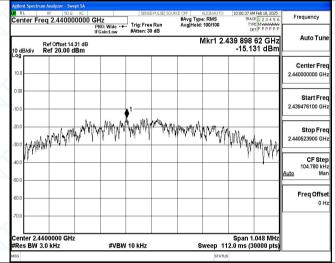


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#### **Test Graphs**



#### BLE\_1M\_Ant1\_2440



#### BLE\_1M\_Ant1\_2480

	trum Analyzer - Swe									
Center F	RF 50 Ω Freq 2.48000	AC 0000 GH	IZ IO:Wide ↔		E:PULSE SOUF	#Avg Typ AvalHold		TYPE	123456	Frequency
10 dB/div	риостицае - на станование тен/ререре IFGaintaw #Aften: 30 dB Mkr1 2.479 980 64 GHz dBldiv. Ref 20.00 dBm - 15.338 dBm 4							Auto Tune		
10.0										Center Freq 2.480000000 GHz
-10.0										Start Freq 2.479466800 GHz
-20.0	WWWWWW	www	MANNA	www	***WM	MAMMAY	NM W	W.W.	M. A.A.	<b>Stop Freq</b> 2.480533200 GHz
-40.0	1 <u></u>							r	WYW	CF Step 106.640 kHz Auto Man
-60.0										Freq Offset 0 Hz
-70.0 Center 2 #Res BW	.4800000 GHz	:	#VBW	10 kHz		s	weep 11	Span 1.0 4.0 ms (30		
MSG						-	STATUS		μισγ	