# **FCC RF Test Report**

APPLICANT : VeriFone, Inc.

**EQUIPMENT**: Point of Sale Terminal

BRAND NAME : Verifone or VERIFONE or Verifone

MODEL NAME : M425 Plus-A FCC ID : B32M4250A

STANDARD : FCC Part 15 Subpart C §15.247

CLASSIFICATION : (DTS) Digital Transmission System

TEST DATE(S) : Apr. 11, 2025

We, Sporton International Inc. (Kunshan), would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. (Kunshan), the test report shall not be reproduced except in full.

JasonJia

Approved by: Jason Jia





Report No.: FR481001-03B

## Sporton International Inc. (Kunshan)

No. 1098, Pengxi North Road, Kunshan Economic Development Zone Jiangsu Province 215300 People's Republic of China

Sporton International Inc. (Kunshan)

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## **REVISION HISTORY**

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE	
FR481001-03B	Rev. 01	Initial issue of report	May 13, 2025	

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#### SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(d)	Radiated Band Edges and Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 8.34 dB at 2494.90 MHz

**Note**: This is a variant report for M425 Plus-A. The change note could be referred to Product Equality Declaration which is exhibit separately. According to the change, only the related test cases were verified, all the other test results are leveraged from original report (Sporton Report Number FR481001B).

#### **Conformity Assessment Condition:**

- The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or
  in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of
  non-compliance that may potentially occur if measurement uncertainty is taken into account.
- 2. The measurement uncertainty please refer to each test result in the section "Measurement Uncertainty"

#### Disclaimer:

The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

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## 1 General Description

## 1.1 Applicant

VeriFone, Inc.

1400 West Stanford Ranch Road Suite 150 Rocklin CA 95765 USA

#### 1.2 Manufacturer

VeriFone, Inc.

1400 West Stanford Ranch Road Suite 150 Rocklin CA 95765 USA

### 1.3 Product Feature of Equipment Under Test

Product Feature				
Equipment	Point of Sale Terminal			
Brand Name	Verifone or VERIFONE or Verifone			
Model Name	M425 Plus-A			
FCC ID	B32M4250A			
SN Code	Radiation: 713-007-952			
EUT Stage	Identical Prototype			

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.4 Product Specification of Equipment Under Test

Standards-related Product Specification				
Tx/Rx Frequency Range	2402 MHz ~ 2480 MHz			
Number of Channels	40			
Carrier Frequency of Each Channel	40 Channel(37 hopping + 3 advertising channel)			
Type of Modulation	Bluetooth LE : GFSK			

Note: Bluetooth LE supports 1Mbps only.

#### 1.5 Modification of EUT

No modifications are made to the EUT during all test items.

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## 1.6 Testing Location

Sporton International Inc. (Kunshan) is accredited to ISO/IEC 17025:2017 by American Association for Laboratory Accreditation with Certificate Number 5145.02.

Test Firm	Sporton International Inc. (Kunshan)					
	No. 1098, Pengxi North Road, Kunshan Economic Development Zone					
Test Site Location	Jiangsu Province 215300 People's Republic of China					
	TEL: +86-512-57900158					
	Sporton Site No.	FCC Designation No.	FCC Test Firm			
Test Site No.	Sporton Site No.	rec besignation No.	Registration No.			
	03CH06-KS	CN1257	314309			

#### 1.7 Test Software

Item	Site	Manufacturer	Name	Version
1.	03CH06-KS	AUDIX	E3	210616

### 1.8 Applicable Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- 47 CFR Part 15 Subpart C §15.247
- FCC KDB 558074 D01 15.247 Meas Guidance v05r02
- ANSI C63.10-2013

#### Remark:

- All test items were verified and recorded according to the standards and without any deviation during the test.
- 2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

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## 2 Test Configuration of Equipment Under Test

## 2.1 Carrier Frequency Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
	0	2402	21	2444
	1	2404	22	2446
	2	2406	23	2448
	3	2408	24	2450
	4	2410	25	2452
	5	2412	26	2454
	6	2414	27	2456
	7	2416	28	2458
	8	2418	29	2460
	9	2420	30	2462
2400-2483.5 MHz	10	2422	31	2464
	11	2424	32	2466
	12	2426	33	2468
	13	2428	34	2470
	14	2430	35	2472
[	15	2432	36	2474
	16	2434	37	2476
	17	2436	38	2478
[	18	2438	39	2480
	19	2440	-	-
	20	2442	-	-

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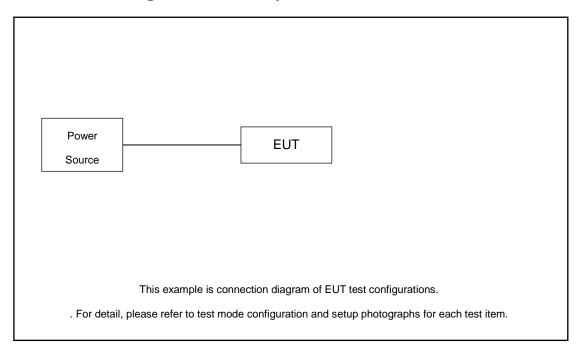
#### 2.2 Test Mode

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.
- b. AC power line Conducted Emission was tested under maximum output power.

The following summary table is showing all test modes to demonstrate in compliance with the standard.

Summary table of Test Cases						
Took Itom	Data Rate / Modulation					
Test Item	Bluetooth – LE / GFSK					
Radiated	Made 1. Divetaeth Tv CH20, 2490 MHz, DLC 4Mhps					
TCs	Mode 1: Bluetooth Tx CH39_2480 MHz_BLE 1Mbps					

### 2.3 Connection Diagram of Test System



## 2.4 EUT Operation Test Setup

For BLE function, the engineering test program was provided and enabled to make EUT continuous transmit.

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### 3 Test Result

### 3.1 Radiated Band Edges and Spurious Emission Measurement

#### 3.1.1 Limit of Radiated Band Edges and Spurious Emission

In any 100 kHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the limits as below.

Frequency	Field Strength	Measurement Distance
(MHz)	(microvolts/meter)	(meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

#### 3.1.2 Measuring Instruments

The section 4.0 of List of Measuring Equipment of this test report is used for test.

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#### 3.1.3 Test Procedures

- 1. The testing follows ANSI C63.10-2013 clause 11.11 & 11.12
- 2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
- 3. The EUT was placed on a turntable with 0.8 meter for frequency below 1GHz and 1.5 meter for frequency above 1GHz respectively above ground.
- 4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
- 5. Corrected Reading: Antenna Factor + Cable Loss + Read Level Preamp Factor = Level
- For testing below 1GHz, if the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then peak values of EUT will be reported, otherwise, the emissions will be repeated one by one using the CISPR quasi-peak method and reported.
- 7. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than peak limit (that means the emission level in average mode also complies with the limit in average mode), then peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
- 8. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \ge 1$  GHz for peak measurement. For average measurement:
    - 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.

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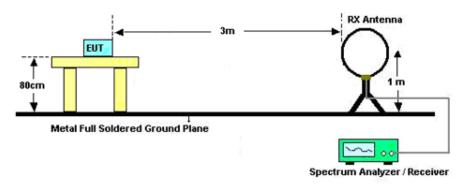
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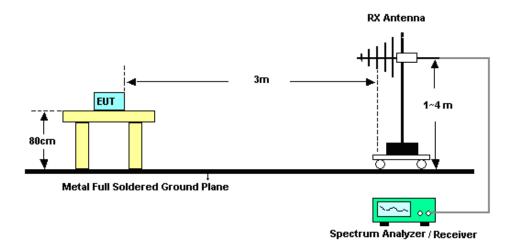
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### 3.1.4 Test Setup

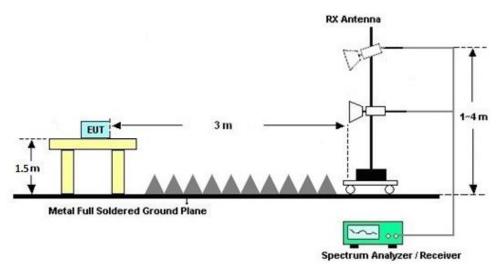
#### For radiated emissions below 30MHz



#### For radiated emissions from 30MHz to 1GHz



#### For radiated emissions above 1GHz



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#### 3.1.5 Test Results of Radiated Spurious Emissions (9 kHz ~ 30 MHz)

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line was not reported.

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There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

#### 3.1.6 Test Result of Radiated Spurious at Band Edges

Please refer to Appendix A.

#### 3.1.7 Duty Cycle

Please refer to Appendix B.

# 3.1.8 Test Result of Radiated Spurious Emission (30MHz ~ 10th Harmonic or 40GHz, whichever is lower)

Please refer to Appendix A.

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## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
EMI Test Receiver	Keysight	N9038A	MY572901 57	3Hz~8.5GHz;M ax 30dBm	Feb. 22, 2025	Apr. 11, 2025	Feb. 21, 2026	Radiation (03CH06-KS)
EXA Spectrum Analyzer	Keysight	N9010B	MY574710 84	10Hz-44GHz	Jul. 04, 2024	Apr. 11, 2025	Jul. 03, 2025	Radiation (03CH06-KS)
Loop Antenna	R&S	HFH2-Z2E	101125	9kHz~30MHz	Sep. 08, 2024	Apr. 11, 2025	Sep. 07, 2025	Radiation (03CH06-KS)
Bilog Antenna	TeseQ	CBL6111D	59913	30MHz-1GHz	Sep. 03, 2024	Apr. 11, 2025	Sep. 02, 2025	Radiation (03CH06-KS)
Double Ridge Horn Antenna	ETS-Lindgren	3117	00218652	1GHz~18GHz	Apr. 10, 2025	Apr. 11, 2025	Apr. 09, 2026	Radiation (03CH06-KS)
SHF-EHF Horn	Com-power	AH-840	101116	18GHz~40GHz	Oct. 22, 2024	Apr. 11, 2025	Oct. 21, 2025	Radiation (03CH06-KS)
Amplifier	SONOMA	310N	380827	9KHz ~1GHZ	Jul. 04, 2024	Apr. 11, 2025	Jul. 03, 2025	Radiation (03CH06-KS)
Amplifier	EM	EM18G40GA	060728	18~40GHz	Jan. 03, 2025	Apr. 11, 2025	Jan. 02, 2026	Radiation (03CH06-KS)
high gain Amplifier	EM	EM01G18GA	060845	1Ghz-18Ghz	Jan. 03, 2025	Apr. 11, 2025	Jan. 02, 2026	Radiation (03CH06-KS)
Amplifier	Keysight	83017A	MY572801 19	500MHz~26.5G Hz	Oct. 09, 2024	Apr. 11, 2025	Oct. 08, 2025	Radiation (03CH06-KS)
AC Power Source	Chroma	61601	F1040900 04	N/A	NCR	Apr. 11, 2025	NCR	Radiation (03CH06-KS)
Turn Table	ChamPro	EM 1000-T	060762-T	0~360 degree	NCR	Apr. 11, 2025	NCR	Radiation (03CH06-KS)
Antenna Mast	ChamPro	EM 1000-A	060762-A	1 m~4 m	NCR	Apr. 11, 2025	NCR	Radiation (03CH06-KS)

NCR: No Calibration Required

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## 5 Measurement Uncertainty

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI 63.10-2013. All the measurement uncertainty value were shown with a coverage K=2 to indicate 95% level of confidence. The measurement data show herein meets or exceeds the CISPR measurement uncertainty values specified in CISPR 16-4-2 and can be compared directly to specified limit to determine compliance.

#### <u>Uncertainty of Radiated Emission Measurement (9 KHz ~ 30 MHz)</u>

Measuring Uncertainty for a Level of Confidence	3,30dB
of 95% (U = 2Uc(y))	3.30UB

#### Uncertainty of Radiated Emission Measurement (30 MHz ~ 1000 MHz)

Measuring Uncertainty for a Level of Confidence	6.06dB
of 95% (U = 2Uc(y))	6.00UB

#### <u>Uncertainty of Radiated Emission Measurement (1 GHz ~ 18 GHz)</u>

Measuring Uncertainty for a Level of Confidence	5.18dB
of 95% (U = 2Uc(y))	5.16UB

#### Uncertainty of Radiated Emission Measurement (18 GHz ~ 40 GHz)

Measuring Uncertainty for a Level of Confidence	
of 95% (U = 2Uc(y))	5.38dB

----- THE END -----

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## Appendix A. Radiated Spurious Emission Test Data

Test Engineer : Jerry Xu	Relative Humidity :	41 ~ 42 %	
	Jerry Xu	Temperature :	22 ~ 23 ℃

## **Radiated Spurious Emission Test Modes**

Mode	Band (MHz)	Antenna	Modulation	Channel	Frequency	Data Rate	RU	Remark
Mode 1	2400-2483.5	1	Bluetooth-LE_GSFK	39	2480	1Mbps	-	-

## Summary of each worse mode

Mode	Modulation	Ch.	Freq. (MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Pol.	Peak Avg.	Result	Remark
1	Bluetooth-LE_GSFK	39	2494.90	45.66	54.00	-8.34	V	AVERAGE	Pass	Band Edge
1	Bluetooth-LE_GSFK	39	4960.00	46.22	74.00	-27.78	V	PEAK	Pass	Harmonic

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1 Mode **Band Edge** 2400-2483.5\_Bluetooth-LE\_GSFK\_CH39\_2480MHz **ANT** Pol. Horizontal **Fundamental** 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 97.5 97.5 81.3 81.3 FCC PART 150 65.0 65.0 48.8 **Peak** 32.5 32.5 16.3 16.3 1000 2440 2452. 4. 2476. Frequency (MHz) 1400. 0. 2200. Frequency (MHz) 3000 2500 Limit Over Read Ant Cable Preamp Aux APos TPos Limit Over Read Ant Cable Preamp Aux APos TPos Freq Level Line Limit Level Factor Loss Factor Factor Freq Level Lime Limit Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm deg cm deg 1 2483.98 56.62 74.00 -17.38 43.80 32.40 6.83 32.41 6.00 1 2480.00 99.83 ----- 87.01 32.40 6.83 32.41 6.00 293 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 97.5 97.5 81.3 81.3 65.0 65.0 FCC PART 15C (AVG) FCC PART 15C (AVG Avg 32.5 32.5 16.3 16.3 0<u>—</u> 2440 1000 2452. 2464. 2476. 2488. 2500 1400. 2600. 3000 .. Frequency (MHz) Frequency (MHz) Limit Over Read Ant Cable Preamp Aux APos TPos Limit Over Read Ant Cable Preamp Aux APos TPos Freq Level Line Limit Level Factor Loss Factor Factor Remark Freq Level Line Limit Level Factor Loss Factor Factor Remark deg MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB CM CM deg 1 2480.00 98.84 ----- 86.02 32.40 6.83 32.41 6.00 1 2494.00 45.13 54.00 -8.87 32.29 32.40 6.85 32.41 6.00 293 35 AVERAGE 35 AVERAGE

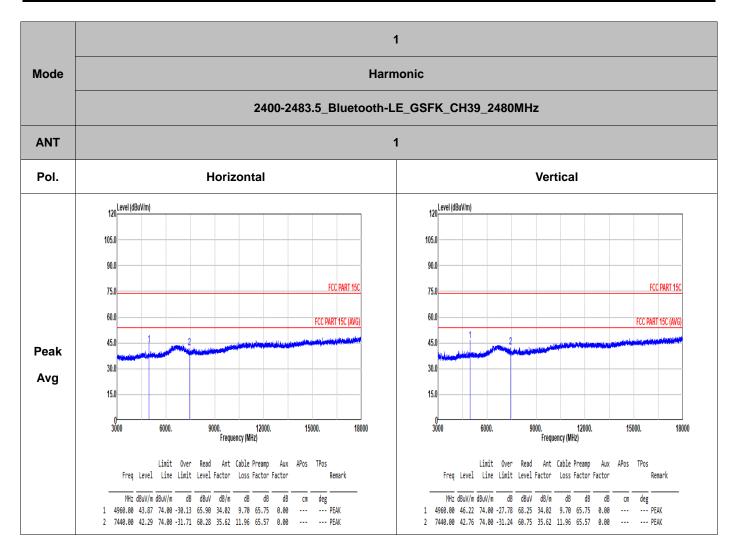
1 Mode **Band Edge** 2400-2483.5\_Bluetooth-LE\_GSFK\_CH39\_2480MHz **ANT** Pol. Vertical **Fundamental** 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 97.5 97.5 81.3 81.3 FCC PART 150 65.0 65.0 48.8 **Peak** 32.5 32.5 16.3 16.3 1000 2440 4. 2476. Frequency (MHz) 2452. 1400. 0. 2200. Frequency (MHz) 3000 2500 Limit Over Read Ant Cable Preamp Aux APos TPos Limit Over Read Ant Cable Preamp Aux APos TPos Freq Level Line Limit Level Factor Loss Factor Factor Freq Level Lime Limit Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB deg cm deg CM 1 2483.50 60.62 74.00 -13.38 47.80 32.40 6.83 32.41 6.00 1 2480.00 103.67 ----- 90.85 32.40 6.83 32.41 6.00 101 130 Level (dBuV/m) 130 Level (dBuV/m) 113.8 113.8 97.5 97.5 81.3 81.3 65.0 65.0 FCC PART 15C (AVG) FCC PART 15C (AVG Avg 32.5 32.5 16.3 16.3 0<u>—</u> 2440 1000 2452. 2464. 2476. 2488. 2500 1400. 2600. 3000 Frequency (MHz) Frequency (MHz) Limit Over Read Ant Cable Preamp Aux APos TPos Limit Over Read Ant Cable Preamp Aux APos TPos Freq Level Line Limit Level Factor Loss Factor Factor Remark Freq Level Line Limit Level Factor Loss Factor Factor Remark MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB MHz dBuV/m dBuV/m dB dBuV dB/m dB dB dB cm CM deg

2 AVERAGE

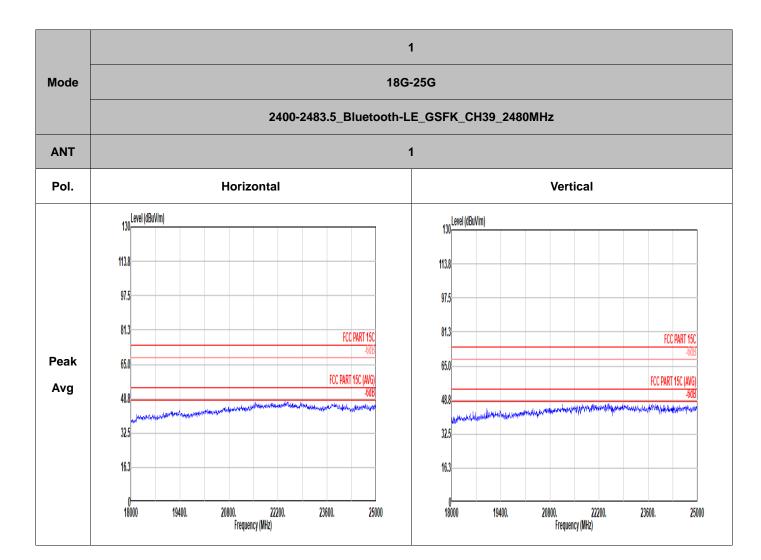
1 2494.90 45.66 54.00 -8.34 32.82 32.40 6.85 32.41 6.00 101

1 2480.00 102.68 ----- 89.86 32.40 6.83 32.41 6.00

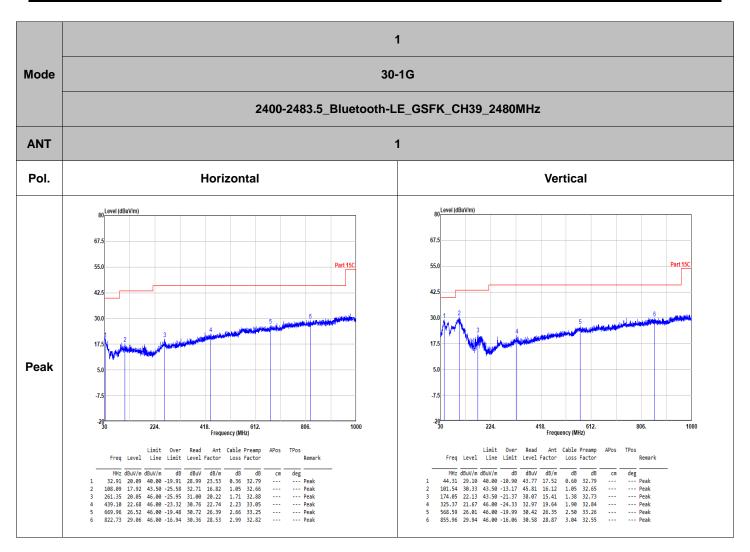
2 AVERAGE



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## Appendix B. Duty Cycle Plots

Band	Band Duty Cycle(%)		1/T(kHz)	VBW Setting	
Bluetooth -LE 1Mbps	62.62	0.392	2.551	2.7kHz	

### Bluetooth - LE 1Mbps



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