

Shenzhen Toby Technology Co., Ltd.

Report No.: TB-FCC145006 1 of 95 Page:

FCC Radio Test Report FCC ID: 2AFMD-FM25

Original Grant

Report No. TB-FCC145006

SHENZHEN SPRING TECHNOLOGY CO., LIMITED **Applicant**

Equipment Under Test (EUT)

EUT Name Bluetooth FM Transmitter

Model No. FM25

Brand Name N/A

Receipt Date 2015-08-05

Test Date 2015-08-05 to 2015-08-18

Issue Date 2015-08-19

FCC Part 15: 2014, Subpart C(15.247) **Standards**

Test Method ANSI C63.10:2013

Conclusions PASS

In the configuration tested, the EUT complied with the standards specified above,

The EUT technically complies with the FCC requirements

Test/Witness Engineer

Approved& Authorized

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

TB-RF-074-1.0

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1. General Information about EUT

1.1 Client Information

Applicant: SHENZHEN SPRING TECHNOLOGY CO,.LIMITED

Address : 5/Fablock, NO162 TongFuYu industry park KuKeng GuanLan

LongHua new district, Shenzhen, China.

Manufacturer : SHENZHEN SPRING TECHNOLOGY CO,.LIMITED

Address : 5/Fablock, NO162 TongFuYu industry park KuKeng GuanLan

LongHua new district, Shenzhen, China.

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	Bluetooth FM Transmitter	Bluetooth FM Transmitter			
Models No.) :	FM25				
Model Difference	8	N/A				
1000		Operation Frequency: Bluetooth:2402~2480MHz				
	17)	Number of Channel:	Bluetooth:79 Channels see note (2)			
Product Description		Max Peak Output Power:	GFSK:4.469dBm (Conducted Power)			
Description	15	Antenna Gain:	0 dBi PCB Antenna			
		Modulation Type:	GFSK 1Mbps(1 Mbps) π /4-DQPSK(2 Mbps) 8-DPSK(3 Mbps)			
Power Supply	:	DC Voltage supplied from	Car Charger.			
Power Rating : Car Charger Input: DC 9~26V Output: 5V			TOBY TOBY			
Connecting I/O Port(S)		Please refer to the User's Manual				

Note:

- (1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
- (2) This Test Report is FCC Part 15.247 for Bluetooth, and test procedure in accordance with Public Notice: DA 00-705.

(3) Channel List:

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457



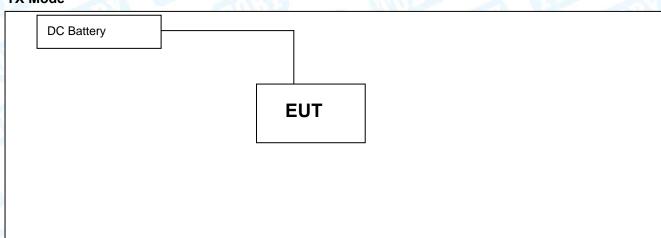
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		CHILLS			
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		N. Comment

(4) The Antenna information about the equipment is provided by the applicant.

1.3 Block Diagram Showing the Configuration of System Tested

TX Mode





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1.4 Description of Support Units

Equipment Information								
Name Model FCC ID/DOC Manufacturer Used "√"								
333								
		Cable Information						
Number	Number Shielded Type Ferrite Core Length Note							
		CAU RA	all the second					

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test					
Final Test Mode Description					
Mode 1	DC Charging with TX GFSK Mode				

For Radiated Test				
Final Test Mode	Description			
Mode 1	DC Charging with TX GFSK Mode			
Mode 2	TX Mode(GFSK) Channel 00/39/78			
Mode 3	TX Mode(π /4-DQPSK) Channel 00/39/78			
Mode 4	TX Mode(8-DPSK) Channel 00/39/78			
Mode 5	Hopping Mode(GFSK)			
Mode 6	Hopping Mode(π /4-DQPSK)			
Mode 7	Hopping Mode(8-DPSK)			

Note:

(1) For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate. We have pretested all the test mode above.

According to ANSI C63.10 standards, the measurements are performed at the highest,



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middle, lowest available channels, and the worst case data rate as follows:

TX Mode: GFSK (1 Mbps)
TX Mode: 8-DPSK (3 Mbps)

(2) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on X-plane as the normal use. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel& Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of Bluetooth mode.

Test Software Version		17	
Frequency	2402 MHz	2441MHz	2480 MHz
GFSK	DEF	DEF	DEF
π/4-DQPSK	DEF	DEF	DEF
8-DPSK	DEF	DEF	DEF



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1.7 Measurement Uncertainty

The reported uncertainty of measurement $y \pm U$, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U _{Lab})
	Level Accuracy:	
Conducted Emission	9kHz~150kHz	±3.42 dB
	150kHz to 30MHz	±3.42 dB
Redicted Emission	Level Accuracy:	±4.60 dB
Radiated Emission	9kHz to 30 MHz	±4.00 dB
Radiated Emission	Level Accuracy:	±4.40 dB
Radiated Effilssion	30MHz to 1000 MHz	±4.40 dB
Radiated Emission	Level Accuracy:	. 4 20 dB
Radiated Emission	Above 1000MHz	±4.20 dB

1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

May 22, 2014 certificated by TUV Rheinland(China) Co., Ltd. with TUV certificate No.: UA 50282953 0001 and report No.: 17026822 002. The certificate is valid until the next scheduled audit or up to 18 months, at the discretion of TUV Rhineland.



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2. Test Summary

FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 1					
Standard Section					
FCC	IC	Test Item	Judgment	Remark	
15.203	9	Antenna Requirement	PASS	N/A	
15.207	RSS-GEN 7.2.2	Conducted Emission	PASS	N/A	
15.205	RSS-Gen 7.2.3	Restricted Bands	PASS	N/A	
15.247(a)(1)	RSS 247 5.1 (2)	Hopping Channel Separation	PASS	N/A	
15.247(a)(1)	RSS 247 5.1 (4)	Dwell Time	PASS	N/A	
15.247(b)(1)	RSS 247 5.4 (2)	Peak Output Power	PASS	N/A	
15.247(b)(1)	RSS 247 5.1 (4)	Number of Hopping Frequency	PASS	N/A	
15.247(c)	RSS 247 5.5	Radiated Spurious Emission	PASS	N/A	
15.247(a)	RSS 247 5.1 (1)	99% Occupied Bandwidth & 20dB Bandwidth	PASS	99%OBW GFSK:834.9934kHz π/4-DQPSK: 1153.60kHz 8-DPSK: 1135.80kHz	

Note: N/A is an abbreviation for Not Applicable.



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3. Test Equipment

Conducted Emission Test						
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date	
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Aug. 07, 2015	Aug. 06, 2016	
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Aug. 07, 2015	Aug. 06, 2016	
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 07, 2015	Aug. 06, 2016	
LISN	Rohde & Schwarz	ENV216	101131	Aug. 07, 2015	Aug. 06, 2016	
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date	
Spectrum	Manufacturer	Woder No.	Serial No.	Last Gai.	Date	
Analyzer	Agilent	E4407B	MY45106456	Sep. 01, 2014	Aug. 31, 2015	
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 07, 2015	Aug. 06, 2016	
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 28, 2015	Mar. 27, 2016	
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar. 28, 2015	Mar. 27, 2016	
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 28, 2015	Mar. 27, 2016	
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar. 28, 2015	Mar. 27, 2016	
Pre-amplifier	Sonoma	310N	185903	Mar. 28, 2015	Mar. 27, 2016	
Pre-amplifier	HP	8447B	3008A00849	Mar. 28, 2015	Mar. 27, 2016	
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 28, 2015	Mar. 27, 2016	
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A	



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4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard FCC Part 15.207

4.1.2 Test Limit

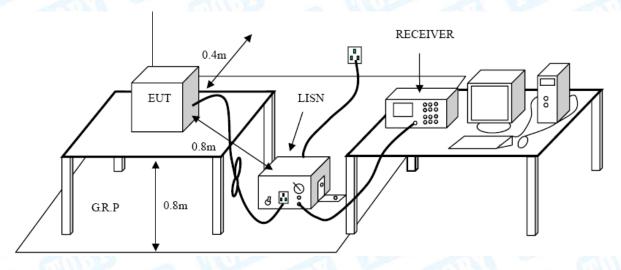
Conducted Emission Test Limit

Erequency	Maximum RF Line Voltage (dBμV)					
Frequency	Quasi-peak Level	Average Level				
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *				
500kHz~5MHz	56	46				
5MHz~30MHz	60	50				

Notes:

- (1) *Decreasing linearly with logarithm of the frequency.
- (2) The lower limit shall apply at the transition frequencies.
- (3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.



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I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN at least 80 cm from nearest part of EUT chassis

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4 EUT Operating Mode

Please refer to the description of test mode.

4.5 Test Data

Please see the next page.



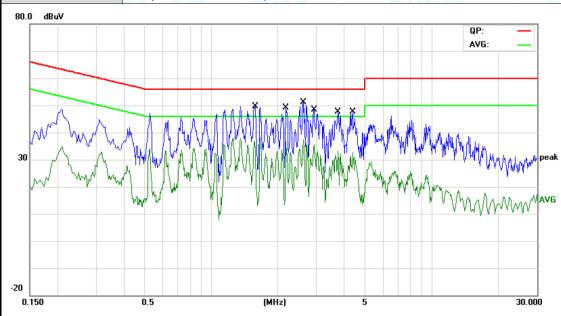
TOBY

EUT: Bluetooth FM Transmitter **Model Name:** FM25 25 °C Temperature: **Relative Humidity:** 55% **Test Voltage:** DC₉V Terminal: Line **Test Mode:** DC Charging with TX GFSK Mode 2402 MHz Remark: Only worse case is reported 80.0 dBu∀ QP: AVG: 30 -20 0.150 0.5 (MHz) 30.000 Reading Correct Measure-Limit Over No. Mk. Freq. Level Factor ment MHz dBuV ďΒ dBuV dBuV dΒ Detector 0.2060 36.59 10.02 46.61 63.36 -16.75 1 QP 2 0.206025.32 10.02 35.34 53.36 -18.02 AVG 3 0.3100 10.02 59.97 -15.53 QP 34.42 44.44 0.3100 23.70 10.02 33.72 49.97 -16.25**AVG** 4 5 1.1420 37.38 10.06 47.44 56.00 -8.56 QP 1.1420 25.63 10.06 35.69 46.00 -10.31 **AVG** 6 7 1.5700 38.89 10.06 48.95 56.00 -7.05 QP 8 1.5700 10.06 34.24 -11.76 **AVG** 24.18 46.00 9 2.1900 38.64 10.05 48.69 56.00 -7.31 QP 2.1900 23.70 10.05 33.75 -12.25 10 46.00 AVG 11 2.7180 37.08 47.12 QP 10.04 56.00 -8.88 12 2.7180 46.00 -15.18 AVG 20.78 10.04 30.82 **Emission Level= Read Level+ Correct Factor**



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		12 4	11120
EUT:	Bluetooth FM Transmitter	Model Name :	FM25
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 9V		13
Terminal:	Neutral		
Test Mode:	DC Charging with TX GFSK I	Mode 2402 MHz	CIU
Remark:	Only worse case is reported		
80.0 dBuV			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB	dBuV	dBu∨	dB	Detector
1		1.5859	30.06	10.10	40.16	56.00	-15.84	QP
2		1.5859	15.06	10.10	25.16	46.00	-20.84	AVG
3		2.1860	35.46	10.06	45.52	56.00	-10.48	QP
4		2.1860	22.83	10.06	32.89	46.00	-13.11	AVG
5	*	2.6099	38.51	10.06	48.57	56.00	-7.43	QP
6		2.6099	25.66	10.06	35.72	46.00	-10.28	AVG
7		2.9219	33.25	10.06	43.31	56.00	-12.69	QP
8		2.9219	24.09	10.06	34.15	46.00	-11.85	AVG
9		3.7540	33.86	10.06	43.92	56.00	-12.08	QP
10		3.7540	18.71	10.06	28.77	46.00	-17.23	AVG
11		4.3659	33.72	10.06	43.78	56.00	-12.22	QP
12		4.3659	19.74	10.06	29.80	46.00	-16.20	AVG



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EUT:		Blueto	oth FM Transi	mitter	Model Na	ne :	FM	125
Temp	erature:	25 ℃		13	Relative H	lumidity	: 55	%
Test V	/oltage:	DC 12	2V	-	1 W	a	133	
Termi	nal:	Line						ATTEN A
Test N	/lode:	DC C	harging with	TX GFSK I	Mode 2402 N	ИHz		Minn
Rema	rk:	Only	worse case	is reported	6.50	- Till	8.8	6
90.0 c	IBuV						QP: AVG:	
40		MW MAN		ÄMPhyvary**\ AMmannhay**		*\^\^	VVVVV	peak
0.150		0.5		(MHz)	5			30.000
No	. Mk. I	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB	dBu∀	dBu∀	dB	Detector
1	0.	1500	37.98	10.12	48.10	65.99	-17.89	QP
2	0.	1500	19.68	10.12	29.80	55.99	-26.19	AVG
3	1.	2100	31.85	10.14	41.99	56.00	-14.01	QP
4	1.	2100	9.70	10.14	19.84	46.00	-26.16	AVG
5	* 1.	3460	32.04	10.13	42.17	56.00	-13.83	QP
6	1.	3460	13.76	10.13	23.89	46.00	-22.11	AVG
7	2.	5660	29.32	10.06	39.38	56.00	-16.62	QP
8	2.	5660	10.64	10.06	20.70	46.00	-25.30	AVG

Emission Level= Read Level+ Correct Factor

23.74

7.10

21.69

8.32

10.06

10.06

10.09

10.09

33.80

17.16

31.78

18.41

60.00 -26.20

50.00 -32.84

60.00 -28.22

50.00 -31.59

6.3540

6.3540

7.8540 7.8540

9

10

11

12

QP

AVG

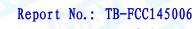
QP

AVG



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EUT:	Blueto	oth FM Trans	mitter	Model Na	me :	FN	<i>I</i> 25
Temperature:	: 25 °C		13	Relative Humidity:			5%
Test Voltage:	DC 1	2V		J F	-10	133	
Terminal:	Neutr	al	CHIT!		1 13		1
Test Mode:	DC C	harging with	n TX GFSK	Mode 2402	MHz	9	Milion
Remark:	Only	worse case	is reported	6.3		18	
90.0 dBuV						QP:	
40	mm		MANNE		* ***\	AVG:	pe.
0.150	0.5		(MHz)	5			30.000
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	1.1140	30.18	10.06	40.24	56.00	-15.76	QP
2	1.1140	11.05	10.06	21.11	46.00	-24.89	AVG
3 *	1.4299	31.27	10.06	41.33	56.00	-14.67	QP
4	1.4299	14.29	10.06	24.35	46.00	-21.65	AVG
5	2.6180	30.63	10.04	40.67	56.00	-15.33	QP
6	2.6180	14.10	10.04	24.14	46.00		AVG
7	3.7340	25.05	10.00	35.05	56.00		QP
8	3.7340	9.65	10.00	19.65	46.00		AVG
9	6.4380	21.86	10.00	31.89	60.00		QP
10	6.4380	6.90	10.03	16.93	50.00		AVG
11	7.9460	20.80	10.09	30.89	60.00		QP
12	7.9460	6.61	10.09	16.70	50.00	22.20	AVG





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UT:	Blueto	oth FM Transr	mitter	Model Nar	ne :	FM	25
Temperature:	: 25 ℃	100	13	Relative H	umidity:	55	%
Test Voltage:	DC 26	6V		1		1339	
Terminal:	Line		OMIT !		1 1/2		1
Test Mode:	DC C	harging with	TX GFSK I	Mode 2402 N	ЛHz	a 6	Min
Remark:	Only	worse case	is reported	6300		18	
90.0 dBuV						QP:	
40						AVG:	May be
0.150	0.5	Reading	(MHz) Correct	Measure-			30.000
NIO MAL	Г		Factor	ment	Limit	Over	
No. Mk.	Freq.	Level	i actor	mont			
INO. IVIK.	MHz	dBuV	dB	dBuV	dBu∨	dB	Detecto
1 1 NO. IVIK.	•				dBu∀		Detecto QP
	MHz	dBuV	dB	dBu∀	dBu∨ 63.69	dB	
1	MHz 0.1980	dBu∨ 38.92	dB 10.02	dBuV 48.94	dBu∨ 63.69	dB -14.75	QP
1 2	MHz 0.1980 0.1980	dBu√ 38.92 27.60	dB 10.02 10.02	dBuV 48.94 37.62	dBuV 63.69 53.69	dB -14.75 -16.07	QP AV(QP
1 2 3	MHz 0.1980 0.1980 0.5060	38.92 27.60 37.11	dB 10.02 10.02 10.02	dBuV 48.94 37.62 47.13	dBuV 63.69 53.69 56.00	dB -14.75 -16.07 -8.87	QP AVO
1 2 3 4 5	MHz 0.1980 0.1980 0.5060 0.5060 0.6020	38.92 27.60 37.11 27.94 35.42	dB 10.02 10.02 10.02 10.02 10.07	dBuV 48.94 37.62 47.13 37.96 45.49	dBuV 63.69 53.69 56.00 46.00	dB -14.75 -16.07 -8.87 -8.04 -10.51	QP AVC QP AVC QP
1 2 3 4 5	MHz 0.1980 0.1980 0.5060 0.5060 0.6020	38.92 27.60 37.11 27.94 35.42 27.12	dB 10.02 10.02 10.02 10.02 10.07 10.07	dBuV 48.94 37.62 47.13 37.96 45.49 37.19	dBuV 63.69 53.69 56.00 46.00 46.00	dB -14.75 -16.07 -8.87 -8.04 -10.51 -8.81	QP AVC QP AVC QP
1 2 3 4 5 6 7	MHz 0.1980 0.1980 0.5060 0.5060 0.6020 0.6020 0.8020	38.92 27.60 37.11 27.94 35.42 27.12 36.79	dB 10.02 10.02 10.02 10.02 10.07 10.07	dBuV 48.94 37.62 47.13 37.96 45.49 37.19 46.89	dBuV 63.69 53.69 56.00 46.00 46.00 56.00	dB -14.75 -16.07 -8.87 -8.04 -10.51 -8.81 -9.11	QP AVC QP AVC QP AVC
1 2 3 4 5 6 7 8	MHz 0.1980 0.1980 0.5060 0.5060 0.6020 0.6020 0.8020 0.8020	38.92 27.60 37.11 27.94 35.42 27.12 36.79 28.23	10.02 10.02 10.02 10.02 10.07 10.07 10.10	dBuV 48.94 37.62 47.13 37.96 45.49 37.19 46.89 38.33	dBuV 63.69 53.69 56.00 46.00 46.00 46.00	dB -14.75 -16.07 -8.87 -8.04 -10.51 -8.81 -9.11 -7.67	QP AVC QP AVC QP AVC
1 2 3 4 5 6 7 8	MHz 0.1980 0.1980 0.5060 0.5060 0.6020 0.6020 0.8020 0.8020 1.2020	38.92 27.60 37.11 27.94 35.42 27.12 36.79 28.23 36.68	10.02 10.02 10.02 10.02 10.07 10.07 10.10 10.10 10.06	dBuV 48.94 37.62 47.13 37.96 45.49 37.19 46.89 38.33 46.74	dBuV 63.69 53.69 56.00 46.00 56.00 46.00 56.00	-14.75 -16.07 -8.87 -8.04 -10.51 -8.81 -9.11 -7.67 -9.26	QP AVC QP AVC QP AVC QP
1 2 3 4 5 6 7 8 9 10 *	MHz 0.1980 0.1980 0.5060 0.5060 0.6020 0.6020 0.8020 0.8020 1.2020 1.2020	38.92 27.60 37.11 27.94 35.42 27.12 36.79 28.23 36.68 29.20	10.02 10.02 10.02 10.02 10.07 10.07 10.10 10.10 10.06 10.06	dBuV 48.94 37.62 47.13 37.96 45.49 37.19 46.89 38.33 46.74 39.26	dBuV 63.69 53.69 56.00 46.00 56.00 46.00 56.00 46.00	dB -14.75 -16.07 -8.87 -8.04 -10.51 -8.81 -9.11 -7.67 -9.26 -6.74	QP AVC QP AVC QP AVC
1 2 3 4 5 6 7 8	MHz 0.1980 0.1980 0.5060 0.5060 0.6020 0.6020 0.8020 0.8020 1.2020	38.92 27.60 37.11 27.94 35.42 27.12 36.79 28.23 36.68	10.02 10.02 10.02 10.02 10.07 10.07 10.10 10.10 10.06	dBuV 48.94 37.62 47.13 37.96 45.49 37.19 46.89 38.33 46.74	dBuV 63.69 53.69 56.00 46.00 56.00 46.00 56.00 46.00	-14.75 -16.07 -8.87 -8.04 -10.51 -8.81 -9.11 -7.67 -9.26	QP AVC QP AVC QP AVC





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EUT:	Bluetoo	oth FM Transn	nitter	Model Nar	ne :	FM	125
emperature:	25 ℃		13	Relative H	umidity	: 55	%
est Voltage:	DC 26	SV		1 Com		1383	
erminal:	Neutra	al	CART.				
Test Mode:	DC C	narging with	TX GFSK	Mode 2402 M	ЛHz	- F	Militar
Remark:	Only v	vorse case i	s reported	630		18	
90.0 dBuV						QP:	
40						AVG:	AMMAN PE
0.150	0.5	Reading	(MHz)	5 Measure-			30.000
No. Mk.	Freq.	Level	Factor	ment	Limit	O∨er	
	MHz	dBu∀	dB	dBuV	dBuV	dB ————	Detector
1 (0.5060	36.35	10.02	46.37	56.00	-9.63	QP
2 * 0	0.5060	27.97	10.02	37.99	46.00	-8.01	AVG
3 (0.8059	34.52	10.07	44.59	56.00	-11.41	QP
4 0	0.8059	26.37	10.07	36.44	46.00	-9.56	AVG
5 (0.9060	33.63	10.12	43.75	56.00	-12.25	QP
6 0	0.9060	26.59	10.12	36.71	46.00	-9.29	AVG
7 1	1.1060	35.61	10.15	45.76	56.00	-10.24	QP
8 1	1.1060	26.61	10.15	36.76	46.00	-9.24	AVG
	2.5020	36.40	10.06	46.46	56.00	-9.54	QP
	2.5020	24.75	10.06	34.81		-11.19	AVG
	3.3100	31.21	10.06	41.27	56.00	-14.73	QP
	3.3100	20.29	10.06	30.35	46 NO	-15.65	AVG



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5. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard FCC Part 15.209

5.1.2 Test Limit

Radiated Emission Limit (9 kHz~1000MHz)

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

Radiated Emission Limit (Above 1000MHz)

Frequency	Class B (dBuV/	m)(at 3m)
(MHz)	Peak	Average
Above 1000	74	54

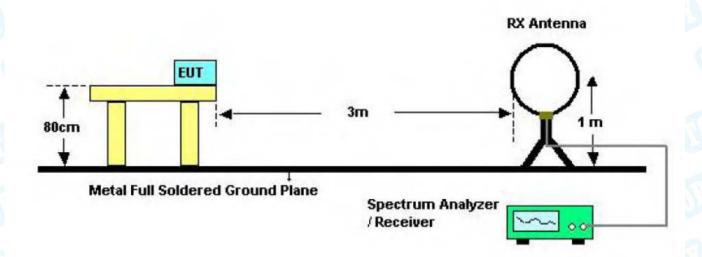
Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission Level (dBuV/m)=20log Emission Level (uV/m)

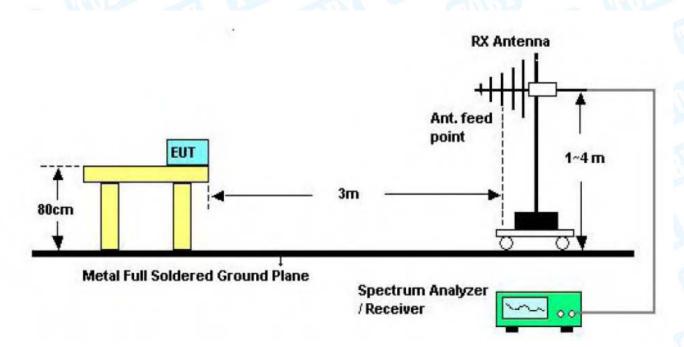


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5.2 Test Setup



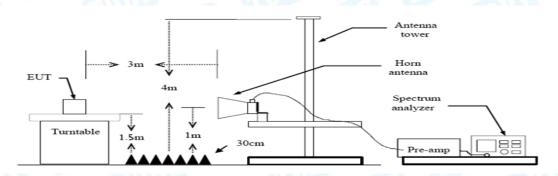
Bellow 30MHz Test Setup



Bellow 1000MHz Test Setup







Above 1GHz Test Setup

5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.
- (3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

5.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power in TX mode.

5.5 Test Data

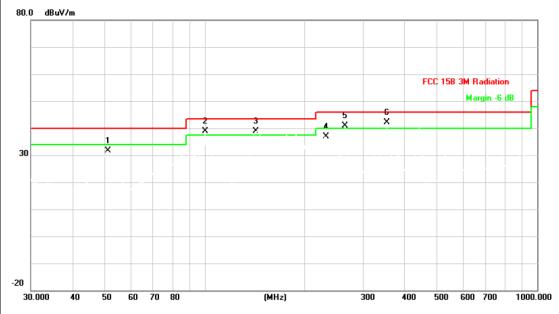
Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Test data please refer the following pages.



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 12V		13
Ant. Pol.	Horizontal		
Test Mode:	TX GFSK Mode 2402MHz		CHO.
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		51.3004	55.94	-24.41	31.53	40.00	-8.47	peak
2	ļ	100.2286	60.63	-21.82	38.81	43.50	-4.69	peak
3	ļ	142.8242	60.72	-21.76	38.96	43.50	-4.54	peak
4		231.7178	55.85	-18.99	36.86	46.00	-9.14	peak
5	ļ	264.7456	58.60	-17.80	40.80	46.00	-5.20	peak
6	*	352.9433	56.60	-14.59	42.01	46.00	-3.99	peak

^{*:}Maximum data x:Over limit !:over margin



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EU	Γ:		Blue	etoot	h Fl	M Tran	smitter	Model	Nar	me :		FM25		(1)
Ten	nperatu	ıre:	25	$^{\circ}$ C		1	3/1	Relativ	Relative Humidity: 55%				55%	
Tes	t Voltag	ge:	DC	12\	/			9			117	3		
Ant	. Pol.		Ver	tical			CHI)	A CONTRACTOR OF THE PARTY OF TH		a W				54
Tes	t Mode	:	TX	GFS	SK	Mode	2402MHz	(A)						
Rer	nark:		Onl	ly w	ors	e case	e is reported			-	18			1
80.0	O dBuV/m													
										F	CC 15B 3	M Radia Margin		
					_	2				5		ь Х		+
		×				×	<u> </u>	X		×				
30														
				-										\Box
														\Box
														Ш
-20														
30	0.000 4	0 50	60	70 (80		(MHz)		300	0 400	500 (500 700) 1	000.00
						ding	Correct	Measu		,				
\ 	lo. Mk				Le		Factor	men	t	Limit	O,	ver		
		MH	łz		dΒ	lu V	dB/m	dBuV/	m	dBuV/n	ו (dB ———	Det	ector
1	*	51.30	004		61	.15	-24.41	36.7	4	40.00	-3	3.26	р	eak
2	ļ.	99.87	777		59	.57	-21.83	37.7	4	43.50	-5	5.76	р	eak
3	į	188.4	123		59	.70	-20.85	38.8	5	43.50	-4	.65	р	eak
4		264.7	456		56	.41	-17.80	38.6	1	46.00	-7	7.39	p	eak
_		441.7	425		52	.10	-12.61	39.4	9	46.00	ı -6	3.51	p	eak
5		706.6	997		48	.14	-6.94	41.2	0	46.00	1 -4	1.80	pq	eak
5 6	į.	700.0	~~ .				- · - ·	–	-				I- 1	



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EUT:			Blue	etoot	h FI	VI Trans	smitter	M	odel Na	me :	Model Name : FM25				
Tempe	rature	e:	25	$^{\circ}$ C		1		R	elative H	lumidity	/ :	5	5%		H
Test Vo	ltage	:	DC	12\	/	1371		M	18)		
Ant. Po	ol.		Hor	rizor	ntal		THE STATE	1		1 //				a	1
Test Mo	ode:		TX	GF	SK	Mode	2441MHz	ď	TIME	9				المال	
Remarl	< :		Onl	ly w	orse	e case	e is reporte	b				9			1
80.0 dB	uV/m														_
										FC	C 15	3M R	adiatio	n _	
								<u> </u>			8	Mai	rgin -6	dB	
					_ţ	z X	3 X	X	5 X		×				-
30		1			4										
		×													
															1
															1
															ł
-20 30.000	40	50	60	70 8	80		(MHz)		300	400	500	600	700	1000	
30.000	40	30	60	70 a	5U		(MHZ)		300	400	500	600	700	1000	
		_		ı		ading			easure-	Limaik		<u> </u>			
No.	Mk.		eq.			evel	Factor		nent	Limit		Ove			
		М	Hz		dE	BuV	dB/m	d	BuV/m	dBuV/r	m	dE	3	Dete	cto
1		51.4	806		52	2.37	-24.41	2	27.96	40.00)	-12	.04	pe	ak
2	ļ	98.1	419		60	0.52	-21.98	3	38.54	43.50)	-4.	96	pe	ak
3	ļ	143.3	3260)	59	9.51	-21.71	3	37.80	43.50)	-5.	70	pe	ak
4	*	196.	5098	3	60	0.98	-20.57		10.41	43.50)	-3.	09	pe	ak
5		294.				7.18	-17.20		39.98	46.00		-6.		pe:	
	!	490.				3.35	-11.66		11.69	46.00		-4.		pe	
6		TOU.	, ++/		J	7.00	-11.00	-	T 1.08	40.00	,	-4.	J 1	he	ar



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EUT: Temperature:					Blue	etoo	th F	M Tra	nsmitter	Mod	del Na	me:		FM25	K	
Ter	npe	ratu	re:		25	$^{\circ}$ C		1		Rela	ative F	lumidity	/ :	55%	17/1/	الر
Tes	t Vo	oltag	e:		DC	12	V		100		16.30		Ñ	33		
Ant	t. Po	ol.			Ver	rtica	al				1				1	0
Tes	t M	ode:			TX	GF	SK	Mod	e 2441MHz						P	
Rei	mar	k:			On	ly w	ors	se ca	se is reported	1		-				1
80.0) dB	uV/m														1
												FC	C 151	3M Radiatio		
										_		5		Margin -6	dB	1
		+		1 X			ᅻ	2 X	3 X	4 ×		×		X		
30							H						<u>.</u>			
-20 30	0.000	40		50	60	70	80		(MHz)		300	400	500	600 700	1000.	.000
																_
1	۷o.	Mk.		Fre	eq.			ading evel	g Correct Factor	Meas me		Limit		Over		
				МН	lz		d	BuV	dB/m	dBu	V/m	dBuV/n	n	dB	Detec	cto
1		*	5	1.30	004		6′	1.34	-24.41	36	.93	40.00)	-3.07	pea	ak
2			98	8.14	119		58	3.04	-21.98	36	.06	43.50)	-7.44	pea	ak
3			14	3.8	294	-	57	7.63	-21.67	35	.96	43.50)	-7.54	pea	ak
4			25	2.0	627	•	56	3.27	-18.07	38	.20	46.00)	-7.80	pea	ak
5		ļ	46	8.8	761		5′	1.88	-11.81	40	.07	46.00)	-5.93	pea	ak
6			68	7.1	507	•	44	4.98	-7.22	37	.76	46.00)	-8.24	pea	ak
O																



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EUT:			Blu	ueto	oth Fl	M Tran	smitter	V	Model Name :			F	M25			
Tempe	eratui	re:	25	$^{\circ}$ C		15			Rela	tive	Humi	dity	: 5	5%	1711	Ü
Test V	oltag	e:	DO	2 12	2V	1377		7		3						
Ant. P	ol.		Н	orizo	ontal		CAR.				\ \				A.	A
Test M	lode:		T	(GF	SK	Mode	2480MHz	2480MHz						111		
Remar	rk:		Or	nly v	vors	e case	e is reported		S. S. S.			m	A			4
80.0 di	BuV/m															_
												FCC 1	5B 3M F	adiatio	n	
								_		-5	c		Ma	rgin -6	dB	-
					<u> </u>	2 X	3 X	X		×	×					
30		1 X			± 1					<u></u>						
-20	- 10						a			200	100	For		700	1000	
30.000	40	50	60	70	80		(MHz)			300	400	500	600	700	1000.	.UUL
No.	Mk.	. F	req.			ading vel	Correct Factor		easur ment		Limi	t	Ove	er		
		M	ЛHz		dE	Bu∨	dB/m	C	dBuV/n	n	dBu√	//m	dB	}	Detect	tor
1		51.	1208	,	54	.37	-24.41	:	29.96	3	40.0	00	-10.	04	pea	ık
2	İ	107.	.887	6	61	.07	-21.86	;	39.21	1	43.5	50	-4.2	29	pea	ık
3	ļ	143.	.829	4	61	.20	-21.67	;	39.53	3	43.5	50	-3.9	97	pea	ık
4	ļ	216.	.0240	0	60	.32	-19.70	•	40.62	2	46.0	00	-5.3	38	pea	ık
5	İ	324.	.456	0	58	.43	-16.16	•	42.27	7	46.0	00	-3.7	73	pea	ık
6	*	396.	.241	4	55	.47	-13.05		42.42	2	46.0	00	-3.5	58	pea	ık



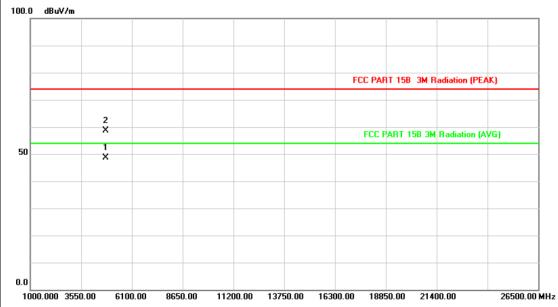
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EUT:	Bluetoo	th FM Trans	mitter	Model N	FM25						
Temperature:	25 ℃										
Test Voltage:	DC 12	V	-	10		13					
Ant. Pol.	Vertica	d	CHIT!		I WILL		4				
Test Mode:	TX GF	SK Mode	2480MHz		9		J. Janes				
Remark:	Only w	orse case	is reported	1			. (
80.0 dBuV/m											
					FCC 158	3M Radiation					
				4	5	Margin -6	1B				
1 ×		2 X	3 ×	*		6 ×					
30											
20 20 50	00 70		441 X	200	100 500	600 700	1000.00				
30.000 40 50	60 70 8	80	(MHz)	300	400 500	600 700	1000.00				
		Reading		Measure-	1::4	-					
	Freq.	Level	Factor	ment		⊃∨er					
	MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB [Detector				
1 ! 51.	.4806	60.09	-24.41	35.68	40.00	-4.32	peak				
2 95.	.7622	57.75	-22.19	35.56	43.50	-7.94	peak				
3 186	3.4408	56.87	-20.79	36.08	43.50	-7.42	peak				
4 324	.4560	55.82	-16.16	39.66	46.00	-6.34	peak				
5 * 432	2.5457	55.46	-12.78	42.68	46.00	-3.32	peak				
6 647	7.3855	47.62	-8.71	38.91	46.00	-7.09	peak				
6 647											



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25					
Temperature:	25 °C Relative Humidity: 55%							
Test Voltage:	OC 12V							
Ant. Pol.	Horizontal							
Test Mode:	TX GFSK Mode 2402MHz	TX GFSK Mode 2402MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit.							

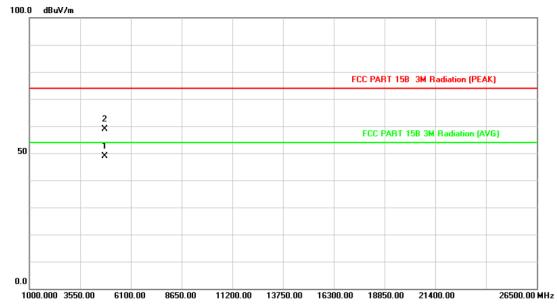


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4803.684	35.17	13.44	48.61	54.00	-5.39	AVG
2		4803.847	45.23	13.44	58.67	74.00	-15.33	peak



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25						
Temperature:	25 ℃	Relative Humidity:	55%						
Test Voltage:	DC 12V	OC 12V							
Ant. Pol.	Vertical								
Test Mode:	TX GFSK Mode 2402MHz	TX GFSK Mode 2402MHz							
Remark:	No report for the emission which more than 10 dB below the prescribed limit.								

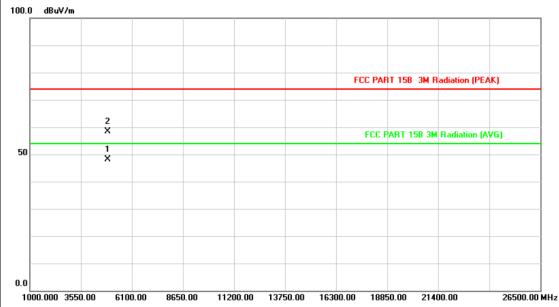


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4803.324	35.42	13.44	48.86	54.00	-5.14	AVG
2		4804.357	45.45	13.44	58.89	74.00	-15.11	peak



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25					
Temperature:	25 ℃ Relative Humidity: 55%							
Test Voltage:	DC 12V							
Ant. Pol.	Horizontal							
Test Mode:	TX GFSK Mode 2441MHz							
Remark:	No report for the emission which more than 10 dB below the prescribed limit.							

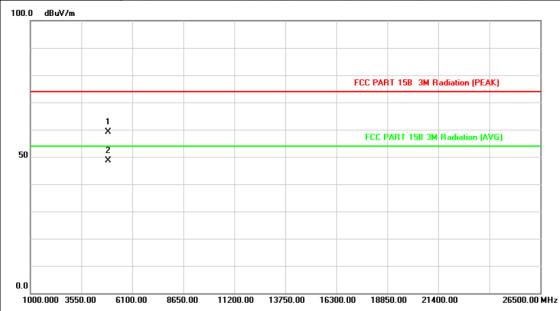


No	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4881.371	34.16	13.90	48.06	54.00	-5.94	AVG
2		4882.368	44.41	13.90	58.31	74.00	-15.69	peak



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25					
Temperature:	25 ℃	55%						
Test Voltage:	DC 12V							
Ant. Pol.	Vertical							
Test Mode:	TX GFSK Mode 2441MHz							
Remark:	No report for the emission which more than 10 dB below the prescribed limit.							

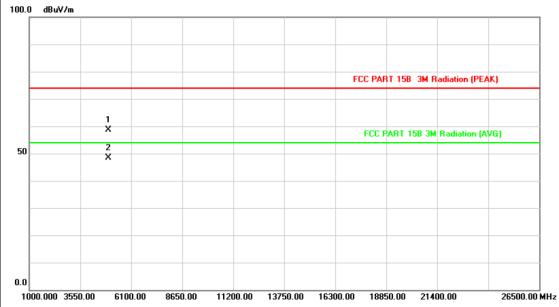


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4881.387	45.20	13.90	59.10	74.00	-14.90	peak
2	*	4881.954	34.61	13.90	48.51	54.00	-5.49	AVG



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EUT:	Bluetooth FM Transmitter Mod		FM25			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 12V	DC 12V				
Ant. Pol.	Horizontal					
Test Mode:	TX GFSK Mode 2480MHz		CHILL			
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					
100.0 10.41						

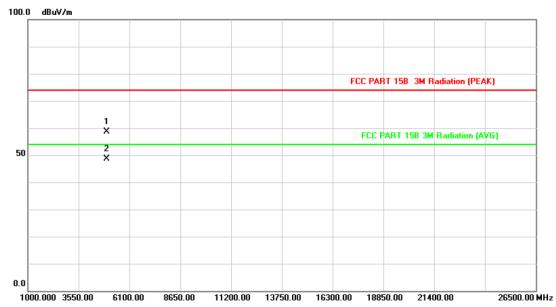


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4959.647	44.30	14.36	58.66	74.00	-15.34	peak
2	*	4959.651	34.04	14.36	48.40	54.00	-5.60	AVG



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25		
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	DC 12V				
Ant. Pol.	Vertical				
Test Mode:	TX GFSK Mode 2480MHz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.				

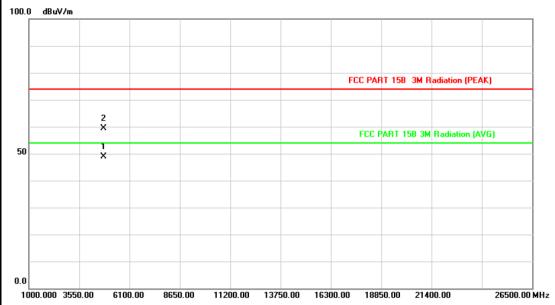


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4959.367	44.33	14.36	58.69	74.00	-15.31	peak
2	*	4959.951	34.32	14.36	48.68	54.00	-5.32	AVG



Page: 34 of 95

EUT:	Bluetooth FM Transmitter	Model Name :	FM25			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 12V	DC 12V				
Ant. Pol.	Horizontal	Horizontal				
Test Mode:	TX 8-DPSK Mode 2402MHz	TX 8-DPSK Mode 2402MHz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.					

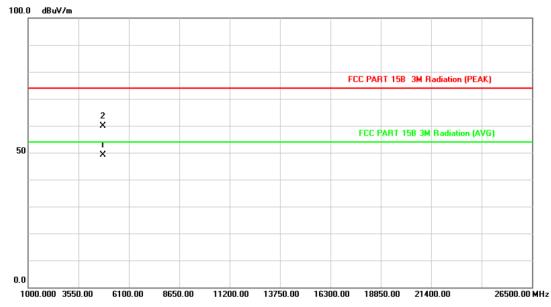


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4803.637	35.51	13.44	48.95	54.00	-5.05	AVG
2		4804.312	45.89	13.44	59.33	74.00	-14.67	peak



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25		
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	DC 12V				
Ant. Pol.	Vertical				
Test Mode:	TX 8-DPSK Mode 2402MHz				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.				

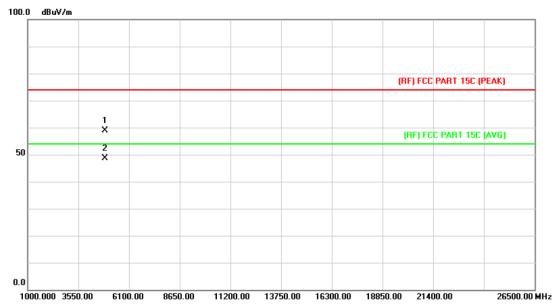


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4803.387	35.68	13.44	49.12	54.00	-4.88	AVG
2		4804.961	46.42	13.44	59.86	74.00	-14.14	peak



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25		
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	DC 12V				
Ant. Pol.	Horizontal		1		
Test Mode:	TX 8-DPSK Mode 2441MHz		CHILL		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.				

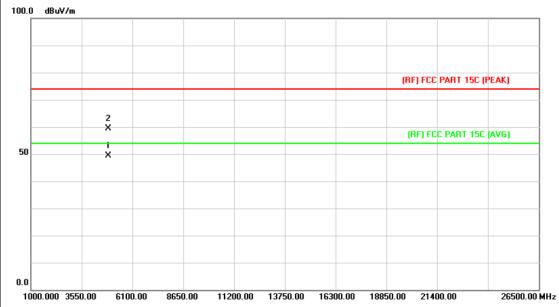


No	. Mk.	Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4881.339	45.04	13.90	58.94	74.00	-15.06	peak
2	*	4881.417	34.71	13.90	48.61	54.00	-5.39	AVG



Page: 37 of 95

EUT:	Bluetooth FM Transmitter	Model Name :	FM25					
Temperature:	25 ℃	25 °C Relative Humidity: 55%						
Test Voltage:	DC 12V	DC 12V						
Ant. Pol.	Vertical	Vertical						
Test Mode:	TX 8-DPSK Mode 2441MHz	TX 8-DPSK Mode 2441MHz						
Remark:	No report for the emission which more than 10 dB below the prescribed limit.							



No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	O∨er	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4881.332	35.48	13.90	49.38	54.00	-4.62	AVG
2		4882.365	45.51	13.90	59.41	74.00	-14.59	peak



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 12V						
Ant. Pol.	Horizontal						
Test Mode:	TX 8-DPSK Mode 2480MHz		CHILL				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						

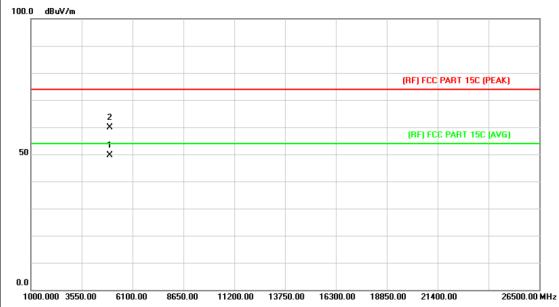


No	. Mk	. Freq.	Reading Level		Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4959.337	34.31	14.36	48.67	54.00	-5.33	AVG
2		4959.368	44.31	14.36	58.67	74.00	-15.33	peak



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 12V						
Ant. Pol.	Vertical	De la la	The state of the s				
Test Mode:	TX 8-DPSK Mode 2480MHz		CHILITIES				
Remark:	No report for the emission which more than 10 dB below the prescribed limit.						



No	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4959.359	35.15	14.36	49.51	54.00	-4.49	AVG
2		4959.954	45.48	14.36	59.84	74.00	-14.16	peak



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6. Restricted Bands Requirement

6.1 Test Standard and Limit

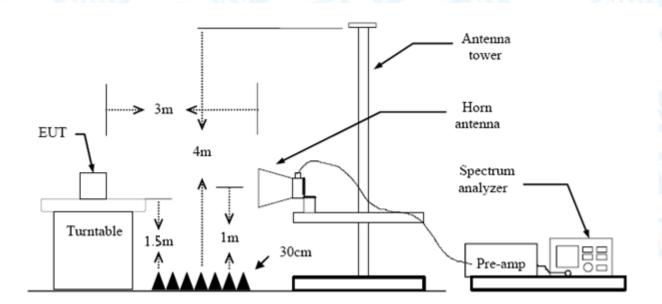
6.1.1 Test Standard FCC Part 15.209 FCC Part 15.205

6.1.2 Test Limit

Restricted Frequency	Class B (dE	BuV/m)(at 3m)
Band (MHz)	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54

Note: All restriction bands have been tested, only the worst case is reported.

6.2 Test Setup



6.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz. The EUT was placed on a rotating 0.8m high above the ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.



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(3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

- (4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
- (5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.
- (6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.
- (8) For the actual test configuration, please see the test setup photo.

6.4 EUT Operating Condition

The Equipment Under Test was set to Continual Transmitting in maximum power.

6.4 Test Data

Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=1 KHz with Peak Detector for Average Values.

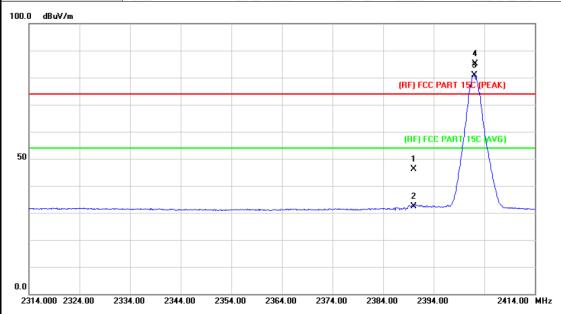
All restriction bands have been tested, only the worst case is reported.



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(1) Radiation Test

EUT:	Bluetooth FM Transmitter	Model Name :	FM25			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 12V					
Ant. Pol.	Horizontal					
Test Mode:	TX GFSK Mode 2402MHz					
Remark:	N/A					

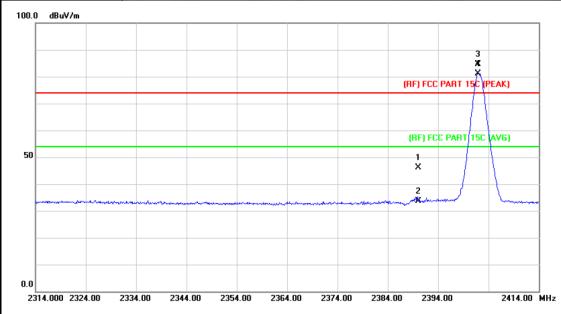


No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	45.47	0.77	46.24	74.00	-27.76	peak
2		2390.000	31.59	0.77	32.36	54.00	-21.64	AVG
3	*	2402.000	80.09	0.82	80.91	Fundamental Frequency		AVG
4	Χ	2402.200	84.35	0.82	85.17	Fundamenta	I Frequency	peak



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 12V					
Ant. Pol.	Vertical					
Test Mode:	TX GFSK Mode 2402MHz					
Remark:	N/A					

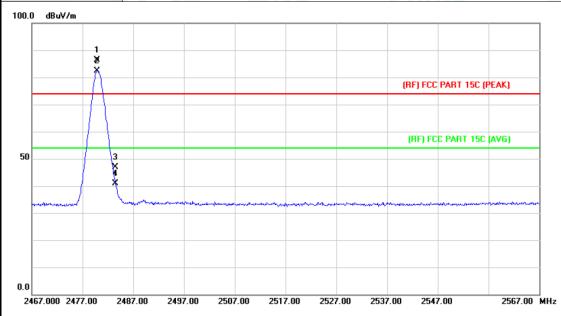


No.	. Mk.	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	45.43	0.77	46.20	74.00	-27.80	peak
2		2390.000	32.92	0.77	33.69	54.00	-20.31	AVG
3	Х	2401.900	83.87	0.82	84.69	Fundamental	Frequency	peak
4	*	2401.900	80.41	0.82	81.23	Fundamental	Frequency	AVG



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 12V					
Ant. Pol.	Horizontal		1			
Test Mode:	TX GFSK Mode 2480 MHz					
Remark:	N/A					

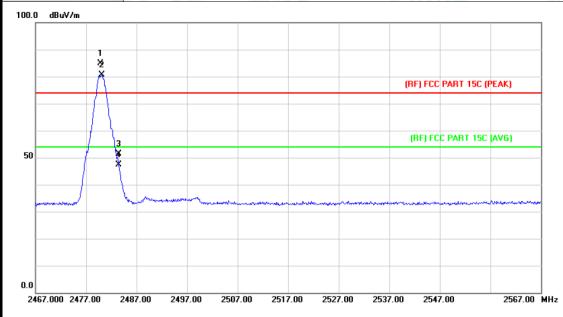


N	o. M	k.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Χ	2	2479.900	85.19	1.15	86.34	Fundamenta	l Frequency	peak
2	*	2	2479.900	81.20	1.15	82.35	Fundamenta	l Frequency	AVG
3		2	2483.500	45.70	1.17	46.87	74.00	-27.13	peak
4		2	2483.500	39.76	1.17	40.93	54.00	-13.07	AVG



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 12V	DC 12V					
Ant. Pol.	Vertical		100				
Test Mode:	TX GFSK Mode 2480 MHz						
Remark:	N/A						

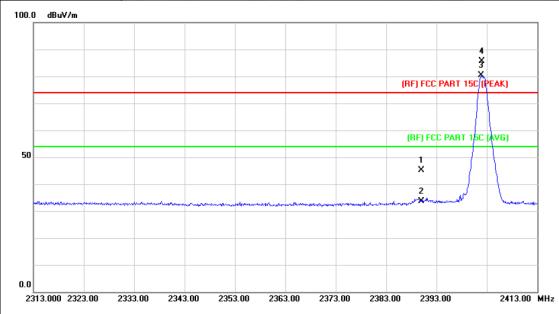


No	o. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∨	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2479.900	83.72	1.15	84.87	Fundamental	Frequency	peak
2	*	2480.100	79.51	1.15	80.66	Fundamental	Frequency	AVG
3		2483.500	50.20	1.17	51.37	74.00	-22.63	peak
4		2483.500	46.21	1.17	47.38	54.00	-6.62	AVG



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 12V	DC 12V					
Ant. Pol.	Horizontal		1000				
Test Mode:	TX 8-DPSK Mode 2402MHz		CHILL				
Remark:	N/A		1				
	-						

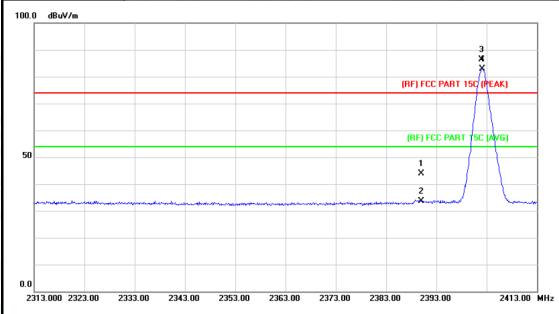


No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	44.48	0.77	45.25	74.00	-28.75	peak
2		2390.000	32.97	0.77	33.74	54.00	-20.26	AVG
3	*	2401.800	79.57	0.82	80.39	Fundamenta	Frequency	AVG
4	Χ	2402.000	84.92	0.82	85.74	Fundamental	Frequency	peak



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	DC 12V					
Ant. Pol.	Vertical					
Test Mode:	TX 8-DPSK Mode 2402MHz					
Remark:	N/A		1 - 6			

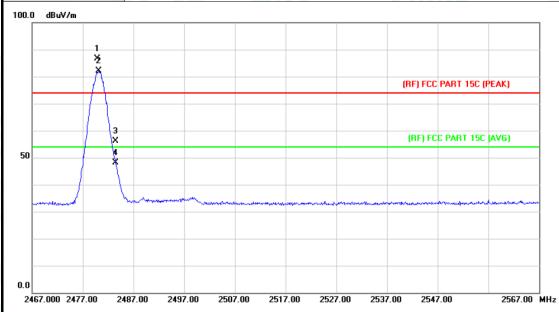


No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	43.01	0.77	43.78	74.00	-30.22	peak
2		2390.000	32.78	0.77	33.55	54.00	-20.45	AVG
3	Χ	2402.000	85.53	0.82	86.35	Fundamenta	Frequency	peak
4	*	2402.200	82.02	0.82	82.84	Fundamental	Frequency	AVG



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25			
Temperature:	25 ℃	Relative Humidity:				
Test Voltage:	DC 12V					
Ant. Pol.	Horizontal					
Test Mode:	TX 8-DPSK Mode 2480MHz					
Remark:	N/A		1 - 6			

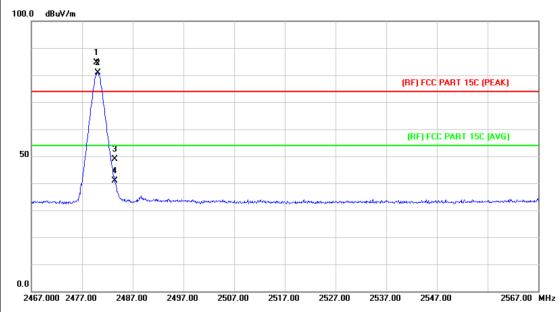


N	lo. Mł	κ. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2479.800	85.39	1.15	86.54	Fundamental	Frequency	peak
2	*	2480.100	80.87	1.15	82.02	Fundamental	Frequency	AVG
3		2483.500	54.92	1.17	56.09	74.00	-17.91	peak
4		2483.500	46.90	1.17	48.07	54.00	-5.93	AVG



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EUT:	Bluetooth FM Transmitter	Model Name :	FM25				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	DC 12V	DC 12V					
Ant. Pol.	Vertical	Vertical					
Test Mode:	TX 8-DPSK Mode 2480MHz		CHILL STORY				
Remark:	N/A						
100.0 dBuV/m							



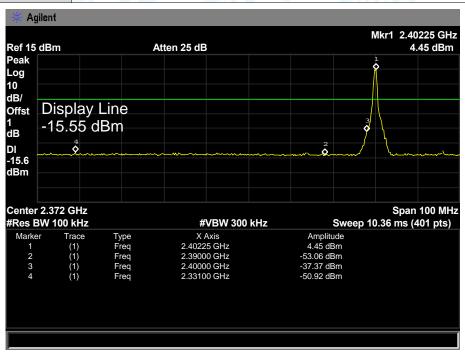
No	. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Χ	2479.900	83.53	1.15	84.68	Fundamental	Frequency	peak
2	*	2480.100	79.64	1.15	80.79	Fundamental	Frequency	AVG
3		2483.500	47.76	1.17	48.93	74.00	-25.07	peak
4		2483.500	39.60	1.17	40.77	54.00	-13.23	AVG

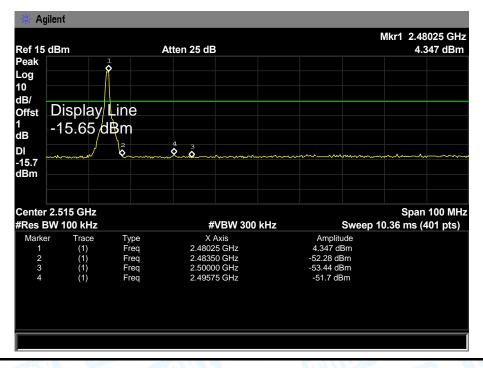




(2) Conducted Test

EUT:	Bluetooth FM Transmitter	Model Name :	FM25				
Temperature:	25 ℃	Relative Humidity: 55%					
Test Voltage:	DC 3.7V						
Test Mode:	TX GFSK Mode 2402MHz / 2480 MHz						
Remark:	N/A						





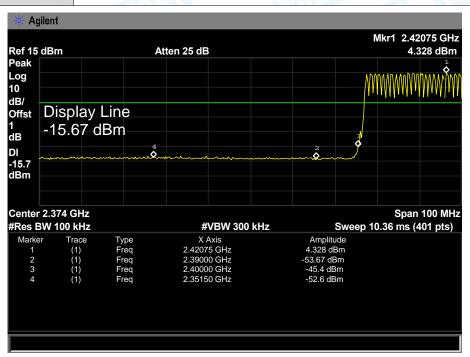


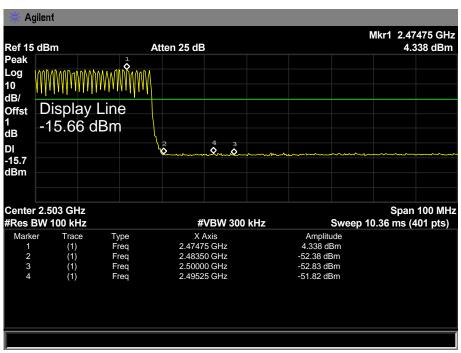
EUT: Bluetooth FM Transmitter Model Name: FM25
Temperature: 25 °C Relative Humidity: 55%

Test Voltage: DC 3.7V

Test Mode: GFSK Hopping Mode

Remark: N/A







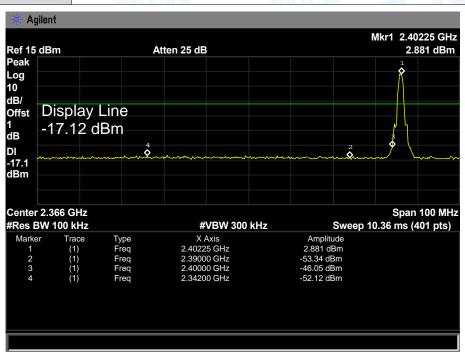
EUT: Bluetooth FM Transmitter Model Name: FM25

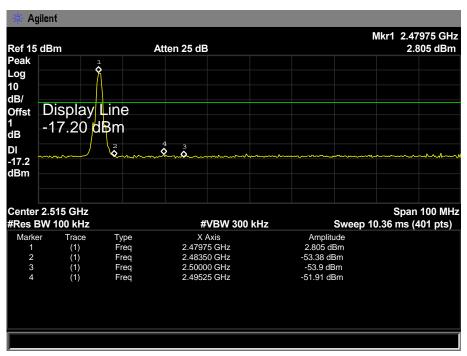
Temperature: 25 ℃ Relative Humidity: 55%

Test Voltage: DC 3.7V

Test Mode: TX 8-DPSK Mode 2402MHz / 2480 MHz

Remark: N/A







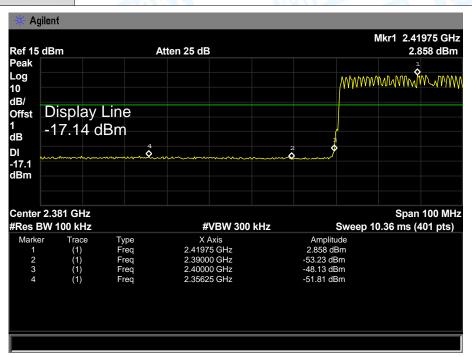
EUT: Bluetooth FM Transmitter Model Name: FM25

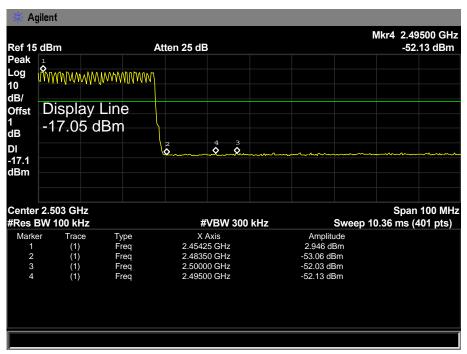
Temperature: 25 ℃ Relative Humidity: 55%

Test Voltage: DC 3.7V

Test Mode: 8-DPSK Hopping Mode

Remark: N/A







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7. Number of Hopping Channel

7.1 Test Standard and Limit

6.1.1 Test Standard FCC Part 15.247 (a)(1)

6.1.2 Test Limit

Section	Test Item	Limit		
15.247	Number of Hopping Channel	>15		

7.2 Test Setup



7.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting: RBW=100 KHz, VBW=100 KHz, Sweep time= Auto.

7.4 EUT Operating Condition

The EUT was set to the Hopping Mode by the Customer.

7.5 Test Data





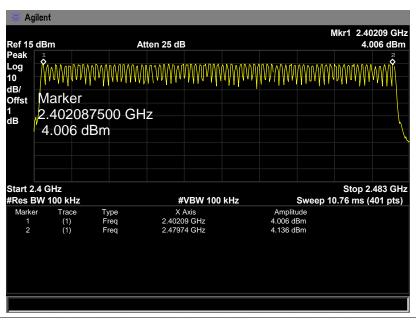
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EUT:	Bluetooth FM Transmitter	Model Name :	FM25
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		33

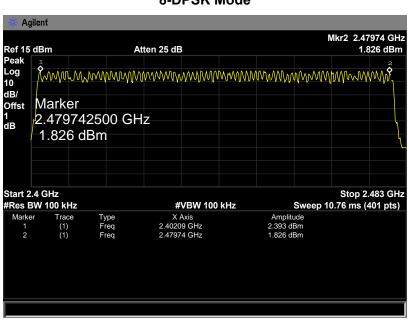
Test Mode: Hopping Mode (GFSK/ 8-DPSK)

Frequency Range	Quantity of Hopping Channel	Limit
2402MH- 2400MH-	79	\1 E
2402MHz~2480MHz	79	>15

GFSK Mode



8-DPSK Mode





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8. Average Time of OcCupancy

8.1 Test Standard and Limit

8.1.1 Test Standard FCC Part 15.247 (a)(1)

8.1.2 Test Limit

Section	Test Item	Limit	
15.247(a)(1)/ RSS-210	Average Time of	0.4 sec	
Annex 8(A8.1d)	OcCupancy	0.4 Sec	

8.2 Test Setup



8.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting: RBW=1MHz, VBW=1MHz.
- (3) Use video trigger with the trigger level set to enable triggering only on full pulses.
- (4) Sweep Time is more than once pulse time.
- (5) Set the center frequency on any frequency would be measure and set the frequency span to zero.
- (6) Measure the maximum time duration of one single pulse.
- (7) Set the EUT for packet transmitting.
- (8) Measure the maximum time duration of one single pulse.

8.4 EUT Operating Condition

The EUT was set to the Hopping Mode by the Customer.

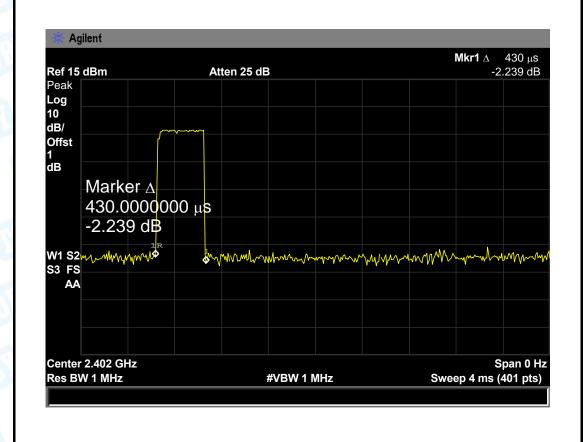


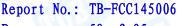
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8.5 Test Data

EUT:		Bluetooth F	oth FM Transmitter Model Name :			FM25
Temperature		25 ℃	Comment of the last	Relative Hum	55%	
Test Voltage:		DC 3.7V	A HATT		630	THE STATE OF THE S
Test Mode:		Hopping I	Mode (GFSK DH1)			I WILL
Channel	Pu	lse Time	Total of Dwell	Period Time	Limit	Result
(MHz)		(ms)	(ms)	(s)	(ms)	Result
2402		0.430	137.60			
2441		0.430	137.60	31.60	400	PASS
2480		0.430	137.60			
	•		OFOK Hereiter	Maria Bilia		•

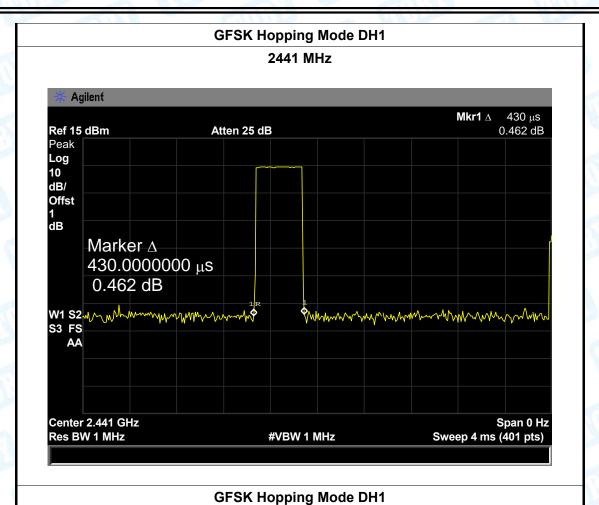
GFSK Hopping Mode DH1

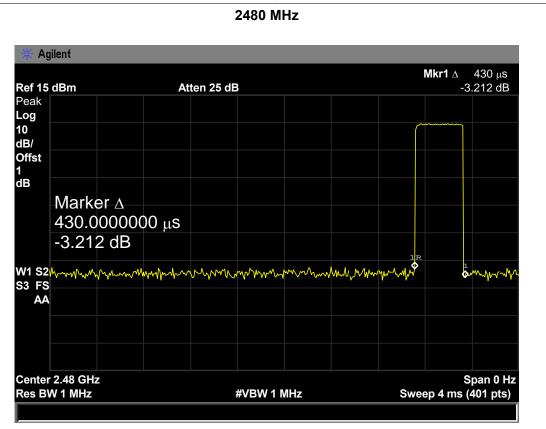






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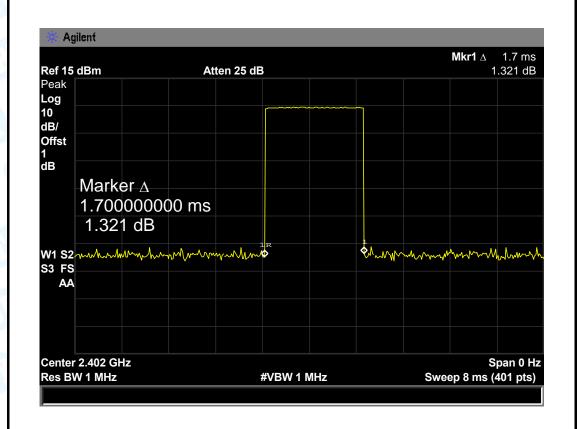


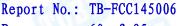


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EUT:		Bluetooth FM Transmitter		Model Name :		FM25
Temperature:		25 ℃		Relative	Humidity:	55%
Test Voltage:		DC 3.7V	The same of the sa	1		3
Test Mode:		Hopping I	Mode (GFSK DH3)		Alle	1
Channel (MHz)	Pu	lse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2402		1.700	272.00			
2441		1.700	272.00	31.60	400	PASS
2480		1.700	272.00			

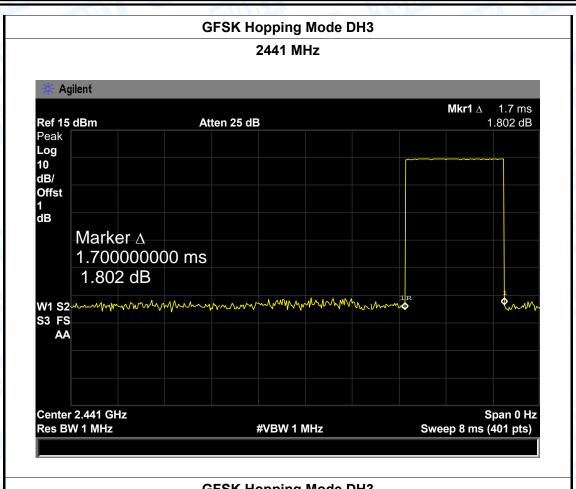
GFSK Hopping Mode DH3

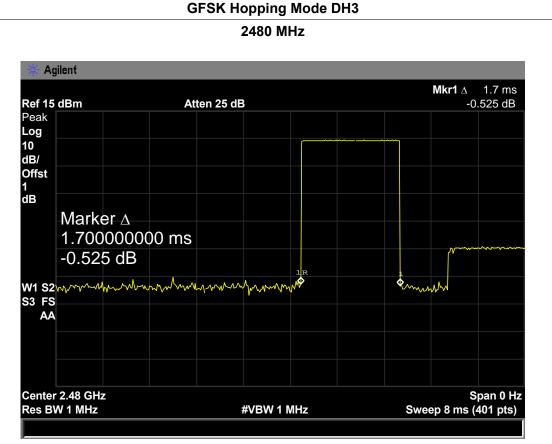






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2441

2480

3.000

3.000

Report No.: TB-FCC145006

PASS

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EUT:	Bluetooth	Bluetooth FM Transmitter Model Name :			FM25
Temperature:	25 ℃		Relative	55%	
Test Voltage:	DC 3.7V	The same of the sa	183		3
Test Mode:	Hopping	Mode (GFSK DH5)		Millian	1
Channel (MHz)	Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2402	3.000	320.00			

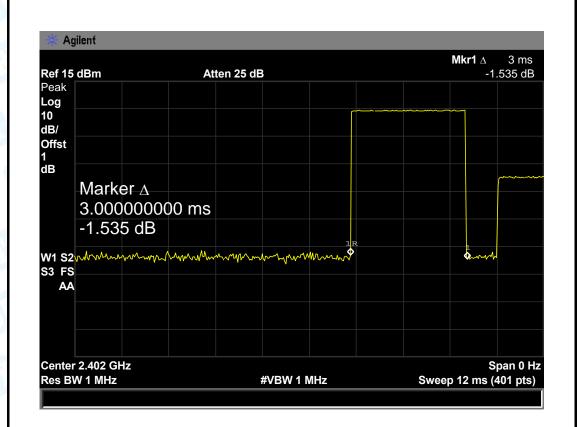
GFSK Hopping Mode DH5

31.60

400

320.00

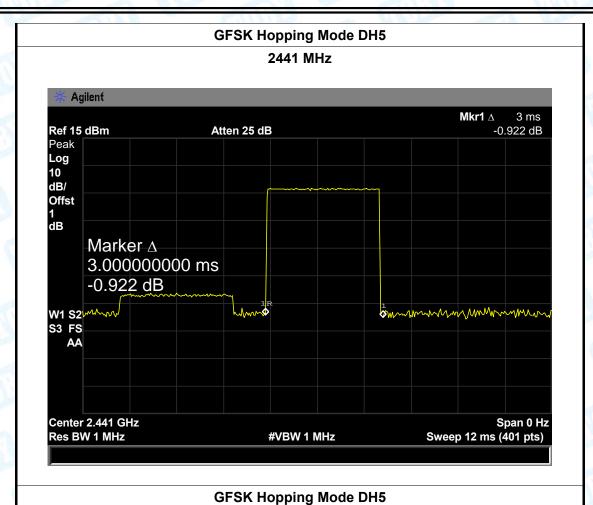
320.00

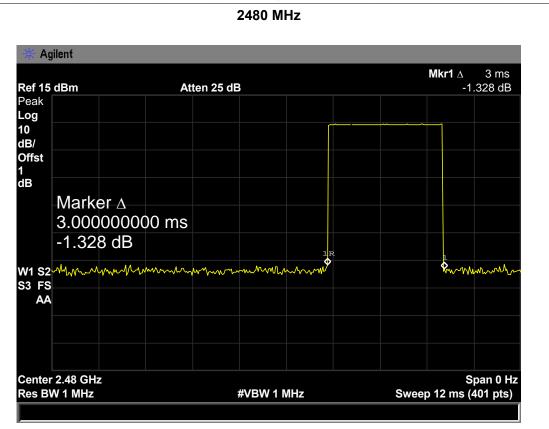






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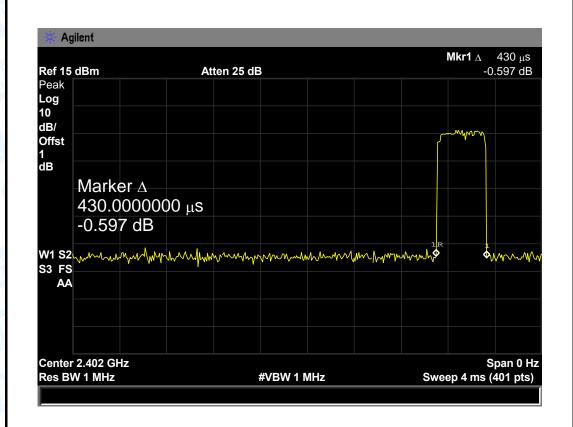




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EUT:		Bluetooth FM Transmitter		Model Name		FM25
Temperature	•	25 ℃		Relative Hum	55%	
Test Voltage:		DC 3.7V		1		
Test Mode:		Hopping N	Mode (π/4-DQPSK D	DH1)	130	ATTE L
Channel	Pul	lse Time	Total of Dwell	Period Time	Limit	Result
(MHz)		(ms)	(ms)	(s)	(ms)	Result
2402		0.430	137.60			
2441		0.440	140.80	31.60	400	PASS
2480	(0.440	140.80			

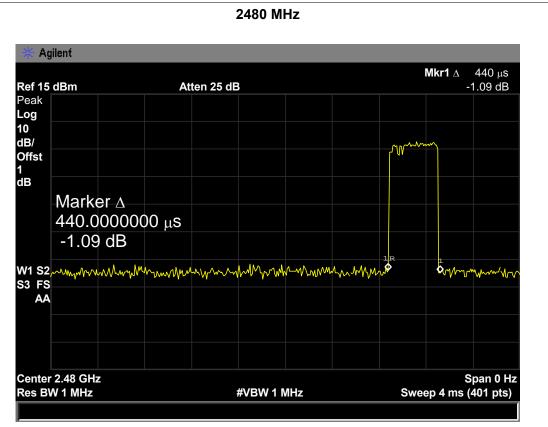
π /4-DQPSK Hopping Mode DH1





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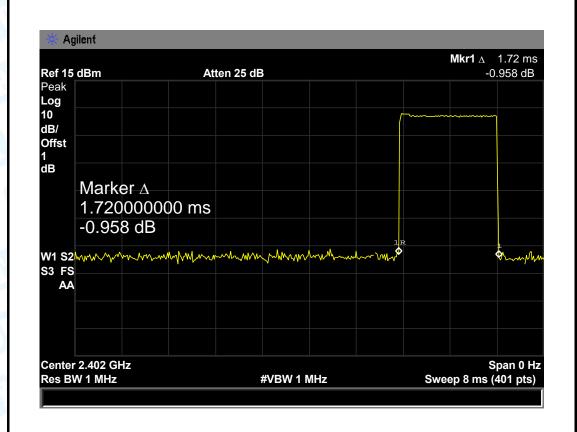


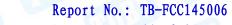


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Bluetooth F	Bluetooth FM Transmitter			FM25
25 ℃		Relative Humidity:		55%
DC 3.7V	1111			3
Hopping N	Mode (л /4-DQPSK	DH3)	All In	1
Pulse Time	Total of Dwell	Period Time	Limit	Result
(ms)	(ms)	(s)	(ms)	Result
1.720	275.20			
1.720	275.20	31.60	400	PASS
1.720	275.20			
	25 °C DC 3.7V Hopping I Pulse Time (ms) 1.720 1.720	25 °C DC 3.7V Hopping Mode (π /4-DQPSK Pulse Time (ms) (ms) 1.720 275.20 1.720 275.20	25 °C Relative Humin	25 °C Relative Humidity: DC 3.7V Hopping Mode (π /4-DQPSK DH3) Pulse Time (ms) (ms) (s) (ms) 1.720 275.20 1.720 275.20 31.60 400

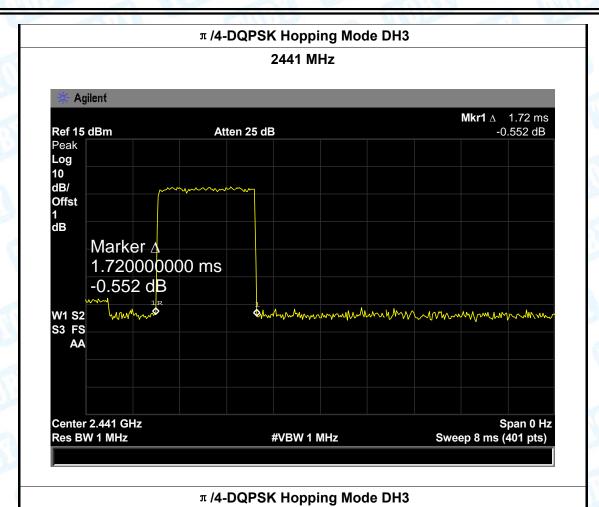
π /4-DQPSK Hopping Mode DH3

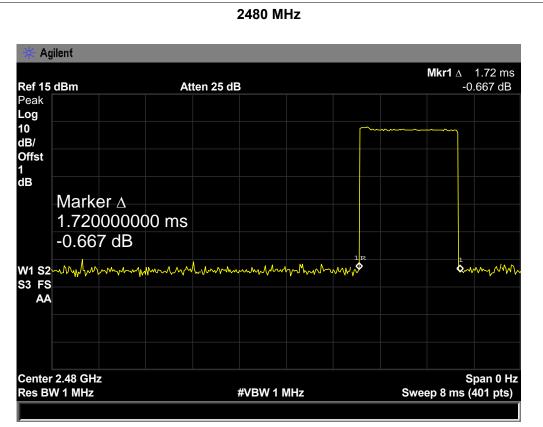






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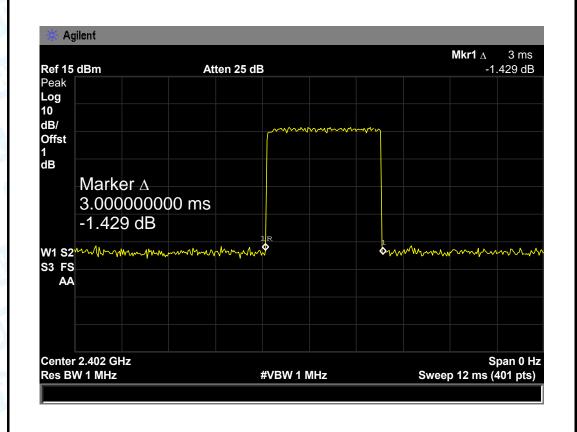


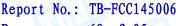


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EUT:		Bluetooth FM Transmitter		Model Name :		FM25
Temperature		25 ℃		Relative Hum	idity:	55%
Test Voltage:		DC 3.7V		1	3	
Test Mode:		Hopping N	/lode (π/4-DQPSK [DH5)	1100	ATTEN A
Channel	Pu	Ise Time	Total of Dwell	Period Time	Limit	Result
(MHz)		(ms)	(ms)	(s)	(ms)	Result
2402		3.000	320.00			
2441		3.000	320.00	31.60	400	PASS
2480		3.000	320.00			
	ı	π	// DODSK Hanning	Mode DUE		1

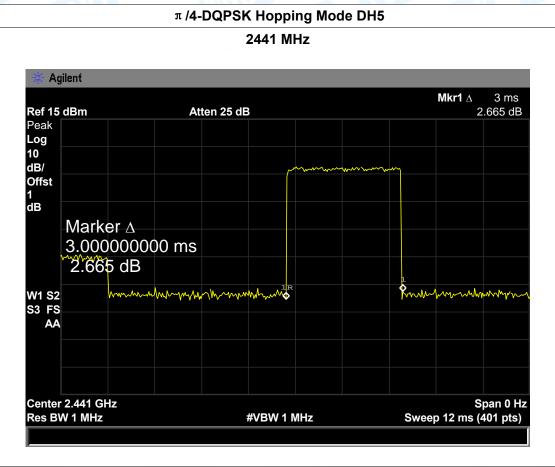
π /4-DQPSK Hopping Mode DH5

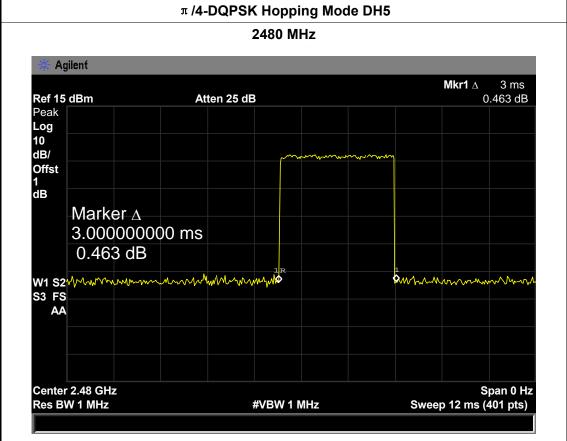






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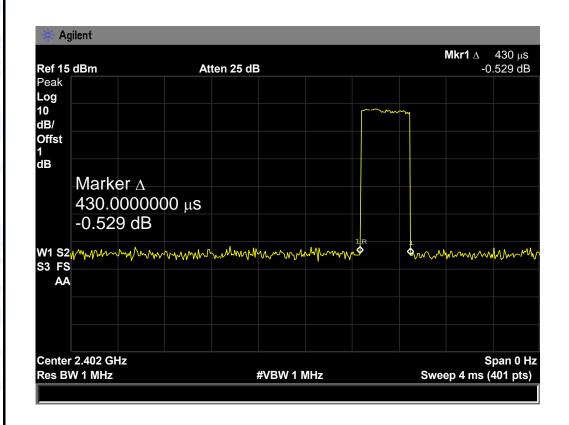


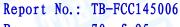


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EUT:		Bluetooth FM Transmitter		Model Name :		FM25
Temperature		25 ℃		Relative Humidity:		55%
Test Voltage:		DC 3.7V		1	3	
Test Mode:		Hopping I	Mode (8-DPSK DH1)		Alle	ATTEN A
Channel (MHz)	Pu	lse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2402		0.430	137.60			
2441		0.440	140.80	31.60	400	PASS
2480		0.440	140.80			

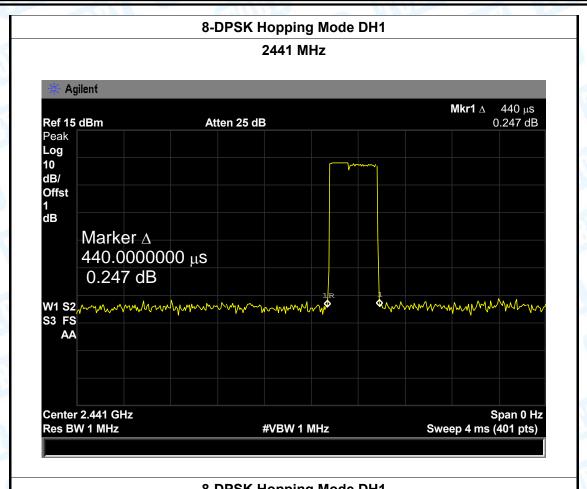
8-DPSK Hopping Mode DH1



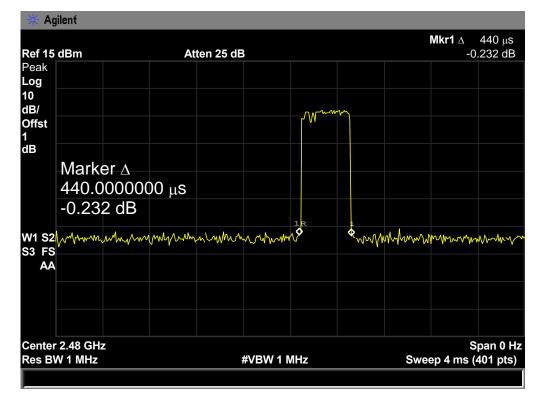




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8-DPSK Hopping Mode DH1 2480 MHz

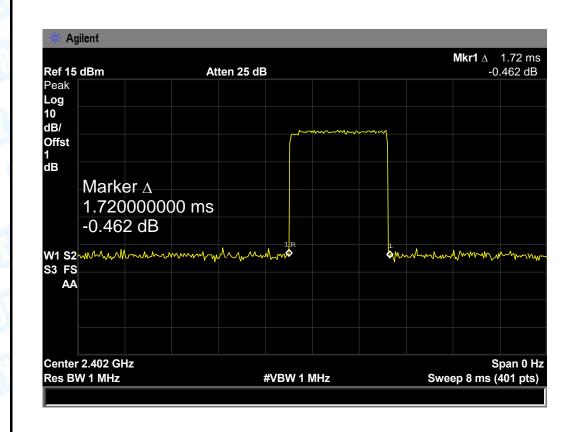




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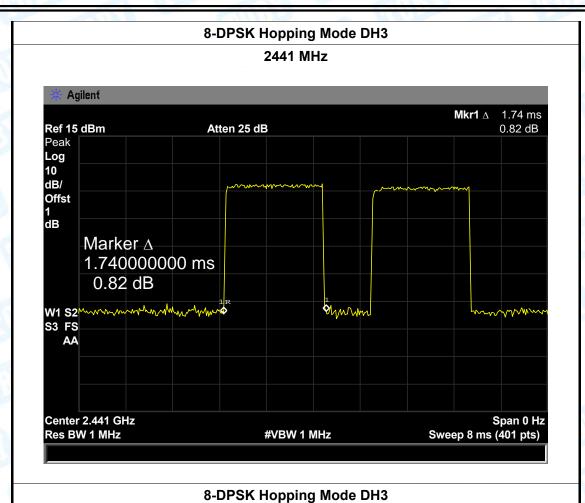
EUT:		Bluetooth FM Transmitter Model Name :		FM25		
Temperature		25 ℃		Relative	Humidity:	55%
Test Voltage:		DC 3.7V	W. Comment	1	3	
Test Mode:		Hopping I	Mode (8-DPSK DH3)		Alle	1000
Channel (MHz)	Pu	lse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2402		1.720	275.20			
2441		1.740	278.40	31.60	400	PASS
2480		1.700	272.00			

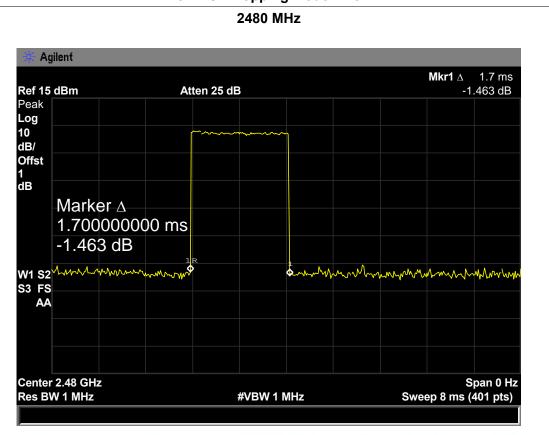
8-DPSK Hopping Mode DH3





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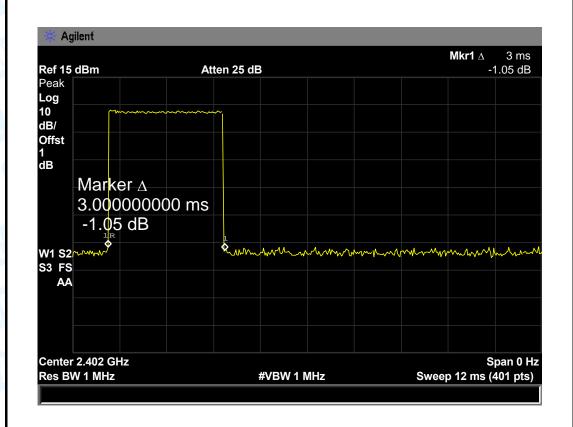


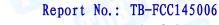


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EUT:		Bluetooth F	M Transmitter	Model Na	ne :	FM25
Temperature	:	25 ℃		Relative H	lumidity:	55%
Test Voltage:		DC 3.7V	The same of the sa	1		3
Test Mode:		Hopping I	Mode (8-DPSK DH5)		BROS	155
Channel (MHz)	Pu	lse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2402		3.000	320.00			
2441		3.000	320.00	31.60	400	PASS
2480		3.000	320.00			

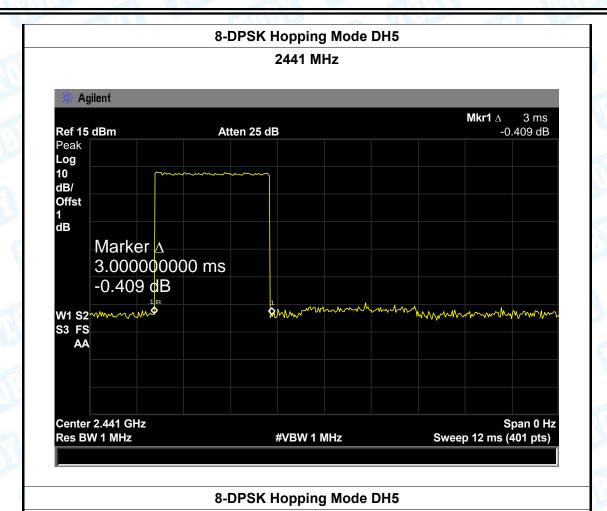
8-DPSK Hopping Mode DH5







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2480 MHz Agilent Mkr1 Δ 3 ms Ref 15 dBm Atten 25 dB 0.329 dB Peak Log 10 dB/ Offst 1 dB Marker ∆ 3.000000000 ms 0.329 dB W1 S2<mark></mark> S3 FS AΑ Center 2.48 GHz Span 0 Hz Res BW 1 MHz #VBW 1 MHz Sweep 12 ms (401 pts)



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9. Channel Separation and Bandwidth Test

9.1 Test Standard and Limit

9.1.1 Test Standard FCC Part 15.247

9.1.2 Test Limit

Test Item	Limit	Frequency Range(MHz)
Bandwidth	<=1 MHz (20dB bandwidth)	2400~2483.5
Channel Separation	>25KHz or >two-thirds of the 20 dB bandwidth Which is greater	2400~2483.5

9.2 Test Setup



9.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

Channel Separation: RBW=30 kHz, VBW=100 kHz.

Bandwidth: RBW=30 kHz, VBW=100 kHz.

- (3) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.
 - (4) Measure the channel separation the spectrum analyzer was set to Resolution Bandwidth:30 kHz, and Video Bandwidth:100 kHz. Sweep Time set auto.

9.4 EUT Operating Condition

The EUT was set to the Hopping Mode for Channel Separation Test and continuously transmitting for the Bandwidth Test.

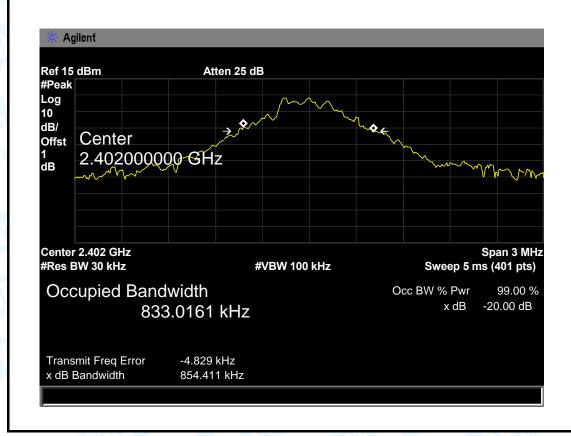


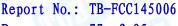
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9.5 Test Data

EUT:	Βlι	uetooth FM Transmitter	Model Name :	FM25
Temperature:	25	5 °C	Relative Humidity:	55%
Test Voltage:	D	C 3.7V	The same of the sa	THE STATE OF THE S
Test Mode:	T	(Mode (GFSK)		A MILL
Channel frequence (MHz)	су	99% OBW (kHz)	20dB Bandwidth (kHz)	20dB Bandwidth *2/3 (kHz)
2402		833.0161	854.411	
2441		834.9934	850.492	
2480		829.2618	843.294	
		GESK T	Y Mode	

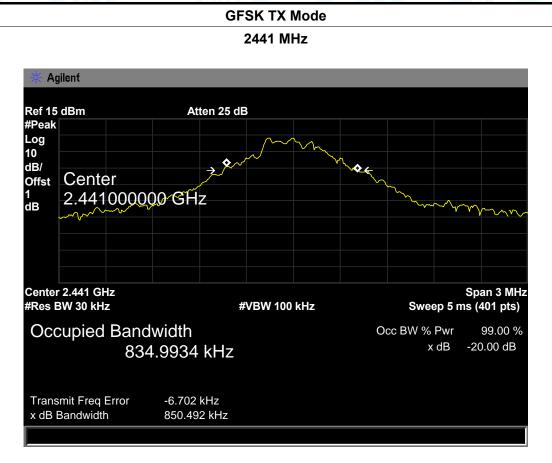
GFSK TX Mode







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Agilent Ref 15 dBm Atten 25 dB #Peak Log 10 200 dB/ Center Offst 1 dB 2.480000000 GHz Center 2.48 GHz Span 3 MHz #Res BW 30 kHz **#VBW 100 kHz** Sweep 5 ms (401 pts) Occupied Bandwidth

829.2618 kHz

-8.312 kHz

843.294 kHz

Transmit Freq Error

x dB Bandwidth

Occ BW % Pwr

99.00 % -20.00 dB

GFSK TX Mode 2480 MHz

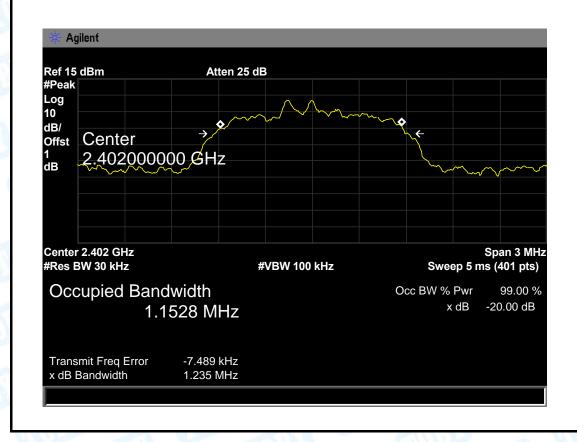


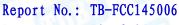
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EUT:	Bluetooth FM Transmitter	Model Name :	FM25
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V	50	133
Test Mode:	TX Mode (π/4-DQPSK)	THE PARTY NAMED IN	

	(, , = a, , , ,		
Channel frequency (MHz)	99% OBW (kHz)	20dB Bandwidth (kHz)	20dB Bandwidth *2/3 (kHz)
2402	1152.80	1235.00	823.33
2441	1152.10	1242.00	828.00
2480	1153.60	1239.00	826.00

π/4-DQPSK TX Mode







#Res BW 30 kHz

Transmit Freq Error

x dB Bandwidth

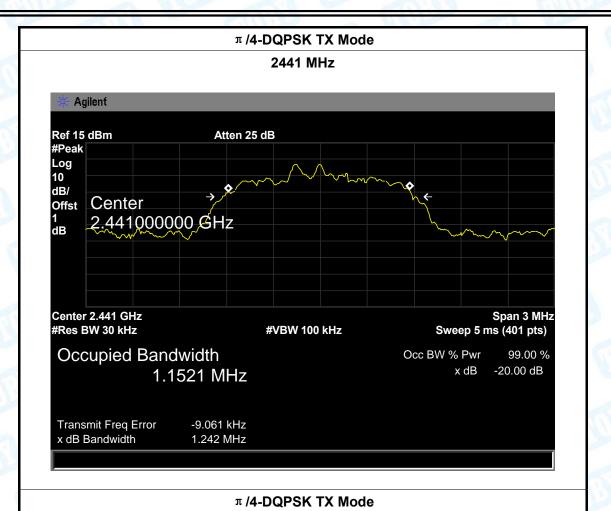
Occupied Bandwidth

1.1536 MHz

-10.657 kHz

1.239 MHz

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Ref 15 dBm Atten 25 dB #Peak Log 10 dB/ Offst 1 dB Center 2.480000000 GHz Center 2.48 GHz Span 3 MHz

#VBW 100 kHz

2480 MHz

Sweep 5 ms (401 pts)

99.00 % -20.00 dB

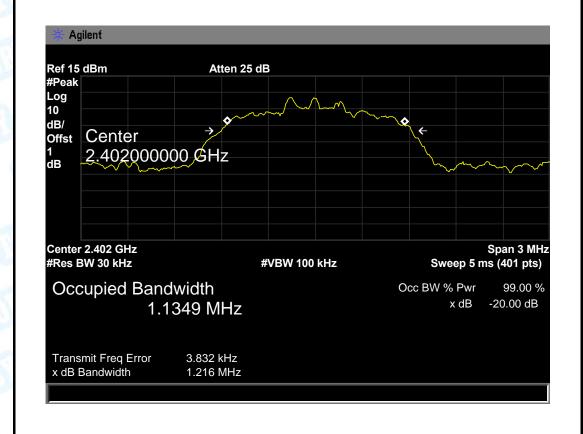
Occ BW % Pwr

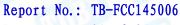


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EUT:	Bluetooth FM Transmitter	Model Name :	FM25
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		133
Test Mode:	TX Mode (8-DPSK)	W POR	
Channel frequen	cy 99% OBW	20dB Bandwidth	20dB
(MHz)	(kHz)	(kHz)	Bandwidth *2/3
			(kHz)
2402	1134.90	1216.00	810.67
2441	1135.80	1220.00	813.33
2480	1129.90	1220.00	813.33

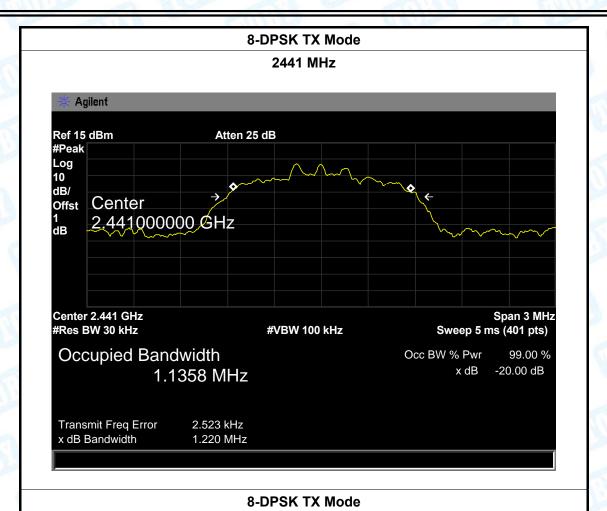
8-DPSK TX Mode 2402 MHz

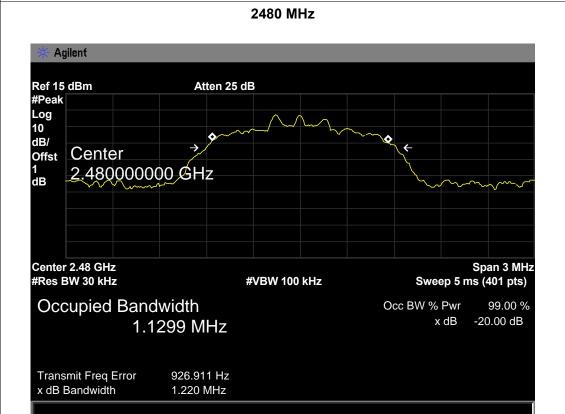






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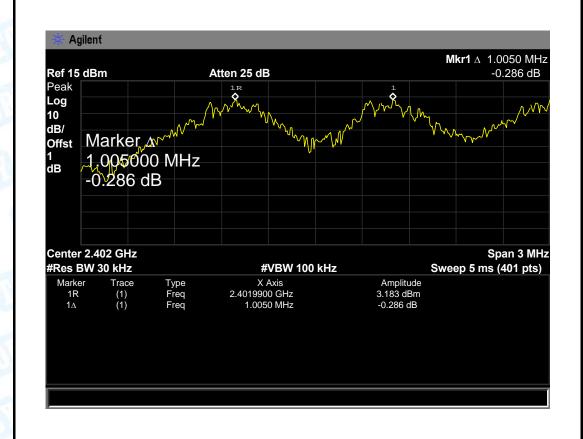
EUT:	Bluetooth FM Transmitter	Model Name :	FM25
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 3.7V		UHILL

Test Voltage: DC 3.7V

Test Mode: Hopping Mode (GFSK)

Channel frequency (MHz)	Separation Read Value	Separation Limit (kHz)
	(kHz)	
2402	1005.00	854.411
2441	1005.00	850.492
2480	1005.00	843.294

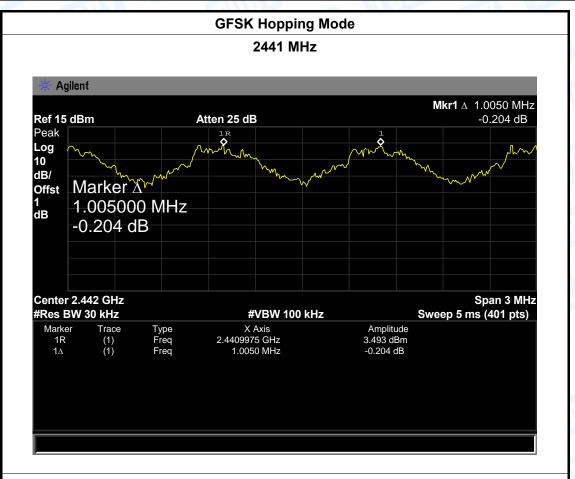
GFSK Hopping Mode



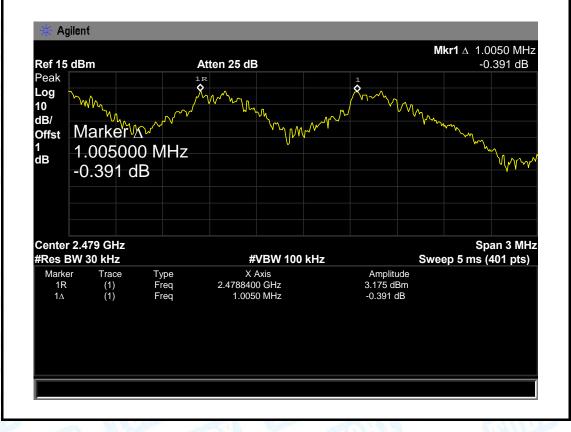




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GFSK Hopping Mode 2480 MHz

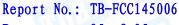




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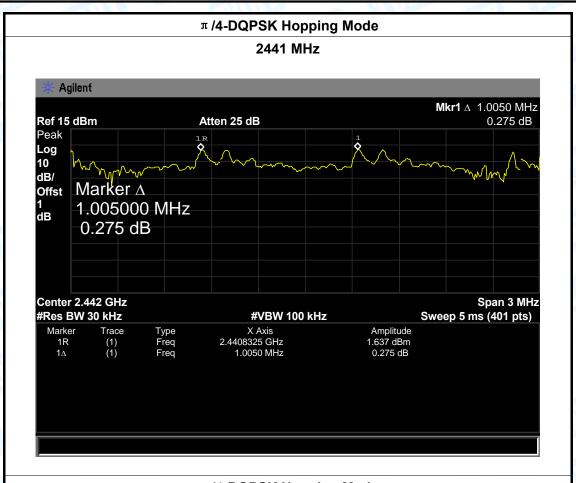
EUT:	Bluetooth F	M Transmitter	Model	Name :	FM25
Temperature:	25 ℃		Relativ	e Humidity:	55%
Test Voltage:	DC 3.7V		6		3
Test Mode:	Hopping N	Mode (π/4-DQPSK)		A VIII	1
Channel frequen	cy (MHz)	Separation Read V	alue	Separation	Limit (kHz)
		(kHz)			
2402		1005.00		823	3.33
2441		1005.00		828	3.00
2480		1005.00		826	6.00
		π/4-DQPSK Hopping	Mode		



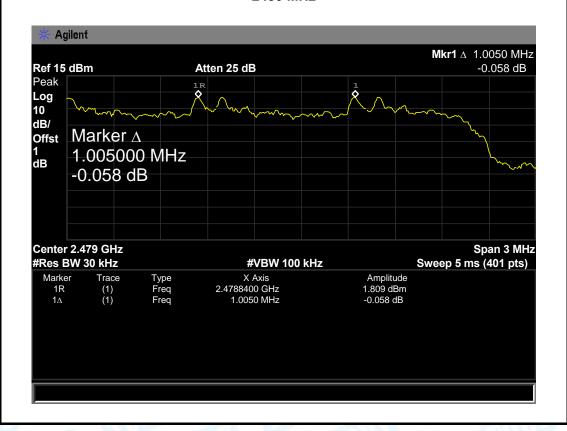




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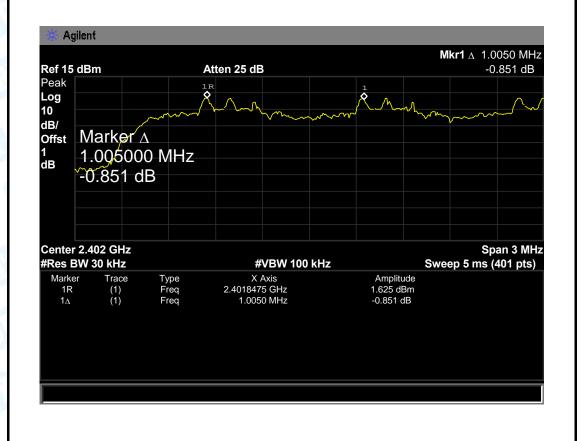
π/4-DQPSK Hopping Mode 2480 MHz

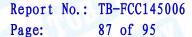




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EUT:	Bluetooth F	M Transmitter	Model	Name :	FM25
Temperature:	25 ℃		Relativ	e Humidity:	55%
Test Voltage:	DC 3.7V		630		3
Test Mode:	Hopping N	Mode (8-DPSK)	1	1 Will	
Channel frequen	cy (MHz)	Separation Read V	alue	Separation	Limit (kHz)
		(kHz)			
2402		1005.00		810).67
2441		1005.00		813	3.33
2480		1005.00		813	3.33
		8-DPSK Hopping N	lode		

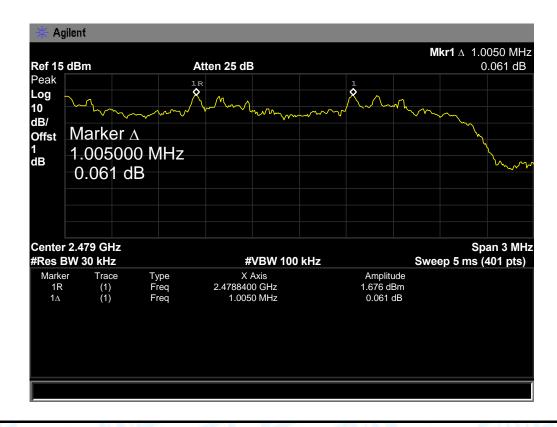






8-DPSK Hopping Mode 2441 MHz Agilent Mkr1 A 1.0050 MHz Ref 15 dBm Atten 25 dB -0.478 dB Peak Log 10 dB/ Marker ∆ Offst 1.005000 MHz dΒ -0.478 dB Center 2.442 GHz Span 3 MHz #Res BW 30 kHz **#VBW 100 kHz** Sweep 5 ms (401 pts) Amplitude 1.871 dBm X Axis 2.4408400 GHz Type Freq Freq Marker (1) (1) 1.0050 MHz -0.478 dB

8-DPSK Hopping Mode





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10. Peak Output Power Test

10.1 Test Standard and Limit

10.1.1 Test Standard FCC Part 15.247 (b) (1)

10.1.2 Test Limit

Test Item	Limit	Frequency Range(MHz)
Peak Output Power	Hopping Channels>75 Power<1W(30dBm)	2400~2483.5
	Other <125 mW(21dBm)	

10.2 Test Setup



10.3 Test Procedure

- (1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
- (2) Spectrum Setting:

Peak Detector: RBW=1 MHz, VBW=3 MHz for bandwidth less than 1MHz. RBW=3 MHz, VBW=3 MHz for bandwidth more than 1MHz.

10.4 EUT Operating Condition

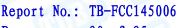
The EUT was set to continuously transmitting in the max power during the test.



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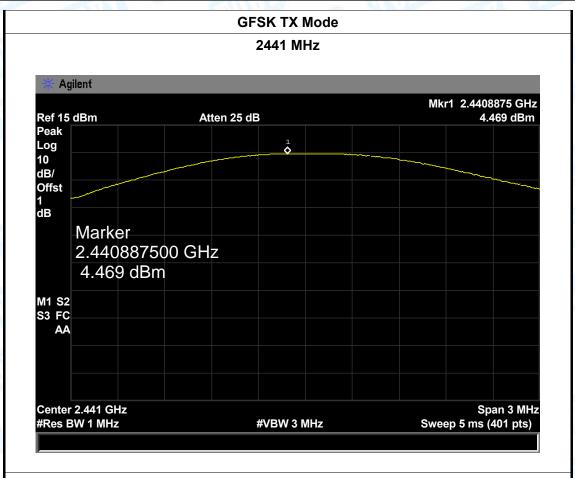
10.5 Test Data

JT:		Bluetooth	Transmitte	er	Mod	lel Name :	FM25
mperat	ure:	25 ℃		MILLER	Rela	tive Humidity	/ : 55%
st Volta	ige:	DC 3.7V	TEN		WILL THE		
st Mod	e:	TX Mode	(GFSK)	100	1		
hannel	frequen	cy (MHz)	Test	Result (dl	3m)	Lin	nit (dBm)
	2402			4.445			
	2441			4.469			30
	2480			4.357			
			GFS	SK TX Mo	de	·	
			2	402 MHz			
Log 10 dB/					1		
Offst							
	Marke 2.402 4.445	165000 C	GHz				
1	2.402	165000 C	GHz				

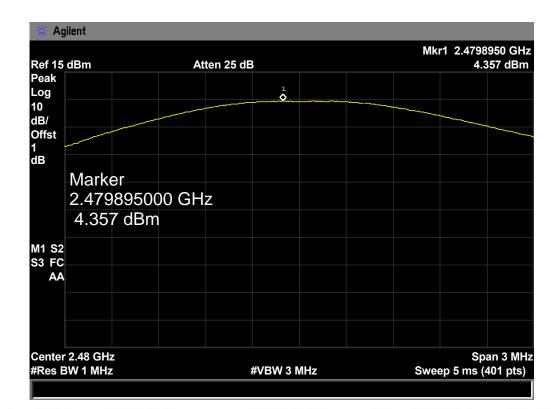




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GFSK TX Mode

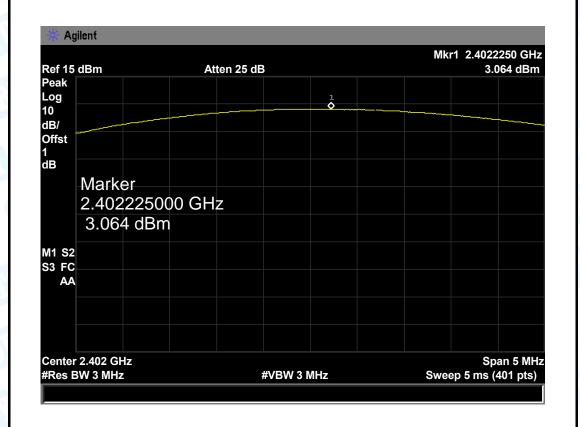




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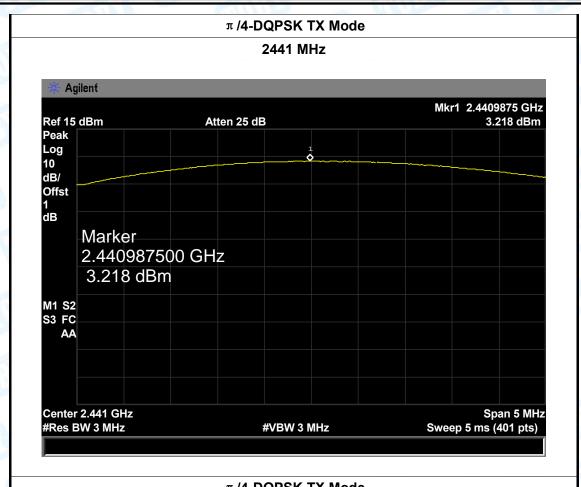
EUT:	Bluetooth FM Transmitter		Model Name :	FM25	
Temperature:	25 ℃		Relative Humidity:	55%	
Test Voltage:	DC 3.7V	The same of the sa		339	
Test Mode:	TX Mode (π /4-DQPSK)				
Channel frequency (MHz)		Test Result (dBm) Lin		nit (dBm)	
2402		3.064			
2441		3.218		21	
2480		3.142			
		π /4-DOPSK TX	Mode		

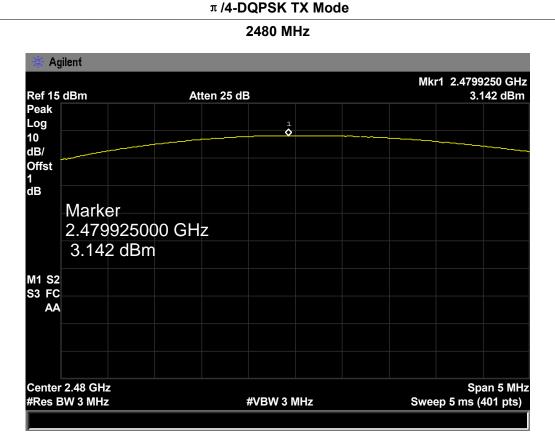
π /4-DQPSK TX Mode





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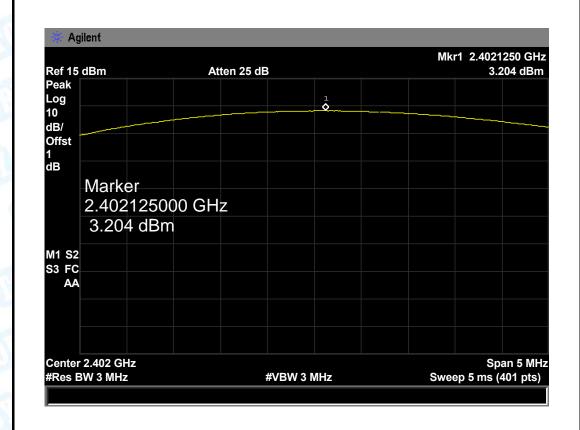




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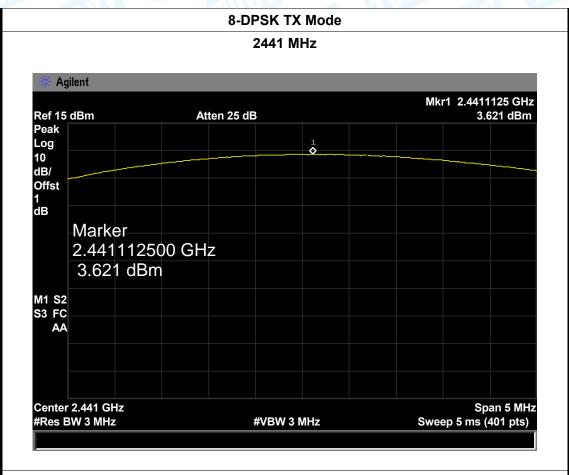
EUT:	Bluetooth FM Transmitter		Model Name :	FM25	
Temperature:	25 ℃		Relative Humidity:	55%	
Test Voltage:	DC 3.7V			33	
Test Mode:	TX Mode (8-DPSK)				
Channel frequency (MHz)		Test Result (dBm) Lin		nit (dBm)	
2402		3.204			
2441		3.621		21	
2480		3.377			
		O DDCK TV I	lodo.		

8-DPSK TX Mode

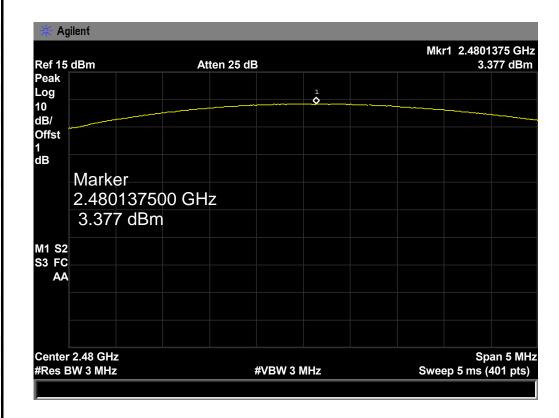




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8-DPSK TX Mode





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11. Antenna Requirement

11.1 Standard Requirement

11.1.1 Standard FCC Part 15.203

11.1.2 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 shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

11.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 0 dBi, and the antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

The EUT antenna is a PCB Antenna. It complies with the standard requirement.

Antenna Type				
a w	▼ Permanent attached antenna			
	□ Unique connector antenna			
100	☐ Professional installation antenna			