# FCC Part 15C

# Measurement And Test Report For

# QINGDAO WINTEC SYSTEM CO., LTD

NO.3 Building, NO.151, Zhuzhou Road, Laoshan District, Qingdao, China

FCC ID: ZUNIDT800

Aug. 14, 2015

This Report Concerns: **Equipment Type:** Original Report pos terminal **Report Number:** MTI150630001RF-2 David Chen Tim zhmy **Test Engineer:** David Chen Tim Zhang **Reviewed By:** Approved & Authorized By: Hebe Hebe Lee Test Date: Aug. 01, 2015 - Aug. 14, 2015 Shenzhen Microtest Technology Co.,Ltd Prepared By: 6F, Zhongbao Building, Gushu, Bao an District, Shenzhen, P.R.China Tel: +86-755-8885 0135 Fax: +86-755-8885 0136

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# 1. General Information about EUT

## 1.1 Client Information

Applicant	:	QINGDAO WINTEC SYSTEM CO., LTD
Address	Address : NO.3 Building, NO.151, Zhuzhou Road, Laoshan District, Qi	
		China
Manufacturer	:	QINGDAO WINTEC SYSTEM CO., LTD
Address	:	Wintec Park, Xinye Road, High-Tech Zone, Qingdao, China
Trade	:	WINTEC
EUT Name	:	pos terminal
Model No.	:	IDT800
Serial No.	:	N/A
Model	:	N/A
Difference		
Standards	:	FCC Part 15, Subpart C (15.247:2014)
Test Method	:	ANSI C63.10: 2013
Conclusions : PASS		PASS
		In the configuration tested, the EUT complied with the standards specified above,
		The EUT technically complies with the FCC and IC requirements

# 1.2 General Description of EUT (Equipment Under Test)

<b>EUT Name</b>	:	pos terminal				
Models No.	:	IDT800				
		Operation Frequency:				
		Bluetooth:2402~2480MHz				
Product		Number of Channel: Bluetooth:79 Channels see note (2)				
Description	:	Max Peak Output Power: GFSK:-2.043 dBm (Conducted Power)				
		Antenna Gain: 2 dBi (Integral Antenna)				
		Modulation Type: GFSK 1Mbps(1 Mbps)				
		π /4-DQPSK(2 Mbps)				
		8-DPSK(3 Mbps)				
Power Supply	:	DC power supplied by AC/DC Adapter				
		DC power by Li-ion Battery				

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Power Rating	Power Rating : MODEL: WT1203000	
		INPUT: 100V-240V~ 50/60Hz 1.6A.
		Output: 12V===3.0A
		DC 7.4V 2000mAh Li-ion Battery.
Connecting I/O	:	Please refer to the User's Manual
Port(S)		

#### 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:

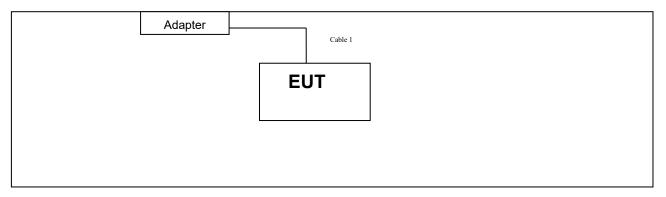
Channel	Frequency	Channel	Frequency	Channel	Frequency
	(MHz)		(MHz)		(MHz)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464
09	2411	36	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		

<sup>(4)</sup> The Antenna information about the equipment is provided by the applicant.

### 1.3 Block Diagram Showing the Configuration of System Tested

#### TX Mode



### 1.4 Description of Support Units

Equipment Information							
Name Model FCC ID/DOC Manufacturer Used "√"							
Cable Information							
Number Shielded Type Ferrite Core Length Note							
Cable 1	YES	YES	0.8M				

## 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 Radiated Test			
Final Test Mode Description			
Mode 1 AC Charging with TX B Mode			

For Radiated Test			
Final Test Mode Final Test Mode			
Mode 1	AC Charging with TX B Mode		
Mode 2	TX Mode(GFSK) Channel 00/39/78		

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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 C63.4 standards, the measurements are performed at the highest, middle, lowest available channels.
- (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	Test Program: RF Control Kit V1.0. exe			
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 Test Facility

Shenzhen Toby Technology Co., Ltd.

Add.: 1 A/F., Bldg.6, Yusheng Industrial Zone The National Road No.107 Xixiang Section

467, Nanshan District, Shenzhen, Guangdong China

FCC Registration No.:811562

# 2. Test Summary

FCC Part 15 Subpart C(15.247)								
Standard Section	Test Item	Judgment	Remark					
15.203	Antenna Requirement	PASS	N/A					
15.207	Conducted Emission	PASS	N/A					
15.205	Restricted Bands	PASS	N/A					
15.247(a)(1)	Hopping Channel Separation	PASS	N/A					
15.247(a)(1)	Dwell Time	PASS	N/A					
15.247(b)(1)	Peak Output Power	PASS	N/A					
15.247(b)(1)	Number of Hopping Frequency	PASS	N/A					
15.247(c)	Radiated Spurious Emission	PASS	N/A					
15.247(c)	Antenna Conducted Spurious Emission	PASS	N/A					
15.247(a)	20dB Bandwidth	PASS	N/A					

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

# 3. Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due
					Date
EMI Test	ROHDE&		100321	Aug. 02, 2015	Aug.01, 2016
Receiver	SCHWARZ	ESCI	100321	Aug. 02, 2013	Aug.01, 2010
50ΩCoaxial	Anritsu	MP59B	X10321	Aug. 02, 2015	Aug.01, 2016
Switch					
L.I.S.N	Rohde & Schwarz	ENV216	101131	Aug. 02, 2015	Aug.01, 2016
L.I.S.N	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 02, 2015	Aug.01, 2016
Spectrum					
Analyzer	Agilent	E4407B	MY45106456	Aug. 02, 2015	Aug.01, 2016
Spectrum	D 1 1 0 0 1			A 00 0045	A 04 0040
Analyzer	Rohde & Schwarz	FSP30	DE25181	Aug. 02, 2015	Aug.01, 2016
EMI Test	Rohde & Schwarz		104405	Aug 02 2015	Aug 01 2016
Receiver	Ronde & Schwarz	ESCI	101165	Aug. 02, 2015	Aug.01, 2016
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 06, 2015	Mar.05, 2016
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 06, 2015	Mar.05, 2016
Horn Antenna	Schwarzbeck	BBHA 9170	373	Mar. 06, 2015	Mar.05, 2016
Pre-amplifier	HP	11909A	185903	Mar. 06, 2015	Mar.05, 2016
Pre-amplifier	HP	8447B	3008A00849	Mar. 06, 2015	Mar.05, 2016
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 06, 2015	Mar.05, 2016

### 4. Conducted Emission Test

#### 3.1 Test Standard and Limit

3.1.1Test Standard FCC Part 15.207

#### 3.1.2 Test Limit

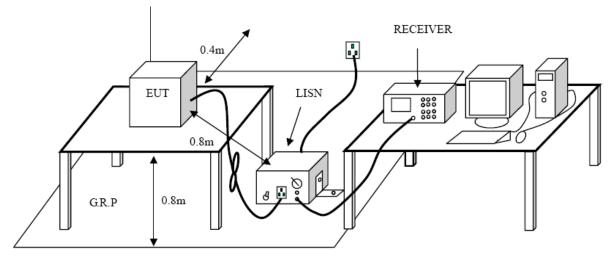
#### **Conducted Emission Test Limit**

Eroguanov	Maximum RF Lir	ne 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.

#### 3.2 Test Setup



#### 3.3 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.

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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.

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.

### 3.4 EUT Operating Mode

Please refer to the description of test mode.

#### 3.5 Test Data

Please see the next page.

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EUT:				Pos terminal						IVIO	lel N	lam	1e :			וטו	800			
Tempe	erat	ture:		25	$^{\circ}$					Rela	Relative Humidity:				55%					
Test V	/olta	age:		AC 120V/60 Hz																
Termi	nal:			Lin	е															
Test N	/lod	le:		AC	Cha	argin	g w	ith TX	(BN	lode										
Rema	rk:							e is r												
110.0	dBu\	· ·		-	.,															
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	W	$\bigvee\bigvee$	$\mathbb{V}_{\mathbb{V}}$	MV.	M, N	//////		Mary May	V.	<b>V</b>	$\sqrt{V}$	ľΛΛ	УV), ДД,	Ω√ <b>Λν</b> Υ	May In	V the grant to real				AV
	W	$\bigvee\bigvee$	1	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	M	/\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		MA MANAGE	V,	V^\ V^\		ν γ.	ΛΛ, Δ.Α.	ΛΛ Λ <b>ν</b>	Ma War	May market	//	-		AV
	W	WV			W	ηγ.Υ.Υ. ΜΑΥΑΥΥ.		Mary Mary Mary	V	<b>V</b> V		/ \/ / \/ \	ΛΛ, Δ.Δ.	VVV	Maa. W.	Mayor March	//			AVI
-10	W	WV	1		M N	M/\\\\		Mary Mary	V	<b>V</b> V	$\sqrt{}$	<b>√</b>	ΛΛ	VVV	Mary Mary	Physiological Physiological	/ / /			AVI
-10 0.15	50	WV	1	(	0.5	ММ		Mary Mary	(MHz)	<b>V</b>		V V \	, ///	VVV	Marker Marker	Mary Mary Mary Mary Mary Mary Mary Mary			30.00	
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0.15		Mk	Fre		Rea	ading		orrect	Me	asure				)ver	May North	Physical and State of the State			30.00	
0.15		Mk.	Fre	q.	Rea Le	vel		actor	Me n	nent	Li	mit	(	Over		Physiological Standards				
0.15	No.		MH	q. z	Rea Le	vel BuV	F	actor	: Me n	nent <sub>BuV</sub>	Li di	mit <sub>BuV</sub>	C	dB		etector		Comr		
0.15	No.	Mk.	мн 0.162	q. z 20	Rea Le	evel BuV .14	1	dB 0.12	Me n	nent <sub>Bu</sub> ∨ 1.26	Li df 65	mit BuV 5.36	-4	dB .10	De	QP		Comm		
0.15	No.		MH. 0.162 0.162	q. z 20 20	Rea Le dE 51	uvel 3uV .14	1 1	dB 0.12 0.12	Me n	nent BuV 1.26 4.20	65 55	mit BuV 5.36	-4 -1	dB .10 1.16	De	QP AVG		Comr		
0.15	No.		0.162 0.162 0.283	eq. z 20 20 32	Rea Le 51 34	.14 .08	1 1	dB 0.12 0.12 0.09	6 Me	nent BuV 1.26 1.20 5.18	65 55 60	mit BuV 5.36 5.36 5.72	-4 -1	dB .10 1.16 .54	De	QP AVG QP	i	Comm		
0.15	No.  1 2 3 4		0.162 0.162 0.283 0.283	eq. z 20 20 32 32	Rea Le 51 34 45 28	.14 .08 .09	1 1 1	0.12 0.12 0.09	Me n d d 6 4 4 5 5 3 8	nent BuV 1.26 4.20 5.18 3.91	65 55 60	mit BuV 5.36 5.36 0.72	-4 -1′ -5	dB .10 1.16 .54 1.81	De	QP AVG QP AVG	i	Comm		
0.15	No.  1 2 3 4 5		0.162 0.162 0.283 0.283 0.562	20 20 32 32 32	Rea Le 51 34 45 28	.14 .08 .09 .82	1 1 1 1	0.12 0.12 0.09 0.09	Me n d 6 4 4 5 5 3 8 4 6	nent BuV 1.26 1.20 5.18 3.91 5.89	65 55 60 50	mit 5.36 5.36 0.72 0.72	-4 -1′ -5 -1′ -9	dB .10 1.16 .54 1.81	De	QP AVG QP AVG QP	i	Comm		
0.15	No.  1 2 3 4 5		0.162 0.162 0.283 0.283 0.562	q. z 220 220 2332 332 220	Rea Le 51 34 45 28 36	.14 .08 .09 .82 .57	1 1 1 1 1	0.12 0.12 0.09 0.09 0.02	Me n d 6 6 55 38 46 34	nent BuV 1.26 1.20 5.18 3.91 6.89 1.59	Li di 65 55 60 56 46	mit 5.36 5.36 0.72 0.72 0.72	-4 -1' -5 -1'	dB .10 1.16 .54 1.81 .11	De	QP AVG QP AVG QP AVG	i	Comm		
0.15	No.  1 2 3 4 5 6 7		0.162 0.162 0.283 0.283 0.562 0.562	q. 22 220 220 2332 220 220 220	Rea Le 51 34 45 28 36 24 25	.08 .09 .82 .87 .57	1 1 1 1 1	0.12 0.12 0.09 0.09 0.02 0.02	Me n d d 6 4 4 5 5 3 8 4 6 3 4 5 3 5	nent BuV 1.26 4.20 5.18 3.91 6.89 4.59 5.62	Li de 65 65 60 56 46 56	mit BuV 5.36 5.36 0.72 0.72 0.72 3.00 3.00	-44 -11' -55 -11' -9	.10 1.16 .54 1.81 .11 1.41 0.38	De	QP AVG QP AVG QP AVG	i	Comm		
0.15	No.  1 2 3 4 5 6 7 8		0.162 0.162 0.283 0.283 0.562 0.562 1.398	q. z 20 220 220 220 220 232 220 230 330 330	Reza Le dE	.14 .08 .09 .82 .87 .57	1 1 1 1 1 1	0.12 0.12 0.09 0.09 0.02 0.02 0.12	Me n d d 6	nent BuV 1.26 1.20 5.18 3.91 6.89 1.59 5.62	Li de 65 55 55 56 56 56 56 56 56 56	mit BuV 5.36 5.36 0.72 0.72 0.72 0.3.00 3.00	-44 -11' -5 -11' -9 -11' -20'	dB .10 1.16 .54 1.81 .11 .11 .13 .168	Del	QP AVG QP AVG QP AVG	i	Comm		
0.15	No.  1 2 3 4 5 6 7 8 9		MH 0.162 0.162 0.283 0.283 0.562 1.398 1.398 2.014	q. z 220 220 332 220 220 380 440	Reac Le dE	.14 .08 .09 .82 .57 .50 .20	11 11 11 11 11 11 11 11 11 11 11 11 11	0.12 0.12 0.09 0.09 0.02 0.02	Me n d d 6° 44° 55° 38° 46° 34° 35° 22° 35° 35° 35° 35° 35° 36° 36° 36° 36° 36° 36° 36° 36° 36° 36	nent BuV 1.26 1.20 5.18 3.91 6.89 4.59 5.62 1.32	Li di 65 55 60 56 46 56 56	mit BuV 5.36 5.36 5.36 0.72 0.72 0.72 0.63.00 63.00 63.00	-44 -11' -5 -11' -9 -11' -20' -20'	dB .10 .54 .1.81 .11 .1.41 .38 .38 .38 .38	De	QP AVG QP AVG QP AVG QP AVG	i	Comm		
0.15	No.  1 2 3 4 5 6 7 8	*	0.162 0.162 0.283 0.283 0.562 0.562 1.398	q. z 220 220 332 332 220 230 380 40	Reacted 45 134 45 28 366 244 25 13	.14 .08 .09 .82 .87 .57	1 1 1 1 1 1 1 1 1 1	0.12 0.09 0.09 0.02 0.02 0.12 0.12	Me n d d d d d d d d d d d d d d d d d d	nent BuV 1.26 1.20 5.18 3.91 6.89 1.59 5.62	Li dt	mit BuV 5.36 5.36 0.72 0.72 0.72 0.3.00 3.00	-44 -11' -55 -11' -9 -11' -20 -22' -20	dB .10 .54 .1.81 .11 .1.41 .38 .38 .38 .38	De	QP AVG QP AVG QP AVG	i	Comm		

EUT:		Po	s terminal		Mode	l Name	) :	IDT800		
Temper	ature	: 25	°C		Relati	ive Hui	nidity:	55%		
est Vo	Itage:	AC	AC 120V/60 Hz							
ermina	al:	Ne	eutral							
est Mo	de:	AC	Charging	with TX I	B Mode					
Remark			nly worse o							
	BuV	01	ny worde d	400 10 10	301104					
50	AAA	ř M M	MANNAMA	May many	<b>*</b>	/\/\\\	vvv.	QP AV		
-10 0.150			0.5	(	MHz)	5			30.000	
No	o. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	Detector	Comment	
	1	0.1780	48.38	10.12	58.50	64.57	-6.07	QP		
	2	0.1780	27.18	10.12	37.30	54.57	-17.27	AVG		
-3	3	0.2060	46.75	10.12	56.87	63.36	-6.49	QP		
	4	0.2060	25.51	10.12	35.63	53.36	-17.73	AVG		
Ţ	5	0.2660	39.46	10.10	49.56	61.24	-11.68	QP		
	6	0.2660	20.33	10.10	30.43	51.24	-20.81	AVG		
	7	0.5620	32.80	10.02	42.82	56.00	-13.18	QP		
- 8	3	0.5620	21.66	10.02	31.68	46.00	-14.32	AVG		
9	9	1.2016	24.19	10.14	34.33	56.00	-21.67	QP		
10	)	1.2016	13.36	10.14	23.50	46.00	-22.50	AVG		
1	1	22.1180	40.84	10.06	50.90	60.00	-9.10	QP		
_			34.88	10.06	44.94	50.00	-5.06	AVG		

## 5. Radiated Emission Test

#### 4.1 Test Standard and Limit

- 4.1.1 Test Standard FCC Part 15.209
- 4.1.2 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

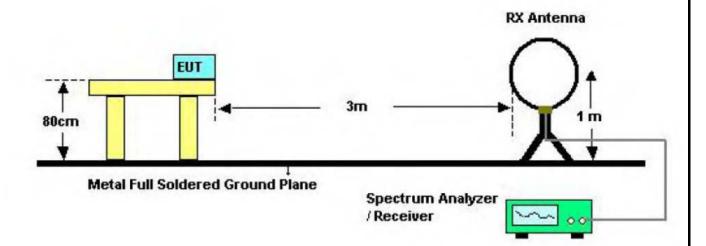
#### Radiated Emission Limit (Above 1000MHz)

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

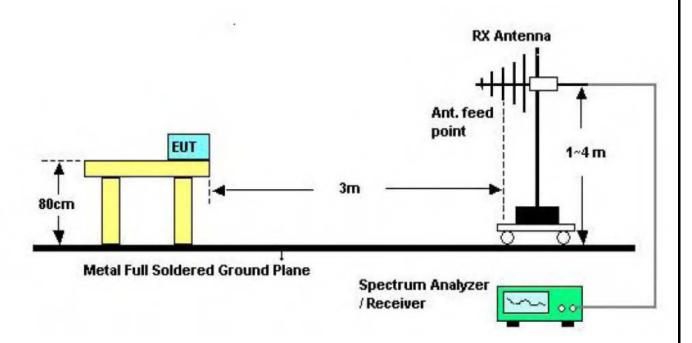
#### Note:

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

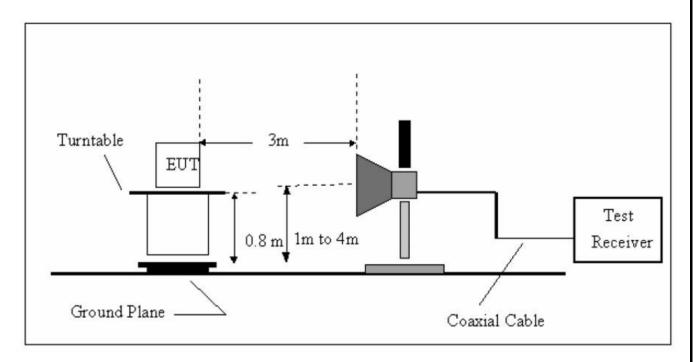
# 4.2 Test Setup



Bellow 30MHz Test Setup



Bellow 1000MHz Test Setup



Above 1GHz Test Setup

#### 4.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. 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) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.
- (3) 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.
- (4) 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.
- (5) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (6) 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.
- (7) For the actual test configuration, please see the test setup photo.

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## 4.4 EUT Operating Condition

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

#### 4.5 Test Data

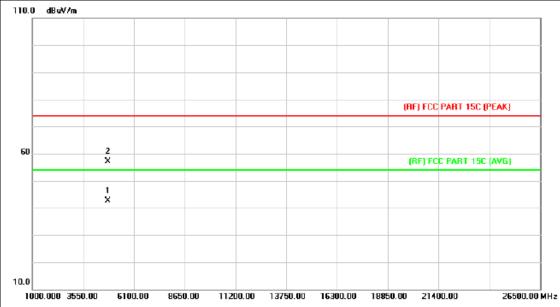
Remark: During testing above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

Test data please refer the following pages.

EUT:	Pos terminal	Model Name :	IDT800
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Ant. Pol.	Horizontal		
Test Mode:	TX GFSK Mode 2402	MHz	
Remark:	Only worse case is re	ported	
80.0 dBuV/m			
-20			FCC 15B 3M Rediation  Margin -6 dB  *  *  *  *  *  *  *  *  *  *  *  *  *
30.000 40 50	60 70 80	(MHz) 300 400	500 600 700 1000.000
No. Mk. Freq.	Reading Correct Measur Level Factor ment	1 : :t	Antenna Table Height Degree
MHz	dBuV dB/m dBuV/n		cm degree Comment
1 30.5304	45.50 -14.28 31.22	·	
2 77.5926	55.15 -23.36 31.79	<u> </u>	
3 ! 258.3263	59.34 -17.94 41.40		
4 ! 316.5889	58.36 -16.45 41.91	<u> </u>	
		46.00 -3.85 peak	
5 ! 381.2485 6 * 701.7607	56.20 -14.05 42.15 49.49 -6.88 42.61		

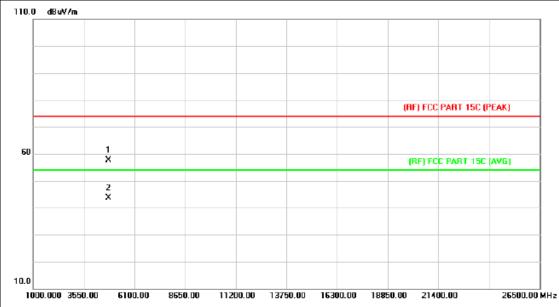
EUT:	Pos terminal	Мо	del Name :	IDT800						
Temperature:	25 ℃	Re	ative Humidity:	55%						
Test Voltage:	AC 120V/60Hz	AC 120V/60Hz								
Ant. Pol.	Vertical									
Test Mode:	TX GFSK Mod	e 2402MHz								
Remark:	Only worse cas	se is reported								
80.0 dBu∀/m	,	· · · · · · · · · · · · · · · · · · ·								
-20 30,000 40 50	50 70 80	3 X (MHz)	300 40	FCC 15B 3M Radiation Margin -6 dB  S  X  D  500 600 700 1000.000						
No. Mk. Freq.	Reading Correct Level Factor	Measure- ment Limit		Antenna Table Height Degree						
MHz	dBuV dB/m	dBuV/m dBuV		cm degree Comment						
1 ! 49.7068	59.82 -24.27	35.55 40.0	<u>'</u>							
2 ! 77.0502	58.20 -23.38	34.82 40.0	·							
3 135.0319	54.46 -22.08	32.38 43.5								
4 258.3263 5 ! 381.2485	56.24 -17.94	38.30 46.0								
5 ! 381.2485 6 * 677.5797	54.68 -14.05 49.63 -7.48	40.63 46.0 42.15 46.0								
Emission Level=			0.00 peak							

EUT:	Pos terminal	Model Name :	IDT800		
Temperature:	25 ℃	Relative Humidity:	55%		
Test Voltage:	AC 120V/60Hz				
Ant. Pol.	Horizontal				
Test Mode:	TX GFSK Mode 2402MH	z			
Remark:	No report for the emission which more than 10 dB below the				
	prescribed limit.				
110.0 dRuV/m					



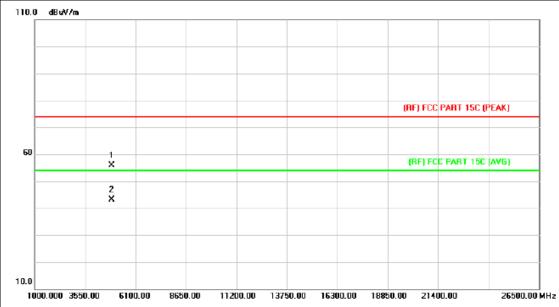
	No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Ov er	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αB	Detector
_	1	*	4804.112	29.28	13.44	42.72	54.00	-11.28	AVG
7	2		4804.291	43.68	13.44	57.12	74.00	-16.88	peak

Pos terminal	Model Name :	IDT800			
25 ℃	Relative Humidity:	55%			
AC 120V/60Hz					
Vertical					
TX GFSK Mode 2402MH	Z				
No report for the emission which more than 10 dB below the					
prescribed limit.					
	25 °C  AC 120V/60Hz  Vertical  TX GFSK Mode 2402MH  No report for the emissio	25 °C Relative Humidity:  AC 120V/60Hz  Vertical  TX GFSK Mode 2402MHz  No report for the emission which more than 10 or			



No	. Mk.	Freq.	Reading Level		Measure- ment	Limit	Ov er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αB	Detector
1		4803.450	44.12	13.44	57.56	74.00	-16.44	peak
2	*	4804.020	30.21	13.44	43.65	54.00	-10.35	AVG

tive Humidity:	55%				
Horizontal					
No report for the emission which more than 10 dB below the					
prescribed limit.					



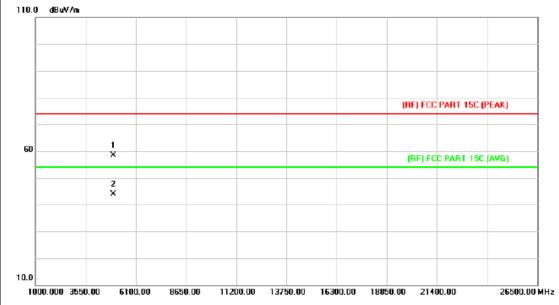
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Ov er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
1		4881.940	41.96	13.90	55.86	74.00	-18.14	peak
2	*	4881.940	29.14	13.90	43.04	54.00	-10.96	AVG

Pos terminal	Model Name :	IDT800				
25 ℃	Relative Humidity:	55%				
AC 120V/60HZ	AC 120V/60HZ					
Vertical						
TX GFSK Mode 2441MH	Z					
No report for the emission which more than 10 dB below the						
prescribed limit.						
	25 °C AC 120V/60HZ  Vertical  TX GFSK Mode 2441MH  No report for the emissio	25 °C Relative Humidity:  AC 120V/60HZ  Vertical  TX GFSK Mode 2441MHz  No report for the emission which more than 10 or				



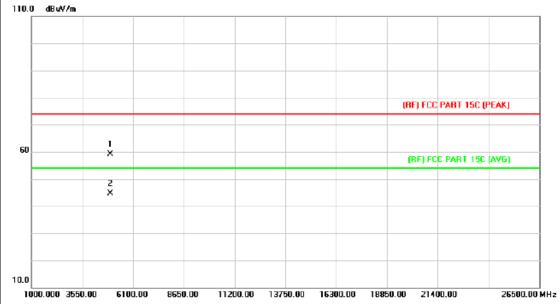
N	lo.	Mk.	Freq.	Reading Level	Correct Factor	Me asure- ment	Limit	Ov er	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
1		*	4881.990	29.78	13.90	43.68	54.00	-10.32	AVG
2			4882.170	43.46	13.90	57.36	74.00	-16.64	peak

EUT:	Pos terminal	Model Name :	IDT800			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Horizontal					
Test Mode:	TX GFSK Mode 2480MH	z				
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					



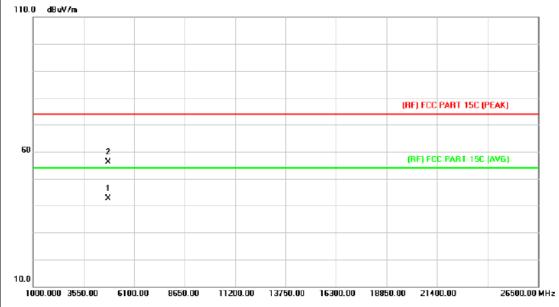
	No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Ov er	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
	1		4959.580	44.00	14.36	58.36	74.00	-15.64	peak
_	2	*	4959.820	29.50	14.36	43.86	54.00	-10.14	AVG

EUT:	Pos terminal	Model Name :	IDT800				
Temperature:	25 ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60HZ						
Ant. Pol.	Vertical						
Test Mode:	TX GFSK Mode 2480MH	z					
Remark:	No report for the emission which more than 10 dB below the						
	prescribed limit.						
110.0 dRuW/m	110.0 48:47-						



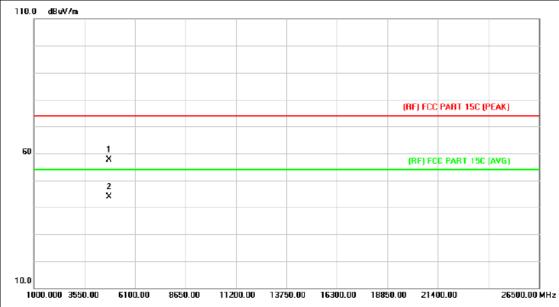
N	o. Mk	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Ov er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
1		4959.800	44.86	14.36	59.22	74.00	-14.78	peak
2	*	4959.910	30.20	14.36	44.56	54.00	-9.44	AVG

EUT:	Pos terminal	Model Name :	IDT800			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Horizontal					
Test Mode:	TX 8-DPSK Mode 2402N	1Hz				
Remark:	No report for the emission which more than 10 dB below the					
	prescribed limit.					



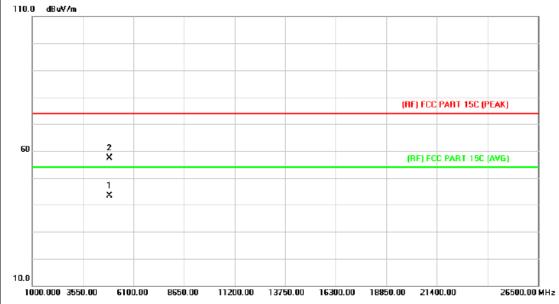
	No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Ov er	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
7	l	*	4803.940	29.12	13.44	42.56	54.00	-11.44	AVG
-2	2		4804.200	42.79	13.44	56.23	74.00	-17.77	peak

Pos terminal	Model Name :	IDT800			
25 ℃	Relative Humidity:	55%			
AC 120V/60HZ					
Vertical					
TX 8-DPSK Mode 2402M	1Hz				
No report for the emission which more than 10 dB below the					
prescribed limit.					
	25 °C  AC 120V/60HZ  Vertical  TX 8-DPSK Mode 2402M  No report for the emission	25 °C Relative Humidity:  AC 120V/60HZ  Vertical  TX 8-DPSK Mode 2402MHz  No report for the emission which more than 10 or			



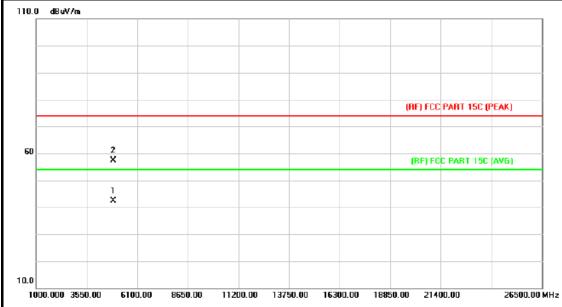
No	. Mk.	Freq.	Reading Level		Measure- ment	Limit	Ov er	
		MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
1		4804.010	44.24	13.44	57.68	74.00	-16.32	peak
2	*	4804.120	30.45	13.44	43.89	54.00	-10.11	AVG

EUT:	Pos terminal	Model Name :	IDT800				
Temperature:	25 ℃	25 ℃ Relative Humidity:					
Test Voltage:	AC 120V/60HZ						
Ant. Pol.	Horizontal	Horizontal					
Test Mode:	TX 8-DPSK Mode 2441N	1Hz					
Remark:	No report for the emissio	n which more than 10 c	dB below the				
	prescribed limit.						
110.0 AP-attra							



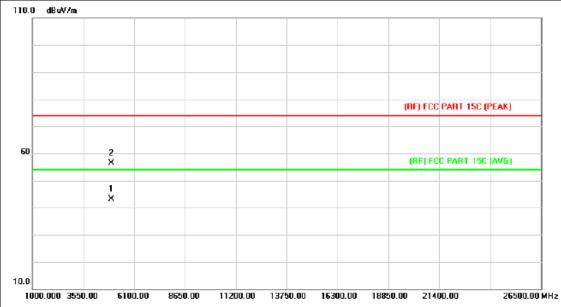
N	lo.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Ov er	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
1	-	*	4881.963	29.36	13.90	43.26	54.00	-10.74	AVG
2			4881.985	43.46	13.90	57.36	74.00	-16.64	peak

EUT:	Pos terminal	Model Name :	IDT800			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Vertical	Vertical				
Test Mode:	TX 8-DPSK Mode 2441N	1Hz				
Remark:	No report for the emissio	n which more than 10 o	dB below the			
	prescribed limit.					



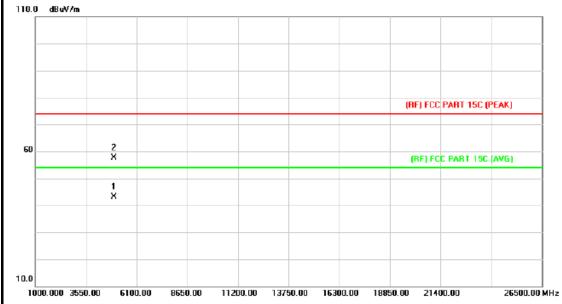
	No.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Ov er	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
1		*	4881.967	28.46	13.90	42.36	54.00	-11.64	AVG
2	)		4881.987	43.41	13.90	57.31	74.00	-16.69	peak

EUT:	Pos terminal	Model Name :	IDT800			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Horizontal					
Test Mode:	TX 8-DPSK Mode 2480N	1Hz				
Remark:	No report for the emissio	n which more than 10 o	dB below the			
	prescribed limit.					
110.0 dPul(6m	110.0 40.40-					



N	lo. M	1k.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Ov er	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
1	*	4	959.854	28.76	14.36	43.12	54.00	-10.88	AVG
2		4	959.932	42.00	14.36	56.36	74.00	-17.64	peak

EUT:	Pos terminal	Model Name :	IDT800				
Temperature:	25 ℃	5 ℃ Relative Humidity:					
Test Voltage:	AC 120V/60HZ						
Ant. Pol.	Vertical	Vertical					
Test Mode:	TX 8-DPSK Mode 2480N	1Hz					
Remark:	No report for the emissio	n which more than 10 o	dB below the				
	prescribed limit.						
110.0 dP-df/m							



N	ο.	Mk.	Freq.	Reading Level		Measure- ment	Limit	Ov er	
			MHz	dBu∀	dB/m	dBuV/m	dBuV/m	αÐ	Detector
1		*	4959.963	28.76	14.36	43.12	54.00	-10.88	AVG
2			4959.971	43.33	14.36	57.69	74.00	-16.31	peak

# 6. Restricted Bands Requirement

#### 5.1 Test Standard and Limit

5.1.1 Test Standard

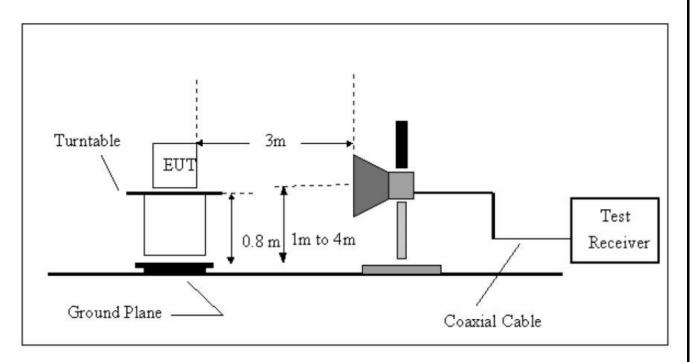
FCC Part 15.209

FCC Part 15.205

5.1.2 Test Limit

Restricted Frequency	Class B (dBuV/m)(at 3m)					
Band	Peak	Average				
(MHz)						
2310 ~2390	74	54				
2483.5 ~2500	74	54				
Note: All restriction bands have been tested, only the worst case is reported.						

#### 5.2 Test Setup



#### 5.3 Test Procedure

- (1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.
- (2) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are

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set to make measurement.

- (3) 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.
- (4) 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.
- (5) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.
- (6) 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.
- (7) For the actual test configuration, please see the test setup photo.

#### 5.4 EUT Operating Condition

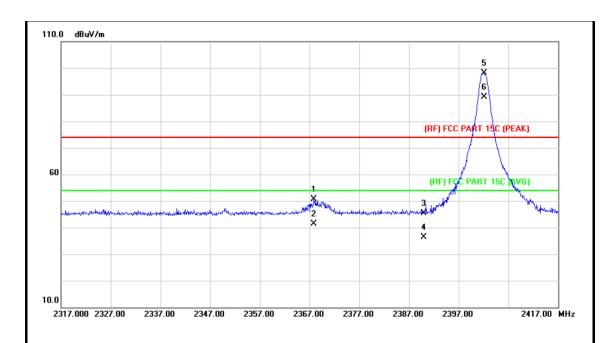
The Equipment Under Test was set to Continual Transmitting in maximum power.

#### 5.5 Test Data

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

#### (1) Radiation Test

EUT: Pos terminal		Model Name :	IDT800			
Temperature: 25 ℃		Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Ant. Pol.	Horizontal					
Test Mode:	TX GFSK Mode 2402MH	Z				
Remark:	N/A					



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2367.900	49.87	0.68	50.55	74.00	-23.45	peak
2		2367.900	40.80	0.68	41.48	54.00	-12.52	AVG
3		2390.000	44.71	0.77	45.48	74.00	-28.52	peak
4		2390.000	35.64	0.77	36.41	54.00	-17.59	AVG
5	Χ	2402.100	97.42	0.82	98.24	74.00	24.24	peak
6	*	2402.100	88.35	0.82	89.17	54.00	35.17	AVG

EUT:	Pos terminal	M	odel Name :		IDT800			
Temperature:	25 ℃	R	elative Humid	ity:	55%			
Test Voltage:	AC 120V/60HZ	C 120V/60HZ						
Ant. Pol.	Vertical							
Test Mode:	TX GFSK Mode 2	X GFSK Mode 2402MHz						
Remark:	N/A	N/A						
110.0 dBuV/m								
10.0	2337.00 2347.00 2357	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	2377.00 2387.1	(RF) F. 3. 4. X.	5 X 6 X C PART 15C (PEAK)  C PART 15C (AVG)  17.00 2417.00 MHz			
				233	2711.00 1.112			
No. Mk. Fr	Reading eq. Level	Correct Factor	Measure- ment	Limit	Over			
MI	Hz dBuV	dB/m	dBuV/m	dBuV/n	n dB Detector			
1 2367	.400 51.98	0.68	52.66	74.00	) -21.34 peak			
2 2367	.400 42.91	0.68	43.59	54.00	-10.41 AVG			
3 2390	.000 44.47	0.77	45.24	74.00	) -28.76 peak			
4 2390	.000 35.40	0.77	36.17	54.00	-17.83 AVG			
5 X 2402	.000 100.39	0.82	101.21	74.00	) 27.21 peak			
6 * 2402	.000 91.32	0.82	92.14	54.00	38.14 AVG			
Emission Level=	Read Level+ Corr	ect Factor	,					

EUT:	Pos terminal	N	lodel Name :	I	DT800			
Temperature:	25 ℃	R	Relative Humidit	y: 5	55%			
Test Voltage:	AC 120V/60HZ	AC 120V/60HZ						
Ant. Pol.	Horizontal							
Test Mode:	TX GFSK Mode 2	2480 MHz						
Remark:	N/A	N/A						
110.0 dBuV/m								
10.0 2465.000 2475.00	2485.00 2495.00 2505		deleter of the first of the second of the se	(BF) FC		G)		
No. Mk. Fr	Reading eq. Level	Correct Factor	Measure- ment L	imit	Over			
MI	Hz dBuV	dB/m	dBuV/m d	BuV/m	dB	Detector		
1 X 2480	.100 92.59	1.15	93.74 7	74.00	19.74	peak		
2 * 2480	.100 85.52	1.15	86.67 5	4.00	32.67	AVG		
3 2483	.500 60.88	1.17	62.05 7	74.00	-11.95	peak		
4 2483	.500 51.81	1.17	52.98 5	54.00	-1.02	AVG		
Emission Level=	Read Level+ Corr	ect Facto	r					

			Pos	terminal	ſ	Model Na	ame :	I	DT800		
mper	ature	<b>ə</b> :	25 °C	C	ı	<b>Relative Humidity:</b> 55%					
est Vo	Itage	):	AC 1	AC 120V/60HZ							
nt. Po	I.		Verti	cal							
est Mo	de:		TX G	SFSK Mode	2480 MHz	•					
emark	<b>(:</b>		N/A	N/A							
10.0 dB	uV/m										
		1 X 2									
		2 X									
-		+						(RF) FCC	PART 15C (PE	AK)	
60			3								
60		<u>/</u>	*					(RF) FC	C PART 15C (A	VG)	
بإضمالية الإطلام إن	warman		X MANAGEMENT	tologic-production discourse of	der la proposition de la company	handenhaddhafan dar	dermitteres	der Moder Hadelings and American	de sur market de service de servi	bonunderpe	
0.0 2465.00	0 2475	.00 2	485.00	2495.00 250	5.00 2515.0	0 2525.00	2535	5.00 2545	5.00	2565.00 N	<del>(</del> Hz
No.	Mk.	Fr	eq.	Reading Level	Correct Factor			Limit	Over		
		M	Hz	dBuV	dB/m	dBu∖	//m	dBuV/m	dB	Detect	tor
1	Χ	2480	.000	90.17	1.15	91.3	32	74.00	17.32	pea	k
2	*	2480	.000	81.10	1.15	82.2	25	54.00	28.25	AVO	3
3		2483	.500	58.47	1.17	59.0	64	74.00	-14.36	) pea	k
4		2483	.500	49.40	1.17	50.	57	54.00	-3.43	AVO	3

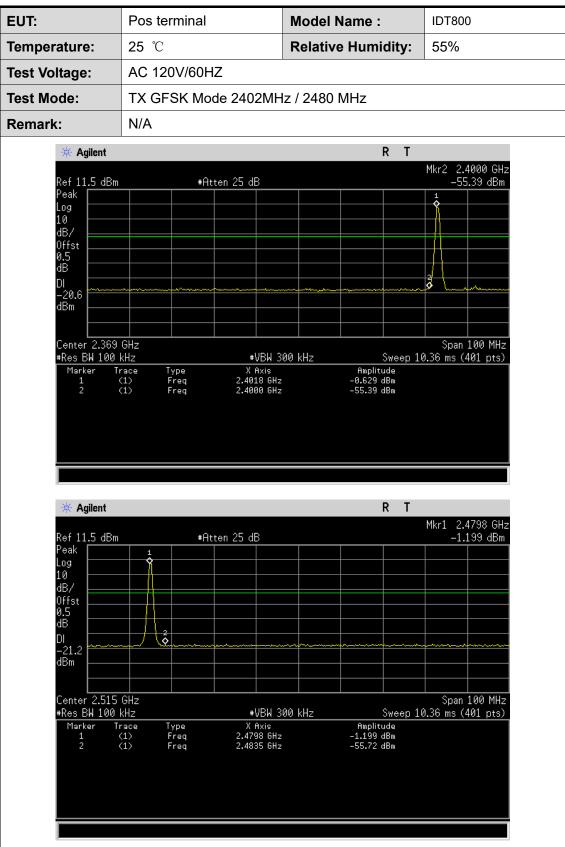
EUT:			Pos	terminal			Mod	lel N	ame :		IDT	800		
Tem	peratui	re:	25 °	C			Relative Humidity:				559	%		
Test	Voltag	e:	AC 1	AC 120V/60HZ										
Ant.	Pol.		Horiz	zontal										
Test	Mode:		TX 8	TX 8-DPSK Mode 2402MHz										
Rem	ark:		N/A	N/A										
110.0	) dBuV/m													
												3 X		
												*		
										(RF) F	CC PA	RT 15C (PEA	K)	
60											1			
60										(RF)	FCC PA	RT 15C AV		
	feredportunities.	magnetic and a second	hadayhayan,dasayi	.else	hvhr-mu	wadanine	a dallingtern	Warehand	بهرودي والمدود	Washington Balleton		,	Marythanhan	
										2 X				
10.0														
23	17.000 23	27.00	2337.00	2347.00	235	7.00 2367	7.00	2377.0	0 238	37.00 2	397.00		2417.00 M	Hz
N	o. Mk	. Fr	eq.	Readi Leve	_	Correc		leas me	ure- nt	Limit	t	Over		
		M	Hz	dBu∖	/	dB/m		dBu\	V/m	dBuV	/m	dB	Detect	tor
1		2390	.000	45.2	5	0.77		46.	02	74.0	0	-27.98	pea	k
2		2390	.000	36.1	8	0.77		36.	95	54.0	0	-17.05	AV	3
3	Х	2401	.900	98.2	6	0.82		99.	08	74.0	00	25.08	pea	k
4	*	2401	.900	89.1	9	0.82		90.	01	54.0	00	36.01	AV	3
Emis	ssion L	.evel=	Read	Level+	Corı	rect Fac	tor							

UT:			Pos t	erminal		<b>Model Name</b>	:	IDT800		
empe	eratur	e:	<b>25</b> °C			Relative Hun				
est V	oltag	<b>e</b> :	AC 1	AC 120V/60HZ						
nt. P	ol.		Vertic	/ertical						
est N	lode:		TX 8	TX 8-DPSK Mode 2402MHz						
Rema	rk:		N/A							
110.0	dBuV/m									
							(RF) FI	3 X 4 X CC PART 15C (PEAL	K)	
60								FCC PART 15C AVI		
Lophic Lo	ngnuk-mgk	hadige and	v.Nepřese sejevel-en	per reconstruction of the second of the seco	andressed and the construction of the construc	en, ann arthfall a fhon ann an Ann ann ann ann ann ann ann ann	2 ×		Mary Bridge ally	
10.0 2317	.000 232	7.00 2	337.00	2347.00 2357	7.00 2367	.00 2377.00 2	387.00 23	397.00	2417.00 MHz	
No	. Mk.	Fre	eq.	Reading Level	Correc		Limit	Over		
		MH	łz	dBu∀	dB/m	dBuV/m	dBuV	/m dB	Detector	
1		2390	000	44.57	0.77	45.34	74.0	0 -28.66	peak	
•		2390	000	35.50	0.77	36.27	54.0	0 -17.73	AVG	
2						07.74	74.0	0 23.74		
	X	2402	100	96.92	0.82	97.74	7 1.0	25.14	peak	

UT:	Pos terminal	M	odel Name :		IDT800		
emperature:	25 ℃	R	elative Humi	dity:	55%		
est Voltage:	AC 120V/60H	Z		·			
nt. Pol.	Horizontal						
est Mode:	TX 8-DPSK M	lode 2480MHz	,				
lemark:	N/A						
110.0 dBuV/m							
60 10.0	3 X X X X X X X X X X X X X X X X X X X		Printed and a second a second and a second and a second and a second and a second a	(RF) F(		G)	
2465.000 2475.00	2485.00 2495.00	2505.00 2515.00	2525.00 253	5.00 254	5.00	2565.00 MHz	
No. Mk. Fr	Readir req. Leve	_	Measure- ment	Limit	Over		
M	1Hz dBuV	dB/m	dBuV/m	dBuV/r	n dB	Detector	
1 X 2479	9.700 95.96	3 1.15	97.11	74.00	23.11	peak	
2 * 2479	9.700 86.89	1.15	88.04	54.00	34.04	AVG	
3 2483	3.500 60.45	1.17	61.62	74.00	-12.38	peak	
4 2483	3.500 51.38	3 1.17	52.55	54.00	-1.45	AVG	

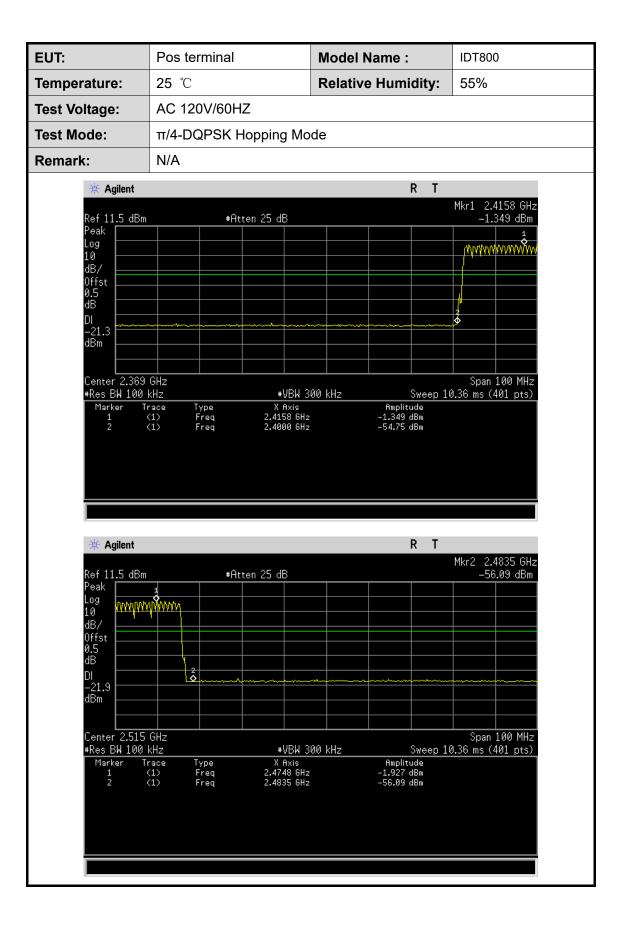
EUT:	Pos terminal	N	Model Name :	IC	008TC			
Temperature:	25 ℃	F	Relative Humidi	<b>ty:</b> 5	5%			
Test Voltage:	AC 120V/60HZ	AC 120V/60HZ						
Ant. Pol.	Vertical							
Test Mode:	TX 8-DPSK Mod	le 2480MH	Z					
Remark:	N/A	N/A						
110.0 dBuV/m								
10.0 2465.000 2475.00	2485.00 2495.00 25	605.00 2515.0	00 2525.00 2535.0	(RF) FC	PART 15C (PEA	<b>G</b> )		
No. Mk. Fr	Reading eq. Level	Correct Factor		imit	Over			
MI	Hz dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector		
1 X 2479	.700 101.28	1.15	102.43	74.00	28.43	peak		
2 * 2479	.700 92.21	1.15	93.36	54.00	39.36	AVG		
3 2483	.500 60.47	1.17	61.64	74.00	-12.36	peak		
4 2483	.500 51.40	1.17	52.57	54.00	-1.43	AVG		
Emission Level=	Read Level+ Cor	rect Facto	or					

## (2) Conducted Test

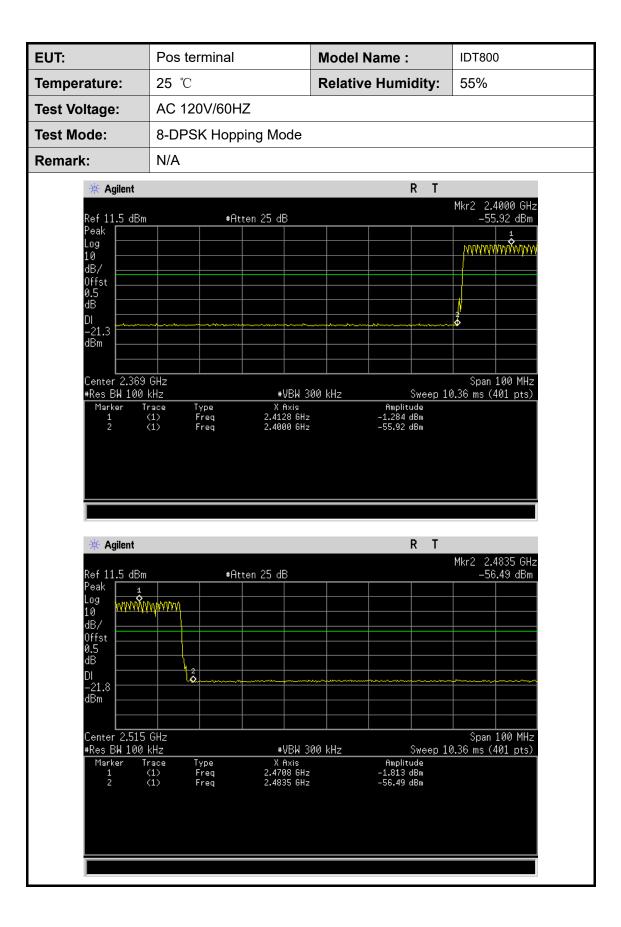


EUT:	Pos terminal	Model Name :	IDT800			
Temperature:	<b>25</b> ℃	25 °C Relative Humidity:				
Test Voltage:	AC 120V/60HZ	AC 120V/60HZ				
Test Mode:	GFSK Hopping Mode					
Remark:	N/A					
* Agilent		R T				
Ref 11.5 dBm	n #Atten 25 dB		Mkr2 2.4000 GHz -56.01 dBm			
Peak Log			DDD an All dh dhabhna Dh			
10 dB/			<del>                                     </del>			
Offst						
0.5 dB DI			2			
-20.6 dBm						
dDill						
Center 2.369		200111	Span 100 MHz			
#Res BW 100 Marker I	Trace Type X Axis	Amplitude	0.36 ms (401 pts)			
1 2	(1) Freq 2.4168 GH (1) Freq 2.4000 GH					
<b>₩</b> Agilent		R T				
Ref 11.5 dBm	ı #Atten 25 dB		Mkr2 2.4835 GHz -56.29 dBm			
Peak Peak	1		-30.25 dbiii			
	WINN					
Offst						
0.5 dB						
DI -21.2	å					
dBm						
Center 2.515	: CU-		Span 100 MHz			
#Res BW 100	kHz #VBW		0.36 ms (401 pts)			
1	Frace         Type         X Axis           (1)         Freq         2.4778 GH           (1)         Freq         2.4835 GH	Amplitude z -1.236 dBm z -56.29 dBm				
	(1) Freq 2.4035 on	2 -30.29 dbiii				

EUT: Pos terminal IDT800 **Model Name:** Temperature: 25 ℃ **Relative Humidity:** 55% AC 120V/60HZ **Test Voltage: Test Mode:**  $\pi/4$ -DQPSK Mode 2402MHz / 2480 MHz Remark: N/A R T 💥 Agilent Mkr2 2.4000 GHz -56.35 dBm Ref 11.5 dBm Peak #Atten 25 dB Log 10 dB/ Offst 0.5 dB DI -21.5 dBm Center 2.369 GHz #Res BW 100 kHz Span 100 MHz Sweep 10.36 ms (401 pts) #VBW 300 kHz Trace (1) (1) Type Freq Freq X Axis 2.4018 GHz 2.4000 GHz Amplitude -1.519 dBm -56.35 dBm Marker R T 💥 Agilent Mkr1 2.4800 GHz -2.377 dBm Ref 11.5 dBm #Atten 25 dB Peak Log 10 Öffst 0.5 dB 2 -22.4 dBm Center 2.515 GHz #Res BW 100 kHz Span 100 MHz Sweep 10.36 ms (401 pts) #VBW 300 kHz Amplitude -2.377 dBm -57.3 dBm Trace (1) (1) Type Freq Freq X Axis 2.4800 GHz 2.4835 GHz Marker



EUT: Pos terminal IDT800 **Model Name:** Temperature: 25 ℃ **Relative Humidity:** 55% AC 120V/60HZ **Test Voltage: Test Mode:** TX 8-DPSK Mode 2402MHz / 2480 MHz Remark: N/A R T 💥 Agilent Mkr2 2.4000 GHz -54.37 dBm Ref 11.5 dBm Peak #Atten 25 dB Log 10 dB/ Offst 0.5 dB DΙ -21.4 dBm Center 2.369 GHz #Res BW 100 kHz Span 100 MHz Sweep 10.36 ms (401 pts) #VBW 300 kHz Trace (1) (1) Type Freq Freq X Axis 2.4018 GHz 2.4000 GHz Amplitude -1.421 dBm -54.37 dBm Marker R T 💥 Agilent Mkr2 2.4835 GHz -55.7 dBm Ref 11.5 dBm Peak #Atten 25 dB Log 10 Offst 0.5 dB 2 -21.8 dBm Stop 2.565 GHz Sweep 10.36 ms (401 pts) Start 2.465 GHz #Res BW 100 kHz #VBW 300 kHz Amplitude -1.827 dBm -55.7 dBm Trace (1) (1) Type Freq Freq X Axis 2.4798 GHz 2.4835 GHz



# 7. Number of Hopping Channel

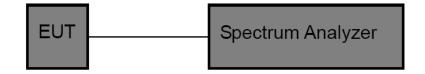
### 6.1 Test Standard and Limit

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

## 6.2 Test Setup



#### 6.3 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.
- 6.4 EUT Operating Condition

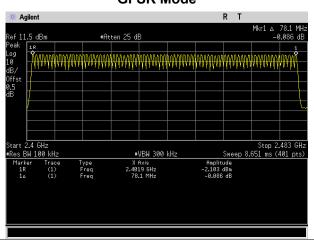
The EUT was set to the Hopping Mode by the Customer.

6.5 Test Data

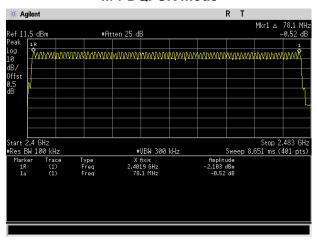
EUT:	Pos terminal	Model Name :	IDT800			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ					
Test Mode:	Hopping Mode (GFSK/ π/4-DQPSK/ 8-DPSK)					

Frequency Range	Quantity of Hopping	Limit	
r requericy range	Channel	Lillit	
2402MHz~2480MHz	79	>15	

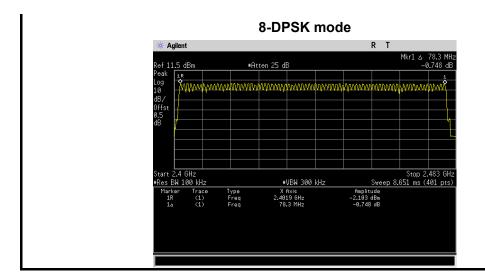
### **GFSK Mode**



#### $\pi/4$ -DQPSK mode



Report No.: MTI150630001RF-2



# 8. Average Time of Occupancy

#### 7.1 Test Standard and Limit

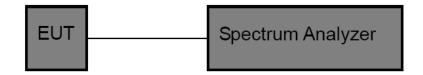
5.1.1 Test Standard

FCC Part 15.247 (a)(1)

#### 5.1.2 Test Limit

Section	Test Item	Limit	
15.247(a)(1)/ RSS-210	Average Time of	0.4.000	
Annex 8(A8.1d)	Occupancy	0.4 sec	

### 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=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.

## 7.4 EUT Operating Condition

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

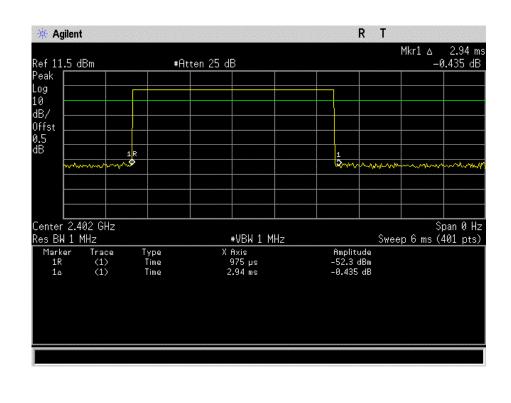
#### 7.5 Test Data

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Hotline: 400-666-1678 Tel: 86-755-8885 0135 Fax: 86-755-8885 0136 http://www.mtitest.com

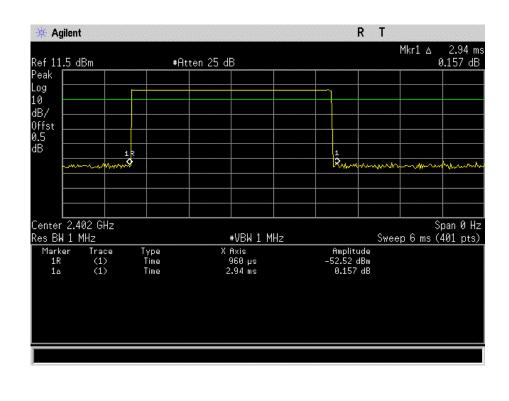
EUT:		Pos terminal		Model Name :		IDT800	
Temperature:		25 ℃ F		<b>Relative Humidity:</b> 55%		55%	
Test Voltage:	Voltage: AC 120V/60HZ						
Test Mode:	Test Mode: Hopping Mode (GFSK DH5)						
Channel	Pu	Ise Time	Total of	Period Time			Result
(MHz)		(ms)	Dwell (ms)	(s)	(m	ıs)	Resuit
2402		2.94	313.6	31.60	40	00	PASS
	050/( U						

#### **GFSK Hopping Mode DH5**



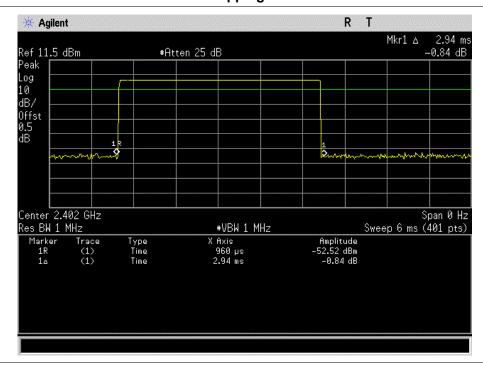
EUT:		Pos terminal		Model Name :		IDT800	
Temperature:		<b>25</b> ℃		Relative Hum	idity: 55%		
Test Voltage:		AC 120V/60HZ					
Test Mode:	Mode: Hopping Mode (π/4-DQPSK DH5)						
Channel	Pu	lse Time	Total of	Period Time			Result
(MHz)		(ms)	Dwell (ms)	(s)	(ms)		Resuit
2402		2.94	313.6	31.60	40	00	PASS

## $\pi/4$ -DQPSK Hopping Mode DH5



EUT:		Pos terminal		Model Name : IDT80		IDT800	
Temperature		<b>25</b> ℃		Relative Humidity: 55%			
Test Voltage:	: AC 120V/60HZ						
Test Mode:	de: Hopping Mode (8-DPSK DH5)						
Channel	Pu	lse Time	Total of	Period Time	Limit		Dogult
(MHz)		(ms)	Dwell (ms)	(s)	(m	ıs)	Result
2402		2 94	313 6	31 60	40	00	PASS

## 8-DPSK Hopping Mode DH5



# 9. Channel Separation and Bandwidth Test

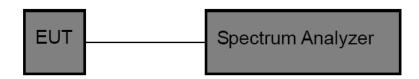
#### 8.1 Test Standard and Limit

8.1.1 Test Standard FCC Part 15.247

8.1.2 Test Limit

Test Item	Limit	Frequency Range(MHz)	
Bandwidth	<=1 MHz	2400~2483.5	
Danawidin	(20dB bandwidth)	2400~2403.3	
	>25KHz or >two-thirds of		
Channel Separation	the 20 dB bandwidth	2400~2483.5	
	Which is greater		

### 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:

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.

## 8.4 EUT Operating Condition

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

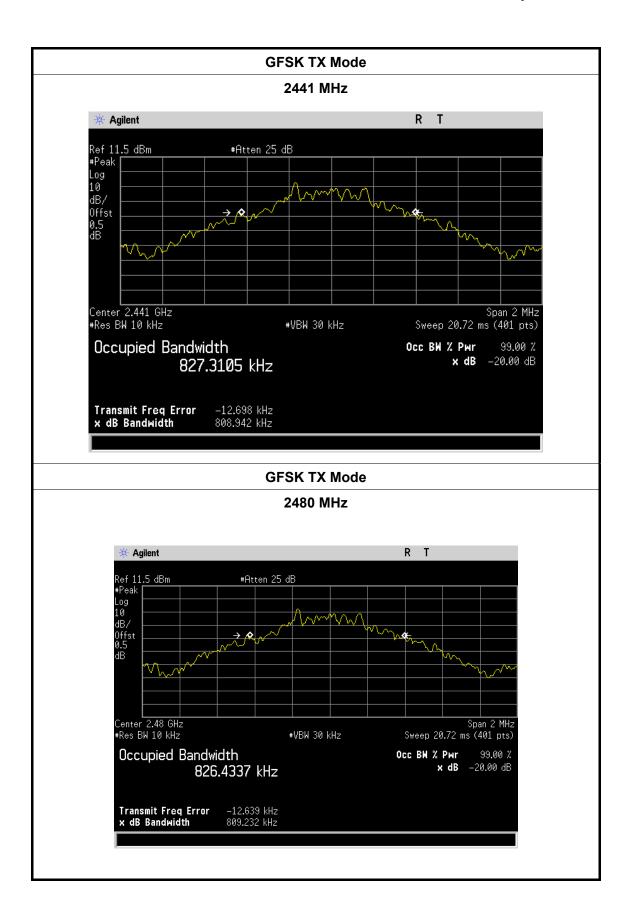
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transmitting for the Bandwidth Test.

## 8.5 Test Data

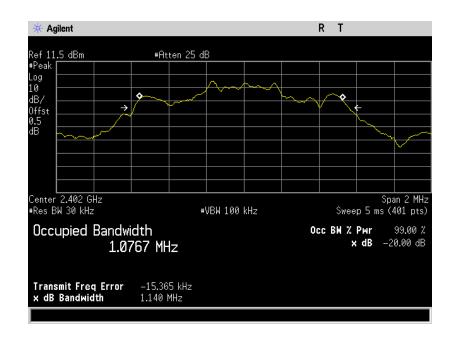
EUT:	Pos terminal	Model Name :	IDT800			
Temperature:	25 ℃	Relative Humidity:	55%			
Test Voltage:	AC 120V/60HZ	AC 120V/60HZ				
Test Mode:	TX Mode (GFSK)					
Channel frequence	Channel frequency 99% OBW (MHz) 20dB Bandwidth 20dB B					
(MHz)		(MHz)	*2/3 (kHz)			
2402	0.827	0.804	0.536			
2441	0.827	0.809	0.539			
2480	0.826	0.809	0.539			
	GFSK TX Mode					
	2402	MHz				
* Agilen	•	R T				
Ref 11.5						
#Peak Log	#HLLEH 23 QD					
10 dB/	~~\\\	~~~				
0ffst 0.5 dB	<b>→</b>	W. Marina				
	h	T W	War and the same of the same o			
	<b>N</b>					
Center 2.4 #Res BW 1	102 GHz 0 kHz #VBW (	30 kHz Sweep 20.72	Span 2 MHz !ms (401 pts)			
Occup	Occupied Bandwidth Occ BM % Pwr 99.00 %					
	827.0279 kHz × dB -20.00 dB					
Transmit × dB Ba	Freq Error -12.941 kHz ndwidth 804.049 kHz					

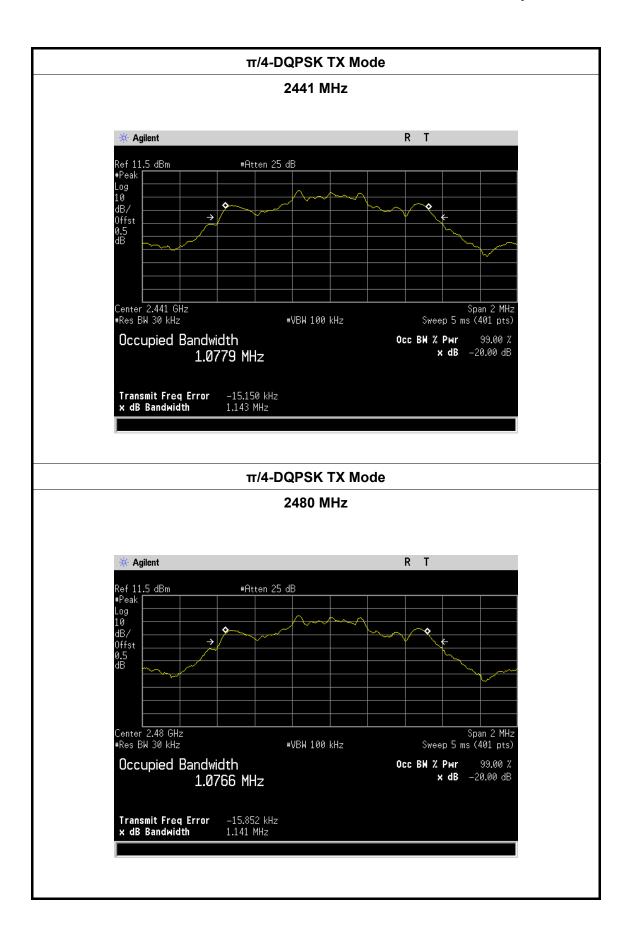


EUT:	Pos terminal	Model Name :	IDT800
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Test Mode:	TX Mode (π/4-DQPSK)		

Channel frequency	99% OBW (kHz)	20dB Bandwidth	20dB Bandwidth
(MHz)		(kHz)	*2/3 (kHz)
2402	1.0767	1.14	0.76
2441	1.077	1.143	0.762
2480	1.0766	1.141	0.761

## π/4-DQPSK TX Mode 2402 MHz



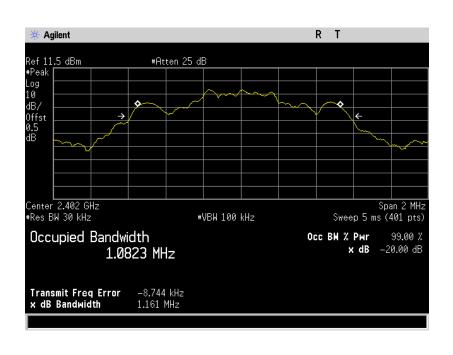


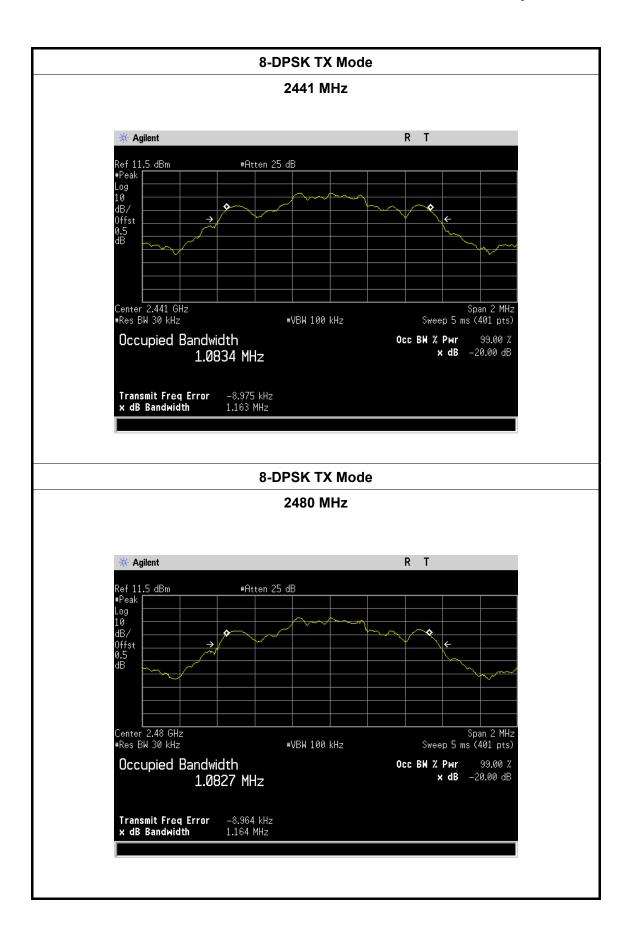
EUT:	Pos terminal	Model Name :	IDT800
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		

Test Mode: TX Mode (8-DPSK)

Channel frequency	99% OBW (kHz)	20dB Bandwidth	20dB Bandwidth
(MHz)		(kHz)	*2/3 (kHz)
2402	1.0823	1.161	0.774
2441	1.0834	1.163	0.775
2480	1.0827	1.164	0.776

## 8-DPSK TX Mode 2402 MHz

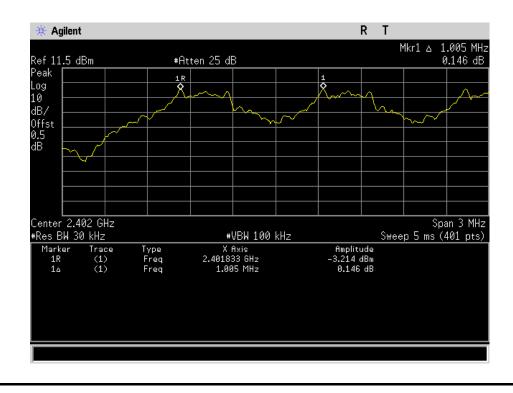


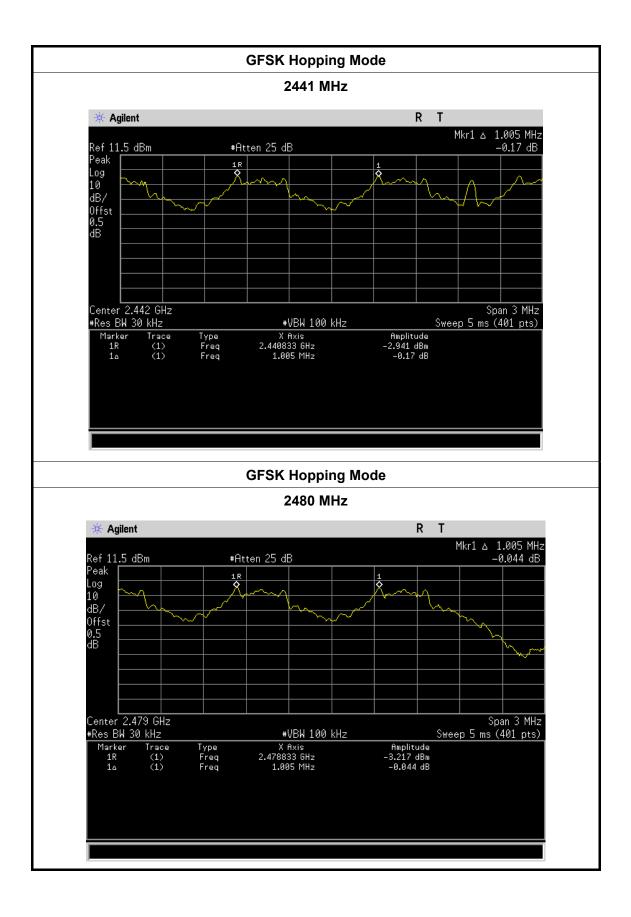


EUT:	Pos terminal	Model Name :	IDT800
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Test Mode:	Hopping Mode (GFSK)		

Channel frequency (MHz)	Separation Read Value	Separation Limit (MHz)
	(MHz)	
2402	1.005	
2441	1.005	0.539
2480	1.005	

## **GFSK Hopping Mode**



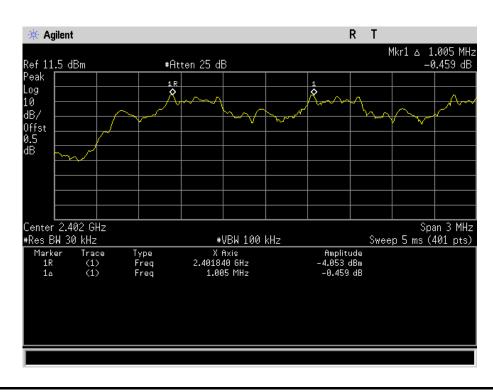


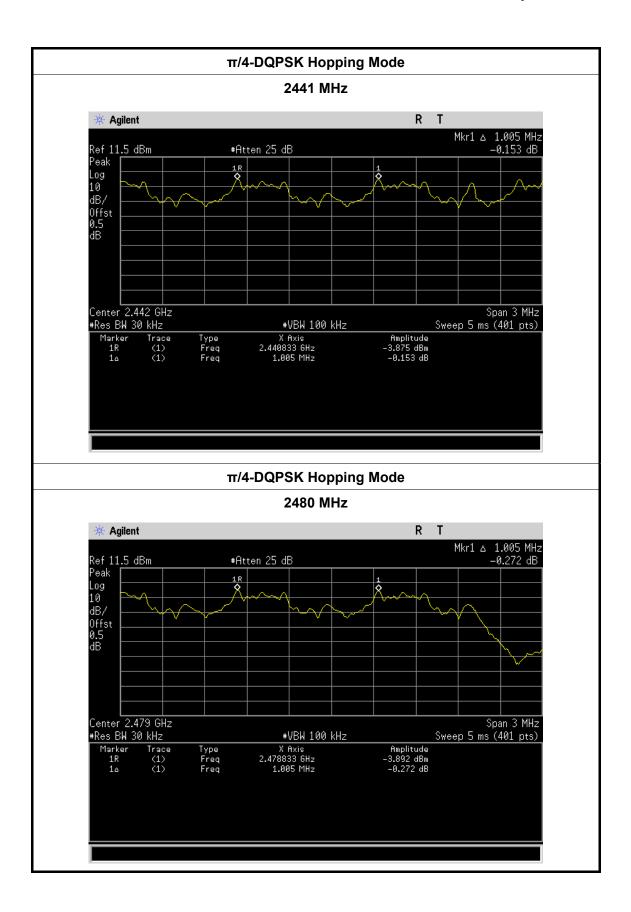
EUT:	Pos terminal	Model Name :	IDT800
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		

**Test Mode:** Hopping Mode ( $\pi/4$ -DQPSK)

Channel frequency (MHz)	Separation Read Value	Separation Limit (MHz)
	(MHz)	
2402	1.005	
2441	1.005	0.762
2480	1.005	

#### π/4-DQPSK Hopping Mode



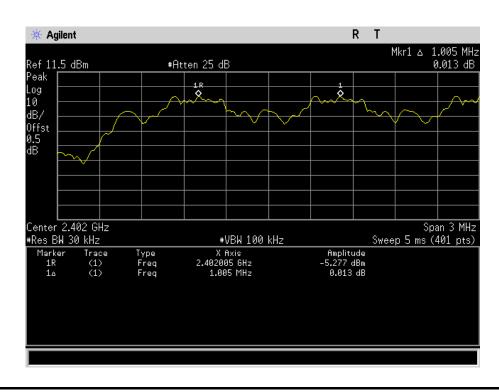


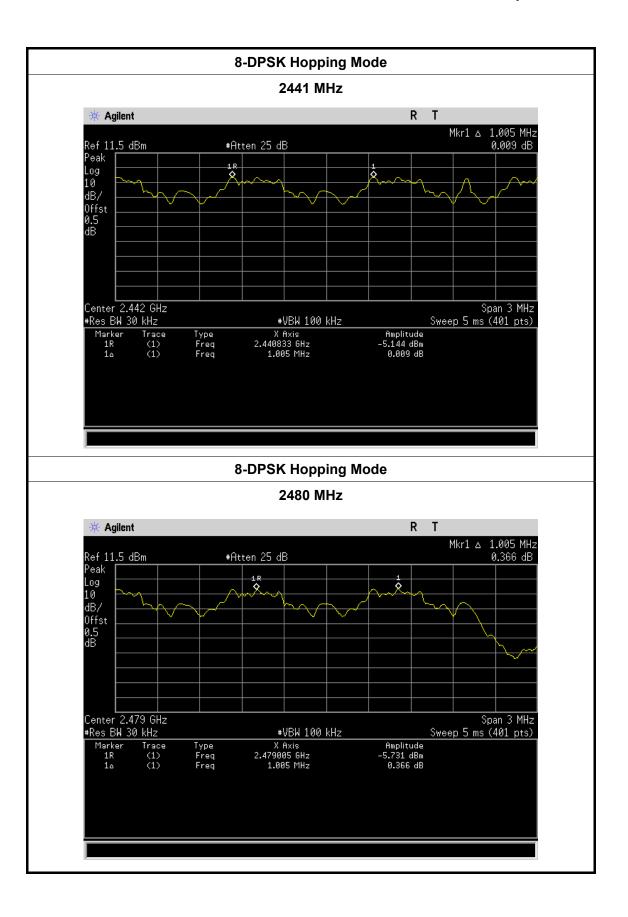
EUT:	Pos terminal	Model Name :	IDT800
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		

**Test Mode:** Hopping Mode (8-DPSK)

Channel frequency (MHz)	Separation Read Value	Separation Limit (kHz)
	(kHz)	
2402	1.005	
2441	1.005	0.776
2480	1.005	

#### 8-DPSK Hopping Mode





# 10. Peak Output Power Test

#### 9.1 Test Standard and Limit

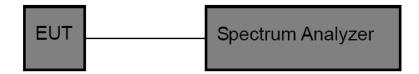
9.1.1 Test Standard

FCC Part 15.247 (b) (1)

9.1.2 Test Limit

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

# 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:

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

RBW=3 MHz, VBW=3 MHz for bandwidth more than 1MHz.

## 9.4 EUT Operating Condition

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

9.5 Test Data

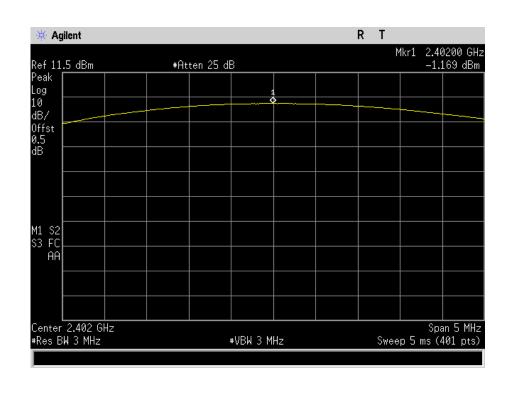
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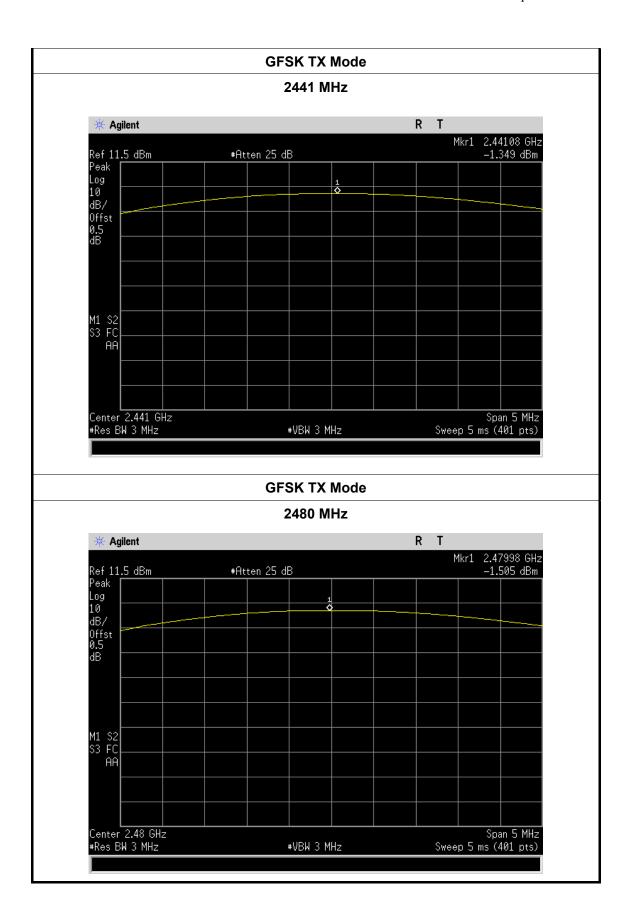
Hotline: 400-666-1678 Tel: 86-755-8885 0135 Fax: 86-755-8885 0136 http://www.mtitest.com

EUT:	Pos terminal	Model Name :	IDT800
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Test Mode: TX Mode (GFSK)			

Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
2402	-1.169	
2441	-1.349	21
2480	-1.505	

#### **GFSK TX Mode**

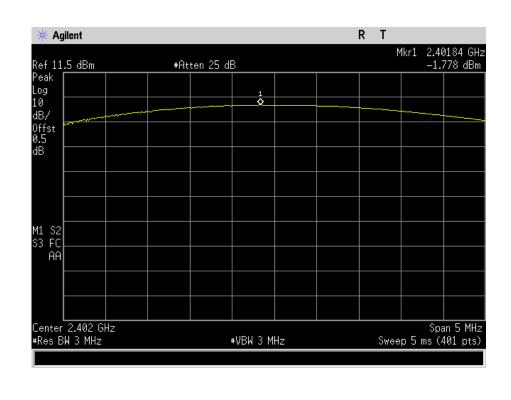


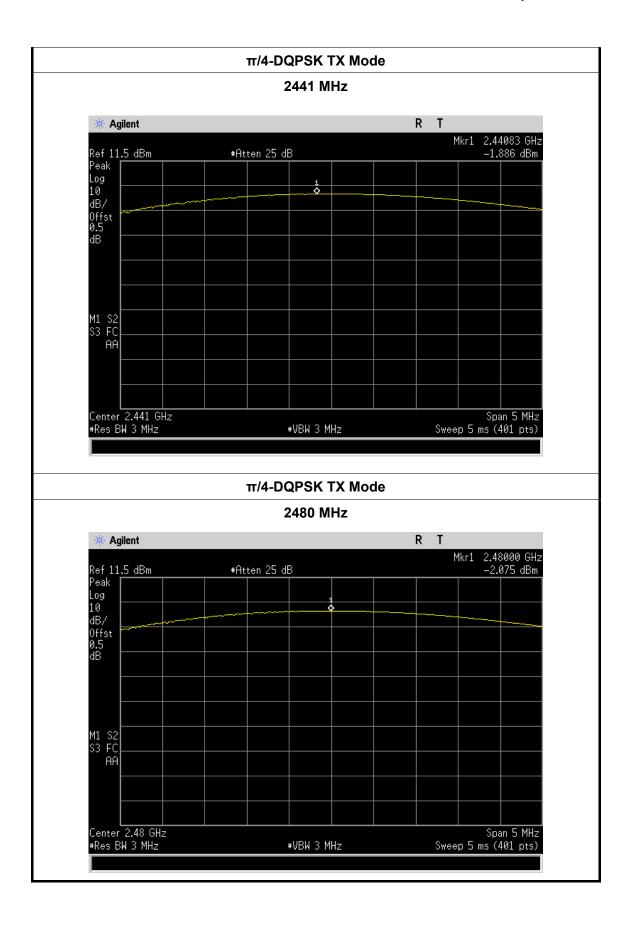


EUT:	Pos terminal	Model Name :	IDT800
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Test Mode:	TX Mode (π/4-DQPSK)		

	Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
	2402	1.778	
	2441	-1.886	21
	2480	-2.075	

#### π/4-DQPSK TX Mode

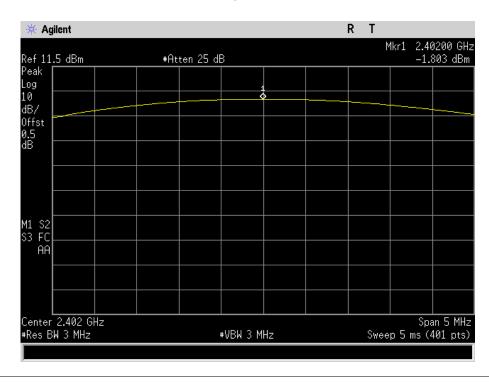


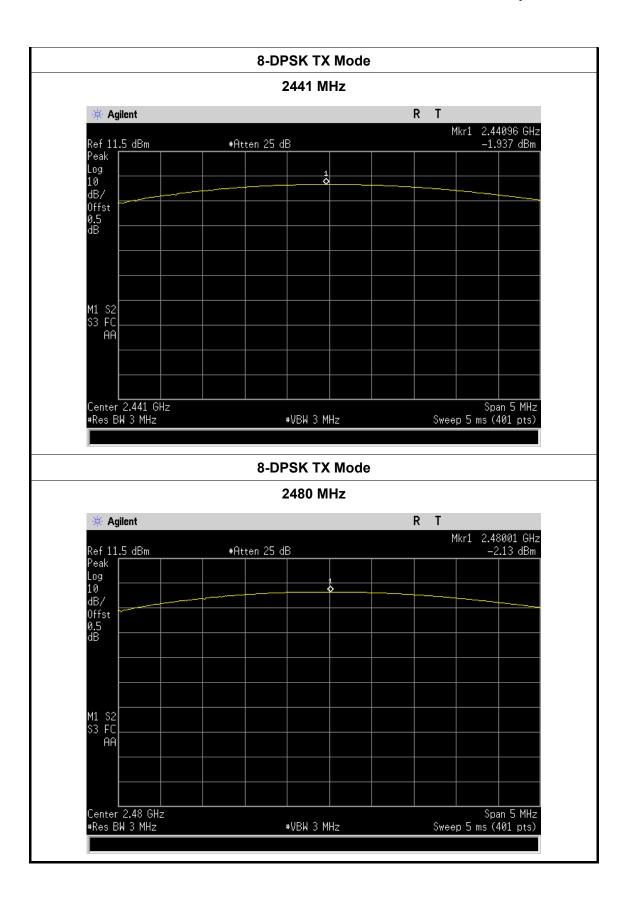


EUT:	Pos terminal	Model Name :	IDT800
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60HZ		
Test Mode:	TX Mode (8-DPSK)		

Channel frequency (MHz)	Test Result (dBm)	Limit (dBm)
2402	-1.803	
2441	-1.937	21
2480	-2.13	

#### 8-DPSK TX Mode





# 11. Antenna Requirement

## 10.1 Standard Requirement

## 10.1.1 Standard

FCC Part 15.203

#### 10.1.2 Requirement

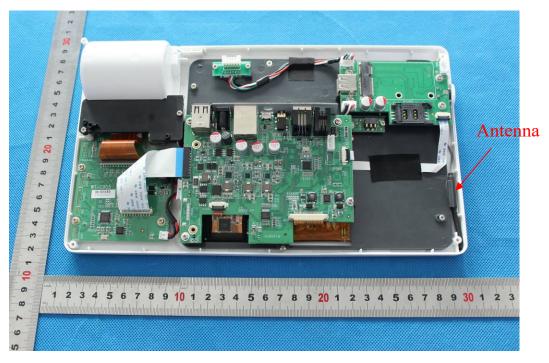
An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply 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.

## 10.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 2 dBi, and the antenna connector is de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

#### 10.2 Result

The EUT antenna is an internal antenna, the peak gain is 2dBi. It complies with the standard requirement.



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