

# FCC Radio Test Report FCC ID: 2AF2R-HB30TX IC ID: 20674-HB30TX

### **Original Grant**

Report No.	13	TB-FCC166058
Applicant	:	Shenzhen Videotimes Technology Co.,Ltd
Equipment Under	Test	(EUT)
EUT Name	:	2.4GHz Digital Wireless Video Baby Camera
Model No.	÷	HB31TX
Series Model No.	:	HB30TX
Brand Name	19	HelloBaby
Receipt Date	:	2019-05-08
Test Date	13	2019-05-08 to 2019-06-14
Issue Date	-	2019-06-14
Standards	1	FCC Part 15, Subpart C (15.247:2019)
Test Method	-	ANSI C63.10: 2013
Conclusions	:	PASS
		In the configuration tested, the EUT complied with the standards specified

In the configuration tested, the EUT complied with the standards specified above, The EUT technically complies with the FCC requirements

**Test/Witness Engineer** 

: Jason xu

Jason Xu

**Engineer Supervisor** 

**Engineer Manager** 

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Ivan Su

Ray Lai

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.



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	ATT	ACHMENT G PEAK OUTPUT POWER TEST DATA	



# **Revision History**

Report No.	Version	Description	Issued Date
TB-FCC166058	Rev.01	Initial issue of report	2019-06-14
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# 1. General Information about EUT

### **1.1 Client Information**

TOBY

Applicant	:	Shenzhen Videotimes Technology Co.,Ltd
Address		Room 601, Building B, Union Financial Building, No 1 Shihua Road, Fubao Street, Futian Free Trade Zone, Shenzhen, Guangdong, China.
Manufacturer	<	Shenzhen Videotimes Technology Co.,Ltd
Address		Room 601, Building B, Union Financial Building, No 1 Shihua Road, Fubao Street, Futian Free Trade Zone, Shenzhen, Guangdong, China.

### 1.2 General Description of EUT (Equipment Under Test)

EUT Name	-	2.4GHz Digital Wireless Video Baby Camera		
Models No.	:	HB31TX,HB30TX		
Model Difference		All these models are identical in the same PCB layout and electrical circuit, Only the appearance design, color and model are different. Does not affect EMC and RF performance.		
1		Operation Frequency:	GFSK: 2403.5MHz~2468MHz	
1000		Number of Channel:	GFSK: 44 Channels See Note 2	
Product Description	:	Max Peak Output Power:	GFSK: 17.338dBm	
		Antenna Gain:	2dBi FPC Antenna	
TO BE		Modulation Type:	GFSK (1.5 Mbps)	
Power Supply		DC Voltage Supply from AC/DC Adapter for TX (Camera)		
Power Rating		Adapter Model:K05S050100U Input: AC 100-240V~50/60Hz, 0.2A Output: DC 5.0V@1.0A		
Software Version	•	1.0		
Hardware Version	-	1.2		
Connecting I/O Port(S)	•	Please refer to the User's Manual		

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.



#### (2) Channel List:

GFSK Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
00	2403.5	21	2435.0	42	2466.5
01	2405.0	22	2436.5	43	2468.0
02	2406.5	23	2438.0		
03	2408.0	24	2439.5		
04	2409.5	25	2441.0		
05	2411.0	26	2442.5		
06	2412.5	27	2444.0		
07	2414.0	28	2445.5		
08	2415.5	29	2447.0		
09	2417.0	30	2448.5		003
10	2418.5	31	2450.0		
11	2420.0	32	2451.5		
12	2421.5	33	2453.0		
13	2423.0	34	2454.5		11000
14	2424.5	35	2456.0		
15	2426.0	36	2457.5		
16	2427.5	37	2459.0		ND P
17	2429.0	38	2460.5		
18	2430.5	39	2462.0	AUPL	
19	2432.0	40	2463.5		C 23
20	2433.5	41	2465.0		1

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

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

### Charging & TX Mode

Adapter

EUT



#### 1.4 Description of Support Units

The EUT has been tested as an independent unit.

#### 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 Charging+ TX Mode			

For Radiated Test					
Final Test Mode	Description				
Mode 1	TX GFSK Mode				
Mode 2	TX Mode(GFSK) Channel 00/24/43				

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 modes above.

According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels, and the worst case data rate as follows:

TX Mode: GFSK (1.5 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	Secure CRT		
Frequency	2403.5 MHz 2439.5 MHz 2468 MHz		
GFSK	DEF	DEF	DEF

#### 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 <sub>Lab</sub> )
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	±3.42 dB ±3.42 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.40 dB
Radiated Emission	Level Accuracy: 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.

#### A2LA Certificate No.: 4750.01

The laboratory has been accredited by American Association for Laboratory Accreditation(A2LA) to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the technical competence in the field of Electrical Testing. And the A2LA Certificate No.: 4750.01. FCC Accredited Test Site Number: 854351.

#### 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.



# 2. Test Summary

FCC Part 15 Subpart C(15.247)/ RSS 247 Issue 2					
Standard S	ection				
FCC	IC	- Test Item	Judgment	Remark	
15.203		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(d)	RSS 247 5.5	Band Edge	PASS	N/A	
15.247(c)& 15.209	RSS 247 5.5	Radiated Spurious Emission	PASS	N/A	
15.247(a)	RSS 247 5.1 (1)	99% Occupied Bandwidth & 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
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Jul. 18, 2018	Date Jul. 17, 2019
Livii Test Receiver	Compliance	2301	100321	301. 10, 2010	Jul. 17, 2013
RF Switching Unit	Direction Systems	RSU-A4	34403	Jul. 18, 2018	Jul. 17, 2019
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Jul. 18, 2018	Jul. 17, 2019
LISN	Rohde & Schwarz	ENV216	101131	Jul. 18, 2018	Jul. 17, 2019
Radiation Emissio	on Test				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 18, 2018	Jul. 17, 2019
EMI Test Receiver	Rohde & Schwarz	ESPI	100010/007	Jul. 18, 2018	Jul. 17, 2019
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Jan. 27, 2019	Jan. 26, 2020
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Jan. 27, 2019	Jan. 26, 2020
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar.03, 2019	Mar. 02, 2020
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar.03, 2019	Mar. 02, 2020
Loop Antenna	Laplace instrument	RF300	0701	Mar.04, 2019	Mar. 03, 2020
Pre-amplifier	Sonoma	310N	185903	Mar.03, 2019	Mar. 02, 2020
Pre-amplifier	HP	8449B	3008A00849	Mar.03, 2019	Mar. 02, 2020
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar.03, 2019	Mar. 02, 2020
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna Conducte	ed Emission				
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Due Date
Spectrum Analyzer	Agilent	E4407B	MY45106456	Jul. 18, 2018	Jul. 17, 2019
Spectrum Analyzer	Rohde & Schwarz	ESCI	100010/007	Jul. 18, 2018	Jul. 17, 2019
MXA Signal Analyzer	Agilent	N9020A	MY49100060	Sep. 15, 2018	Sep. 14, 2019
Vector Signal Generator	Agilent	N5182A	MY50141294	Sep. 15, 2018	Sep. 14, 2019
Analog Signal Generator	Agilent	N5181A	MY50141953	Sep. 15, 2018	Sep. 14, 2019
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO26	Sep. 15, 2018	Sep. 14, 2019
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO29	Sep. 15, 2018	Sep. 14, 2019
RF Power Sensor	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO31	Sep. 15, 2018	Sep. 14, 2019
	DARE!! Instruments	RadiPowerRPR3006W	17100015SNO33	Sep. 15, 2018	Sep. 14, 2019



# 4. Conducted Emission Test

- 4.1 Test Standard and Limit
  - 4.1.1Test Standard FCC Part 15.207
  - 4.1.2 Test Limit

Eronuonov	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		

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

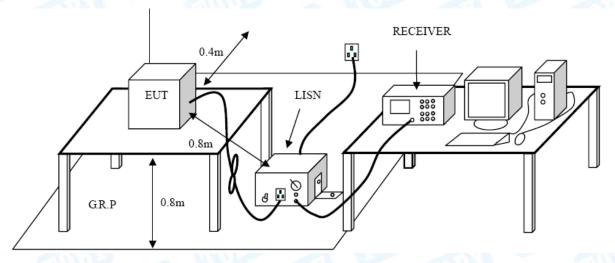
Notes:

(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.



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 refer to the Attachment A.



# 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		

Frequency	Distance Meters(at 3m)		
(MHz)	Peak	Average	
Above 1000	74	54	

#### Note:

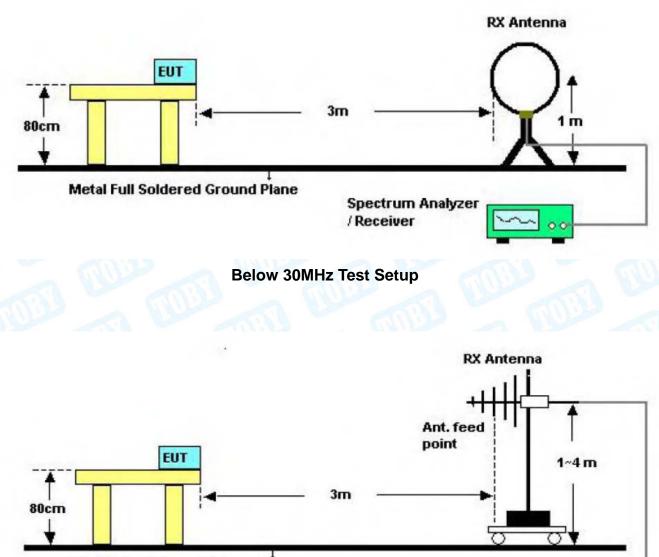
(1) The tighter limit applies at the band edges.

(2) Emission Level (dBuV/m)=20log Emission Level (uV/m)



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5.2 Test Setup



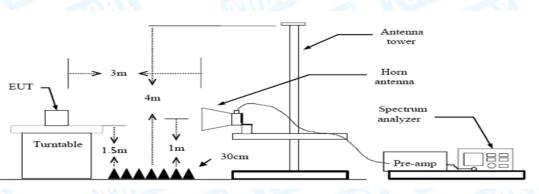
Metal Full Soldered Ground Plane

Spectrum Analyzer / Receiver

**Below 1000MHz Test Setup** 

0.0





Above 1GHz 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) 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.

Please refer to the Attachment B.

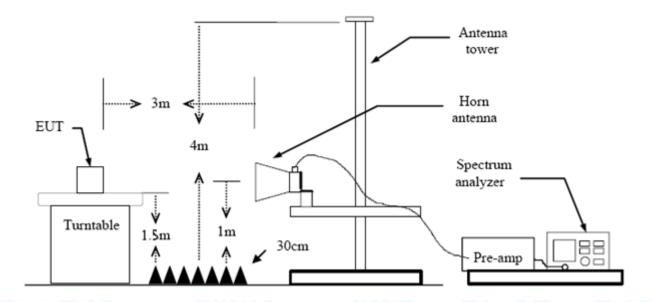


### 6. Restricted Bands and Band-edge test

- 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	Distance N	leters(at 3m)
Band (MHz)	Peak	Average
2310 ~2390	74	54
2483.5 ~2500	74	54

### 6.2 Test Setup



### 6.3 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) 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 AVG 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.

6.5 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.

All restriction bands have been tested, only the worst case is reported. Please refer to the Attachment C.

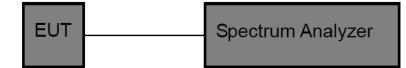


# 7. Number of Hopping Channel

- 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

Please refer to the Attachment D.

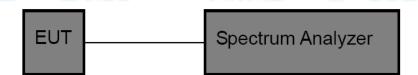


# 8. Average Time of Occupancy

- 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)	Average Time of 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=100KHz, VBW=300KHz.
- (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 average time of occupancy on any channel within the Period can be calculated with formulas:

The Dwell Time = Burst Width \* Total Hops. The detailed calculations are showed as follows: The duration for dwell time calculation: 0.4 [s] \* hopping number = 0.4 [s] \* 20 [ch] = 8.0 [s\*ch]; The burst width, which is directly measured, refers to the duration on one channel hop.

The maximum number of hopping channels in 8.0s =3\*(8.0/0.24) =100

The lowest, middle and highest channels are selected to perform testing to record the dwell time of each occupation measured in this channel, which is called Pulse Time here.

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

#### 8.5 Test Data

Please refer to the Attachment E.

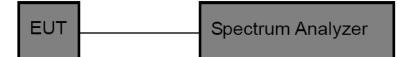


# 9. Channel Separation and Bandwidth Test

- 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=100 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.

### 9.5 Test Data

Please refer to the Attachment F.



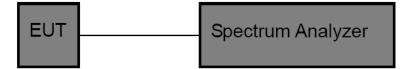
# 10. Peak Output Power Test

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
6000	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.

10.5 Test Data

Please refer to the Attachment G.



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

#### 11.3 Result

The	EUT antenna is a FPC Antenna. It complies with the standard requirement.
	Antenna Type
R.	Permanent attached antenna
	Unique connector antenna
1	Professional installation antenna

# **Attachment A-- Conducted Emission Test Data**

Temperature:	<b>25</b> ℃		<b>Relative Humidity:</b>	55%		
Test Voltage:	AC 120V/60Hz	AC 120V/60Hz				
Terminal:	Line					
Test Mode:	Charging + TX GFSK Mode 2403.5MHz					
Remark:	All channels ha	All channels have been tested and Shows only the worst channels				
90.0 dBuV						
				QP: AVG:		
40						
MX x	X					
wwww	1 Your week the show we have been and the state of the st	apollade Argebrahan Argen Argen Baba	hipsolitican manager between the manufactures	with an all and and an and pe		
montown	har management	way, and , sold of the when a go	a, and a second second and a second	A		
10						
0.150	0.5	(MHz)	5	30.000		

No. N	lk. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1	0.1940	16.25	9.65	25.90	63.86	-37.96	QP
2	0.1940	7.48	9.65	17.13	53.86	-36.73	AVG
3	0.2740	12.91	9.59	22.50	60.99	-38.49	QP
4	0.2740	6.97	9.59	16.56	50.99	-34.43	AVG
5	0.3620	20.70	9.58	30.28	58.68	-28.40	QP
6 *	0.3620	16.44	9.58	26.02	48.68	-22.66	AVG
7	0.6060	11.54	9.59	21.13	56.00	-34.87	QP
8	0.6060	6.65	9.59	16.24	46.00	-29.76	AVG
9	1.3700	13.12	9.60	22.72	56.00	-33.28	QP
10	1.3700	7.11	9.60	16.71	46.00	-29.29	AVG
11	2.3900	11.41	9.63	21.04	56.00	-34.96	QP
12	2.3900	6.36	9.63	15.99	46.00	-30.01	AVG
-							



Temperature:	<b>25</b> ℃	Relative Humidity:	55%
Test Voltage:	AC 120V/60Hz		
Terminal:	Neutral		
Test Mode:	Charging + TX GFSK I	Mode 2403.5MHz	197
Remark:	All channels have been	n tested and Shows only the	worst channels.
90.0 dBuV			
			QP: AVG:
40	×		
m	Compromition of provident	Hat Marana Ma	
when we have a second s		1	Marian Marian Charles Marian Providence
mound	. Marine when manufactured and a second and and and and and and and and and a	solver a contraction of the solution of the so	A manufacture of the second se
-10	0.5	(MHz) 5	30.000

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1980	17.30	9.65	26.95	63.69	-36.74	QP
2		0.1980	7.43	9.65	17.08	53.69	-36.61	AVG
3	*	0.3580	21.99	9.58	31.57	58.77	-27.20	QP
4		0.3580	11.03	9.58	20.61	48.77	-28.16	AVG
5		0.6940	14.93	9.59	24.52	56.00	-31.48	QP
6		0.6940	8.29	9.59	17.88	46.00	-28.12	AVG
7		0.8740	14.84	9.59	24.43	56.00	-31.57	QP
8		0.8740	7.89	9.59	17.48	46.00	-28.52	AVG
9		1.3060	15.64	9.60	25.24	56.00	-30.76	QP
10		1.3060	8.79	9.60	18.39	46.00	-27.61	AVG
11		2.1140	15.02	9.62	24.64	56.00	-31.36	QP
12		2.1140	8.24	9.62	17.86	46.00	-28.14	AVG

# Attachment B-- Radiated Emission Test Data

#### 9KHz~30MHz

From 9KHz to 30MHz: Conclusion: PASS

Note: The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

#### 30MHz~1GHz

emperature:	<b>25℃</b>	<b>Relative Humidity:</b>	55%
est Voltage:	AC 120V/60Hz		
nt. Pol.	Horizontal		
est Mode:	TX GFSK Mode 2403.5MHz	Con Sta	
emark:	Only worse case is reported	A U	
0.0 dBu¥/m			
30 M.M.M.M	mt mt m the second		3M Radiation Margin -6 dB 5 5 5 5 5 5 4 4 4 4 4 4 4 4 4 4 4 4 4
0 30.000 40 50	60 70 80 (MHz)	300 400 500	600 700 1000.0

N	lo. M	k. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		224.5192	52.93	-18.60	34.33	46.00	-11.67	QP
2		321.0607	51.75	-15.52	36.23	46.00	-9.77	QP
3		385.2805	50.96	-12.95	38.01	46.00	-7.99	QP
4	!	449.5557	52.64	-11.99	40.65	46.00	-5.35	QP
5	*	642.8613	49.81	-8.18	41.63	46.00	-4.37	QP
6		869.1301	42.79	-4.79	38.00	46.00	-8.00	QP

\*:Maximum data x:Over limit !:over margin



Temperature:	<b>25</b> ℃			Relative H	umidity:	55%	
Test Voltage:	AC 120	0V/60Hz		(Do)	20		NO.
Ant. Pol.	Vertica				-0	2.2	
Test Mode:	TX GF	SK Mode 2	403.5MHz	2	100		57
Remark:	Only w	orse case i	s reported	Cali		10	MAR A
80.0 dBuV/m							
30	m. hr.				(RF)FCC 15C	3M Radiation Margin -6 6	
	- norma M	NW W	MU MM10				
-20 30.000 40 50	0 60 70	80	(MHz)	300	400 500	600 700	1000.000
30.000 40 50		80 Reading Level	(MHz) Correct Factor	300 Measure- ment	400 500 Limit	600 700 Over	1000.000
30.000 40 50		Reading	Correct	Measure-			1000.000
30.000 40 50 No. Mk. F	req.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
30.000 40 50 No. Mk. F 1 128	Freq.	Reading Level	Correct Factor	Measure- ment dBuV/m	<b>Limit</b> dBuV/m	<b>Over</b>	Detecto
30.000 40 50 No. Mk. F 1 128 2 149	Freq. MHz 3.1130	Reading Level dBuV 56.80	Correct Factor dB/m -22.41	Measure- ment dBuV/m 34.39	Limit dBuV/m 43.50	Ov er dB -9.11	Detecto QP
No. Mk. F 1 128 2 149 3 385	Freq. MHz 3.1130 0.4857	Reading Level dBuV 56.80 55.80	Correct Factor dB/m -22.41 -21.49	Measure- ment dBuV/m 34.39 34.31	Limit dBuV/m 43.50 43.50	Over dB -9.11 -9.19	Detecto QP QP

40.23

46.00

-5.77

QP

\*:Maximum data x:Over limit !:over margin

642.8613

6

Į.

Emission Level= Read Level+ Correct Factor

48.41

-8.18

#### Above 1GHz (Only worse case is reported)

Temperature:	<b>25°</b> ℃			Relative H	lumidity:	55%	
Test Voltage:	AC 1	20V/60Hz	10 0	1100	30		CO R
Ant. Pol.	Horiz	zontal			-0		
Test Mode:	TX C	FSK Mode	2403.5MHz		1 10		2
Remark:		eport for the cribed limit.	emission w	hich more th	an 10 dB b	elow the	
No. Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB [	Detector
1 48	07.384	41.30	14.43	55.73	74.00	-18.27	peak
			14.43		54.00	-12.04	AVG



Temperate	ure:	<b>25</b> ℃		~ 5	<b>Relative Hur</b>	nidity:	55%		
Test Volta	ge:	AC 1	20V/60Hz	20	100	50	-	MAR.	
Ant. Pol.		Verti	cal			-6	2.2	-	
Test Mode	<b>e</b> :	TX G	X GFSK Mode 2403.5MHz						
Remark:			eport for the cribed limit.	emission v	vhich more th	an 10 dB t	pelow the	and the	
No. Mł	κ. Fre	eq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MH	z	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	
1	4807.	106	41.66	14.42	56.08	74.00	-17.92	2 peak	
2 *	4807.	262	28.01	14.42	42.43	54.00	-11.57	AVG	



Temperatu	re:	<b>25°</b> ℃			<b>Relative Hu</b>	midity:	55%	N.	3
Test Voltag	je:	AC 1	20V/60Hz		1100	100	-	1	000
Ant. Pol.		Horiz	zontal		AL P	-6	00		
Test Mode	:	TX C	X GFSK Mode 2439.5MHz						
Remark:			eport for the cribed limit.	emission v	which more th	nan 10 dB	below th	ne	and a second
No. Mk.	Fre	q.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MH	Z	dBuV	dB/m	dBuV/m	dBuV/m	dB	Det	ector
1	4879.0	004	41.62	14.91	56.53	74.00	-17.	47	peak
2 *	4879.0	004	28.10	14.91	43.01	54.00	-10.	99	AVG



Temperature:	<b>25</b> ℃		Relative	Humidity:	55%	-		
Test Voltage:	AC 120V/60H	z	100	122		MAR		
Ant. Pol.	Vertical			-0	20	-		
Test Mode:	TX GFSK Mod	X GFSK Mode 2439.5MHz						
Remark:	No report for t prescribed lim		vhich more th	nan 10 dB t	pelow the	e		
No. Mk.	Reading Freq. Level	g Correct Factor	Measure- ment	Limit	Over			
	MHz dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector		
1 48	78.970 41.5	5 14.91	56.46	74.00	-17.5	4 peak		
2 * 48	78.918 28.0	6 14.91	42.97	54.00	-11.0	3 AVG		



Temperature:	<b>25</b> ℃	11	Relative H	lumidity:	55%	200		
Test Voltage:	AC 120V/60Hz		1100	10	2	RUP		
Ant. Pol.	Horizontal	lorizontal						
Test Mode:	TX GFSK Mode 2	X GFSK Mode 2468MHz						
Remark:	No report for the prescribed limit.	emission w	hich more the	an 10 dB b	elow the			
No. Mk. Fre	Reading eq. Le∨el	Correct Factor	Measure- ment	Limit	O∨er			
MH	lz dBuV	dB/m	dBuV/m	dBu V/m	dB	Detector		
1 4936.	276 40.13	15.17	55.30	74.00	-18.70	peak		
2 * 4936.	276 30.30	15.17	45.47	54.00	-8.53	AVG		



Temperatu	ire:	<b>25</b> ℃			Relative Hu	umidity:	55%	
Test Voltag	ge:	AC 1	20V/60Hz		1100	50		<b>U</b> UP
Ant. Pol.		Verti	/ertical					
Test Mode	:	TX G	TX GFSK Mode 2468MHz					
Remark:			eport for the cribed limit.	emission w	hich more th	an 10 dB t	pelow the	U.S.
No. Mk	. Fre	∋q.	Reading Le∨el	Correct Factor	Measure- ment	Limit	O∨er	
	MH	łz	dBuV	dB/m	dBuV/m	dBu V/m	dB	Detector
1 *	4936.	030	30.75	15.17	45.92	54.00	-8.08	AVG
2	4936.	930	42.05	15.18	57.23	74.00	-16.77	peak



#### **Conducted Emission Test Data**

Temperature:	<b>25</b> ℃	Relative Humidity:	55%				
Test Voltage:	AC 120V/60Hz						
Test Mode:	TX GFSK Mode	TX GFSK Mode					
Remark:	Remark: This report only shall the worst case mode.						
	2403.5	MHz					

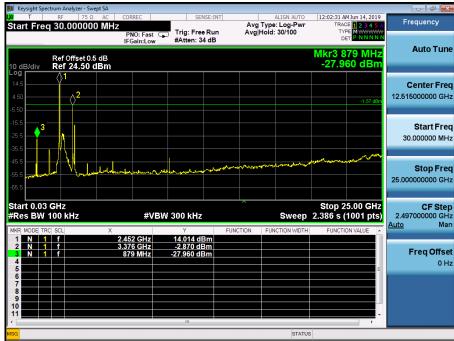
#### 0.03GHz-25GHz



Keysight Spe	RF <b>q 30.00</b>	75 Ω AC	CORREC Z PNO: Fast		Run	Avg Typ Avg Hold	ALIGN AUTO e: Log-Pwr d: 44/100	TRAC	MJun 13, 2019 E 1 2 3 4 5 6 E MWWWWW	Frequency
10 dB/div		Ref Offset 0.5 dB Ref 22.50 dBm			#Atten: 32 dB				79 MHz 20 dBm	Auto Tu
12.5 2.50		2							-1.36 dBm	<b>Center Fr</b> 12.515000000 G
-17.5 -27.5 -37.5										Start Fr 30.000000 M
-47.5 -67.5		- Indraw	- Hongerougely	~ han and a second	and a state of the second	يور العراجي مع العالي المانية المانية			Lange And Call	<b>Stop Fr</b> 25.000000000 G
Start 0.03 GHz       Stop 25.00 GHz         Res BW 100 kHz       #VBW 300 kHz       Sweep       2.386 s (1001 pts)         WRR MODE TRCI SCLI       X       Y       FUNCTION       FUNCTION WIDTH       FUNCTION VALUE									CF St 2.497000000 G <u>Auto</u> M	
1 N 1 2 N 1 3 N 1 4 5	f f		2.404 GHz 3.376 GHz 879 MHz	16.064 dE -3.122 dE -28.420 dE	3m 3m					Freq Offs 0
6 7 8 9 10										
				ш			STATU	3	- F	

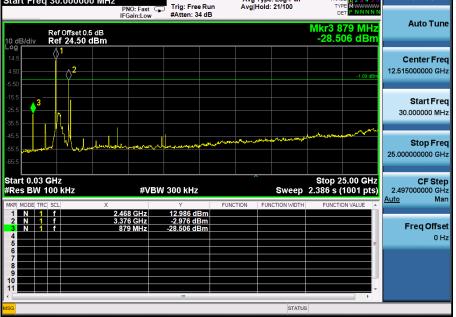












# **Attachment C-- Restricted Bands Requirement Test Data**

Temperatu	<b>ire: 25°</b> C			Relative	e Humidity:	55%		
Test Voltag	ge: AC 1	20V/60Hz	1177	30				
Ant. Pol.	Horiz	zontal		100	30			
Test Mode	: TX 0	TX GFSK Mode 2403.5MHz						
Remark:	Only	worse case	e is reporte	d	aue			
100.0 dBuV/m								
50						ART 15C (PE) PART 15C (A) 1 X 2 X	$\Lambda$	
10.0	8.50 2328.50	2338.50 234	18.50 2358.50	2368.50	2378.50 2388.5	50	2408.50	
2308.500 231	8.50 2328.50	2338.50 234	18.50 2358.50	2368.50	2378.50 2388.5	U	2408.5	
No. Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB [	Detecto	
1	2390.000	43.13	2.82	45.95	74.00	-28.05	pea	
2	2390.000	29.96	2.82	32.78	54.00	-21.22	AV	
2	2000.000	20.00	2.02	02.10	04.00	~		

Emission Level= Read Level+ Correct Factor

83.80

2.87

86.67

Х

4

2403.500

1

**Fundamental Frequency** 



Temperature:	<b>25</b> ℃	Relative Humidity:	55%
Fest Voltage:	AC 120V/60Hz		~ ~
Ant. Pol.	Vertical		
Test Mode:	TX GFSK Mode 240	03.5MHz	
Remark:	Only worse case is	reported	2 134
100.0 dBuV/m			
			4 ×
			3
		(RF) FCC P	PART 15C (PEAK)
		(RF) FCC	PART 15C (AVG)
50			1
			× / /
			2 X
10.0			

No	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	40.00	2.82	42.82	74.00	-31.18	3 peak
2		2390.000	30.01	2.82	32.83	54.00	-21.17	7 AVG
3	*	2403.200	78.23	2.87	81.10	Fundamental	Frequency	AVG
4	Х	2403.400	91.06	2.87	93.93	Fundamenta	Frequency	peak

Emission Level= Read Level+ Correct Factor



Temperature:	<b>25</b> ℃	55%					
Test Voltage:	AC 120V/60Hz						
Ant. Pol.	Horizontal	Horizontal					
Test Mode:	TX GFSK Mode 2468 MHz		100				
Remark:	Only worse case is reported	AUL					
70 2 X 1 X 70 70	3 **	FCC PART 15 3M Radie FCC PART 15 3M Rad					
20.0							

No.	Mk	. Freq.	Reading Le∨el	Correct Factor	Measure- ment	Limit	O∨er	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	Х	2468.000	92.26	2.00	94.26	Fundamenta	I Frequency	AVG
2	*	2468.480	113.02	2.00	115.02	Fundamenta	I Frequency	peak
3		2483.500	71.80	2.10	73.90	74.00	-0.10	peak
4		2483.500	46.87	2.10	48.97	54.00	-5.03	AVG

Emission Level= Read Level+ Correct Factor

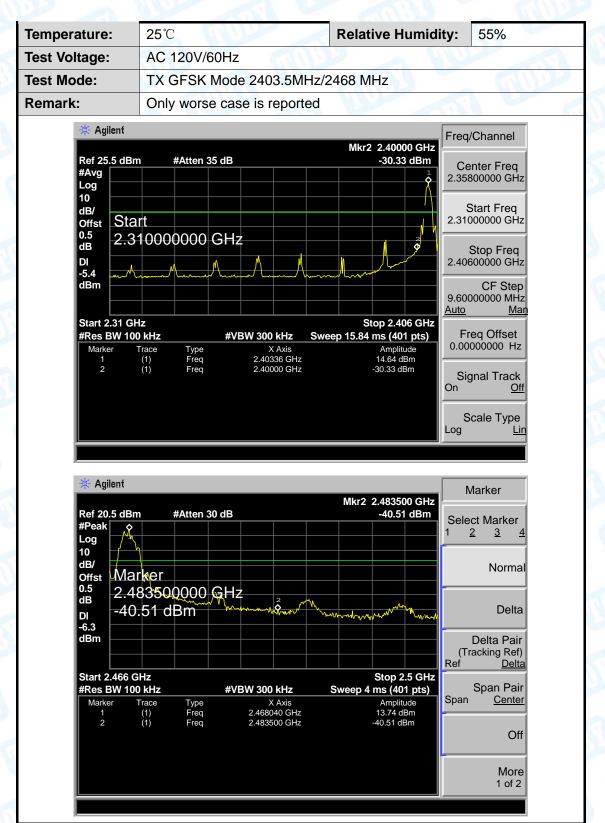


Tempe	ratu	re:	<b>25°</b> ℃			Relative	Humidity:	55%	
Fest V	oltag	e:	AC 1	20V/60Hz		1100	150	-	NU.
Ant. P	ol.		Vertic	cal			-0	2.2	
Fest M	ode:		TX G	FSK Mode	2468 MHz		a W		5
Remar	k:		Only	worse case	is reported	in a		1 61	120
		1 X	3 X			FCC P	ART 15 3M Radial	tion (PEAK)	
60	]		4 ×			FC(	CPART 15 3M Rad	iation (AVG)	
60 10.0 2456.0	00		4 ————————————————————————————————————		(MHz)	FC(	CPART 15 3M Rad	iation (AVG)	2576.000
10.0	oo Mk.	. Free	X	Reading Level	(MHz) Correct Factor	Measure- ment	Limit	iation (AVG)	2576.000
10.0		. Free MHz	 q.	-	Correct	Measure-			
10.0			<b>q</b> .	Level	Correct Factor	Measure- ment dBuV/m	Limit	Over	2576.000 Detector
10.0 2456.0 No.	Mk.	MHz	q. 2 000	<b>Level</b> dBuV	Correct Factor	Measure- ment dBuV/m 85.81	Limit dBuV/m	Over dB	Detector AVG
10.0 2456.0 No.	Mk. X	MHz 2468.0	q. z )000 180	Level dBuV 83.81	Correct Factor dB/m 2.00	Measure- ment dBuV/m 85.81	Limit dBuV/m Fundamental F	Over dB	Detector

Emission Level= Read Level+ Correct Factor



### (2) Conducted Band Edge Test





Iode: rk: Ref 20.5 dBm #Peak Log 10 dB/ Offst 0.5 2.40 dB E DI -6.9 dBm Start 2.31 GHz #Res BW 100 H	0000000 GHz 7 dBm 4 z wtz xez Type	is reported		Marker Select Marker <u>2 3 4</u> Marker Trace <u>uto 1 2 3</u> Readout , Frequency Function , Off
K:       Ref 20.5 dBm       #Peak       Log       10       dB/       Offst       0.5       2.40       DI       -6.9       dBm       Start 2.31 GHz       #Res BW 100 Train       Marker       1	Only worse case #Atten 30 dB cer 00000000 GHz 7 dBm 4Hz #VBW ace Type	is reported		Select Marker <u>2</u> <u>3</u> <u>4</u> Marker Trace <u>uto</u> <u>1</u> <u>2</u> <u>3</u> Readout Frequency Function
Agilent       Ref 20.5 dBm       #Peak       Log       10       dB/       Offst       0.5       dB       DI       -6.9       dBm       Start 2.31 GHz       #Res BW 1000       Marker       Tract	#Atten 30 dB			Select Marker <u>2</u> <u>3</u> <u>4</u> Marker Trace <u>uto</u> <u>1</u> <u>2</u> <u>3</u> Readout Frequency Function
Ref 20.5 dBm #Peak Log 10 dB/ Offst 0.5 dB 2.40 -6.9 dBm Start 2.31 GHz #Res BW 100 Transformed Marker Transformed 1	ser 0000000 GHz 7 dBm M stlz xtlz xtlz xtlz xtlz xtlz xtlz xtlz x			Select Marker <u>2</u> <u>3</u> <u>4</u> Marker Trace <u>uto</u> <u>1</u> <u>2</u> <u>3</u> Readout Frequency Function
#Peak Log 10 dB/ Offst 0.5 dB DI -6.9 dBm Start 2.31 GHz #Res BW 100 Hz	ser 0000000 GHz 7 dBm M stlz xtlz xtlz xtlz xtlz xtlz xtlz xtlz x			Select Marker <u>2</u> <u>3</u> <u>4</u> Marker Trace <u>uto</u> <u>1</u> <u>2</u> <u>3</u> Readout Frequency Function
#Peak Log 10 dB/ Offst 0.5 dB DI -6.9 dBm Start 2.31 GHz #Res BW 100 Hz	ser 0000000 GHz 7 dBm M stlz xtlz xtlz xtlz xtlz xtlz xtlz xtlz x			2 <u>3</u> 4 Marker Trace <u>uto<u>1</u>2<u>3</u> Readout Frequency Function</u>
		X Axis 2.40653 GHz 2.40000 GHz	p 10.15 ms (401 pts) Amplitude 13.12 dBm -27.57 dBm	Marker Table <u>n Off</u> Marker All Off
Agilent				More 2 of 2
Ref 20.5 dBm	#Atten 30 dB		Mkr2 2.483500 GHz -42.79 dBm	
DI -7.4 dBm Start 2.466 GH #Res BW 100 P	6000000 GHz z cHz #VBW ace Type		Stop 2.5 GHz Stop 2.5 GHz Stop 4 ms (401 pts)	Center Freq 2.48300000 GHz Start Freq 2.46600000 GHz Stop Freq 2.50000000 GHz CF Step 3.40000000 MHz uto Mar Freq Offset 0.00000000 Hz

# **Attachment D-- Number of Hopping Channel Test Data**

Temperature:	<b>25℃</b>	Relative Humidity:	55%				
Test Voltage:	AC 120V/60Hz		33				
Test Mode:	Hopping Mode	Hopping Mode					
Remark:		al hopping frequencies up to 44 ar ing at the same time.	nd only 20				
Frequency Rang	ge Test Mode	Quantity of Hopping Channel	Limit				
2403.5MHz~2468 z	MH GFSK	GFSK 44 >15					
GFSK Mode							

🔆 Agilent Marker Mkr1 2.40313 GHz Ref 20.5 dBm #Atten 30 dB 15.2 dBm Select Marker #Peak Ô 8 1 <u>2</u> <u>3</u> <u>4</u> Log 10 dB/ Normal Marker  $\sim$ Offst 2.403131250 GHz 0.5 dB 15.2 dBm Delta Delta Pair (Tracking Ref) f <u>Delta</u> Ref Start 2.4 GHz Stop 2.483 GHz Span Pair #Res BW 100 kHz #VBW 300 kHz Sweep 8.651 ms (401 pts) Amplitude 15.2 dBm Span <u>Center</u> X Axis 2.40313 GHz Marker Trace Type Freq (1) (1) 2.46847 GHz 2 Freq 15.95 dBm Off More 1 of 2

## Attachment E-- Average Time of Occupancy Test Data

Temperature: 25°			С	<u>al</u> -	Relative Humidity	: 55%	MU.	
Test Vo	ltage:	AC	AC 120V/60Hz					
Test Mo	de:	Hop	Hopping Mode (GFSK)					
<b>Remark:</b> The number of total hopping frequencies up to 44 and only 20 cha will hopping at the same time. We test all mode and worse case re in the report.								
Test Mode	Chan (MH:	-	Reading Time (ms)	Total hops	Test Result (ms)	Limit (ms)	Result	
GFSK	. ,		3.78	100.00	378	400	PASS	

The Dwell Time = Burst Width \* Total Hops. The detailed calculations are showed as follows:

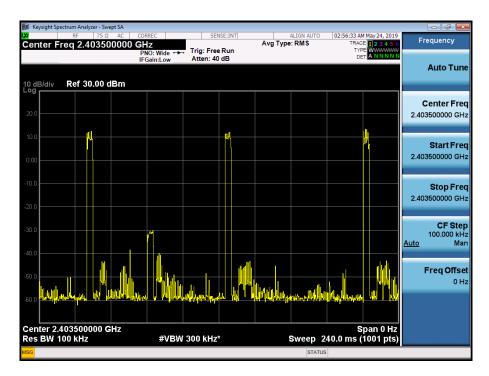
The duration for dwell time calculation: 0.4 [s] \* hopping number = 0.4 [s] \* 20 [ch] = 8.0 [s\*ch];

The burst width, which is directly measured, refers to the duration on one channel hop.

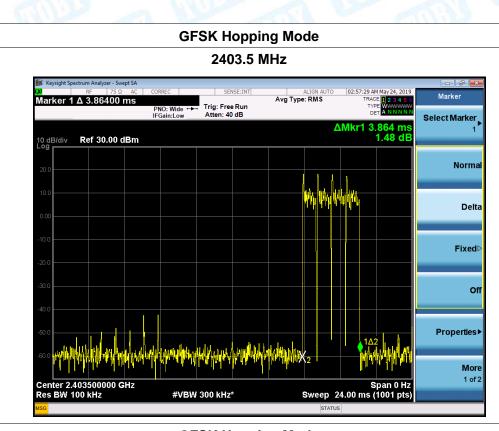
The maximum number of hopping channels in  $8.0s = 3^{*}(8.0/0.24) = 100$ 

Reading Time=0.945ms\*4

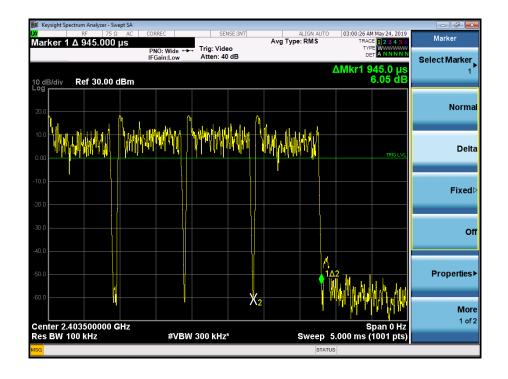
### **GFSK Hopping Mode**







#### **GFSK Hopping Mode**



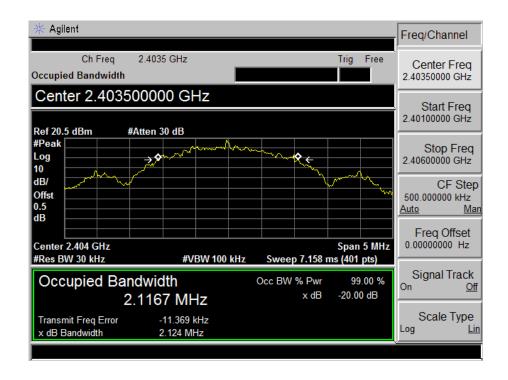


# **Attachment F-- Channel Separation and Bandwidth Test**

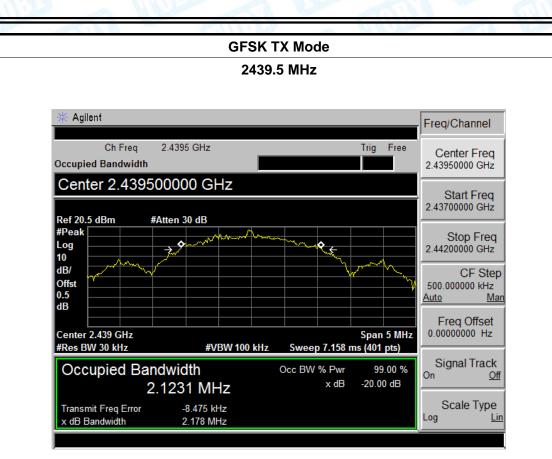
### Data

#### Bandwidth Test Data:

	acar			
Temperature: 25°C			Relative Humidity:	55%
Test Voltage:	AC	120V/60Hz		
Test Mode:	ТΧ	Mode (GFSK)		
Channel frequency (MHz)		99% OBW (kHz)	20dB Bandwidth (kHz)	20dB Bandwidth *2/3 (kHz)
2403.5		2116.7	2124	
2439.5		2123.1	2178	
2468.0 2133.7			2189	
		GFSK TX	Mode	

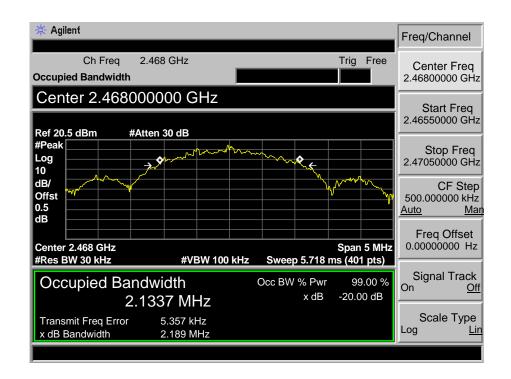






#### **GFSK TX Mode**

#### 2468 MHz





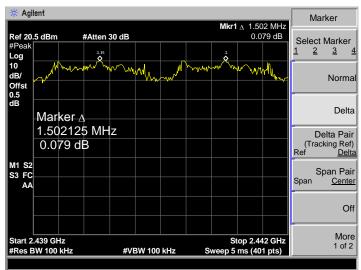
#### **Channel Separation Test data:**

eoparation reet a						
Temperature:25°C			<b>Relative Humidity</b>	: 55%		
Test Voltage: AC 120V/60Hz						
Test Mode:	Hopping I	Hopping Mode (GFSK)				
Remark:	We test a	ll channel and wor	se case recorded in	the report.		
Channel frequ	uency	Separation Read Value		eparation Limit		
(MHz)		(kHz)		(kHz)		
2403.5	2403.5			1416.00		
2439.5		1502		1452.00		
2468.0	2468.0			1459.33		

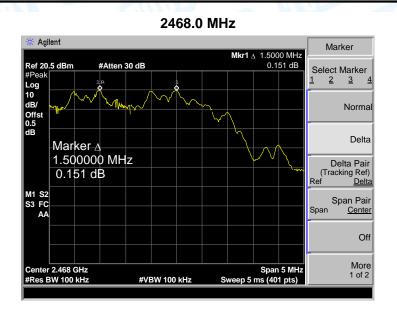
#### **GFSK Hopping Mode**



2439.5 MHz





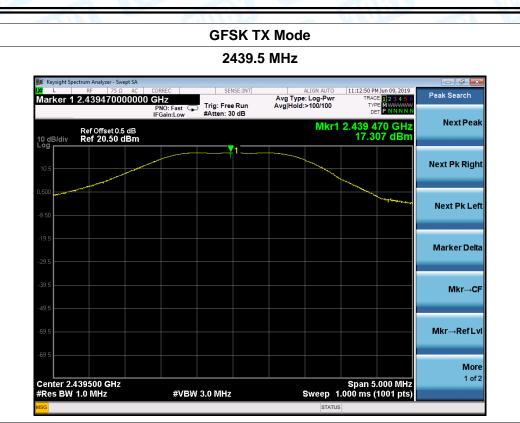


# Attachment G-- Peak Output Power Test Data

Temperature:	<b>25</b> ℃		<b>Relative Humidity:</b>	55%	
Test Voltage:	R.				
Test Mode:	TX Mode				
Channel frequen	cy (MHz)	Test Result	(dBm) L	.imit (dBm)	
2403.5		17.338	3		
2439.5		17.307	,	21	
2468.0		17.239			
		GFSK TX I	lode		

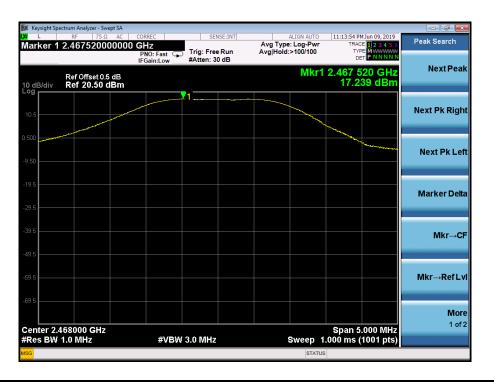






### GFSK TX Mode

2468.0 MHz



-----END OF REPORT-----