



FCC ID: 2AVMS-405061 Report No.: T191218D03-RP1 Page: 1 / 60 Rev.: 01

# RADIO TEST REPORT FCC 47 CFR PART 15 SUBPART C

Test Standard	FCC Part 15.247
Product name	Harvey Surgical Assistant Navigation Unit
Brand Name	OrthAlign precision · technology · simplified
Model No.	405061
Test Result	Pass
Statements of Conformity	Determination of compliance is based on the results of the compliance measurement, not taking into account measurement

instrumentation uncertainty. The test Result was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were given in ANSI C63.10: 2013 and compliance standards.

The test results of this report relate only to the tested sample (EUT) identified in this report.

The test Report of full or partial shall not copy. Without written approval of Compliance Certification Services Inc.(Wugu Laboratory)

Approved by:

Komil Ismi

Kevin Tsai Deputy Manager

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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# **Revision History**

Rev.	Issue Date	Revisions	Page	Revised By
00	February 04, 2020	Initial Issue	ALL	May Lin
01	February 13, 2020	See the following Note Rev. (01)	P.24-25	May Lin

Rev (01):

1. Revised the test result and test data.



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### 1. GENERAL INFORMATION

## **1.1 EUT INFORMATION**

	OrthAlign Inc.			
Applicant	120 Columbia, Suite 500 Aliso Viejo, CA 92656 USA			
	OrthAlign Inc.			
Manufacturer	120 Columbia, Suite 500 Aliso Viejo, CA 92656 USA			
Equipment	Harvey Surgical Assistant Navigation Unit			
Model No.	405061			
Model Discrepancy	N/A			
Trade Name	orthAlign precision · technology · simplified			
Received Date	December 18, 2019			
Date of Test	January 02 ~ 10, 2020			
Output Power (W)	GFSK : 0.0134 8DPSK : 0.0077			
	Power from Rechargeable Li-polymer Battery–alternate			
Power Supply	Brand name: Energizer			
	Model name: Ultimate Lithium			
	Rating: 4.5V/ 9000mAh			



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### **1.2 INFORMATION ABOUT THE FHSS CHARACTERISTICS**

#### **1.2.1 Pseudorandom Frequency Hopping Sequence**

The channel is represented by a pseudo-random hopping sequence hopping through the 79 RF channels. The hopping sequence is unique for the piconet and is determined by the Bluetooth device address of the master; the phase in the hopping sequence is determined by the Bluetooth clock of the master. The channel is divided into time slots where each slot corresponds to an RF hop frequency. Consecutive hops correspond to different RF hop frequencies. The nominal hop rate is 1 600 hops/s.

#### 1.2.2 Equal Hopping Frequency Use

The channels of this system will be used equally over the long-term distribution of the hopsets.

#### **1.2.3 Example of a 79 hopping sequence in data mode:**

02, 05, 31, 24, 20, 10, 43, 36, 30, 23, 40, 06, 21, 50, 44, 09, 71, 78, 01, 13, 73, 07, 70, 72, 35, 62, 42, 11, 41, 08, 29, 60, 15, 34, 61, 58, 04, 67, 12, 22, 53, 57, 18, 27, 76, 39, 32, 17, 77, 52, 33, 56, 46, 37, 47, 64, 49, 45, 38, 69, 14, 51, 26, 79, 19, 28, 65, 75, 54, 48, 03, 25, 66, 16, 68, 74, 59, 63, 55

#### **1.2.4 System Receiver Input Bandwidth**

Each channel bandwidth is 1MHz.

The system receivers have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shift frequencies in synchronization with the transmitted signals.

#### **1.2.5 Equipment Description**

15.247(a)(1) that the Rx input bandwidths shift frequencies in synchronization with the transmitted signals.

15.247(g): In accordance with the Bluetooth Industry Standard, the system is designed to comply with all of the regulations in Section 15.247 when the transmitter is presented with a continuous data (or information) system.

15.247(h): In accordance with the Bluetooth Industry Standard, the system does not coordinate it channels selection/ hopping sequence with other frequency hopping systems for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters.



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## **1.3 EUT CHANNEL INFORMATION**

Frequency Range	2402MHz-2480MHz
Modulation Type	<ol> <li>GFSK for BDR-1Mbps</li> <li>π/4-DQPSK for EDR-2Mbps</li> <li>8DPSK for EDR-3Mbps</li> </ol>
Number of channel	79 Channels

#### Remark:

Refer as ANSI C63.10: 2013 clause 5.6.1 Table 4 test channels

Number of frequencies to be tested

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle, and 1 near bottom

### **1.4 ANTENNA INFORMATION**

Antenna Type	🛛 FPC 🗌 PCB 🗌 Dipole 🗌 Coils
Antenna Gain	Gain: 4 dBi
Antenna connector	MHF4



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## **1.5 MEASUREMENT UNCERTAINTY**

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 30M~200M	+/- 4.12
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87

#### Remark:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of *k*=2

2. ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report.

### **1.6 FACILITIES AND TEST LOCATION**

All measurement facilities used to collect the measurement data are located at

No.11, Wugong 6th Rd.,	, Wugu Dist., N	ew Taipei City 2489	1, Taiwan. (R.O.C.)

Test site	Test Engineer	Remark
AC Conduction Room	N/A	Not applicable, because EUT not connect to AC Main Source direct.
Radiation	Jerry Chang	-
RF Conducted	Dally Hong	-

**Remark:** The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.



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### **1.7 INSTRUMENT CALIBRATION**

RF Conducted Test Site					
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due
Coaxial Cable	Woken	WC12	CC001	06/28/2019	06/27/2020
Coaxial Cable	Woken	WC12	CC003	06/28/2019	06/27/2020
Power Meter	Anritsu	ML2495A	1149001	02/12/2019	02/11/2020
Power Seneor	Anritsu	MA2491A	030982	02/12/2019	02/11/2020
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	07/31/2019	07/30/2020
Software			N/A		

3M 966 Chamber Test Site						
Equipment	Manufacturer	Model	S/N	Cal Date	Cal Due	
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/26/2019	02/25/2020	
Bilog Antenna	Sunol Sciences	JB3	A030105	07/26/2019	07/25/2020	
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/26/2019	02/25/2020	
Coaxial Cable	EMCI	EMC105	190914+25111	09/20/2019	09/19/2020	
Digital Thermo- Hygro Meter	WISEWIND	1206	D07	01/30/2019	01/29/2020	
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	10/04/2019	10/03/2020	
Loop Ant	COM-POWER	AL-130	121051	03/22/2019	03/21/2020	
Pre-Amplifier	EMEC	EM330	060609	02/26/2019	02/25/2020	
Pre-Amplifier	HP	8449B	3008A00965	02/26/2019	02/25/2020	
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	05/29/2019	05/28/2020	
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R	
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R	
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R	
Software	e3 6.11-20180413					

AC Conducted Emissions Test Site						
Equipment	Equipment Manufacturer Model S/N Cal Date Cal Due					
N/A						

**Remark:** Each piece of equipment is scheduled for calibration once a year.



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### **1.8 SUPPORT AND EUT ACCESSORIES EQUIPMENT**

EUT Accessories Equipment						
No.	Equipment	Brand	Model	Series No.	FCC ID	
	N/A					

	Support Equipment						
No.         Equipment         Brand         Model         Series No.         FCC ID							
	N/A						

### **1.9 TEST METHODOLOGY AND APPLIED STANDARDS**

The test methodology, setups and results comply with all requirements in accordance with ANSI C63.10:2013, FCC Part 2, FCC Part 15.247.



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### 2. TEST SUMMERY

FCC Standard Section	Report Section	Test Item	Result
15.203	1.3	Antenna Requirement	Pass
15.207(a)	5.1	AC Conducted Emission	N/A
15.247(a)(1)	5.2	20 dB Bandwidth	-
-	5.2	Occupied Bandwidth (99%)	-
15.247(b)(1)	5.3	Output Power Measurement	Pass
15.247(a)(1)	5.4	Frequency Separation	Pass
15.247(a)(1)(iii)	5.5	Number of Hopping	Pass
15.247(d)	5.6	Conducted Band Edge	Pass
15.247(d)	5.6	Conducted Emission	Pass
15.247(a)(1)(iii)	5.7	Time of Occupancy	Pass
15.247(d)	5.8	Radiation Band Edge	Pass
15.247(d)	5.8	Radiation Spurious Emission	Pass



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### 3. DESCRIPTION OF TEST MODES

### **3.1 THE WORST MODE OF OPERATING CONDITION**

Operation mode	GFSK for BDR-1Mbps (DH5) 8DPSK for EDR-3Mbps (3DH5)
Test Channel Frequencies	GFSK for BDR-1Mbps: 1.Lowest Channel : 2402MHz 2.Middle Channel : 2441MHz 3.Highest Channel : 2480MHz 8DPSK for EDR-3Mbps: 1.Lowest Channel : 2402MHz 2.Middle Channel : 2441MHz 3.Highest Channel : 2480MHz



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### 3.2 THE WORST MODE OF MEASUREMENT

Radiated Emission Measurement Above 1G					
Test Condition	Band edge, Emission for Unwanted and Fundamental				
Power supply Mode	Power supply Mode Mode 1: EUT power by Adapter.				
Worst Mode	Mode 1 🗌 Mode 2 🗌 Mode 3 🗌 Mode 4				
Worst Position	<ul> <li>Placed in fixed position.</li> <li>Placed in fixed position at X-Plane (E2-Plane)</li> <li>Placed in fixed position at Y-Plane (E1-Plane)</li> <li>Placed in fixed position at Z-Plane (H-Plane)</li> </ul>				

Radiated Emission Measurement Below 1G					
Test Condition	Test Condition Radiated Emission Below 1G				
Power supply Mode Mode 1: EUT power by Adapter.					
Worst Mode	Worst Mode  Mode 1 Mode 2 Mode 3 Mode 4				

Remark:

1. The worst mode was record in this test report.

2. EUT pre-scanned in three axis, X, Y, Z and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report.



## 4. EUT DUTY CYCLE

Duty Cycle						
Configuration	TX ON (ms)	TX ALL (ms)	Duty Cycle (%)	Duty Factor(dB)		
BDR-1Mbps	2.95	3.76	78.46%	1.05		
EDR-3Mbps	2.93	3.72	78.76%	1.04		

BDR-1Mbps				EDR-3Mbps			
	Atten: 30 dB PNO Fast Avg Tyne i Preamp: Off Cate Off Trg: Voko IF Gain Low Sig Track: Off	og-Power 1 2 3 4 5 W W W W W P N N N N	Spectrum Analyzer 1 Swept SA 6 KEYSIGHT leads RF Cogene DC N TCO	troad Z: 50 0 Atten: 30 dB Convections Off Preamp: Off Freq Ref: Int (S) NFE: Off	PNO Fast Ang Type Log-Power 1 Gale Oft Trig Video W IF Gain Low p	2 3 4 5 6 ₩ ₩ ₩ ₩ ₩ N N N N N	
Spectrum	Ref Level 20.00 dBm	ΔMkr3 3.	1 Spectrum   4.22 dB Scale/Div 10 dB		Ref Level 20.00 dBm	ΔMkr3 3.720 m -1.94 d	
0.0 0 0.0 0 enter 2.402000000 GHz	Video BW 1.0 MHz	Δ1Δ2 Δ	100         100           100         100           100         100           300         300           300		Video BW 10 MHz	TRIC L	
is BW 1.0 MHz		Sweep 10.00 ms	s (1001 pts) Res BW 1.0 MHz			Sweep 10.00 ms (1001 )	
MODE         TRC         SCL         X           1         Δ2         1         t         (Δ)         2.95           2         F         1         t         3.67           3         Δ4         1         t         (Δ)         3.76	0 ms (Δ) Y FUNCTION 0 ms (Δ) 4.795 dB 0 ms -57.49 dBm 0 ms (Δ) 4.223 dB 0 ms (Δ) -57.49 dBm	FUNCTION WIDTH FUNCTION VAL	5 Marker Table   MODE TRC SCL  2 F 1 t (Δ)  3 Δ4 1 t (Δ)  4 F 1 t (Δ)  5 6	X 2.930 ms (Δ) 2.670 ms 3.720 ms (Δ) 2.670 ms	Y FUNCTION FUNCTION WIDTH 0.06525 dB -514 6 dbm -1.337 dB -51 45 dbm	H FUNCTION VALUE	
■ つ C <sup>al</sup> ■ ? Jan 02, 2020 10:56:27 AM			ר∎? <b>ב</b> א	Jan 02, 2020			

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### 5. TEST RESULT

## 5.1 AC POWER LINE CONDUCTED EMISSION

#### 5.1.1 Test Limit

According to §15.207(a),

Frequency Range	Limits(dBµV)		
(MHz)	Quasi-peak	Average	
0.15 to 0.50	66 to 56*	56 to 46*	
0.50 to 5	56	46	
5 to 30	60	50	

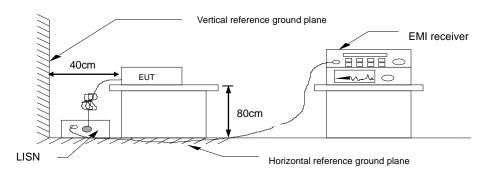
\* Decreases with the logarithm of the frequency.

#### 5.1.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 6.2,

- 1. The EUT was placed on a non-conducted table, which is 0.8m above horizontal ground plane and 0.4m above vertical ground plane.
- 2. EUT connected to the line impedance stabilization network (LISN)
- 3. Receiver set RBW of 9kHz and Detector Peak, and note as quasi-peak and average.
- 4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 5. Recorded Line for Neutral and Line.

### 5.1.3 Test Setup



### 5.1.4 Test Result

Not applicable, because EUT not connect to AC Main Source direct.



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## 5.220dB BANDWIDTH AND OCCUPIED BANDWIDTH (99%)

### 5.2.1 Test Limit

According to §15.247(a) (1),

**<u>20 dB Bandwidth</u>** : For reporting purposes only.

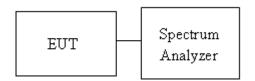
**Occupied Bandwidth(99%)** : For reporting purposes only.

#### 5.2.2 Test Procedure

Test method Refer as Section 8.1 and ANSI C63.10: 2013 clause 7.8.7,

- 1. The EUT RF output connected to the spectrum analyzer by RF cable.
- 2. Setting maximum power transmit of EUT
- 3. SA set RBW =30kHz, VBW = 100kHz and Detector = Peak, to measurement 20dB Bandwidth.
- 4. SA set RBW = 1% ~ 5% OBW, VBW = three times the RBW and Detector = Peak, to measurement 99% Bandwidth.
- 5. Measure and record the result of 20 dB Bandwidth and 99% Bandwidth. in the test report.

#### 5.2.3 Test Setup





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#### 5.2.4 Test Result

Test mode: GFSK_BDR-1Mbps mode / 2402-2480 MHz						
Channel	Frequency (MHz)	OBW(99%) (MHz)	20dB BW (MHz)			
Low	2402	0.89833	0.9231			
Mid	2441	0.89953	0.9229			
High	2480	0.90078	0.9224			

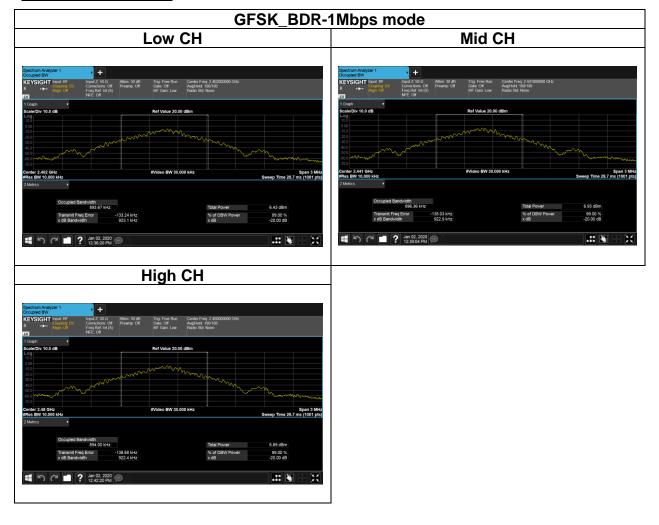
Test mode: 8DPSK_EDR-3Mbps mode / 2402-2480 MHz						
Channel	Frequency (MHz)	OBW(99%) (MHz)	20dB BW (MHz)			
Low	2402	1.1853	1.26			
Mid	2441	1.1836	1.262			
High	2480	1.1801	1.26			



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### <u>Test Data</u>

#### 20 dB Bandwidth





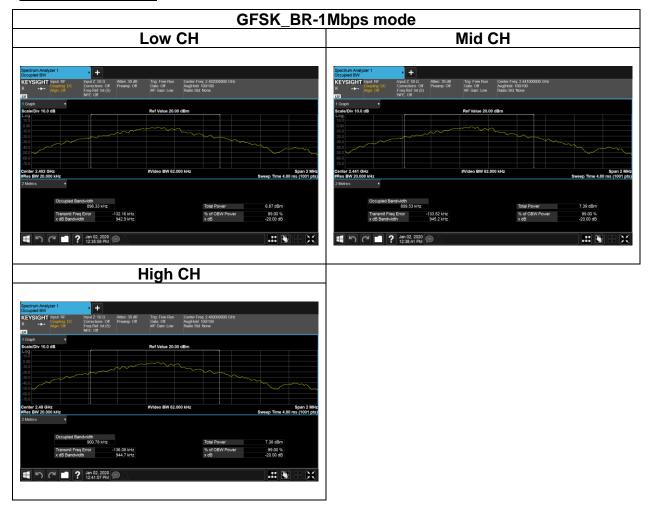
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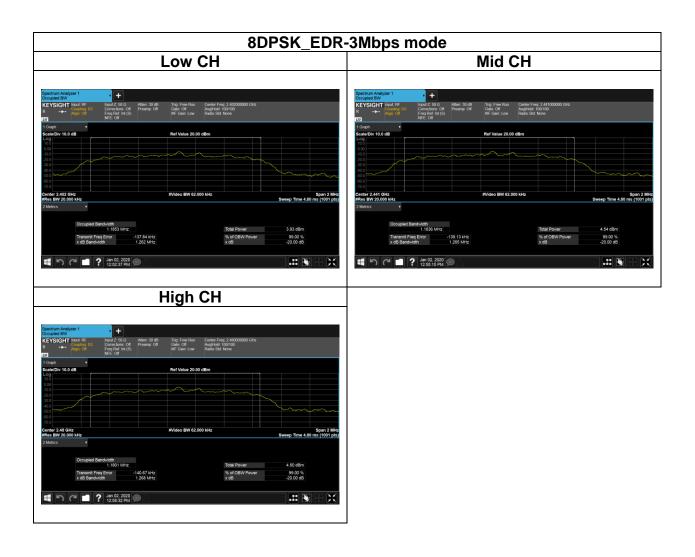


#### 99% Bandwidth





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## 5.3 OUTPUT POWER MEASUREMENT

### 5.3.1 Test Limit

According to §15.247(b)(1).

#### Peak output power :

#### FCC

Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

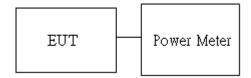
	Antenna not exceed 6 dBi : 21dBm
Limit	Antenna with DG greater than 6 dBi : 21dBm
	[Limit = 30 - (DG - 6)]

Average output power : For reporting purposes only.

#### 5.3.2 Test Procedure

- 1. The EUT RF output connected to the power meter by RF cable.
- 2. Setting maximum power transmit of EUT.
- 3. The path loss was compensated to the results for each measurement.
- 4. Measure and record the result of Peak output power and Average output power. in the test report.

#### 5.3.3 Test Setup





### 5.3.4 Test Result

#### Peak output power :

BT							
Config.	СН	Freq. (MHz)	PK Power (dBm)	PK Power (W)	Limit (dBm)		
GFSK	0	2402	10.9	0.0123			
BR-1Mbps	39	2441	11.28	0.0134			
(DH5)	78	2480	11.27	0.0134	21		
8DPSK	0	2402	8.48	0.0070	21		
EDR- 3Mbps	39	2441	8.88	0.0077			
(DH5)	78	2480	8.82	0.0076			

#### Average output power :

BT						
Config.	СН	Freq. (MHz)	AV Power (dBm)			
GFSK BR-1Mbps (DH5)	0	2402	10.69			
	39	2441	11.08			
	78	2480	11.08			
8DPSK	0	2402	8.24			
EDR- 3Mbps	39	2441	8.62			
(DH5)	78	2480	8.57			

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## 5.4 FREQUENCY SEPARATION

### 5.4.1 Test Limit

According to §15.247(a)(1),

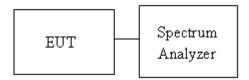
Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

Limit	> two-thirds of the 20 dB bandwidth

#### 5.4.2 Test Procedure

- 1. Place the EUT on the table and set it in transmitting mode.
- 2. EUT RF output port connected to the SA by RF cable.
- 3. Set the spectrum analyzer as RBW = 100kHz, VBW = 300kHz, Sweep = auto. Max hold, mark 3 peaks of hopping channel and record the 3 peaks frequency

#### 5.4.3 Test Setup





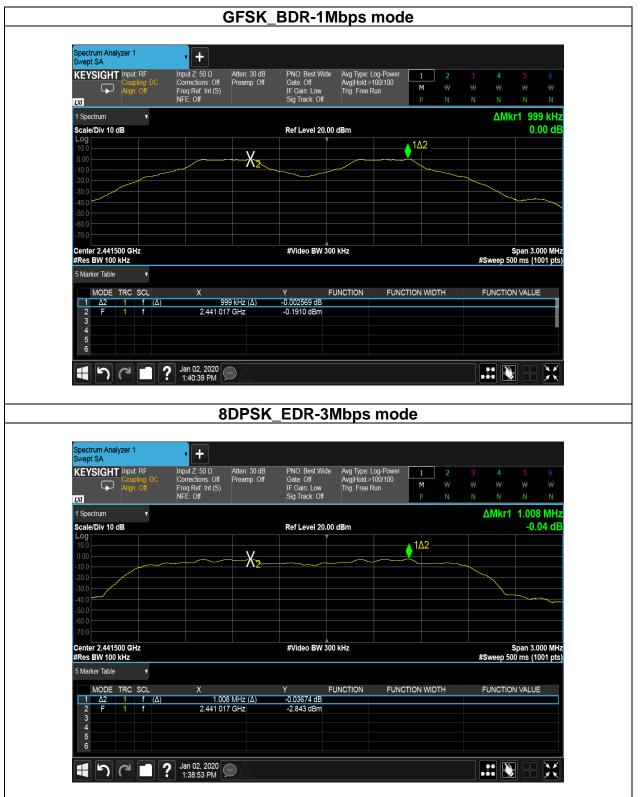
#### 5.4.4 Test Result

Test mode: GFSK_BDR-1Mbps mode / 2402-2480 MHz						
Channel	hel Frequency (MHz) Channel Separation (MHz) (MHz) (MHz) Result					
Low	2402	0.9990	0.789	PASS		
Mid	2441	0.9990	0.787	PASS		
High	2480	0.9990	0.784	PASS		

Test mode: 8DPSK_EDR-3Mbps mode / 2402-2480 MHz						
Channel	el Frequency (MHz) Channel Channel Separation (MHz) (MHz) (MHz) Result					
Low	2402	1.0080	0.596	PASS		
Mid	2441	1.0080	0.598	PASS		
High	2480	1.0080	0.596	PASS		



### Test Data



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5.5 NUMBER OF HOPPING

#### 5.5.1 Test Limit

According to §15.247(a)(1)(iii)

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

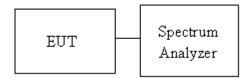
#### 5.5.2 Test Procedure

Test method Refer as ANSI C63.10: 2013 clause 7.8.3

1. Place the EUT on the table and set it in transmitting mode.

- 2. EUT RF output port connected to the SA by RF cable.
- 3. Set spectrum analyzer Start Freq. = 2400 MHz, Stop Freq. = 2483.5 MHz, RBW =100KHz, VBW = 300KHz.
- 4. Max hold, view and count how many channel in the band.

#### 5.5.3 Test Setup



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#### 5.5.4 Test Result

Number of Hopping						
Mode	Mode Frequency Channel (MHz) Number		Hopping Channel Number Limits	Result		
BDR-1Mbps	2402-2480	79	15	Deee		
EDR-3Mbps	2402-2480	79	15	Pass		

#### REMARK:

The frequency spectrum was broken up in to two sub-range to clearly show all of the hopping frequencies. In the AFH mode, this device operation was using 20 channels, so the requirement for minimum number of hopping channels is satisfied

### Test Data

Number of Hopping				
GFSK_BI	OR-1Mbps mode		8DPSK_EDR-3M	ops mode
ectrum Analyzer 1 apt SA EVSIGHT Input: RF EVSIGHT INF EVSIGHT INF	PNO Fast Aug Type Log-Power 1 2 Gale Cit Trig Free Run M W Say Track Cit Trig			2: Log-Power 1 2 3 4 5 6 Run W W W W W
Spectrum •	-	Ikr1 2.441 750 0 GHz 1 Spectrum -11.40 dBm Scale/Div 10 dB	•	Mkr1 2.459 869 5 GF -12.40 dB
		* Log		*
		0.00		▲1 · · · · · · · · · · · · · · · · · · ·
		20.0 Anyout	Anna ann an ann an ann an ann an ann an a	Mangallan Indane Mana and and a
		-40.0		
		-60.0 70.0		
art 2.40000 GHz	#Video BW 300 kHz	Stop 2.48350 GHz Start 2.40000 GH #Sweep 1.00 s (1001 pts) #Res BW 100 kH	tz #Video BW 300 kHz	Stop 2.48350 C
es BW 100 kHz			22 2 Jan 07, 2020 8:41:04 AM	#Sweep 1.00 s (1001 p



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## 5.6 CONDUCTED BANDEDGE AND SPURIOUS EMISSION

### 5.6.1 Test Limit

According to §15.247(d),

Limit -20 dBc

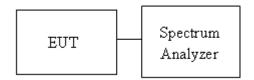
#### 5.6.2 Test Procedure

1. EUT RF output port connected to the SA by RF cable, and the path loss was compensated to result.

2. SA setting, RBW=100kHz, VBW=300kHz, Detector=Peak, Trace mode = max hold, SWT = Auto.

3. The Band Edge at 2.4GHz and 2.4835GHz are investigated with normal hopping mode.

#### 5.6.3 Test Setup





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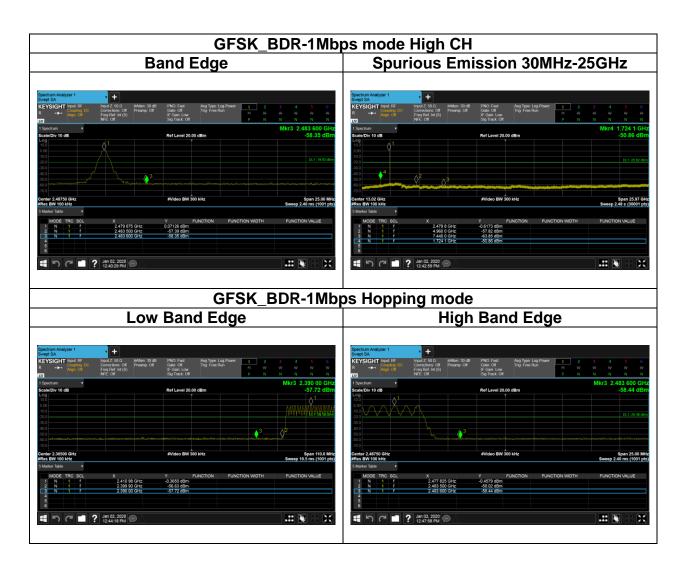
### 5.6.4 Test Result

#### Test Data

lest Data	
GFSK_BDR-1Mb	ps mode Low CH
Band Edge	Spurious Emission 30MHz-25GHz
Construit         +           KEYSIGHT Not/Ref         1 mod.75:00         #Mon.90.08         PNO Fail: Call of a NFE OF         Not N         Not N         N           1 spectrum         *         Micro 10         Phones 0.08         Software 10,0         Phones 0.08         Not N         N	Spectrum Analyzer 1         ↓           Carpit SA         Insuft Z, 200         #Atter: 30 dB         Pho Field         Ang Type Log Power         1         2         3         4         5         6           R         +++         many GB         Insuft Z, 200         #Atter: 30 dB         Pho Field         Ang Type Log Power         1         2         3         4         5         6           R         +++         many GB         Insuft Log Power         1         2         3         4         5         6           Start Start         NE Coll         NE Coll         Start Start         Ning Trau N N N N         N           1 Spectrum         NE Coll         Ref Level 20.00 dBm         -54,56 dBm
300         0	30         4         3           40         5         5           500         5         5           600         7         5           700         7         5           600         7         5           700         7         5           6         7         5           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         7           7         7         <
3         N         1         7         2.380 00 0Hz         -58.46 dbm           6         6         7         2.340 00 0Hz         -58.46 dbm           6         7         2.340 00 0Hz         -58.46 dbm           6         7         2.340 00 0Hz         -58.46 dbm           6         7         2.340 0Hz         -58.46 dbm           7         10         10         10         10	3     N     1     7.2016 0 0Hz     42.64 dbm       4     N     1     4.803 0Hz     -34.54 dbm       5     6     -     -       6     7     100 02 2000     -       11     1     12.3700 PM     -
GFSK_BDR-1Mb Spurious Emission 30MHz-25GHz	ps mode Mid CH
Spundus Emission Sown2-23GHz	
Sector 4 And/Level         Impact 56         Impact 56         Impact 56         Addres 30 dB         PMO Fait         Angl Types Log Fait         Impact 25 Cold         Addres 30 dB         PMO Fait         Angl Types Log Fait         Impact 25 Cold         Addres 30 dB         PMO Fait         Angl Types Log Fait         Impact 25 Cold         Addres 30 dB         PMO Fait         Angl Types Log Fait         Impact 25 Cold         Addres 30 dB         PMO Fait         Angl Types Log Fait         Impact 25 Cold         Addres 30 dB         PMO Fait         Angl Types Log Fait         Impact 25 Cold         Addres 30 dB         PMO Fait         Angl Types Log Fait         Impact 25 Cold         Addres 30 dB         PMO Fait         Angl Types Log Fait         Angl Type Log Fait         A	
40 00 00 00 00 00 00 00 00 00	
2 N 1 f 4820 GHz 4437 dBm 2 N 1 f 4820 GHz 4437 dBm 7 N 1 f 4820 GHz 3437 dBm 7 N 1 f 4820 GHz 3437 dBm 7 N 1 f 4820 GHz 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 1 2 3943 HJ 5 2 3437 dBm 8 G 1 3	

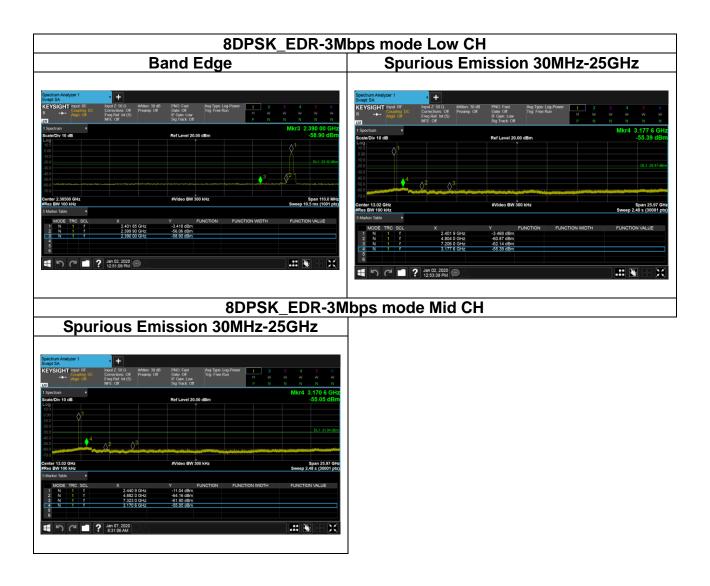


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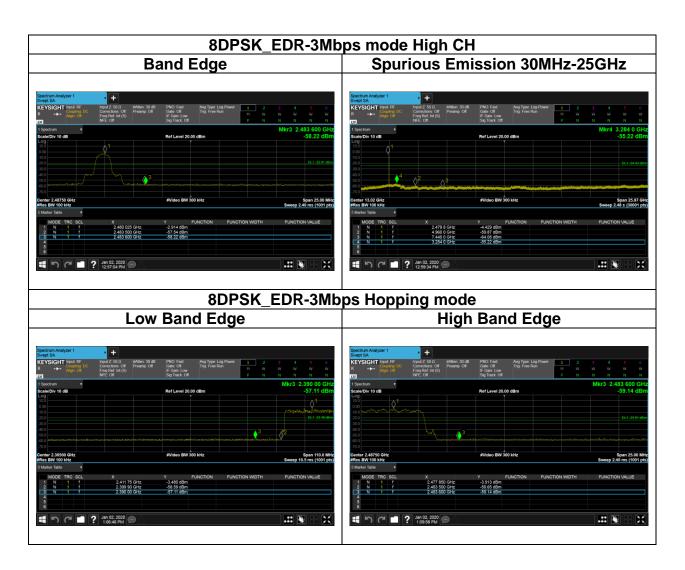




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## 5.7 TIME OF OCCUPANCY (DWELL TIME)

### 5.7.1 Test Limit

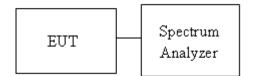
According to §15.247(a)(1)(iii),

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

#### 5.7.2 Test Procedure

- 1. EUT RF output port connected to the SA by RF cable.
- 2. Set center frequency of spectrum analyzer = operating frequency.
- 3. Set the spectrum analyzer as RBW, VBW=1MHz, Sweep = 1 ms

#### 5.7.3 Test Setup



#### 5.7.4 Test Result

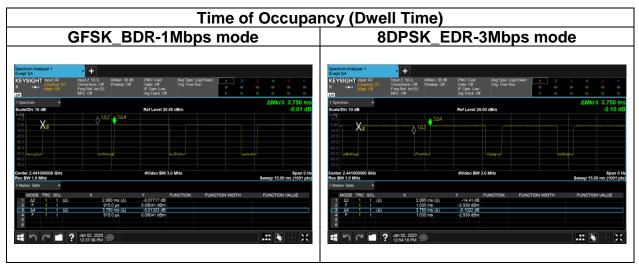
Time of Occupancy (Dwell Time)							
Mode	Frequency (MHz)	Pulse Time Per Hopping	Minimum Number of	Number of pulse in	Dwell Time IN		Result
	(	(ms)	Hopping Freq.	(0.4 * N sec)	Limits (s)		
BDR-1Mbps	2441	2.9565	79	106.67	0.3138	0.4	
EDR-3Mbps	2441	2.9565	79	106.67	0.3147	0.4	Pass
Non-AFH: DH5 Packet permit maximum 1600/ 79 / 6 = 3.37 hops per second in each channel (5 time slots RX, 1 time slot TX). So, the dwell time is the time duration of the pulse times 3.37 * 0.4 *79 = 106.6							



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### Test Data





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### 5.8 RADIATION BANDEDGE AND SPURIOUS EMISSION

#### 5.8.1 Test Limit

FCC according to §15.247(d), §15.209 and §15.205,

In any 100 kHz bandwidth outside the authorized frequency band, all harmonic and spurious must be least 20 dB below the highest emission level with the authorized frequency band. Radiation emission which fall in the restricted bands must also follow the FCC section 15.209 as below limit in table.

#### Below 30 MHz

Frequency	Field Strength (microvolts/m)	Magnetic H-Field (microamperes/m)	Measurement Distance (metres)
9-490 kHz	2,400/F (F in kHz)	2,400/F (F in kHz)	300
490-1,705 kHz	24,000/F (F in kHz)	24,000/F (F in kHz)	30
1.705-30 MHz	30	N/A	30

#### Above 30 MHz

Frequency	Field Strength microvolts/m at 3 metres (watts, e.i.r.p.)		
(MHz)	Transmitters	Receivers	
30-88	100 (3 nW)	100 (3 nW)	
88-216	150 (6.8 nW)	150 (6.8 nW)	
216-960	200 (12 nW)	200 (12 nW)	
Above 960	500 (75 nW)	500 (75 nW)	

Remark:

Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.



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#### 5.8.2 Test Procedure

1. The EUT is placed on a turntable, Above 1 GHz is 1.5m and below 1 GHz is 0.8m above ground plane. The EUT Configured un accordance with ANSI C63.10: 2013, and the EUT set in a continuous mode.

2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level. And EUT is set 3m away from the receiving antenna, which is scanned from 1m to 4m above the ground plane to find out the highest emissions. Measurement are made polarized in both the vertical and the horizontal positions with antenna.

3. Span shall wide enough to full capture the emission measured. The SA from 9kHz to 26.5GHz set to the low, Mid and High channels with the EUT transmit.

Note: No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)

4. For harmonic, the worst case of output power was BDR-1Mbps. Therefore only BDR-1Mbps record in the report.

- 5. The SA setting following :
  - (1) Below 1G : RBW = 100kHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
  - (2) Above 1G:
    - (2.1) For Peak measurement : RBW = 1MHz, VBW ≥ 3 RBW, Sweep = Auto, Detector = Peak, Trace = Max hold.
    - (2.2) For Average measurement : RBW = 1MHz, VBW

If Duty Cycle  $\geq$  98%, VBW=10Hz.

If Duty Cycle < 98%, VBW≥1/T.

#### Remark:

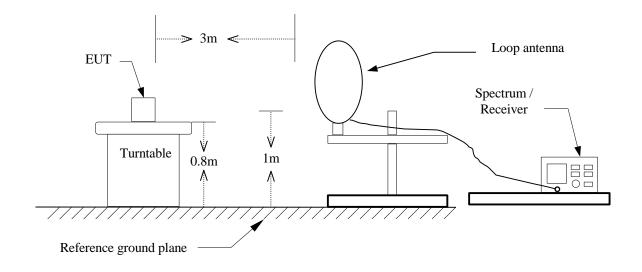
- Although these tests were performed other than open area test site, adequate comparison measurements were confirmed against 30 m open are test site. Therefore sufficient tests were made to demonstrate that the alternative site produces results that correlate with the ones of tests made in an open field based on KDB 414788.
- 2. No emission found between lowest internal used/generated frequency to 30MHz (9kHz~30MHz).



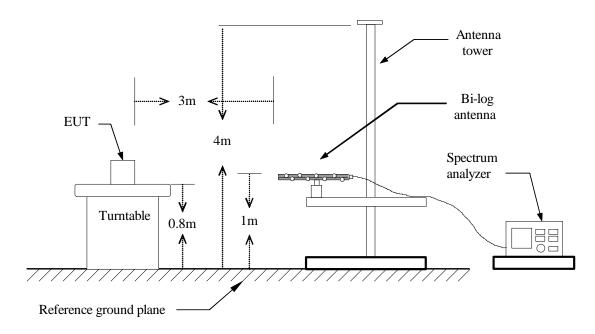
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# 5.8.3 Test Setup <u>9kHz ~ 30MHz</u>



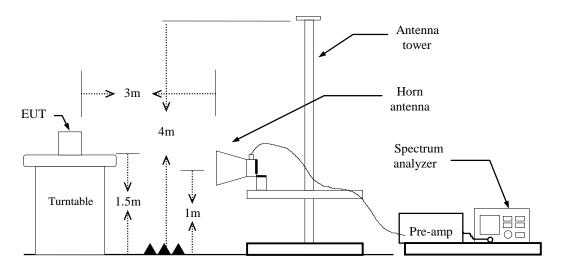
### <u>30MHz ~ 1GHz</u>





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### Above 1 GHz





## 5.8.4 Test Result

### Band Edge Test Data

Test Mode:	GF	GFSK_BR-1Mbps Low CH		ſemp/Hum	21.3(°C)/ 51%R	
Test Item		Band Edge Test Date Janua		January	/ 10, 2020	
Polarize		Vertical	Te	st Engineer	Jerry	<sup>r</sup> Chang
Detector	P	eak / Avera	ge			
130 Level (dBuV/m) 120 100 80 60	)				2	
40						         
20						
0 2310	2330.	2350.	Frequency (MHz)	2370.	2390.	2410
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
		-2.82	35.14	54.00	-18.86	Average
2390.00	37.96	-2.02				•

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Test Mode:	GF			ēmp/Hum	21.3(°C)/ 51%	
Test Item		Band Edge		Test Date		/ 10, 2020
Polarize		Vertical	Te	st Engineer	Jerry	Chang
Detector	P	eak / Avera	ge			
130 120						
100						
80						
60					2	
40						
20						
0 <mark></mark> 2310	2330.	2350.	2 Frequency (MHz)	2370.	2390.	2410
	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
Frequency (MHz)		(0.2/11)				
	38.02	-2.82	35.20	54.00	-18.80	Average



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Test Mode	G	GFSK_BR-1Mbps High CH		Temp/Hum	21.3(°C)/ 51%Rł	
Test Item		Band Edg	je	Test Date	Januar	y 10, 202
Polarize		Vertical		Test Engineer	Jerry	' Chang
Detector		Peak / Aver	age			
120 Level (dBuV/m)	)					
90						
70						
50		2				
30						
10						
0 <mark></mark> 2475	2480.	2485	Frequency (MHz)	2490.	2495.	2500
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
	27.16	-2.30	34.86	54.00	-19.14	Average
2483.50	37.16					



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Test Mode	e: G	GFSK_BR-1Mbps High CH		Temp/Hum	21.3(°C)/ 51%RF	
Test Item		Band Edg		Test Date	Januar	y 10, 202
Polarize		Vertical		Test Engineer	Jerry	<sup>,</sup> Chang
Detector		Peak / Aver	age			
120 Level (dBuV/m)	)					
110						
90						
70		2				
50						
30						
10						
0 2475	2480.	2485.	Frequency (MHz)	2490.	2495.	2500
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
- 100 <b>-</b> 0	38.96	-2.30	36.66	54.00	-17.34	Average
2483.50		1	57.26	74.00	-16.74	Peak



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Test Mode		8DPSK_EDR-3Mbps Low CH		Temp/Hum	21.3(°C)/ 51%R	
Test Item		Band Edg		Test Date	Januar	y 10, 202
Polarize		Vertical		est Engineer	Jerry	' Chang
Detector		Peak / Avera	age			
130 Level (dBuV/m)						
130 120						
100						
80						
60						
40						
20						
0 <mark></mark>	2330.	2350.	Frequency (MHz)	2370.	2390.	2410
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.00	37.82	-2.82	35.00	54.00	-19.00	Average
2390.00	51.24	-2.82	48.42	74.00	-25.58	Peak



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Test Mode	5.	8DPSK_EDR-3Mbps Low CH Band Edge		Temp/Hum	21.3(°C)/ 51%R	
Test Item	1	Band Edg		Test Date	January	/ 10, 202
Polarize		Vertical	Te	est Engineer	Jerry	Chang
Detector		Peak / Average				
130 Level (dBuV/m	<b>)</b>					
130 120	,					
100						
80						
60					2	
40						
20						
0 <mark></mark> 2310	2330.	2350.	2 Frequency (MHz)	370.	2390.	2410
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
2390.00	38.06	-2.82	35.24	54.00	-18.76	Average
2390.00	50.67	-2.82	47.85	74.00	-26.15	Peak



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Test Mode	: 8D	8DPSK_EDR-3Mbps High CH		21.3(°C	ː)/ 51%Rł	
Test Item		Band Edge		Test Date	Januar	y 10, 202
Polarize		Vertical		est Engineer	Jerry	<sup>,</sup> Chang
Detector		Peak / Aver	age			
120 Level (dBuV/m)						
110						
90						
70						
50		2				
30		1				
10						
0 2475	2480.	2485.	Frequency (MHz)	2490.	2495.	2500
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
	38.27	-2.30	35.97	54.00	-18.03	Average
2483.50		1	56.40	74.00	-17.60	Peak



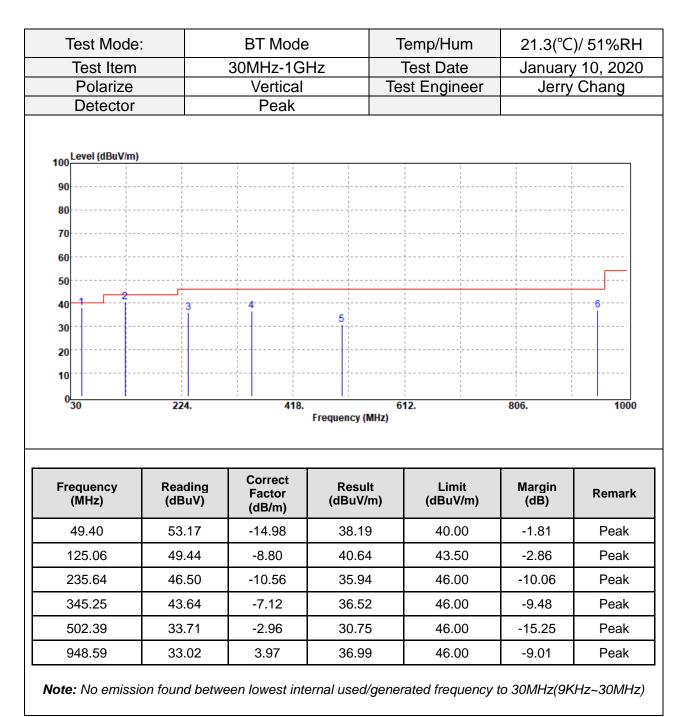
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Test Mode	: 8D	8DPSK_EDR-3Mbps High CH		Temp/Hum	21.3(°C)/ 51%RI	
Test Item		Band Edg	e	Test Date	Januar	y 10, 202
Polarize		Vertical		est Engineer	Jerry	' Chang
Detector		Peak / Aver	age			
120 Level (dBuV/m)						
110						
90						
70		2				
50						
30		1				
10						
0 2475	2480.	2485.	Frequency (MHz)	2490.	2495.	2500
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
	38.72	-2.30	36.42	54.00	-17.58	Average
2483.50					<del> </del>	Peak



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### Below 1G Test Data





Test Mode	:	BT Mode	)	Temp/Hum	21.3(°C	.)/ 51%Rl
Test Item		30MHz-1G	Hz	Test Date	Januar	y 10, 202
Polarize		Horizontal		Test Engineer	Jerry	<sup>,</sup> Chang
Detector		Peak				
100 Level (dBuV/m)						
90						
80						
70						
60						
50						
40	12		4			6
30				5		
20					     	
10						
0 <mark></mark>	224.	418.	Frequency (M	612. Hz)	806.	1000
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m		Margin (dB)	Remark
153.19	52.21	-10.09	42.12	43.50	-1.38	Peak
235.64	51.26	-10.56	40.70	46.00	-5.30	Peak
272.50	45.85	-8.49	37.36	46.00	-8.64	Peak
478.14	44.40	-2.97	41.43	46.00	-4.57	Peak
721.61	30.48	0.74	31.22	46.00	-14.78	Peak
	*	1			1	1

Note: No emission found between lowest internal used/generated frequency to 30MHz(9KHz~30MHz)



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### Above 1G Test Data

Test Mode	:	GFSK_BR-1Mbps Low CH		Temp/Hum	21.3(°C)/ 51%R	
Test Item		Harmonic		Test Date	January	/ 10, 202
Polarize		Vertical		Test Engineer		Chang
Detector		Peak				
120 Level (dBuV/m)						
110						
90						
70						
50	1					
30						
10						
0 <mark></mark>	6100.	11200.	Frequency (MHz	16300. 2)	21400.	26500
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804.00	49.65	3.56	53.21	74.00	-20.79	Peak
N/A						

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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Test Mode	e: G	FSK_BR-1N Low CH	Abps .	Temp/Hum	21.3(°C)/ 51%RH	
Test Item		Harmonio		Test Date Janua		/ 10, 202
Polarize		Horizonta	l Te	est Engineer	Jerry	Chang
Detector		Peak				
120 Level (dBuV/m)	)					
110						
90						
70						
50	-1					
30						
10	     					
0 <mark></mark>	6100.	11200	10 Frequency (MHz)	5300.	21400.	26500
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804.00	47.84	3.56	51.40	74.00	-22.60	Peak
N/A	1					

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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Test Mode	e: G	GFSK_BR-1Mbps Mid CH		Temp/Hum	21.3(°C	21.3(°C)/ 51%RI	
Test Item		Harmonio		Test Date Janua		/ 10, 202	
Polarize		Vertical		Test Engineer		Chang	
Detector		Peak					
120 Level (dBuV/m	)						
110							
90							
70							
50							
30			         				
10							
0 <mark></mark>	6100.	11200	Frequency (MHz)	16300.	21400.	26500	
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	
4882.00	48.02	3.78	51.80	74.00	-22.20	Peak	
N/A							

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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Test Mode	: G	FSK_BR-1N Mid CH	/bps 7	ēmp/Hum	21.3(°C	)/ 51%RH
Test Item		Harmonio	;	Test Date	January 10, 202	
Polarize		Horizontal		st Engineer	Jerry	Chang
Detector		Peak				
120 Level (dBuV/m)	)					
90						
70						
50	1					
30						
10						
0 <sup>L</sup> 1000	6100.	11200.	16 Frequency (MHz)	300.	21400.	26500
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
		Factor				<b>Remark</b> Peak
(MHz)	(dBuV)	Factor (dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
(MHz) 4882.00	(dBuV)	Factor (dB/m)	(dBuV/m)	(dBuV/m)	(dB)	

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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Test Mode	e: G	FSK_BR-1N High CH		Temp/Hum	21.3(°C	C)/ 51%RH
Test Item		Harmonio		Test Date	Januar	y 10, 2020
Polarize	Polarize			Test Engineer		/ Chang
Detector		Peak				
120 Level (dBuV/m	)					
110						
90						
70						
50						
30					               	1 1 1 1 1 1 1 1
10			       		       	1 1 1 1 1
0 <mark></mark>	6100.	11200		16300.	21400.	26500
			Frequency (MH	Z)		
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4960.00	47.10	4.56	51.66	74.00	-22.34	Peak
N/A						
		1	1			

emark:		•	•	

Re

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



Test Mode	: G	FSK_BR-1M High CH	lbps .	Temp/Hum	21.3(°C	)/ 51%RI
Test Item		Harmonic		Test Date	January 10, 202	
Polarize		Horizonta	l Te	est Engineer	Jerry	Chang
Detector		Peak				
120 Level (dBuV/m)						
110						
90						
70						
50	1					
30						
10						
0 <mark></mark>	6100.	11200.	10 Frequency (MHz)	5300.	21400.	26500
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4960.00	43.82	4.56	48.38	74.00	-25.62	Peak
N/A						

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.

2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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Test Mo	ode	8DPSK_EDR- Low CH		Temp/Hum	21.3(	21.3(°C)/ 51%RH	
Test Ite	em	Harmoni	с	Test Date	Janua	ary 10, 202	
Polariz	ze	Vertical Peak	-	Test Engineer	Jer	ry Chang	
Detect	Detector						
120 Level (dBu\	//m)						
110							
90							
70							
50	1						
30							
10							
0 <mark></mark> 1000	6100.	11200	Frequency (MHz)	16300.	21400.	26500	
requency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result ( BuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	
4804.00	44.79	3.56	48.35	74.00	-25.65	Peak	
4004.00							

100 1100		0.00	10.00	1 1100	20.00	i ouri
N/A						
	•	•	•	•	•	•

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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			Frequency (N	U7)			
0 <mark></mark>	6100.	1120		16300.		21400.	26500
10							
30				1			
50			     				
70							
90							
110		       					
120 Level (dBuV/	m)						
Detecto	or	Peak					
Polariz		Horizontal		Test Engi	neer	Jerry	Chang
Test Iter		Harmon		Test Da			<u>/ 10, 202</u>
		Low Ch		-		21.3(°C)/ 51%R	
Test Mo	40	8DPSK_EDR	-3ivibps	Temp/H	um	21 2/00	\/ 510/ D

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4804.00	43.42	3.56	46.98	74.00	-27.02	Peak
N/A						

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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Frequency (MHz)							
0 1000	6100.		11200.	1630	00.	21400.	26500
10					·		
30					·		
50	1				 		
70					·		
90					·		
110							
120 Level (dBuV/	m)						
Detecto	or	Pe	ak				
Polariz		Vertical		Tes	t Engineer	Je	rry Chang
Test Iter	n	Harm	nonic		Test Date		ary 10, 202
Test Mo	de		DR-3Mbps CH	' Te	emp/Hum	21.3	(°C)/ 51%R

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4882.00	43.97	3.78	47.75	74.00	-26.25	Peak
N/A						

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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Test Mode	8DPSK_EDR-3Mbp Mid CH	Temp/Hum	21.3(°C)/ 51%RI
Test Item	Harmonic	Test Date	January 10, 202
Polarize	Horizontal	Test Engineer	Jerry Chang
Detector	Peak		
120 Level (dBuV/m)			; ; ]
110			
90			
70			
501			
30			
10			
01000	5100. 11200. Freque	16300. ncy (MHz)	21400. 26500

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4882.00	41.84	3.78	45.62	74.00	-28.38	Peak
N/A						

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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		Frequen	cy (MHz)			
0 <mark>1000</mark>	6100.	11200.	16300.	21	1400.	26500
10						
40				     		
30	1					
50	1					
70						
90	       			 		
110						
120 Level (dBuV/m	1)					
Detector	r	Peak				
Polarize		Vertical	Test Engi	neer	Jerry Chang	
Test Iten		Harmonic	Test Da		January 10, 202	
Test Mod	e	DPSK_EDR-3Mbps High CH	Temp/H	um	21.3(°C)/ 51%R	

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4960.00	42.40	4.56	46.96	74.00	-27.04	Peak
N/A						

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz,the EUT peak value was under average limit, therefore the Average value compliance with the average limit



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	0100	•		cy (MHz)		211001	2000	
0	6100	 	11200.	1630	: 0.	21400.	2650	
10								
30				· · · · · · · · · · · · · · · · · · ·		 I I I	-!	
50	<sup>4</sup> <sup>1</sup>			     		 I I I		
		1					1	
70								
90								
110								
20 Level (d	IBuV/m)							
Detector		Peak						
	arize		Horizontal		Test Engineer		Jerry Chang	
	Item	Harmonic			Test Date		January 10, 202	
	Mode	8DPSK_EDR-3Mbps High CH		Te	Temp/Hum		21.3(°C)/ 51%R	

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4960.00	41.40	4.56	45.96	74.00	-28.04	Peak
N/A						

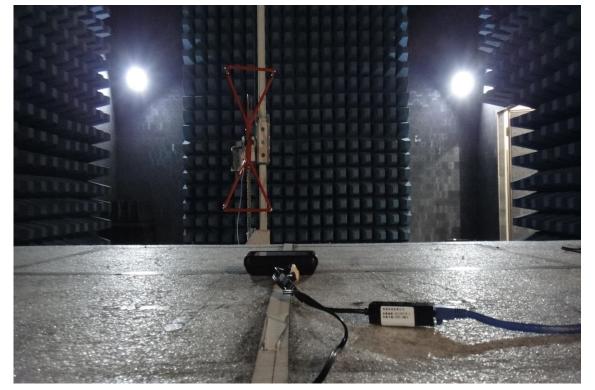
Remark:

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 2. For above 1GHz, the EUT peak value was under average limit, therefore the Average value compliance with the average limit

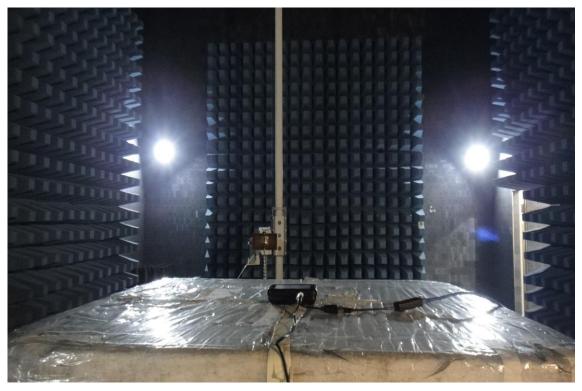
--End of Test Report--



Report No.: T191218D03-RP1 APPENDIX-A TEST PHOTO Radiation (Below 1GHz) Page: A-1 / A-2 Rev.: 01



Radiation (Above 1GHz)



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# **Conducted Emission Set Up Photo**

