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## TEST REPORT

Application No.: SZEM1708008741CR

Applicant: Flysky RC Model technology Co., Ltd

Address of Applicant: West building 3, Huangjinyuan Ind Park, Qiaoli North Gate, Changping

Town, Dongguan, China

Manufacturer: KYOSHO CORPORATION

Address of Manufacturer: 153 FunaKo Atsugi, Kanagawa 243-0034, JAPAN

Factory: Flysky RC Model technology Co., Ltd

Address of Factory: West building 3, Huangjinyuan Ind Park, Qiaoli North Gate, Changping

Town, Dongguan, China

**Equipment Under Test (EUT):** 

**EUT Name:** FPV wireless video transmission system

Model No.: 82724-01

FCC ID: N4ZUFO01FPV00

Standard(s): 47 CFR Part 15, Subpart C 15.247

**Date of Receipt:** 2017-08-21

**Date of Test:** 2017-09-09 to 2017-10-17

**Date of Issue:** 2017-10-26

Test Result: Pass\*

SERVICES CO. A TANAMAN CO. SERVICES CO. SERVICES

Jack Zhang EMC Laboratory Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards. Any mention of SGS International Electrical Approvals or testing done by SGS International Electrical Approvals in connection with, distribution or use of the product described in this report must be approved by SGS International Electrical Approvals in writing.

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<sup>\*</sup> In the configuration tested, the EUT complied with the standards specified above.



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	Revision Record						
Version	Chapter	Date	Modifier	Remark			
01		2017-10-26		Original			

Authorized for issue by:		
	1 Jombh	
	Harry Wu /Project Engineer	
	Eric Fu	
	Eric Fu /Reviewer	



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## 2 Test Summary

Radio Spectrum Technical Requirement  Item Standard Method Requirement Res							
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(c)	Pass			
Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.247(a)(1),(g),(h )	Pass			

Radio Spectrum Matter Part							
Item	Standard	Method	Requirement	Result			
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.5	47 CFR Part 15, Subpart C 15.247(b)(1)	Pass			
20dB Bandwidth	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.9	47 CFR Part 15, Subpart C 15.215	Pass			
Carrier Frequencies Separation	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.2	47 CFR Part 15, Subpart C 15.247a(1)	Pass			
Hopping Channel Number	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.3	47 CFR Part 15, Subpart C 15.247a(1)(iii)	Pass			
Dwell Time	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.4	47 CFR Part 15, Subpart C 15.247a(1)(iii)	Pass			
Conducted Band Edges Measurement	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.8	47 CFR Part 15, Subpart C 15.247(d)	Pass			
Conducted Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 7.8.6	47 CFR Part 15, Subpart C 15.247(d)	Pass			
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass			
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.4	47 CFR Part 15, Subpart C 15.209 & 15.247(d)	Pass			



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## 4 General Information

### 4.1 Details of E.U.T.

Power supply:	DC 5.0V;
Test voltage:	DC 5.0V (Power by DC Power Supply)
Modulation technique:	FHSS
Frequency Range:	2409.5MHz to 2472.5MHz
Modulation Type:	GFSK
Antenna Type:	Integral
Antenna Gain:	2 dBi

### Channel List(MHz):

2409.5	2413	2416.5	2420	2423.5	2427	2430.5	2434	2437.5	2441
2444.5	2448	2451.5	2455	2458.5	2462	2465.5	2469	2472.5	

## 4.2 Description of Support Units

The EUT has been tested as an independent unit.

## 4.3 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	Radio Frequency	7.25 x 10 <sup>-8</sup>
2	Duty cycle	0.37%
3	Occupied Bandwidth	3%
4	RF conducted power	0.75dB
5	RF power density	2.84dB
6	Conducted Spurious emissions	0.75dB
7	DE Dodieted nover	4.5dB (below 1GHz)
/	RF Radiated power	4.8dB (above 1GHz)
8	Dedicted Courieus emission test	4.5dB (30MHz-1GHz)
0	Radiated Spurious emission test	4.8dB (1GHz-18GHz)
9	Temperature test	1℃
10	Humidity test	3%
11	Supply voltages	1.5%
12	Time	3%



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#### 4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch

No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China. 518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

### 4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

#### CNAS (No. CNAS L2929)

CNAS has accredited SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

### A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

#### VCCI

The 10m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-823, R-4188, T-1153 and C-2383 respectively.

### FCC –Designation Number: CN1178

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

### Industry Canada (IC)

Two 3m Semi-anechoic chambers and the 10m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen Branch EMC Lab have been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1, 4620C-2, 4620C-3.

### 4.6 Deviation from Standards

None

#### 4.7 Abnormalities from Standard Conditions

None



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## 5 Equipment List

Conducted Peak Output Power						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2017-09-27	2018-09-27	
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2017-09-27	2018-09-27	
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A	
Coaxial Cable	SGS	N/A	SEM031-02	2017-07-13	2018-07-12	
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A	
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2017-09-27	2018-09-27	
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2017-09-27	2018-09-27	

20dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2017-09-27	2018-09-27
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2017-09-27	2018-09-27
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2017-07-13	2018-07-12
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2017-09-27	2018-09-27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2017-09-27	2018-09-27

Carrier Frequencies Separation						
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date	
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2017-09-27	2018-09-27	
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2017-09-27	2018-09-27	
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A	
Coaxial Cable	SGS	N/A	SEM031-02	2017-07-13	2018-07-12	
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A	
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2017-09-27	2018-09-27	
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2017-09-27	2018-09-27	



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Hopping Channel Number					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2017-09-27	2018-09-27
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2017-09-27	2018-09-27
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2017-07-13	2018-07-12
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2017-09-27	2018-09-27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2017-09-27	2018-09-27

Dwell Time					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2017-09-27	2018-09-27
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2017-09-27	2018-09-27
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2017-07-13	2018-07-12
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2017-09-27	2018-09-27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2017-09-27	2018-09-27

Conducted Band Edges Measurement					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2017-09-27	2018-09-27
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2017-09-27	2018-09-27
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2017-07-13	2018-07-12
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2017-09-27	2018-09-27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2017-09-27	2018-09-27



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Conducted Spurious Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DC Power Supply	ZhaoXin	RXN-305D	SEM011-02	2017-09-27	2018-09-27
Spectrum Analyzer	Rohde & Schwarz	FSP	SEM004-06	2017-09-27	2018-09-27
Measurement Software	JS Tonscend	JS1120-2 BT/WIFI V2.	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2017-07-13	2018-07-12
Attenuator	Weinschel Associates	WA41	SEM021-09	N/A	N/A
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2017-09-27	2018-09-27
Power Meter	Rohde & Schwarz	NRVS	SEM014-02	2017-09-27	2018-09-27

Radiated Emissions which fall in the restricted bands					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2017-05-02	2020-05-01
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2017-07-13	2018-07-12
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2017-04-14	2018-04-13
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2017-03-05	2020-03-05
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
Horn Antenna (15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-14	2017-06-16	2020-06-15
Pre-amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2017-09-27	2018-09-27
Low Noise Amplifier (100MHz-18GHz)	Black Diamond Series	BDLNA-0118- 352810	SEM005-05	2017-09-27	2018-09-27
Pre-amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2016-12-02	2017-12-01
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2017-04-14	2018-04-13
DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2017-09-27	2018-09-27
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
Band filter	N/A	N/A	SEM023-01	N/A	N/A



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RE in Chamber					
Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2017-08-05	2020-08-04
MXE EMI Receiver (20Hz-8.4GHz)	Agilent Technologies	N9038A	SEM004-05	2017-09-27	2018-09-27
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2017-03-05	2020-03-05
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2017-04-14	2018-04-13
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2017-07-13	2018-07-12



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Radiated Spurious Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2017-05-02	2020-05-01
Measurement Software	AUDIX	e3 V8.2014-6- 27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2017-07-13	2018-07-12
Spectrum Analyzer	Rohde & Schwarz	FSU43	SEM004-08	2017-04-14	2018-04-13
BiConiLog Antenna (26-3000MHz)	ETS-Lindgren	3142C	SEM003-02	2017-03-05	2020-03-05
Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEM003-07	2015-06-14	2018-06-14
Horn Antenna (15GHz-40GHz)	Schwarzbeck	BBHA 9170	SEM003-14	2017-06-16	2020-06-15
Pre-amplifier (0.1-1300MHz)	HP	8447D	SEM005-02	2017-09-27	2018-09-27
Low Noise Amplifier (100MHz-18GHz)	Black Diamond Series	BDLNA-0118- 352810	SEM005-05	2017-09-27	2018-09-27
Pre-amplifier (0.1-26.5GHz)	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2016-12-02	2017-12-01
Pre-amplifier (26GHz-40GHz)	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2017-04-14	2018-04-13
DC Power Supply	Zhao Xin	RXN-305D	SEM011-02	2017-09-27	2018-09-27
Active Loop Antenna	ETS-Lindgren	6502	SEM003-08	2017-08-22	2020-08-21
Band filter	N/A	N/A	SEM023-01	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-03	2017-09-29	2018-09-29
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2017-09-29	2018-09-29
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2017-09-29	2018-09-29
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2017-04-18	2018-04-18



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## 6 Radio Spectrum Technical Requirement

## 6.1 Antenna Requirement

### 6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(c)

#### 6.1.2 Conclusion

#### Standard Requirment:

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, 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.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

#### **EUT Antenna:**

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2dBi.



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## 6.2 Other requirements Frequency Hopping Spread Spectrum System Hopping Sequence

### 6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.247(a)(1),(g),(h)

#### 6.2.2 Conclusion

Standard Requirment:

The system shall hop to channel frequencies that are selected at the system hopping rate from a Pseudorandom ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

Frequency hopping spread spectrum systems are not required to employ all available hopping channels during each transmission. However, the system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this section should the transmitter be presented with a continuous data (or information) stream. In addition, a system employing short transmission bursts must comply with the definition of a frequency hopping system and must distribute its transmissions over the minimum number of hopping channels specified in this section.

The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

Compliance for section 15.247(a)(1):

According to Technical Specification, the pseudorandom sequence may be generated in a nine-stage shift register whose 5th and 9th stage outputs are added in a modulo-two addition stage. And the result is fed back to the input of the first stage. The sequence begins with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized with nine ones.

- > Number of shift register stages: 9
- > Length of pseudo-random sequence: 29 -1 = 511 bits
- > Longest sequence of zeros: 8 (non-inverted signal)

Linear Feedback Shift Register for Generation of the PRBS sequence

An example of Pseudorandom Frequency Hopping Sequence as follow:

Each frequency used equally on the average by each transmitter.

According to Technical Specification, the receivers are designed to have input and IF bandwidths that match the hopping channel bandwidths of any transmitters and shift frequencies in synchronization with the transmitted signals.

Compliance for section 15.247(g):

According to Technical Specification, the system transmits the packet with the pseudorandom hopping frequency with a continuous data and the short burst transmission from the 2.4GHz RF system is also transmitted under the frequency hopping system with the pseudorandom hopping frequency system.

Compliance for section 15.247(h):

According to Technical specification, the system incorporates with an adaptive system to detect other user within the spectrum band so that it individually and independently to avoid hopping on the occupied channels.

The system is designed not have the ability to coordinated with other FHSS System in an effort to avoid the simultaneous occupancy of individual hopping frequencies by multiple transmitter.



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## 7 Radio Spectrum Matter Test Results

## 7.1 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(1)
Test Method: ANSI C63.10 (2013) Section 7.8.5

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)		
	1 for ≥50 hopping channels		
902-928	0.25 for 25≤ hopping channels <50		
	1 for digital modulation		
	1 for ≥75 non-overlapping hopping channels		
2400-2483.5	0.125 for all other frequency hopping systems		
	1 for digital modulation		
5725-5850	1 for frequency hopping systems and digital modulation		



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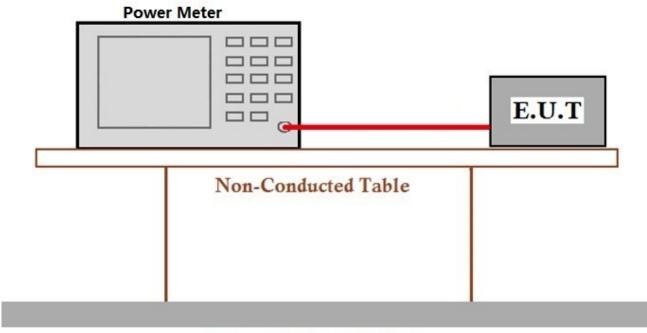
### 7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

Test mode d: TX\_non-Hop mode\_Keep the EUT in continuously transmitting mode.

### 7.1.2 Test Setup Diagram



## Ground Reference Plane

### 7.1.3 Measurement Procedure and Data



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### 7.2 20dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.215 Test Method: ANSI C63.10 (2013) Section 6.9

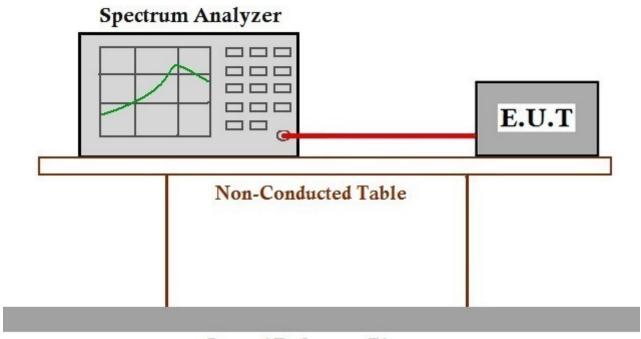
### 7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1005 mbar

Test mode d: TX\_non-Hop mode\_Keep the EUT in continuously transmitting mode.

### 7.2.2 Test Setup Diagram



## Ground Reference Plane

#### 7.2.3 Measurement Procedure and Data



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### 7.3 Carrier Frequencies Separation

Test Requirement 47 CFR Part 15, Subpart C 15.247a(1)
Test Method: ANSI C63.10 (2013) Section 7.8.2

Limit: 2/3 of the 20dB bandwidth base on the transmission power is less than

0.125W

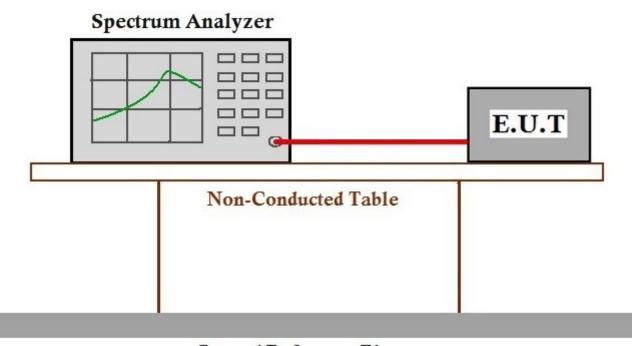
### 7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

Test mode c: TX\_Hop mode\_Keep the EUT in frequency hopping mode.

### 7.3.2 Test Setup Diagram



## Ground Reference Plane

### 7.3.3 Measurement Procedure and Data



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## 7.4 Hopping Channel Number

Test Requirement 47 CFR Part 15, Subpart C 15.247a(1)(iii)

Test Method: ANSI C63.10 (2013) Section 7.8.3

Limit:

Frequency range(MHz)	Number of hopping channels (minimum)
902-928	50 for 20dB bandwidth <250kHz
902-926	25 for 20dB bandwidth ≥250kHz
2400-2483.5	15
5725-5850	75

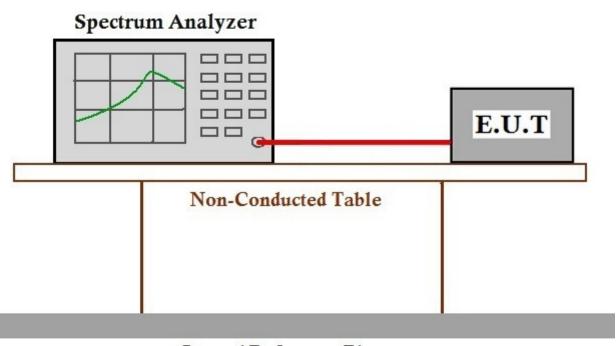
#### 7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

Test mode c:TX\_Hop mode\_Keep the EUT in frequency hopping with modulation mode.

### 7.4.2 Test Setup Diagram



## **Ground Reference Plane**

### 7.4.3 Measurement Procedure and Data



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### 7.5 Dwell Time

Test Requirement 47 CFR Part 15, Subpart C 15.247a(1)(iii)

Test Method: ANSI C63.10 (2013) Section 7.8.4

Limit:

Frequency(MHz)	Limit	
902-928	0.4S within a 20S period(20dB bandwidth<250kHz)	
902-928	0.4S within a 10S period(20dB bandwidth≥250kHz)	
0400 0400 5	0.4S within a period of 0.4S multiplied by the number	
2400-2483.5	of hopping channels	
5725-5850	0.4S within a 30S period	

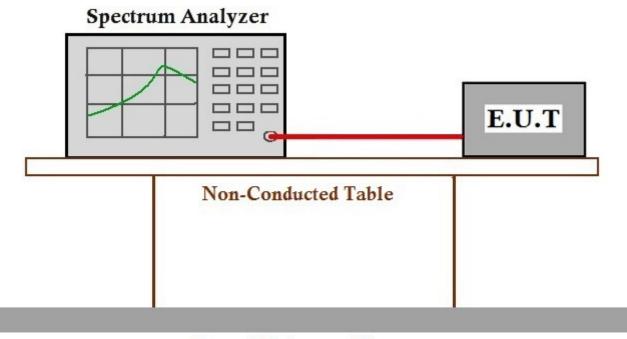
### 7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

Test mode c:TX Hop mode Keep the EUT in frequency hopping with modulation mode.

### 7.5.2 Test Setup Diagram



## Ground Reference Plane

#### 7.5.3 Measurement Procedure and Data

The detailed test data see: Appendix 15.247

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### 7.6 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)
Test Method: ANSI C63.10 (2013) Section 7.8.8

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)



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### 7.6.1 E.U.T. Operation

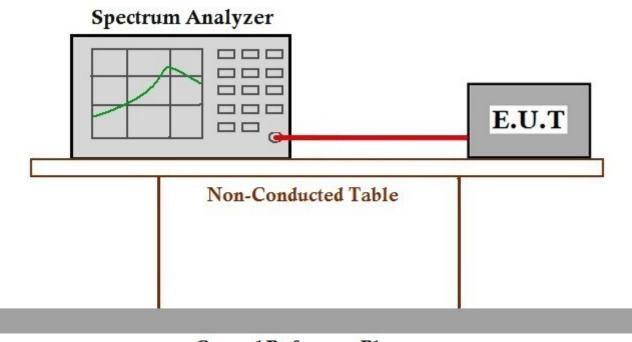
Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

Test mode c: TX\_Hop mode\_Keep the EUT in frequency hopping mode.

d: TX\_non-Hop mode\_Keep the EUT in continuously transmitting mode.

### 7.6.2 Test Setup Diagram



## Ground Reference Plane

### 7.6.3 Measurement Procedure and Data



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## 7.7 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)
Test Method: ANSI C63.10 (2013) Section 7.8.6

Limit: In any 100 kHz bandwidth outside t

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)



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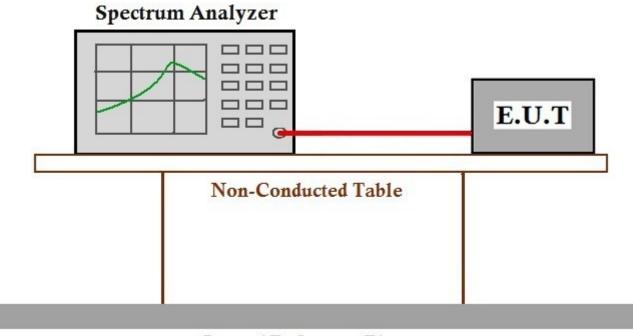
### 7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 23 °C Humidity: 54 % RH Atmospheric Pressure: 1010 mbar

Test mode d: TX\_non-Hop mode\_Keep the EUT in continuously transmitting mode...

### 7.7.2 Test Setup Diagram



## Ground Reference Plane

#### 7.7.3 Measurement Procedure and Data



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#### 7.8 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

Test Method: ANSI C63.10 (2013) Section 6.10.5

Measurement Distance: 3m

Limit:

Frequency(MHz)	Field strength(microvolts/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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.



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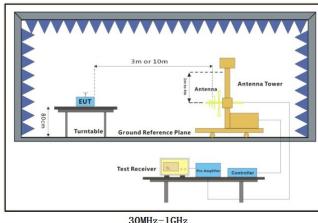
### 7.8.1 E.U.T. Operation

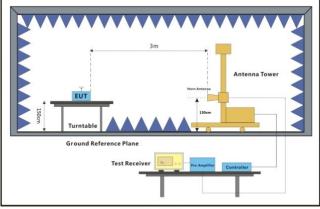
Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1005 mbar

Test mode d: TX non-Hop mode Keep the EUT in continuously transmitting mode.

### 7.8.2 Test Setup Diagram





1GHz Above 1GHz

#### 7.8.3 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

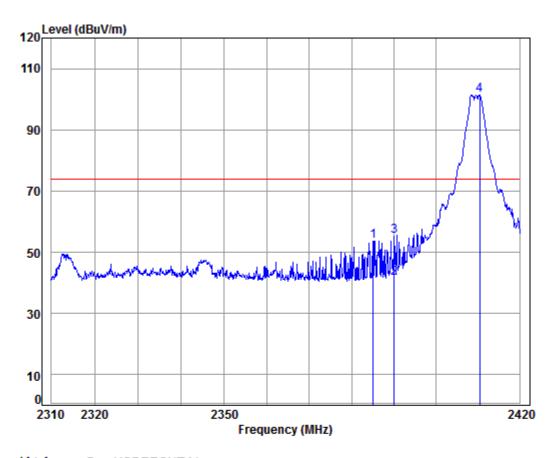
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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Mode:d; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:Low



Condition: 3m HORIZONTAL

Job No : 08741CR

1 2 3

Mode : 2409.5 Band edge

: TX

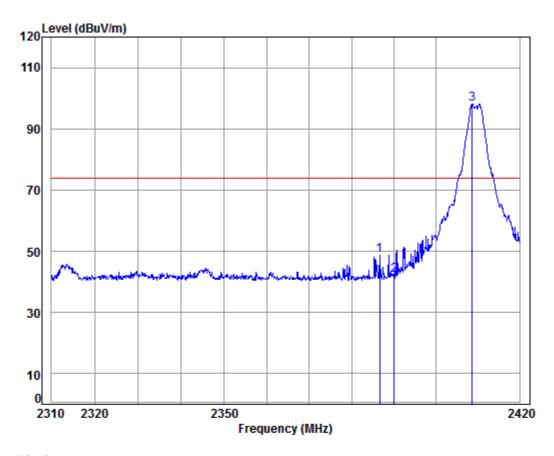
			Cable	Ant	Preamp	Read		Limit	0ver	
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	_									
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
		2385.018	5.47	29.06	37.66	56.81	53.68	74.00	-20.32	peak
	av	2390.000	5.47	29.08	37.66	44.73	41.62	54.00	-12.38	Average
,		2390.000	5.47	29.08	37.66	58.27	55.16	74.00	-18.84	peak
ļ	pp	2410.450	5.50	29.14	37.65	104.32	101.31	74.00	27.31	peak



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Mode:d; Polarization:Vertical; Modulation Type:GFSK; ; Channel:Low



Condition: 3m VERTICAL Job No : 08741CR

Mode : 2409.5 Band edge

: TX

1

2

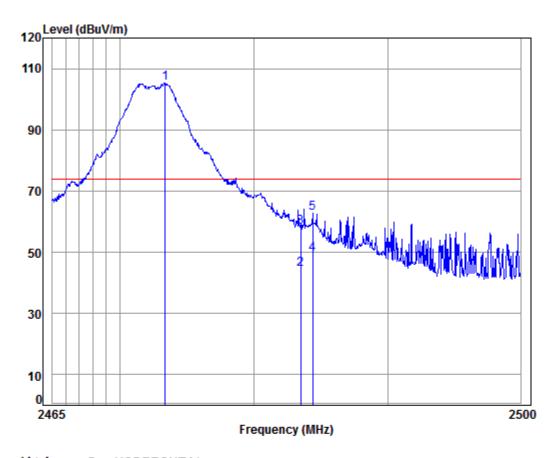
Ant Preamp Cable Read Limit 0ver Loss Factor Factor Line Limit Remark Level Level MHz dBuV dBuV/m dBuV/m dB dB/m dB dB 2386.572 29.07 37.66 51.83 48.71 74.00 -25.29 peak 5.47 2390.000 29.08 37.66 45.24 42.13 5.47 74.00 -31.87 peak 5.50 29.13 37.65 101.19 98.17 74.00 24.17 peak 3 pp 2408.656



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Mode:d; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:High



Condition: 3m HORIZONTAL

Job No : 08741CR

Mode : 2472.5 Band edge

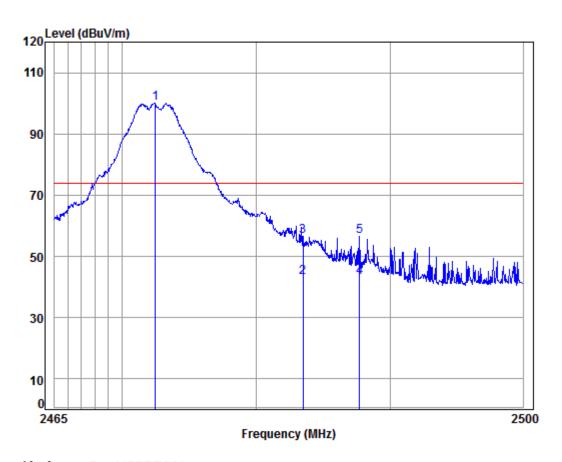
		Cable	Ant	Preamp	Read		Limit	0ver	
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1 p	p 2473.390	5.59	29.32	37.65	108.06	105.32	74.00	31.32	peak
2	2483.500	5.60	29.35	37.65	47.28	44.58	54.00	-9.42	Average
3	2483.500	5.60	29.35	37.65	60.78	58.08	74.00	-15.92	peak
4 a	av 2484.399								Average
5	2484.399						74.00		_



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Mode:d; Polarization:Vertical; Modulation Type:GFSK; ; Channel:High



Condition: 3m VERTICAL Job No : 08741CR

Mode : 2472.5 Band edge

: TX

			Cable	Ant	Preamp	Read		Limit	0ver	
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
	_									
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	pp	2472.483	5.58	29.32	37.65	102.76	100.01	74.00	26.01	peak
2	av	2483.500	5.60	29.35	37.65	45.82	43.12	54.00	-10.88	Average
3		2483.500	5.60	29.35	37.65	59.37	56.67	74.00	-17.33	peak
4		2487.729	5.60	29.36	37.65	45.80	43.11	54.00	-10.89	Average
5		2487.729	5.60	29.36	37.65	59.34	56.65	74.00	-17.35	peak



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## 7.9 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.209 & 15.247(d)

Test Method: ANSI C63.10 (2013) Section 6.10.4

Measurement Distance: 3m

Limit:

Frequency(MHz)	Field strength(microvolts/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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.



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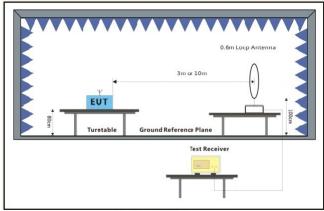
### 7.9.1 E.U.T. Operation

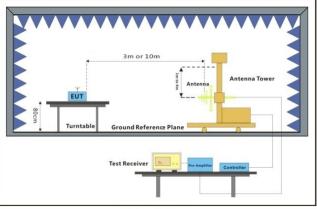
Operating Environment:

Temperature: 25 °C Humidity: 55 % RH Atmospheric Pressure: 1005 mbar

Test mode d: TX\_non-Hop mode\_Keep the EUT in continuously transmitting mode..

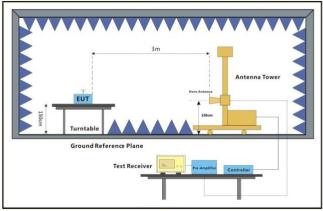
### 7.9.2 Test Setup Diagram





Below 30MHz

30MHz-1GHz



Above 1GHz



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#### 7.9.3 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- j. Repeat above procedures until all frequencies measured was complete.

Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

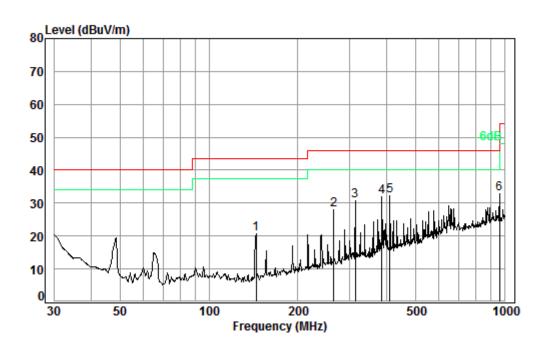


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**30MHz~1GHz** QP value:

Mode:d; Polarization:Horizontal



Condition: 3m HORIZONTAL

Job No. : 08741CR

Test mode: d

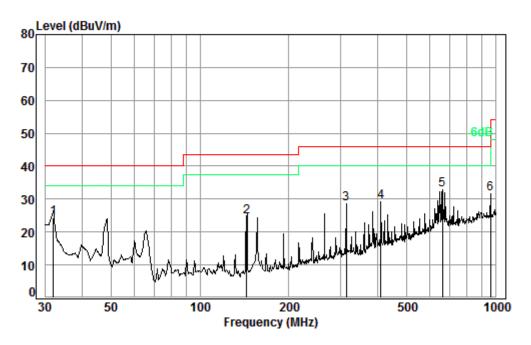
Freq				Preamp Factor				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	144.33	1.31	8.49	26.94	37.84	20.70	43.50	-22.80
2	263.82	1.74	12.58	26.50	40.29	28.11	46.00	-17.89
3	312.18	1.94	14.34	26.50	41.00	30.78	46.00	-15.22
4	383.93	2.16	16.11	27.03	40.58	31.82	46.00	-14.18
5	408.95	2.24	16.34	27.19	40.97	32.36	46.00	-13.64
6 pp	958.79	3.66	23.30	26.51	32.31	32.76	46.00	-13.24



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Mode:d; Polarization:Vertical



Condition: 3m VERTICAL Job No. : 08741CR

Test mode: d

		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	31.95	0.60	17.61	27.35	33.48	24.34	40.00	-15.66
2	143.83	1.31	8.44	26.94	41.97	24.78	43.50	-18.72
3	312.18	1.94	14.34	26.50	38.75	28.53	46.00	-17.47
4	408.95	2.24	16.34	27.19	37.68	29.07	46.00	-16.93
5 pp	661.15	2.83	20.96	27.46	36.46	32.79	46.00	-13.21
6	958.79	3.66	23.30	26.51	31.07	31.52	46.00	-14.48

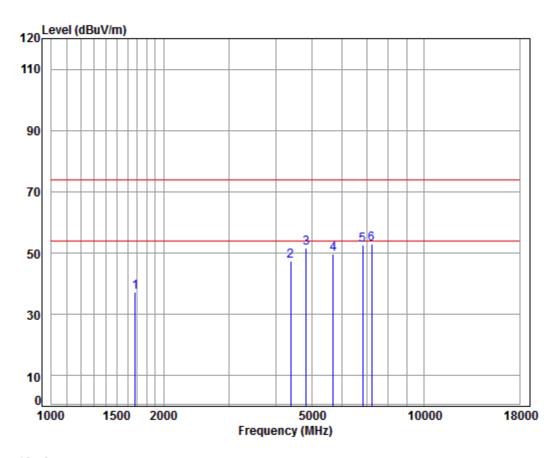


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### **Above 1GHz**

Mode:d; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:Low



Condition: 3m HORIZONTAL

Job No : 08741CR

Mode : 2409.5 TX SE

: TX

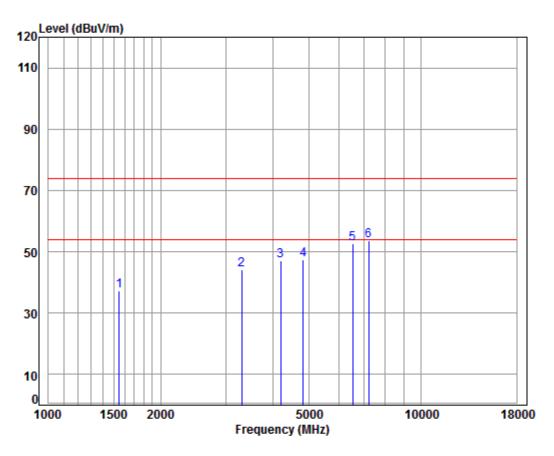
			Cable	Ant	Preamp	Read		Limit	0ver		
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1		1677.621	5.25	26.58	38.03	43.41	37.21	74.00	-36.79	peak	
2		4379.699	7.43	33.60	38.20	44.73	47.56	74.00	-26.44	peak	
3		4819.000	7.90	34.19	38.42	48.08	51.75	74.00	-22.25	peak	
4		5697.365	9.55	34.52	38.36	44.10	49.81	74.00	-24.19	Peak	
5		6835.278	10.58	36.05	37.45	43.62	52.80	74.00	-21.20	peak	
6	pp	7228.500	10.07	36.41	37.08	43.58	52.98	74.00	-21.02	peak	



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Mode:d; Polarization:Vertical; Modulation Type:GFSK; ; Channel:Low



Condition: 3m VERTICAL Job No : 08741CR

Mode : 2409.5 TX SE

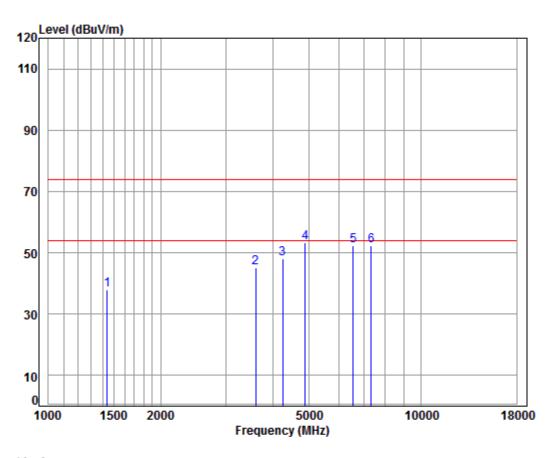
			Cable	Ant	Preamp	Read		Limit	0ver		
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
1		1547.199	5.42	26.02	38.04	43.86	37.26	74.00	-36.74	peak	
2		3299.344	6.28	31.86	37.93	43.98	44.19	74.00	-29.81	Peak	
3		4193.872	7.21	33.60	38.11	44.52	47.22	74.00	-26.78	peak	
4		4819.000	7.90	34.19	38.42	43.86	47.53	74.00	-26.47	peak	
5		6545.263	11.41	35.23	37.74	43.77	52.67	74.00	-21.33	peak	
6	pp	7228.500	10.07	36.41	37.08	44.08	53.48	74.00	-20.52	peak	



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Mode:d; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:middle



Condition: 3m HORIZONTAL

Job No : 08741CR

Mode : 2444.5 TX SE

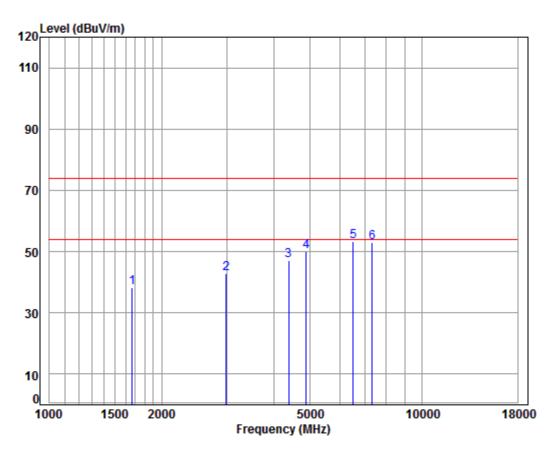
		Freq			Preamp Factor					Remark	
	-	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	——dB		
1		1439.343	5.28	25.56	38.05	45.19	37.98	74.00	-36.02	peak	
2		3598.203	6.57	32.49	37.96	43.95	45.05	74.00	-28.95	Peak	
3		4242.641	7.27	33.60	38.13	45.26	48.00	74.00	-26.00	peak	
4	pp	4889.000	7.98	34.31	38.45	49.40	53.24	74.00	-20.76	peak	
5		6564.209	11.35	35.29	37.72	43.30	52.22	74.00	-21.78	peak	
6		7333.500	10.04	36.37	36.99	42.89	52.31	74.00	-21.69	peak	



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Mode:d; Polarization:Vertical; Modulation Type:GFSK; ; Channel:middle



Condition: 3m VERTICAL Job No : 08741CR

Mode : 2444.5 TX SE

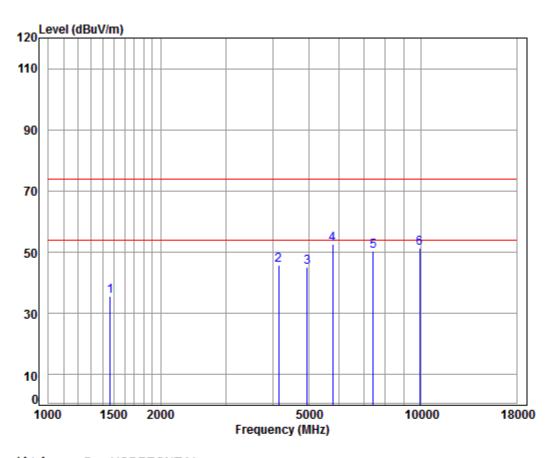
			Cable	Ant	Preamp	Read		Limit	0ver		
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark	
	-						<del></del>				
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB		
4		1667 051	F 27	26 54	20.02	44 54	20.22	74.00	25 60		
1		1667.951	5.2/	26.54	38.03	44.54	38.32	74.00	-35.68	реак	
2		2981.899	5.97	31.24	37.90	43.43	42.74	74.00	-31.26	Peak	
3		4379.699	7.43	33.60	38.20	44.38	47.21	74.00	-26.79	peak	
4		4889.000	7.98	34.31	38.45	46.27	50.11	74.00	-23.89	peak	
5	pp	6526.373	11.46	35.18	37.75	44.48	53.37	74.00	-20.63	peak	
6		7333.500	10.04	36.37	36.99	43.58	53.00	74.00	-21.00	peak	



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Mode:d; Polarization:Horizontal; Modulation Type:GFSK; ; Channel:High



Condition: 3m HORIZONTAL

Job No : 08741CR

Mode : 2472.5 TX SE

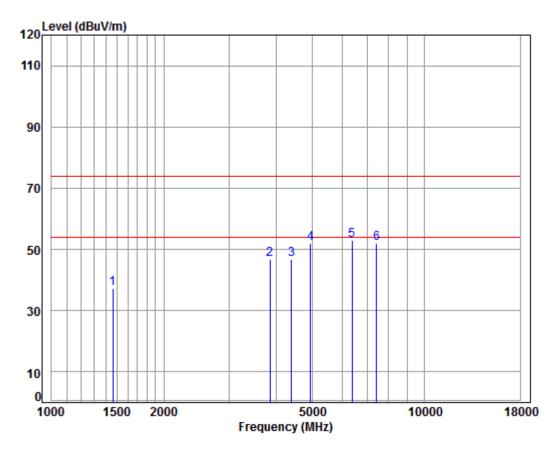
			Cable	Ant	Preamp	Read		Limit	0ver	
		Freq	Loss	Factor	Factor	Level	Level	Line	Limit	Remark
		MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1		1464.522	5.37	25.66	38.04	42.72	35.71	74.00	-38.29	peak
2		4145.664	7.16	33.60	38.08	43.17	45.85	74.00	-28.15	peak
3		4945.000	8.03	34.41	38.48	41.31	45.27	74.00	-28.73	peak
4	pp	5780.300	9.83	34.57	38.34	46.59	52.65	74.00	-21.35	peak
5		7417.500	10.02	36.33	36.91	40.77	50.21	74.00	-23.79	peak
6		9890.000	10.89	37.58	34.95	37.98	51.50	74.00	-22.50	peak



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Mode:d; Polarization:Vertical; Modulation Type:GFSK; ; Channel:High



Condition: 3m VERTICAL Job No : 08741CR

Mode : 2472.5 TX SE

	Freq			Preamp Factor					Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1460.295	5.35	25.64	38.05	44.23	37.17	74.00	-36.83	peak
2	3845.537	6.83	33.19	37.99	44.66	46.69	74.00	-27.31	Peak
3	4392.376	7.44	33.60	38.21	43.92	46.75	74.00	-27.25	peak
4	4945.000	8.03	34.41	38.48	48.05	52.01	74.00	-21.99	peak
5 pp	6395.654	11.34	35.02	37.89	44.56	53.03	74.00	-20.97	peak
6	7417.500	10.02	36.33	36.91	42.45	51.89	74.00	-22.11	peak



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#### Remark:

1) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

- 2) Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- 3) As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. So, only the peak measurements were shown in the report.



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### 8 Appendix

#### 8.1 Appendix 15.247

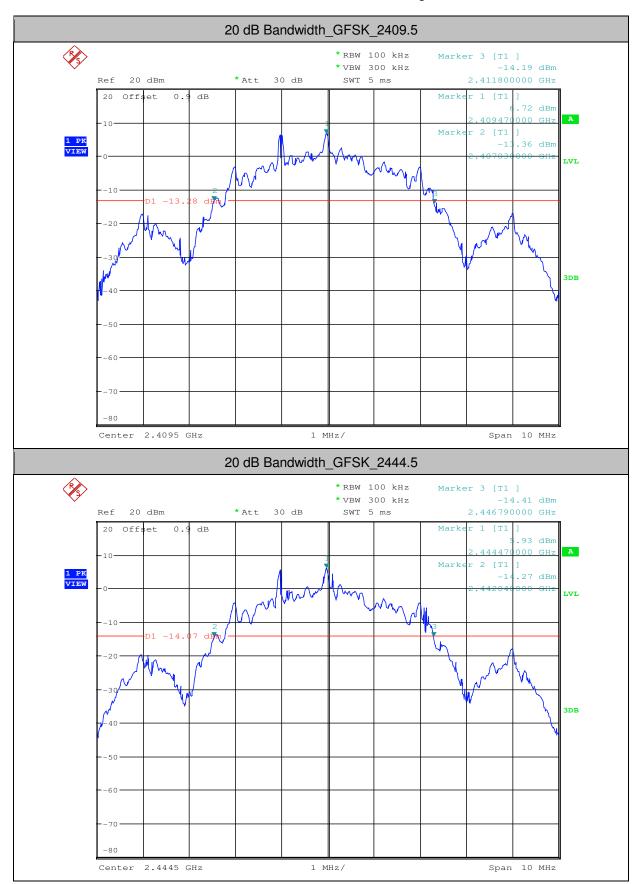
#### 1.20 dB Bandwidth

Test Mode	Test Channel	EBW[MHz]	Limit[MHz]	Verdict
GFSK	2409.5	4.770		PASS
GFSK	2444.5	4.750		PASS
GFSK	2472.5	4.770		PASS



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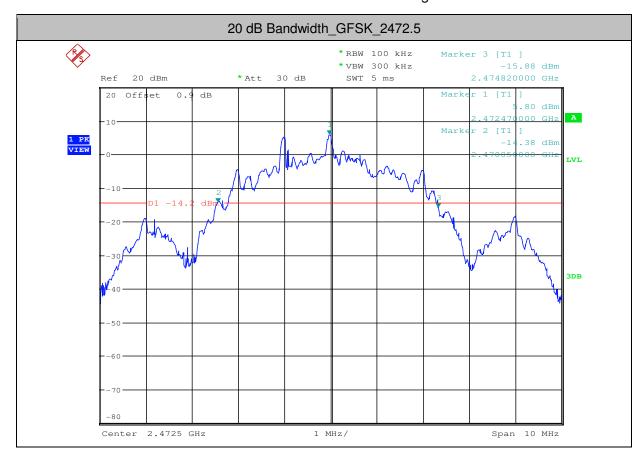
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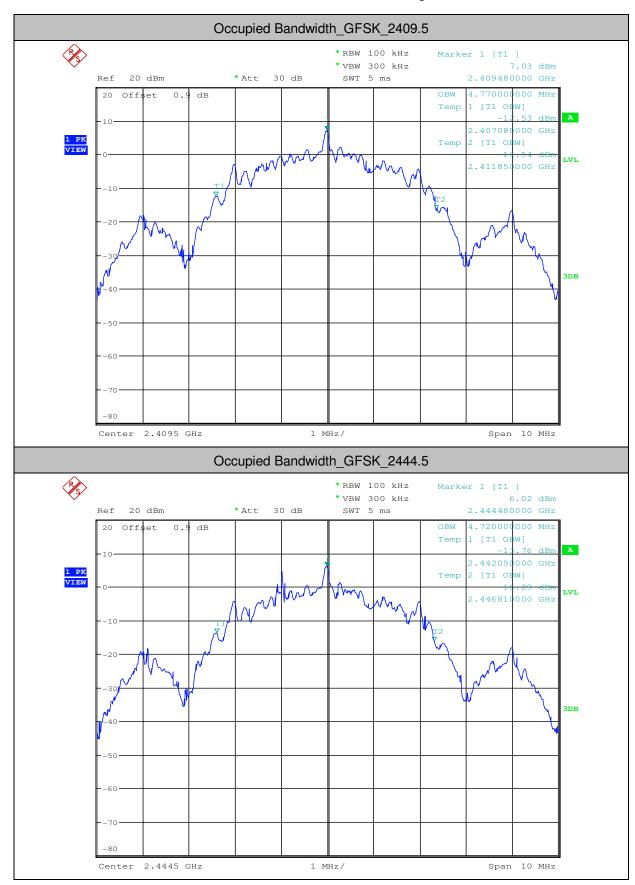
#### 2.Occupied Bandwidth

Test Mode	Test Channel	OBW[MHz]	Limit[MHz]	Verdict
GFSK	2409.5	4.770		PASS
GFSK	2444.5	4.720		PASS
GFSK	2472.5	4.710		PASS



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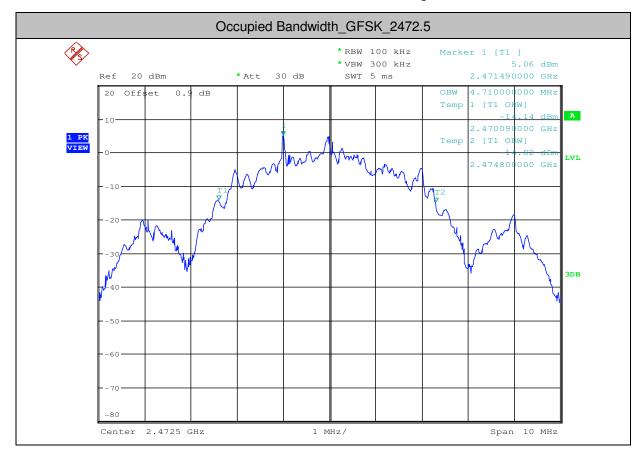
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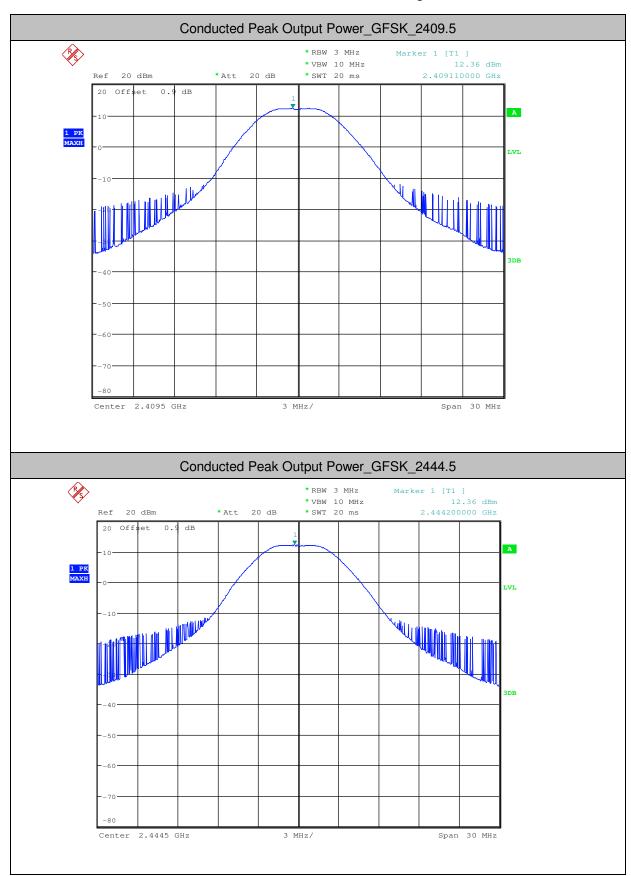
#### 3.Conducted Peak Output Power

Test Mode	Test Channel	Power[dBm]	Limit[dBm]	Verdict
GFSK	2409.5	12.36	<=20.97	PASS
GFSK	2444.5	12.36	<=20.97	PASS
GFSK	2472.5	12.10	<=20.97	PASS



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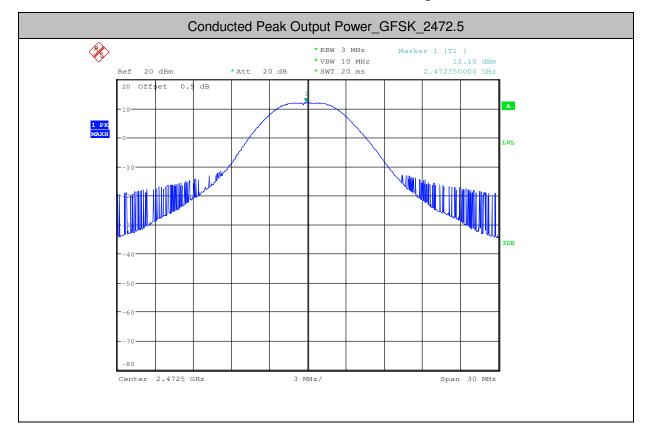
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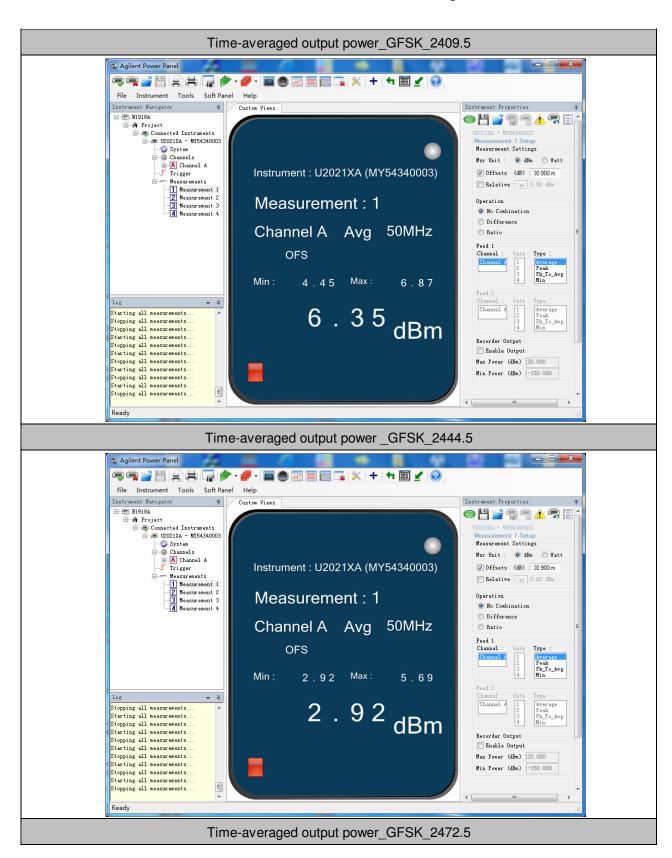
#### 4. Time-averaged output power

Test Mode	Test Channel	Power[dBm]	Limit[dBm]	Verdict
GFSK	2409.5	6.87		PASS
GFSK	2444.5	5.69		PASS
GFSK	2472.5	5.60		PASS



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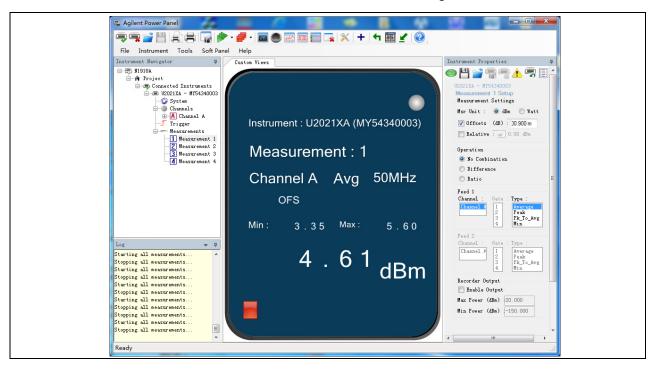
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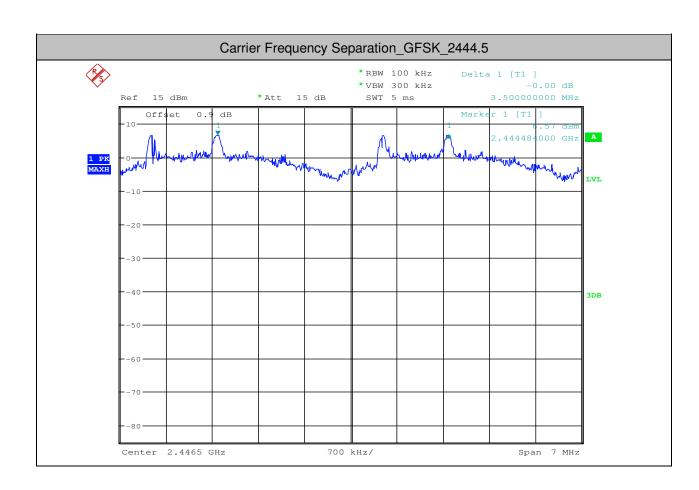


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#### 5. Carrier Frequency Separation

Test Mode	Test Channel	Result[MHz]	Limit[MHz]	Verdict
GFSK	2444.5	3.500	>=3.18	PASS





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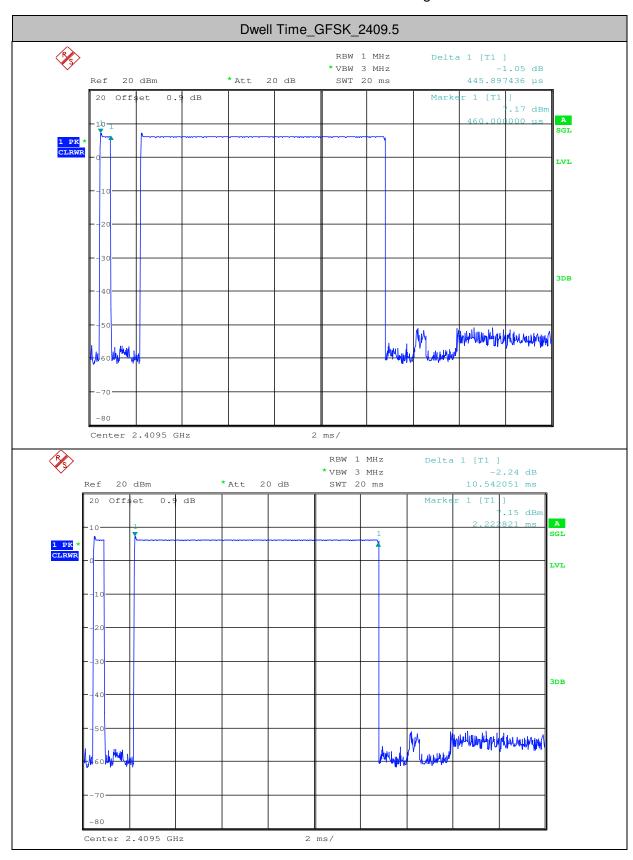
#### 6.Dwell Time

Test Mode	Test Channel	Burst Width[ms/hop/ch]	Total Hops[hop*ch]	Dwell Time[s]	Limit[s]	Verdict
GFSK	2409.5	10.988	27	0.297	<0.4	PASS



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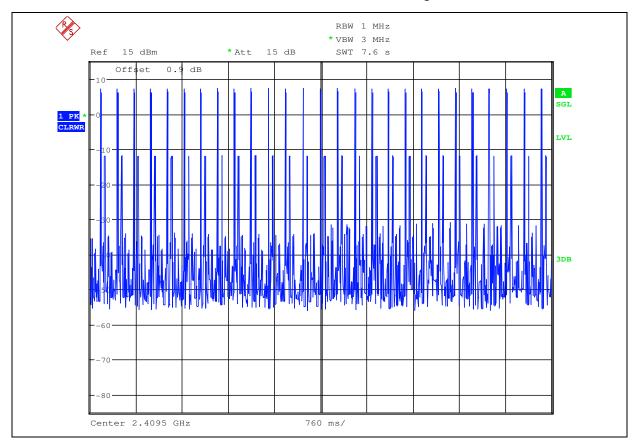
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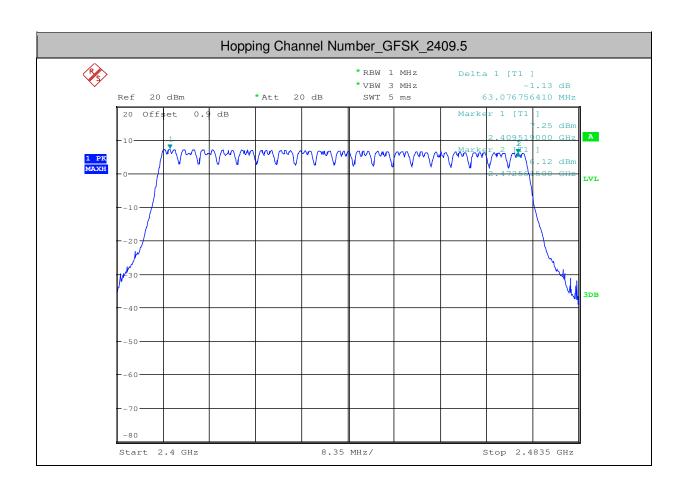


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#### 7. Hopping Channel Number

Test Mode	Test Channel	Number of Hopping Channel[N]	Limit[N]	Verdict
GFSK	2409.5	19	>=15	PASS





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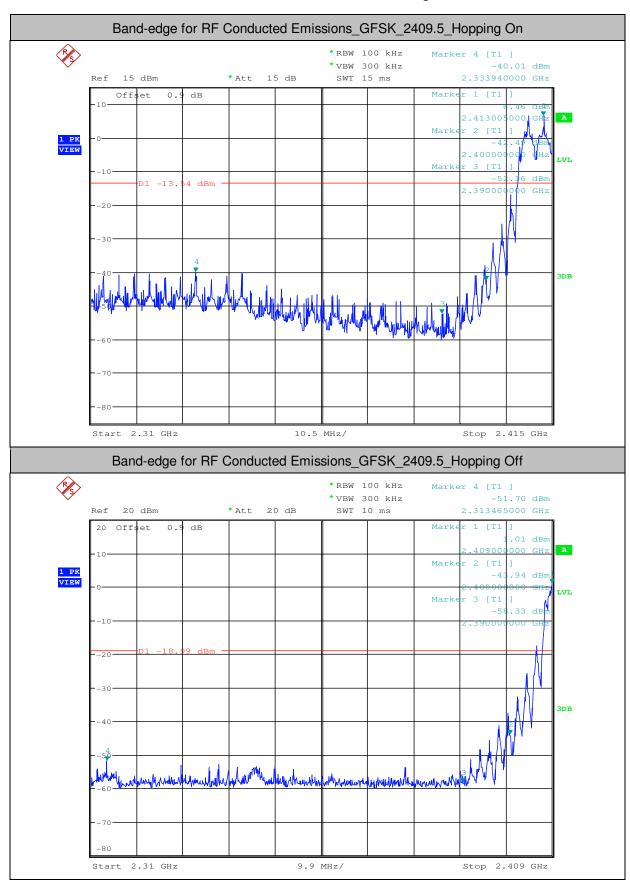
#### 8.Band-edge for RF Conducted Emissions

Test Mode	Test Channel	Hopping	Carrier Power[dBm]	Max. Spurious Level [dBm]	Limit[dBm]	Verdict
GFSK	2409.5	On	6.460	-40.009	<-13.54	PASS
GFSK	2409.5	Off	1.010	-51.699	<-18.99	PASS
GFSK	2472.5	On	6.310	-42.931	<-13.69	PASS
GFSK	2472.5	Off	5.230	-42.746	<-14.77	PASS



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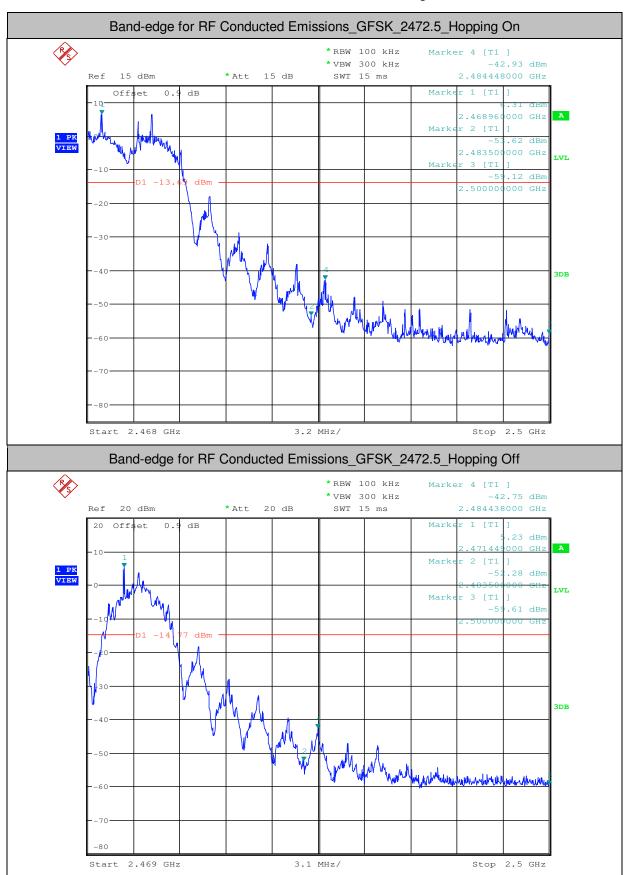
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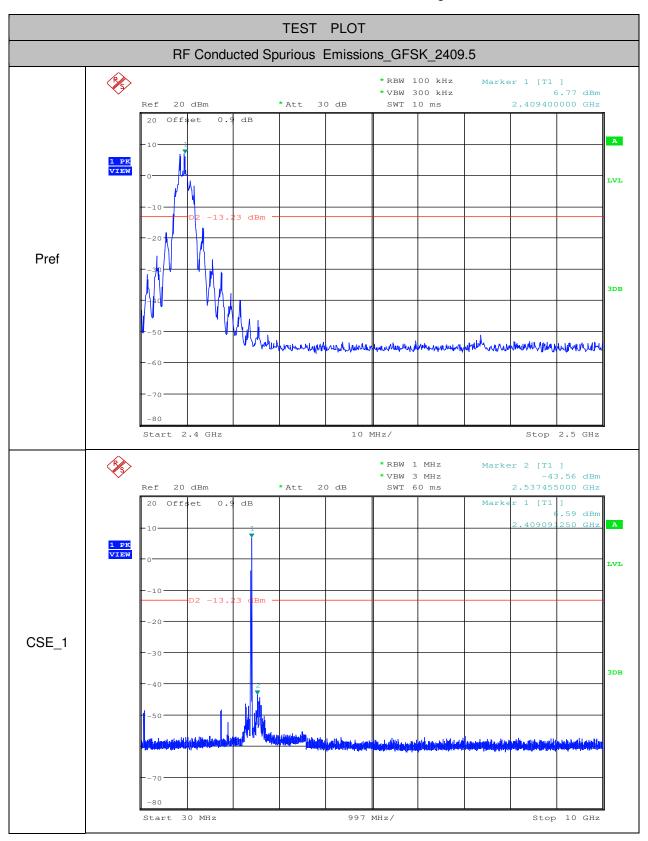
#### 9.RF Conducted Spurious Emissions

Test Mode	Test Channel	StartFre [MHz]	StopFre [MHz]	RBW [kHz]	VBW [kHz]	Pref[dBm]	Max. Level [dBm]	Limit [dBm]	Verdict
GFSK	2409.5	30	10000	1000	3000	6.77	-43.560	<- 13.23	PASS
GFSK	2409.5	10000	25000	1000	3000	6.77	-55.310	<- 13.23	PASS
GFSK	2444.5	30	10000	1000	3000	4.57	-41.160	<- 15.43	PASS
GFSK	2444.5	10000	25000	1000	3000	4.57	-54.830	<- 15.43	PASS
GFSK	2472.5	30	10000	1000	3000	5.64	-40.430	<- 14.36	PASS
GFSK	2472.5	10000	25000	1000	3000	5.64	-55.360	<- 14.36	PASS



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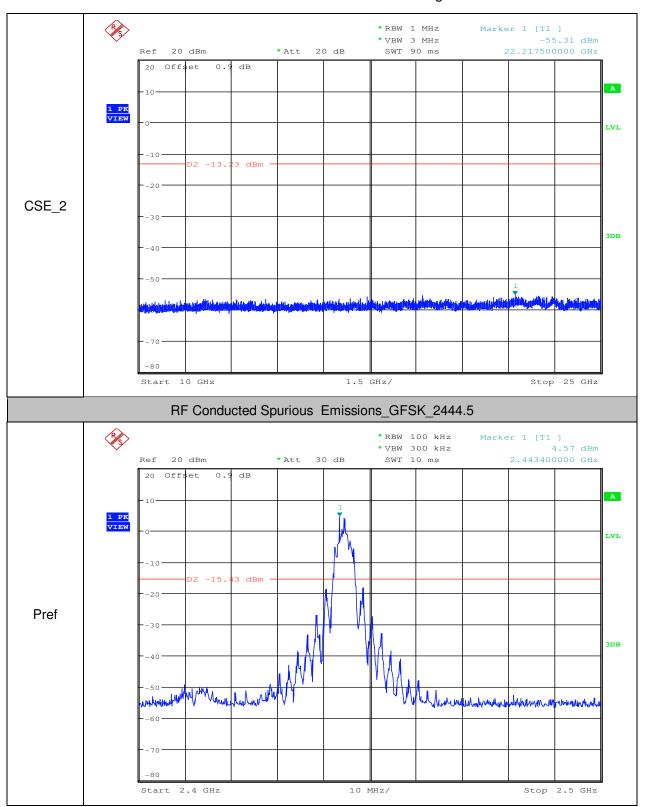
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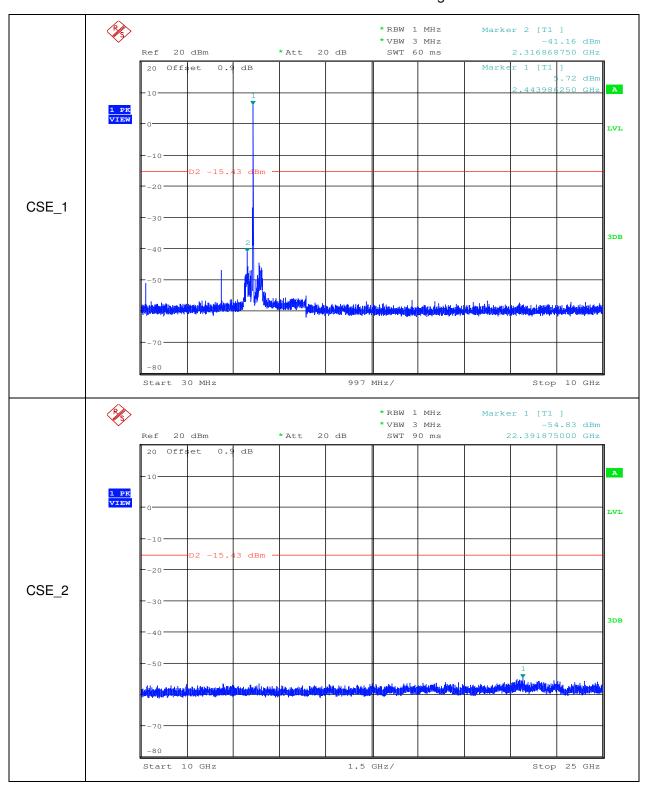
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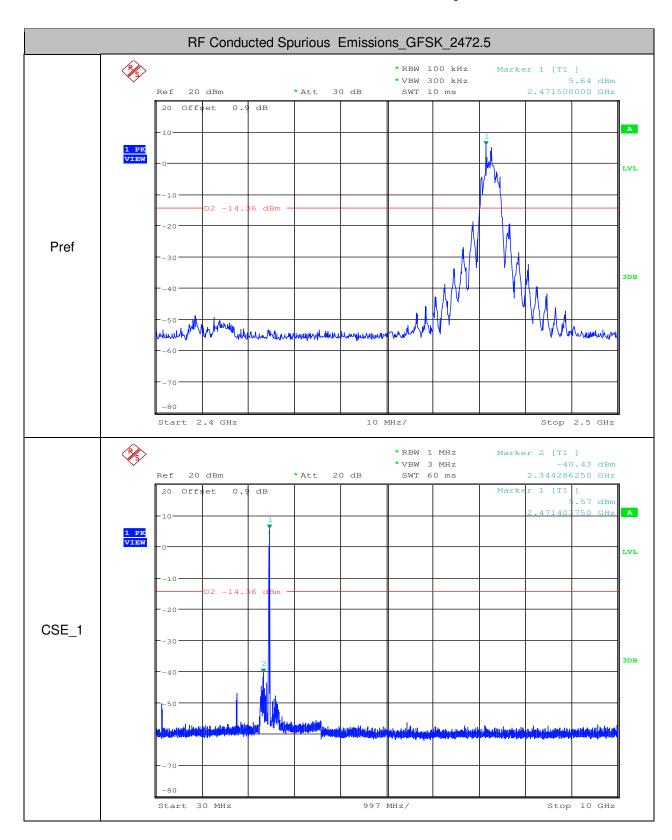
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