

TEST REPORT

		 UNDERCABINET CD RADIO WITH BLUETOOTH MET22BT, SKCR2613B, SKCR2613B-SILVER, SKCR2613B-BLACK, SKCR2613B-WHITE, SKCR2613BBT, KCR2613B, PKCR2713, KCR2613B-SILVER, KCR2613B-BLACK, KCR2613B-WHITE, KCR2613BBT, CKR1307, PKCR2713_AM, PUC2500BT-WH 2AYB7696MET22BT 			
Prepared for Address	:	SOLAR BRIGHT INDUSTRIAL LIMITED FLAT/RM 4, 7F SHING YIP INDUSTRIAL BUILDING,19-21 SHING YIP STREET, KWUN TONG, KL., Hong Kong			
Prepared by Address	::	EMTEK (SHENZHEN) CO., LTD. Building 69, Majialong Industry Zone,Nanshan District, Shenzhen, Guangdong, China			
		Tel: (0755) 26954280 Fax: (0755) 26954282			
Report Number Date(s) of Tests	:	ENS2206080230W00201R June 8, 2022 to June 19, 2022			

Date(s) of Tests : June 8, 2022 to June 19, 2022 Date of issue : June 19, 2022

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



Table of Contents

1	TEST	RESULT CERTIFICATION	
2	EUTT	TECHNICAL DESCRIPTION	5
3	SUM	MARY OF TEST RESULT	6
4	TEST	METHODOLOGY	7
	4.1 4.2 4.3	GENERAL DESCRIPTION OF APPLIED STANDARDS MEASUREMENT EQUIPMENT USED DESCRIPTION OF TEST MODES	7
5	FACIL	LITIES AND ACCREDITATIONS	9
	5.1 5.2 5.3	FACILITIES EQUIPMENT LABORATORY ACCREDITATIONS AND LISTINGS	9
6	TEST	SYSTEM UNCERTAINTY	
7	SETU	IP OF EQUIPMENT UNDER TEST	11
	7.1 7.2 7.3 7.4 7.5	RADIO FREQUENCY TEST SETUP 1 RADIO FREQUENCY TEST SETUP 2 CONDUCTED EMISSION TEST SETUP BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM SUPPORT EQUIPMENT	11 13 14
8	FREG	QUENCY HOPPING SYSTEM REQUIREMENTS	
	8.1 8.2 8.3 8.4	STANDARD APPLICABLE EUT PSEUDORANDOM FREQUENCY HOPPING SEQUENCE EQUAL HOPPING FREQUENCY USE FREQUENCY HOPPING SYSTEM	
9	TEST	REQUIREMENTS	
	9.1 9.2 9.3 9.4 9.5	20DB&99%BANDWIDTH CARRIER FREQUENCY SEPARATION NUMBER OF HOPPING FREQUENCIES AVERAGE TIME OF OCCUPANCY (DWELL TIME) MAXIMUM PEAK CONDUCTED OUTPUT POWER	
	9.6	CONDUCTED SUPRIOUS EMISSION	
	9.7 9.8 9.9	RADIATED SPURIOUS EMISSION CONDUCTED EMISSION TEST ANTENNA APPLICATION	63



1 TEST RESULT CERTIFICATION

Applicant	:	SOLAR BRIGHT INDUSTRIAL LIMITED
Address	:	FLAT/RM 4, 7F SHING YIP INDUSTRIAL BUILDING,19-21 SHING YIP STREET, KWUN TONG, KL., Hong Kong
Manufacturer	:	SOLAR BRIGHT INDUSTRIAL LIMITED
Address	:	FLAT/RM 4, 7F SHING YIP INDUSTRIAL BUILDING,19-21 SHING YIP STREET, KWUN TONG, KL., Hong Kong
EUT	:	UNDERCABINET CD RADIO WITH BLUETOOTH
Model Name	:	MET22BT, SKCR2613B, SKCR2613B-SILVER, SKCR2613B-BLACK, SKCR2613B-WHITE, SKCR2613BBT, KCR2613B, PKCR2713, KCR2613B-SILVER, KCR2613B-BLACK, KCR2613B-WHITE, KCR2613BBT, CKR1307, PKCR2713_AM, PUC2500BT-WH
Trademark	:	MET, SYLVANIA, CURTIS, CRAIG, PROSCAN, PHILCO, MAGNAVOX

Measurement Procedure Used:

APPLICABLE STANDARDS					
STANDARD	TEST RESULT				
FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart C	PASS				
IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021) IC RSS-247 Issue 2(02-2017)	PASS				

The above equipment was tested by EMTEK(SHENZHEN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 2, Part 15.247, IC RSS-247 Issue 2 and IC RSS-GEN, Issue 5.

The test results of this report relate only to the tested sample identified in this report

Date of Test :	June 8, 2022 to May 19, 2022
Prepared by :	Luo Pei Ye
	Luo peiye /Editor
Reviewer :	For Xia GHENZHEN,
	Joe Xia /Supervisor
	JANNE *
Approve & Authorized Signer :	Lisa Wang/Manager



Modified History

Version	Report No.	Revision Date	Summary
V1.0	ENS2206080230W00201R	/	Original Report





2 EUT TECHNICAL DESCRIPTION

Characteristics	Description				
Product:	UNDERCABINET CD RADIO WITH BLUETOOTH				
Model Number:	MET22BT, SKCR2613B, SKCR2613B-SILVER, SKCR2613B-BLACK, SKCR2613B-WHITE, SKCR2613BBT, KCR2613B, PKCR2713, KCR2613B-SILVER, KCR2613B-BLACK, KCR2613B-WHITE, KCR2613BBT, CKR1307, PKCR2713_AM, PUC2500BT-WH The only differences are the appearance、 trade name and model no. for trading purpose. Only indicates for different market purposes; We chose MET22BT as the final test prototype)				
Sample:	2#				
Device Type:	Bluetooth V5.0				
Data Rate:	1Mbps for GFSK modulation 2Mbps forπ/4-DQPSK modulation				
Modulation:	GFSK, π/4-DQPSK				
Operating Frequency Range(s) :	2402-2480MHz				
Number of Channels:	79 channels				
Transmit Power Max:	3.6 dBm				
Antenna Type:	PCB Antenna				
Antenna Gain:	0.66 dBi				
Power supply:	DC 12V from Adapter DC 4.5V from battery(when the AC power failure, this electronic clock is designed to continue operating internally(without showing the time on the Clock Display))				
Adpater:	MODEL:HKP24-1201500du INPUT:100-240V~50/60Hz, 0.68A Max OUTPUT:12V,1.5A				
Date of Received:	June 8, 2022				
Temperature Range:	0°C ~ +45°C				

Note: for more details, please refer to the User's manual of the EUT.

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



3 SUMMARY OF TEST RESULT

FCC Part Clause	IC Part Clause	Test Parameter	Verdict	Remark
15.247(a)(1)	RSS-247.5.1 RSS-Gen.6.7	Emission Bandwidth	PASS	
15.247(a)(1)	RSS-247.5.1	Carrier Frequency Separation	PASS	
15.247(a)(1)	RSS-247.5.1	Number of Hopping Frequencies	PASS	
15.247(a)(1)	RSS-247.5.1	Average Time of Occupancy (Dwell Time)	PASS	
15.247(b)(1)	RSS-247.5.4 RSS-Gen 6.12	Maximum Peak Conducted Output Power	PASS	
15.247(d)	RSS-247 5.5	Conducted Spurious Emissions	PASS	
15.247(d) 15.209 15.205	RSS-Gen 8.9 RSS-Gen 8.10 RSS-Gen 6.13 RSS-247 3.3 RSS-247 5.5	Radiated Spurious Emissions	PASS	
15.207	RSS-Gen 8.8	Conducted Emission	PASS	
15.203 15.247(b)	RSS-Gen 6.8 RSS-247 5.4	Antenna Application	PASS	
15.247 (a) (1)/g/h	-	Frequency Hopping System	PASS	

N/A (Not Applicable)

NOTE2: According to FCC OET KDB 558074, the report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.

RELATED SUBMITTAL(S) / GRANT(S):

This submittal(s) (test report) is intended for FCC ID: 2AYB7696MET22BT filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.



4 TEST METHODOLOGY

4.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards: FCC 47 CFR Part 2, Subpart J FCC 47 CFR Part 15, Subpart C IC RSS-GEN, Issue 5(04-2018)+A1(03-2019)+A2(02-2021) IC RSS-247 Issue 2(02-2017) FCC KDB 558074 D01 15.247 Meas Guidance v05r02

4.2 MEASUREMENT EQUIPMENT USED

Conducted Emission Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESCI	101384	2022/5/14	1Year
AMN	Rohde & Schwarz	ENV216	101161	2022/5/14	1Year

For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESU 26	100154	2022/5/14	1Year
Pre-Amplifie	Lunar EM	LNA30M3G-25	J1010000070	2022/5/14	1Year
Bilog Antenna	Schwarzbeck	VULB9163	659	2021/8/22	2 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1177	2020/7/4	2 Year
Pre-Amplifie	SKET	LNPA_0118G-45	SK2019051801	2022/5/14	1Year
Loop Antenna	Schwarzbeck	FMZB1519	1519-012	2021/6/12	2 Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	100967	2022/5/14	1Year
Horn antenna	Schwarzbeck	BBHA9170	9170-399	2021/6/12	2 Year
Band reject Filter(50dB)	WI/DE	WRCGV-2400(2400- 2485MHz)	2	2022/5/14	1 Year

For other test items:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Signal Analyzer	Agilent	N9010A	MY53470879	2022/5/14	1Year
Vector Signal Generater	Agilent	N5182B MY5305087		2022/5/14	1Year
Analog Signal Generator	Agilent	N5171B	MY53050553	2022/5/14	1Year
Power Meter	Agilent	PS-X10-100 \		2022/5/15	1Year
Blocking Box	THEDA	AD211	TW5451140	2022/5/14	1Year
Switchgroup	THEDA	ETF-025(VASC6)	TW5451008	N/A	N/A
MIMO Matrix Switch	THEDA	4P5TM18	TW5451009	N/A	N/A
Temperature&Humidity Chamber	ESPEC	EL-02KA	12107166	2021/7/3	1 Year

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



4.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (1Mbps for GFSK modulation(DH5); 2Mbps for π /4-DQPSK modulation(2DH5);)were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Frequency and Channel list for Bluetooth

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)		
0	2402	39	2441				
1	2403	40	2442	76	2478		
2	2404	41	2443	77	2479		
				78	2480		
Note: fc=2402MHz+(k-1)×1MHz k=1 to 79							

Test Frequency and channel for Bluetooth

Lowest F	Frequency	Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	39	2441	78	2480



5 FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

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

EMTEK (Shenzhen) Co., Ltd.

Building 69, Majialong Industry Zone District, Nanshan District, Shenzhen, China

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

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

5.3 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description	
EMC Lab.	: Accredited by CNAS The Certificate Registration Number is L2291. The Laboratory has been assessed and proved to be in compliance with CNAS-CL01 (identical to ISO/IEC 17025:2017)
	Accredited by FCC Designation Number: CN1204 Test Firm Registration Number: 882943
	Accredited by A2LA The Certificate Number is 4321.01.
	Accredited by Industry Canada The Conformity Assessment Body Identifier is CN0008
Name of Firm Site Location	 EMTEK (SHENZHEN) CO., LTD. Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn EMTEK (Shenzhen) Co., Ltd. Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn

Report No. ENS2206080230W00201R



6 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Test Parameter	Measurement Uncertainty
Radio Frequency	±1x10^-5
Maximum Peak Output Power Test	±1.0dB
Conducted Emissions Test	±2.0dB
Radiated Emission Test	±2.0dB
Power Density	±2.0dB
Occupied Bandwidth Test	±1.0dB
Band Edge Test	±3dB
All emission, radiated	±3dB
Antenna Port Emission	±3dB
Temperature	±0.5°C
Humidity	±3%

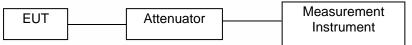
Measurement Uncertainty for a level of Confidence of 95%



7 SETUP OF EQUIPMENT UNDER TEST

7.1 RADIO FREQUENCY TEST SETUP 1

The Bluetooth component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



7.2 RADIO FREQUENCY TEST SETUP 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

Below 30MHz:

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

Above 30MHz:

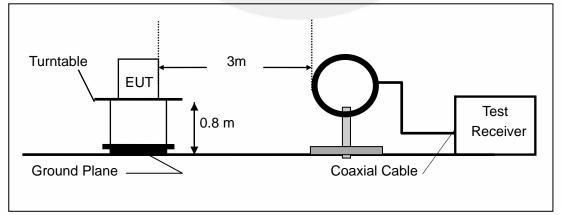
The EUT is placed on a turntable 0.8meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz:

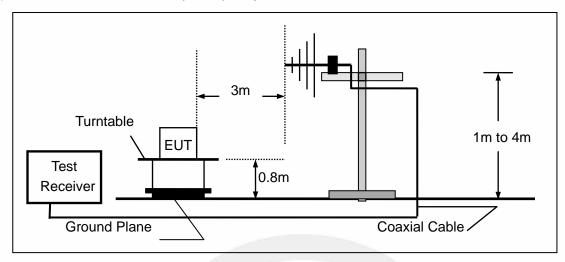
(Note: the FCC's permission to use 1.5m as an alternative per TCBC Conf call of Dec. 2, 2014.)

The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

(a) Radiated Emission Test Set-Up, Frequency Below 30MHz

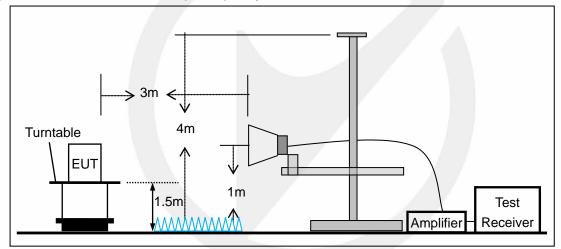






(b)Radiated Emission Test Set-Up, Frequency Below 1000MHz

(c) Radiated Emission Test Set-Up, Frequency above 1000MHz



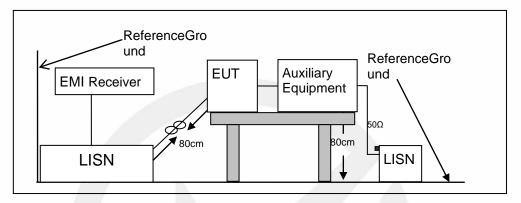


7.3 CONDUCTED EMISSION TEST SETUP

The mains cable of the EUT (Perfect Share Mini) must be connected to LISN. The LISN shall be placed 0.8m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

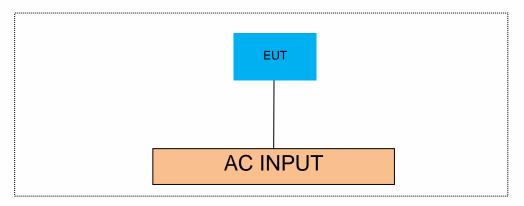
Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.8m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.





7.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



7.5 SUPPORT EQUIPMENT

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
1	1	1	/

Auxiliary Cable List and Details							
Cable Description	Length (m) Shielded/Unshielded		With / Without Ferrite				
/	/	1	/				

Auxiliary Equipment List and Details						
Description Manufacturer Model Serial Number						
/	/	1	1			

Notes:

- 1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



8 FREQUENCY HOPPING SYSTEM REQUIREMENTS

8.1 Standard Applicable

According to FCC Part 15.247(a)(1), The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudo randomly 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.

(g) 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.

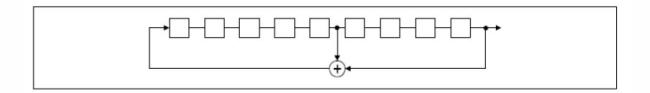
(h) The incorporation of intelligence within a frequency hopping spread spectrum system that permits the system to recognize other users within the spectrum band so that it individually and independently chooses and adapts its hopsets to avoid hopping on occupied channels is permitted. The coordination 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.

8.2 EUT Pseudorandom Frequency Hopping Sequence

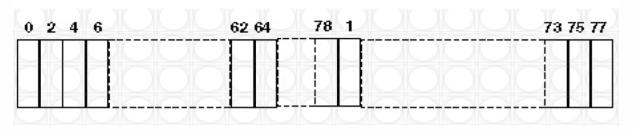
The channel is represented by a pseudo-random hopping sequence hopping through the 79 RF channels. The hopping sequence is unique for the piconet and is determined by the Bluetooth device address of the master; thephase in the hopping sequence is determined by the Bluetooth clock of the master. The channel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

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



深圳信测标准技术服务股份有限公司地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



Each frequency used equally on the average by each transmitter.

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

8.3 Equal Hopping Frequency Use

All Bluetooth units participating in the piconet are time and hop-synchronized to the channel.

Example of a 79 hopping sequence in data mode: 35, 27, 6, 44, 14, 61, 74, 32, 1, 11, 23, 2, 55, 65, 29, 3, 9, 52, 78, 58, 40, 25, 0, 7, 18, 26, 76, 60, 47, 50, 2, 5, 16, 37, 70, 63, 66, 54, 20, 13, 4, 8, 15, 21, 26, 10, 73, 77, 67, 69, 43, 24, 57, 39, 46, 72, 48, 33, 17, 31, 75, 19, 41, 62, 68, 28, 51, 66, 30, 56, 34, 59, 71, 22, 49, 64, 38, 45, 36, 42, 53 Each Frequency used equally on the average by each transmitter

8.4 Frequency Hopping System

This transmitter device is frequency hopping device, and complies with FCC part 15.247 rule.

This device uses Bluetooth radio which operates in 2400-2483.5 MHz band. Bluetooth uses a radio technology called frequency-hopping spread spectrum, which chops up the data being sent and transmits chunks of it on up to 79 bands (1 MHz each; centred from 2402 to 2480 MHz) in the range 2,400-2,483.5 MHz. The transmitter switches hop frequencies 1,600 times per second to assure a high degree of data security. All Bluetooth devices participating in a given piconet are synchronized to the frequency-hopping channel for the piconet. The frequency hopping sequence is determined by the master's device address and the phase of the hopping sequence (the frequency to hop at a specific time) is determined by the master's internal clock. Therefore, all slaves in a piconet must know the master's device address and must synchronize their clocks with the master's clock.

Adaptive Frequency Hopping (AFH) was introduced in the Bluetooth specification to provide an effective way for a Bluetooth radio to counteract normal interference. AFH identifies "bad" channels, where either other wireless devices are interfering with the Bluetooth signal or the Bluetooth signal is interfering with another device. The AFH- enabled Bluetooth device will then communicate with other devices within its piconet to share details of any identified bad channels. The devices will then switch to alternative available "good" channels, away from the areas of interference, thus having no impact on the bandwidth used.



9 TEST REQUIREMENTS

9.1 20DB&99%BANDWIDTH

9.1.1 Applicable Standard

According to FCC Part 15.247(a)(1) and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02 According to IC RSS-247.5.1 and RSS-Gen.6.7

9.1.2 Conformance Limit

No limit requirement.

9.1.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

9.1.4 Test Procedure

The EUT was operating inBluetoothmode and controlled its channel. Printed out the test result from the spectrum by hard copy function.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 30 kHz.

Set the video bandwidth (VBW) =100kHz.

Set Span= approximately 2 to 3 times the 20 dB bandwidth

Set Detector = Peak.

Set Trace mode = max hold.

Set Sweep = auto couple.

The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize.Use the marker-to-peak function to set the marker to the peak of the emission. Use themarker-delta function to measure 20 dB down one side of the emission. Reset the markerdeltafunction, and move the marker to the other side of the emission, until it is (asclose as possible to) even with the reference marker level. The marker-delta reading atthis point is the 20 dB bandwidth of the emission.

If this value varies with differentmodes of operation (e.g., data rate, modulation format, etc.), repeat this test for eachvariation.

Measure and record the results in the test report.

Test Results

Temperature:	25° C	
Relative Humidity:	45%	
ATM Pressure:	1011 mbar	

Note: N/A

深圳信测标准技术服务股份有限公司地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn

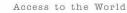


20dB Emission Bandwidth

TestMode	Antenna	Freq(MHz)	20dB EBW[MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
		2402	0.942	2401.538	2402.480		
DH5	Ant1	2441	0.921	2440.541	2441.462		
		2480	0.885	2479.550	2480.435		
		2402	1.320	2401.334	2402.654		
2DH5	Ant1	2441	1.302	2440.340	2441.642		
		2480	1.299	2479.334	2480.633		





















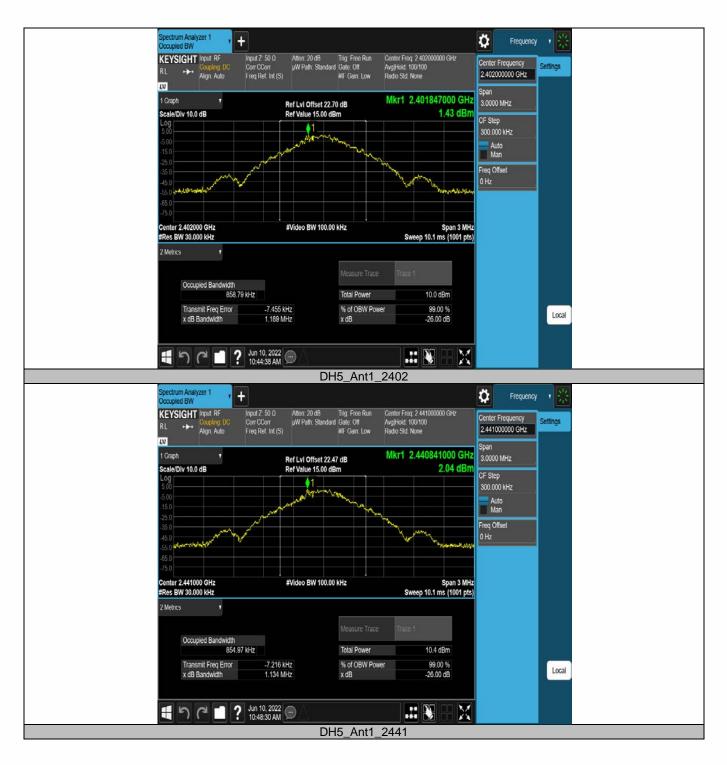


TestMode	Antenna	Freq(MHz)	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
		2402	0.85879	2401.563	2402.422		
DH5	Ant1	2441	0.85497	2440.565	2441.420		
		2480	0.85460	2479.562	2480.417		
		2402	1.2006	2401.397	2402.597		
2DH5	Ant1	2441	1.2062	2440.392	2441.598		
		2480	1.2101	2479.390	2480.600		

Occupied Channel Bandwidth





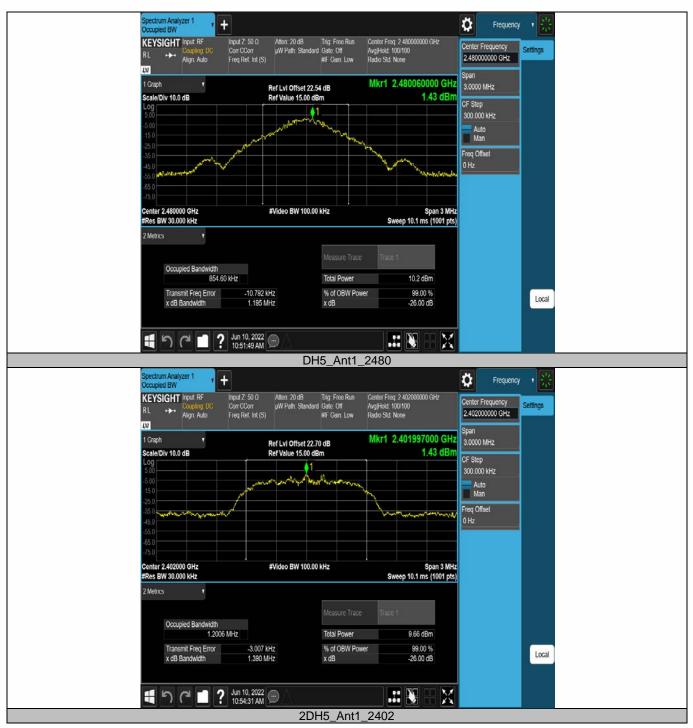


源圳信湯标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn EMTEK (Shenzhen) Co., Ltd. Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn

Report No. ENS2206080230W00201R



Access to the World









9.2 CARRIER FREQUENCY SEPARATION

9.2.1 Applicable Standard

According to FCC Part 15.247(a)(1) and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02 According to IC RSS-247.5.1

9.2.2 Conformance Limit

Frequency hopping systems operating in the 2400-2483.5MHz band shall have hoppingchannel carrier frequencies separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater.

In case of an output power less than 125mW, the frequency hopping system may have channels separated by a minimum of 25kHz ortwo-thirds of the 20dB bandwidth of the hopping channel, whichever is greater.

9.2.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

9.2.4 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzersettings:

Set the RBW =300kHz. Set VBW =300kHz.

Set the span = wide enough to capture the peaks of two adjacent channels

Set Sweep time = auto couple.

Set Detector = peak. Set Trace mode = max hold.

Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section. Submit this plot.

Test Results

Temperature:	25° C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: For GFSK, pi/4-DQPSK, 8DPSK Limit = 20dB bandwidth * 2/3

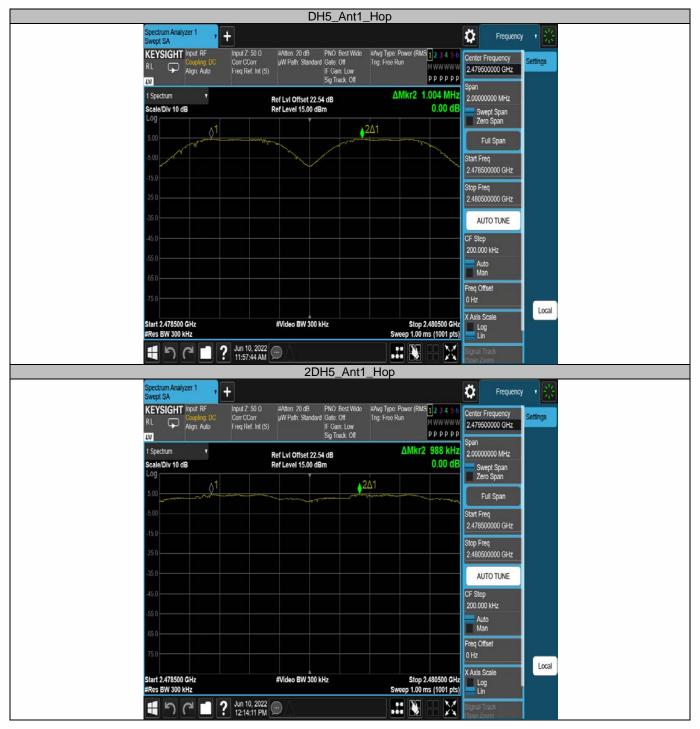


TestMode	Antenna	Freq(MHz)	Result[MHz]	Limit[MHz]	Verdict
DH5	Ant1	Нор	1.004	≥0.942	PASS
2DH5	Ant1	Нор	0.988	≥0.880	PASS





Access to the World





9.3 NUMBER OF HOPPING FREQUENCIES

9.3.1 Applicable Standard

According to FCC Part 15.247(a)(1)and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02 According to IC RSS-247.5.1

9.3.2 Conformance Limit

Frequency hopping systems operating in the 2400-2483.5MHz band shall use at least15 channels.

9.3.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

9.3.4 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzer settings: Span = the frequency band of operation (2400-2483.5MHz) RBW =300KHz VBW \geq RBW Sweep = auto Detector function = peak Trace = max hold Allow the trace to stabilize. It may prove necessary to break the span up to sections, inorder to clearly show all of the hopping frequencies.

Test Results

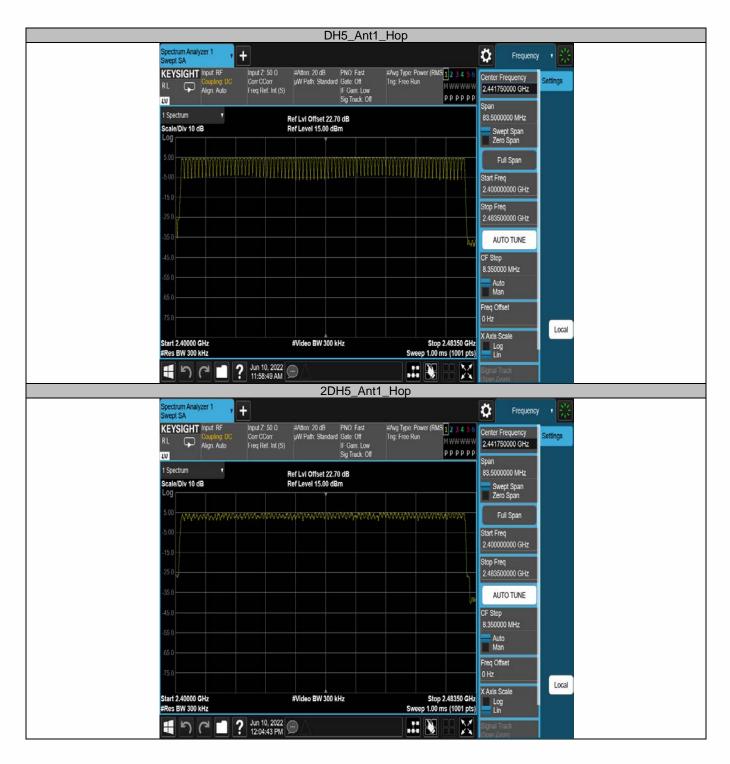
Temperature:	25° C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Note: N/A

TestMode	Antenna	Freq(MHz)	Freq(MHz) Result[Num]		Verdict	
DH5	Ant1	Нор	79	≥15	PASS	
2DH5	Ant1	Нор	79	≥15	PASS	

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn







9.4 AVERAGE TIME OF OCCUPANCY (DWELL TIME)

9.4.1 Applicable Standard

According to FCC Part 15.247(a)(1) and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02 According to IC RSS-247.5.1

9.4.2 Conformance Limit

For frequency hopping systems operating in the 2400-2483.5MHz band, the averagetime of occupancy on any channel shall not be greater than 0.4s within a period of 0.4smultiplied by the number of hopping channels employed.

9.4.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

9.4.4 Test Procedure

The EUT must have its hopping function enabled. Use the following spectrum analyzersettings:

Span = zero span, centered on a hopping channel

 $\dot{RBW} = 1 MHz$

 $VBW \ge RBW$

Sweep = as necessary to capture the entire dwell time per hopping channel

Detector function = peak

Trace = max hold

If possible, use the marker-delta function to determine the dwell time. If this value

varies with different modes of operation (e.g., data rate, modulation format, etc.),

repeat this test for each variation. The limit is specified in one of the subparagraphsof this Section.

9.4.5 Test Results

Temperature:	25° C	
Relative Humidity:	45%	
ATM Pressure:	1011 mbar	

Note: TotalHops(DH1)=(1600/2/79)*31.6 TotalHops(DH3)=(1600/4/79)*31.6 TotalHops(DH5)=(1600/6/79)*31.6 DwellTime=BurstWidth*TotalHops

TestMode	Antenna	Freq(MHz)	BurstWidth [ms]	TotalHops [Num]	Result[s]	Limit[s]	Verdict
DH1	Ant1	Нор	0.36	320	0.115	≤0.4	PASS
DH3	Ant1	Нор	1.61	160	0.258	≤0.4	PASS
DH5	Ant1	Нор	2.86	106.67	0.305	≤0.4	PASS

深圳信测标准技术服务股份有限公司地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



Access to the World





pectrum Analyzer 1 wept SA Ö + Frequency #Atten 20 dB PNO Fast µW Path: Standard Gate: Off IF Gain, Low Sig Track: Off #Avg Type: Power (RMS 1 2 3 4 5 KEYSIGHT Input RF Input Z: 50 Ω Center Frequency 2.441000000 GHz Corr CCorr Freq Ref. Int (S) Trig: Video Trig Delay: -2.000 ms Settinas Align. Auto WWWWW рррррр L)U ban ΔMkr2 2.860 ms 0.00000000 Hz 1 Spectrum Ref Lvi Offset 22.47 dB Ref Level 15.00 dBm Scale/Div 10 dB -0.03 dE Swept Span Zero Span ▲2∆1 Full Span Start Freq 2.441000000 GHz Stop Freq 2.441000000 GHz AUTO TUNE White productions and stabilet and a stabile the stability of the stability of the CF Step 1.000000 MHz Auto Man Freq Offset 0 Hz Local X Axis Scale Center 2.441000000 GHz Res BW 1.0 MHz Span 0 Hz Sweep 10.0 ms (1001 pts) Log Lin まってま? Jun 10, 2022 🗩 X .:: 🐧 DH5_Ant1_Hop



9.5 MAXIMUM PEAK CONDUCTED OUTPUT POWER

9.5.1 Applicable Standard

According to FCC Part 15.247(b)(1) and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02 According to IC RSS-247.5.4 and RSS-Gen 6.12

9.5.2 Conformance Limit

The max For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

9.5.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

9.5.4 Test Procedure

As an alternative to a peak power measurement, compliance with the limit can be based on a measurement of the maximum conducted output power.

Use the following spectrum analyzer settings:

Set Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel(about 8MHz)

Set RBW > the 20 dB bandwidth of the emission being measured(about 3MHz)

Set VBW \geq RBW

Set Sweep = auto

Set Detector function = peak

Set Trace = max hold

Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emissionto determine the peak amplitude level.

Test Results

Temperature:	25° C	
Relative Humidity:	45%	
ATM Pressure:	1011 mbar	

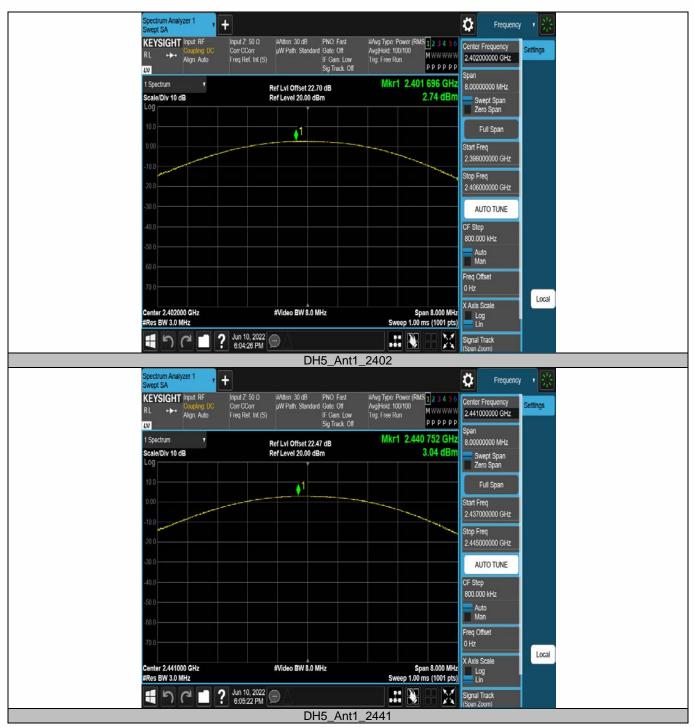
Note: N/A

Test Mode	Antenna	Freq(MHz)	Conducted Peak Powert[dBm]	Conducted Limit[dBm]	Verdict
DH5	Ant1	2402	2.74	≤20.97	PASS
		2441	3.04	≤20.97	PASS
		2480	2.98	≤20.97	PASS
2DH5	Ant1	2402	3.31	≤20.97	PASS
		2441	3.59	≤20.97	PASS
		2480	3.6	≤20.97	PASS

深圳信测标准技术服务股份有限公司地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn

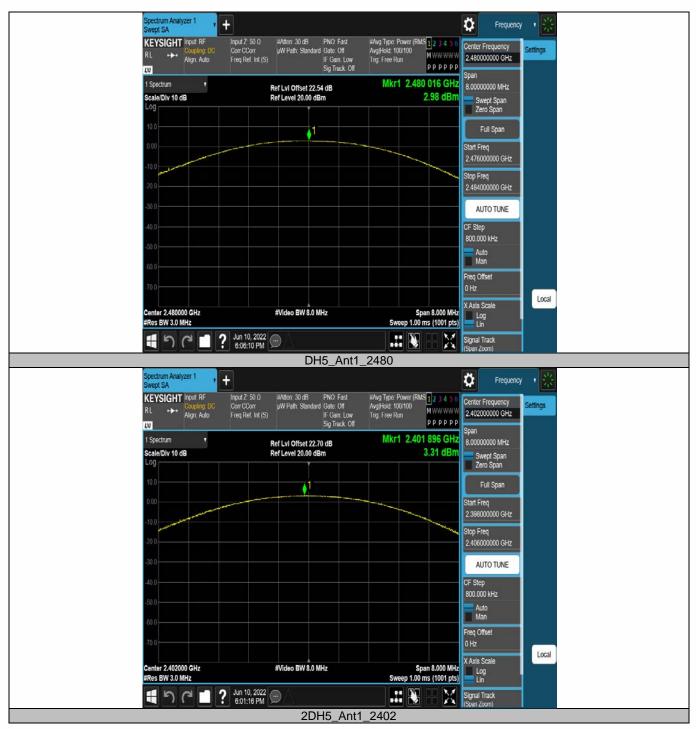


Access to the World

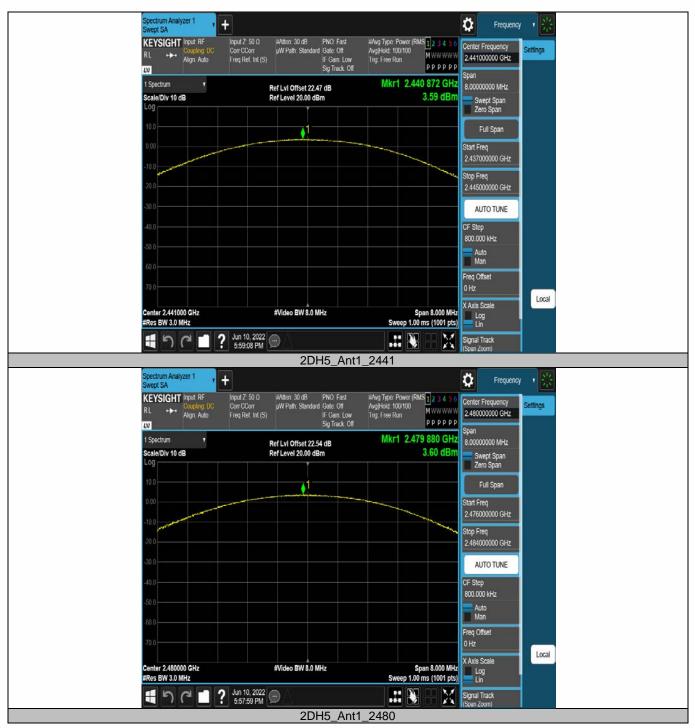




Access to the World









9.6 CONDUCTED SUPRIOUS EMISSION

9.6.1 Applicable Standard

According to FCC Part 15.247(d) and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02 According to IC RSS-247 5.5

9.6.2 Conformance Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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, provided the transmitter demonstrates compliance with the peak conducted power limits.

9.6.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

9.6.4 Test Procedure

The transmitter output (antenna port) was connected to the spectrum analyzer

Reference level measurement

Establish a reference level by using the following procedure:

Set instrument center frequency to DSS channel center frequency.

Set Span = approximately 5 times the 20 dB bandwidth, centered on a hopping channel.

Set the RBW = 100 kHz. Set the VBW \ge 3 x RBW.

Set Detector = peak. Set Sweep time = auto couple.

Set Trace mode = max hold. Allow trace to fully stabilize.

Use the peak marker function to determine the maximum Maximum conduceted level.

Note that the channel found to contain the maximum conduceted level can be used to establish the reference level.

Band-edge measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the emission operating on the channel closest to the band-edge, as well as any modulation products which fall outside of the authorized band of operation

Set RBW ≥ 1% of the span=100kHzSet VBW ≥3 x RBW

Set Sweep = autoSet Detector function = peakSet Trace = max hold

Allow the trace to stabilize. Set the marker on the emission at the bandedge, or on the highest modulation product outside of the band, if this level is greater than that at the bandedge. Enable the marker-delta function, then use the marker-to-peak function to move the marker to the peak of the in-band emission. The marker-delta value now displayed must comply with the limit specified in this Section.

Now, using the same instrument settings, enable the hopping function of the EUT. Allow the trace to stabilize. Follow the same procedure listed above to determine if any spurious emissions caused by the hopping function also comply with the specified limit.

Emission level measurement

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic.(30MHz to 25GHz).Set RBW = 100 kHzSet VBW \geq RBW

Set Sweep = autoSet Detector function = peakSet Trace = max hold

Allow the trace to stabilize. Set the marker on the peak of any spurious emission recorded. The level displayed must comply with the limit specified in this Section.

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



9.6.5 Test Results

Temperature:	25°C
Relative Humidity:	45%□
ATM Pressure:	1011 mbar

Note: N/A

Band edge measurements

TestMode	Antenna	ChName	Freq(MHz)	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
		Low	2402	4.17	-26.06	≤-15.83	PASS
DH5	Ant1	High	2480	4.49	-38.66	≤-15.51	PASS
DHD	Anti	Low	Hop_2402	2.79	-46.96	≤-17.21	PASS
		High	Hop_2480	3.77	-43.46	≤-16.23	PASS
2DH5 Ant	Apt1	Low	2402	3.37	-26.37	≤-16.63	PASS
	AIILI	High	2480	3.33	-37.5	≤-16.67	PASS

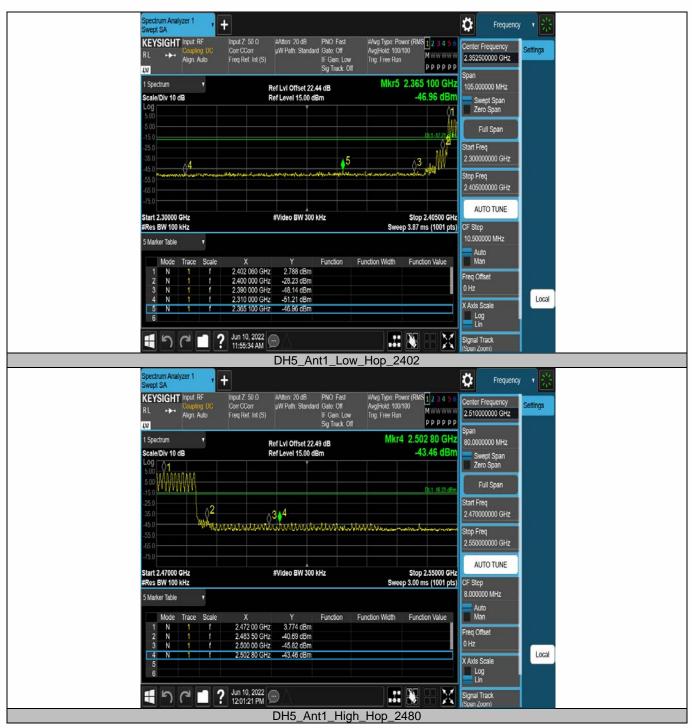




深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn EMTEK (Shenzhen) Co., Ltd. Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn

Report No. ENS2206080230W00201R













TestMode	Antenna	Freq(MHz)	FreqRange [MHz]	RefLevel [dBm]	Result [dBm]	Limit [dBm]	Verdict
		2402	30~1000	4.17	-49.85	≤-15.83	PASS
		2402	1000~26500	4.17	-38.33	≤-15.83	PASS
DH5	Ant1	2441	30~1000	4.48	-49.96	≤-15.52	PASS
	Anti	2441	1000~26500	4.48	-38.95	≤-15.52	PASS
		2480	30~1000	4.49	-50.09	≤-15.51	PASS
			1000~26500	4.49	-38.08	≤-15.51	PASS
		2402	30~1000	3.37	-50.61	≤-16.63	PASS
			1000~26500	3.37	-30.92	≤-16.63	PASS
2DH5	Ant1	2441	30~1000	4.46	-50.03	≤-15.54	PASS
	Anti	2441	1000~26500	4.46	-38.97	≤-15.54	PASS
		2490	30~1000	3.33	-50.72	≤-16.67	PASS
		2480	1000~26500	3.33	-39.18	≤-16.67	PASS





Report No. ENS2206080230W00201R













深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn EMTEK (Shenzhen) Co., Ltd. Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn

Report No. ENS2206080230W00201R









深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn EMTEK (Shenzhen) Co., Ltd. Add: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China Http://www.emtek.com.cn E-mail: cs.rep@emtek.com.cn

Report No. ENS2206080230W00201R



9.7 RADIATED SPURIOUS EMISSION

9.7.1 Applicable Standard

According to FCC Part 15.247(d), 15.205, 15.209 and KDB 558074 D01 15.247 MEAS GUIDANCE v05r02 According to IC RSS-Gen and RSS-247

9.7.2 Conformance Limit

According to FCC Part 15.247(d): 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)).

According to FCC Part 15.205, Restricted bands							
MHz	MHz	MHz	GHz				
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15				
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46				
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75				
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5				
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2				
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5				
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7				
6.26775-6.26825	123-138	2200-2300	14.47-14.5				
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2				
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4				
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12				
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0				
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8				
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5				
12.57675-12.57725	322-335.4	3600-4400	(2)				
13.36-13.41							

According to FCC Part15.205, the level of any transmitter spurious emission in Restricted bands shall not exceed the level of the emission specified in the following table

Restricted Frequency(MHz)	Field Strength (µV/m)	Field Strength (dBµV/m)	Measurement Distance				
0.009-0.490	2400/F(KHz)	20 log (uV/m)	300				
0.490-1.705	24000/F(KHz)	20 log (uV/m)	30				
1.705-30	30	29.5	30				
30-88	100	40	3				
88-216	150	43.5	3				
216-960	200	46	3				
Above 960	500	54	3				

9.7.3 Test Configuration

Test according to clause 7.2 radio frequency test setup 2

9.7.4 Test Procedure

This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT. Use the following spectrum analyzer settings:

For Above 1GHz:

The EUT was placed on a turn table which is 1.5m above ground plane.

Maximum procedure was performed on the highest emissions to ensure EUT compliance.

```
Span = wide enough to fully capture the emission being measured
```

RBW = 1 MHz

 $VBW \ge RBW$ Sweep = auto

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



Detector function = peak Trace = max hold For Below 1GHz: The EUT was placed on a turn table which is 0.8m above ground plane. Maximum procedure was performed on the highest emissions to ensure EUT compliance. Span = wide enough to fully capture the emission being measured RBW = 100 kHz for $VBW \ge RBW$ Sweep = auto Detector function = peak Trace = max hold For Below 30MHz: The EUT was placed on a turn table which is 0.8m above ground plane. Maximum procedure was performed on the highest emissions to ensure EUT compliance. Span = wide enough to fully capture the emission being measured RBW = 9kHz $VBW \ge RBW$ Sweep = auto Detector function = peak Trace = max hold For Below 150KHz: The EUT was placed on a turn table which is 0.8m above ground plane. Maximum procedure was performed on the highest emissions to ensure EUT compliance. Span = wide enough to fully capture the emission being measured RBW = 200Hz $VBW \ge RBW$ Sweep = autoDetector function = peak Trace = max hold Follow the guidelines in ANSI C63.10-2013 with respect to maximizing the emission by rotating the EUT,

measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization, etc. A pre-amp and a high pass filter are required for this test, in order to provide the measuring system with sufficient sensitivity. Allow the trace to stabilize. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, which must comply with the limit specified in Section 15.35(b). Submit this data.

Now set the VBW to 10 Hz, while maintaining all of the other instrument settings. This peak level, once corrected, must comply with the limit specified in Section 15.209. If the dwell time per channel of the hopping signal is less than 100 ms, then the reading obtained with the 10 Hz VBW may be further adjusted by a "duty cycle correction factor", derived from 20log(dwell time/100 ms), in an effort to demonstrate compliance with the 15.209 limit. Submit this data.

Repeat above procedures until all frequency measured was complete.

9.7.5 Test Results

Spurious Emission below 30MHz(9KHz to 30MHz)

Temperature:	22° C
Relative Humidity:	45%
ATM Pressure:	1011 mbar

Freq.	Ant.Pol.	Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK È	ÁV	PK	AV	PK	AV

Note: the amplitude of spurious emission that is attenuated by more than 20dB below the permissible limit has no need to be reported.

Distance extrapolation factor =40log(Specific distance/ test distance)(dB); Limit line=Specific limits(dBuV) + distance extrapolation factor

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



■ Spurious Emission Above 1GHz(1GHz to 25GHz)

All the antenna(Antenna 1) and modes(GFSK, π /4-DQPSK) mode have been tested, and the worst(Antenna 1,GFSK) resultrecorded was report as below:

Test mode:	GFS	GFSK Freque		ency:			
Freq. (MHz)	Ant.Pol.	Emis Level(d	ssion BuV/m)	Limit 3m	(dBuV/m)	Ove	r(dB)
(11112)	H/V	PK	AV	PK	AV	PK	AV
7412.532	V	52.68	40.11	74.00	54.00	-21.32	-13.89
11266.59	V	57.37	43.25	74.00	54.00	-16.63	-10.75
17922.12	V	66.16	48.04	74.00	54.00	-7.84	-5.96
7441.513	Н	56.09	41.10	74.00	54.00	-17.91	-12.90
10090.30	Н	58.30	42.30	74.00	54.00	-15.70	-11.70
17922.28	Н	64.26	47.30	74.00	54.00	-9.74	-6.70

Test mode:	GFS	K Frequenc		псу:	cy: Channel 39: 2441MHz		
Freq.	Ant.Pol.	Emission Lev	vel(dBuV/m)	Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
7739.857	V	52.71	35.90	74.00	54.00	-21.29	-18.10
14491.95	V	58.23	41.60	74.00	54.00	-15.77	-12.40
18000.00	V	64.58	47.90	74.00	54.00	-9.42	-6.10
11975.09	Н	55.48	38.60	74.00	54.00	-18.52	-15.40
14533.90	Н	58.30	41.60	74.00	54.00	-15.70	-12.40
18000.00	Н	64.59	47.90	74.00	54.00	-9.41	-6.10

Test mode: G

GFSK

Frequency:

Channel 78: 2480MHz

Freq. Ant.Pol.		Emission Level(dBuV/m)		Limit 3m(dBuV/m)		Over(dB)	
(MHz)	H/V	PK	AV	PK	AV	PK	AV
10917.17	V	54.70	37.70	74.00	54.00	-19.30	-16.30
14491.95	V	58.23	41.60	74.00	54.00	-15.77	-12.40
18000.00	V	64.58	47.80	74.00	54.00	-9.42	-6.20
11533.48	Н	56.74	40.50	74.00	54.00	-17.26	-13.50
14366.84	Н	58.50	41.60	74.00	54.00	-15.50	-12.40
18000.00	Н	64.12	47.40	74.00	54.00	-9.88	-6.60

Note:

(1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).

(2) Emission Level= Reading Level+Correct Factor.

(3) Correct Factor= Ant_F + Cab_L - Preamp

(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

深圳信测标准技术服务股份有限公司 地址:广东省深圳市南山区马家龙工业区69栋 网址:Http://www.emtek.com.cn 邮箱:cs.rep@emtek.com.cn



Spurious Emission in Restricted Band 2310-2390MHz and 2483.5-2500MHz

All the antenna(Antenna 1) and modes(GFSK, π /4-DQPSK, Hopping) mode have been tested, and the worst(Antenna 1,GFSK, Hopping) resultrecorded was report as below:

Test mode:	GFSK	Frequence	cy: Ch	Channel 0: 2402MHz		
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)	
2387.608	Н	51.25	74.00	36.20	54.00	
2388.000	V	51.83	74.00	37.50	54.00	

Test mode:	GFSK	Frequenc	cy: Ch	annel 78: 2480Mł	Ηz
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)
2484.340	Н	55.38	74.00	36.20	54.00
2483.855	V	54.24	74.00	37.10	54.00

Test mode:	GFSK	Frequency: Hopping						
Frequency (MHz)	Polarity H/V	PK(dBuV/m) (VBW=3MHz)	Limit 3m (dBuV/m)	AV(dBuV/m) (VBW=10Hz)	Limit 3m (dBuV/m)			
2400.0	н	48.10	74.00	33.70	54.00			
2483.5	н	41.95	74.00	28.90	54.00			
2400.0	V	52.81	74.00	36.90	54.00			
2483.5	V	43.66	74.00	29.70	54.00			

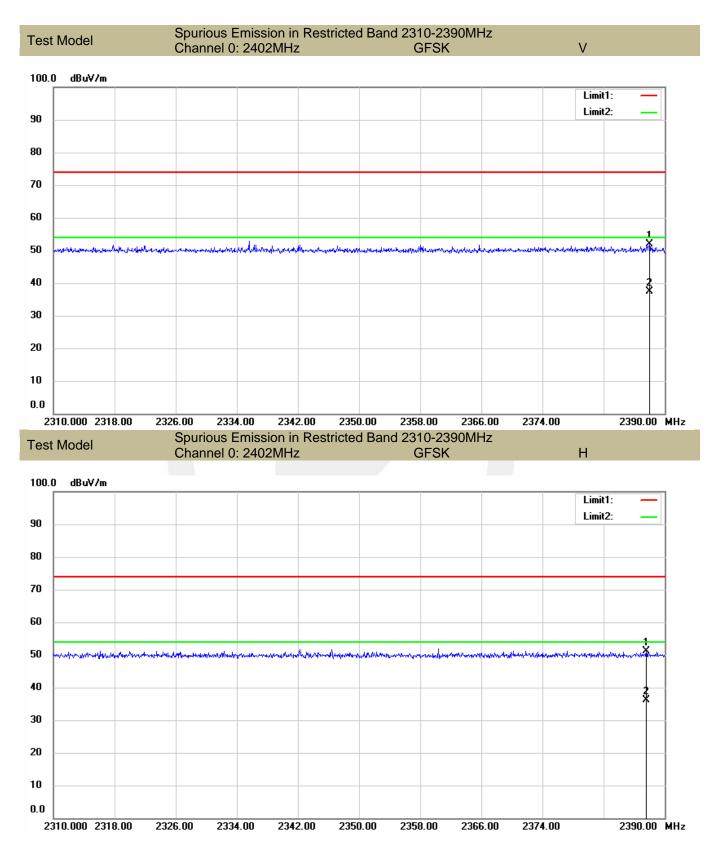
Note: (1) All Readings are Peak Value (VBW=3MHz) and Average Value (VBW=10Hz).

(2) Emission Level= Reading Level+Correct Factor.

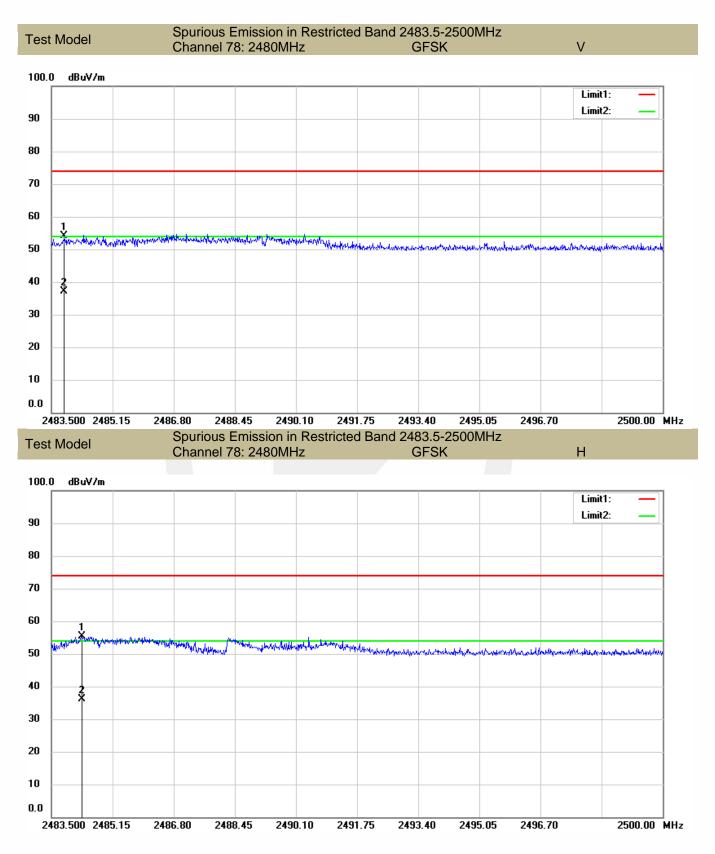
(3) Correct Factor= Ant_F + Cab_L - Preamp

(4) The reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

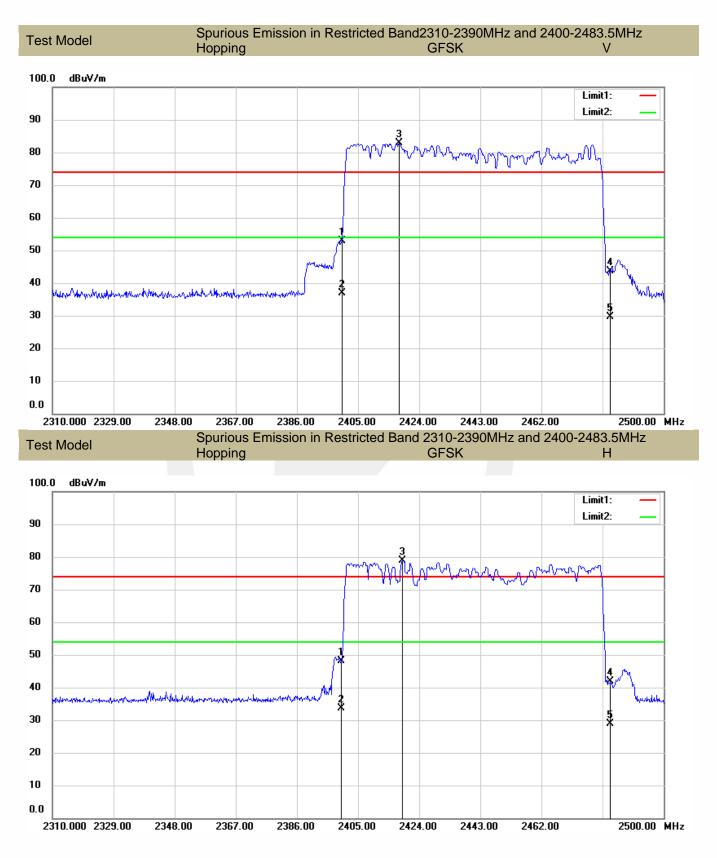






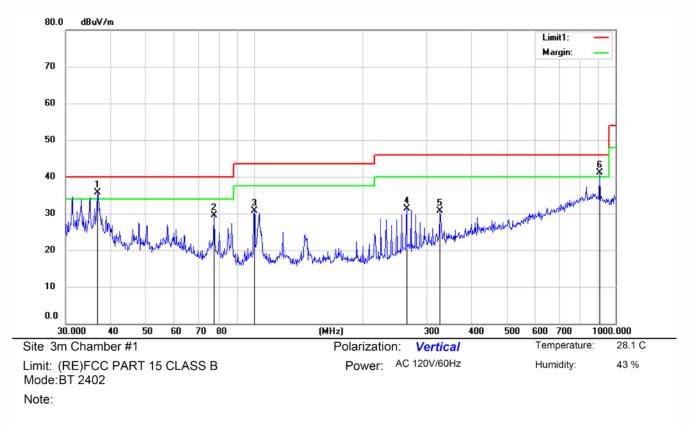






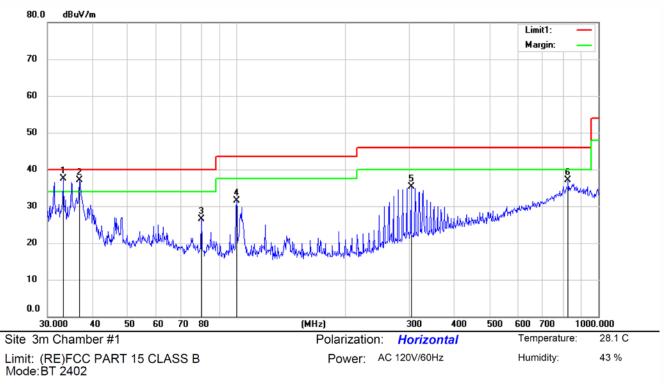


- Spurious Emission below 1GHz(30MHz to 1GHz)
- All the antenna(Antenna 1) and modes(GFSK, π/4-DQPSK) mode have been tested, and the worst(Antenna 1,GFSK) resultrecorded was report as below:



No.	Mk	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	36.8791	44.65	-8.85	35.80	40.00	-4.20	QP			
2		77.4230	39.49	-10.05	29.44	40.00	-10.56	QP			
3		99.9215	41.06	-10.43	30.63	43.50	-12.87	QP			
4		263.8190	37.82	-6.57	31.25	46.00	-14.75	QP			
5		326.5963	35.01	-4.32	30.69	46.00	-15.31	QP			
6	!	904.8945	35.68	5.45	41.13	46.00	-4.87	QP			

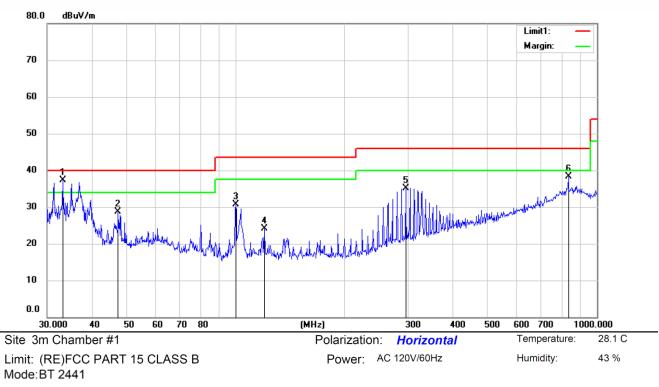




Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	33.1821	46.99	-9.58	37.41	40.00	-2.59	QP			
2	!	36.8630	46.02	-8.85	37.17	40.00	-2.83	QP			
3		80.0104	36.88	-10.43	26.45	40.00	-13.55	QP			
4		99.9653	41.90	-10.43	31.47	43.50	-12.03	QP			
5	3	303.8100	40.48	-5.15	35.33	46.00	-10.67	QP			
6	8	326.0440	30.98	6.15	37.13	46.00	-8.87	QP			

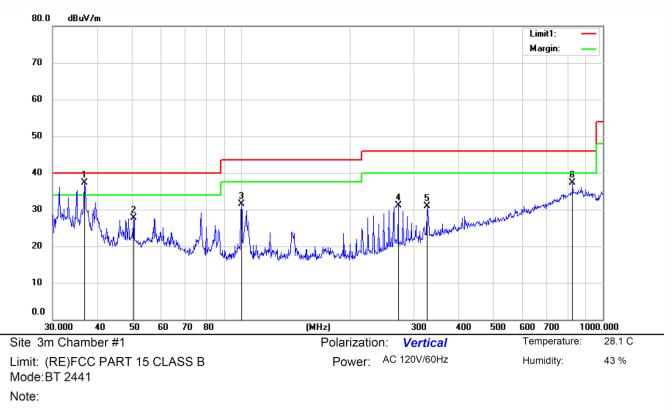




Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	33.1821	46.89	-9.58	37.31	40.00	-2.69	QP			
2		47.2840	36.70	-7.90	28.80	40.00	-11.20	QP			
3		100.0092	41.09	-10.43	30.66	43.50	-12.84	QP			
4		119.9607	34.26	-10.08	24.18	43.50	-19.32	QP			
5		295.9241	40.22	-5.14	35.08	46.00	-10.92	QP			
6		834.0480	31.95	6.43	38.38	46.00	-7.62	QP			





MHz dBuV dB dBuV/m dB Detector cm degree Comment 1 * 36.8791 46.19 -8.85 37.34 40.00 -2.66 QP -	No.	Mk.	. Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over		Antenna Height	Table Degree	
2 50.3868 35.14 -7.49 27.65 40.00 -12.35 QP 3 99.9653 41.93 -10.43 31.50 43.50 -12.00 QP 4 271.9198 37.13 -6.11 31.02 46.00 -14.98 QP 5 326.7395 35.14 -4.32 30.82 46.00 -15.18 QP			MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
3 99.9653 41.93 -10.43 31.50 43.50 -12.00 QP 4 271.9198 37.13 -6.11 31.02 46.00 -14.98 QP 5 326.7395 35.14 -4.32 30.82 46.00 -15.18 QP	1	*	36.8791	46.19	-8.85	37.34	40.00	-2.66	QP			
4 271.9198 37.13 -6.11 31.02 46.00 -14.98 QP 5 326.7395 35.14 -4.32 30.82 46.00 -15.18 QP	2		50.3868	35.14	-7.49	27.65	40.00	-12.35	QP			
5 326.7395 35.14 -4.32 30.82 46.00 -15.18 QP	3		99.9653	41.93	-10.43	31.50	43.50	-12.00	QP			
	4		271.9198	37.13	-6.11	31.02	46.00	-14.98	QP			
6 826.0440 31.10 6.15 37.25 46.00 -8.75 QP	5		326.7395	35.14	-4.32	30.82	46.00	-15.18	QP			
	6		826.0440	31.10	6.15	37.25	46.00	-8.75	QP			