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FCC REPORT

Application No:	SZEM1602000794CR
Applicant:	Ace Bayou Corp
Manufacturer:	Ace Bayou Corp
Factory:	DAKANG HOLDING CO., LTD
Product Name:	GAMING CHAIR
Model No.(EUT):	0287001
Add Model No.:	0778701,51XXXXX,06XXXXX,07XXXXX,93XXXXX(X=0-9)
Trade Mark:	X Rocker
FCC ID:	XVMBABT20
Standards:	47 CFR Part 15, Subpart C (2015)
Date of Receipt:	2016-02-23
Date of Test:	2016-02-23 to 2016-03-17
Date of Issue:	2016-03-22
Test Result:	PASS *

^{*} In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



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.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.



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2 Version

Revision Record						
Version	Chapter	Date	Modifier	Remark		
00		2016-03-22		Original		

Authorized for issue by:		
Tested By	Gebin Sun	2014-07-22
	(Gebin Sun) /Project Engineer	Date
Prepared By	Joyce Shi	2016-03-22
	(Joyce Shi) /Clerk	Date
Checked By	Eric Fu	2016-03-22
	(Eric Fu) /Reviewer	Date

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3 Test Summary

Test Item	Test Requirement	Test method	Result
Antenna Requirement	47 CFR Part 15, Subpart C Section 15.203/15.247 (c)	ANSI C63.10 (2013)	PASS
AC Power Line Conducted Emission	47 CFR Part 15, Subpart C Section 15.207	ANSI C63.10 (2013)	PASS
Conducted Peak Output Power	47 CFR Part 15, Subpart C Section 15.247 (b)(1)	ANSI C63.10 (2013)	PASS
20dB Occupied Bandwidth	47 CFR Part 15, Subpart C Section 15.247 (a)(1)	ANSI C63.10 (2013)	PASS
Carrier Frequencies Separation	47 CFR Part 15, Subpart C Section 15.247 (a)(1)	ANSI C63.10 (2013)	PASS
Hopping Channel Number	47 CFR Part 15, Subpart C Section 15.247 (a)(1)	ANSI C63.10 (2013)	PASS
Dwell Time	47 CFR Part 15, Subpart C Section 15.247 (a)(1)	ANSI C63.10 (2013)	PASS
Pseudorandom Frequency Hopping Sequence	47 CFR Part 15, Subpart C Section 15.247(b)(4)&TCB Exclusion List (7 July 2002)	ANSI C63.10 (2013)	PASS
Band-edge for RF Conducted Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 (2013)	PASS
RF Conducted Spurious Emissions	47 CFR Part 15, Subpart C Section 15.247(d)	ANSI C63.10 (2013)	PASS
Radiated Spurious emissions	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 (2013)	PASS
Restricted bands around fundamental frequency (Radiated Emission)	47 CFR Part 15, Subpart C Section 15.205/15.209	ANSI C63.10 (2013)	PASS





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5 General Information

5.1 Client Information

Applicant:	Ace Bayou Corp
Address of Applicant:	3700 Desire Parkway New Orleans Louisiana United States
Manufacturer:	Ace Bayou Corp
Address of Manufacturer:	3700 Desire Parkway New Orleans Louisiana United States
Factory:	DAKANG HOLDING CO., LTD
Address of Factory:	ANJI DEVELOPING AREA ZHEJIANG PROVIDENCE ANJI CITY, CHINA

5.2 General Description of EUT

Product Name:	GAMING CHAIR
Model No.:	0287001
Trade Mark:	X Rocker
Operation Frequency:	2402MHz~2480MHz
Bluetooth Version:	V2.1+EDR
Modulation Technique:	Frequency Hopping Spread Spectrum(FHSS)
Modulation Type:	GFSK, π/4DQPSK, 8DPSK
Number of Channel:	79
Hopping Channel Type:	Adaptive Frequency Hopping systems
Sample Type:	Portable production
Antenna Gain:	0dBi
Antenna Type:	Integral
EUT Power Supply:	Switching Power Supply Model No.: BI12T-050100-BdBU Input: AC 100-240V 50/60Hz 0.5A Output: DC 5V 1A Model No.: TM-K006VA-00501000PH-01 Input: AC 100-240V 50/60Hz 0.2A Output: DC 5V 1000mA DC3.7V (1 x 3.7V Rechargeable battery) 2400mAh Battery: Charge by DC 5V

Remark:

Model No.: 0287001, 0778701, 51XXXXX, 06XXXXX, 07XXXXX, 93XXXXX(X=0-9) Only the model 0287001 was tested, since the circuit design, PCB layout, electrical components used, internal wiring and functions were identical for the above models, with difference being model numbers and appearance deviation.



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Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
0	2402MHz	20	2422MHz	40	2442MHz	60	2462MHz
1	2403MHz	21	2423MHz	41	2443MHz	61	2463MHz
2	2404MHz	22	2424MHz	42	2444MHz	62	2464MHz
3	2405MHz	23	2425MHz	43	2445MHz	63	2465MHz
4	2406MHz	24	2426MHz	44	2446MHz	64	2466MHz
5	2407MHz	25	2427MHz	45	2447MHz	65	2467MHz
6	2408MHz	26	2428MHz	46	2448MHz	66	2468MHz
7	2409MHz	27	2429MHz	47	2449MHz	67	2469MHz
8	2410MHz	28	2430MHz	48	2450MHz	68	2470MHz
9	2411MHz	29	2431MHz	49	2451MHz	69	2471MHz
10	2412MHz	30	2432MHz	50	2452MHz	70	2472MHz
11	2413MHz	31	2433MHz	51	2453MHz	71	2473MHz
12	2414MHz	32	2434MHz	52	2454MHz	72	2474MHz
13	2415MHz	33	2435MHz	53	2455MHz	73	2475MHz
14	2416MHz	34	2436MHz	54	2456MHz	74	2476MHz
15	2417MHz	35	2437MHz	55	2457MHz	75	2477MHz
16	2418MHz	36	2438MHz	56	2458MHz	76	2478MHz
17	2419MHz	37	2439MHz	57	2459MHz	77	2479MHz
18	2420MHz	38	2440MHz	58	2460MHz	78	2480MHz
19	2421MHz	39	2441MHz	59	2461MHz		

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Channel	Frequency		
The Lowest channel	2402MHz		
The Middle channel	2441MHz		
The Highest channel	2480MHz		

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5.3 Test Environment

Operating Environment	Operating Environment:		
Temperature:	25.0 °C		
Humidity:	52 % RH		
Atmospheric Pressure:	1020mbar		

5.4 Description of Support Units

The EUT has been tested independent unit.

5.5 Test Location

All tests were performed at:

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

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.



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5.6 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 – Registration No.: 556682

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration No.: 556682.

Industry Canada (IC)

The 3m Semi-anechoic chambers and the 10m Semi-anechoic chambers 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-2, 4620C-3.

5.7 Deviation from Standards

None.

5.8 Abnormalities from Standard Conditions

None.

5.9 Other Information Requested by the Customer

None.



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5.10 Equipment List

	Conducted Emission						
ltem	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)	
1	Shielding Room	ZhongYu Electron	GB-88	SEL0042	2015-05-13	2016-05-13	
2	LISN	Rohde & Schwarz	ENV216	SEL0152	2015-10-09	2016-10-09	
3	LISN	ETS-LINDGREN	3816/2	SEL0021	2015-05-13	2016-05-13	
4	8 Line ISN	Fischer Custom Communications Inc.	FCC-TLIS N-T8-02	SEL0162	2015-08-30	2016-08-30	
5	4 Line ISN	Fischer Custom Communications Inc.	FCC-TLIS N-T4-02	SEL0163	2015-08-30	2016-08-30	
6	2 Line ISN	Fischer Custom Communications Inc.	FCC-TLIS N-T2-02	SEL0164	2015-08-30	2016-08-30	
7	EMI Test Receiver	Rohde & Schwarz	ESCI	SEL0022	2015-05-13	2016-05-13	
8	Coaxial Cable	SGS	N/A	SEL0025	2015-05-13	2016-05-13	
9	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-09	2016-10-09	
10	Humidity/ Temperature Indicator	Shanhai Qixiang	ZJ1-2B	SEL0103	2015-10-24	2016-10-24	
11	Barometer	Chang Chun	DYM3	SEL0088	2015-05-13	2016-05-13	



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	RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)	
1	10m Semi-Anechoic Chamber	SAEMC	FSAC1018	SEL0303	2015-08-01	2016-08-01	
2	EMI Test Receiver (9k-3GHz)	Rohde & Schwarz	ESCI	SEL0175	2015-05-13	2016-05-13	
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A	
4	Coaxial cable	SGS	N/A	SEL0288	2015-05-13	2016-05-13	
5	Coaxial cable	SGS	N/A	SEL0275	2015-05-13	2016-05-13	
6	Coaxial cable	SGS	N/A	SEL0274	2015-05-13	2016-05-13	
8	Trilog-Broadband Antenna(30M-1GHz)	Schwarzbeck	VULB9168	SEM003-17	2016-01-26	2017-01-26	
9	Pre-amplifier	Sonoma Instrument Co	310N	SEL0298	2015-05-13	2016-05-13	
10	Loop Antenna	ETS-LINDGREN	6502	SEL0802	2015-08-14	2016-08-14	

	RE in Chamber					
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)
1	3m Semi-Anechoic Chamber	AUDIX	N/A	SEL0198	2015-05-13	2016-05-13
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	2015-05-13	2016-05-13
3	EMI Test software	AUDIX	E3	SEL0201	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0202	2015-05-13	2016-05-13
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0015	2015-11-15	2016-11-15
6	Amplifier (0.1-1300MHz)	HP	8447D	SEL0153	2015-10-09	2016-10-09
7	Horn Antenna (1-18GHz)	Rohde & Schwarz	HF907	SEL0311	2015-06-14	2016-06-14
8	Low Noise Amplifier	Black Diamond Series	BDLNA- 0118- 352810	SEL0319	2015-10-09	2016-10-09
9	Band filter	Amindeon	Asi 3314	SEL0094	2015-05-13	2016-05-13

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	RF connected test									
ltem	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. date (yyyy-mm-dd)	Cal.Due date (yyyy-mm-dd)				
1	DC Power Supply	Zhao Xin	RXN-305D	SEL0117	2015-10-09	2016-10-09				
2	Humidity/ Temperature Indicator	HYGRO	ZJ1-2B	SEL0033	2015-10-24	2016-10-24				
3	Spectrum Analyzer	Rohde & Schwarz	FSP	SEL0154	2015-10-17	2016-10-17				
4	Coaxial cable	SGS	N/A	SEL0178	2015-05-13	2016-05-13				
5	Coaxial cable	SGS	N/A	SEL0179	2015-05-13	2016-05-13				
6	Barometer	ChangChun	DYM3	SEL0088	2015-05-13	2016-05-13				
7	Signal Generator	Rohde & Schwarz	SML03	SEL0068	2015-04-25	2016-04-25				
8	POWER METER	R & S	NRVS	SEL0144	2015-10-09	2016-10-09				
9	Attenuator	Beijin feihang taida	TST-2-6d B	SEL0205	2015-04-25	2016-04-25				

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6 Test results and Measurement Data

6.1 Antenna Requirement

Standard requirement: 47 CFR Part 15C Section 15.203 /247(c)

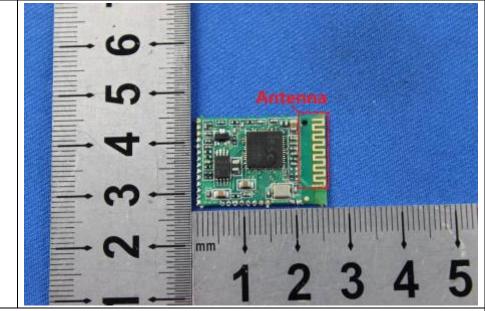
15.203 requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, 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 0dBi.



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47 CFR Part 15C Section 15.2	47 CFR Part 15C Section 15.207							
ANSI C63.10: 2013								
150kHz to 30MHz	150kHz to 30MHz							
	Limit (c	lBuV)						
Frequency range (MHZ)	Quasi-peak	Average						
0.15-0.5	66 to 56*	56 to 46*						
0.5-5	56	46						
5-30	60	50						
* Decreases with the logarithm	n of the frequency.							
 * Decreases with the logarithm of the frequency. 1) The mains terminal disturbance voltage test was conducted in a shielde room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50µH + 5Ω linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2. 								
	 ANSI C63.10: 2013 150kHz to 30MHz Frequency range (MHz) 0.15-0.5 0.5-5 5-30 * Decreases with the logarithm 1) The mains terminal disturber room. 2) The EUT was connected to Impedance Stabilization N impedance. The power calls connected to a second LIS reference plane in the same measured. A multiple sock power cables to a single L exceeded. 3) The tabletop EUT was place ground reference plane. A placed on the horizontal ground reference plane. A placed on the horizontal ground reference plane. The LISN unit under test and bonded mounted on top of the group between the closest points the EUT and associated eq 5) In order to find the maximu equipment and all of the impediate on the impediate of the impediate of the presence of the presence of the maximu equipment and all of the impediate of the presence of the group of the group of the group between the closest points the EUT and associated equipment and all of the impediate of the presence of	ANSI C63.10: 2013 150kHz to 30MHz Frequency range (MHz) Limit (c Quasi-peak 0.15-0.5 66 to 56* 0.5-5 56 5-30 60 * Decreases with the logarithm of the frequency. 1) The mains terminal disturbance voltage test was room. 2) The EUT was connected to AC power source through impedance. The power cables of all other units of connected to a second LISN 2, which was bonder reference plane in the same way as the LISN 1 for measured. A multiple socket outlet strip was used power cables to a single LISN provided the rating exceeded. 3) The tabletop EUT was placed upon a non-metalling ground reference plane. And for floor-standing ar placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The LISN 1 was placed 0.8 m from unit under test and bonded to a ground reference plane. The LISN 1 and the the EUT and associated equipment was at least 0.5 ln order to find the maximum emission, the relative	ANSI C63.10: 2013 150kHz to 30MHz Frequency range (MHz) Limit (dBuV) Quasi-peak Average 0.15-0.5 66 to 56* 56 to 46* 0.5-5 56 46 5-30 60 50 * Decreases with the logarithm of the frequency. 1) 1) The mains terminal disturbance voltage test was conducted in a shi room. 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50Ω/50µH + 5Ω 1 impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was no exceeded. 3) The tabletop EUT was placed upon a non-metallic table 0.8m above 1 ground reference plane. And for floor-standing arrangement, the EUT placed on the horizontal ground reference plane, 4) The test was performed with a vertical ground reference plane. The re of the EUT shall be 0.4 m from the vertical ground reference plane. The LISN 1 was placed 0.8 m from the boundary of unit under test and bonded to a ground reference plane. The sistance was between the closest points of the LISN 1 and the EUT. All other units the EUT and associated equipment was at least 0.8 m from the LISN 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according					

6.2 Conducted Emissions





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Test Setup:	Shielding Room Test Receiver Test Receiver Test Receiver Test Receiver Test Receiver Test Receiver Test Receiver Test Receiver Test Receiver Ground Reference Plane
Exploratory Test Mode:	Non-hopping transmitting mode with all kind of modulation and all kind of data type at the lowest, middle, high channel. Charge + Transmitting mode.
Final Test Mode:	Through Pre-scan, find the DH1 of data type and GFSK modulation at the lowest channel is the worst case. Charge + Transmitting mode Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass



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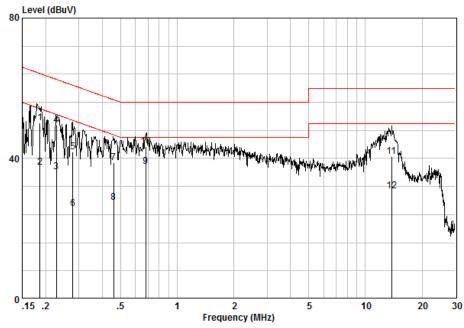
Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

Adaptor Model No.: BI12T-050100-BdBU

Live line:



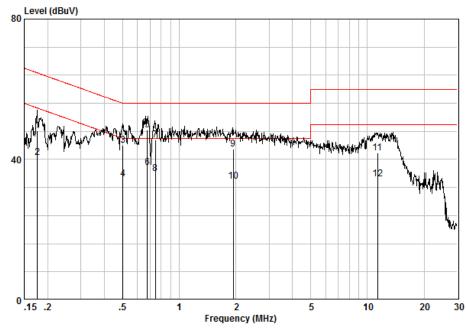
Site	: Shielding Room
Condition	: CE LINE
Job No.	: 0794CR
Test Mode	: AC charge + TX

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.18653	0.02	9.60	40.60	50.22	64.19	-13.97	QP
2	0.18653	0.02	9.60	27.90	37.52	54.19	-16.67	Average
3	0.22796	0.02	9.60	26.60	36.22	52.52	-16.31	Average
4	0.22796	0.02	9.60	39.90	49.52	62.52	-13.01	QP
5	0.27881	0.01	9.59	32.30	41.91	60.85	-18.94	QP
6	0.27881	0.01	9.59	16.10	25.71	50.85	-25.14	Average
7	0.45878	0.01	9.59	29.20	38.80	56.71	-17.91	QP
8	0.45878	0.01	9.59	17.80	27.40	46.71	-19.31	Average
9 0	0.67912	0.02	9.61	28.00	37.63	46.00	-8.37	Average
10	0.67912	0.02	9.61	33.70	43.33	56.00	-12.67	QP
11	13.754	0.01	9.75	30.80	40.56	60.00	-19.44	QP
12	13.754	0.01	9.75	20.90	30.66	50.00	-19.34	Average



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Neutral line:



Site : Shielding Room Condition : CE NEUTRAL Job No. : 0794CR Test Mode : AC charge + TX

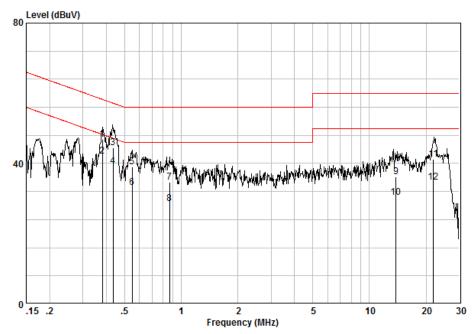
	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.17584	0.02	9.60	38.60	48.22	64.68	-16.46	QP
2	0.17584	0.02	9.60	30.90	40.52	54.68	-14.16	Average
3	0.50202	0.01	9.63	34.30	43.94	56.00	-12.06	QP
4	0.50202	0.01	9.63	24.90	34.54	46.00	-11.46	Average
5 @	0.67779	0.02	9.63	38.70	48.35	56.00	-7.65	QP
6 0	0.67779	0.02	9.63	28.10	37.75	46.00	-8.25	Average
7	0.74630	0.02	9.64	36.00	45.66	56.00	-10.35	QP
8 0	0.74630	0.02	9.64	26.30	35.96	46.00	-10.05	Average
9	1.938	0.02	9.66	33.30	42.98	56.00	-13.02	QP
10	1.938	0.02	9.66	24.20	33.88	46.00	-12.12	Average
11	11.344	0.01	9.82	32.00	41.83	60.00	-18.17	QP
12	11.344	0.01	9.82	24.58	34.41	50.00	-15.59	Average



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Adaptor Model No.: TM-K006VA-00501000PH-01

Live Line:



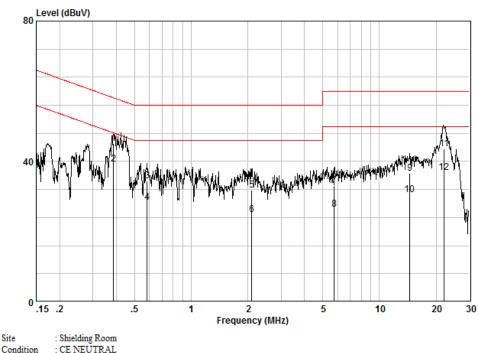
Site : Shielding Room Condition : CE LINE Job No. : 0794CR Test Mode : AC charge + TX

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
-	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
	0.38063 0.38063 0.43377 0.54934 0.54934 0.86643 0.86643 13.841 13.841 13.841 21.860 21.860	0.01 0.01 0.01 0.01 0.01 0.02 0.02 0.02	9.60 9.60 9.60 9.60 9.60 9.61 9.61 9.75 9.75 9.75 9.81	37.30 32.40 34.90 29.60 23.60 25.10 19.00 26.50 20.50 31.40 24.90	44.51 39.21 39.11 33.21 34.73 28.63 36.26 30.26	48.27 57.18 47.18 56.00 46.00 56.00 46.00 60.00 50.00 60.00	-12.67 -7.97 -16.89 -12.79 -21.27 -17.37 -23.74 -19.74 -18.77	Average QP Average QP Average QP Average QP Average



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Neutral Line:



Sile	. Smelding Room
Condition	: CE NEUTRAL
Job No.	: 0794CR
Test Mode	: AC charge + TX

Freg	Cable	LISN Factor	Read	Level	Limit Line	Over Limit	Remark
1104	2000	100001	20002	20101	21110	Dimio	IVE MALE &
MHz	dB	dB	dBuV	dBuV	dBuV	dB	
0.38724	0.01	9.62	35.40	45.03	58.12	-13.09	QP
0.38724	0.01	9.62	29.60	39.23	48.12	-8.89	Average
0.58231	0.01	9.63	24.70	34.34	56.00	-21.66	QP
0.58231	0.01	9.63	18.80	28.44	46.00	-17.56	Average
2.099	0.02	9.66	22.20	31.88	56.00	-24.12	QP
2.099	0.02	9.66	15.10	24.78	46.00	-21.22	Average
5.744	0.01	9.73	23.40	33.14	60.00	-26.86	QP
5.744	0.01	9.73	16.60	26.34	50.00	-23.66	Average
14.517	0.01	9.89	26.80	36.71	60.00	-23.29	QP
14.517	0.01	9.89	20.70	30.61	50.00	-19.39	Average
22.063	0.02	10.08	33.40	43.50	60.00	-16.50	QP
22.063	0.02	10.08	26.80	36.90	50.00	-13.10	Average

Notes:

The following Quasi-Peak and Average measurements were performed on the EUT:
 Final Test Level = Receiver Reading + LISN Factor + Cable Loss.



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6.3 Conducted Peak Output Power

Test Requirement:	47 CFR Part 15C Section 15.247 (b)(1)				
Test Method:	ANSI C63.10:2013				
Test Setup:	Spectrum Analyzer Image: Ima				
Limit:	30dBm				
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type $_{\circ}$				
Final Test Mode:	Through Pre-scan, find the DH1 of data type is the worst case of GFSK modulation type, 2-DH1 of data type is the worst case of $\pi/4DQPSK$ modulation type, 3-DH1 of data type is the worst case of 8DPSK modulation type.				
Instruments Used:	Refer to section 5.10 for details				
Test Results:	Pass				

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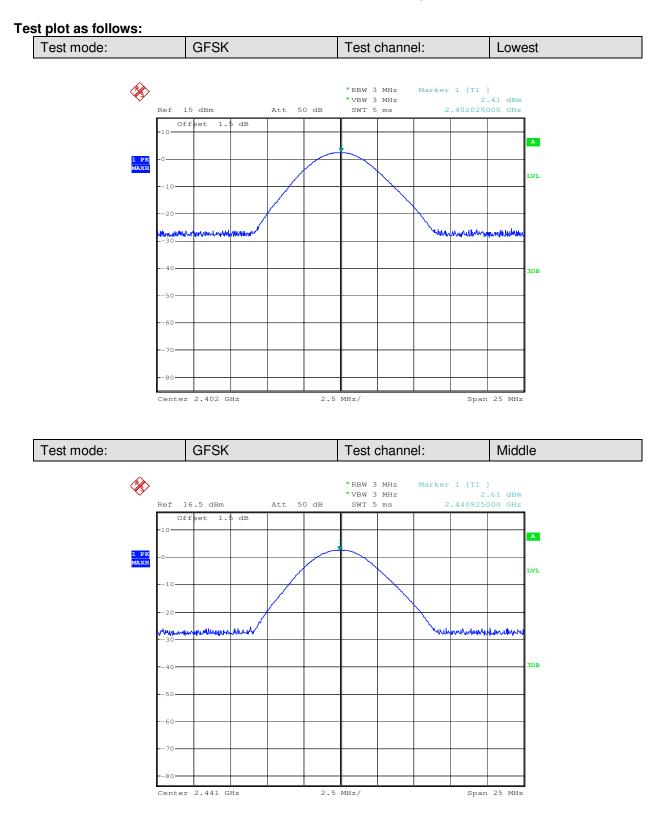
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Measurement Data

GFSK mode									
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result						
Lowest	2.41	30.00	Pass						
Middle	2.61	30.00	Pass						
Highest	2.50	30.00	Pass						
	π/4DQPSK mode								
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result						
Lowest	1.06	30.00	Pass						
Middle	1.44	30.00	Pass						
Highest	1.52	30.00	Pass						
	8DPSK mode								
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result						
Lowest	1.24	30.00	Pass						
Middle	1.73	30.00	Pass						
Highest	1.71	30.00	Pass						

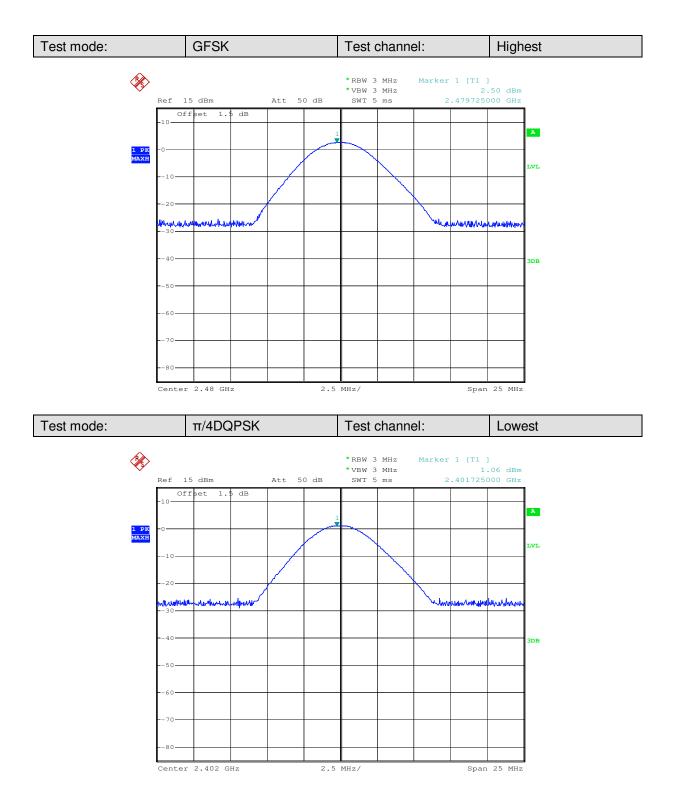


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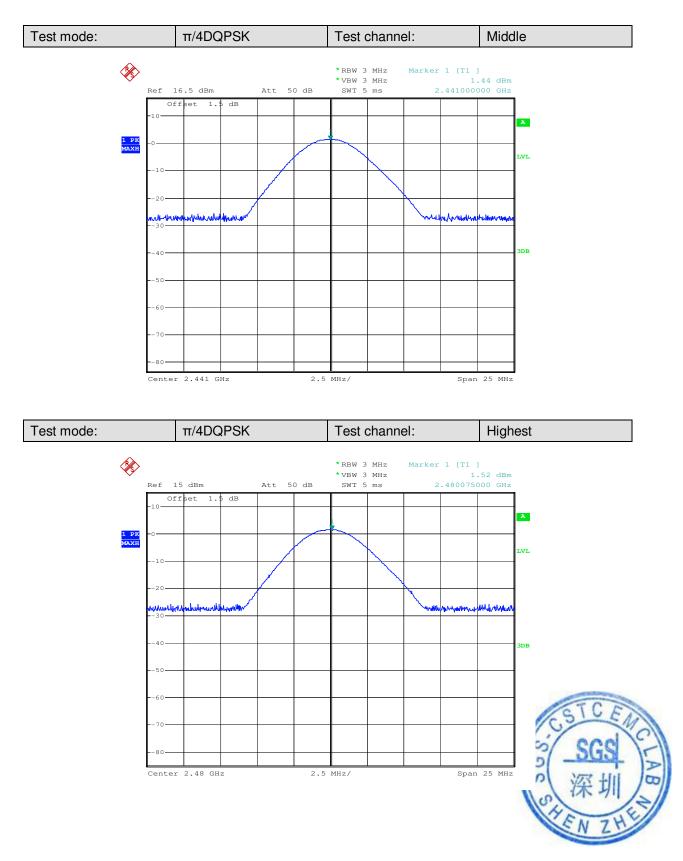


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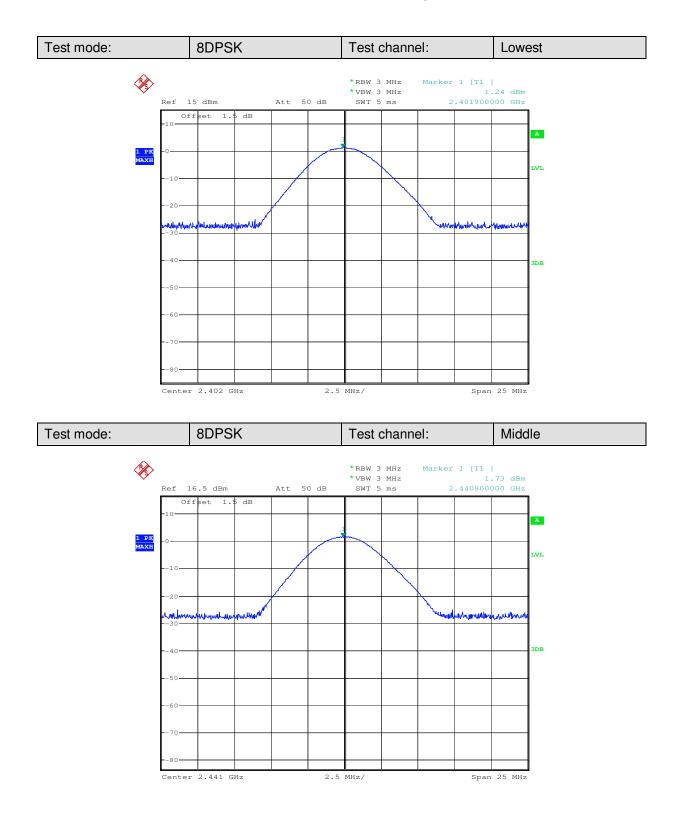


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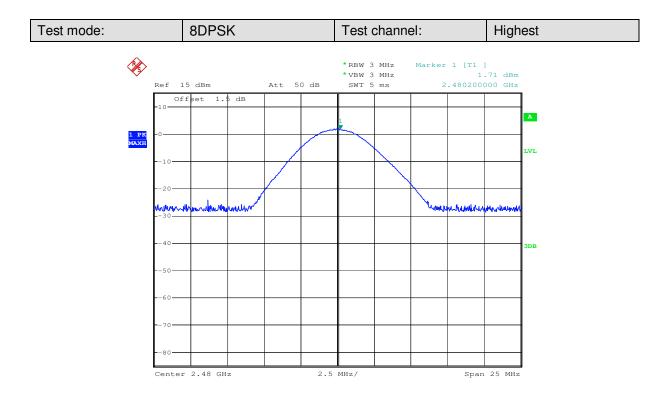


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6.4 20dB Occupy Bandwidth

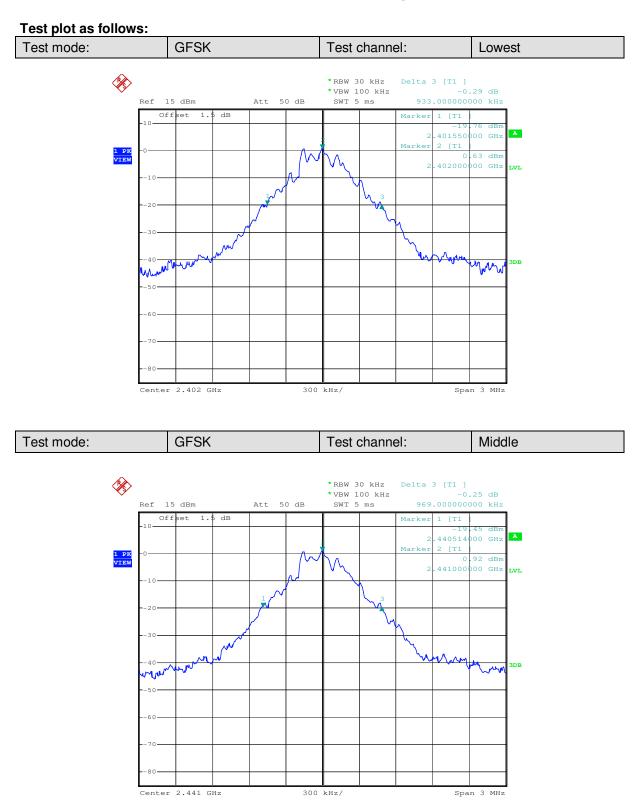
Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2013	
Test Method: Test Setup:	ANSI C63.10:2013 Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane	
Limit:	NA	
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type.	
Final Test Mode:	Through Pre-scan, find the DH1 of data type is the worst case of GFSK modulation type, 2-DH1 of data type is the worst case of $\pi/4DQPSK$ modulation type, 3-DH1 of data type is the worst case of 8DPSK modulation type.	
Instruments Used:	Refer to section 5.10 for details	
Test Results:	Pass	

Measurement Data

	20dB Occupy Bandwidth (kHz)		
Test channel	GFSK	π/4DQPSK	8DPSK
Lowest	933	1227	1215
Middle	969	1224	1215
Highest	957	1245	1218



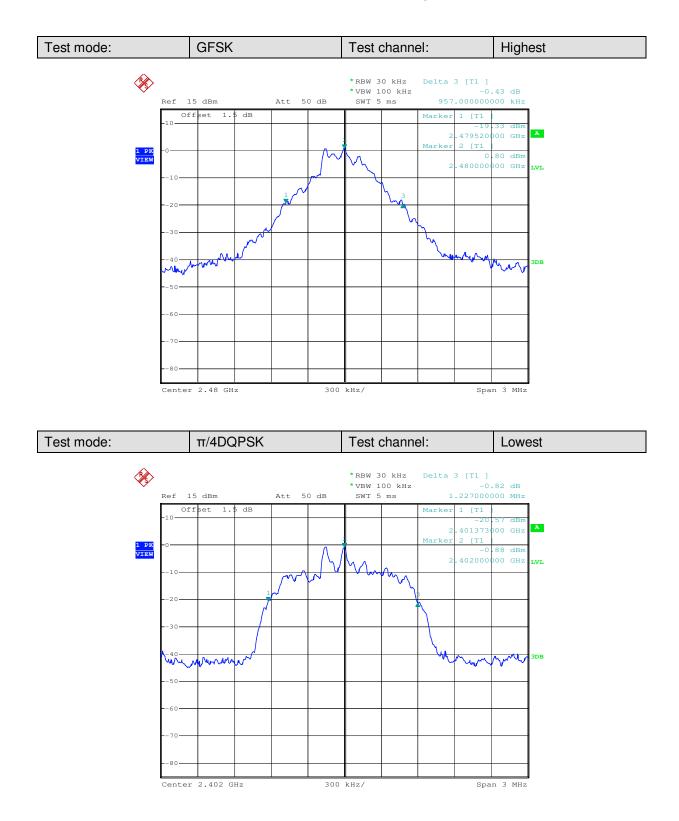
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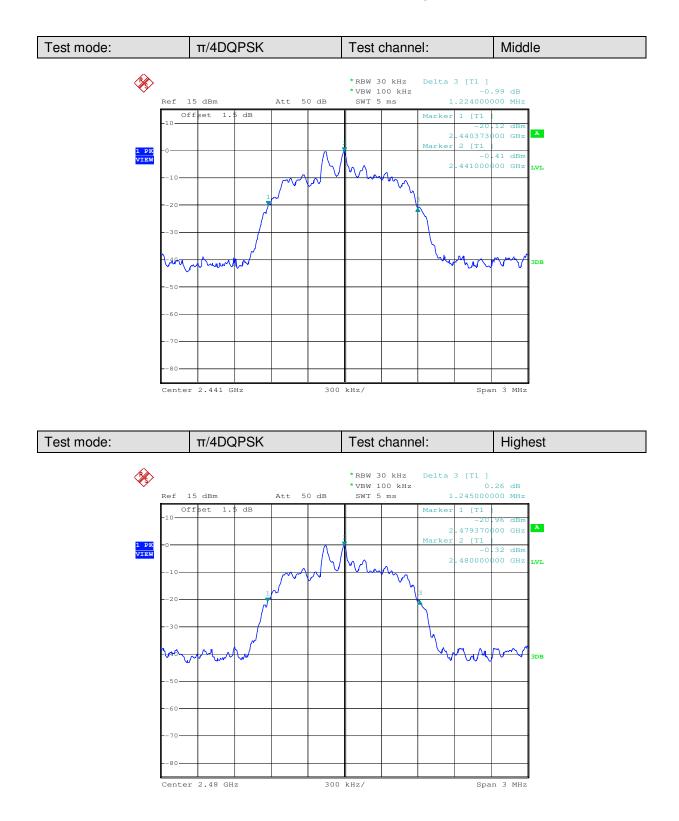


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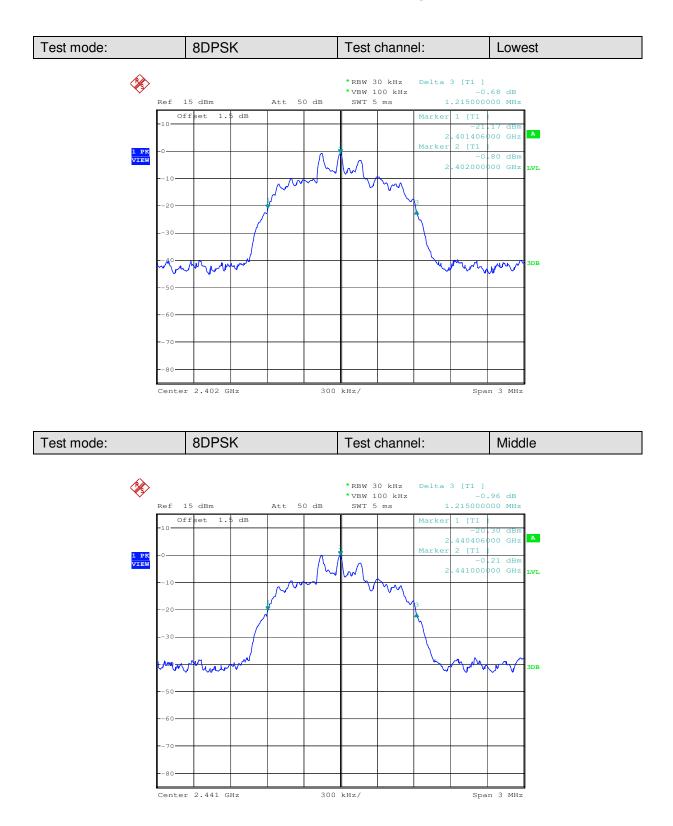


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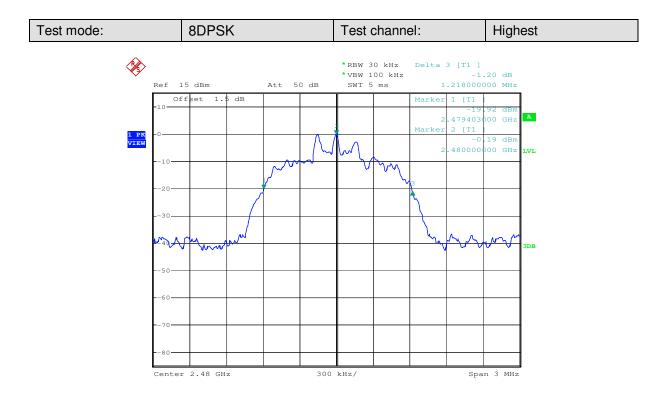


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6.5 Carrier Frequencies Separation

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2013	
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane	
Limit:	2/3 of the 20dB bandwidth	
	Remark: the transmission power is less than 0.125W.	
Exploratory Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type.	
Final Test Mode:	Through Pre-scan, find the DH1 of data type is the worst case of GFSK modulation type, 2-DH1 of data type is the worst case of $\pi/4DQPSK$ modulation type, 3-DH1 of data type is the worst case of 8DPSK modulation type.	
Instruments Used:	Refer to section 5.10 for details	
Test Results:	Pass	

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GFSK mode			
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Middle	996	646	Pass
π/4DQPSK mode			
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Middle	987	830	Pass
8DPSK mode			
Test channel	Carrier Frequencies Separation (kHz)	Limit (kHz)	Result
Middle	969	812	Pass

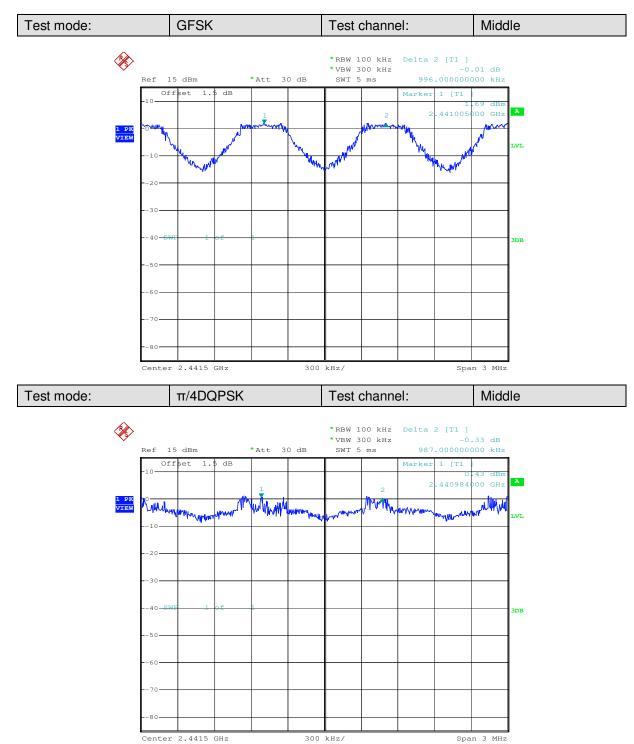
Note: According to section 6.4,

Mode	20dB bandwidth (kHz)	Limit (kHz)
Widde	(worse case)	(Carrier Frequencies Separation)
GFSK	969	646
π/4DQPSK	1245	830
8DPSK	1218	812





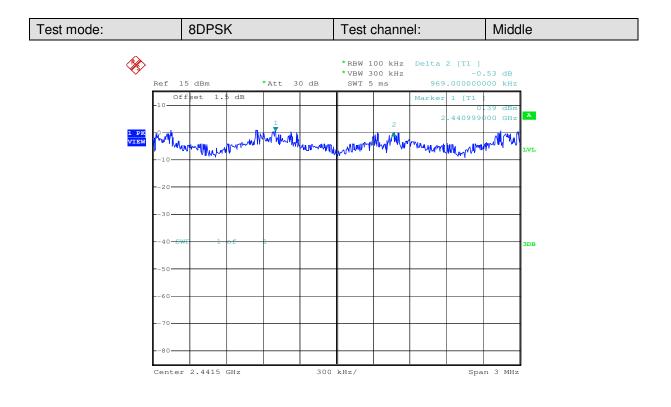
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Test plot as follows:



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47 CFR Part 15C Section 15.247 (a)(1) **Test Requirement:** ANSI C63.10:2013 Test Method: Test Setup: Spectrum Analyzer E.U.T Non-Conducted Table **Ground Reference Plane** At least 15 channels Limit: Test Mode: Hopping transmitting with all kind of modulation Instruments Used: Refer to section 5.10 for details **Test Results:** Pass

6.6 Hopping Channel Number

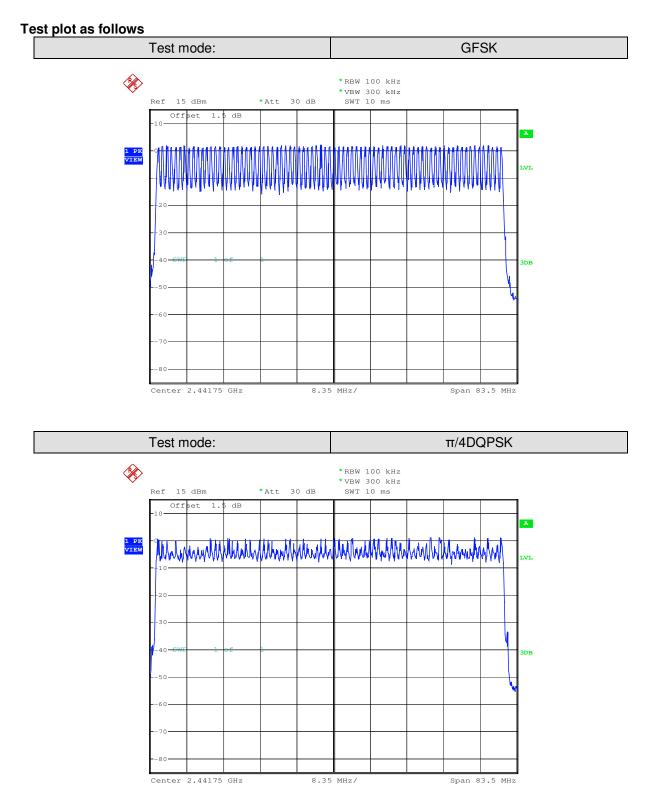
Measurement Data

Mode	Hopping channel numbers	Limit
GFSK	79	≥15
π/4DQPSK	79	≥15
8DPSK	79	≥15

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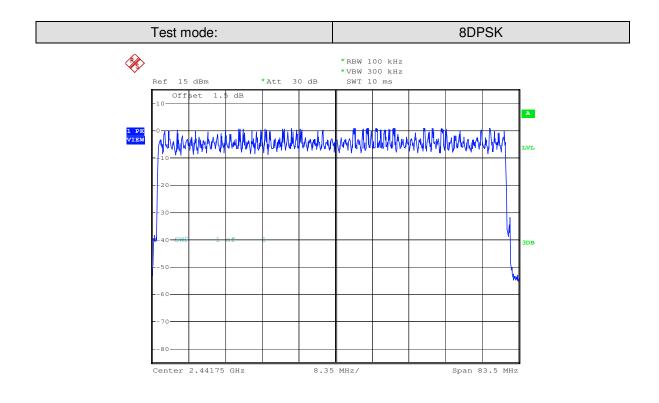


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6.7 Dwell Time

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1)	
Test Method:	ANSI C63.10:2013	
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table	
	Ground Reference Plane	
Instruments Used:	Refer to section 5.10 for details	
Test Mode:	Hopping transmitting with all kind of modulation and all kind of data type.	
Limit:	0.4 Second	
Test Results:	Pass	

Measurement Data

Mode	Packet	Dwell time (second)	Limit (second)
GFSK	DH1	0.13	≤0.4
	DH3	0.12	≤0.4
	DH5	0.35	≤0.4
π/4DQPSK	2-DH1	0.12	≤0.4
	2-DH3	0.27	≤0.4
	2-DH5	0.29	≤0.4
8DPSK	3-DH1	0.12	≤0.4
	3-DH3	0.22	≤0.4
	3-DH5	0.26	≤0.4



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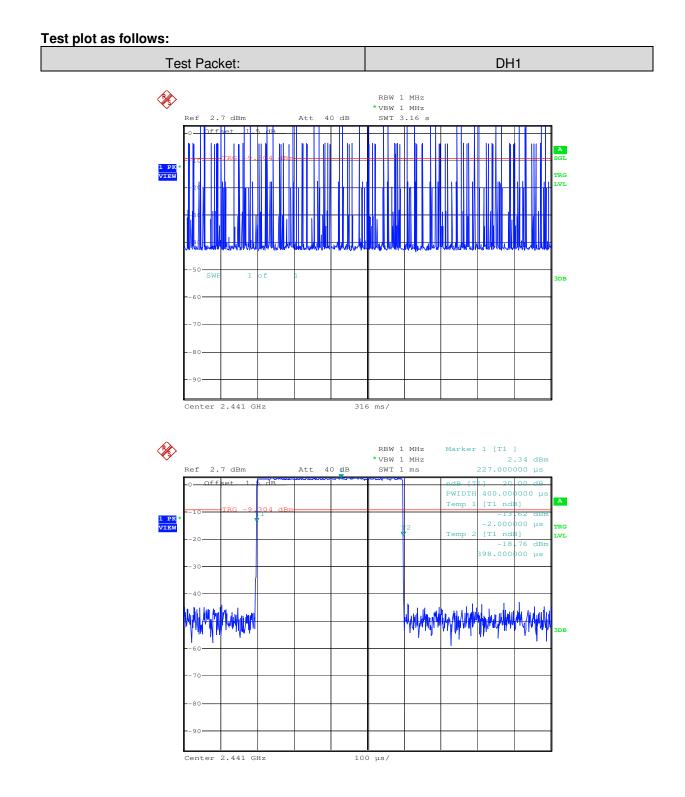
Remark:

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s On (ms)*total number=dwell time (ms) The middle channel (2441MHz), as below: DH1 time slot=0.400 (ms)*total number=128.00 (ms) DH3 time slot=0.402 (ms)* total number = 116.58 (ms) DH5 time slot=2.916 (ms)* total number = 349.92 (ms) 2-DH1 time slot=0.412 (ms)*total number=115.36 (ms) 2-DH3 time slot=1.668 (ms)* total number = 266.88 (ms) 2-DH5 time slot=2.916 (ms)* total number = 291.60 (ms) 3-DH1 time slot=0.412 (ms)*total number = 216.45 (ms) 3-DH3 time slot=1.665 (ms)* total number = 263.16 (ms)

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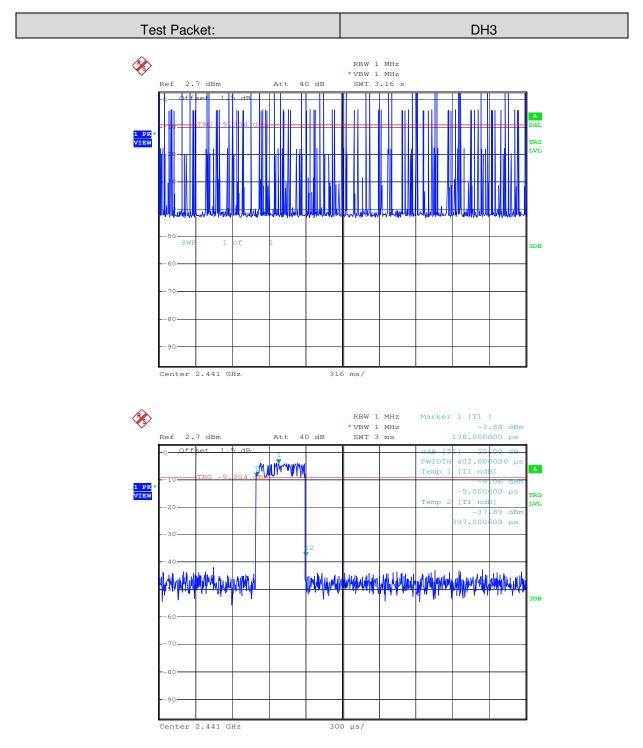


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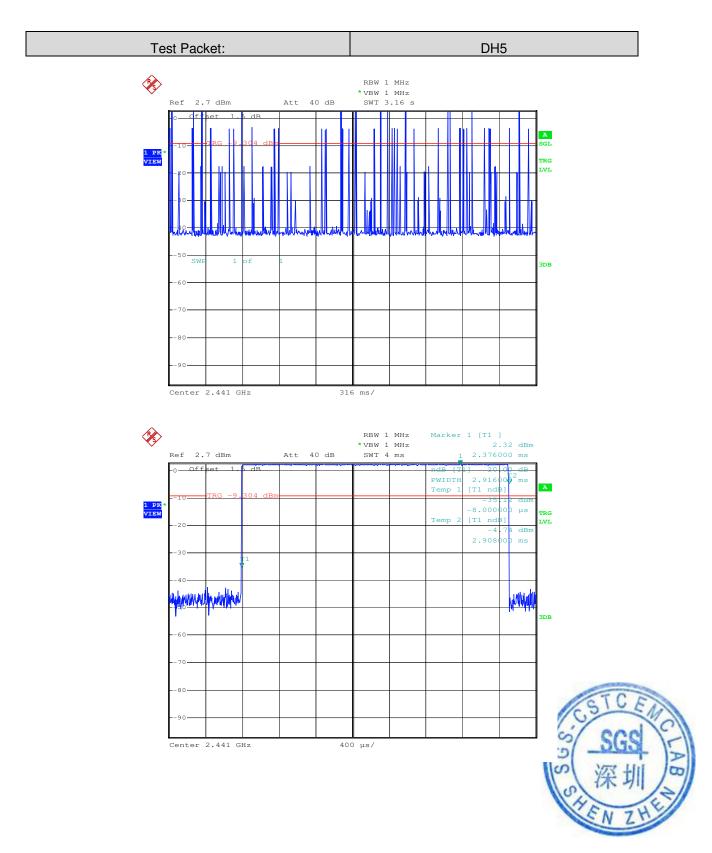


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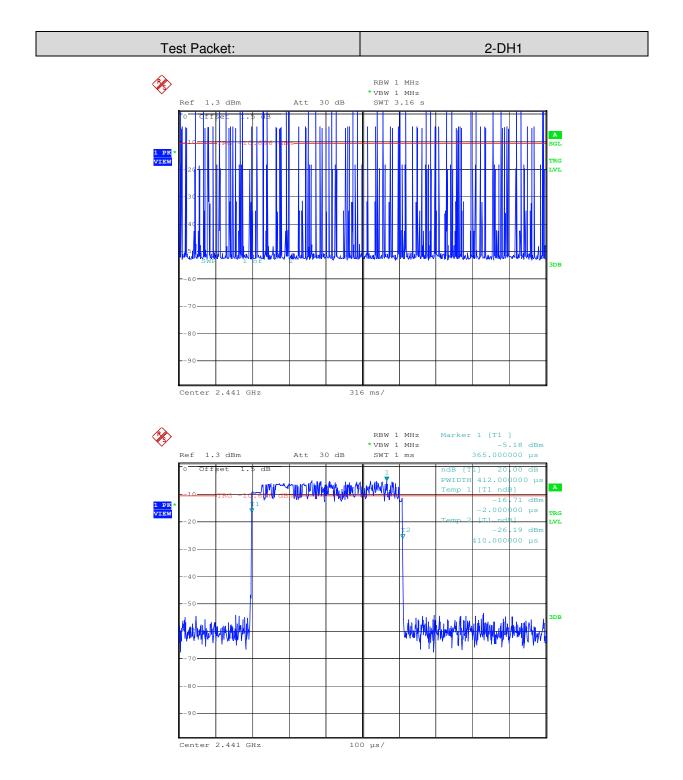


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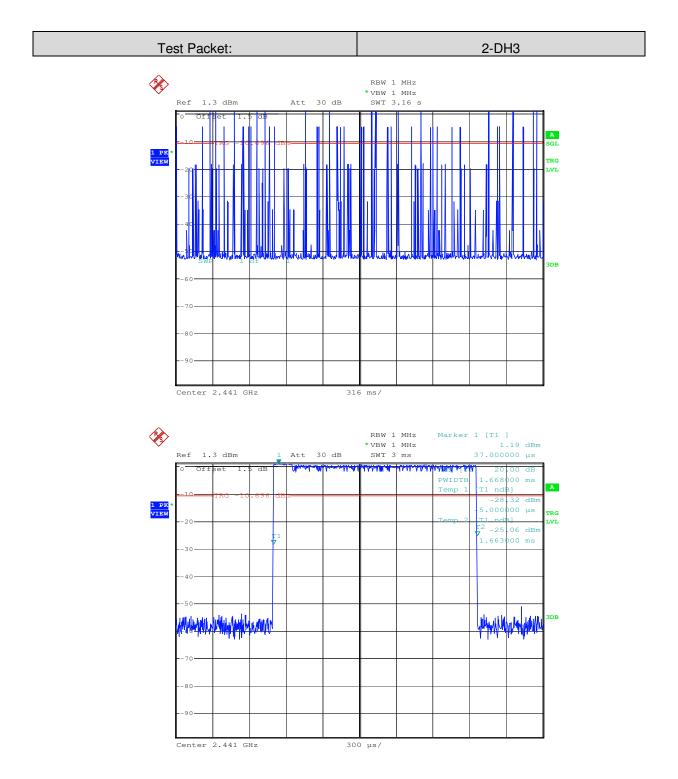


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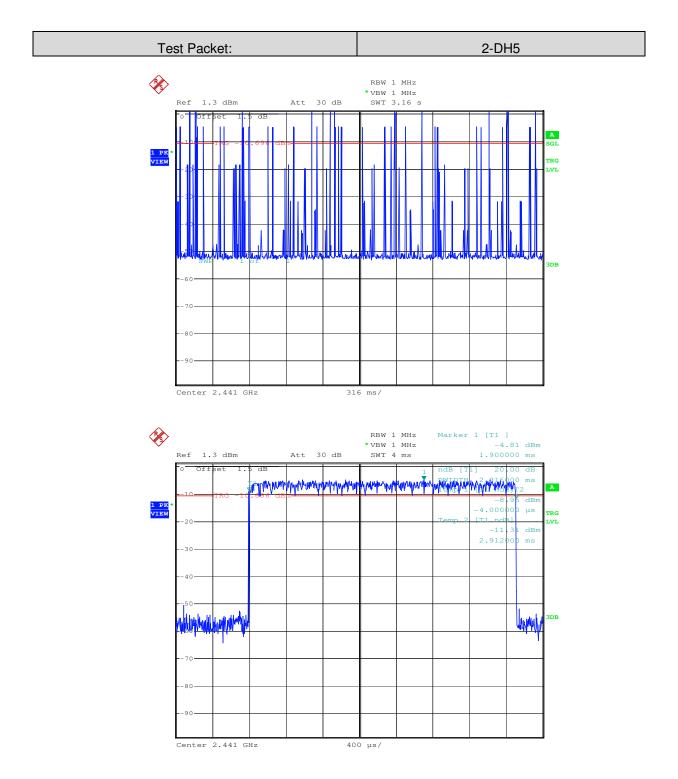


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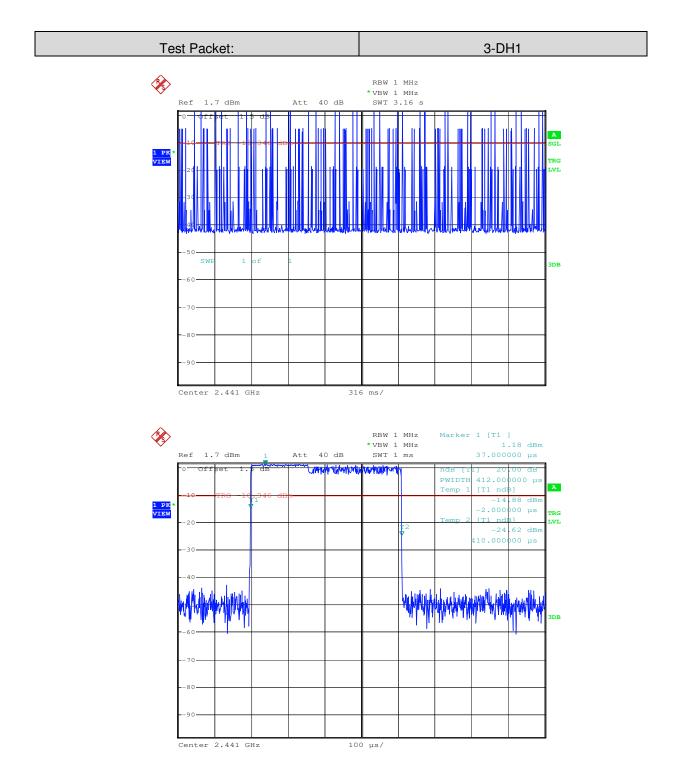


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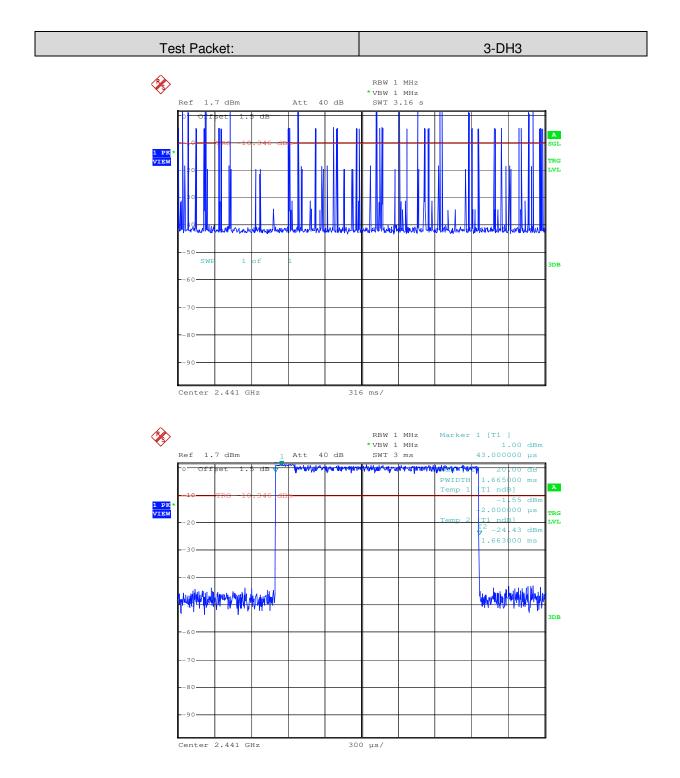


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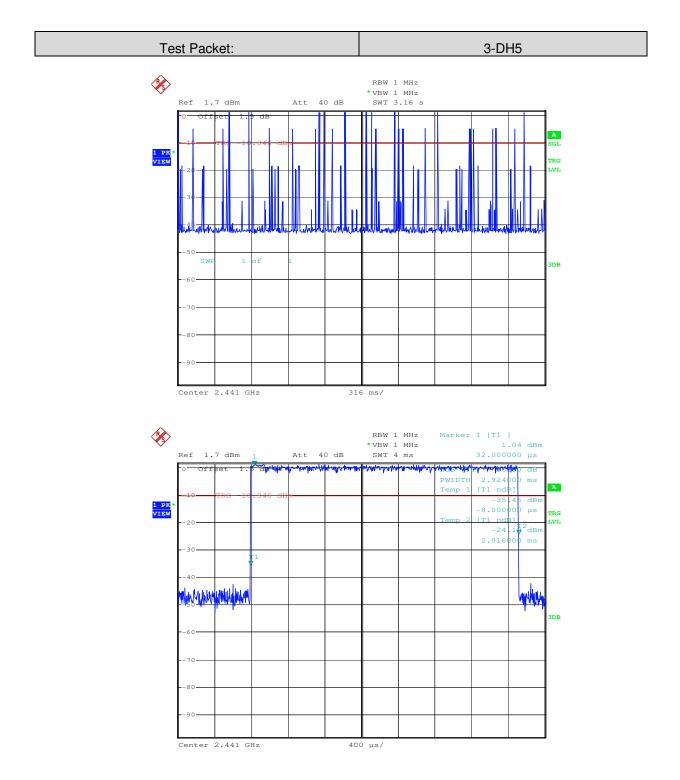


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Limit:

Exploratory Test Mode:

Final Test Mode:

Instruments Used:

Test Results:

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

Ground Reference Plane

Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.

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 or a radiated measurement.

Hopping and Non-hopping transmitting with all kind of modulation and all kind

Through Pre-scan, find the DH1 of data type is the worst case of GFSK

modulation type, 2-DH1 of data type is the worst case of π /4DQPSK modulation type, 3-DH1 of data type is the worst case of 8DPSK modulation

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Test Requirement: 47 CFR Part 15C Section 15.247 (d) Test Method: ANSI C63.10:2013 Test Setup: Spectrum Analyzer Image: Constraint of the section of the secti

Remark:

of data type.

Refer to section 5.10 for details

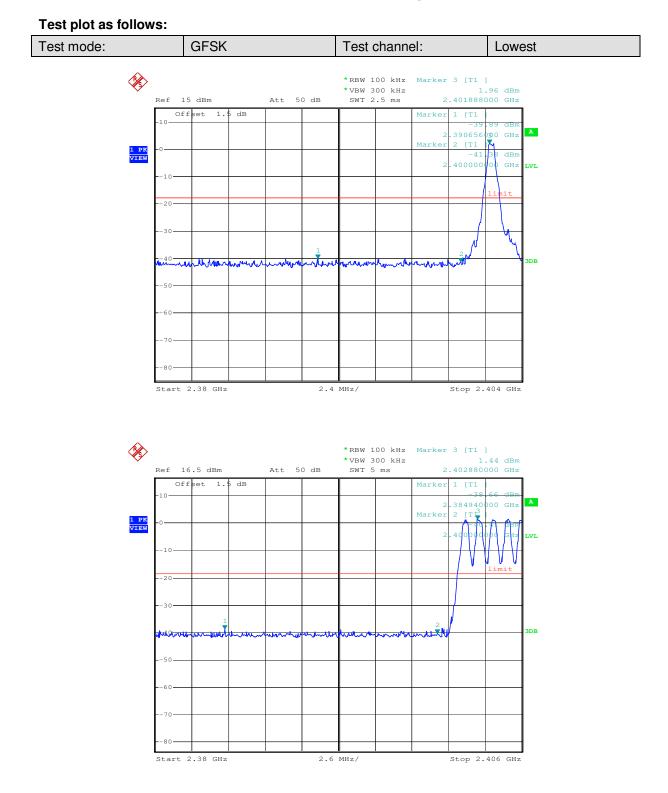
type.

Pass

6.8 Band-edge for RF Conducted Emissions

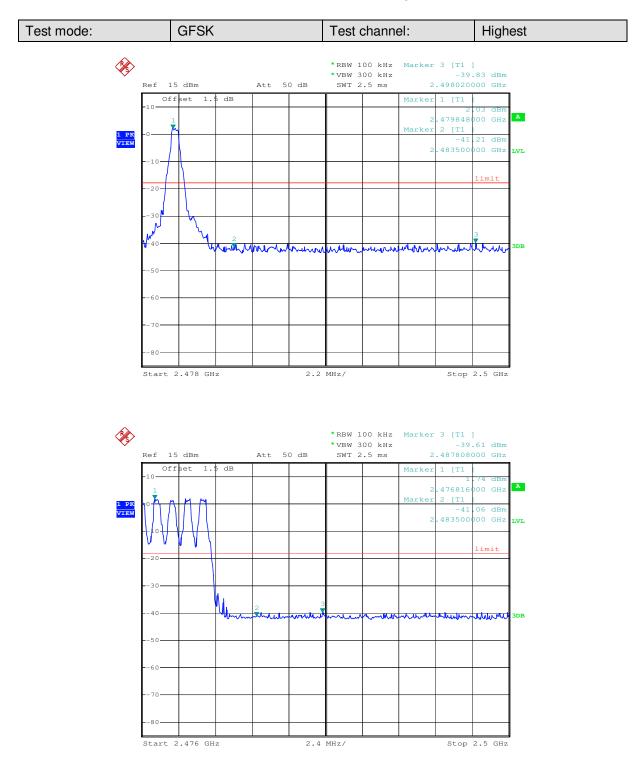


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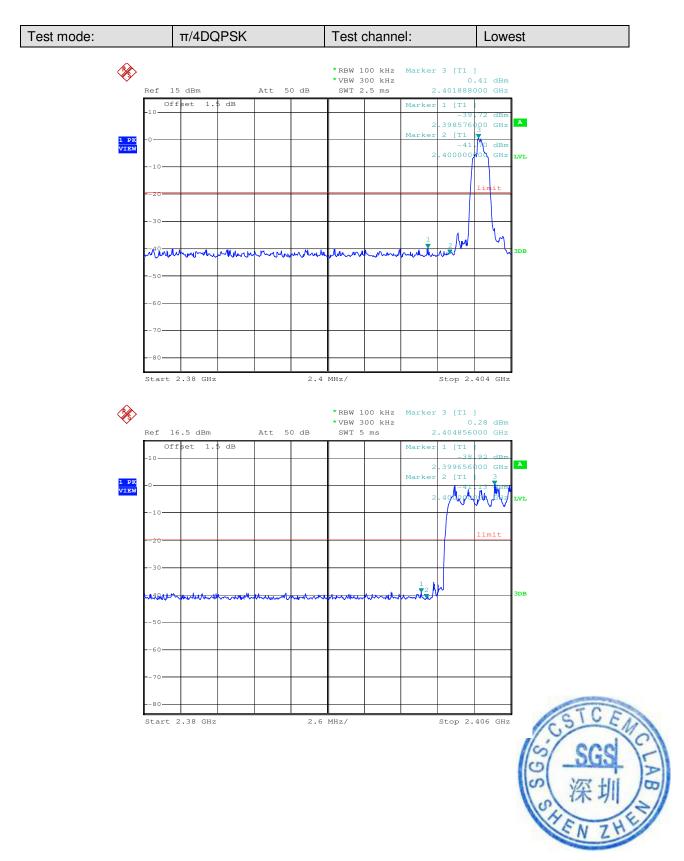


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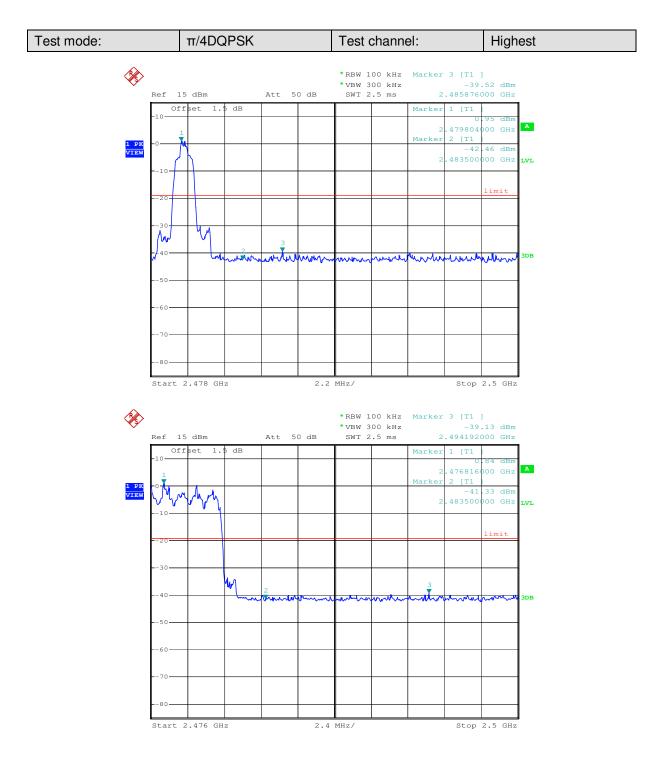


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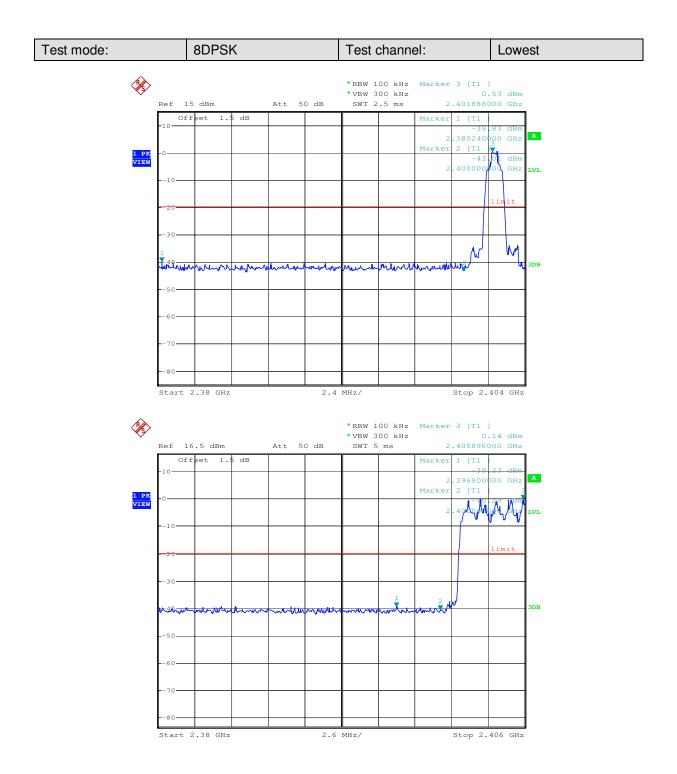


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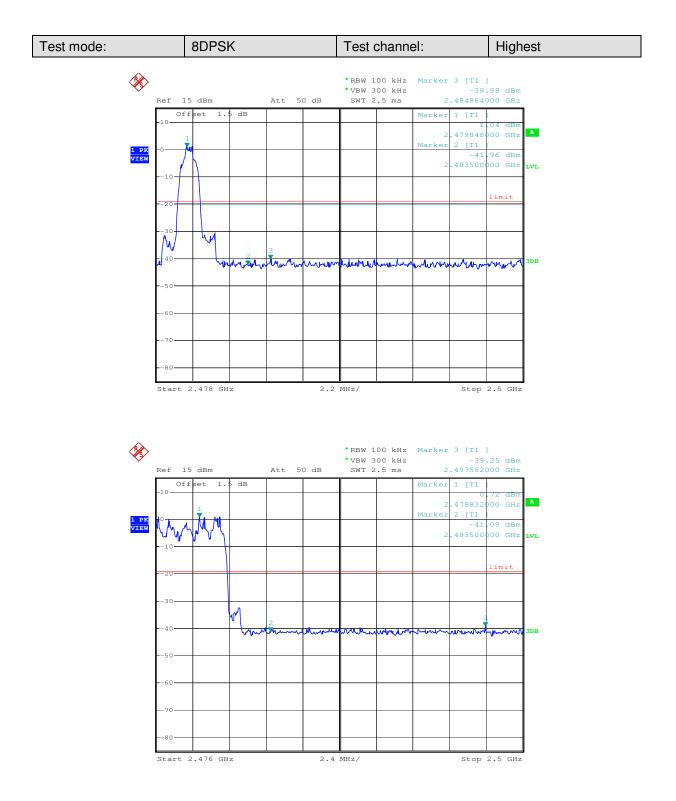


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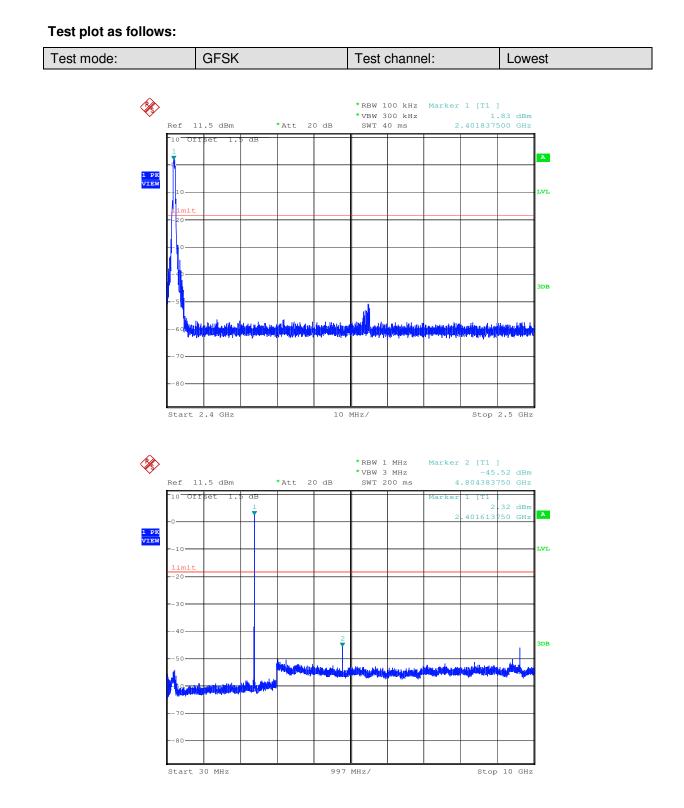
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6.9 Spurious RF Conducted Emissions

Test Requirement:	47 CFR Part 15C Section 15.247 (d)	
Test Method:	ANSI C63.10:2013	
Test Setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.	
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 or a radiated measurement.	
Exploratory Test Mode:	Non-hopping transmitting with all kind of modulation and all kind of data type.	
Final Test Mode:	Through Pre-scan, find the DH1 of data type is the worst case of GFSK modulation type, 2-DH1 of data type is the worst case of π /4DQPSK modulation type, 3-DH1 of data type is the worst case of 8DPSK modulation type.	
Instruments Used:	Refer to section 5.10 for details	
Test Results:	Pass	

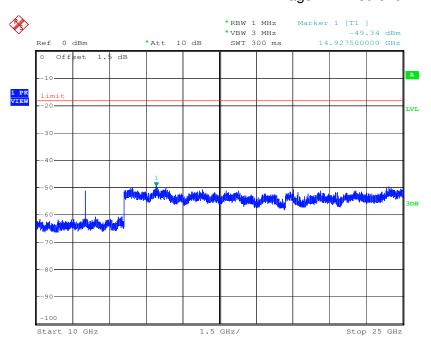


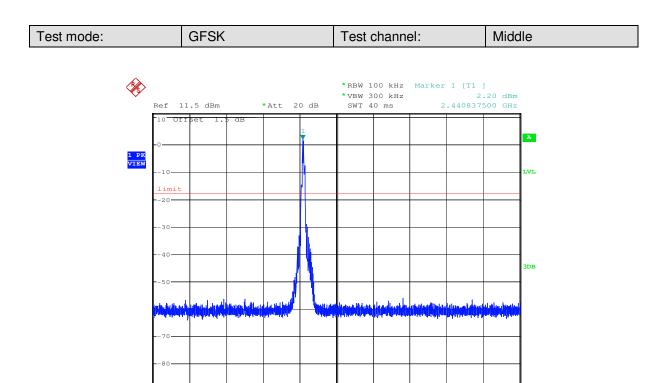
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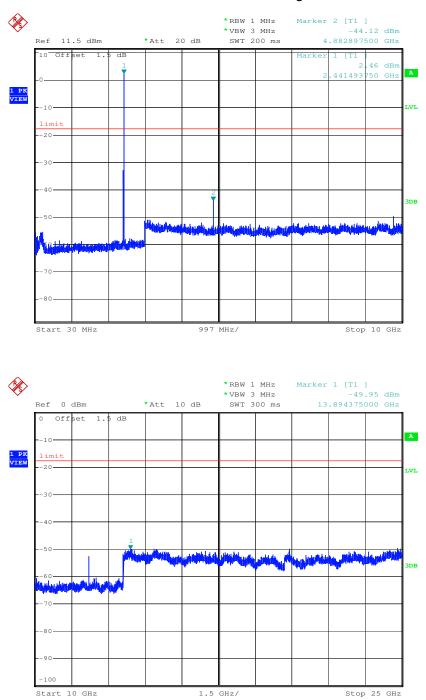
10 MHz/

Stop 2.5 GHz

Start 2.4 GHz

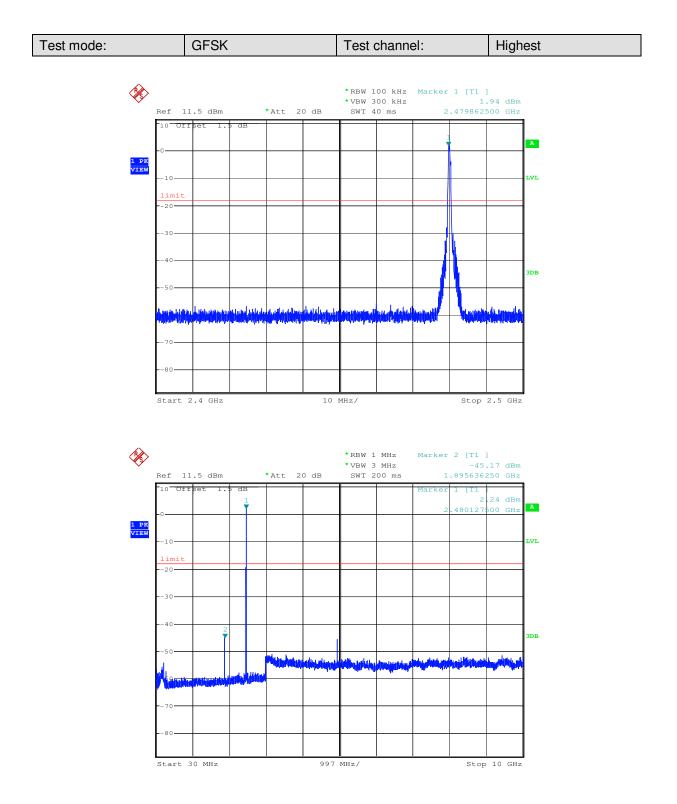


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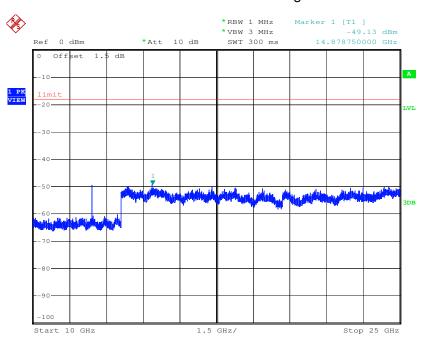


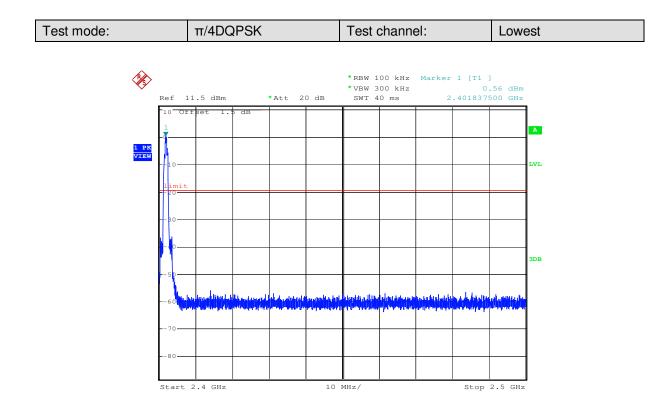
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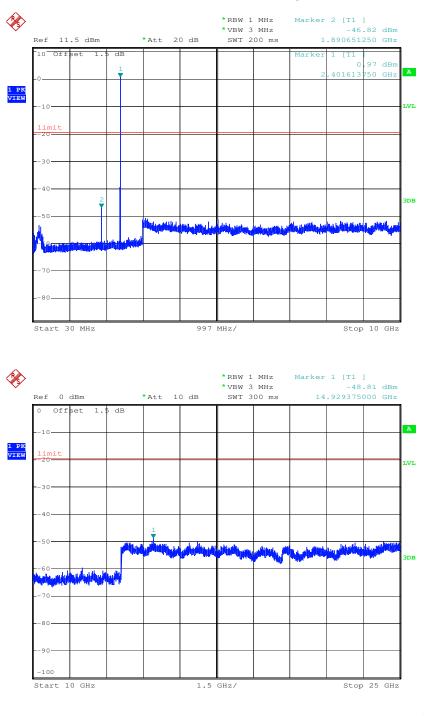
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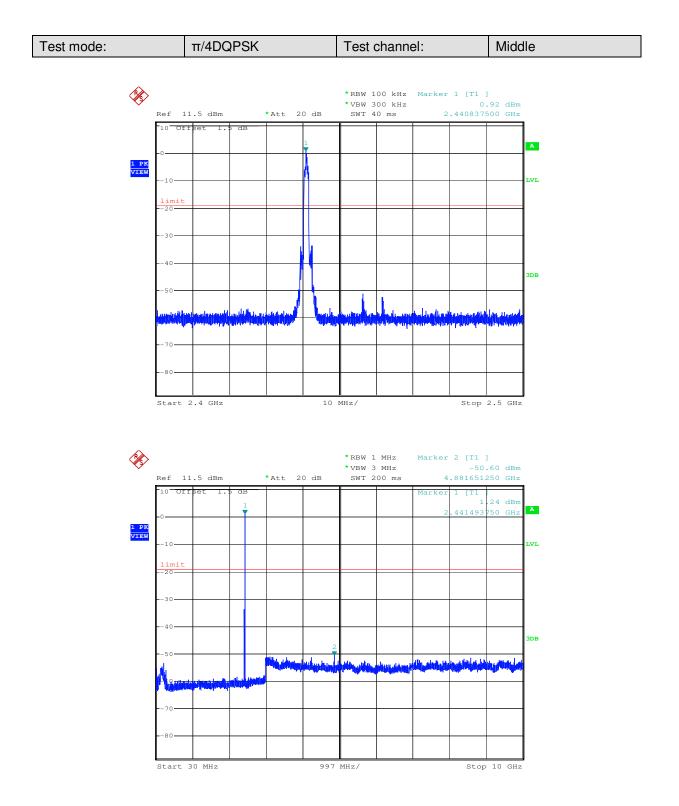
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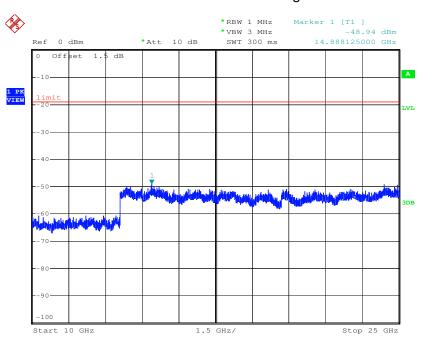


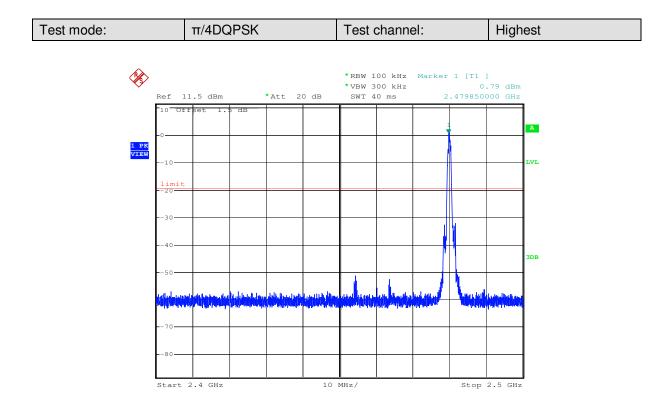
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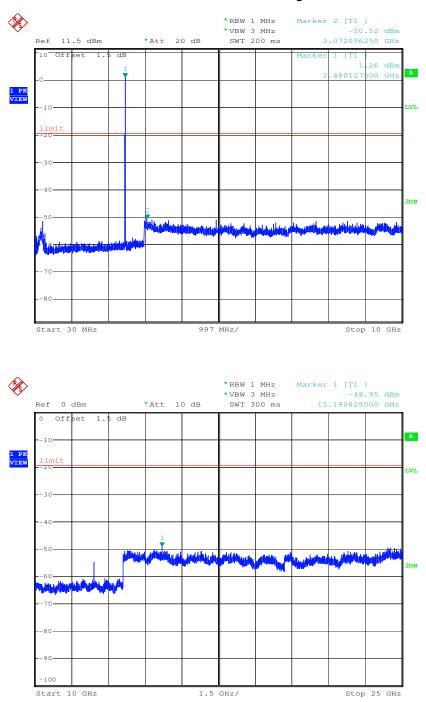
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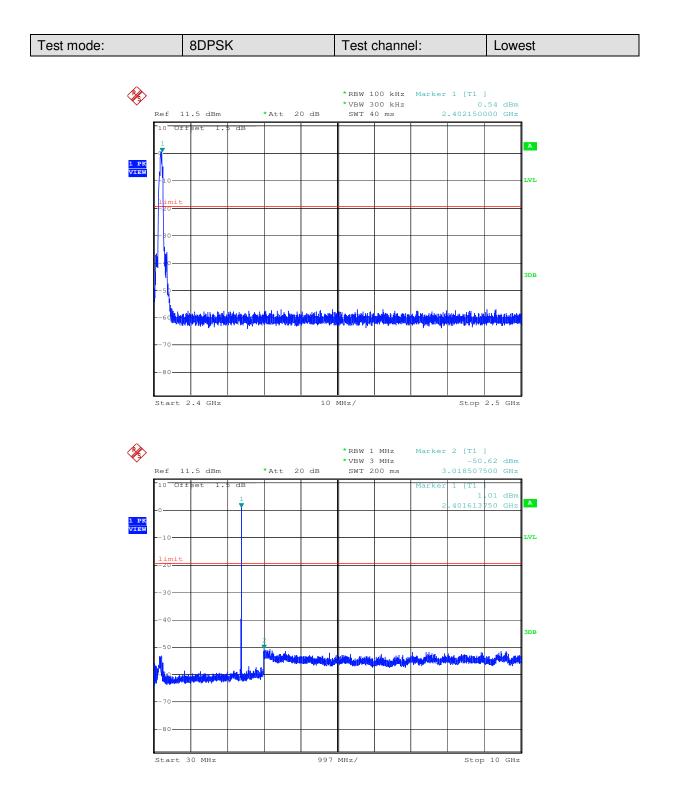


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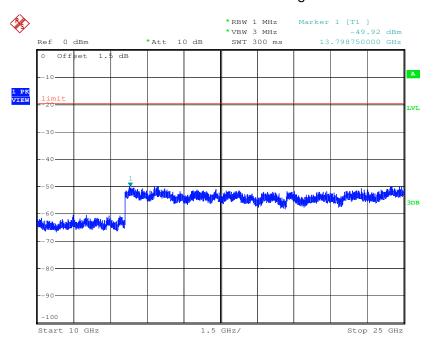


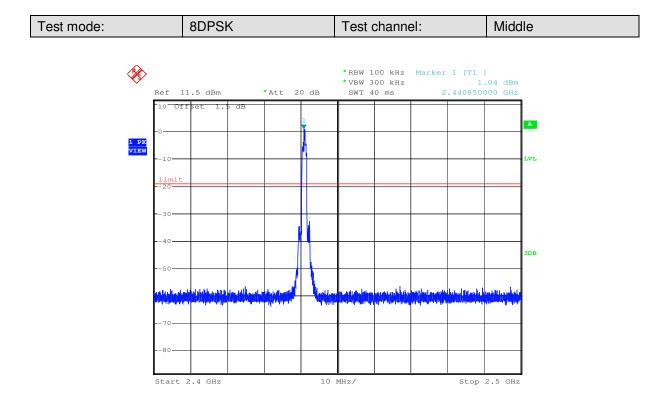
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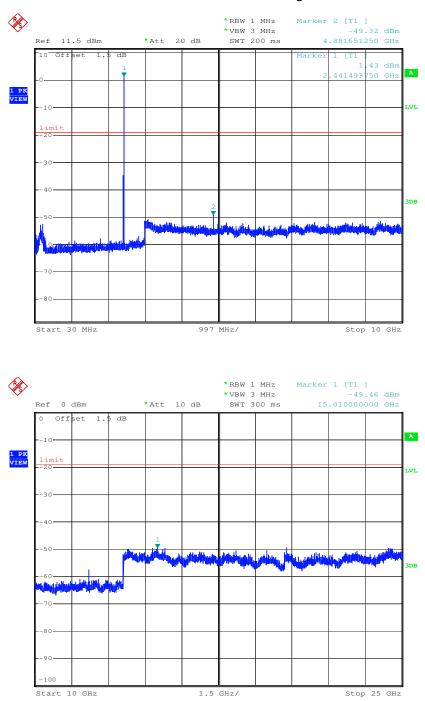
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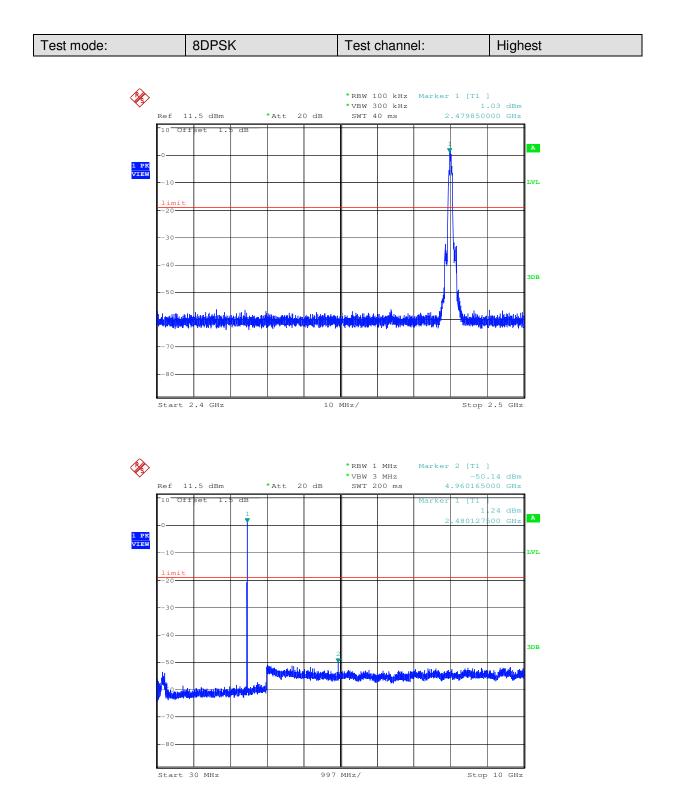


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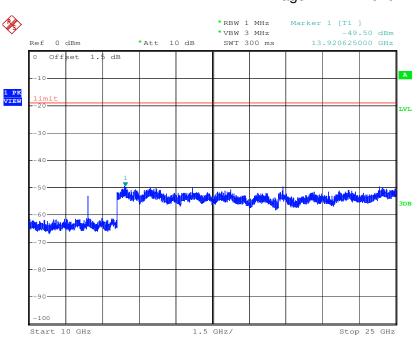


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Remark:

Use 100kHz RBW to determine the relative limit in the band 2.4GHz to 2.5GHz, and Use 1MHz RBW to measure spurious emissions in the band 30MHz to 10GHz and 10GHz to 25GHz. The sweep points set to 30001.

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6.10 Other requirements Frequency Hopping Spread Spectrum System

Test Requirement:	47 CFR Part 15C Section 15.247 (a)(1), (h) requirement:
rate from a Pseudorandom of on the average by each trans	nnel frequencies that are selected at the system hopping ordered list of hopping frequencies. Each frequency must be used equally smitter. The system receivers shall have input bandwidths that match the s of their corresponding transmitters and shall shift frequencies in ismitted signals.
channels during each transn receiver, must be designed t transmitter be presented with employing short transmission	spectrum systems are not required to employ all available hopping nission. However, the system, consisting of both the transmitter and the to comply with all of the regulations in this section should the h a continuous data (or information) stream. In addition, a system n bursts must comply with the definition of a frequency hopping system missions over the minimum number of hopping channels specified in
the system to recognize othe independently chooses and The coordination of frequence	ence within a frequency hopping spread spectrum system that permits er users within the spectrum band so that it individually and adapts its hopsets to avoid hopping on occupied channels is permitted. cy hopping systems in any other manner for the express purpose of ccupancy of individual hopping frequencies by multiple transmitters is
Compliance for section 15.	.247(a)(1)
•	alo-two addition stage. And the result is fed back to the input of the first with the first ONE of 9 consecutive ONEs; i.e. the shift register is initialized ages: 9 sequence: $2^9 - 1 = 511$ bits
	hift Register for Generation of the PRBS sequence m Frequency Hopping Sequence as follow: 7 64 8 73 16 75 1
According to Bluetooth Cord bandwidths that match the	y on the average by each transmitter. e Specification, Bluetooth receivers are designed to have input and IF hopping channel bandwidths of any Bluetooth transmitters and shift on with the transmitted signals.



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Compliance for section 15.247(g)

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

Compliance for section 15.247(h)

According to Bluetooth Core specification, the Bluetooth 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.

According to the Bluetooth Core specification, the Bluetooth 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.





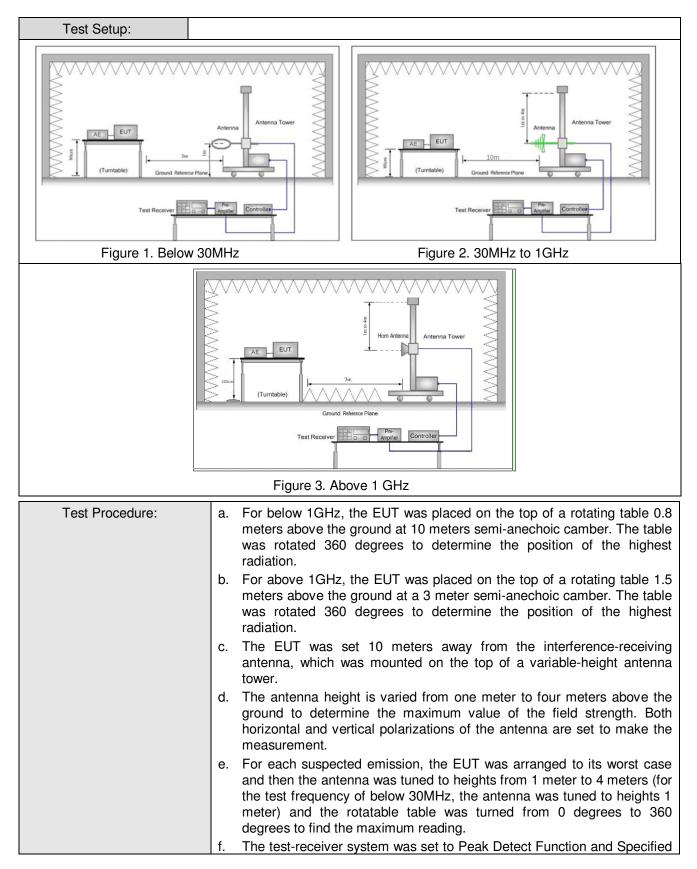
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Test Requirement:	47 CFR Part 15C Section 15.209 and 15.205									
Test Method:	ANSI C63.10: 2013									
Test Site:	Measurement Distance: 3m (Semi-Anechoic Chamber) Measurement Distance: 10m (Semi-Anechoic Chamber)									
Receiver Setup:	Frequency									
	0.009MHz-0.090MH	7	Peak	10kHz		Peak	1			
	0.009MHz-0.090MH		Average	10kHz		Average	1			
	0.090MHz-0.110MH		Quasi-peak	10kHz		Quasi-peak				
	0.110MHz-0.490MH		Peak	10kHz		Peak	1			
	0.110MHz-0.490MH	z	Average	10kHz	z 30kHz	Average	1			
	0.490MHz -30MHz		Quasi-peak	10kHz	z 30kHz	Quasi-peak	1			
	30MHz-1GHz		Quasi-peak	100 k⊦	lz 300kHz	Quasi-peak	1			
			Peak	1MHz	z 3MHz	Peak	1			
	Above 1GHz		Peak	1MHz	z 10Hz	Average				
Limit:	Frequency		eld strength crovolt/meter)	Limit (dBuV/m)	Remark	Measureme distance (m				
	0.009MHz-0.490MHz	2	400/F(kHz)	-	-	300				
	0.490MHz-1.705MHz	24	4000/F(kHz)	-	-	30				
	1.705MHz-30MHz		30	-	-	30				
	30MHz-88MHz		29.9	29.5	Quasi-peak	10				
	88MHz-216MHz		44.7	33.0	Quasi-peak	10				
	216MHz-960MHz		60.3	35.6	Quasi-peak	10				
	960MHz-1GHz		100	44.4	Quasi-peak	10				
	Above 1GHz		500 -	54.0	Average	3				
			500	74.0	Peak	3				
	Note: 15.35(b), Unless emissions is 20dE applicable to the peak emission lev	3 ab equi	ove the maxim pment under te	ium perm est. This p	itted average	emission limit				

6.11 Radiated Spurious Emission



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Exploratory Test Mode: Final Test Mode:	 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 (2402MHz),the middle channel (2441MHz),the Highest channel (2480MHz) 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. Non-hopping transmitting mode with all kind of modulation and all kind of data type Transmitting mode, Charge + Transmitting mode.
	worst case. Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case For below 1GHz part, through pre-scan, the worst case is the lowest channel. Only the worst case is recorded in the report.
Instruments Used:	Refer to section 5.10 for details
Test Results:	Pass

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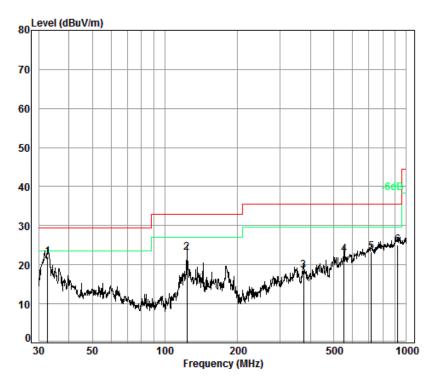


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6.11.1 Radiated Emission below 1GHz

30MHz~1GHz (QP)		
Test mode:	Charge + Transmitting	Vertical

Adaptor Model No.: BI12T-050100-BdBU



Condition: 10m Vertical Job No. : 0794CR

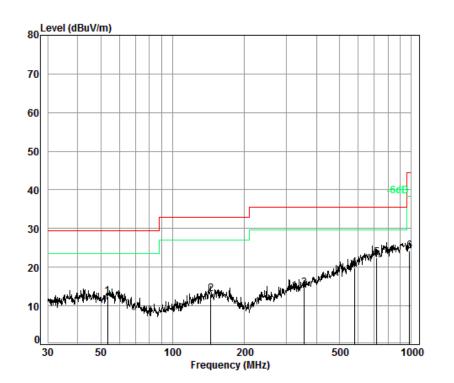
Test Mode: AC Charge+TX Mode

	F			Preamp				
_	Freq	LOSS	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	32.75	6.70	12.57	32.97	35.79	22.09	29.50	-7.41
2	123.27	7.32	11.67	32.77	36.96	23.18	33.00	-9.82
3	375.94	8.30	14.41	32.60	28.43	18.54	35.60	-17.06
4	552.88	8.78	17.78	32.60	28.72	22.68	35.60	-12.92
5	716.68	9.19	20.34	32.60	26.32	23.25	35.60	-12.35
6	919.29	9.50	22.48	32.50	25.60	25.08	35.60	-10.52



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Test mode: Charge + Transmitting	Horizontal	
----------------------------------	------------	--



Condition: 10m	Horiz	ontal					
Job No. : 079	4CR						
Test Mode: AC	Charge	+TX Mo	de				
	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

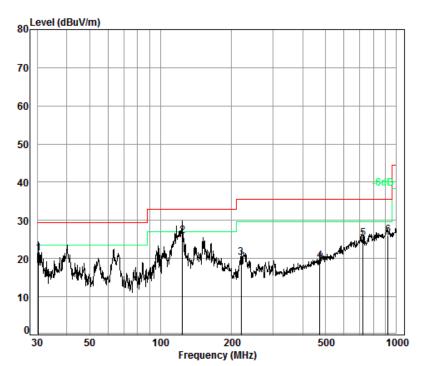
1		53.51	6.97	12.49	32.98	25.86	12.34	29.50 -17.16
2		144.33	7.42	13.05	32.75	25.28	13.00	33.00 -20.00
3		356.68	8.28	13.99	32.60	24.88	14.55	35.60 -21.05
4		576.64	8.84	18.22	32.60	25.36	19.82	35.60 -15.78
5 j	рр	716.68	9.19	20.34	32.60	25.61	22.54	35.60 -13.06
6		982.62	9.60	22.82	32.50	24.38	24.30	44.40 -20.10



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Adaptor Model No.: TM-K006VA-00501000PH-01

Test mode:	Charge + Transmitting	Vertical	
------------	-----------------------	----------	--

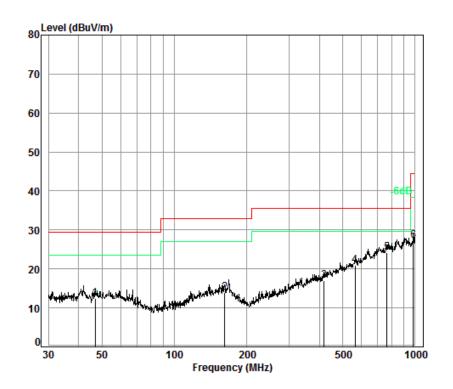


Condition: 10m Vertical Job No. : 0794CR Test Mode: AC Charge+TX Mode Cable Ant Preamp Read Limit 0ver Loss Factor Factor Level Level Line Limit Freq dBuV dBuV/m dBuV/m MHz dB dB/m dB dB 1 30.42 6.70 12.49 32.97 35.14 21.36 29.50 -8.14 2 pp 123.70 7.32 11.69 32.77 39.61 25.85 33.00 -7.15 3 219.84 7.70 10.15 32.68 35.01 20.18 35.60 -15.42 4 473.83 8.49 16.44 32.60 27.02 19.35 35.60 -16.25 5 721.73 9.20 20.41 32.60 28.23 25.24 35.60 -10.36 6 919.29 9.50 22.48 32.50 26.61 26.09 35.60 -9.51



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Test mode: Charge + Trans	nitting Horizontal
---------------------------	--------------------



Condition: 10m Horizontal Job No. : 0794CR Test Mode: AC Charge+TX Mode

		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	46.99	6.84	12.85	33.00	25.74	12.43	29.50	-17.07
2	162.04	7.50	13.19	32.73	25.99	13.95	33.00	-19.05
3	419.11	8.35	15.39	32.60	25.94	17.08	35.60	-18.52
4	562.66	8.81	17.96	32.60	26.83	21.00	35.60	-14.60
5 pp	763.38	9.21	20.93	32.60	26.68	24.22	35.60	-11.38
6	982.62	9.60	22.82	32.50	27.22	27.14	44.40	-17.26



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Test mo	de:	GFSK(DH	1) Tes	t channel:	Lowes	t	Remark:		Peak
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)		t Line ıV/m)	Over Limit (dB)	Polarization
3589.562	32.08	7.66	38.40	48.47	49.81	7	'4	-24.19	Vertical
4804.000	34.10	8.87	38.75	46.84	51.06	7	'4	-22.94	Vertical
5913.378	34.49	10.32	38.95	44.74	50.60	7	'4	-23.40	Vertical
7206.000	35.60	10.68	37.64	42.57	51.21	7	'4	-22.79	Vertical
9608.000	37.10	12.50	36.35	36.39	49.64	7	'4	-24.36	Vertical
12050.440	37.63	14.52	37.22	38.90	53.83	7	'4	-20.17	Vertical
3727.173	32.61	7.71	38.46	45.06	46.92	7	'4	-27.08	Horizontal
4804.000	34.10	8.87	38.75	46.95	51.17	7	'4	-22.83	Horizontal
5982.226	34.66	10.51	38.96	45.84	52.05	7	'4	-21.95	Horizontal
7206.000	35.60	10.68	37.64	41.55	50.19	7	'4	-23.81	Horizontal
9608.000	37.10	12.50	36.35	34.66	47.91	7	'4	-26.09	Horizontal
12530.530	37.83	14.24	37.68	38.45	52.84	7	'4	-21.16	Horizontal

6.11.2 Transmitter Emission above 1GHz

Test mo	de:	GFSK(DH	1) Tes	t channel:	Middle	e Re	emark:	Peak
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over limit (dB)	Polarization
3368.157	31.80	7.60	38.31	45.87	46.96	74	-27.04	Vertical
4882.000	34.18	8.98	38.77	46.45	50.84	74	-23.16	Vertical
6069.413	34.74	10.47	38.87	45.32	51.66	74	-22.34	Vertical
7323.000	35.54	10.72	37.59	41.34	50.01	74	-23.99	Vertical
9764.000	37.10	12.58	36.14	38.24	51.78	74	-22.22	Vertical
12173.120	37.69	14.42	37.34	38.83	53.60	74	-20.40	Vertical
3358.425	31.80	7.60	38.30	45.21	46.31	74	-27.69	Horizontal
4882.000	34.18	8.98	38.77	47.11	51.50	74	-22.50	Horizontal
6069.413	34.74	10.47	38.87	45.11	51.45	74	-22.55	Horizontal
7323.000	35.54	10.72	37.59	40.35	49.02	74	-24.98	Horizontal
9764.000	37.10	12.58	36.14	37.65	51.19	74	-22.81	Horizontal
12208.390	37.70	14.39	37.37	38.71	53.43	74	-20.57	Horizontal



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Test mo	de:	GFSK(DH	1) Tes	t channel:	Highes	t Re	emark:	Peak
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over limit (dB)	Polarization
3447.042	31.87	7.62	38.34	46.14	47.29	74	-26.71	Vertical
4960.000	34.26	9.09	38.78	46.26	50.83	74	-23.17	Vertical
6078.201	34.74	10.46	38.86	45.07	51.41	74	-22.59	Vertical
7440.000	35.60	10.77	37.54	39.87	48.70	74	-25.30	Vertical
9920.000	37.22	12.67	35.93	38.70	52.66	74	-21.34	Vertical
12386.320	37.70	14.24	37.55	38.16	52.55	74	-21.45	Vertical
3402.445	31.80	7.61	38.32	44.59	45.68	74	-28.32	Horizontal
4960.000	34.26	9.09	38.78	45.66	50.23	74	-23.77	Horizontal
6087.002	34.74	10.45	38.85	45.71	52.05	74	-21.95	Horizontal
7440.000	35.60	10.77	37.54	40.26	49.09	74	-24.91	Horizontal
9920.000	37.22	12.67	35.93	38.45	52.41	74	-21.59	Horizontal
12173.120	37.69	14.42	37.34	38.84	53.61	74	-20.39	Horizontal

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 13GHz 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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6.12 Restricted bands around fundamental frequency

Test Requirement: 47 CFR Part 15C Section 15.209 and 15.205										
Test Method:	ANSI C63.10: 2013									
Test Site:	Measurement Distance: 3m	Measurement Distance: 3m (Semi-Anechoic Chamber)								
Limit:	Frequency	Limit (dBuV/m @3m)	Remark							
	30MHz-88MHz	40.0	Quasi-peak Value							
	88MHz-216MHz	43.5	Quasi-peak Value							
	216MHz-960MHz	46.0	Quasi-peak Value							
	960MHz-1GHz	54.0	Quasi-peak Value							
	Above 1GHz	54.0	Average Value							
	Above IGHZ	74.0	Peak Value							
			·							
Test Setup:										
AE EUT (Turntable) Ground Referent Test Receiver		AE EUT isom (Turntable) 3/11 Ground Refer Test Receiver	Horri Antenna Tower							
Figure 1. 30N	IHz to 1GHz	Figure 2. Abo	ove 1 GHz							





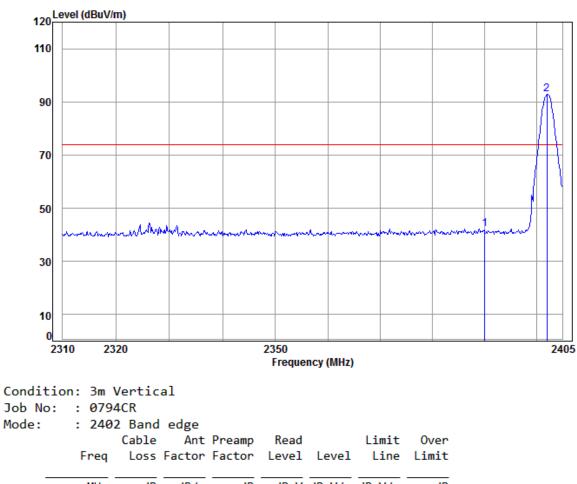
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a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 3 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 and the rotatable table was tuned from 0 degrees to 360 degrees to 500 degrees to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel h. Test the EUT in the lowest 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. Exploratory Test Mode: Non-hopping transmitting mode, with all kind of modulation and all kind of data type Transmitting mode, Charge + Transmitting mode, found the Charge + Transmitting mode, charge + Transmitting mode, found the Charge + Transmitting mode, found th		
Exploratory Test Mode:Non-hopping transmitting mode with all kind of modulation and all kind of data type Transmitting mode, Charge + Transmitting mode.Final Test Mode:Through Pre-scan, find the DH5 of data type and GFSK modulation is the worst case. Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case Only the worst case is recorded in the report.Instruments Used:Refer to section 5.10 for details	Test Procedure:	 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 semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. c. The EUT was set 3 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 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. Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel h. Test the EUT in the lowest 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
data type Transmitting mode, Charge + Transmitting mode.Final Test Mode:Through Pre-scan, find the DH5 of data type and GFSK modulation is the worst case. Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case Only the worst case is recorded in the report.Instruments Used:Refer to section 5.10 for details	Exploratory Test Mode:	
Transmitting mode, Charge + Transmitting mode. Final Test Mode: Through Pre-scan, find the DH5 of data type and GFSK modulation is the worst case. Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case Only the worst case is recorded in the report. Instruments Used: Refer to section 5.10 for details		
Final Test Mode: Through Pre-scan, find the DH5 of data type and GFSK modulation is the worst case. Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case Only the worst case is recorded in the report. Instruments Used: Refer to section 5.10 for details		
the worst case. Pretest the EUT at Transmitting mode and Charge + Transmitting mode, found the Charge + Transmitting mode which it is worse case Only the worst case is recorded in the report. Instruments Used: Refer to section 5.10 for details	Final Test Mode:	
found the Charge + Transmitting mode which it is worse case Only the worst case is recorded in the report. Instruments Used: Refer to section 5.10 for details	Final rest Mode.	the worst case.
Only the worst case is recorded in the report. Instruments Used: Refer to section 5.10 for details		
Instruments Used: Refer to section 5.10 for details		
Test Results: Pass		
	Test Results:	Pass



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Test plot as follows:								
Worse case mode:	GFSK (DH5)	Test channel:	Lowest	Remark:	Peak	Vertical		

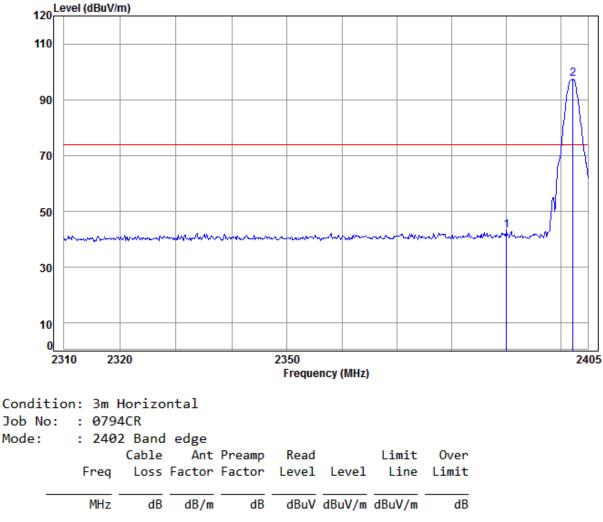


	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pk	2390.00	5.34	28.57	38.11	46.42	42.22	74.00	-31.78
2 pp	2402.00	5.35	28.61	38.11	97.00	92.85	74.00	18.85



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Worse case mode:	GFSK (DH5)	Test channel:	Lowest	Remark:	Peak	Horizontal	
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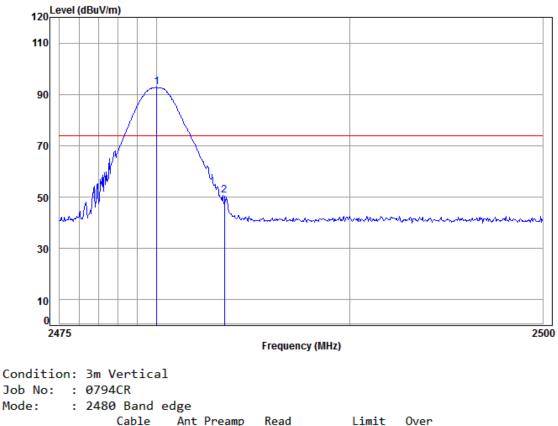


1 pk	2390.00	5.34	28.57	38.11	47.29	43.09	74.00	-30.91
2 pp	2402.29	5.35	28.61	38.11	101.58	97.43	74.00	23.43



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Worse case mode:	GFSK (DH5)	Test channel:	Highest	Remark:	Peak	Vertical	1
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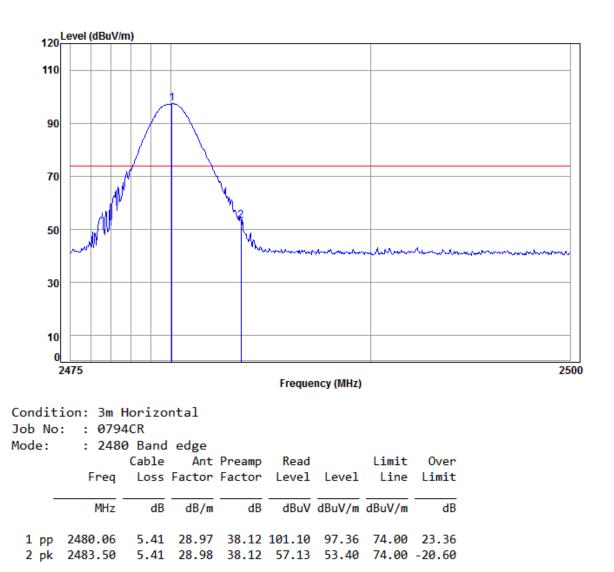


		Cable	Ant	Preamp	Read		Limit	0ver
	Freq	Loss	Factor	Factor	Level	Level	Line	Limit
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 pp	2480.01	5,41	28,97	38,12	96.49	92.75	74.00	18,75
∠ рк	2483.50	5.41	20.90	20.12	34.30	20.05	74.00	-23.37



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Worse case mode:	GFSK (DH5)	Test channel:	Highest	Remark:	Peak	Horizontal	
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Note:

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



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7 Photographs - EUT Test Setup

7.1 Conducted Emission

Adaptor Model No.: BI12T-050100-BdBU



Adaptor Model No.: TM-K006VA-00501000PH-01





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7.2 Radiated Emission

Adaptor Model No.: BI12T-050100-BdBU



Adaptor Model No.: TM-K006VA-00501000PH-01

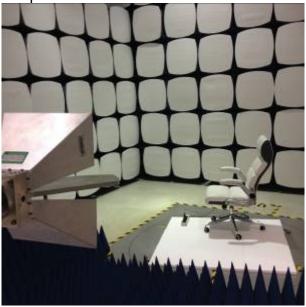




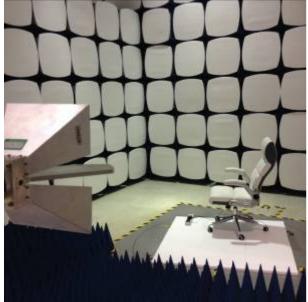
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7.3 Radiated Spurious Emission

Adaptor Model No.: BI12T-050100-BdBU



Adaptor Model No.: TM-K006VA-00501000PH-01



8 Photographs - EUT Constructional Details

Refer to Appendix A - Photographs of EUT Constructional Details for SZEM1602000794CR.