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# **FCC REPORT**

Application No:	SZEMO091106531RF
Applicant:	Winplus Company Ltd
Product Name:	YD-V4 Headset + Direct Charger
<b>Operation Frequency:</b>	2.402GHz to 2.480GHz
FCC ID:	VKYBT50825
Standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.247: 2008
Date of Receipt:	20 November 2009
Date of Test:	25 November to 14 December 2009
Date of Issue:	13 May 2010
Test Result :	PASS *

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

#### Jack Zhang 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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# 3 Test Summary

Test Item	Section in CFR 47	Result
Antenna Requirement	15.203/15.247 (c)	Passed
Conducted Peak Output Power	15.247 (b)(1)	Passed
20dB Occupied Bandwidth	15.247 (a)(1)	Passed
Carrier Frequencies Separation	15.247 (a)(1)	Passed
Hopping Channel Number	15.247 (b)	Passed
Dwell Time	15.247 (a)(1)	Passed
Pseudo random Frequency Hopping Sequence	15.247(b)(4)&TCB Exclusion List (7 July 2002)	Passed
Radiated Emission	15.205/15.209	Passed
Band Edge	15.247(d)	Passed
RF Antenna Conducted spurious emissions	15.247(d)	Passed

Remark: Passed: The EUT complies with the essential requirements in the standard. Failed: The EUT does not comply with the essential requirements in the standard.



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# 4 General Information

### 4.1 Client Information

Applicant:	Winplus Company Ltd
Address of Applicant:	Corporation Park, 11 On Lai Street Shatin Hong Kong, China
Manufacturer/ Factory:	Yingzhen Cyber Blue Industry Co., Ltd.
Address of Manufacturer/ Factory:	34th Floor, Block A, Galaxy Century Building, No.3069, South Caitian Road, Futian District, Shenzhen, China

# 4.2 General Description of E.U.T.

Product Name:	YD-V4 Headset + Direct Charger
Trade Name:	Yada
Item No.:	YD-4, BT50825
Test Item:	YD-4
Operation Frequency:	2402MHz~2480MHz
Channel numbers:	79
Channel separation:	1MHz
Modulation type:	GFSK, Pi/4QPSK, 8DPSK
Antenna Type:	Integral
Antenna gain:	2dBi (declared by manufacturer)
Power supply:	DC 3.7V



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Operation F	Operation Frequency each of channel						
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2402MHz	21	2422MHz	41	2442MHz	61	2462MHz
2	2403MHz	22	2423MHz	42	2443MHz	62	2463MHz
3	2404MHz	23	2424MHz	43	2444MHz	63	2464MHz
4	2405MHz	24	2425MHz	44	2445MHz	64	2465MHz
5	2406MHz	25	2426MHz	45	2446MHz	65	2466MHz
6	2407MHz	26	2427MHz	46	2447MHz	66	2467MHz
7	2408MHz	27	2428MHz	47	2448MHz	67	2468MHz
8	2409MHz	28	2429MHz	48	2449MHz	68	2469MHz
9	2410MHz	29	2430MHz	49	2450MHz	69	2470MHz
10	2411MHz	30	2431MHz	50	2451MHz	70	2471MHz
11	2412MHz	31	2432MHz	51	2452MHz	71	2472MHz
12	2413MHz	32	2433MHz	52	2453MHz	72	2473MHz
13	2414MHz	33	2434MHz	53	2454MHz	73	2474MHz
14	2415MHz	34	2435MHz	54	2455MHz	74	2475MHz
15	2416MHz	35	2436MHz	55	2456MHz	75	2476MHz
16	2417MHz	36	2437MHz	56	2457MHz	76	2477MHz
17	2418MHz	37	2438MHz	57	2458MHz	77	2478MHz
18	2419MHz	38	2439MHz	58	2459MHz	78	2479MHz
19	2420MHz	39	2440MHz	59	2460MHz	79	2480MHz
20	2421MHz	40	2441MHz	60	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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# 4.3 E.U.T Operation mode

<b>Operating Environment:</b>	
Temperature:	24.0 °C
Humidity:	52 % RH
Atmospheric Pressure:	1008 mbar
Test mode:	
Normal operation mode:	Transmit information between the EUT with other Bluetooth device, the EUT is charged by adapter.
Transmitting mode:	Keep the EUT in transmitting mode with modulation.



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# 4.4 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.

#### VCCI

The 3m Semi-anechoic chamber and Shielded Room (7.5m x 4.0m x 3.0m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-2197 and C-2383 respectively.

Date of Registration: September 29, 2008. Valid until September 28, 2011.

#### 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 556682, June 27, 2008.

#### Industry Canada (IC)

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 4620C-1.

# 4.5 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

Telephone: +86 (0) 755 2601 2053 Fax: +86 (0) 755 2671 0594 No tests were sub-contracted.

# 4.6 Other Information Requested by the Customer

None.



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# 4.7 Test Instruments list

RE i	RE in Chamber					
ltem	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2009	15-06-2010
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2009	11-12-2010
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	SGS	N/A	SEL0028	18-06-2009	17-06-2010
6	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2009	11-08-2010
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0005	12-08-2009	11-08-2010
8	Horn Antenna (18-26GHz)	ETS-LINDGREN	3160	SEL0076	12-08-2009	11-08-2010
9	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	18-06-2009	17-06-2010
10	Pre-amplifier (1-18GHz)	Rohde & Schwarz	AFS42-00101 800-25-S-42	SEL0081	18-06-2009	17-06-2010
11	Pre-amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	SEL0080	18-06-2009	17-06-2010
12	Band filter	Amindeon	82346	SEL0094	18-06-2009	17-06-2010

RF c	RF conducted					
ltem	Test Equipment	Manufacturer	Model No.	Inventory No.		Cal.Due date (dd-mm-yy)
1	Spectrum Analyzer	Rohde & Schwarz	10336/030	EMC0040	16-06-2009	15-06-2010
2	Coaxial cable	SGS	N/A	SEL0029	18-06-2009	17-06-2010



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# 5 Test results and Measurement Data

# 5.1 Antenna requirement:

Standard requirement:	FCC Part15 C 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				
	sed with the device. The use of a permanently attached antenna or of an			
	coupling to the intentional radiator, the manufacturer may design the unit			
	n be replaced by the user, but the use of a standard antenna jack or			
electrical connector is prohil				
15.247(c) (1)(i) requirement				
	2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point			
	smitting antennas with directional gain greater than 6dBi provided the			
	power of the intentional radiator is reduced by 1 dB for every 3 dB that the			
directional gain of the anten	na exceeds 6dBi.			
E.U.T Antenna:				
	the main PCB and no consideration of replacement. The best case gain of			
the antenna is 2dBi.				
PCB Antenna 📕				



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#### 5.2 Conducted Peak Output Power

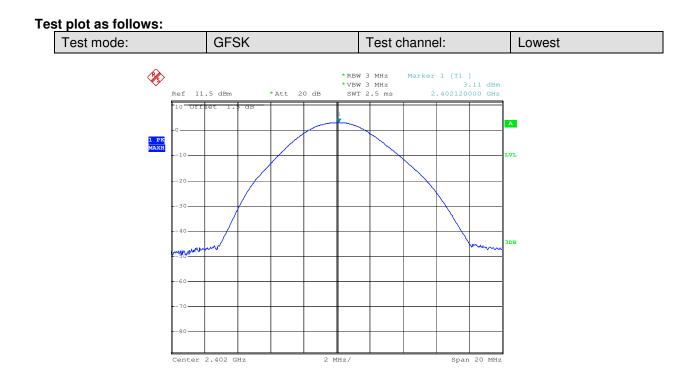
	-
Test Requirement:	FCC Part15 C Section 15.247 (b)(1)
Test Method:	ANSI C63.4:2003 and KDB DA00-705
Limit:	30dBm
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table
	Ground Reference Plane
	Remark: Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.
Test Instruments:	Refer to section 4.7 for details
Test state:	Non-hopping transmitting with modulation.
Test results:	Passed

#### **Measurement Data**

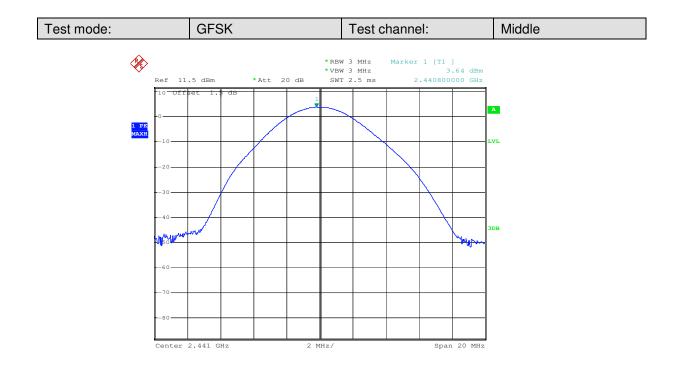
GFSK mode			
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	3.11	30.00	Pass
Middle	3.64	30.00	Pass
Highest	2.11	30.00	Pass
	Pi/4QPSK m	ode	
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	2.13	30.00	Pass
Middle	2.62	30.00	Pass
Highest	0.84	30.00	Pass
	8DPSK mode		
Test channel	Peak Output Power (dBm)	Limit (dBm)	Result
Lowest	2.23	30.00	Pass
Middle	2.75	30.00	Pass
Highest	1.05	30.00	Pass



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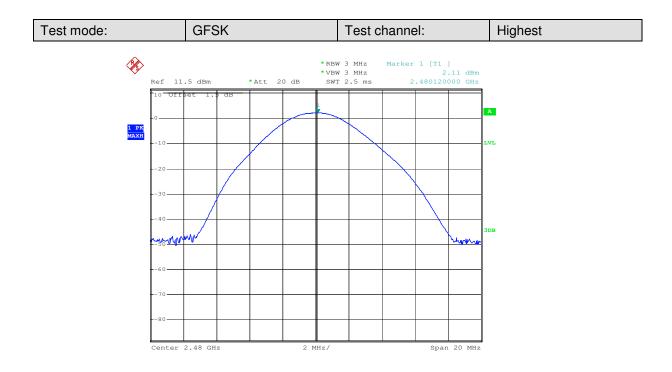
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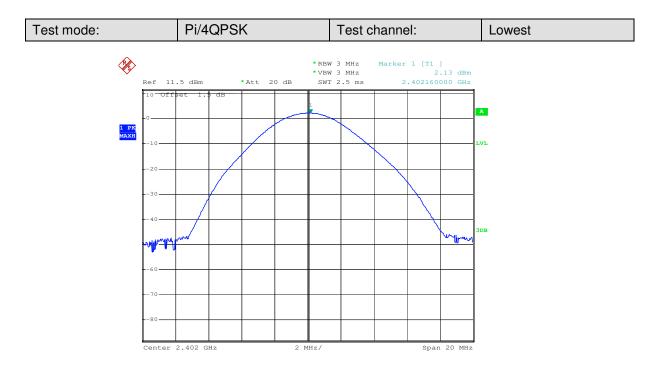
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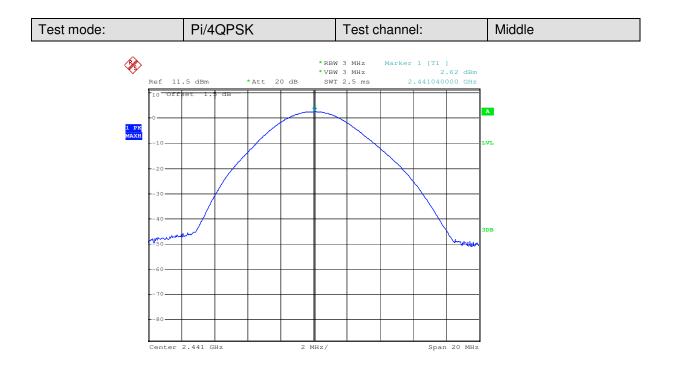
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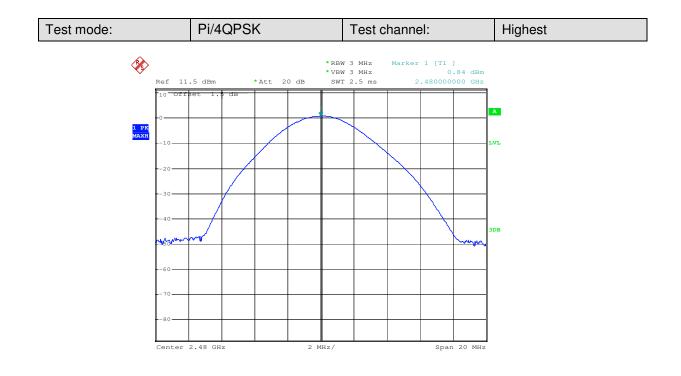
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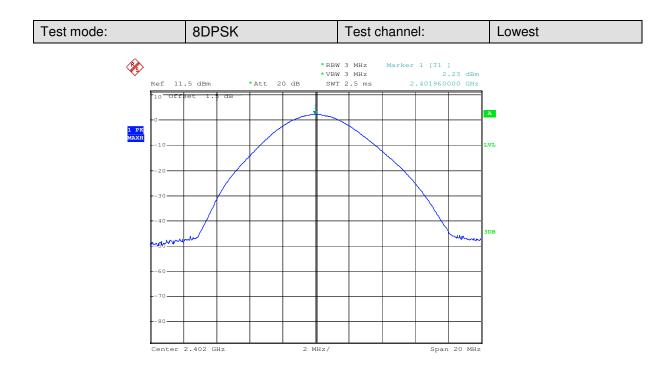
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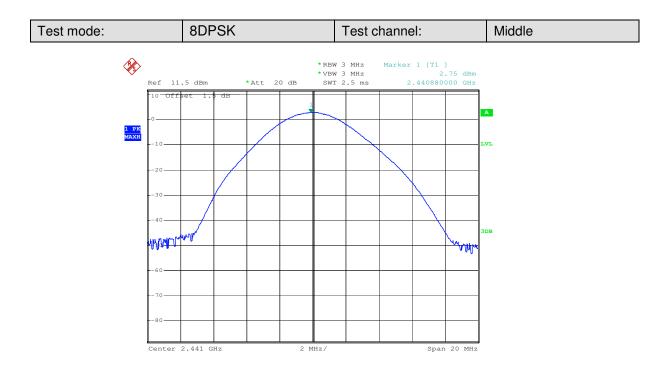




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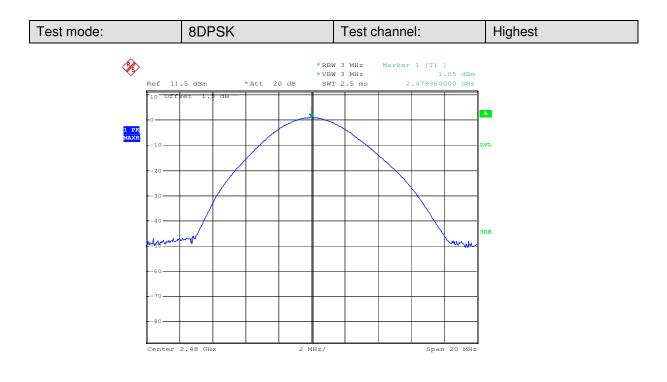
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Date: 7.DEC.2009 17:12:58



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Date: 7.DEC.2009 17:23:54



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### 5.3 20dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.4:2003 and KDB DA00-705
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table
	Ground Reference Plane
	<i>Remark:</i> <i>Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer</i>
Test Instruments:	Refer to section 4.7 for details
Test state:	Non-hopping transmitting with modulation.

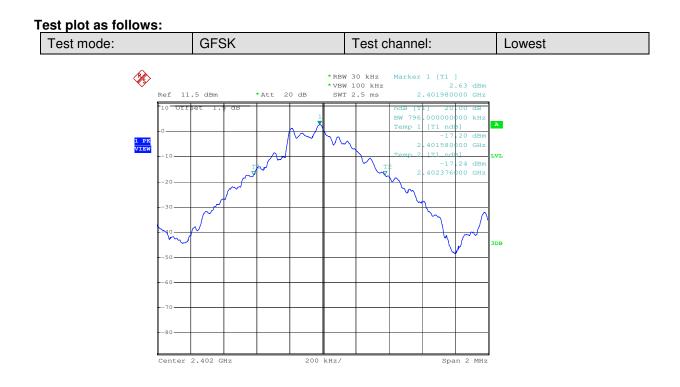
#### **Measurement Data**

Tables	20dB Occupy Bandwidth (KHz)		
Test channel	GFSK	Pi/4QPSK	8DPSK
Lowest	796	1268	1208
Middle	796	1260	1204
Highest	792	1264	1204

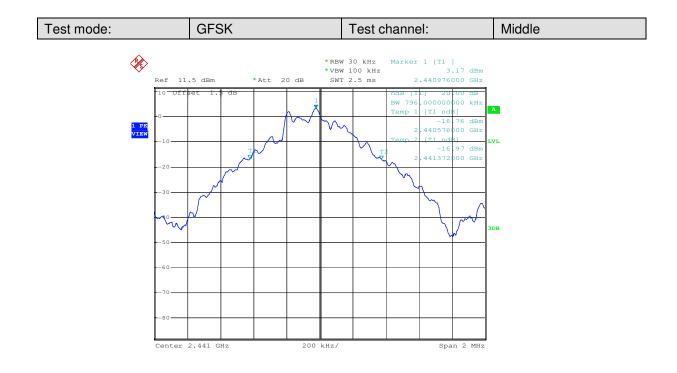
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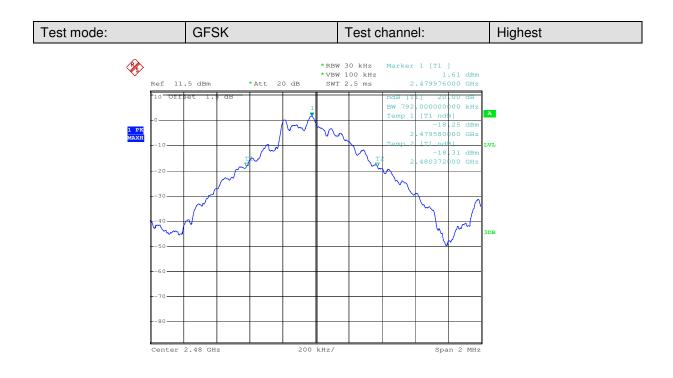
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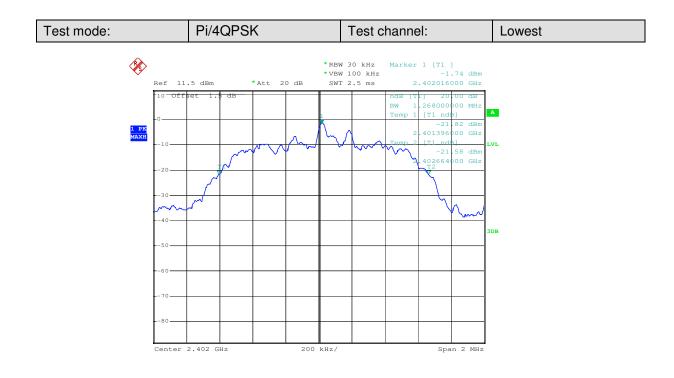
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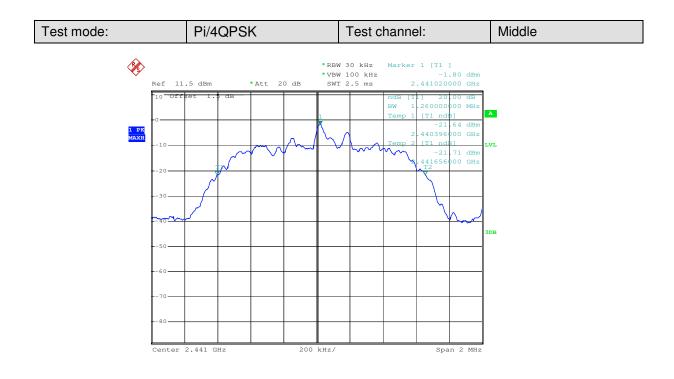
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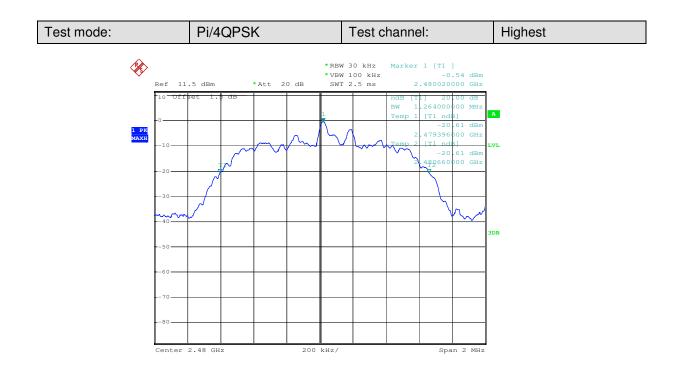
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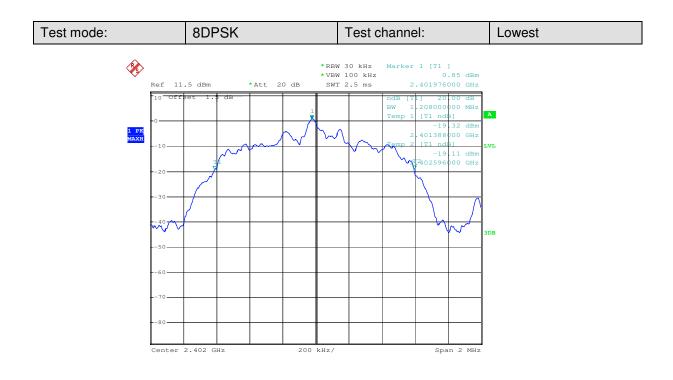
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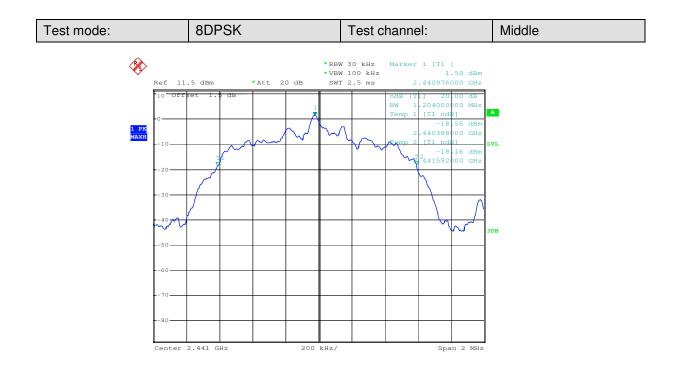
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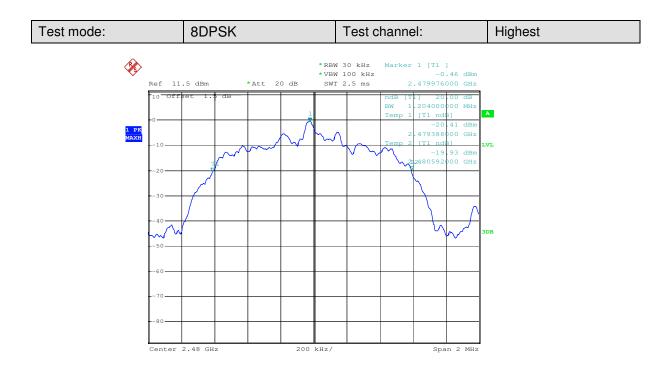
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#### Date: 7.DEC.2009 17:58:29



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Date: 7.DEC.2009 17:59:50



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### 5.4 Carrier Frequencies Separation

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)	
Test Method:	ANSI C63.4:2003 and KDB DA00-705	
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table Ground Reference Plane	
	Remark:	
Test Instruments:	Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer           Refer to section 4.7 for details	
Limit:	>=0.025MHz or 2/3 of the 20dB bandwidth (whichever is greater)	
Test state:	Hopping transmitting with modulation.	
Test results:	Passed	



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#### **Measurement Data**

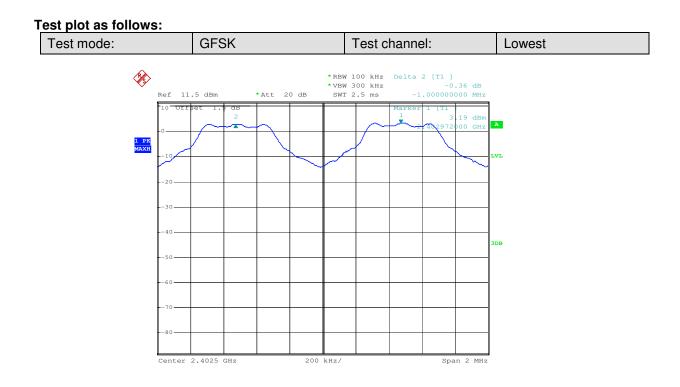
GFSK mode			
Test channel	Carrier Frequencies Separation (KHz)	Limit (KHz)	Result
Lowest	1000	845.3	Pass
Middle	1004	845.3	Pass
Highest	1000	845.3	Pass
	Pi/4QPSK m	ode	
Test channel	Carrier Frequencies Separation (KHz)	Limit (KHz)	Result
Lowest	1004	845.3	Pass
Middle	1000	845.3	Pass
Highest	1004	845.3	Pass
	8DPSK mo	de	
Test channel	Carrier Frequencies Separation (KHz)	Limit (KHz)	Result
Lowest	1004	845.3	Pass
Middle	1008	845.3	Pass
Highest	1004	845.3	Pass

#### Note: According to section 5.3

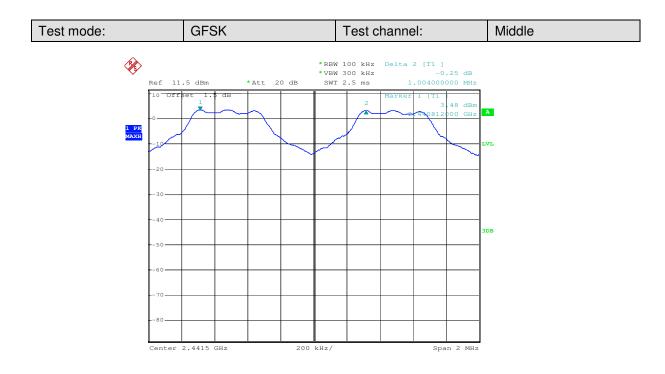
Mode	20dB bandwidth (KHz)	Limit (KHz)
	(worse case)	(Carrier Frequencies Separation)
GFSK	796	530.6
PI/4QPSK	1268	845.3
8DPSK	1148	765.3



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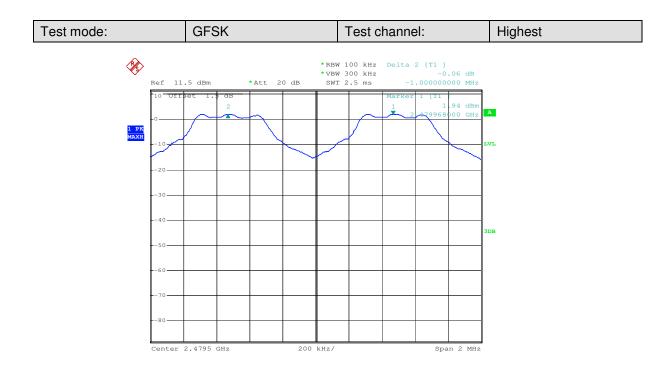
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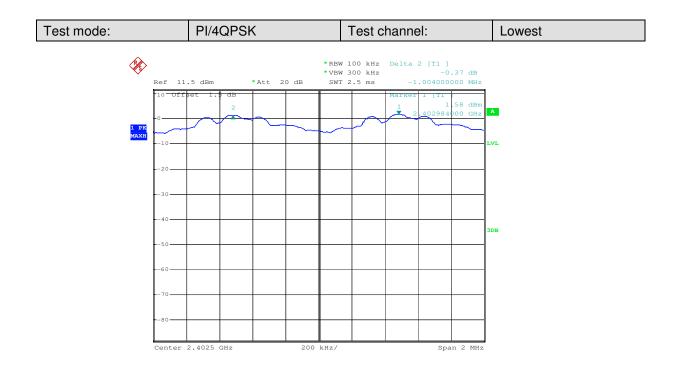
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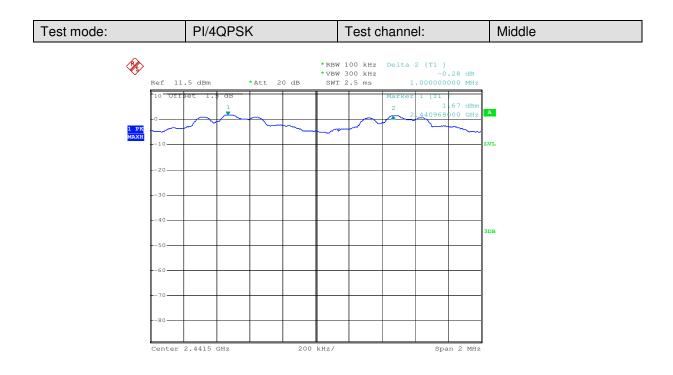
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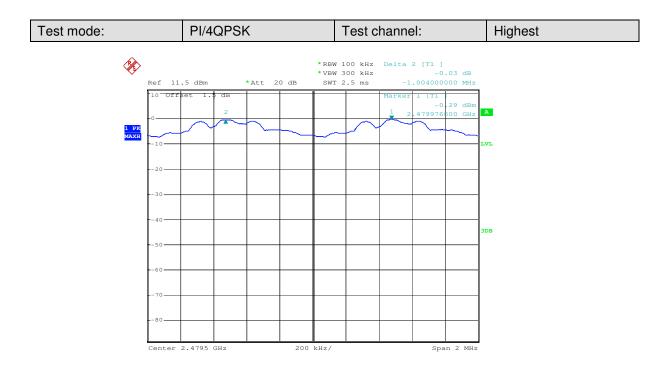
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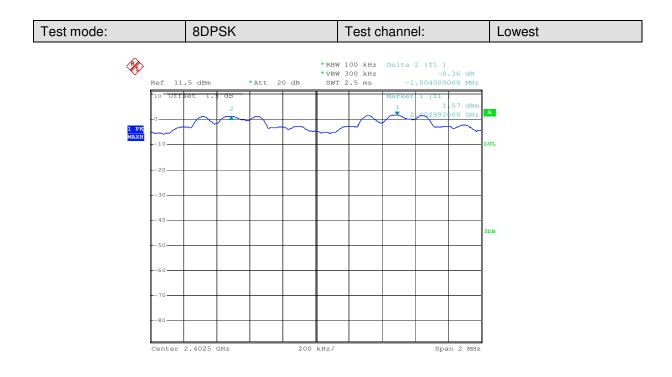
Date: 7.DEC.2009 16:45:52



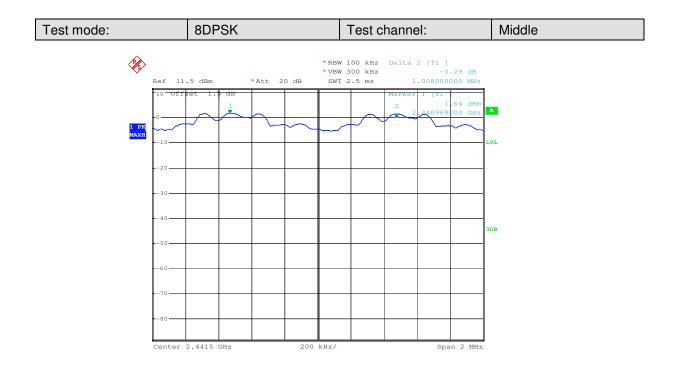
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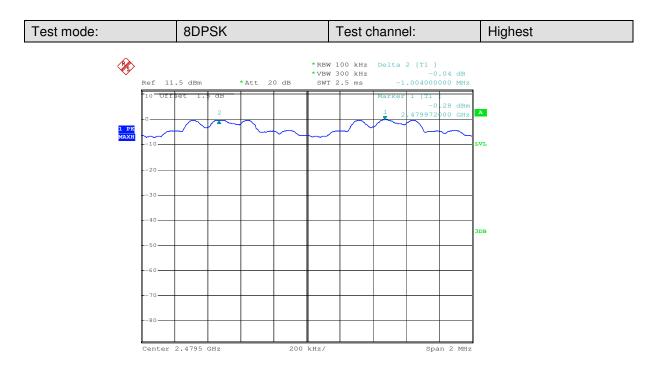
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#### Date: 7.DEC.2009 17:19:06



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Date: 7.DEC.2009 17:40:14



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Test Requirement:	FCC Part15 C Section 15.247 (b)	
Test Method:	ANSI C63.4:2003 and KDB DA00-705	
Limit:	At least 75channels	
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	
Test Instruments:	Refer to section 4.7 for details	
Test state:	Hopping transmitting with modulation.	
Test results:	Passed	

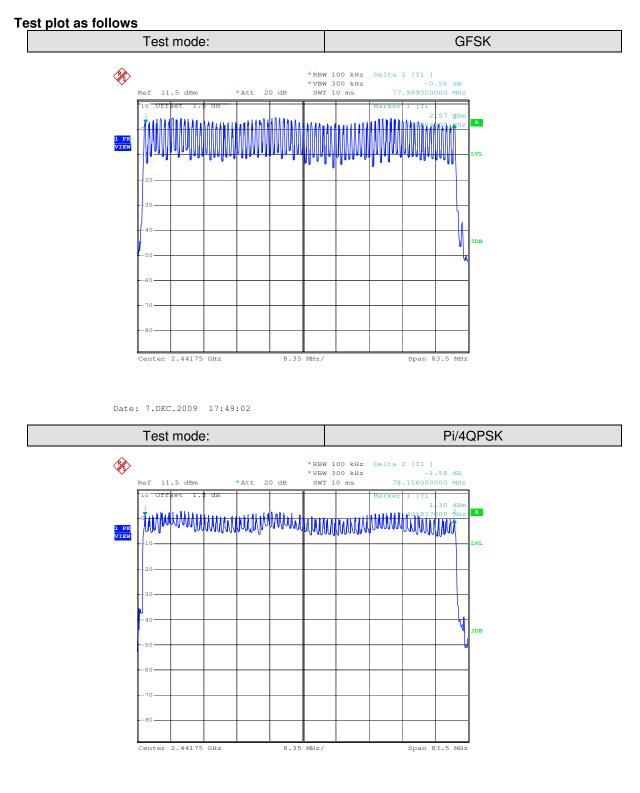
# 5.5 Hopping Channel Number

#### **Measurement Data**

Test mode	Hopping channel numbers	Limit	Results
GFSK	79	75	Pass
Pi/4QPSK	79	75	Pass
8DPSK	79	75	Pass



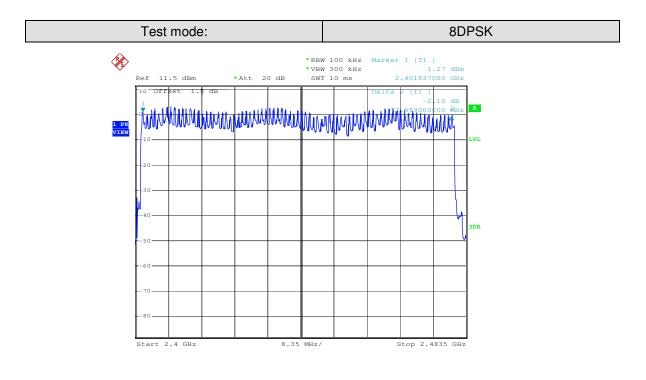
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Date: 7.DEC.2009 17:43:12



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#### 5.6 Dwell Time

Test Requirement:	FCC Part15 C Section 15.247 (a)(1)
Test Method:	ANSI C63.4:2003 and KDB DA00-705
Limit:	<=0.4 Second
Test setup:	Spectrum Analyzer E.U.T Non-Conducted Table
	Ground Reference Plane
	<i>Remark:</i> <i>Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer</i>
Test Instruments:	Refer to section 4.7 for details
Test state:	Hopping transmitting with modulation.
Test results:	Passed

#### **Measurement Data**

Mode	Packet	Dwell time (second)	Limit (second)
	DH1	0.1680	0.4
GFSK	DH3	0.2848	0.4
	DH5	0.3243	0.4
	2-DH1	0.1680	0.4
Pi/4QPSK	2-DH3	0.2848	0.4
	2-DH5	0.3243	0.4
	3-DH1	0.1680	0.4
8DPSK	3-DH3	0.2848	0.4
	3-DH5	0.3243	0.4

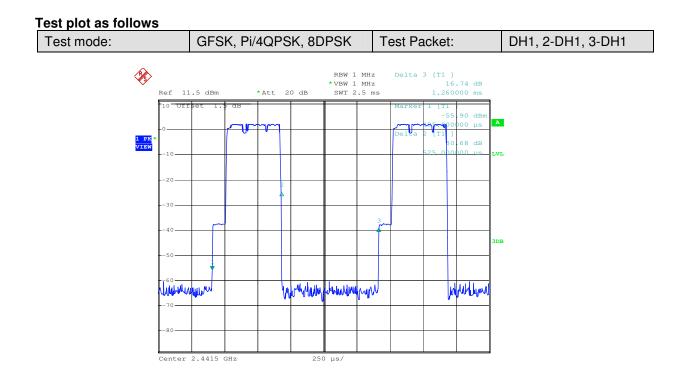
#### **Test Result:**

The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 second

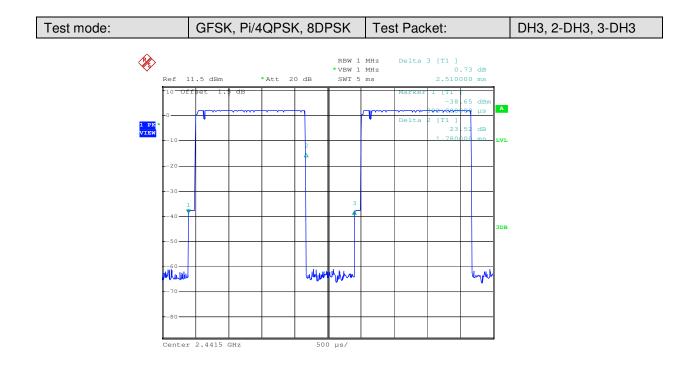
DH1, 2-DH1, 3-DH1: time slot=0.525(ms)\*(1600/ (2\*79))\*31.6=134.4 ms DH3, 2-DH3, 3-DH3: time slot=1.780(ms)\*(1600/ (4\*79))\*31.6=268.8ms DH5, 2-DH5, 3-DH5: time slot=3.040(ms)\*(1600/ (6\*79))\*31.6=311.5ms



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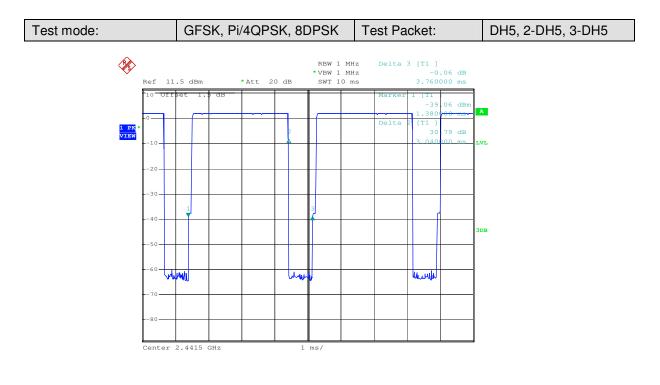
Date: 7.DEC.2009 16:17:56



#### Date: 7.DEC.2009 16:20:00



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Date: 7.DEC.2009 16:20:37



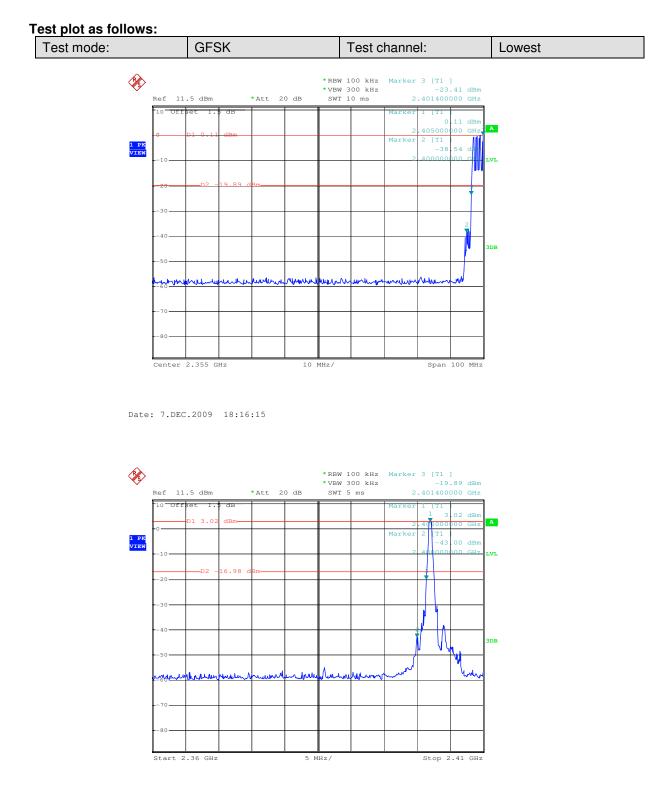
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#### 5.7 Band Edge

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	ANSI C63.4:2003 and KDB DA00-705
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.
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.
Test Instruments:	Refer to section 4.7 for details
Test results:	Passed



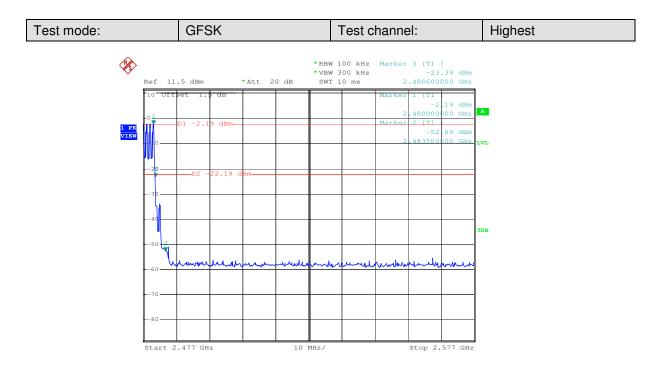
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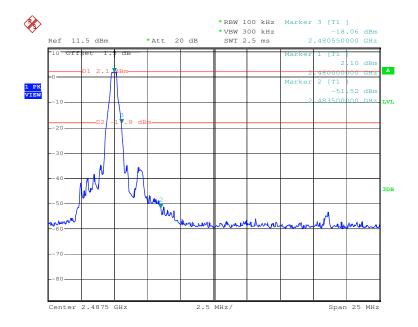
Date: 7.DEC.2009 16:03:10



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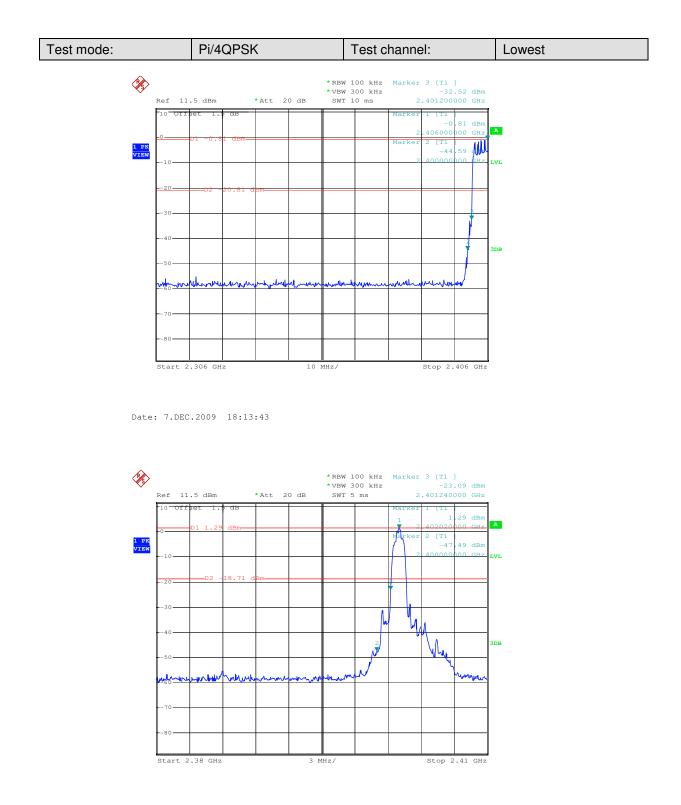
Date: 7.DEC.2009 18:18:37



Date: 7.DEC.2009 16:25:27



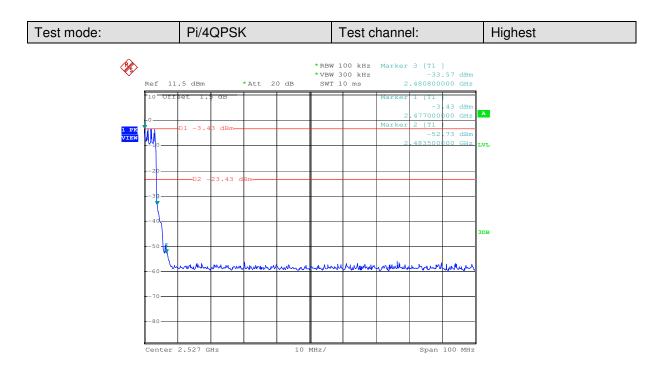
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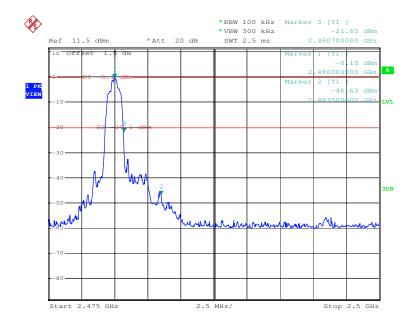
Date: 7.DEC.2009 16:52:43



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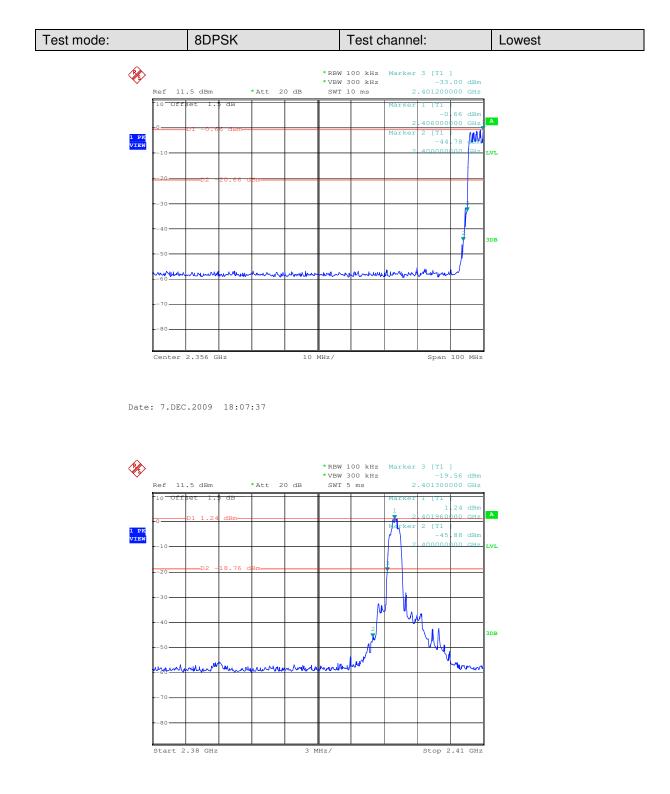
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Date: 7.DEC.2009 16:35:12



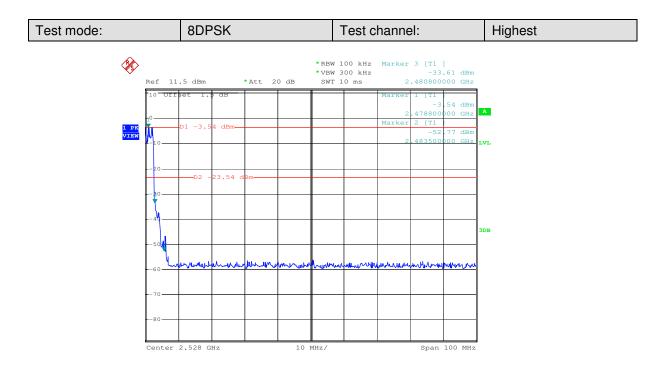
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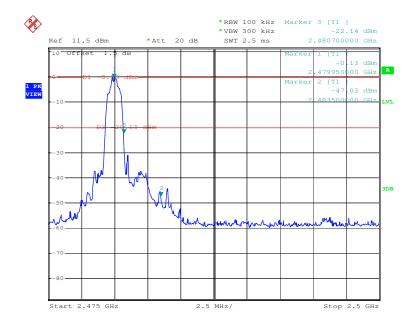
Date: 7.DEC.2009 17:08:26



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# 5.8 RF Antenna Conducted spurious emissions

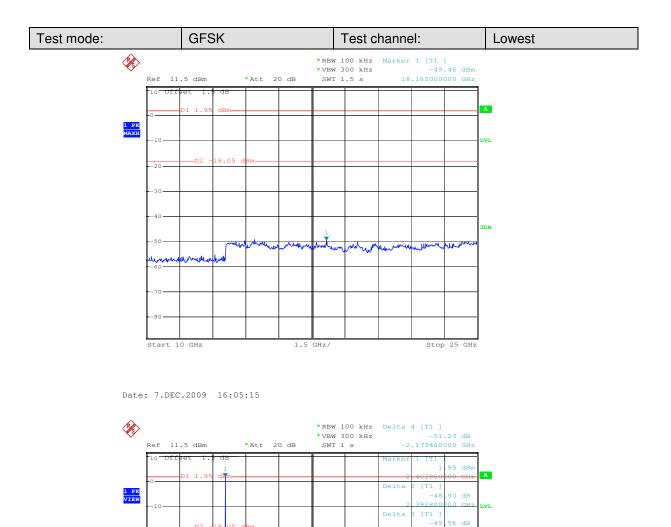
Test Requirement:	FCC Part15 C Section 15.247 (d)					
Test Method:	ANSI C63.4:2003 and KDB DA00-705					
Limit:	In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall 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.					
Test setup:	Spectrum Analyzer         Image: E.U.T         Non-Conducted Table         Ground Reference Plane         Remark:         Offset the High-Frequency cable loss 1.5dB in the spectrum analyzer.					
Test Instruments:	Refer to section 4.7 for details					
Test results:	Passed					



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3DB

Stop 10 GHz



Start 30 MHz

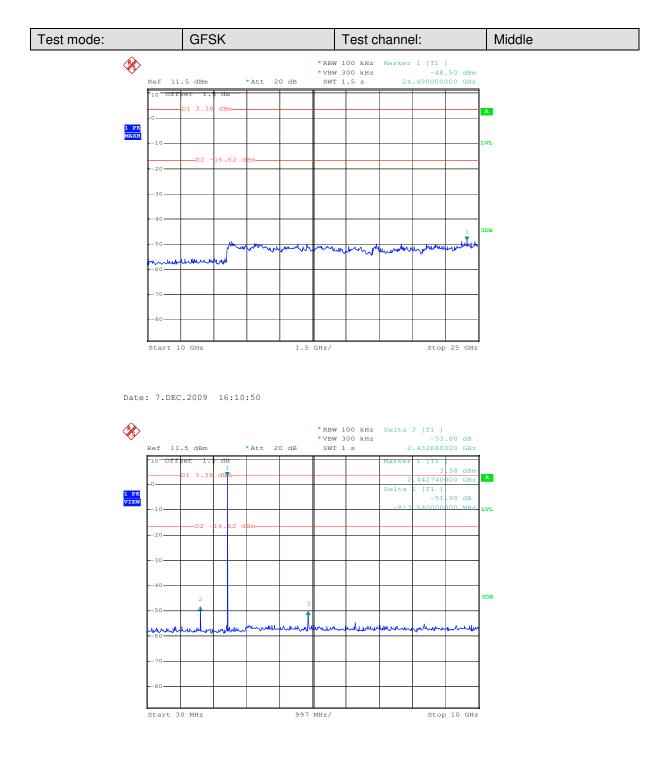
Date: 7.DEC.2009 16:04:46

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997 MHz/



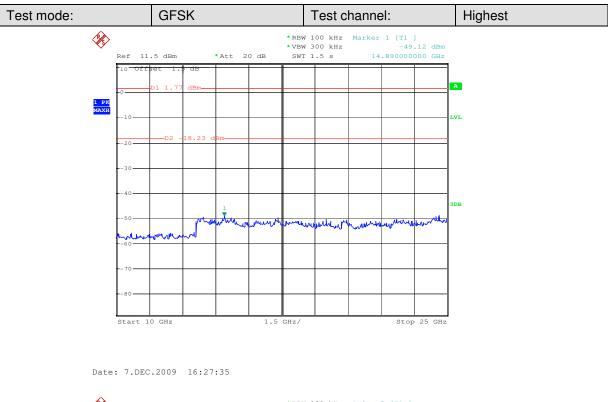
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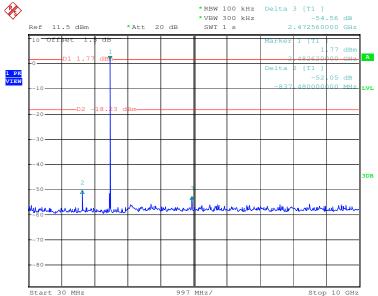


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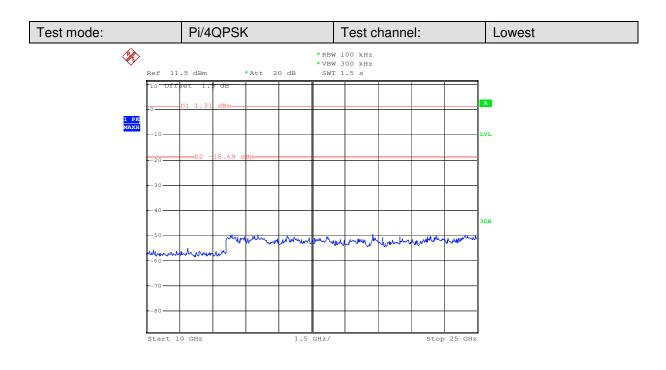




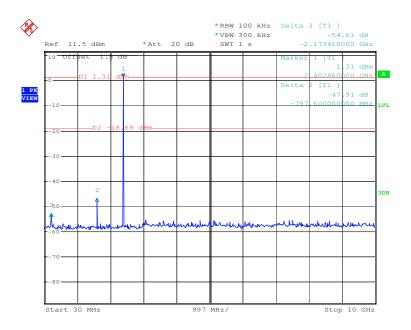
Date: 7.DEC.2009 16:27:00



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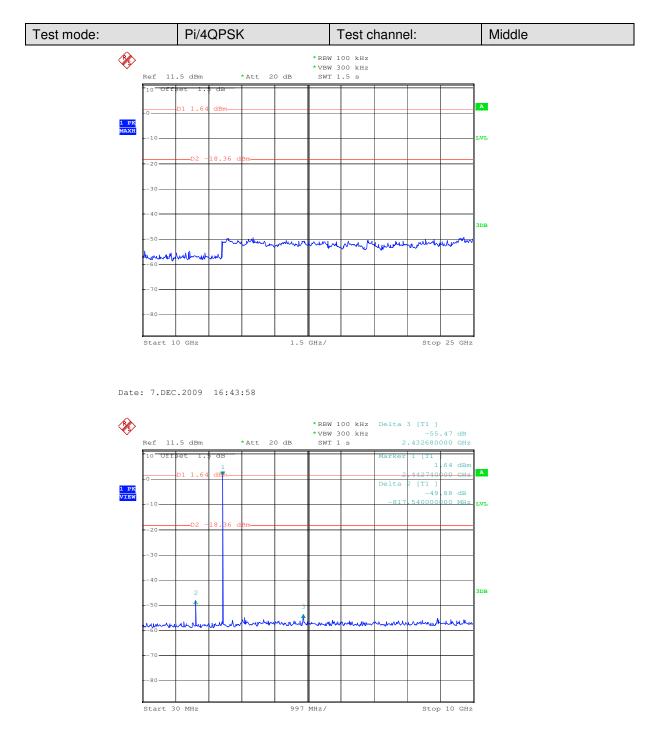
Date: 7.DEC.2009 16:54:38



Date: 7.DEC.2009 16:54:13



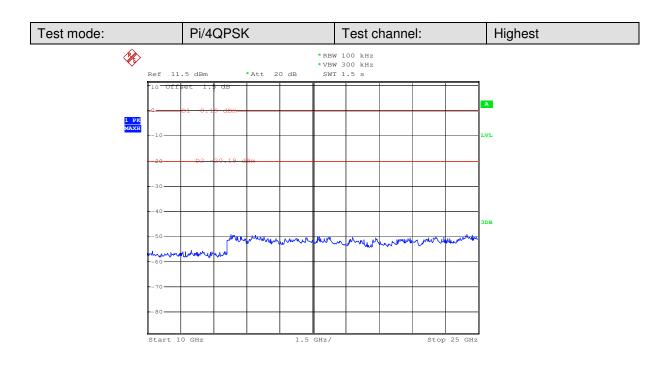
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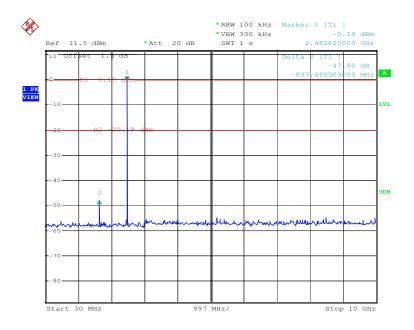
Date: 7.DEC.2009 16:43:29



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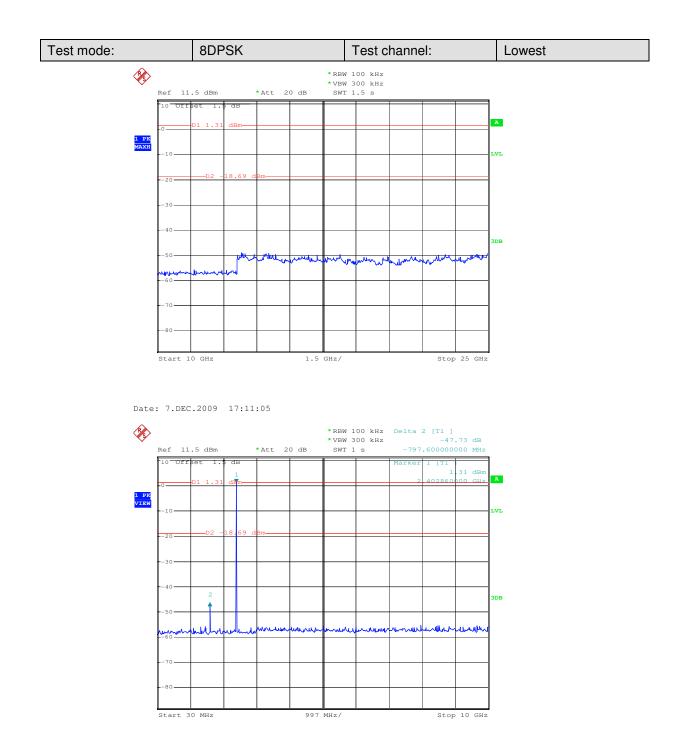
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Date: 7.DEC.2009 16:37:35



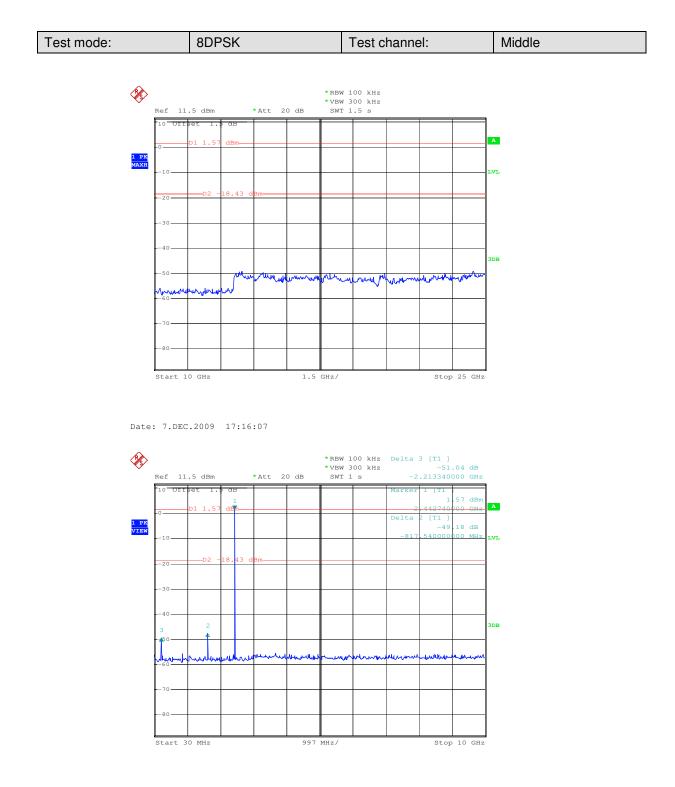
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Date: 7.DEC.2009 17:10:26



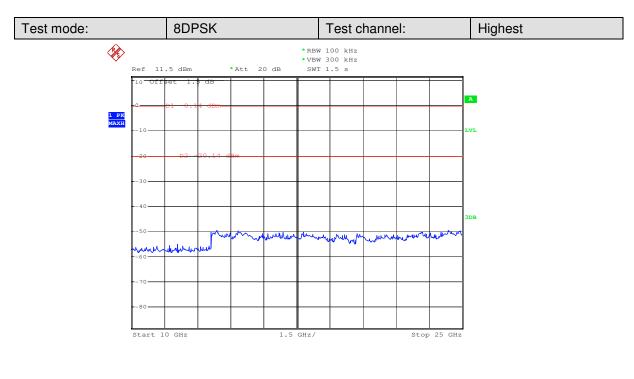
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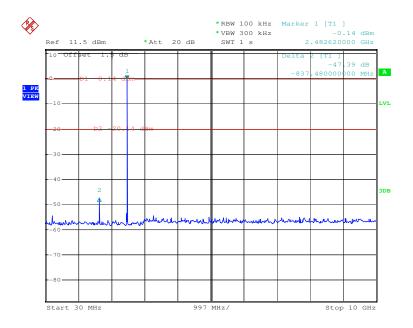
Date: 7.DEC.2009 17:15:43



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# 5.9 Pseudorandom Frequency Hopping Sequence

Test Requirement:	FCC Part15 C Section 15.247 (a)(1) requirement	:
	ns shall have hopping channel carrier frequencies sep dwidth of the hopping channel, whichever is greater.	arated by a minimur
		and may bays barr
	opping systems operating in the 2400-2483.5 MHz b s that are separated by 25 kHz or two-thirds of the 2	
	er is greater, provided the systems operate with an o	
	n shall hop to channel frequencies that are selected	
	n ordered list of hopping frequencies. Each frequenc	
	ansmitter. The system receivers shall have input bar	
	dths of their corresponding transmitters and sha	ll shift frequencies
synchronization with the tra		
	uency Hopping Sequence	
	nce may be generated in a nine-stage shift register wl	
	dulo-two addition stage. And the result is fed back to t	
stage. The sequence begin with nine ones.	ns with the first ONE of 9 consecutive ONEs; i.e. the s	hitt register is initiali
<ul> <li>Number of shift register s</li> </ul>	tagas: 0	
	ages. 9 1 sequence: 2 <sup>9</sup> - 1 = 511 bits	
Longest sequence of zero		
	┝┥╗┝┥╗┝┥╗┿╓┝┥╗┝┥╗┝╸	
	¥	
	č	
Linear Feedback	Shift Register for Generation of the PRBS seque	ence
	dom Frequency Hopping Sequence as follow:	_
0246	62 64 78 1	73 75 77
	·····	
Each frequency used equa	lly on the average by each transmitter.	
	input bandwidths that match the hopping channel ba	ndwidths of their
•	and shift frequencies in synchronization with the tran	
conceptioning transmitters		sinilleu signais.



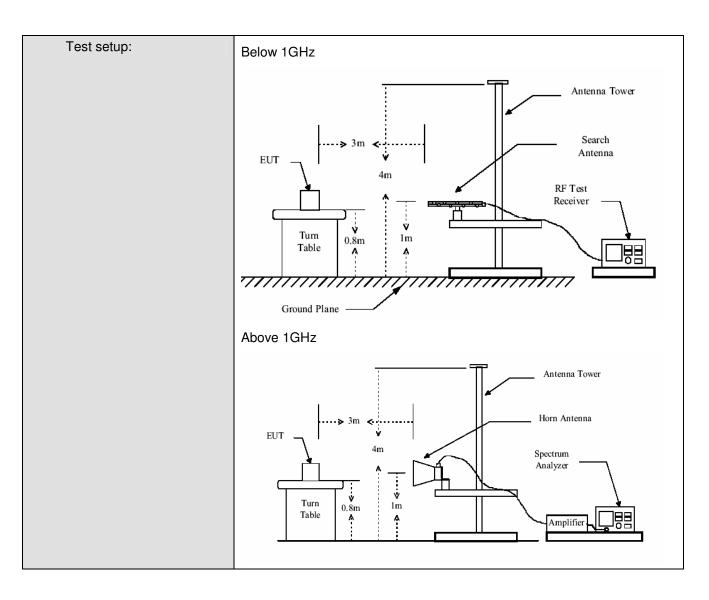
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#### Test Requirement: FCC Part15 C Section 15.209, 15.205 and 15.247(d) **Test Method:** ANSI C63.4: 2003 KDB DA00-705 Test Frequency Range: 30MHz to 25GHz Test site: Measurement Distance: 3m (Semi-Anechoic Chamber) Receiver setup: RBW VBW Frequency Detector Remark 30MHz-1GHz Quasi-peak 100KHz 300KHz Quasi-peak Value 1MHz 3MHz Peak Value Peak Above 1GHz 10Hz Peak 1MHz Average Value Limit: Limit (dBuV/m @3m) Remark Frequency 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 54.0 Average Value Above 1GHz 74.0 Peak Value The EUT was placed on the top of a rotating table 0.8 meters above a. Test Procedure: the ground at a 3 meter semi-anechoic camber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. The antenna height is varied from one meter to four meters above the С ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. 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. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. 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, quasipeak or average method as specified and then reported in a data sheet. The radiation measurements are performed in X, Y, Z axis g. positioning. Only the worst case is shown in the report. Test mode: Non-hopping transmitting with modulation. Pre-scan the EUT in GFSK, Pi/4QPSK and 8DPSK modes and find out the worst case is GFSK mode. Test Instruments: Refer to section 4.7 for details Test results: Passed

#### 5.10 Radiated Emission



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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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Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
32.910	0.60	13.91	28.16	28.90	15.25	40.00	-24.75	Vertical
91.110	1.11	8.76	27.94	29.12	11.05	43.50	-32.45	Vertical
153.190	1.32	9.18	27.43	29.35	12.42	43.50	-31.08	Vertical
246.310	1.65	12.19	26.93	30.33	17.24	46.00	-28.76	Vertical
404.420	2.22	16.32	27.43	30.17	21.28	46.00	-24.72	Vertical
669.230	2.84	21.24	27.38	30.31	27.01	46.00	-18.99	Vertical
40.670	0.62	11.53	28.09	28.02	12.08	40.00	-27.92	Horizontal
152.220	1.32	9.14	27.44	30.54	13.56	43.50	-29.94	Horizontal
256.980	1.71	12.45	26.88	29.18	16.46	46.00	-29.54	Horizontal
366.590	2.11	15.81	27.20	29.70	20.42	46.00	-25.58	Horizontal
544.100	2.65	18.81	27.67	30.94	24.73	46.00	-21.27	Horizontal
669.230	2.84	21.24	27.38	30.43	27.13	46.00	-18.87	Horizontal

#### 5.10.1 Radiated emission below 1GHz

Remark: the data above is tested with QP detector mode.

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Test mode:		GFSK	Tes	t channel:	Lowest	Remar	ˈk:	Peak	
Frequency (MHz)	Cable Loss (dB)	Antenna Factor (dB/m)	Preamp Factor (dB)	Read Level (dBuV)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization	
2390	6.28	32.24	39.03	48.54	48.03	74.00	-25.97	Vertical	
4804	9.36	34.04	41.53	57.24	59.11	74.00	-14.89	Vertical	
7206	13.38	36.33	40.98	46.83	55.56	74.00	-18.44	Vertical	
9608	13.39	36.99	37.56	40.59	53.41	74.00	-20.59	Vertical	
12008	16.45	38.80	39.09	41.54	57.70	74.00	-16.30	Vertical	
2390	6.28	32.24	39.03	47.37	46.86	74.00	-27.14	Horizontal	
4804	9.36	34.04	41.53	53.04	54.91	74.00	-19.09	Horizontal	
7206	13.38	36.33	40.98	47.75	56.48	74.00	-17.52	Horizontal	
9608	13.39	36.99	37.56	41.21	54.03	74.00	-19.97	Horizontal	
12008	16.45	38.80	39.09	43.98	60.14	74.00	-13.86	Horizontal	
Test mode:		GFSK	Test channel:		Lowest Remark		ˈk:	Average	
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	
2390	6.28	32.24	39.03	32.45	31.94	54.00	-22.06	Vertical	
4804	9.36	34.04	41.53	33.71	35.58	54.00	-18.42	Vertical	
7206	13.38	36.33	40.98	34.17	42.90	54.00	-11.10	Vertical	
9608	13.39	36.99	37.56	30.49	43.31	54.00	-10.69	Vertical	
12008	16.45	38.80	39.09	29.40	45.56	54.00	-8.44	Vertical	
2390	6.28	32.24	39.03	33.66	33.15	54.00	-20.85	Horizontal	
4804	9.36	34.04	41.53	36.02	37.89	54.00	-16.11	Horizontal	
7206	13.38	36.33	40.98	34.35	43.08	54.00	-10.92	Horizontal	
9608	13.39	36.99	37.56	30.91	43.73	54.00	-10.27	Horizontal	
12008	16.45	38.80	39.09	29.50	45.66	54.00	-8.34	Horizontal	

#### 5.10.2 Transmitter emission above 1GHz



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Test mode:		GFSK	Test	channel:	Middle	Remark:		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		
2500	5.76	32.30	39.15	48.37	47.28	74.00	-26.72	Vertical		
4882	10.57	34.02	40.33	54.85	59.11	74.00	-14.89	Vertical		
7323	12.91	36.10	40.40	48.06	56.67	74.00	-17.33	Vertical		
9764	13.89	37.10	37.94	40.76	53.81	74.00	-20.19	Vertical		
12205	17.95	38.93	39.30	44.22	61.80	74.00	-12.20	Vertical		
2500	5.76	32.30	39.15	47.80	46.71	74.00	-27.29	Horizontal		
4882	10.57	34.02	40.33	52.15	56.41	74.00	-17.59	Horizontal		
7323	12.91	36.10	40.40	47.67	56.28	74.00	-17.72	Horizontal		
9764	13.89	37.10	37.94	41.38	54.43	74.00	-19.57	Horizontal		
12205	17.95	38.93	39.30	44.05	61.63	74.00	-12.37	Horizontal		
		0 = 01 /	-							
Test mode:	Test mode: GFSk		lest	channel:	Middle	Remar	k:	Average		
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		
2500	5.76	32.30	39.15	33.56	32.47	54.00	-21.53	Vertical		
4882	10.57	34.02	40.33	33.39	37.65	54.00	-16.35	Vertical		
7323	12.91	36.10	40.40	34.34	42.95	54.00	-11.05	Vertical		
9764										
	13.89	37.10	37.94	30.35	43.40	54.00	-10.60	Vertical		
12205	13.89 17.95	37.10 38.93	37.94 39.30	30.35 29.45	43.40 47.03	54.00 54.00	-10.60 -6.97	Vertical Vertical		
12205 2500										
	17.95	38.93	39.30	29.45	47.03	54.00	-6.97	Vertical		
2500	17.95 5.76	38.93 32.30	39.30 39.15	29.45 34.13	47.03 33.04	54.00 54.00	-6.97 -20.96	Vertical Horizontal		
2500 4882	17.95 5.76 10.57	38.93 32.30 34.02	39.30 39.15 40.33	29.45 34.13 32.63	47.03 33.04 36.89	54.00 54.00 54.00	-6.97 -20.96 -17.11	Vertical Horizontal Horizontal		



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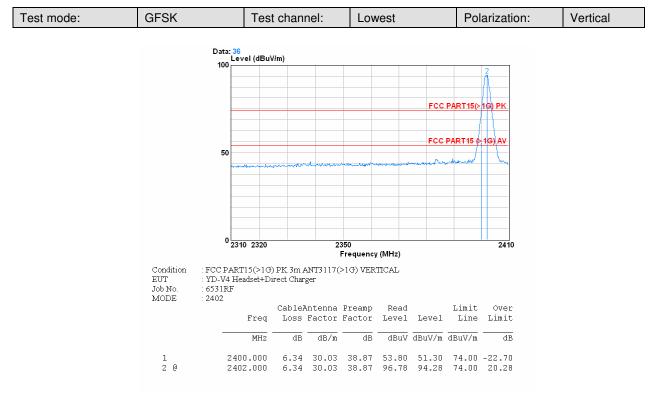
Test mode:		GFSK	Test	channel:	Highest	Remark:		Peak
Frequency (MHz)	Cable loss (dB)	Antenna factors (dB/m)	Preamp factor (dB)	Reading Level (dBµV)	Emission Level (dBµV/m)	Limit (dBµV/m)	Over limit (dB)	Polarization
2500	5.76	32.30	39.15	47.12	46.03	74.00	-27.97	Vertical
4960	10.43	34.01	41.03	48.21	51.62	74.00	-22.38	Vertical
7440	12.72	35.91	40.01	48.03	56.65	74.00	-17.35	Vertical
9920	14.24	37.23	37.78	40.57	54.26	74.00	-19.74	Vertical
12400	17.55	39.04	39.48	43.00	60.11	74.00	-13.89	Vertical
2500	5.76	32.30	39.15	48.12	47.03	74.00	-26.97	Horizontal
4960	10.43	34.01	41.03	48.87	52.28	74.00	-21.72	Horizontal
7440	12.72	35.91	40.01	47.93	56.55	74.00	-17.45	Horizontal
9920	14.24	37.23	37.78	43.62	57.31	74.00	-16.69	Horizontal
12400	17.55	39.04	39.48	44.49	61.60	74.00	-12.40	Horizontal
<b>-</b>		0501						
Test mode:		GFSK	Test channel:		Highest	Highest Remark:		Average
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
2500	5.76	32.30	39.15	33.40	32.31	54.00	-21.69	Vertical
4960	10.43	34.01	41.03	33.81	37.22	54.00	-16.78	Vertical
7440	12.72	35.91	40.01	34.21	42.83	54.00	-11.17	Vertical
9920	14.24	37.23	37.78	30.14	43.83	54.00	-10.17	Vertical
10400	17.55	39.04	39.48	29.72	46.83	54.00	-7.17	Vertical
12400	17.55	39.04	39.40	29.72	40.00	0		
2500	5.76	39.04	39.48 39.15	33.87	32.78	54.00	-21.22	Horizontal
								Horizontal Horizontal
2500	5.76	32.30	39.15	33.87	32.78	54.00	-21.22	
2500 4960	5.76 10.43	32.30 34.01	39.15 41.03	33.87 34.58	32.78 37.99	54.00 54.00	-21.22 -16.01	Horizontal

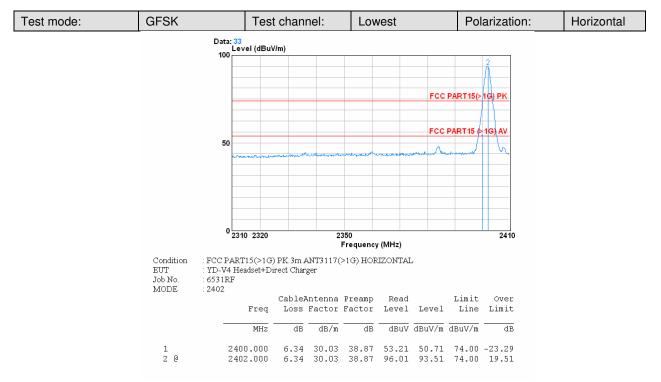
Remark: The disturbance above 13GHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



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#### 5.10.3 Band Edge and Restricted band (Radiated measurement)







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