

Page:

Report No.: SZEMO09110621901

1 of 18

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# **FCC REPORT**

Application No.: SZEMO091106219RF

**Applicant:** Shenzhen Fuyeda Industry Development Corp.

Product Name: MOUSE

Operation Frequency: 2405.2MHz to 2476.2MHz

FCC ID: V4P-MS176OR

Standards: FCC CFR Title 47 Part 15 Subpart C Section 15.249: 2008

Date of Receipt 04 November 2009

Date of Test 04 to 17 November 2009

Date of Issue 18 November 2009

Test Result : PASS \*

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

Authorized Signature:

Robinson Lo 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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Report No.: SZEMO09110621901

Page: 2 of 18

# 2 Contents

		Page
1	1 COVER PAGE	1
2	2 CONTENTS	2
_		
3	3 TEST SUMMARY	3
4	4 GENERAL INFORMATION	4
-	4.1 Client Information	
	4.1 CLIENT INFORMATION	
	4.3 E.U.T OPERATION MODE	
	4.4 Test Facility	
	4.5 TEST LOCATION	6
	4.6 OTHER INFORMATION REQUESTED BY THE CUSTOMER	6
	4.7 TEST INSTRUMENTS LIST:	
5	5 TEST RESULTS AND MEASUREMENT DATA	8
	5.1 Antenna requirement:	8
	5.2 RADIATED EMISSION	
	5.2.1 Field Strength Of The Fundamental Signal	
	5.2.2 Spurious Emissions	
	5.3 20db Bandwidth	16-18



Report No.: SZEMO09110621901

Page: 3 of 18

# 3 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Passed
Field strength of the fundamental signal	15.249 (a)	Passed
Spurious emissions	15.249/15.209	Passed
20dB Occupied Bandwidth	15.215 (c)	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.



Report No.: SZEMO09110621901

Page: 4 of 18

# 4 General Information

#### 4.1 Client Information

Applicant:	Shenzhen Fuyeda Industry Development Corp.						
Address of Applicant:	No.1, NEWMEN ROAD, TONGSHENG VILLAGE, DALANG STREET, BAO'AN, SHENZHEN, CHINA						
Manufacturer/ Factory:	Shenzhen Fuyeda Industry Development Corp.						
Address of Manufacturer/ Factory:	No.1, NEWMEN ROAD, TONGSHENG VILLAGE, DALANG STREET, BAO'AN, SHENZHEN, CHINA						

# 4.2 General Description of E.U.T.

Product Name:	MOUSE
Trade Name:	N/A
Item No.:	MS-176OR
Operation Frequency:	2405.2MHz to 2476.2MHz
Channel numbers:	32
Channel separation:	1MHz
Modulation type:	GFSK
Antenna Type:	Integral
Dwell Time	8ms
Power supply:	2X1.5V(AAA)=3.0V



Report No.: SZEMO09110621901

Page: 5 of 18

### Operation Frequency of each channel

Frequency	/ Group1	Frequen	cy Group2	Unit
2407.2	2442.2	2405.2	2443.2	
2408.2	2447.2	2406.2	2444.2	
2412.2	2451.2	2409.2	2446.2	
2414.2	2452.2	2410.2	2448.2	
2417.2	2457.2	2411.2	2449.2	
2420.2	2458.2	2413.2	2453.2	
2421.2	2459.2	2415.2	2455.2	
2422.2	2460.2	2416.2	2456.2	[MHz]
2427.2	2461.2	2418.2	2462.2	
2428.2	2465.2	2419.2	2463.2	
2431.2	2468.2	2423.2	2464.2	
2435.2	2469.2	2425.2	2466.2	
2436.2	2472.2	2429.2	2467.2	
2437.2	2473.2	2430.2	2470.2	
2438.2	2475.2	2432.2	2471.2	
2439.2	2476.2	2434.2	2474.2	

#### 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	2405.2MHz
The middle channel	2439.2MHz
The Highest channel	2476.2MHz



Report No.: SZEMO09110621901

Page: 6 of 18

## 4.3 E.U.T Operation mode

Operating Environment:						
Temperature:	24.0 °C					
Humidity:	52 % RH					
Atmospheric Pressure:	1008 mbar					
Test mode:						
Normal operation mode:	Keep the EUT in communicating mode with the dongle					
Transmitting mode:	Keep the EUT in transmitting mode with modulation.					

## 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.



Report No.: SZEMO09110621901

Page: 7 of 18

## 4.7 Test Instruments list:

RE i	RE in Chamber								
Item 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			



Report No.: SZEMO09110621901

Page: 8 of 18

# 5 Test results and Measurement Data

## 5.1 Antenna requirement:

Standard requirement: FCC Part15 C Section 15.203

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.

E.U.T Antenna:

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



Report No.: SZEMO09110621901

Page: 9 of 18

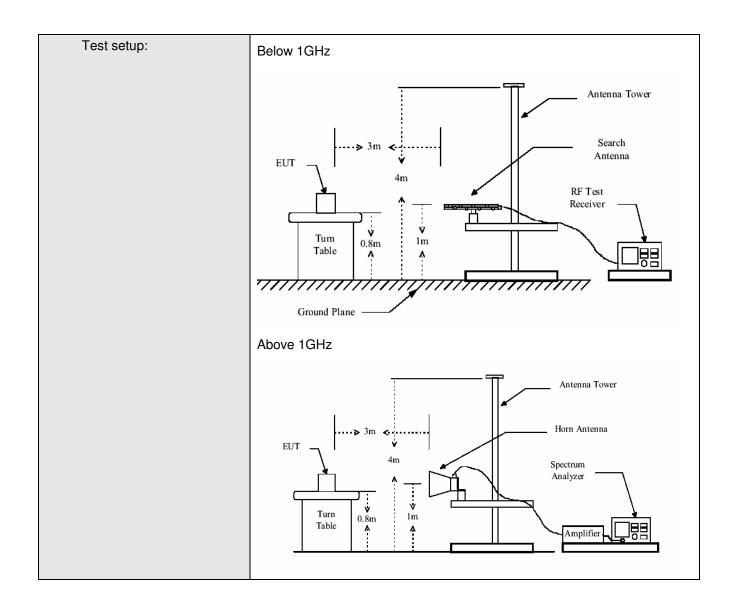
## 5.2 Radiated Emission

Test Requirement:	FCC Part15 C Section 15.249, 15.209 and 15.205					
Test Method:	ANSI C63.4: 20	03				
Test Frequency Range:	30MHz to 25GH	lz				
Test site:	Measurement D	istance: 3m (	Semi-Anecho	ic Chamber	r)	
Receiver setup:		•			·	
•	Frequency	Detector	RBW	VBW	Remark	
	30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak Value	
	Above 1GHz	Peak	1MHz	3MHz	Peak Value	
	Above IGIIZ	Peak	1MHz	10Hz	Average Value	
Limit:						
(Field strength of the	Freque	ency	Limit (dBuV/		Remark	
fundamental signal)	2400MHz-24	183 5MHz	94.0		Average Value	
,	2400WI 12-2403.3WI 12		114.	0	Peak Value	
Limit:						
(Spurious Emissions)	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 1	GHz	54.0		Average Value	
			74.0		Peak Value	
Test Procedure:	above ground. To position of the n	The turn table naximum emis	can rotate 36 ssion level. Th	0 degrees t ne antenna	e which is 0.8meter to determine the can move up and aximum emission	
	Both horizontal and vertical polarization of the antenna is set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.					
Test Instruments:	Refer to section 4.7 for details					
Test mode:	Normal operation	n mode				
Test results:	Passed					



Report No.: SZEMO09110621901

Page: 10 of 18



#### 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



Report No.: SZEMO09110621901

Page: 11 of 18

#### **Measurement Data**

# 5.2.1 Field Strength Of The Fundamental Signal

#### Peak value:

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
2405.2	6.25	30.05	38.83	83.42	80.89	114.00	-33.11	Horizontal
2405.2	6.25	30.05	38.83	82.10	82.57	114.00	-31.43	Vertical
2439.2	6.29	30.15	38.64	85.53	80.38	114.00	-33.62	Horizontal
2439.2	6.29	30.15	38.64	82.58	83.33	114.00	-30.67	Vertical
2476.2	6.45	30.30	39.72	88.98	86.01	114.00	-27.99	Horizontal
2476.2	6.45	30.30	39.72	89.04	86.07	114.00	-27.93	Vertical

Average value:

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
2405.2	6.25	30.05	38.83	77.68	75.15	94.00	-18.85	Horizontal
2405.2	6.25	30.05	38.83	76.85	74.32	94.00	-19.68	Vertical
2439.2	6.29	30.15	38.64	79.05	76.85	94.00	-17.15	Horizontal
2439.2	6.29	30.15	38.64	75.14	72.94	94.00	-21.06	Vertical
2476.2	6.45	30.30	39.72	82.57	79.60	94.00	-14.40	Horizontal
2476.2	6.45	30.30	39.72	83.67	80.70	94.00	-13.30	Vertical



Report No.: SZEMO09110621901

Page: 12 of 18

## 5.2.2 Spurious Emissions

# 30MHz~1GHz

Test mode: Normal operation mode:

#### OP value:

QP value:								
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
39.700	0.60	11.30	28.09	47.20	31.01	40.00	-8.99	Vertical
118.270	1.25	8.02	27.70	46.99	28.56	43.50	-14.94	Vertical
129.910	1.28	7.70	27.61	49.29	30.66	43.50	-12.84	Vertical
144.460	1.31	8.53	27.49	46.35	28.70	43.50	-14.80	Vertical
432.550	2.34	16.56	27.52	47.40	38.78	46.00	-7.22	Vertical
797.270	3.20	22.09	26.95	39.61	37.95	46.00	-8.05	Vertical
78.500	1.05	7.59	28.00	39.12	19.76	40.00	-20.24	Horizontal
118.270	1.25	8.02	27.70	43.50	25.07	43.50	-18.43	Horizontal
129.910	1.28	7.70	27.61	51.67	33.04	43.50	-10.46	Horizontal
144.460	1.31	8.53	27.49	41.60	23.95	43.50	-19.55	Horizontal
710.940	2.94	21.60	27.24	37.50	34.80	46.00	-11.20	Horizontal
749.740	3.06	21.70	27.11	44.39	42.04	46.00	-3.96	Horizontal



12026.0

16.45

39.10

39.09

# SGS-CSTC Standards Technical Services Ltd.

Report No.: SZEMO09110621901

Page: 13 of 18

Above 1GHz								
Test mode:	Tran	smitting	Test char	nnel: L	owest	Remark:	Pe	ak
	0.1.1.	A	D	D I		T		1
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
2390.0	6.28	29.98	39.03	44.24	41.47	74.00	-32.53	Vertical
2400.0	6.34	30.03	38.87	43.60	41.10	74.00	-32.90	Vertical
2500.0	5.76	30.37	39.15	44.65	41.63	74.00	-32.37	Vertical
4810.4	9.36	34.25	41.53	58.38	60.46	74.00	-13.54	Vertical
7215.6	13.30	37.24	40.88	48.65	58.31	74.00	-15.69	Vertical
9620.8	13.39	37.99	37.56	46.63	60.45	74.00	-13.55	Vertical
12026.0	16.45	39.10	39.09	39.09	55.55	74.00	-18.45	Vertical
2390.0	6.28	29.98	39.03	44.47	41.70	74.00	-32.30	Horizontal
2400.0	6.34	30.03	38.87	44.51	42.01	74.00	-31.99	Horizontal
2500.0	5.76	30.37	39.15	45.45	42.43	74.00	-31.57	Horizontal
4810.4	9.36	34.25	41.53	54.87	56.95	74.00	-17.05	Horizontal
7215.6	13.30	37.24	40.88	49.38	59.04	74.00	-14.96	Horizontal
9620.8	13.39	37.99	37.56	46.94	60.76	74.00	-13.24	Horizontal

Test mode:	Tran	smitting	Test char	nnel: L	owest	Remark:	Av	erage
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
2390.0	6.28	29.98	39.03	30.83	28.06	54.00	-25.94	Vertical
2400.0	6.34	30.03	38.87	32.47	29.97	54.00	-24.03	Vertical
4810.4	9.36	34.25	41.53	32.94	35.02	54.00	-18.98	Vertical
7215.6	13.30	37.24	40.88	33.89	43.55	54.00	-10.45	Vertical
9620.8	13.39	37.99	37.56	30.70	44.52	54.00	-9.48	Vertical
12026.0	16.45	39.10	39.09	29.43	45.89	54.00	-8.11	Vertical
2390.0	6.28	29.98	39.03	31.01	28.24	54.00	-25.76	Horizontal
2400.0	6.34	30.03	38.87	42.26	39.76	54.00	-14.24	Horizontal
4810.4	9.36	34.25	41.53	36.70	38.78	54.00	-15.22	Horizontal
7215.6	13.30	37.24	40.88	33.86	43.52	54.00	-10.48	Horizontal
9620.8	13.39	37.99	37.56	29.99	43.81	54.00	-10.19	Horizontal
12026.0	16.45	39.10	39.09	27.83	44.29	54.00	-9.71	Horizontal

39.70

56.16

74.00

-17.84

Horizontal



Report No.: SZEMO09110621901

Page: 14 of 18

Test mode:	Tran	smitting	Test char	nnel: N	Middle	Remark:	Pe	ak
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
2390.0	6.28	29.98	39.03	43.65	40.88	74.00	-33.12	Vertical
2500.0	5.76	30.37	39.15	45.57	42.55	74.00	-31.45	Vertical
4878.4	10.36	34.34	39.89	54.51	59.32	74.00	-14.68	Vertical
7317.6	12.91	37.31	40.40	46.90	56.72	74.00	-17.28	Vertical
9756.8	13.89	38.03	37.94	44.86	58.84	74.00	-15.16	Vertical
12195.0	18.03	39.21	39.27	42.81	60.78	74.00	-13.22	Vertical
2390.0	6.28	29.98	39.03	43.96	41.19	74.00	-32.81	Horizontal
2500.0	5.76	30.37	39.15	45.72	42.70	74.00	-31.30	Horizontal
4878.4	10.36	34.34	39.89	53.79	58.60	74.00	-15.40	Horizontal
7317.6	12.91	37.31	40.40	47.95	57.77	74.00	-16.23	Horizontal
9756.8	13.89	38.03	37.94	45.67	59.65	74.00	-14.35	Horizontal
12195.0	18.03	39.21	39.27	42.31	60.28	74.00	-13.72	Horizontal

Test mode:	Tran	smitting	Test char	nnel: I	Viiddle	Remark:	A۱	/erage
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
2390.0	6.28	29.98	39.03	30.80	28.03	54.00	-25.97	Vertical
2500.0	5.76	30.37	39.15	32.57	29.55	54.00	-24.45	Vertical
4878.4	10.36	34.34	39.89	32.66	37.47	54.00	-16.53	Vertical
7317.6	12.91	37.31	40.40	33.92	43.74	54.00	-10.26	Vertical
9756.8	13.89	38.03	37.94	32.03	46.01	54.00	-7.99	Vertical
12195.0	18.03	39.21	39.27	29.58	47.55	54.00	-6.45	Vertical
2390.0	6.28	29.98	39.03	31.23	28.46	54.00	-25.54	Horizontal
2500.0	5.76	30.37	39.15	32.47	29.45	54.00	-24.55	Horizontal
4878.4	10.36	34.34	39.89	31.58	36.39	54.00	-17.61	Horizontal
7317.6	12.91	37.31	40.40	32.08	41.90	54.00	-12.10	Horizontal
9756.8	13.89	38.03	37.94	30.01	43.99	54.00	-10.01	Horizontal
12195.0	18.03	39.21	39.27	28.05	46.02	54.00	-7.98	Horizontal



Report No.: SZEMO09110621901

Page: 15 of 18

Test mode: Transmitting		Test char	nnel: H	ighest	Remark:		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
2327.8	6.02	29.76	39.75	45.93	41.96	74.00	-32.04	Vertical
2483.5	6.22	30.32	39.53	45.57	42.58	74.00	-31.42	Vertical
2500.0	5.76	30.37	39.15	45.58	42.56	74.00	-31.44	Vertical
4952.4	10.43	34.45	41.03	54.18	58.03	74.00	-15.97	Vertical
7428.6	12.72	37.37	40.01	49.89	59.97	74.00	-14.03	Vertical
9904.8	14.21	38.07	37.85	43.55	57.98	74.00	-16.02	Vertical
12381.0	17.55	39.34	39.48	44.52	61.93	74.00	-12.07	Vertical
2351.3	6.14	29.86	39.43	45.31	41.88	74.00	-32.12	Horizontal
2483.5	6.22	30.32	39.53	45.58	42.59	74.00	-31.41	Horizontal
2500.0	5.76	30.37	39.15	45.27	42.25	74.00	-31.75	Horizontal
4952.4	10.43	34.45	41.03	55.62	59.47	74.00	-14.53	Horizontal
7428.6	12.72	37.37	40.01	48.81	58.89	74.00	-15.11	Horizontal
9904.8	14.21	38.07	37.85	43.12	57.55	74.00	-16.45	Horizontal
12381.0	17.55	39.34	39.48	45.31	62.72	74.00	-11.28	Horizontal

Test mode:	Tran	smitting	Test char	nnel: I	Highest	Remark:		Average
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)	
2363.0	6.20	29.91	39.27	31.97	28.81	54.00	-25.19	9 Vertical
2483.5	6.22	30.32	39.53	32.33	29.34	54.00	-24.66	6 Vertical
2500.0	5.76	30.37	39.15	32.83	29.81	54.00	-24.19	9 Vertical
4952.4	10.43	34.45	41.03	35.48	39.33	54.00	-14.67	7 Vertical
7428.6	12.72	37.37	40.01	30.57	40.65	54.00	-13.3	5 Vertical
9904.8	14.21	38.07	37.85	25.97	39.40	54.00	-14.60	) Vertical
12381.0	17.55	39.34	39.48	25.07	42.48	54.00	-11.52	2 Vertical
2327.8	6.02	29.76	39.75	32.03	28.06	54.00	-25.94	4 Horizontal
2483.5	6.22	30.32	39.53	32.32	29.33	54.00	-24.67	7 Horizontal
2500.0	5.76	30.37	39.15	32.37	29.35	54.00	-24.65	5 Horizontal
4952.4	10.43	34.45	41.03	33.58	37.43	54.00	-16.57	7 Horizontal
7428.6	12.72	37.37	40.01	34.55	44.63	54.00	-9.37	Horizontal
9904.8	14.21	38.07	37.85	29.88	44.31	54.00	-9.69	Horizontal
12381.0	17.55	39.34	39.48	30.20	47.61	54.00	-6.39	Horizontal



Report No.: SZEMO09110621901

Page: 16 of 18

#### 5.3 20dB Bandwidth

Test Requirement:	FCC Part15 C Section 15.249/15.215						
Test Method:	ANSI C63.4:2003						
Limit:	Operation Frequency range 2400MHz-2483.5MHz						
Test Procedure:	According to the follow Test-setup, keep the relative position between the artificial antenna and the EUT.						
	<ol> <li>Set the EUT to proper test channel.</li> <li>Max hold the radiated emissions, mark the peak power frequency point and the -20dB upper and lower frequency points.</li> <li>Read 20dB bandwidth.</li> </ol>						
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 mode:	Normal operation mode						
Test results:	Passed						

## **Measurement Data**

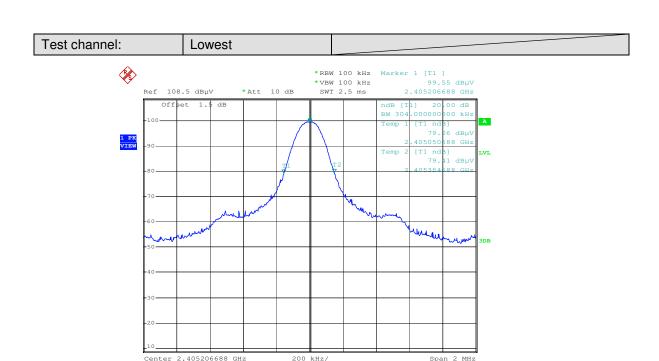
Test channel	20dB bandwidth (MHz)	Results
Lowest	0.304	Pass
Middle	0.324	Pass
Highest	0.304	Pass

#### Test plot as follows:

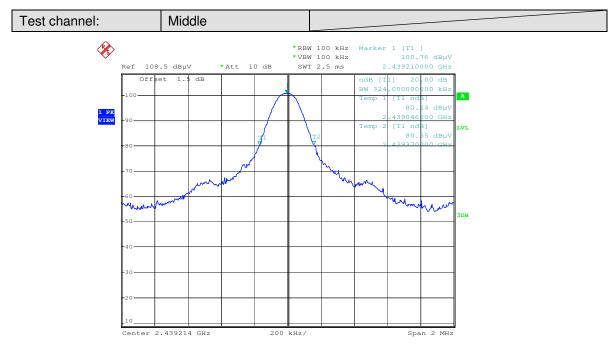


Report No.: SZEMO09110621901

Page: 17 of 18



Date: 10.NOV.2009 13:49:08

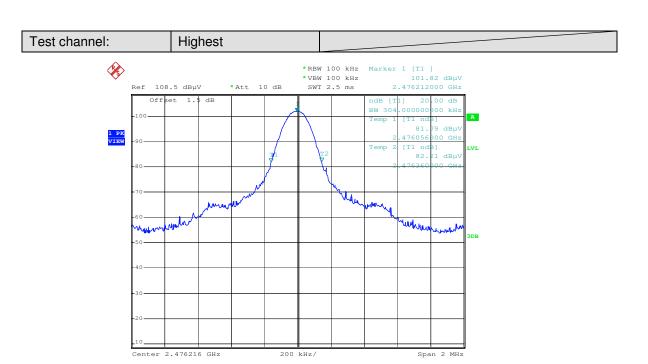


Date: 10.NOV.2009 13:46:08



Report No.: SZEMO09110621901

Page: 18 of 18



Date: 10.NOV.2009 13:47:49