FCC Radio Test Report

FCC ID: 2AIRU-40239RX

Report No.	:	TB-FCC148813
Applicant	:	Sertus Hongkong
Equipment Under Test (EUT)		
EUT Name	:	TX GAMEPAD CONTROLLER AND RECEIVER
Model No.	:	40239
Serial No.	:	N/A
Brand Name	:	Tetrix
Receipt Date	:	2016-06-26
Test Date	:	2016-06-27 to 2016-06-30
Issue Date	:	2016-07-01
Standards	:	FCC Part 15, Subpart C (15.249: 2015)
Test Method	:	ANSI C63.10: 2013
Conclusions	:	**PASS**

In the configuration tested, the EUT complied with the standards specified above,
The EUT technically complies with the FCC requirements

Test/Witness Engineer : Wan Su

Approved& Authorized : Ray Liu.

SHENZHEN TOBY TECHNOLOGY CO., LTD. TOBY

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in the report.

1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, China
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Contents

1. General Information about EUT

1.1 Client Information

Applicant	:	Sertus Hongkong
Address	:	Unit A 10/6F, Wong's Building, 33 Hung To Road, Kwun Tong, Kowlong Hongkong, China
Manufacturer	:	RC Leading Toys Factory
Address	:	Yuanlin 3 RD.,Huainan Industrial Distric, Lianxia Town, Chenghai Dist. Shantou, China

1.2 General Description of EUT (Equipment Under Test)

EUT Name	:	TX GAMEPAD CONTROLLER AND RECEIVER	
Models No.	:	40239	
Model Difference	:	N/A	
Product Description	:	Operation Frequency:2416~2475 MHz	
		Number of Channels:	60 Channels
		Out Power:	92.67 dBuV/m@3m Peak 90.97 dBuV/m@3m Avg
		Antenna Gain:	0 dBi PCB Antenna
		Modulation Type:	GFSK
Power Supply	:	DC Voltage supplied by AA battery.	
Power Rating	:	DC 6.0V.	
Connecting I/O Port(S)	:	Please refer to the User's Manual	

Note:

(1) For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

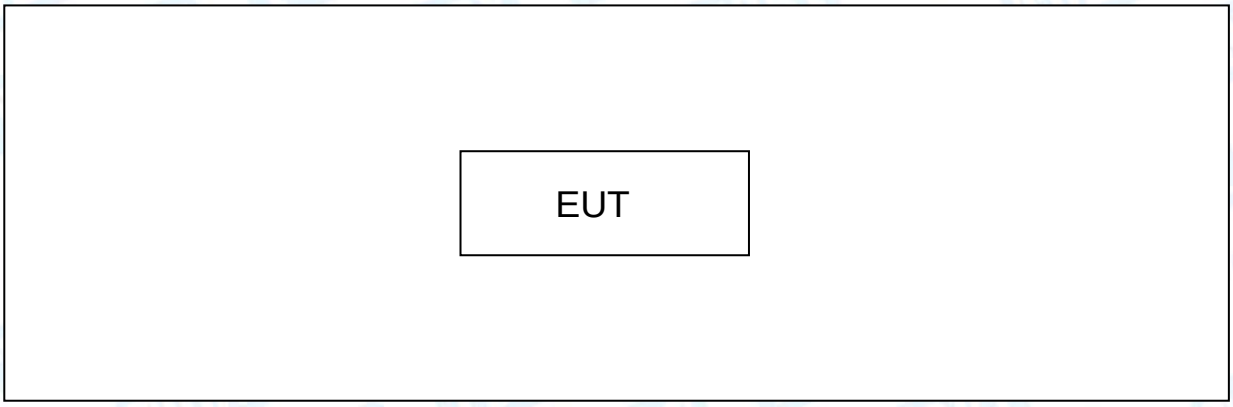
(2) Channel List:

Channel List					
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
01	**2416**	21	2436	41	2456
02	2417	22	2437	42	2457
03	2418	23	2438	43	2458
04	2419	24	2439	44	2459
05	2420	25	2440	45	2460
06	2421	26	2441	46	2461

07	2422	27	2442	47	2462
08	2423	28	2443	48	2463
09	2424	29	2444	49	2464
10	2425	30	2445	50	2465
11	2426	**31**	**2446**	51	2466
12	2427	32	2447	52	2467
13	2428	33	2448	53	2468
14	2429	34	2449	54	2469
15	2430	35	2450	55	2470
16	2431	36	2451	56	2471
17	2432	37	2452	57	2472
18	2433	38	2453	58	2473
19	2434	39	2454	59	2474
20	2435	40	2455	**60**	**2475**

1.3 Block Diagram Showing the Configuration of System Tested

Mode 1: TX Mode



1.4 Description of Support Units

The EUT has been tested as an independent unit.

1.5 Description of Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned follow was evaluated respectively.

For Conducted Test	
Final Test Mode	Description
N/A	N/A

For Radiated Test	
Final Test Mode	Description
Mode 1	TX Mode(CH01/CH31/CH60)

Note:

For all test, we have verified the construction and function in typical operation. And all the test modes were carried out with the EUT in transmitting operation in maximum power with all kinds of data rate.

(1)According to ANSI C63.10 standards, the measurements are performed at the highest, middle, lowest available channels.

(2)During the testing procedure, the continuously transmitting with the maximum power mode was programmed by the customer.

(3) The EUT is considered a portable unit; it was pre-tested on the positioned of each 3 axis, X-plane, Y-plane and Z-plane. The worst case was found positioned on X-plane. Therefore only the test data of this X-plane was used for radiated emission measurement test.

1.6 Description of Test Software Setting

During testing channel & Power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of RF mode.

Product SW/HW Version :	N/A		
Radio SW/HW Version:	N/A		
Test Software Version	N/A		
Frequency	2416 MHz	2446MHz	2475 MHz
GFSK	DEF	DEF	DEF

1.7 Measurement Uncertainty

The reported uncertainty of measurement y ± U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95 %.

Test Item	Parameters	Expanded Uncertainty (U_{Lab})
Conducted Emission	Level Accuracy: 9kHz~150kHz 150kHz to 30MHz	 ±3.42 dB ±3.42 dB
Radiated Emission	Level Accuracy: 9kHz to 30 MHz	±4.60 dB
Radiated Emission	Level Accuracy: 30MHz to 1000 MHz	±4.40 dB
Radiated Emission	Level Accuracy: Above 1000MHz	±4.20 dB

1.8 Test Facility

The testing report were performed by the Shenzhen Toby Technology Co., Ltd., in their facilities located at 1A/F., Bldg.6, Yusheng Industrial Zone, The National Road No.107 Xixiang Section 467, Xixiang, Bao'an, Shenzhen, Guangdong, China. At the time of testing, the following bodies accredited the Laboratory:

CNAS (L5813)

The Laboratory has been accredited by CNAS to ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories for the competence in the field of testing. And the Registration No.: CNAS L5813.

FCC List No.: (811562)

The Laboratory is listed in the United States of American Federal Communications Commission (FCC), and the registration number is 811562.

IC Registration No.: (11950A-1)

The Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing. The site registration: Site# 11950A-1.

2. Test Summary

FCC Part 15 Subpart C(15.249)			
Standard Section	**Test Item**	**Judgment**	**Remark**
15.203	Antenna Requirement	PASS	N/A
15.205	Restricted Bands	PASS	N/A
15.207	AC Power Conducted Emission	N/A	N/A
15.249 &15.209	Radiated Spurious Emission	PASS	N/A
15.215(C)	20dB Bandwidth	PASS	N/A
Note: N/A is an abbreviation for Not Applicable.			

3. Test Equipment

Conducted Emission Test					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
EMI Test Receiver	Rohde & Schwarz	ESCI	100321	Aug. 07, 2015	Aug. 06, 2016
RF Switching Unit	Compliance Direction Systems Inc	RSU-A4	34403	Aug. 07, 2015	Aug. 06, 2016
AMN	SCHWARZBECK	NNBL 8226-2	8226-2/164	Aug. 07, 2015	Aug. 06, 2016
LISN	Rohde & Schwarz	ENV216	101131	Aug. 08, 2015	Aug. 07, 2016
Radiation Emission Test					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Agilent	E4407B	MY45106456	Aug. 07, 2015	Aug. 06, 2016
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 07, 2015	Aug. 06, 2016
Bilog Antenna	ETS-LINDGREN	3142E	00117537	Mar. 26, 2016	Mar. 25, 2017
Bilog Antenna	ETS-LINDGREN	3142E	00117542	Mar. 26, 2016	Mar. 25, 2017
Horn Antenna	ETS-LINDGREN	3117	00143207	Mar. 26, 2016	Mar. 25, 2017
Horn Antenna	ETS-LINDGREN	3117	00143209	Mar. 26, 2016	Mar. 25, 2017
Pre-amplifier	Sonoma	310N	185903	Mar. 26, 2016	Mar. 25, 2017
Pre-amplifier	HP	8447B	3008A00849	Mar. 26, 2016	Mar. 25, 2017
Cable	HUBER+SUHNER	100	SUCOFLEX	Mar. 26, 2016	Mar. 25, 2017
Positioning Controller	ETS-LINDGREN	2090	N/A	N/A	N/A
Antenna Conducted Emission					
Equipment	**Manufacturer**	**Model No.**	**Serial No.**	**Last Cal.**	**Cal. Due Date**
Spectrum Analyzer	Agilent	E4407B	MY45106456	Aug. 07, 2015	Aug. 06, 2016
EMI Test Receiver	Rohde & Schwarz	ESCI	100010/007	Aug. 07, 2015	Aug. 06, 2016
Power Meter	Anritsu	ML2495A	25406005	Aug.07, 2015	Aug.06, 2016
Power Sensor	Anritsu	ML2411B	25406005	Aug.07, 2015	Aug.06, 2016

4. Conducted Emission Test

4.1 Test Standard and Limit

4.1.1Test Standard

FCC Part 15.207

4.1.2 Test Limit

Conducted Emission Test Limit

Frequency	Maximum RF Line Voltage (dBμV)	
	Quasi-peak Level	Average Level
150kHz~500kHz	66 ~ 56 *	56 ~ 46 *
500kHz~5MHz	56	46
5MHz~30MHz	60	50

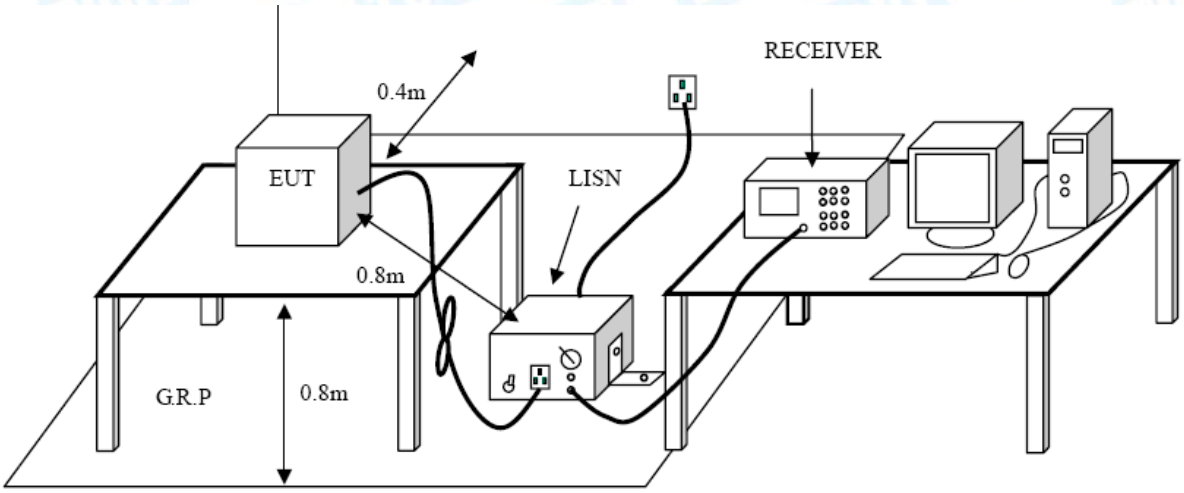
Notes:

(1) *Decreasing linearly with logarithm of the frequency.

(2) The lower limit shall apply at the transition frequencies.

(3) The limit decrease in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2 Test Setup



4.3 Test Procedure

The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

LISN is at least 80 cm from nearest part of EUT chassis.

The bandwidth of EMI test receiver is set at 9kHz, and the test frequency band is from 0.15MHz to 30MHz.

4.4 EUT Operating Mode

Please refer to the description of test mode.

4.5 Test Data

The EUT is powered by battery, so no requirement for this test item.

5. Radiated Emission Test

5.1 Test Standard and Limit

5.1.1 Test Standard

FCC Part 15.209

5.1.2 Test Limit

Radiated Emission Limit (9kHz~1000MHz)

Frequency (MHz	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

Radiated Emission Limit (Above 1000MHz)

Frequency (MHz)	Class B (dBuV/m)(at 3 M)	
	Peak	Average
Above 1000	74	54

Note:

(1) The tighter limit applies at the band edges.

(2) Emission Level(dBuV/m)=20log Emission Level(Uv/m)

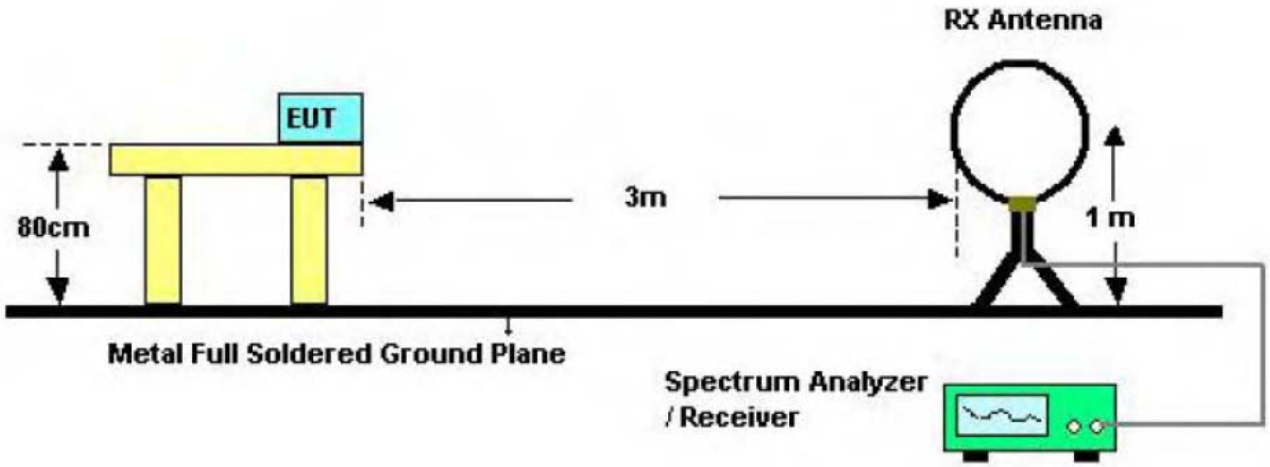
Limits of radiated emission measurement (15.249)

FCC Part 15 (15.249), Subpart C	
Limit	**Frequency Range (MHz)**
Field strength of fundamental 50000 μV/m (94 dBμV/m) @ 3 m	2400~2483.5
Field strength of fundamental 500 μV/m (94 dBμV/m) @ 3 m	Above 2483.5

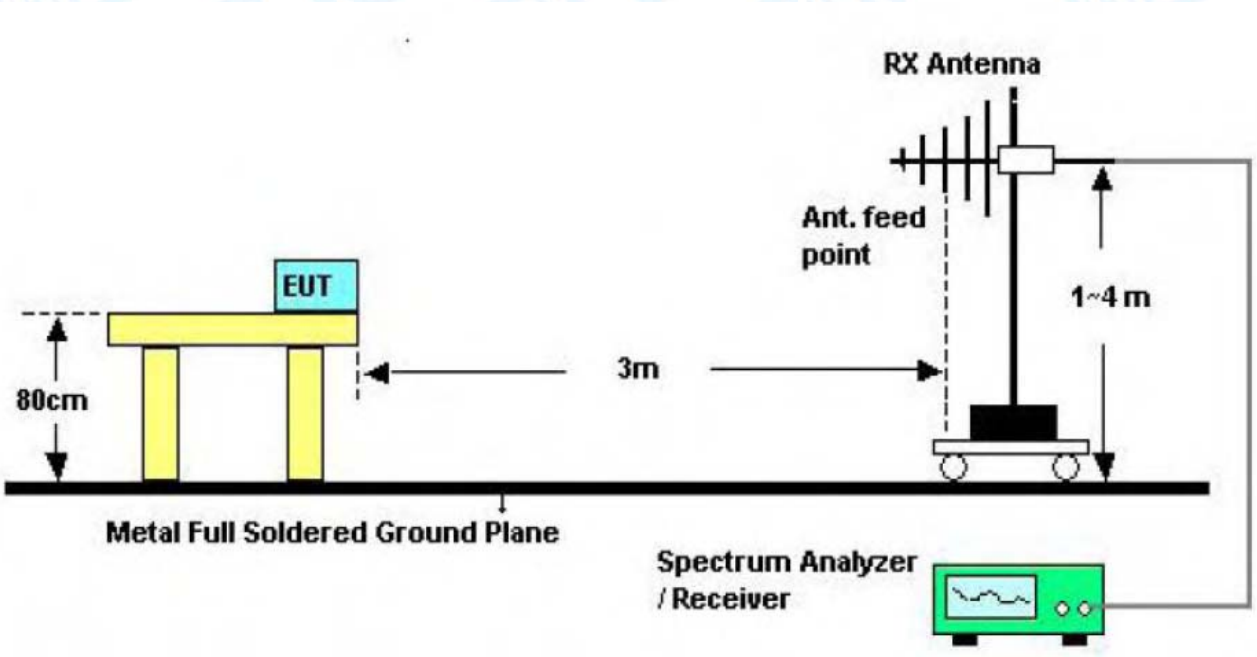
Restricted bands requirement for equipment operating in 2400MHz to 2483.5 MHz (15.249)

Restricted Frequency Band (MHz)	(dBuV/m)(at 3 M)
2310~2390	Attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in 15.209, whichever is the lesser attenuation
2483.5~2500	

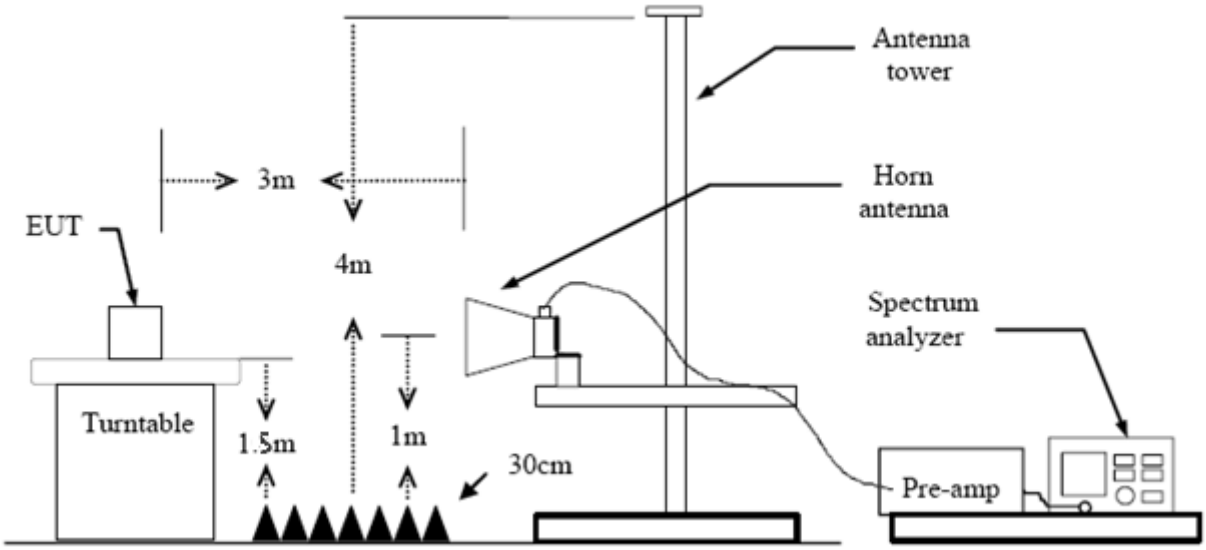
5.2 Test Setup



Bellow 30MHz Test Setup



Bellow 1000MHz Test Setup



Above 1GHz Test Setup

5.3 Test Procedure

(1) The measuring distance of 3m shall be used for measurements at frequency up to 1GHz and above 1 GHz. The EUT was placed on a rotating 0.8m high above ground, the table was rotated 360 degrees to determine the position of the highest radiation.

(2) Measurements at frequency above 1GHz. The EUT was placed on a rotating 1.5m high above the ground. RF absorbers covered the ground plane with a minimum area of 3.0m by 3.0m between the EUT and measurement receiver antenna. The RF absorber shall not exceed 30cm in high above the conducting floor. The table was rotated 360 degrees to determine the position of the highest radiation.

(3) The Test antenna shall vary between 1m and 4m, Both Horizontal and Vertical antenna are set to make measurement.

(4) The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

(5) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit Bellow 1 GHz, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed. But the Peak Value and average value both need to comply with applicable limit above 1 GHz.

(6) Testing frequency range below 1GHz the measuring instrument use VBW=120 kHz with Quasi-peak detection.

(7) Testing frequency range above 1GHz the measuring instrument use RBW=1 MHz and VBW=3 MHz with Peak Detector for Peak Values, and use RBW=1 MHz and VBW=10 Hz with Peak Detector for Average Values.

(8) For the actual test configuration, please see the test setup photo.

5.4 EUT Operating Condition

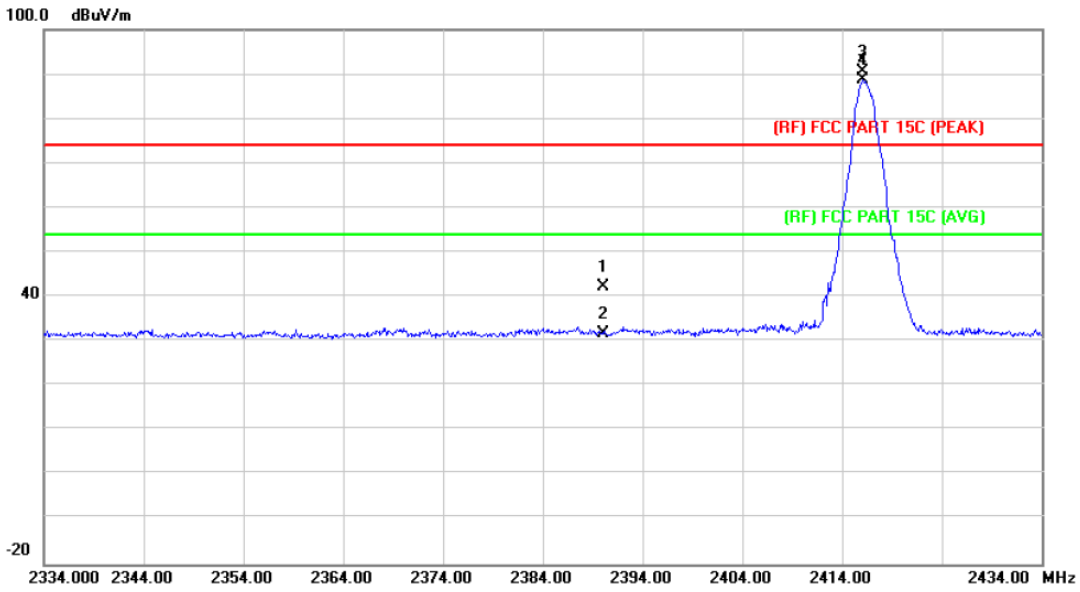
The EUT was set to Continual Transmitting in maximum power, and new batteries are used during testing.

5.5 Test Data

Please see the next page.

5.6.1 Field Strength of the Fundamental

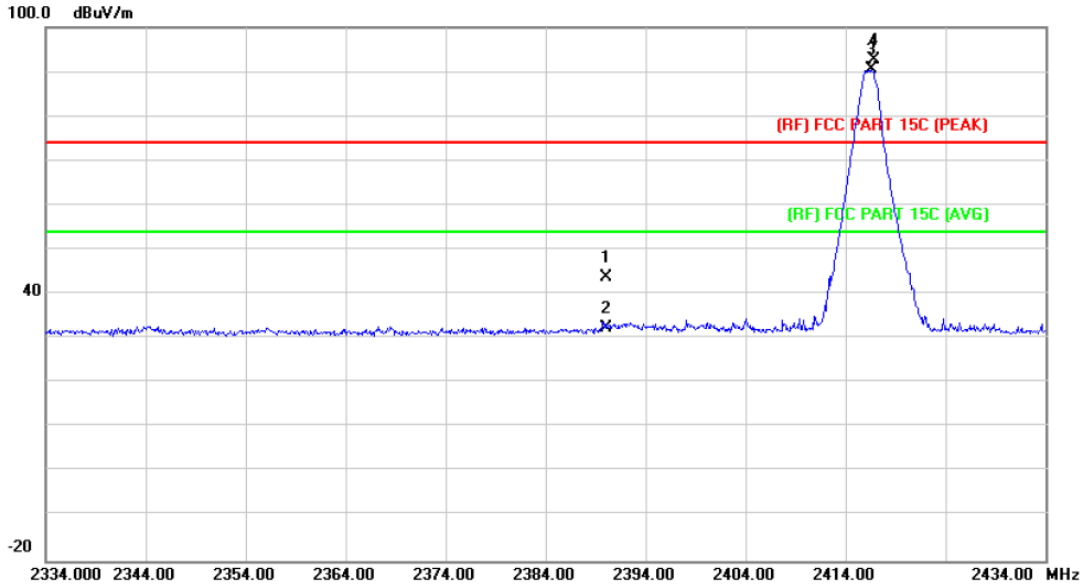
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Horizontal		
Test Mode:	TX 2416MHz		
Remark:			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	41.59	0.77	42.36	74.00	-31.64	peak
2		2390.000	31.04	0.77	31.81	54.00	-22.19	AVG
3	X	2416.100	89.79	0.88	90.67	114.00	-23.33	peak
4	*	2416.100	87.77	0.88	88.65	94.00	-5.35	AVG

Emission Level= Read Level+ Correct Factor

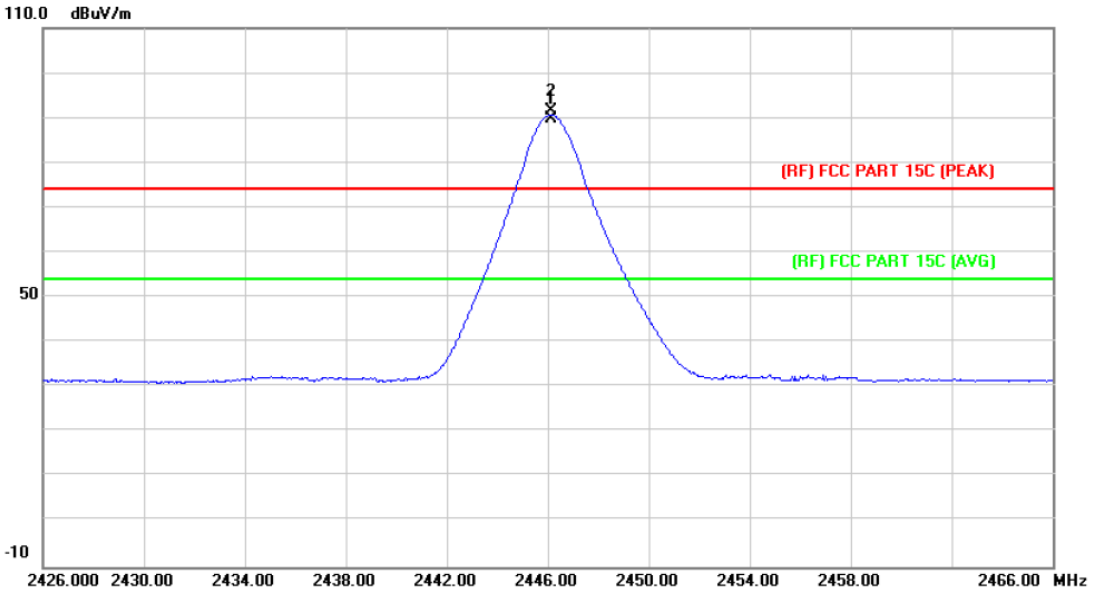
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Vertical		
Test Mode:	TX 2416MHz		
Remark:			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		2390.000	42.90	0.77	43.67	74.00	-30.33	peak
2		2390.000	31.68	0.77	32.45	54.00	-21.55	AVG
3	*	2416.600	89.53	0.88	90.41	**94.00**	**-3.59**	AVG
4	X	2416.800	91.79	0.88	92.67	**114.00**	**-21.33**	peak

Emission Level= Read Level+ Correct Factor

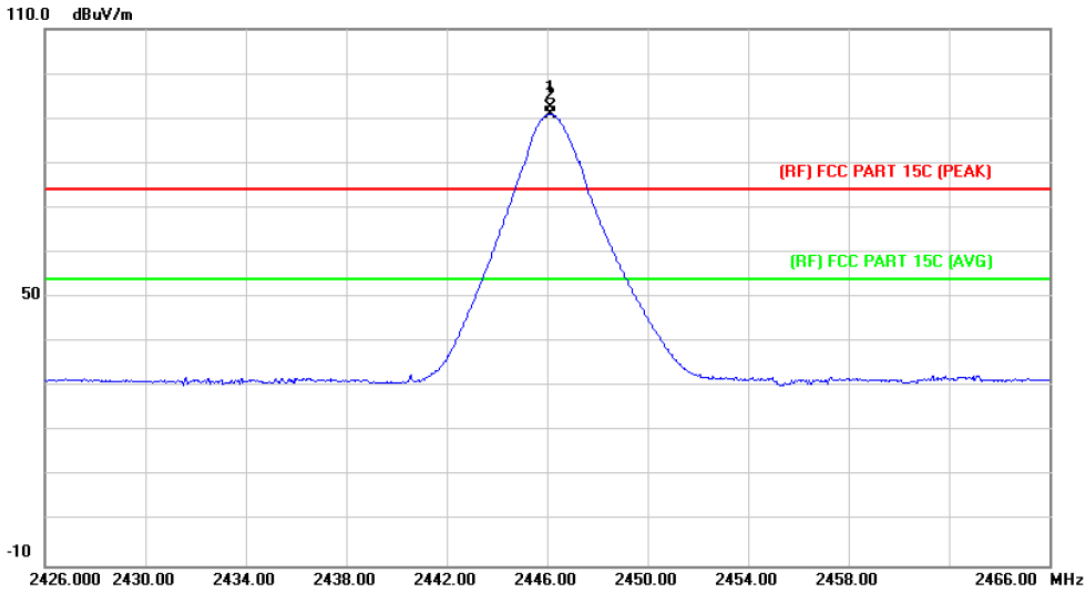
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Horizontal		
Test Mode:	TX 2446MHz		
Remark:			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	2446.120	88.66	1.01	89.67	94.00	-4.33	AVG
2	X	2446.160	90.63	1.01	91.64	114.00	-22.36	peak

Emission Level= Read Level+ Correct Factor

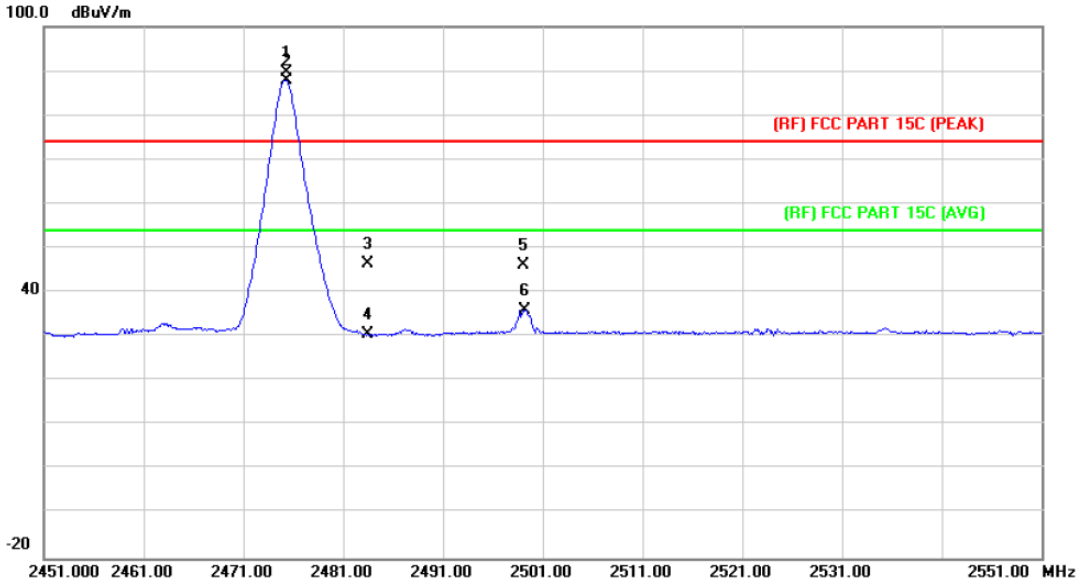
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Vertical		
Test Mode:	TX 2446MHz		
Remark:			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2446.120	91.31	1.01	92.32	**114.00**	**-21.68**	peak
2	*	2446.120	89.96	1.01	90.97	**94.00**	**-3.03**	AVG

Emission Level= Read Level+ Correct Factor

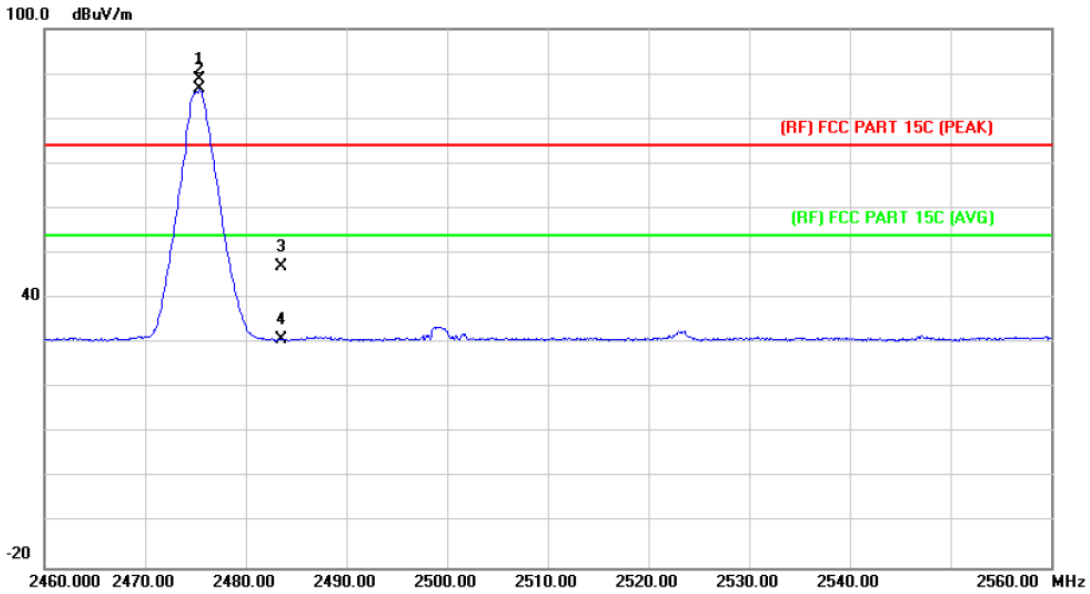
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Horizontal		
Test Mode:	TX 2475MHz		
Remark:			



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2475.300	88.54	1.14	89.68	**114.00**	**-24.32**	peak
2	*	2475.300	86.77	1.14	87.91	**94.00**	**-6.09**	AVG
3		2483.500	45.22	1.17	46.39	74.00	-27.61	peak
4		2483.500	29.36	1.17	30.53	54.00	-23.47	AVG
5		2499.000	45.07	1.23	46.30	74.00	-27.70	peak
6		2499.200	34.79	1.23	36.02	54.00	-17.98	AVG

Emission Level= Read Level+ Correct Factor

EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Vertical		
Test Mode:	TX 2475MHz		
Remark:			

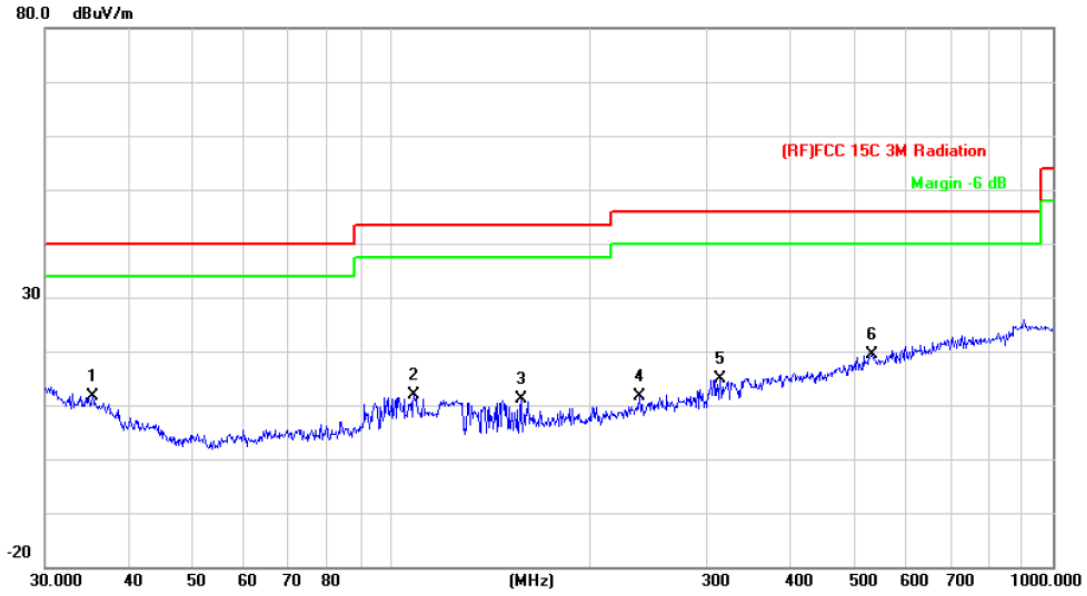


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	X	2475.400	87.48	1.14	88.62	**114.00**	**-25.38**	peak
2	*	2475.400	85.43	1.14	86.57	**114.00**	**-7.43**	AVG
3		2483.500	45.81	1.17	46.98	74.00	-27.02	peak
4		2483.500	29.69	1.17	30.86	54.00	-23.14	AVG

Emission Level= Read Level+ Correct Factor

5.6.2 Radiated Spurious Emission (Below 1 GHz)

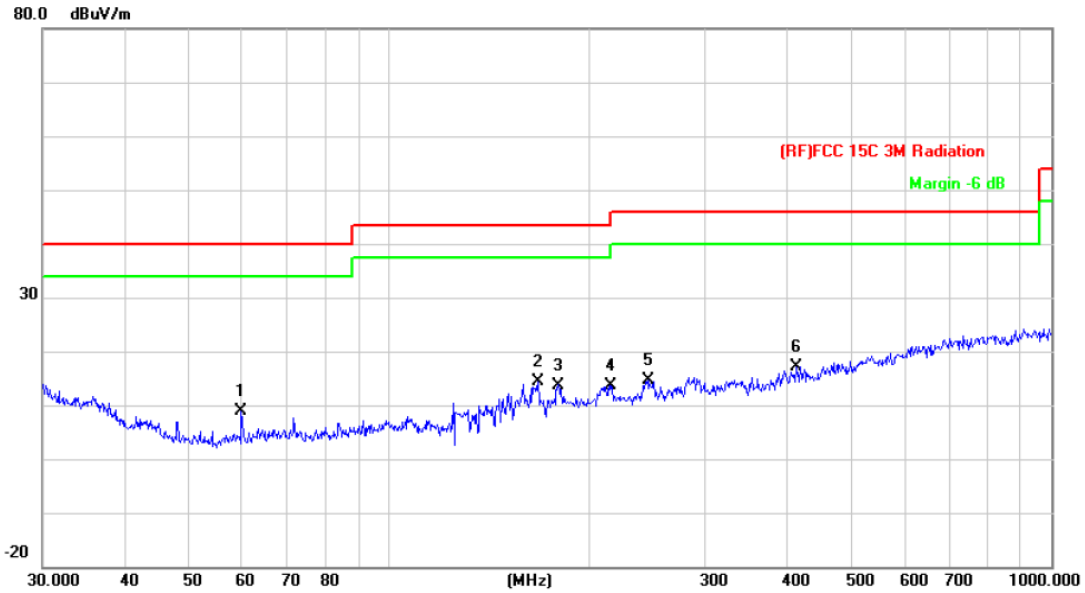
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Horizontal		
Test Mode:	TX 2416MHz		
Remark:	Only worse case is reported		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		35.3750	28.80	-17.29	11.51	40.00	-28.49	peak
2		108.2667	33.72	-21.86	11.86	43.50	-31.64	peak
3		157.0072	31.77	-20.71	11.06	43.50	-32.44	peak
4		237.4757	30.34	-18.72	11.62	46.00	-34.38	peak
5		314.3765	31.50	-16.54	14.96	46.00	-31.04	peak
6	*	533.8318	29.55	-10.14	19.41	46.00	-26.59	peak

Emission Level= Read Level+ Correct Factor

EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Vertical		
Test Mode:	TX 2416MHz		
Remark:	Only worse case is reported		

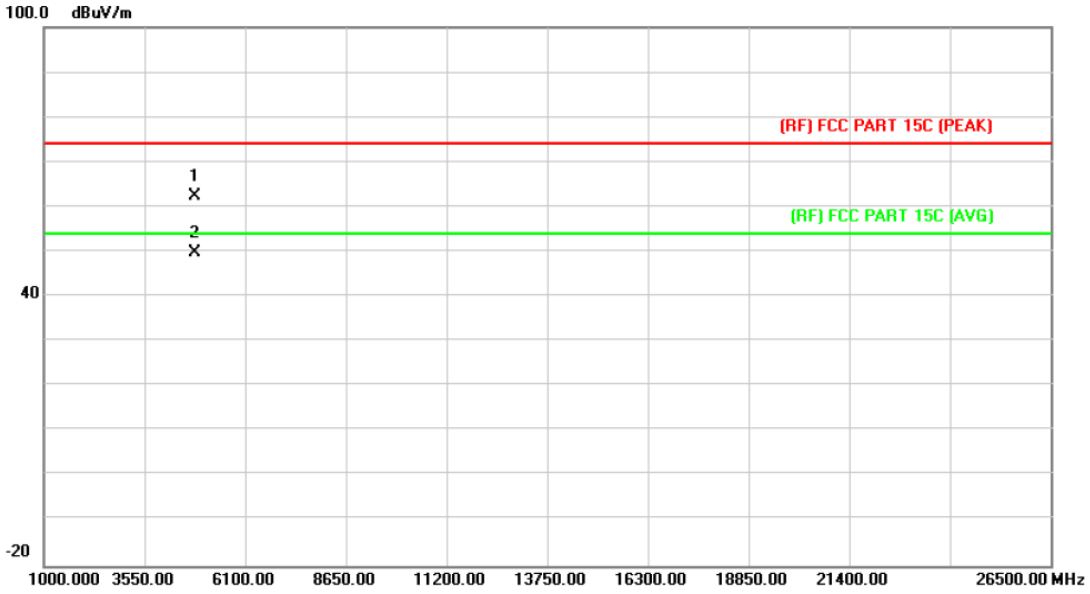


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		59.8588	33.32	-24.53	8.79	40.00	-31.21	peak
2		167.8241	35.49	-21.04	14.45	43.50	-29.05	peak
3		180.0165	34.32	-20.57	13.75	43.50	-29.75	peak
4		216.0240	33.26	-19.70	13.56	46.00	-32.44	peak
5		245.9507	32.95	-18.31	14.64	46.00	-31.36	peak
6	*	411.8240	29.89	-12.86	17.03	46.00	-28.97	peak

Emission Level= Read Level+ Correct Factor

5.6.3 Radiated Spurious Emission (Above 1 GHz)

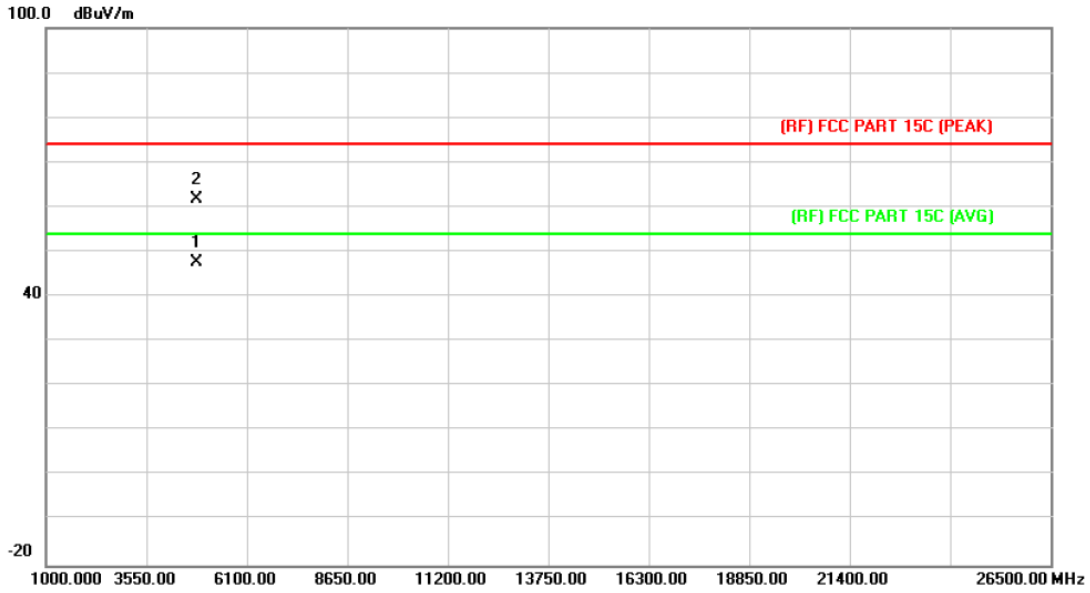
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Horizontal		
Test Mode:	TX 2416MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4832.581	48.73	13.61	62.34	74.00	-11.66	peak
2	*	4832.651	36.07	13.61	49.68	54.00	-4.32	AVG

Emission Level= Read Level+ Correct Factor

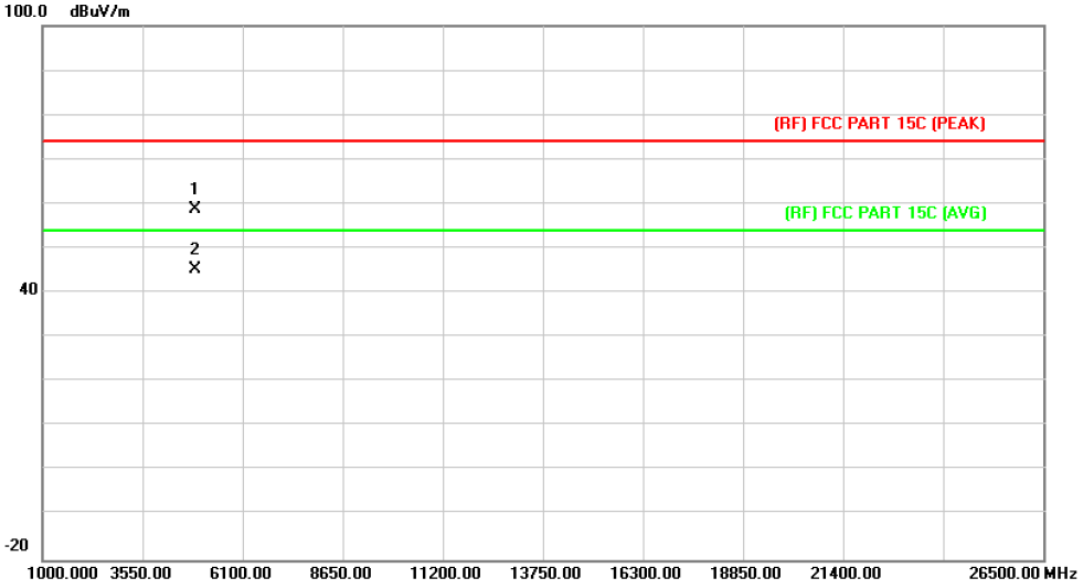
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	**Model Name :**	40239
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 6V		
Ant. Pol.	Vertical		
Test Mode:	TX 2416MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1	*	4831.624	34.04	13.61	47.65	54.00	-6.35	AVG
2		4832.061	48.04	13.61	61.65	74.00	-12.35	peak

Emission Level= Read Level+ Correct Factor

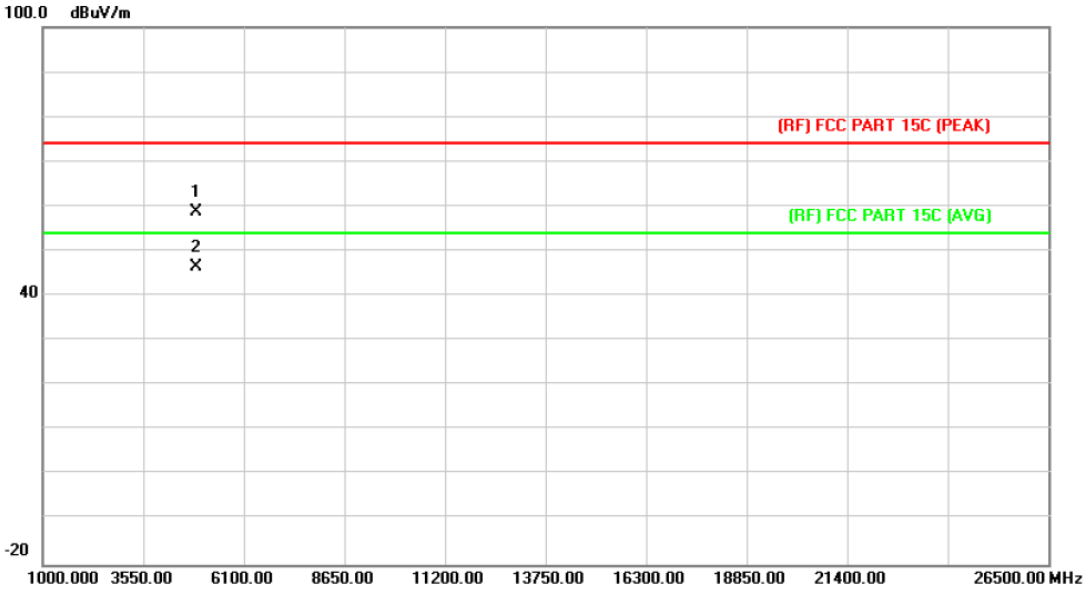
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Horizontal		
Test Mode:	TX 2446MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4893.251	44.72	13.97	58.69	74.00	-15.31	peak
2	*	4893.671	31.15	13.97	45.12	54.00	-8.88	AVG

Emission Level= Read Level+ Correct Factor

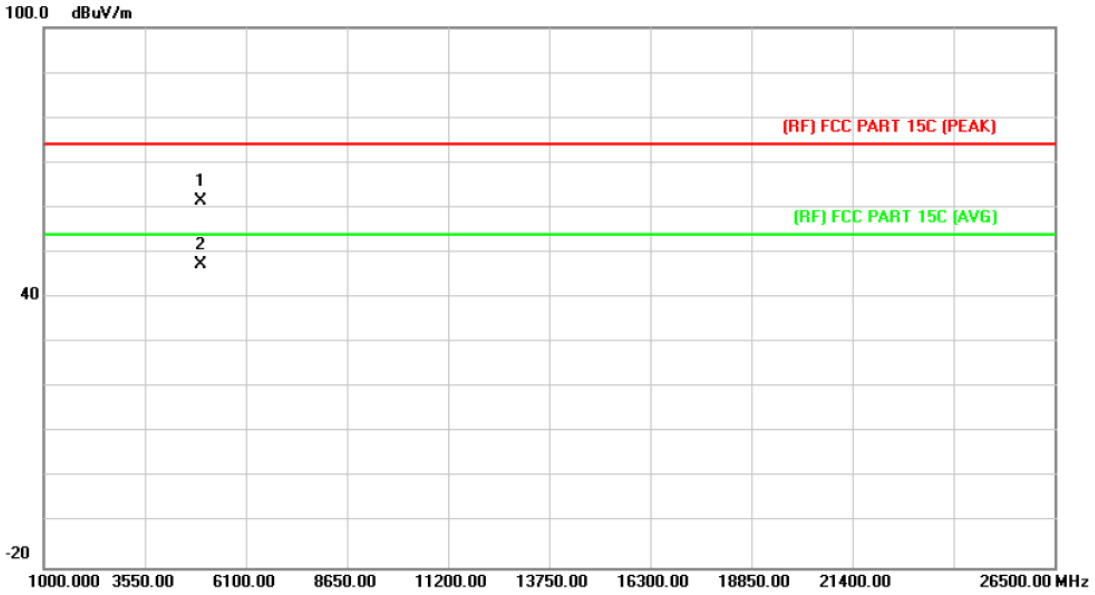
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	Model Name :	40239
Temperature:	25 ℃	Relative Humidity:	55%
Test Voltage:	DC 6V		
Ant. Pol.	Vertical		
Test Mode:	TX 2446MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4890.360	44.66	13.95	58.61	74.00	-15.39	peak
2	*	4891.160	32.40	13.96	46.36	54.00	-7.64	AVG

Emission Level= Read Level+ Correct Factor

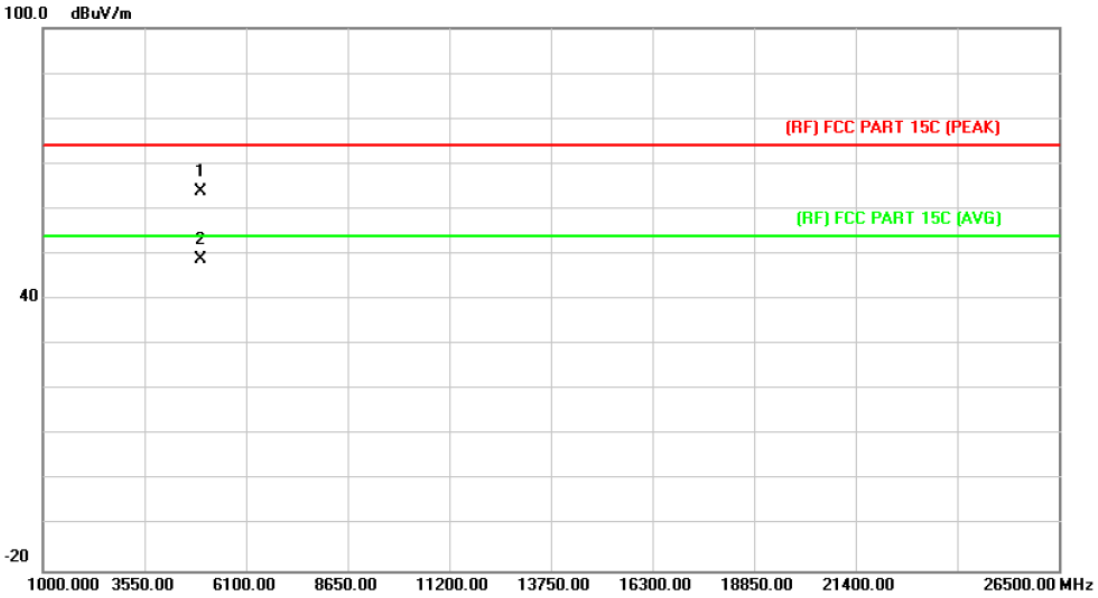
EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	**Model Name :**	40239
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 6V		
Ant. Pol.	Horizontal		
Test Mode:	TX 2475MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4949.671	47.05	14.30	61.35	74.00	-12.65	peak
2	*	4949.987	33.05	14.30	47.35	54.00	-6.65	AVG

Emission Level= Read Level+ Correct Factor

EUT:	TX GAMEPAD CONTROLLER AND RECEIVER	**Model Name :**	40239
Temperature:	25 ℃	**Relative Humidity:**	55%
Test Voltage:	DC 6V		
Ant. Pol.	Vertical		
Test Mode:	TX 2475MHz		
Remark:	No report for the emission which more than 10 dB below the prescribed limit.		

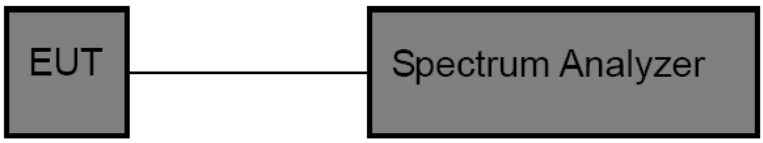


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector
1		4950.360	49.60	14.31	63.91	74.00	-10.09	peak
2	*	4950.641	34.44	14.31	48.75	54.00	-5.25	AVG

Emission Level= Read Level+ Correct Factor

6. Bandwidth Test

6.1 Test Setup



6.2 Test Procedure

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
(2) Spectrum Setting:
Bandwidth: RBW=100 kHz, VBW=300kHz.
(3) The bandwidth is measured at an amplitude level reduced 20dB from the reference level. The reference level is the level of the highest amplitude signal observed from the transmitter at the fundamental frequency. Once the reference level is established, the equipment is conditioned with typical modulating signal to produce the worst –case (i.e the widest) bandwidth.

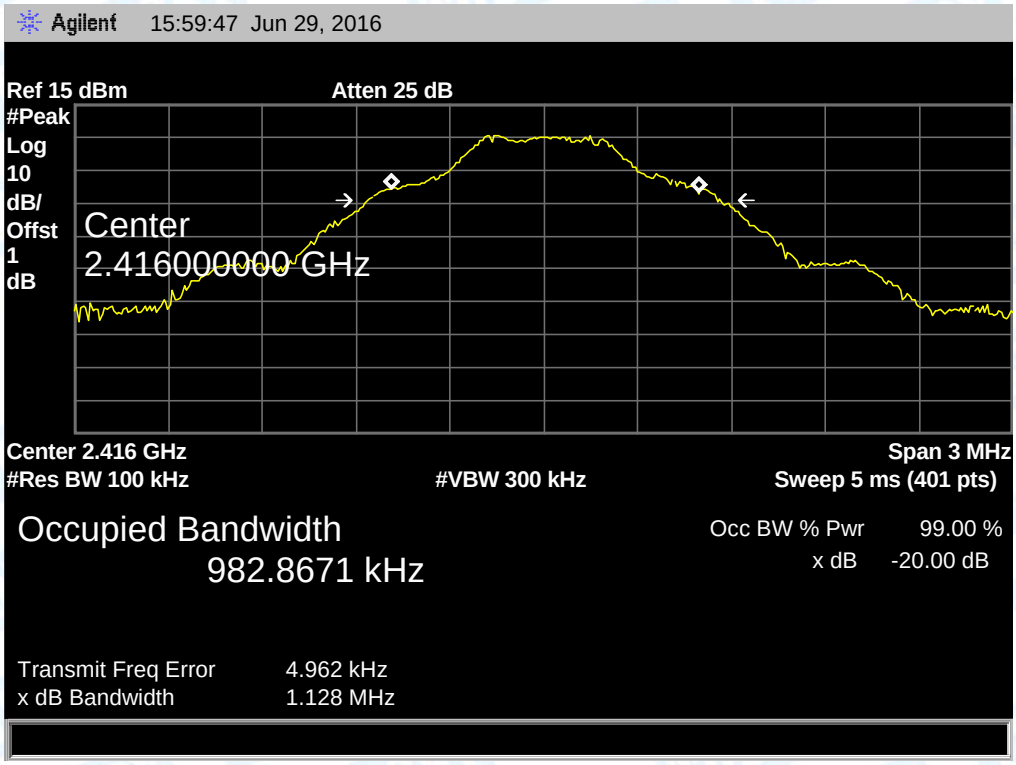
6.3 EUT Operating Condition

The EUT was set to continuously transmitting for the Bandwidth Test.

6.4 Test Data

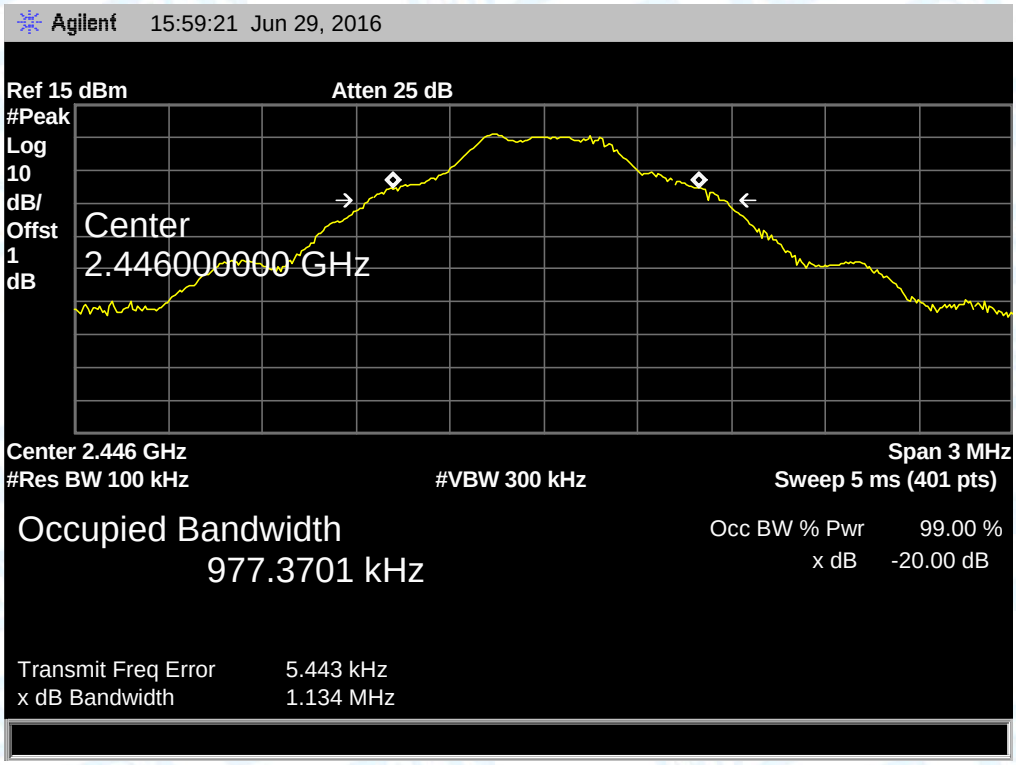
Low Channel Frequency (MHz)	20dB Bandwidth (MHz)
2416	1.128

2416 MHz



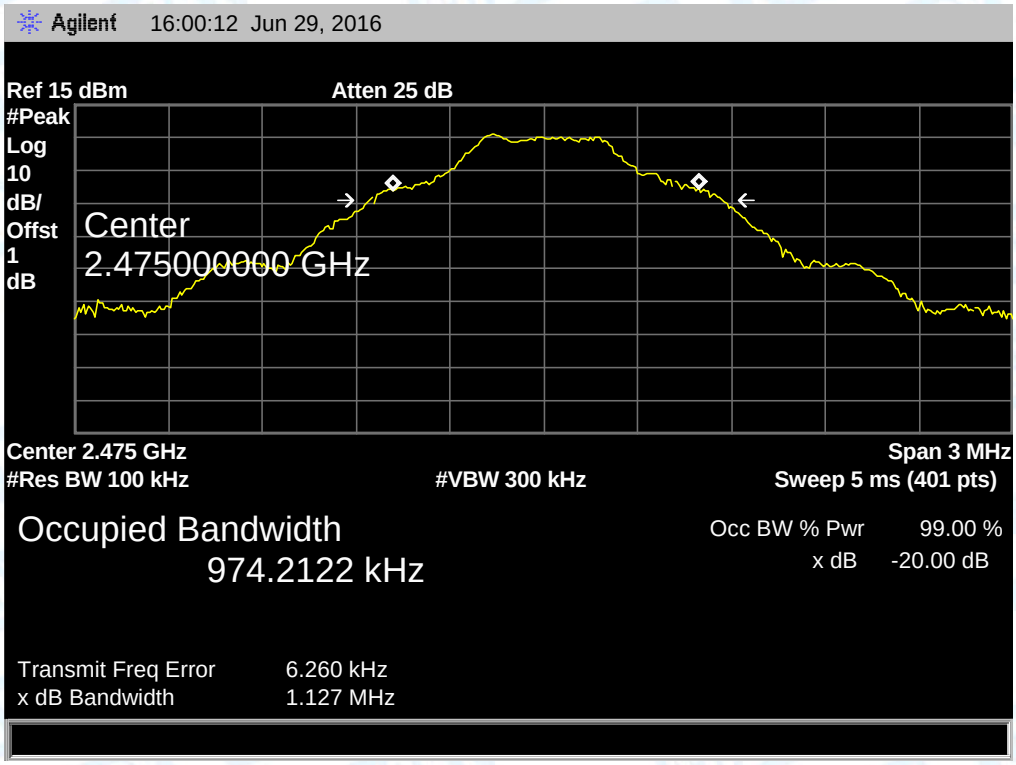
MID Channel Frequency (MHz)	20dB Bandwidth (MHz)
2446	1.134

2446 MHz



HIGH Channel Frequency (MHz)	20dB Bandwidth (MHz)
2475	1.127

2475 MHz



7. Antenna Requirement

7.1 Standard Requirement

7.1.1 Standard

FCC Part 15.203

7.1.2 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 shall be considered sufficient to comply with the provisions of this Section. 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.

7.2 Antenna Connected Construction

The directional gains of the antenna used for transmitting is 0 dBi, and the antenna de-signed with permanent attachment and no consideration of replacement. Please see the EUT photo for details.

7.3 Result

The EUT antenna is a PCB Antenna. It complies with the standard requirement.

Antenna Type
☑ Permanent attached antenna
☐ Unique connector antenna
☐ Professional installation antenna

-----End of Report----