

FCC Part 15C Test Report FCC ID: 2AHK4S8X

Product Name:	G-Box Omnistick	
Trademark:	N/A	
Model Name :	S8X	
Prepared For :	Matricom	
Address :	498 Palm Springs Drive, Suite 255, Altamonte Springs, Florida, 32701	
Prepared By:	Shenzhen BCTC Technology Co., Ltd.	
Address :	No.101, Yousong Road, Longhua New District, Shenzhen, China	
Test Date:	Feb. 15 - Feb. 22, 2016	
Date of Report :	Feb. 22, 2016	
Report No.:	BCTC-151114658	



TEST RESULT CERTIFICATION

Applicant's name:	Matricom
Address:	498 Palm Springs Drive, Suite 255, Altamonte Springs, Florida, 32701
Manufacture's Name:	Shenzhen Dongzhoujun Technology Co., Ltd
Address:	2-4F.Buliding2#,Sanhe Village, Dalang, Longhua District, Shenzhen, China
Product description	
Product name:	G-Box Omnistick
Model and/or type reference :	S8X
Serial Model	N/A
Standards:	FCC Part15.247

This device described above has been tested by BCTC, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Test procedure...... ANSI C63.10-2013

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(Eric Yang)
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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C				
Standard Section	Test Item	Judgment	Remark	
15.207	Conducted Emission	PASS		
15.247 (a)(2)	6dB Bandwidth	PASS		
15.247 (b)	Peak Output Power	PASS		
15.247 (c)	Radiated Spurious Emission	PASS		
15.247 (d)	Power Spectral Density	PASS		
15.205	Band Edge Emission	PASS		
15.203	Antenna Requirement	PASS		

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report



1.1 TEST FACILITY

Shenzhen BCTC Technology Co., Ltd.

Add.: No.101, Yousong Road, Longhua New District, Shenzhen, China

FCC Registered No.: 187086

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $\mathbf{y} \pm \mathbf{U}$, where expended uncertainty \mathbf{U} is based on a standard uncertainty multiplied by a coverage factor of $\mathbf{k=2}$, providing a level of confidence of approximately 95 % $^{\circ}$

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	G-Box Omnistick			
Trade Name	N/A			
Model Name	S8X			
Serial Model	N/A			
Model Difference	N/A			
	The EUT is a G-Box Om	nistick		
	Operation Frequency:	802.11b/g/n20MHz:2412~2462 MHz		
	Modulation Type:	CCK/OFDM/DBPSK/DAPSK		
	Bit Rate of Transmitter	802.11b:11/5.5/2/1 Mbps		
		802.11g:54/48/36/24/18/12/9/6Mbps		
		802.11n: Up to 65Mbps		
	Number Of Channel	11 CH, Please see Note 2.		
Product Description	Antenna Designation:	Please see Note 3.		
	Output	802.11b: 10.75dBm (Max.)		
	Power(Conducted,AV):	802.11g: 8.85 dBm (Max.)		
		802.11n(20M) : 7.45dBm (Max.)		
	Antenna Gain (dBi)	1.0dbi		
	Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.			
Channel List	Please refer to the Note 2.			
Rating(s)	DC 5V			
	Model: XHY050200UUCH			
Adapter	Input: AC100-240V~ 50/60Hz 0.5A			
	Output: 5.0V=== 2.0A			
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.



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	Channel List for 802.11b/g/n(20)						
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2412	04	2427	07	2442	10	2457
02	2417	05	2432	08	2447	11	2462
03	2422	06	2437	09	2452		

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
Α	N/A	N/A	External Antenna	1.0	Wifi Antenna

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2.2 DESCRIPTION OF TEST MODES

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 above was evaluated respectively.

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Pretest Mode	Description
Mode 1	802.11b CH1/ CH6/ CH11
Mode 2	802.11g CH1/ CH6/ CH11
Mode 3	802.11n CH1/ CH6/ CH11
Mode 4	Link Mode

For Conducted Emission			
Final Test Mode	Description		
Mode 4	Link Mode		

For Radiated Emission					
Final Test Mode	Description				
Mode 1	802.11b CH1/ CH6/ CH11				
Mode 2	802.11g CH1/ CH6/ CH11				
Mode 3	802.11n CH1/ CH6/ CH11				

Note:

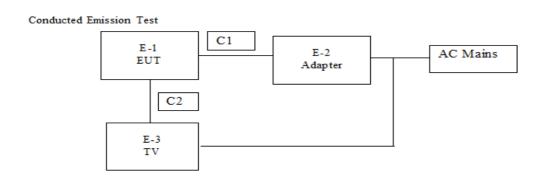
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

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2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



Radiated Spurious Emission Test



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2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Report No.: BCTC-151114658

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	G-Box Omnistick	N/A	S8X	N/A	EUT
E-2	Adapter	N/A	XHY050200UUCH	N/A	
E-3	TV	PHILIPS	24PFL3543/T3	WJ3C1528000141	AC100-240V 50/60Hz 36W

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	0.8M	USB cable unshielded
C2	NO	NO	0.3M	HDMI cable shielded

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in <code>"Length_"</code> column.

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2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY4510957 2	2015.08.25	2016.08.24	1 year
2	Test Receiver	R&S	ESPI	101396	2015.08.25	2016.08.24	1 year
3	Bilog Antenna	SCHWARZB ECK	VULB9160	VULB9160- 3369	2015.08.25	2016.08.24	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	620026441 6	2015.06.07	2016.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2015.06.07	2016.06.06	1 year
6	Horn Antenna	SCHWARZB ECK	9120D	9120D-1275	2015.08.25	2016.08.24	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2015.07.06	2016.07.05	1 year
8	Amplifier	SCHWARZBE CK	BBV9718	9718-270	2015.08.25	2016.08.24	1 year
9	Amplifier	SCHWARZBE CK	BBV9743	9743-119	2015.08.25	2016.08.24	1 year
10	Loop Antenna	ARA	PLA-1030/B	1029	2015.06.08	2016.06.07	1 year
11	Power Meter	R&S	NRVS	100696	2015.07.06	2016.07.05	1 year
12	Power Sensor	R&S	URV5-Z4	0395.1619. 05	2015.07.06	2016.07.05	1 year
13	RF cables	R&S	N/A	N/A	2015.07.06	2016.07.05	1 year

Conduction Test equipment

Item	Kind of	Manufacturer	Type No.	Serial No.	Last	Calibrated	Calibration
	Equipment				calibration	until	period
1	Test Receiver	R&S	ESCI	1166.5950K 03-101165- ha	2015.06.05	2016.06.05	1 year
2	LISN	R&S	NSLK81 26	812646 6	2015.08.24	2016.08.23	1 year
3	LISN	R&S	NSLK81 26	812648 7	2015.08.24	2016.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	620026441 7	2015.06.05	2016.06.05	1 year
5	RF cables	R&S	R204	R20X	2015.06.05	2016.06.05	1 year



3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B	Standard		
FREQUENCT (IVITZ)	Quasi-peak	Average	Quasi-peak	Average	Standard	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR	
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR	
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR	

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz



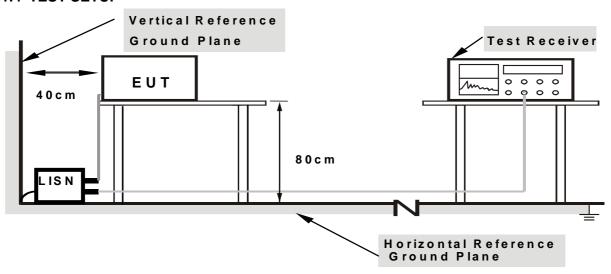
3.1.2 TEST PROCEDURE

- a. 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.
- b. 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.
- c. 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.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item -EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.



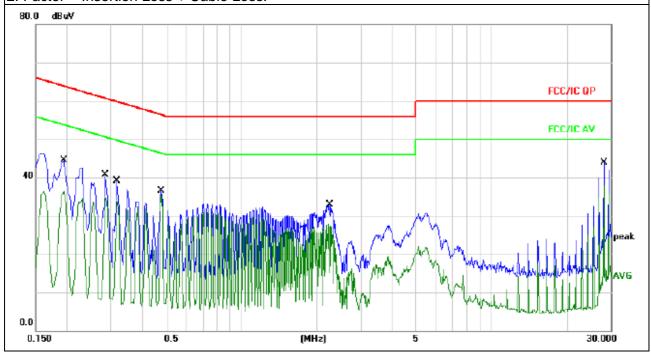
3.1.6 TEST RESULTS

EUT:	G-Box Omnistick	Model Name. :	S8X
Temperature :	25 ℃	Relative Humidity:	54%
Pressure :		Phase :	L
Test Voltage :	DC 5V from adapter input DC 5V from adapter	Test Mode:	Mode 4

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Detector Type
0.1940	34.45	10.06	44.51	63.86	-19.35	QP
0.1940	26.32	10.06	36.38	53.86	-17.48	AVG
0.2860	28.49	10.09	38.58	60.64	-22.06	QP
0.2860	24.91	10.09	35.00	50.64	-15.64	AVG
0.3180	29.00	10.10	39.10	59.76	-20.66	QP
0.3180	23.95	10.10	34.05	49.76	-15.71	AVG
0.4780	26.37	10.11	36.48	56.37	-19.89	QP
0.4780	25.36	10.11	35.47	46.37	-10.90	AVG
2.2580	22.65	10.18	32.83	56.00	-23.17	QP
2.2580	17.63	10.18	27.81	46.00	-18.19	AVG
28.2020	33.67	10.21	43.88	60.00	-16.12	QP
28.2020	27.70	10.21	37.91	50.00	-12.09	AVG

Remark:

- All readings are Quasi-Peak and Average values.
 Factor = Insertion Loss + Cable Loss.



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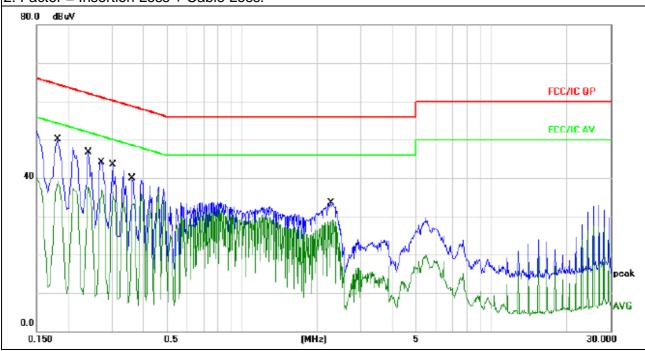
Report No.: BCTC-151114658

EUT:	G-Box Omnistick	Model Name. :	S8X
Temperature:	25 ℃	Relative Humidity:	54%
		Phase :	N
Test Voltage :	DC 5V from adapter input DC 5V from adapter	Test Mode:	Mode 4

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV)	(dBµV)	(dB)	Detector Type
0.1819	40.14	10.06	50.20	64.39	-14.19	QP
0.1819	29.08	10.06	39.14	54.39	-15.25	AVG
0.2420	36.72	10.08	46.80	62.02	-15.22	QP
0.2420	27.65	10.08	37.73	52.02	-14.29	AVG
0.2740	33.02	10.09	43.11	60.99	-17.88	QP
0.2740	26.72	10.09	36.81	50.99	-14.18	AVG
0.3020	33.33	10.09	43.42	60.19	-16.77	QP
0.3020	26.19	10.09	36.28	50.19	-13.91	AVG
0.3620	29.74	10.10	39.84	58.68	-18.84	QP
0.3620	23.14	10.10	33.24	48.68	-15.44	AVG
2.2700	23.32	10.18	33.50	56.00	-22.50	QP
2.2700	19.01	10.18	29.19	46.00	-16.81	AVG

Remark:

- All readings are Quasi-Peak and Average values.
 Factor = Insertion Loss + Cable Loss.



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Web:Http//www.bctc-lab.com



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies	Field Strength	Measurement Distance
(MHz)	(micorvolts/meter)	(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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

	Class B (dBuV/m) (at 3M)		
FREQUENCY (MHz)	PEAK	AVERAGE	
Above 1000	74	54	

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting		
Attenuation	Auto		
Start Frequency	1000 MHz		
Stop Frequency	10th carrier harmonic		
RB / VB (emission in restricted	1 MHz / 1 MHz for Dook, 1 MHz / 10Hz for Average		
band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average		

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP



3.2.2 TEST PROCEDURE

- a. The measuring distance of at 3 m shall be used for measurements at frequency up to 25GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 and 1.5 meters above the ground at a 3 meter semi-chamber test. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; above 1GHz, the height was 1.5m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. 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.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

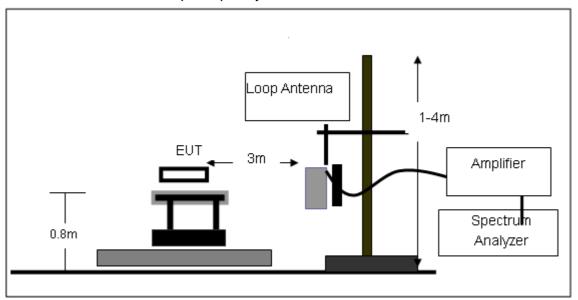
3.2.3 DEVIATION FROM TEST STANDARD

No deviation

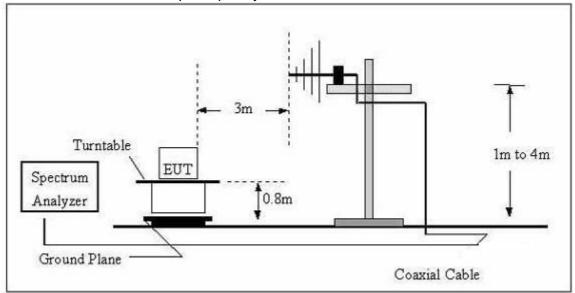


3.2.4 TEST SETUP

(A) Radiated Emission Test-Up Frequency Below 30MHz

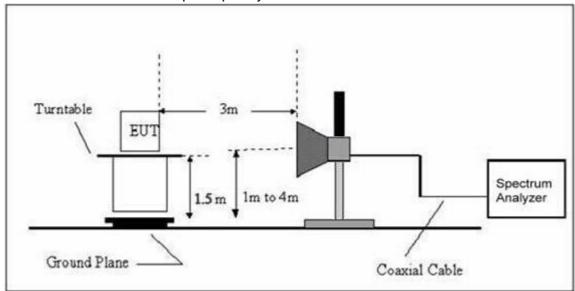


(B) Radiated Emission Test-Up Frequency 30MHz~1GHz





(C) Radiated Emission Test-Up Frequency Above 1GHz



3.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



3.2.6 TEST RESULTS (BETWEEN 9KHZ - 30 MHZ)

EUT:	G-Box Omnistick	Model Name. :	S8X
Temperature:	25 ℃	Relative Humidtity:	54%
Pressure:	1010 hPa	Test Voltage:	DC 5V from adapter
Test Mode:	TX	Polarization :	

Freq.	Reading	Reading Limit		State
(MHz)	z) (dBuV/m) (dBuV/m) (dB)		(dB)	P/F
				PASS
				PASS

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.



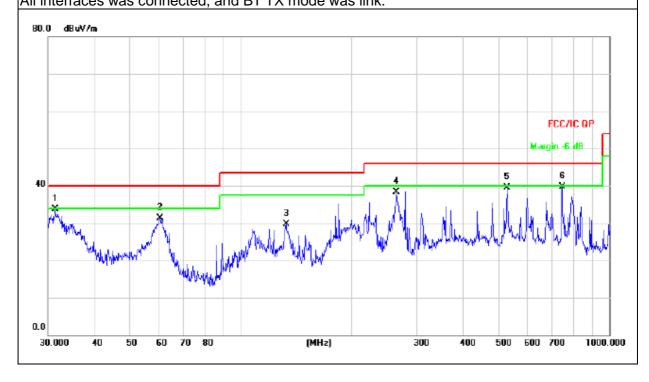
3.2.7 TEST RESULTS (BETWEEN 30MHZ - 1GHZ)

EUT:	G-Box Omnistick	Model Name :	S8X
Temperature:	25 ℃	Relative Humidity:	55%
Pressure:	1010 hPa	Polarization:	Horizontal
Test Voltage :	DC 5V from adapter		
Test Mode :	Mode 4		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(MHz) (dBµV)		(dBµV/m)	(dBµV/m)	(dB)	Detector Type
31.3992	31.3992 41.93		33.71	40.00	-6.29	QP
60.2800	42.97	-11.57	31.40	40.00	-8.60	QP
132.6850	43.66	-13.91	29.75	43.50	-13.75	QP
264.7456	52.06	-13.72	38.34	46.00	-7.66	QP
528.2458	47.25	-7.65	39.60	46.00	-6.40	QP
744.8660	43.19	-3.49	39.70	46.00	-6.30	QP

Remark:

Factor = Antenna Factor + Cable Loss - Pre-amplifier.
All interfaces was connected, and BT TX mode was link.



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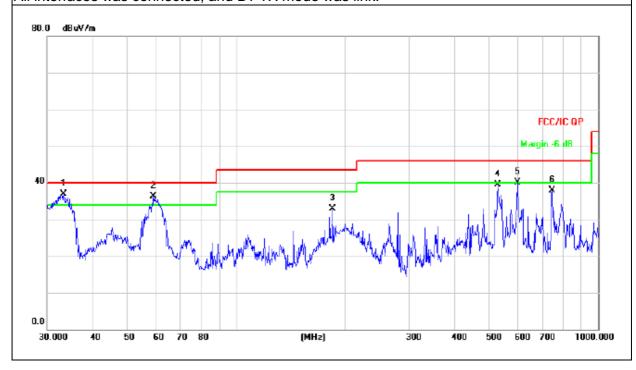


EUT:	G-Box Omnistick	Model Name :	S8X
Temperature :	25 ℃	Relative Humidity:	55%
Pressure:	1010 hPa	Polarization:	Vertical
Test Voltage :	DC 5V from adapter		
Test Mode :	Mode 4		

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Detector Type
33.3278	45.38	-8.42	36.96	40.00	-3.04	QP
59.0251	47.72	-11.43	36.29	40.00	-3.71	QP
184.4898	184.4898 47.72		32.83	43.50	-10.67	QP
528.2458	47.08	-7.65	39.43	46.00	-6.57	QP
599.3212	45.73	-5.69	40.04	46.00	-5.96	QP
744.8660	41.11	-3.22	37.89	46.00	-8.11	QP

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.
All interfaces was connected, and BT TX mode was link.





3.2.8 TEST RESULTS (1G-26GHZ)

802.11b

Report No.: BCTC-151114658

Normal Voltage

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Туре
		ор	eration fre	equency:2412			
V	4824.00	46.63	19.36	65.99	74	-8.01	Pk
V	4824.00	26.55	19.36	45.91	54	-8.09	AV
V	7236.00	47.23	17.17	64.4	74	-9.60	Pk
V	7236.00	27.35	17.17	44.52	54	-9.48	AV
Н	4824.00	46.68	19.36	66.04	74	-7.96	Pk
Н	4824.00	25.85	19.36	45.21	54	-8.79	AV
Н	7236.00	47.73	17.17	64.9	74	-9.10	Pk
Н	7236.00	27.46	17.17	44.63	54	-9.37	AV

Remark:

Absolute Level= ReadingLevel+ Factor

Margin= Limit- Absolute Level

The radiated emissions from 8GHz to 25GHz are at least 20dB below the official limit and no need to report.

802.11b

Normal Voltage

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Туре
		ор	eration fre	equency:2437			
V	4874.00	46.47	19.42	65.89	74	-8.11	Pk
V	4874.00	27.89	19.42	47.31	54	-6.69	AV
V	7311.00	47.76	17.19	64.95	74	-9.05	Pk
V	7311.00	27.93	17.19	45.12	54	-8.88	AV
Н	4874.00	46.54	19.42	65.96	74	-8.04	Pk
Н	4874.00	26.58	19.42	46	54	-8.00	AV
Н	7311.00	47.73	17.19	64.92	74	-9.08	Pk
Н	7311.00	27.76	17.19	44.95	54	-9.05	AV

Remark:

Absolute Level= ReadingLevel+ Factor

Margin= Limit- Absolute Level



802.11b

Report No.: BCTC-151114658

Normal Voltage

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Туре		
	operation frequency:2462								
V	4924.00	46.48	19.47	65.95	74	-8.05	Pk		
V	4924.00	25.62	19.47	45.09	54	-8.91	AV		
V	7386.00	47.73	17.22	64.95	74	-9.05	Pk		
V	7376.00	26.38	17.22	43.6	54	-10.40	AV		
Н	4924.00	45.97	19.47	65.44	74	-8.56	Pk		
Н	4924.00	25.76	19.47	45.23	54	-8.77	AV		
Н	7386.00	46.96	17.22	64.18	74	-9.82	Pk		
Н	7376.00	27.26	17.22	44.48	54	-9.52	AV		

Remark:

Absolute Level= ReadingLevel+ Factor

Margin= Limit- Absolute Level



802.11g

Normal Voltage

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector	
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Туре	
operation frequency:2412								
V	4824.00	46.56	19.36	65.92	74	-8.08	Pk	
V	4824.00	26.55	19.36	45.91	54	-8.09	AV	
V	7236.00	47.43	17.17	64.6	74	-9.40	Pk	
V	7236.00	27.23	17.17	44.4	54	-9.60	AV	
Н	4824.00	46.67	19.36	66.03	74	-7.97	Pk	
Н	4824.00	25.87	19.36	45.23	54	-8.77	AV	
Н	7236.00	47.76	17.17	64.93	74	-9.07	Pk	
Н	7236.00	27.42	17.17	44.59	54	-9.41	AV	

Remark:

Absolute Level= ReadingLevel+ Factor

Margin= Limit- Absolute Level

The radiated emissions from 8GHz to 25GHz are at least 20dB below the official limit and no need to report.

802.11g

Normal Voltage

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Туре		
	operation frequency:2437								
V	4874.00	45.47	19.42	64.89	74	-9.11	Pk		
V	4874.00	25.89	19.42	45.31	54	-8.69	AV		
V	7311.00	46.76	17.19	63.95	74	-10.05	Pk		
V	7311.00	27.96	17.19	45.15	54	-8.85	AV		
Н	4874.00	46.66	19.42	66.08	74	-7.92	Pk		
Н	4874.00	26.57	19.42	45.99	54	-8.01	AV		
Н	7311.00	47.56	17.19	64.75	74	-9.25	Pk		
Н	7311.00	27.73	17.19	44.92	54	-9.08	AV		

Remark:

Absolute Level= ReadingLevel+ Factor

Margin= Limit- Absolute Level



802.11g

Report No.: BCTC-151114658

Normal Voltage

Polar	Frequency	Meter Reading	Factor	Emission Limits		Margin	Detector		
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Туре		
	operation frequency:2462								
V	4924.00	46.37	19.47	65.84	74	-8.16	Pk		
V	4924.00	26.57	19.47	46.04	54	-7.96	AV		
V	7386.00	47.63	17.22	64.85	74	-9.15	Pk		
V	7386.00	26.25	17.22	43.47	54	-10.53	AV		
Н	4924.00	45.81	19.47	65.28	74	-8.72	Pk		
Н	4924.00	26.62	19.47	46.09	54	-7.91	AV		
Н	7386.00	46.83	17.22	64.05	74	-9.95	Pk		
Н	7386.00	27.35	17.22	44.57	54	-9.43	AV		

Remark:

Absolute Level= ReadingLevel+ Factor

Margin= Limit- Absolute Level



802.11 n(20)

Normal Voltage

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Туре		
	operation frequency:2412								
V	4824.00	47.02	19.36	66.38	74	-7.62	Pk		
V	4824.00	26.23	19.36	45.59	54	-8.41	AV		
V	7236.00	47.15	17.17	64.32	74	-9.68	Pk		
V	7236.00	27.35	17.17	44.52	54	-9.48	AV		
Н	4824.00	46.65	19.36	66.01	74	-7.99	Pk		
Н	4824.00	26.87	19.36	46.23	54	-7.77	AV		
Н	7236.00	47.72	17.17	64.89	74	-9.11	Pk		
Н	7236.00	27.53	17.17	44.7	54	-9.30	AV		

Remark:

Absolute Level= ReadingLevel+ Factor

Margin= Limit- Absolute Level

The radiated emissions from 8GHz to 25GHz are at least 20dB below the official limit and no need to report.

802.11n(20)

Normal Voltage

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Туре		
	operation frequency:2437								
V	4874.00	46.53	19.42	65.95	74	-8.05	Pk		
V	4874.00	27.84	19.42	47.26	54	-6.74	AV		
V	7311.00	47.59	17.19	64.78	74	-9.22	Pk		
V	7311.00	27.61	17.19	44.8	54	-9.20	AV		
Н	4874.00	46.37	19.42	65.79	74	-8.21	Pk		
Н	4874.00	26.73	19.42	46.15	54	-7.85	AV		
Н	7311.00	47.69	17.19	64.88	74	-9.12	Pk		
Н	7311.00	27.52	17.19	44.71	54	-9.29	AV		

Remark:

Absolute Level= ReadingLevel+ Factor

Margin= Limit- Absolute Level



802.11 n(20)

Report No.: BCTC-151114658

Normal Voltage

Polar	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector		
(H/V)	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	Туре		
	operation frequency:2462								
V	4924.00	45.85	19.47	65.32	74	-8.68	Pk		
V	4924.00	25.56	19.47	45.03	54	-8.97	AV		
V	7386.00	47.47	17.22	64.69	74	-9.31	Pk		
V	7376.00	26.65	17.22	43.87	54	-10.13	AV		
Н	4924.00	45.79	19.47	65.26	74	-8.74	Pk		
Н	4924.00	26.23	19.47	45.7	54	-8.30	AV		
Н	7386.00	46.45	17.22	63.67	74	-10.33	Pk		
Н	7376.00	26.67	17.22	43.89	54	-10.11	AV		

Remark:

Absolute Level= ReadingLevel+ Factor

Margin= Limit- Absolute Level



Band Radiated

	Frequency (MHz)	Antenna polarization (H/V)	Frequenc y (MHz)	Meter Reading (dBµV)	Factor (dB)	Emission (dBuV/m)	(dBu	dge Limit IV/m)	Result
						PK	PK	AV	Pass
	<2400	Н	2390.00	35.15	13.83	48.98	74.00	54.00	Pass
	<2400	V	2390.00	34.64	13.83	48.47	74.00	54.00	Pass
	<2400	Н	2400.00	34.48	13.85	48.33	74.00	54.00	Pass
802.11b	<2400	V	2400.00	34.56	13.85	48.41	74.00	54.00	Pass
002.110	>2483.5	Н	2483.50	33.92	14.02	47.94	74.00	54.00	Pass
	>2483.5	V	2483.50	34.38	14.02	48.40	74.00	54.00	Pass
	>2483.5	Н	2485.30	34.56	14.04	48.60	74.00	54.00	Pass
	>2483.5	V	2485.30	34.61	14.04	48.65	74.00	54.00	Pass
000 44	<2400	Н	2390.00	34.49	13.83	48.32	74.00	54.00	Pass
	<2400	V	2390.00	33.58	13.83	47.41	74.00	54.00	Pass
	<2400	Н	2400.00	34.25	13.85	48.10	74.00	54.00	Pass
	<2400	V	2400.00	33.81	13.85	47.66	74.00	54.00	Pass
802.11g	>2483.5	Н	2483.50	33.82	14.02	47.84	74.00	54.00	Pass
	>2483.5	V	2483.50	33.94	14.02	47.96	74.00	54.00	Pass
	>2483.5	Н	2485.30	33.55	14.04	47.59	74.00	54.00	Pass
	>2483.5	V	2485.30	34.86	14.04	48.90	74.00	54.00	Pass
	<2400	Н	2390.00	34.80	13.83	48.63	74.00	54.00	Pass
	<2400	V	2390.00	34.53	13.83	48.36	74.00	54.00	Pass
	<2400	Н	2400.00	35.25	13.85	49.10	74.00	54.00	Pass
802.11n	<2400	V	2400.00	34.58	13.85	48.43	74.00	54.00	Pass
(20)	>2483.5	Н	2483.50	34.25	14.02	48.27	74.00	54.00	Pass
	>2483.5	V	2483.50	34.65	14.02	48.67	74.00	54.00	Pass
	>2483.5	Н	2485.30	35.12	14.04	49.16	74.00	54.00	Pass
	>2483.5	V	2485.30	34.75	14.04	48.79	74.00	54.00	Pass

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

Emission Level = Meter Reading + Factor

If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

FCC Report

Tel: 400-788-9558 0755-33019988



4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C								
Section	Test Item	Limit	Frequency Range (MHz)	Result				
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS				

4.1.1 TEST PROCEDURE

- 1. Set analyzer center frequency to DTS channel center frequency.
- 2. Set the span to 1.5 times the DTS bandwidth.
- 3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
- 4. Set the VBW \geq 3 x RBW.
- 5. Detector = peak.
- 6. Sweep time = auto couple.
- 7. Trace mode = max hold.
- 8. Allow trace to fully stabilize.
- 9. Use the peak marker function to determine the maximum amplitude level within the RBW.
- 10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

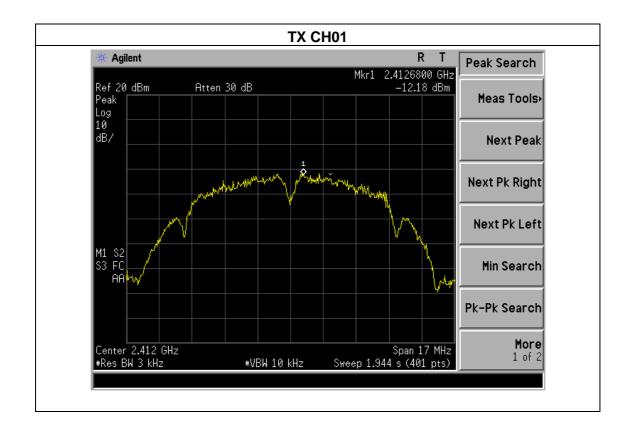
FCC Report Tel: 400-788-9558 0755-33019988 Web:Http://www.bctc-lab.com Page31 of 58



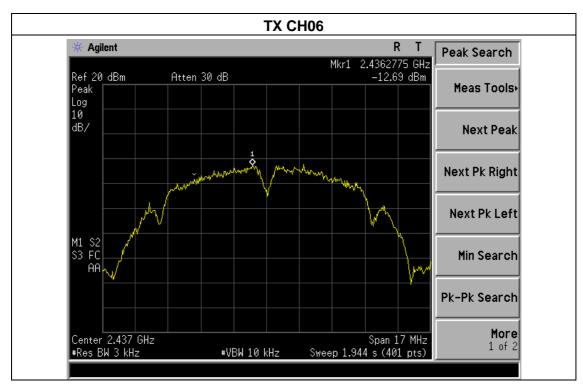
4.1.5 TEST RESULTS

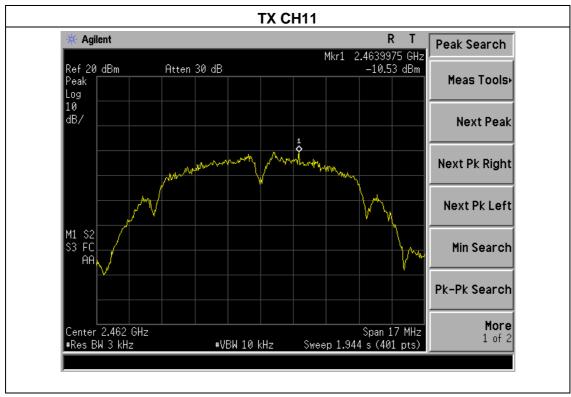
EUT:	G-Box Omnistick	Model Name :	S8X	
Temperature:	25 ℃	Relative Humidity:	54%	
Pressure :	1015 hPa	Test Voltage :	DC 5V from adapter	
Test Mode :	TX b Mode /CH01, CH06, CH11			

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-12.18	8	PASS
2437 MHz	-12.69	8	PASS
2462 MHz	-10.53	8	PASS







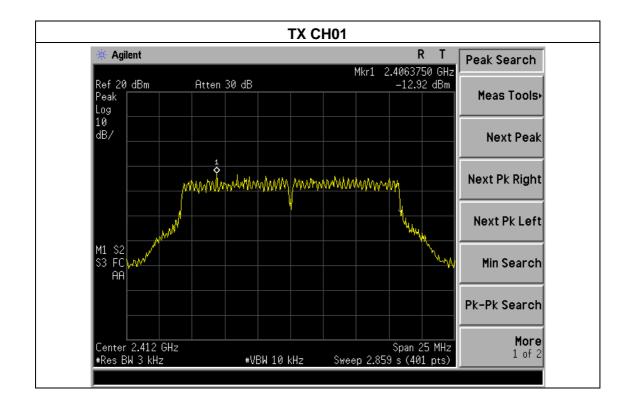




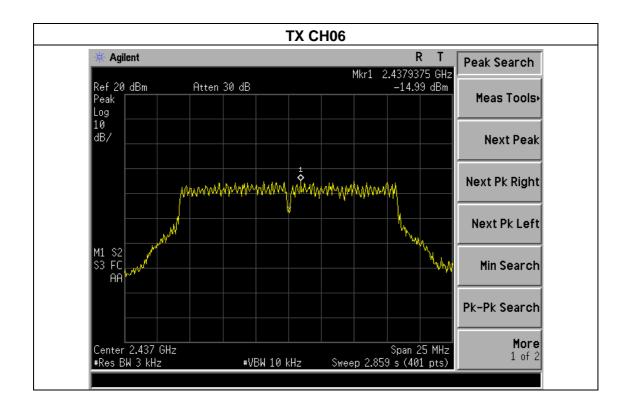
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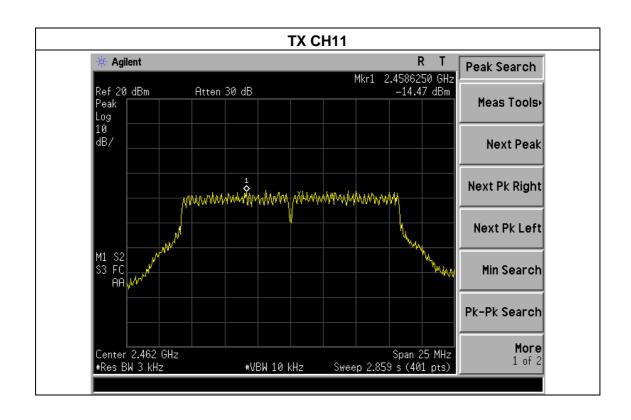
EUT:	G-Box Omnistick	Model Name :	S8X			
Temperature :	25 ℃	Relative Humidity:	54%			
Pressure :	1015 hPa	Test Voltage :	DC 5V from adapter			
Test Mode : TX g Mode /CH01, CH06, CH11						

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-12.92	8	PASS
2437 MHz	-14.99	8	PASS
2462 MHz	-14.47	8	PASS







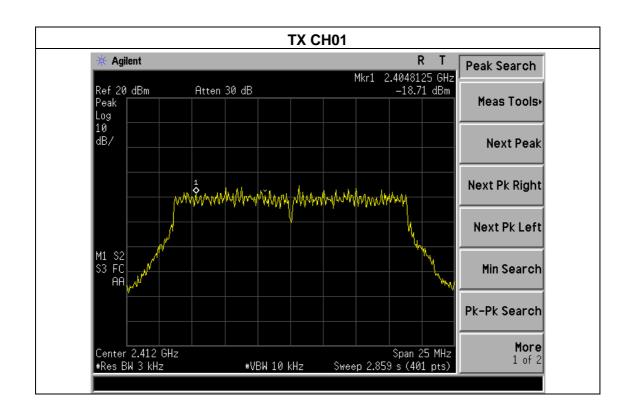




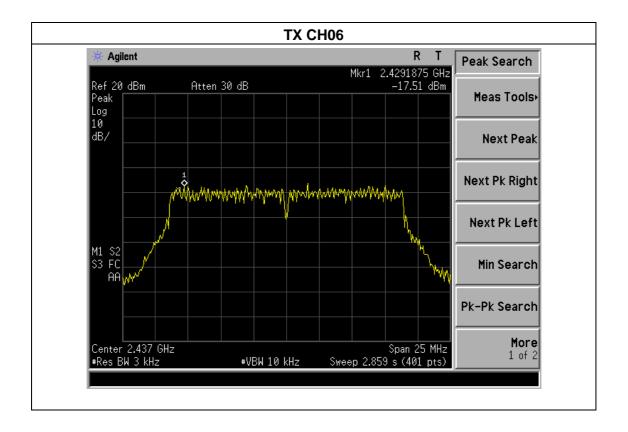
Shenzhen BCTC Technology Co., Ltd. Report No.: BCTC-151114658

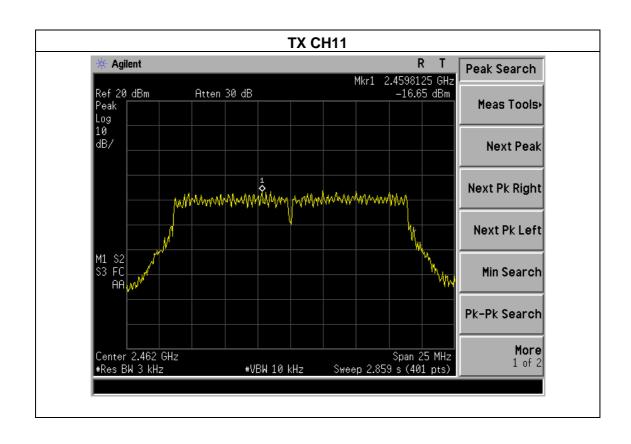
EUT:	G-Box Omnistick	Model Name :	S8X	
Temperature :	25 ℃	Relative Humidity:	54%	
Pressure :	1015 hPa	Test Voltage :	DC 5V from adapter	
Test Mode :	TX n Mode(20M) /CH01, CH06, CH11			

Frequency	Power Density (dBm)	Limit (dBm)	Result
2412 MHz	-18.71	8	PASS
2437 MHz	-17.51	8	PASS
2462 MHz	-16.65	8	PASS











5. BANDWIDTH TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

Report No.: BCTC-151114658

5.1.1 TEST PROCEDURE

- 1. Set RBW = 100 kHz.
- 2. Set the video bandwidth (VBW) \geq 3 x RBW.
- 3. Detector = Peak.
- 4. Trace mode = max hold.
- 5. Sweep = auto couple.
- 6. Allow the trace to stabilize.
- 7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

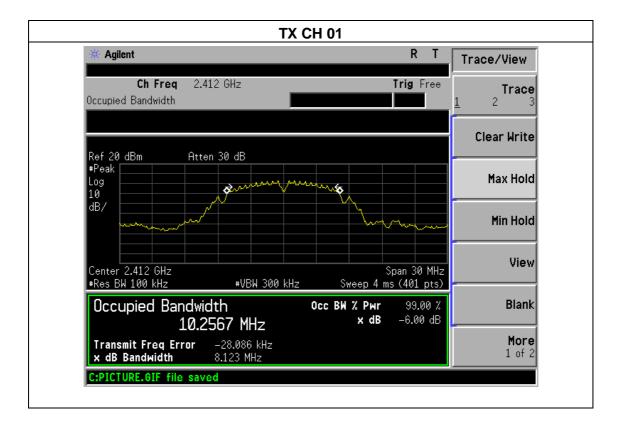
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.



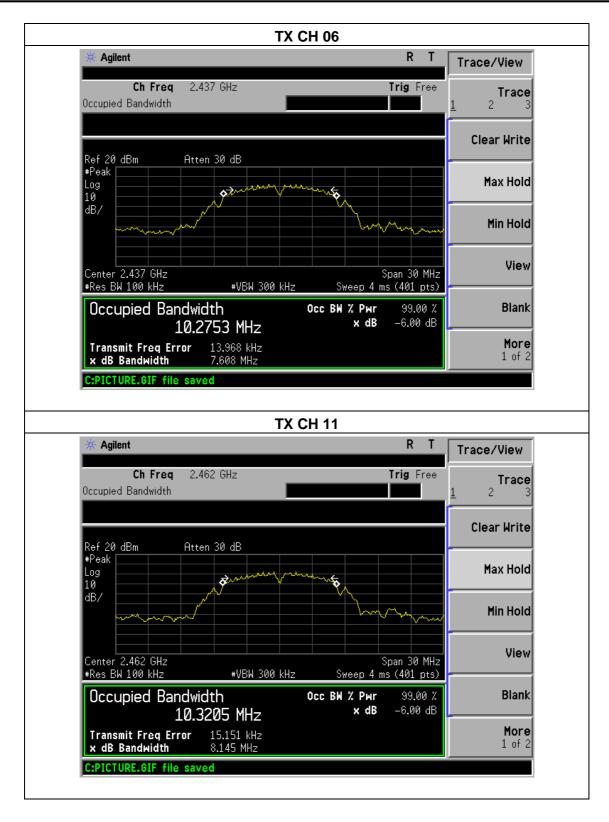
5.1.5 TEST RESULTS

EUT:	G-Box Omnistick	Model Name :	S8X
Temperature:	25 ℃	Relative Humidity:	54%
Pressure:	1012 hPa	Test Voltage :	DC 5V from adapter
Test Mode :	TX b Mode /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	8.123	500	Pass
Middle	2437	7.608	500	Pass
High	2462	8.145	500	Pass





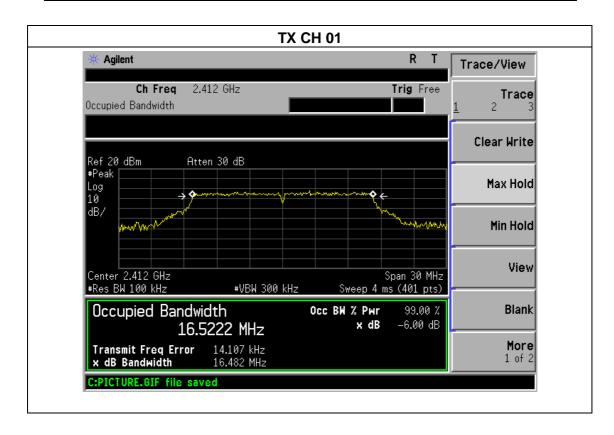




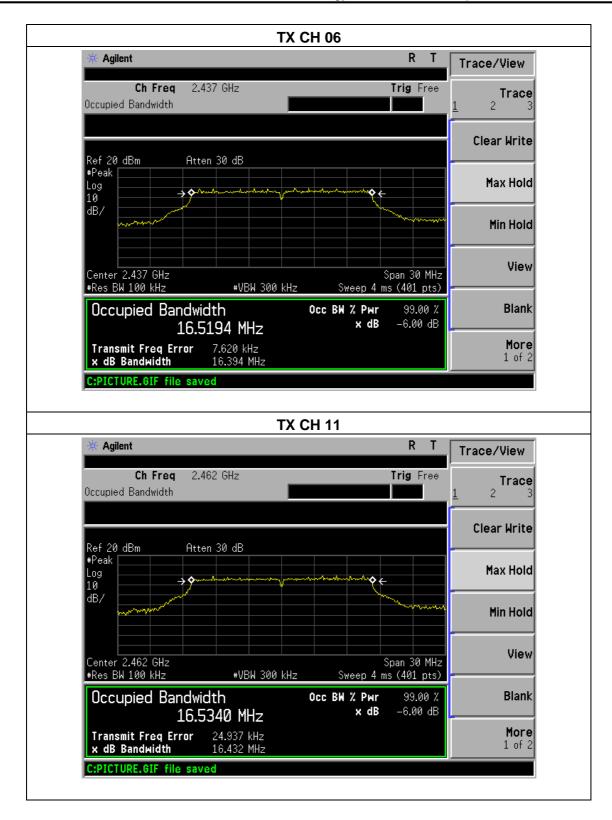
Shenzhen BCTC Technology Co., Ltd. Report No.: BCTC-151114658

EUT:	G-Box Omnistick	Model Name :	S8X
Temperature:	25 ℃	Relative Humidity:	54%
Pressure:	1012 hPa	Test Voltage :	DC 5V from adapter
Test Mode :	TX g Mode /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	16.482	500	Pass
Middle	2437	16.394	500	Pass
High	2462	16.432	500	Pass





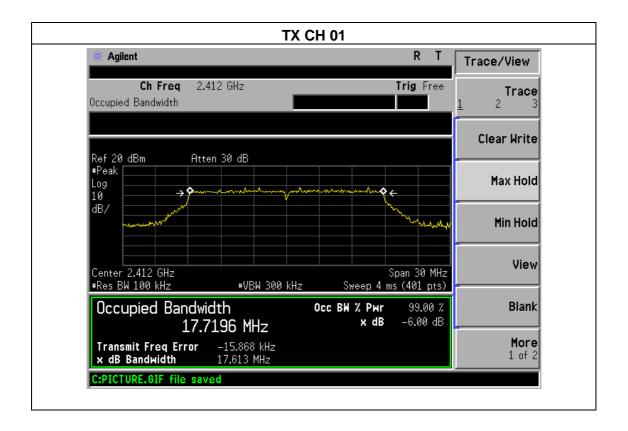




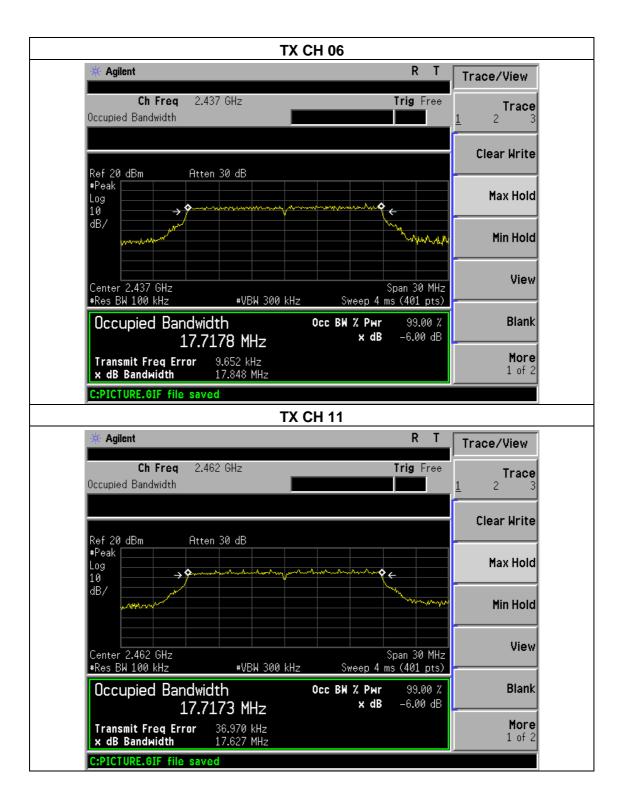
Shenzhen BCTC Technology Co., Ltd. Report No.: BCTC-151114658

EUT:	G-Box Omnistick	Model Name :	S8X
Temperature:	25 ℃	Relative Humidity:	60%
Pressure:	1012 hPa	Test Voltage :	DC 5V from adapter
Test Mode :	le : TX n Mode(20M) /CH01, CH06, CH11		

Channel	Frequency (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	2412	17.613	500	Pass
Middle	2437	17.848	500	Pass
High	2462	17.627	500	Pass









6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

6.1.1 TEST PROCEDURE

a. The EUT was directly connected to the Power meter

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

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6.1.5 TEST RESULTS

EUT:	G-Box Omnistick	Model Name :	S8X
Temperature:	25 ℃	Relative Humidity:	54%
Pressure :	1012 hPa	Test Voltage :	DC 5V from adapter
Test Mode :	TX b/g/n(20M)		

	TX 802.11b Mode					
Test Channe	Frequency	Maximum Conducted Output Power(PK)	Maximum Conducted Output Power(AV)	LIMIT		
	(MHz)	(dBm)	(dBm)	dBm		
CH01	2412	11.85	10.75	30		
CH06	2437	11.59	10.55	30		
CH11	2462	11.34	10.42	30		
		TX 802.11g	Mode			
CH01	2412	9.89	8.85	30		
CH06	2437	9.65	8.63	30		
CH11	2462	9.57	8.55	30		
	TX 802.11n-HT20 Mode					
CH01	2412	8.73	7.45	30		
CH06	2437	8.85	7.32	30		
CH11	2462	8.62	7.25	30		



7. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

APPLICABLE STANDARD

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

TEST PROCEDURE

- a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- c) Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- e) Repeat above procedures until all measured frequencies were complete.
- f) The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- g) The height of the equipment or of the substitution antenna shall be 0.8 m; above 1GHz, the height was 1.5m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- h) The height of the equipment or of the substitution antenna shall be 0.8 m; above 1GHz, the height was 1.5m, the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement. The initial step in

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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.

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- i) If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- j) For the actual test configuration, please refer to the related Item -EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

7.1 DEVIATION FROM STANDARD

No deviation.

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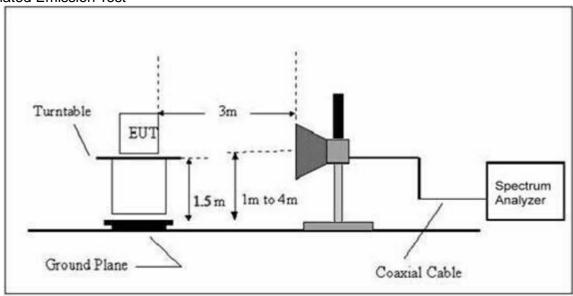


7.2 TEST SETUP

Conducted Emission Test



Radiated Emission Test



7.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

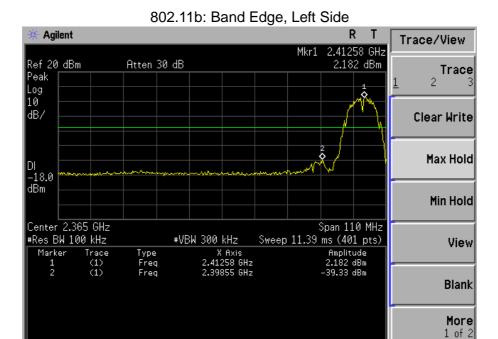


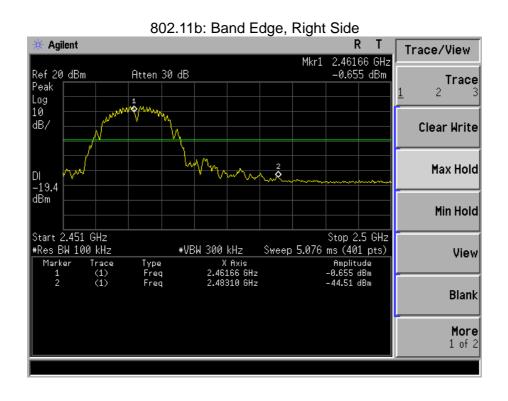
7.4 TEST RESULTS

EUT:	G-Box Omnistick	Model Name :	S8X
Temperature:	25 ℃	Relative Humidity:	54%
Pressure :	1012 hPa	Test Voltage :	DC 5V from adapter

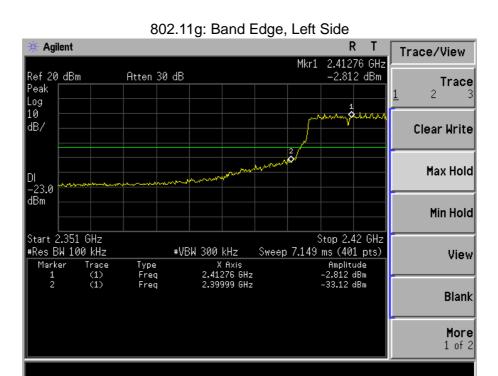
Frequency	Delta Peak to band emission	>Limit			
. ,			Result		
Band	(dBc)	(dBc)			
	802.11b mode				
Left-band	41.51	20	Pass		
Right-band	43.86	20	Pass		
	802.11g mode				
Left-band	30.31	20	Pass		
Right-band	32.06	20	Pass		
	802.11n-HT20 mode				
Left-band	30.92	20	Pass		
Right-band	37.35	20	Pass		

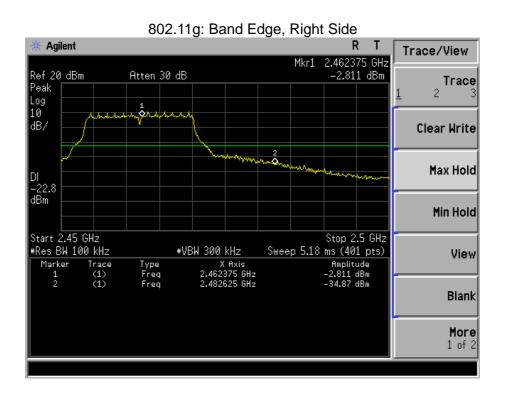






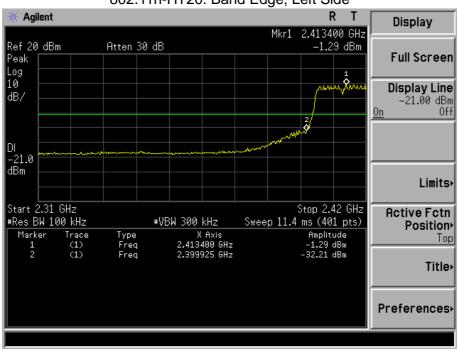




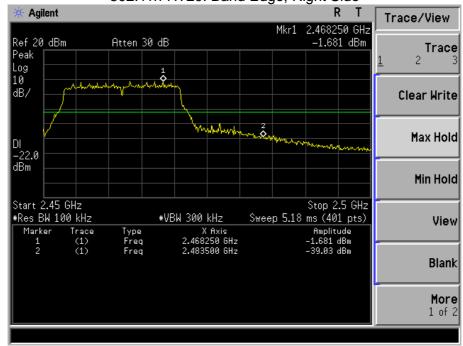














8. DUTY CYCLE OF TEST SIGNAL

8.1 STANDARD REQUIREMENT

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

8.2 FORMULA:

Duty Cycle = Ton / (Ton+Toff)

Measurement Procedure:

- 1. Set span = Zero
- 2. RBW = 8MHz
- 3. VBW = 8MHz.
- 4. Detector = Peak

Duty Cycle:

	Duty Cycle	Duty Fator (dB)
802.11b	1	0
802.11g	1	0
802.11n(HT20)	1	0



9. ANTENNA REQUIREMENT

9.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: 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.

9.2 EUT ANTENNA

The EUT antenna is permanent connection and non-detachable (External) antenna. It comply with the standard requirement.

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10. EUT TEST PHOTO















11. EUT PHOTO





**** END OF REPORT ****