

## FCC Radio Test Report

## FCC ID: X5B-PL6390A

This report concerns (check one) : Class II Change

Issued Date: Dec. 22, 2011Project No.: 1111C094AEquipment: Tron PS3 Wireless Controller-DongleModel Name: PL-6390AApplicant: Performance Designed Products, LLCAddress: 14144 Ventura Blvd. Suite 200, Sherman Oaks, CA<br/>91423Manufacturer : Performance Designed Products, LLC

Address : 14144 Ventura Blvd. Suite 200, Sherman Oaks, CA 91423

Tested by: Neutron Engineering Inc. EMC Laboratory Date of Receipt: Nov. 11, 2011 Date of Test: Nov. 11, 2011 ~ Dec. 20, 2011

Testing Engineer

David Mao

Technical Manager

Authorized Signatory

(David Mao) (Leo Hun

(Steven Lu)

### Neutron Engineering Inc.

No.3,Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China. *TEL : (0769) 8318-3000 FAX : (0769) 8319-6000* 



#### Declaration

**Neutron** represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A**.

**Neutron's** reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **Neutron** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **Neutron** issued reports.

**Neutron**'s reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **Neutron-self**, extracts from the test report shall not be reproduced except in full with **Neutron**'s authorized written approval.

**Neutron**'s laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

#### Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.



Table of Contents	Page
1. CERTIFICATION	6
2 . SUMMARY OF TEST RESULTS	7
2.1 TEST FACILITY	8
2.2 MEASUREMENT UNCERTAINTY	8
3 . GENERAL INFORMATION	9
3.1 GENERAL DESCRIPTION OF EUT	9
3.2 DESCRIPTION OF TEST MODES	11
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING	11
3.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TEST	ED 12
3.5 DESCRIPTION OF SUPPORT UNITS	13
4 . EMC EMISSION TEST	14
4.1 CONDUCTED EMISSION MEASUREMENT	14
4.1.1 POWER LINE CONDUCTED EMISSION LIMITS 4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING	14
4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING 4.1.3 TEST PROCEDURE	14 15
4.1.4 DEVIATION FROM TEST STANDARD	15
4.1.5 TEST SETUP	15
4.1.6 EUT OPERATING CONDITIONS 4.1.7 TEST RESULTS	15 16
4.2 RADIATED EMISSION MEASUREMENT	18
4.2.1 RADIATED EMISSION LIMITS	18
4.2.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING	19
4.2.3 TEST PROCEDURE 4.2.4 DEVIATION FROM TEST STANDARD	21 21
4.2.5 TEST SETUP	22
4.2.6 EUT OPERATING CONDITIONS	23
4.2.7 TEST RESULTS (BELOW 30MHZ) 4.2.8 TEST RESULTS (BETWEEN30 – 1000 MHZ)	24 25
4.2.9 TEST RESULTS (ABOVE 1000 MHZ)	23
5 . NUMBER OF HOPPING CHANNEL	39
5.1 APPLIED PROCEDURES / LIMIT	39
5.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING 5.1.2 TEST PROCEDURE	39 39
5.1.2 TEST PROCEDURE 5.1.3 DEVIATION FROM STANDARD	39 39
5.1.4 TEST SETUP	39
5.1.5 EUT OPERATION CONDITIONS	39

Neutron Engineering Inc.\_\_\_\_\_

v

Table of Contents	Page
5.1.6 TEST RESULTS	40
6 . AVERAGE TIME OF OCCUPANCY	41
6.1 APPLIED PROCEDURES / LIMIT	41
6.1.1 MEASUREMENT INSTRUMENTS LIST	41
6.1.2. TEST PROCEDURES	41
6.1.3. TEST SETUP LAYOUT	41
6.1.4. TEST DEVIATION 6.1.5. EUT OPERATION DURING TEST	41 41
6.1.6. TEST RESULTS	41
7. HOPPING CHANNEL SEPARATION MEASUREMENT	44
7.1 APPLIED PROCEDURES / LIMIT	44
7.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING	44
7.1.2 TEST PROCEDURE	44
7.1.3 DEVIATION FROM STANDARD	44
7.1.4 TEST SETUP 7.1.5 EUT OPERATION CONDITIONS	44 44
7.1.6 TEST RESULTS	44 45
3. BANDWIDTH TEST	46
8.1 APPLIED PROCEDURES / LIMIT	46
8.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING	46
8.1.2 TEST PROCEDURE	46
8.1.3 DEVIATION FROM STANDARD 8.1.4 TEST SETUP	46
8.1.5 EUT OPERATION CONDITIONS	46 46
8.1.6 TEST RESULTS	40
9. PEAK OUTPUT POWER TEST	49
9.1 APPLIED PROCEDURES / LIMIT	49
9.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING	49
9.1.2 TEST PROCEDURE	49
9.1.3 DEVIATION FROM STANDARD 9.1.4 TEST SETUP	49 49
9.1.5 EUT OPERATION CONDITIONS	49 49
9.1.6 TEST RESULTS	49 50
10 . ANTENNA CONDUCTED SPURIOUS EMISSION	52
10.1 APPLIED PROCEDURES / LIMIT	52
10.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING	52
10.1.2 TEST PROCEDURE	52
10.1.3 DEVIATION FROM STANDARD	52
10.1.4 TEST SETUP	52

Neutron Engineering Inc.	
Table of Contents	Page
10.1.5 EUT OPERATION CONDITIONS 10.1.6 TEST RESULTS	52 53
11 . EUT TEST PHOTO	59



#### **1. CERTIFICATION**

Equipment:	Tron PS3 Wireless Controller-Dongle
Brand Name :	N/A
Model Name :	PL-6390A
Applicant:	Performance Designed Products, LLC
Factory:	Performance Designed Products, LLC
Address:	14144 Ventura Blvd. Suite 200, Sherman Oaks, CA 91423
Date of Test :	Nov. 11, 2011 ~ Dec. 20, 2011
Test Item:	ENGINEERING SAMPLE
Standards:	FCC Part15, Subpart C(15.247) / ANSI C63.4 : 2003

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-1111C094A) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of NVLAP and TAF according to the ISO-17025 quality assessment standard and technical standard(s).

Neutron Engineering Inc.

### 2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

	FCC Part15 (15.247) , Subpart C				
Standard Section	Judgment	Remark			
15.207	Conducted Emission	PASS			
15.247(d)	Antenna conducted Spurious Emission	PASS			
15.247 (a)(1)	Hopping Channel Separation	PASS			
15.247 (a)(1)	20dB Bandwidth	PASS			
15.247 (b)(1)	Peak Output Power	PASS			
15.247(d)/15.209	Radiated Spurious Emission	PASS			
15.247 (a)(1)(iii)	Number of Hopping Frequency	PASS			
15.247 (a)(1)(iii)	Dwell Time	PASS			
15.205	Restricted Bands	PASS			
15.203	Antenna Requirement	PASS			

NOTE:

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



#### 2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-C02/DG-CB03** at the location of No.3, Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792 Neutron's test firm number is 319330

#### 2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

The reported uncertainty of measurement y  $\pm$  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** % °

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U , (dB)	NOTE
DG-C02	CISPR	150 KHz ~ 30MHz	1.94	

#### B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U , (dB)	NOTE
		30MHz ~ 200MHz	V	3.82	
DG-CB03	CISPR	30MHz ~ 200MHz	Н	3.60	
DG-CB03	CISER	200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	Н	3.94	

# Neutron Engineering Inc.

### **3. GENERAL INFORMATION**

#### 3.1 GENERAL DESCRIPTION OF EUT

Equipment	Tron PS3 Wireless Cont	troller-Dongle	
Brand Name	N/A		
Model Name	PL-6390A		
OEM Brand Name	N/A		
OEM Model Name	N/A		
Model Difference	N/A		
	The EUT is a Tron PS3	Wireless Controller-Dongle	
	Operation Frequency:	2402~2480 MHz	
	Modulation Type:	FHSS	
	Bit Rate of Transmitter	100Kbps	
	Number of Channel	64CH .	
	Antenna Designation:	Please see Note 3.	
Product Description	Antenna Gain(Peak)	Please see Note 3.	
	Output Power:	-12.00 dBm	
	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.	
Power Source	DC Voltage supplied fro	m Host System.	
Power Rating	I/P AC 120V/60Hz O/P I	DC 5V	
Connecting I/O Port(s)	Please refer to the User's Manual		
Products Covered	N/A		
EUT Modification(s)	N/A		

Note:

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

Neutron Engineering Inc.

			Frequenc	y Channe			
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequenc (MHz)
01	2402	17	2422	33	2438	49	2459
02	2403	18	2423	34	2439	50	2461
03	2404	19	2424	35	2440	51	2463
04	2405	20	2425	36	2441	52	2465
05	2406	21	2426	37	2443	53	2466
06	2407	22	2427	38	2445	54	2467
07	2408	23	2428	39	2447	55	2468
08	2409	24	2429	40	2449	56	2469
09	2411	25	2430	41	2450	57	2470
10	2413	26	2431	42	2451	58	2471
11	2415	27	2432	43	2452	59	2472
12	2417	28	2433	44	2453	60	2473
13	2418	29	2434	45	2454	61	2474
14	2419	30	2435	46	2455	62	2476
15	2420	31	2436	47	2456	63	2478
1D	2420	01	-100				
16	2421	32	2437	48	2457	64 Frequen	2480
16 <b>Frequen</b>	2421 cy Group 1	32 Frequence	2437 <b>cy Group 2</b>	48 Frequen	2457 <b>cy Group 3</b>	Frequen	cy Group
16	2421 cy Group 1 Frequency (MHz)	32 Frequend Channel	2437 cy Group 2 Frequency (MHz)	48	2457	1	<b>cy Group</b> Frequenc (MHz)
16 <b>Frequen</b>	2421 cy Group 1 Frequency	32 Frequence	2437 cy Group 2 Frequency	48 Frequen	2457 <b>cy Group 3</b> Frequency	Frequen	<b>cy Group</b> Frequenc
16 <b>Frequen</b> e Channel	2421 cy Group 1 Frequency (MHz)	32 Frequend Channel	2437 cy Group 2 Frequency (MHz)	48 <b>Frequen</b> Channel	2457 <b>cy Group 3</b> Frequency (MHz)	Frequen Channel	<b>cy Group</b> Frequenc (MHz)
16 Frequence Channel	2421 cy Group 1 Frequency (MHz) 2402	32 Frequence Channel 01	2437 cy Group 2 Frequency (MHz) 2404	48 Frequent Channel 01	2457 cy Group 3 Frequency (MHz) 2406	Frequen Channel 01	<b>cy Group</b> Frequenc (MHz) 2408
16 Frequene Channel 01 02	2421 cy Group 1 Frequency (MHz) 2402 2467	32 Frequend Channel 01 02	2437 <b>cy Group 2</b> Frequency (MHz) 2404 2469	48 Frequence Channel 01 02	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471	Frequen Channel 01 02	cy Group Frequenc (MHz) 2408 2473
16 Frequent Channel 01 02 03	2421 cy Group 1 Frequency (MHz) 2402 2467 2434	32 Frequent Channel 01 02 03	2437 <b>cy Group 2</b> Frequency (MHz) 2404 2469 2436	48 Frequent Channel 01 02 03	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471 2438	Frequent Channel 01 02 03	cy Group Frequenc (MHz) 2408 2473 2440
16 <b>Frequence</b> Channel 01 02 03 04	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450	32 Frequence Channel 01 02 03 04	2437 <b>cy Group 2</b> Frequency (MHz) 2404 2469 2436 2436 2452	48 <b>Frequen</b> Channel 01 02 03 04	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471 2438 2454	Frequent Channel 01 02 03 04	cy Group Frequenc (MHz) 2408 2473 2440 2456
16 Frequent Channel 01 02 03 04 05	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450 2466	32 Frequence Channel 01 02 03 04 05	2437 <b>cy Group 2</b> Frequency (MHz) 2404 2469 2436 2436 2452 2468	48 <b>Frequen</b> Channel 01 02 03 04 05	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471 2438 2454 2470	<b>Frequen</b> Channel 01 02 03 04 05	cy Group Frequenc (MHz) 2408 2473 2440 2456 2472
16 Frequent Channel 01 02 03 04 05 06	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450 2466 2403	32 Frequent Channel 01 02 03 04 05 06	2437 <b>cy Group 2</b> Frequency (MHz) 2404 2469 2436 2436 2452 2468 2405	48 Frequent Channel 01 02 03 04 05 06	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471 2438 2454 2454 2470 2407	Frequent Channel 01 02 03 04 05 06	cy Group Frequenc (MHz) 2408 2473 2440 2456 2472 2409
16 Frequent Channel 01 02 03 04 05 06 07	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450 2466 2403 2419	32 Frequent Channel 01 02 03 04 05 06 07	2437 cy Group 2 Frequency (MHz) 2404 2469 2436 2436 2452 2468 2405 2421	48 Frequent Channel 01 02 03 04 05 06 07	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471 2438 2454 2454 2470 2407 2423	Frequent Channel 01 02 03 04 05 06 07	cy Group Frequenc (MHz) 2408 2473 2440 2456 2472 2409 2425
16 Frequence O1 02 03 04 05 06 07 08	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450 2466 2403 2419 2435	32 Frequence Channel 01 02 03 04 05 06 07 08	2437 cy Group 2 Frequency (MHz) 2404 2469 2436 2452 2468 2405 2421 2437	48 Frequent Channel 01 02 03 04 05 06 07 08	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471 2438 2454 2454 2470 2407 2407 2423 2439	Frequen Channel 01 02 03 04 05 06 07 08	cy Group Frequenc (MHz) 2408 2473 2440 2456 2472 2409 2425 2441
16 Frequent Channel 01 02 03 04 05 06 07 08 09	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450 2466 2403 2419 2435 2451	32 Frequent Channel 01 02 03 04 05 06 07 08 09	2437 <b>cy Group 2</b> Frequency (MHz) 2404 2469 2436 2452 2468 2405 2421 2437 2453	48 Frequent Channel 01 02 03 04 05 06 07 08 09	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471 2438 2454 2470 2407 2407 2423 2439 2455	Frequent Channel 01 02 03 04 05 06 07 08 09	cy Group Frequenc (MHz) 2408 2473 2440 2456 2472 2409 2425 2441 2457
16 Frequence Channel 01 02 03 04 05 06 07 08 09 10	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450 2466 2403 2419 2435 2451 2418	32 Frequent Channel 01 02 03 04 05 06 07 06 07 08 09 10	2437 <b>cy Group 2</b> Frequency (MHz) 2404 2469 2436 2452 2468 2405 2421 2437 2453 2420	48 Frequent Channel 01 02 03 04 05 06 07 08 09 10	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471 2438 2454 2470 2407 2423 2423 2439 2455 2422	Frequent Channel 01 02 03 04 05 06 07 08 09 10	cy Group Frequenc (MHz) 2408 2473 2440 2456 2472 2409 2425 2441 2457 2424
16 Frequence Channel 01 02 03 04 05 06 07 08 09 10 11	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450 2466 2403 2419 2435 2419 2435 2451 2418 2474	32 Frequence Channel 01 02 03 04 05 06 07 08 09 10 11	2437 <b>cy Group 2</b> Frequency (MHz) 2404 2469 2436 2452 2468 2405 2421 2437 2453 2420 2476	48 <b>Frequen</b> Channel 01 02 03 04 05 06 07 08 09 10 11	2457 cy Group 3 Frequency (MHz) 2406 2471 2438 2454 2454 2470 2407 2423 2423 2439 2455 2422 2478	Frequen Channel 01 02 03 04 05 06 07 06 07 08 09 10 11	cy Group Frequenc (MHz) 2408 2473 2440 2456 2472 2409 2425 2441 2457 2424 2480
16 Frequence Channel 01 02 03 04 05 06 07 08 09 10 11 12	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450 2466 2403 2419 2435 2419 2435 2451 2418 2474 2411	32 Frequence Channel 01 02 03 04 05 06 07 08 09 10 11 12	2437 cy Group 2 Frequency (MHz) 2404 2469 2436 2452 2468 2405 2421 2437 2423 2423 2420 2476 2413	48 Frequent Channel 01 02 03 04 05 06 07 08 09 10 11 12	2457 cy Group 3 Frequency (MHz) 2406 2471 2438 2454 2454 2470 2407 2423 2439 2455 2422 2478 2415	Frequen Channel 01 02 03 04 05 06 07 08 09 10 11 12	cy Group Frequenc (MHz) 2408 2473 2440 2456 2472 2409 2425 2441 2457 2424 2480 2417
16 Frequence Channel 01 02 03 04 05 06 07 08 09 10 11 12 13	2421 cy Group 1 Frequency (MHz) 2402 2467 2434 2450 2466 2403 2419 2435 2451 2418 2474 2411 2427	32 Frequent Channel 01 02 03 04 05 06 07 08 09 10 11 12 13	2437 <b>cy Group 2</b> Frequency (MHz) 2404 2469 2436 2452 2468 2405 2421 2437 2453 2420 2476 2413 2429	48 Frequent Channel 01 02 03 04 05 06 07 08 09 10 11 12 13	2457 <b>cy Group 3</b> Frequency (MHz) 2406 2471 2438 2454 2470 2407 2423 2439 2455 2422 2478 2475 2425 2422 2478 2431	Frequent Channel 01 02 03 04 05 06 07 08 09 10 11 12 13	cy Group Frequenc (MHz) 2408 2473 2440 2456 2472 2409 2425 2441 2457 2424 2480 2417 2433

The EUT 16 channels of each sequence, total 4 sequences is used

#### 3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Printed Antenna	N/A	1.58



#### 3.2 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.

Pretest Mode	Description
Mode 1	CH01
Mode 2	CH36
Mode 3	CH64
Mode 4	Wireless

The EUT system operated these modes were found to be the worst case during the pre-scanning test as Following:

For Conducted Emission		
Final Test Mode	Description	
Mode 4	Wireless	

For Radiated Emission				
Final Test Mode Description				
Mode 1	CH01			
Mode 2	CH36			
Mode 3	CH64			

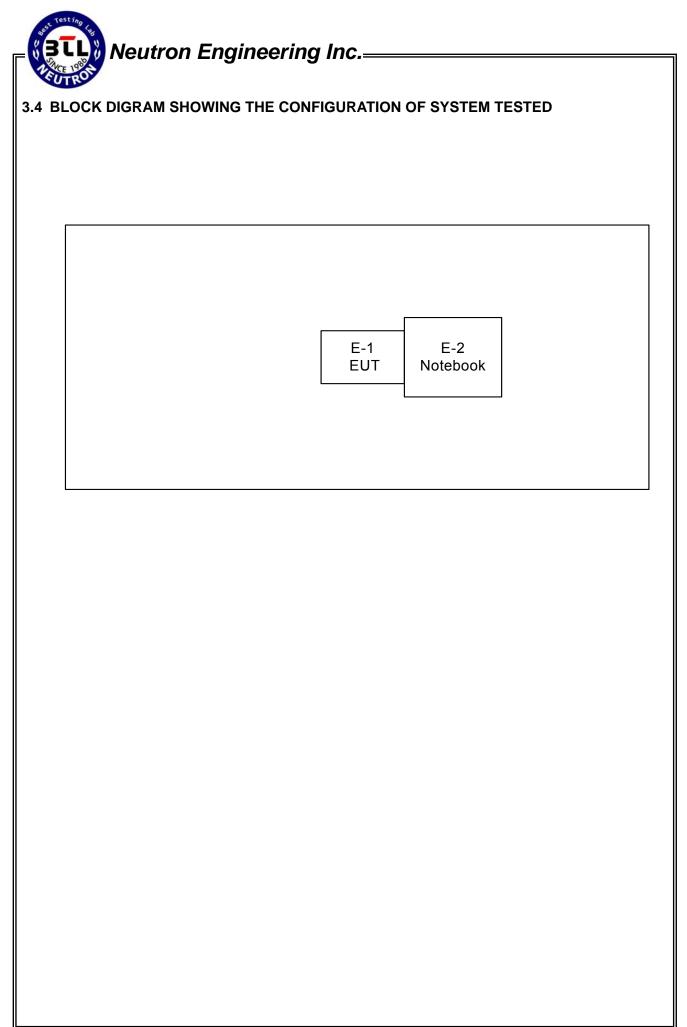
Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

#### 3.3 TABLE OF PARAMETERS OF TEXT 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 FHSS

Test software Version	HJC_PS3_AII_V17(FCC)				
Frequency	2402 MHz	2441 MHz	2480 MHz		
Parameters	DEF	DEF	DEF		





#### 3.5 DESCRIPTION OF SUPPORT UNITS

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.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	Tron PS3 Wireless Controller-Dongle	N/A	PL-6390A	X5B-PL6390A	N/A	EUT
E-2	NOTEBOOK	DELL	INSPIRON 1420	DOC	JX193A01SDC2	

Item	Shielded Type	Ferrite Core	Length	Note

#### 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 <sup>r</sup>Length <sup>a</sup> column.



#### 4. EMC EMISSION TEST

#### 4.1 CONDUCTED EMISSION MEASUREMENT

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

FREQUENCY (MHz)	Class A	(dBuV)	lass B	Standard	
FREQUENCT (MITZ)	Quasi-peak	Average	Quasi-peak	Average	Stanuaru
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.

#### 4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	May.26.2012
2	LISN	R&S	ENV216	100087	May.26.2012
3	Test Cable	N/A	C_17	N/A	Mar.30.2012
4	EMI TEST RECEIVER	R&S	ESCS30	826547/022	May.26.2012
5	50Ω Terminator	SHX	TF2-3G-A	08122902	May.26.2012

Remark: " N/A" denotes No Model No., Serial No. or No Calibration specified.

#### 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



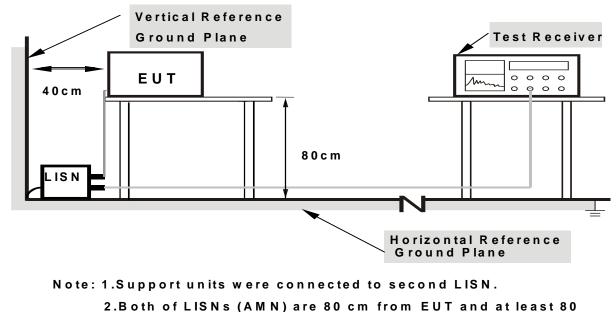
#### 4.1.3 TEST PROCEDURE

- 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.

#### 4.1.4 DEVIATION FROM TEST STANDARD

No deviation

#### 4.1.5 TEST SETUP



from other units and other metal planes

#### 4.1.6 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.

The EUT was programmed to be in continuously transmitting mode.

# Neutron Engineering Inc.=

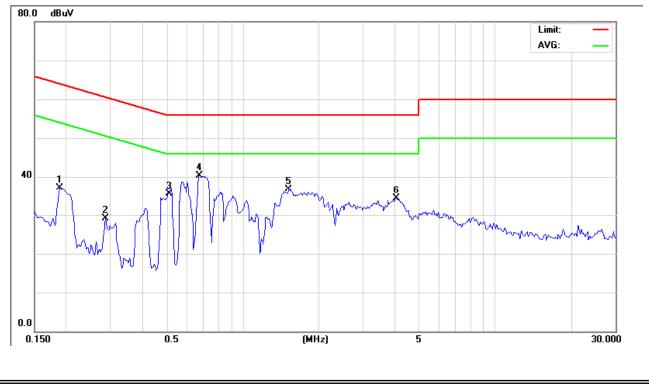
#### 4.1.7 TEST RESULTS

EUT :	Tron PS3 Wireless Controller-Dongle	Model Name. :	PL-6390A
Temperature :	<b>27</b> °C	Relative Humidity :	47 %
Pressure :	1001 hPa	Test Power :	AC 120V/60Hz
Test Mode :	Wireless	·	

Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	TNOLC
0.19	Line	37.20	*	64.08	54.08	-26.88	(QP)
0.29	Line	29.07	*	60.62	50.62	-31.55	(QP)
0.51	Line	35.56	*	56.00	46.00	-20.44	(QP)
0.67	Line	40.30	*	56.00	46.00	-15.70	(QP)
1.53	Line	36.66	*	56.00	46.00	-19.34	(QP)
4.08	Line	34.36	*	56.00	46.00	-21.64	(QP)

#### Remark

- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz;SPA setting in RBW=10KHz,VBW =10KHz, Swp. Time = 0.2 sec./MHz ° Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz,VBW=10KHz, Swp. Time =0.2 sec./MHz °
- (2) All readings are QP Mode value unless otherwise stated AVG in column of Note ... If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform In this case, a "\*" marked in AVG Mode column of Interference Voltage Measured •
- (3) Measuring frequency range from 150KHz to 30MHz  ${\scriptstyle \circ}$





	Tron PS3 Wireless Controller-Dongle	Model Name. :	PL-6390A
Temperature :	<b>27</b> ℃	Relative Humidity :	47 %
Pressure :	1001 hPa	Test Power :	AC 120V/60Hz
Test Mode :	Wireless		

Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	NOLE
0.19	Neutral	37.93	*	64.08	54.08	-26.15	(QP)
0.40	Neutral	30.50	*	57.86	47.86	-27.36	(QP)
0.67	Neutral	40.46	*	56.00	46.00	-15.54	(QP)
0.83	Neutral	36.64	*	56.00	46.00	-19.36	(QP)
1.69	Neutral	35.71	*	56.00	46.00	-20.29	(QP)
6.40	Neutral	31.94	*	60.00	50.00	-28.06	(QP)

Remark

- (1) Reading in which marked as QP means measurements by using are Quasi-Peak Mode with Detector BW=9KHz; SPA setting in RBW=10KHz, VBW =10KHz, Swp. Time = 0.2 sec./MHz ° Reading in which marked as AV means measurements by using are Average Mode with instrument setting in RBW=10KHz, VBW=10KHz, Swp. Time =0.2 sec./MHz °
- (2) All readings are QP Mode value unless otherwise stated AVG in column of Note ... If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform In this case, a "\*" marked in AVG Mode column of Interference Voltage Measured •
- 80.0 dBuV 60.0 dBuV
- (3) Measuring frequency range from 150KHz to 30MHz •



#### 4.2 RADIATED EMISSION MEASUREMENT

#### 4.2.1 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)

FREQUENCY (MHz)	(dBuV/m) (at 3M)		
	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).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5 <sup>th</sup> harmonic of the highest frequency or 40 GHz, whichever is lower

Neutron Engineering Inc.\_\_\_\_\_

#### 4.2.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Jun .04.2012
2	Amplifier	HP	8447D	2944A09673	May.26.2012
3	Test Receiver	R&S	ESCI	100382	May.26.2012
4	Test Cable	N/A	C-01_CB03	N/A	Jul.01.2012
5	Controller	СТ	SC100	N/A	N/A
6	Antenna	ETS	3115	00075789	May.26.2012
7	Amplifier	Agilent	8449B	3008A02274	May.26.2012
8	Spectrum	Agilent	E4408B	US39240143	Nov.26.2012
9	Test Cable	HUBER+SUHNER	C-45	N/A	May.04.2012
10	Controller	СТ	SC100	N/A	N/A
12	Active Loop Antenna	R&S	HFH2-Z2	830749/020	May.26.2012

Remark: " N/A" denotes No Model Name / Serial No. and No Calibration specified.

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

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



#### DUTY CYCLE : TX 2402MHz

Dwell time=ON/ON+OFF

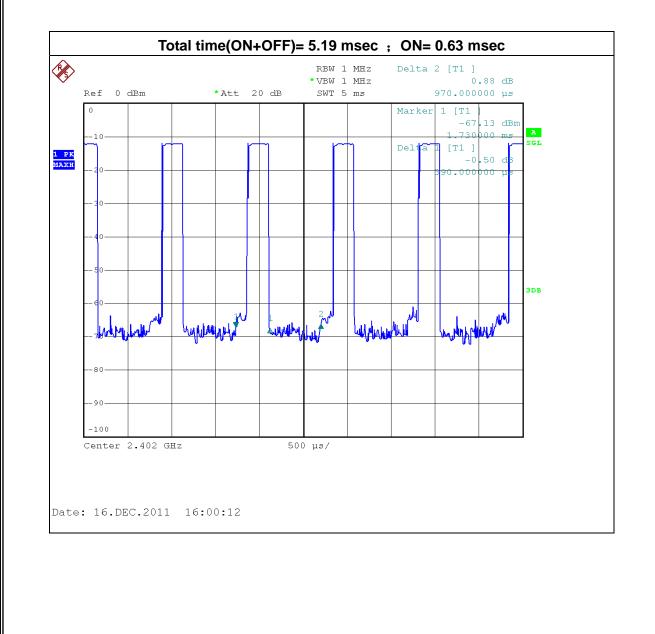
ON:0.39msec

ON+OFF:(total time):0.97msec

Dwell time:40.21%

AV=PK+20 log(Dwell time)

AV=PK-7.91





#### 4.2.3 TEST PROCEDURE

- a. 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.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. 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; 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.

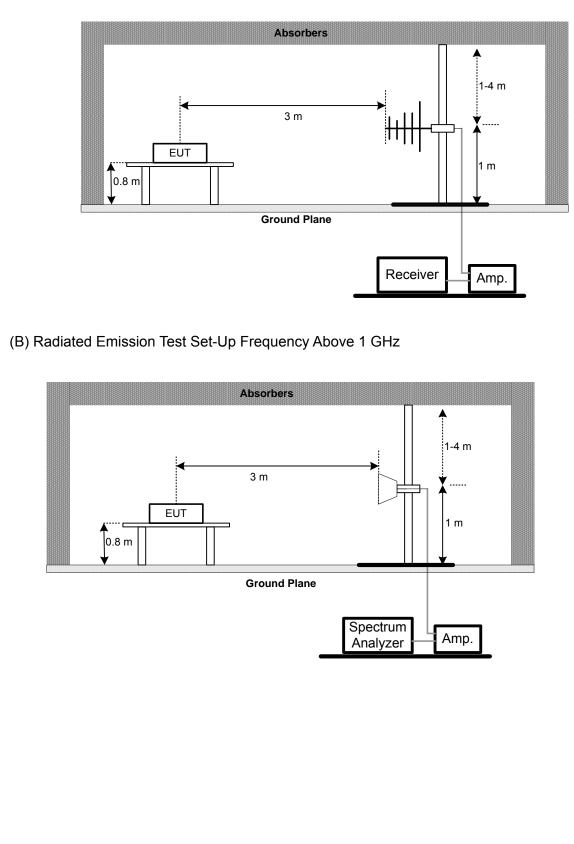
#### 4.2.4 DEVIATION FROM TEST STANDARD

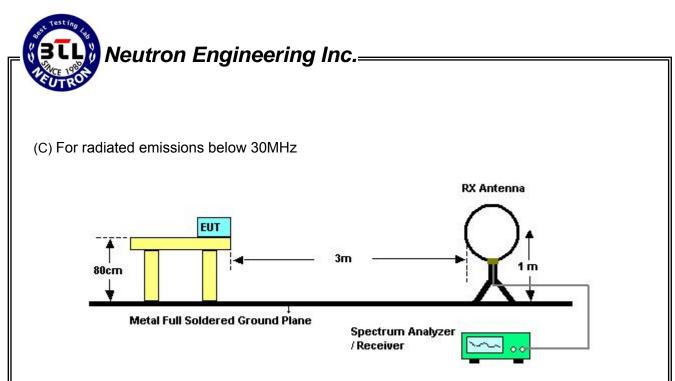
No deviation

# Neutron Engineering Inc.=

### 4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz





#### 4.2.6 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

# Neutron Engineering Inc.=

#### 4.2.7 TEST RESULTS (BELOW 30MHZ)

EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :		Relative Humidity :	
Pressure :		Test Voltage :	
Test Mode :	N/A	·	

#### NOTE:

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

#### Remark :

- (1) The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported  $_{\circ}$
- (2) Distance extrapolation factor = 40 log (specific distance / test distance) (dB); •
- (3) Limit line = specific limits (dBuV) + distance extrapolation factor.  $\circ$
- (4) In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High – Low scan is not required in this case.

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

Emission level  $(dBuV/m) = 20 \log Emission level (uV/m)$ .

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

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

#### 4.2.8 TEST RESULTS (BETWEEN30 - 1000 MHZ)

EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2402MHz –CH01	·	

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	H/V	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	note
56.68	V	45.03	-17.59	27.44	40.00	- 12.56	
197.33	V	45.90	-16.62	29.28	43.50	- 14.22	
306.45	V	44.75	-11.92	32.83	46.00	- 13.17	
461.65	V	40.78	-7.93	32.85	46.00	- 13.15	
587.75	V	37.45	-4.57	32.88	46.00	- 13.12	
864.20	V	34.12	-0.65	33.47	46.00	- 12.53	

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz ∘
- (3) Measuring frequency range from 30MHz to 1000MHz  ${\scriptstyle \circ}$
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table  ${}^{\circ}$

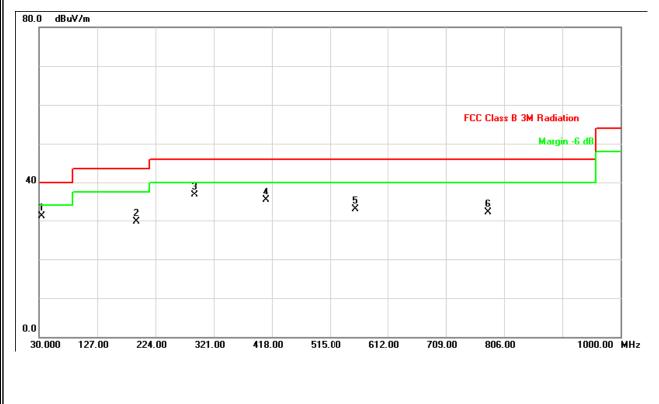




EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2402MHz –CH01		

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	H/V	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	NOLE
34.85	Н	48.07	-16.90	31.17	40.00	- 8.83	
192.48	Н	46.48	-16.69	29.79	43.50	- 13.71	
289.48	Н	48.88	-12.08	36.80	46.00	- 9.20	
408.30	Н	44.17	-8.87	35.30	46.00	- 10.70	
558.65	Н	38.19	-5.28	32.91	46.00	- 13.09	
779.33	Н	34.17	-2.16	32.01	46.00	- 13.99	

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz °
- (3) Measuring frequency range from 30MHz to 1000MHz  ${\scriptstyle \circ}$
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table  $\circ$



#### 4.2.9 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2402MHz – CH 01		

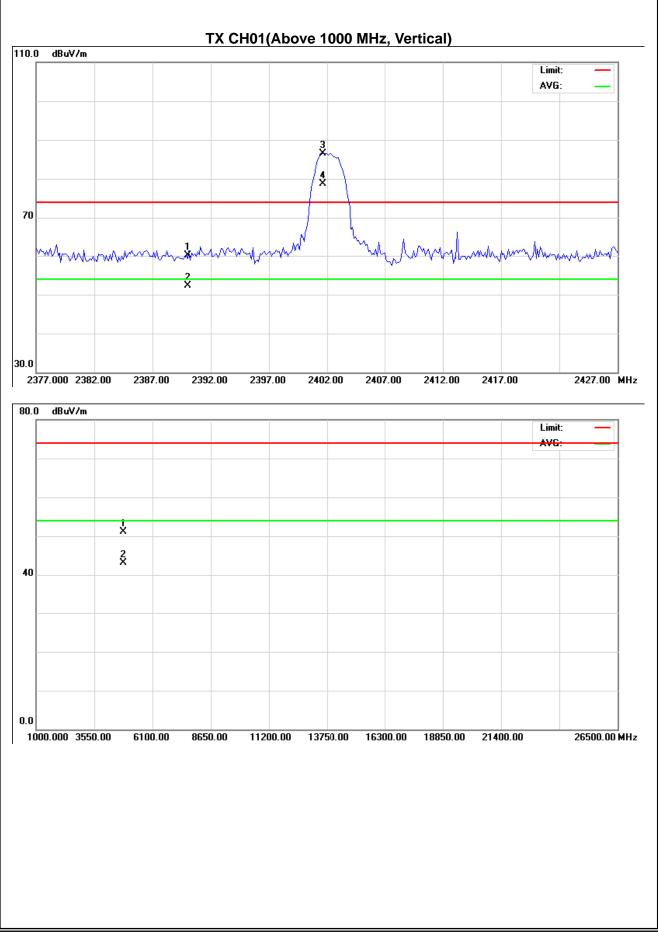
Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	ΗΛ	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	28.59	20.68	31.61	60.20	52.29	74.00	54.00	Y/E
2401.63	V	54.95	47.07	31.60	86.55	78.67			Y/F
4803.71	V	45.87	37.96	5.17	51.04	43.13	74.00	54.00	Y/H

#### Remark :

- (1) All readings are Peak unless otherwise stated QP in column of  $\[\]$  Note $\]$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $\[\circ$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency<sup>o</sup> "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
  - "X" denotes Laid on Table ; "Y" denotes Vertical Stand ; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) The average value of fundamental frequency is:

Average = Peak value + 20log(Duty cycle) , Final AV=PK-7.91





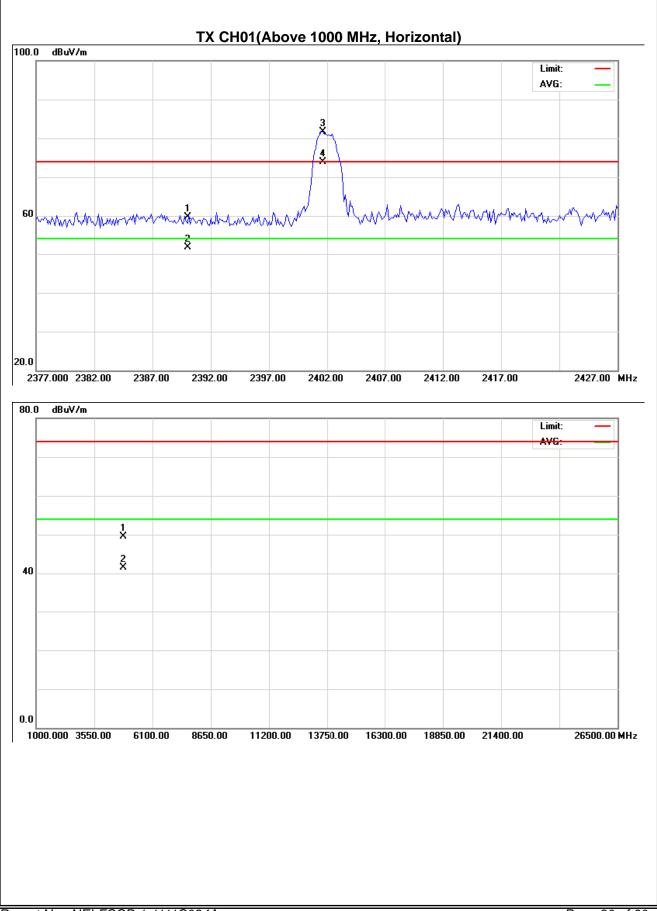


EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2402MHz – CH 01		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	ΗΛ	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	Н	28.01	20.10	31.61	59.62	51.71	74.00	54.00	Y/E
2401.63	Н	50.20	42.29	31.60	81.80	73.89			Y/F
4804.24	Н	44.25	36.34	5.18	49.43	41.52	74.00	54.00	Y/H

- (1) All readings are Peak unless otherwise stated QP in column of  $\,{}^{\mathbb{F}}$  Note  $_{\mathbb{J}}$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $_{\circ}$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency.
  "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission •
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
  - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) , Final AV=PK-7.91





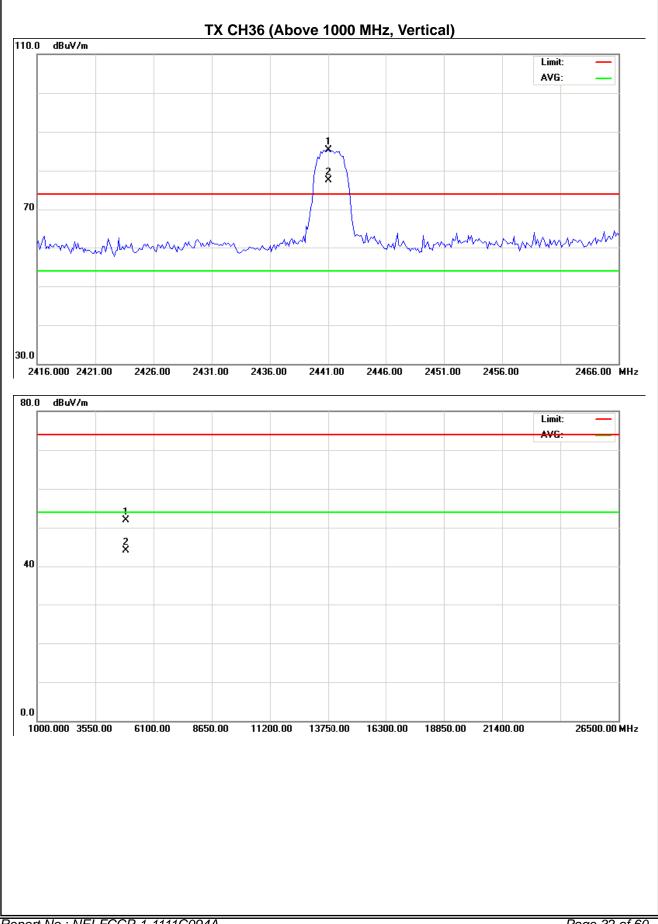


EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2441MHz –CH36		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	HN	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2441.00	V	53.79	45.88	31.55	85.34	77.43			Y/F
4881.38	V	46.38	38.48	5.55	51.93	44.03	74.00	54.00	Y/H

- (1) All readings are Peak unless otherwise stated QP in column of  $\[\]$  Note  $\]$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency<sup>o</sup> "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
  - "X" denotes Laid on Table ; "Y" denotes Vertical Stand ; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) , Final AV=PK-7.91





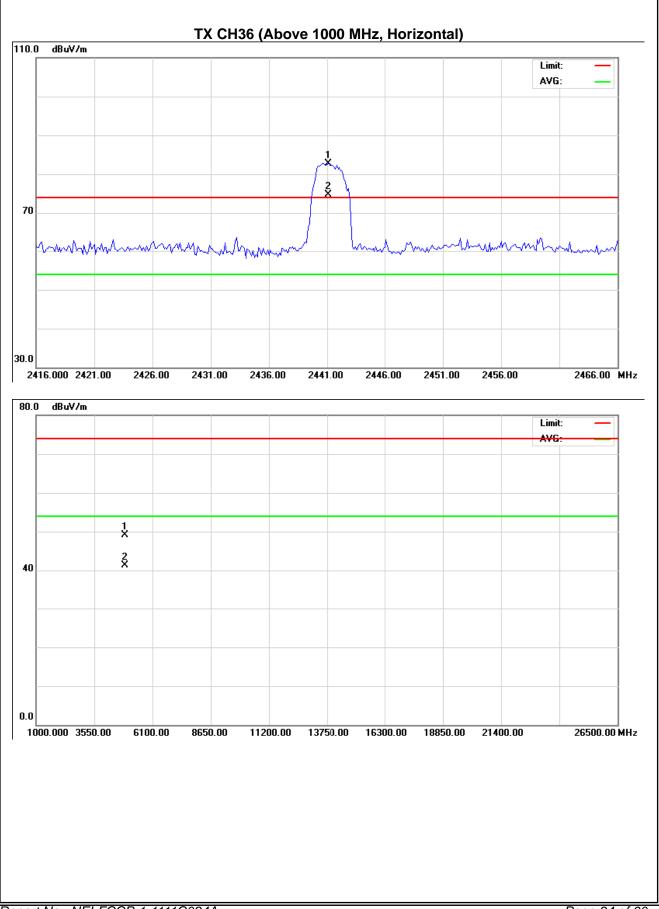


EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2441MHz –CH36		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	HN	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2441.13	Н	51.07	43.16	31.55	82.62	74.71			Y/F
4881.38	Н	43.57	35.66	5.55	49.12	41.21	74.00	54.00	Y/H

- (1) All readings are Peak unless otherwise stated QP in column of  $\[\]$  Note  $\]$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency<sup>o</sup> "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:
  - "X" denotes Laid on Table ; "Y" denotes Vertical Stand ; "Z" denotes Side Stand
- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) , Final AV=PK-7.91







	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A	
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %	
Pressure :	1010hPa	Test Voltage :	AC 120V/60Hz	
Test Mode :	TX 2480MHz –CH64			

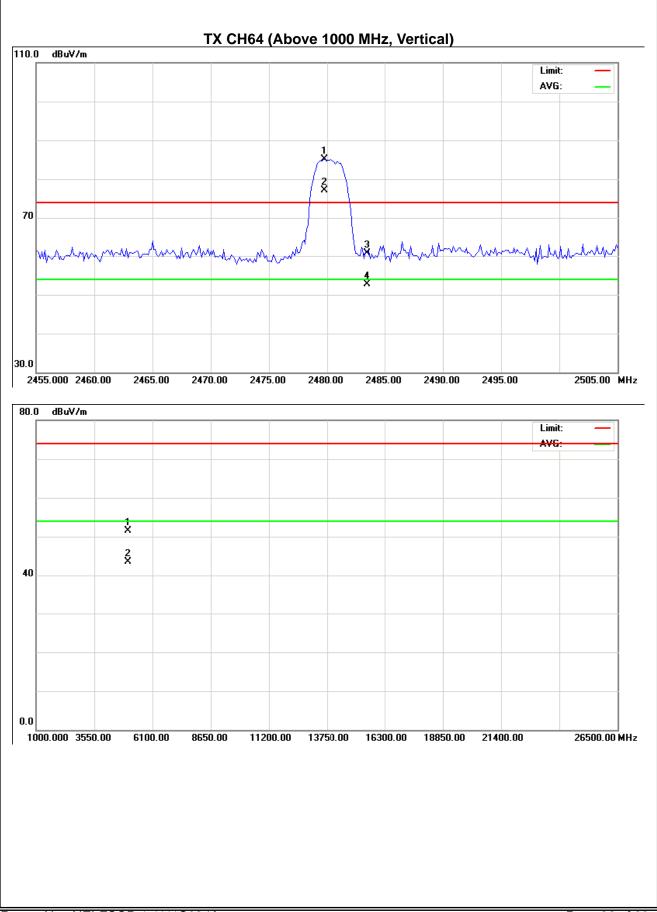
Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	HN	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2479.75	V	53.60	45.69	31.50	85.10	77.19			Y/F
2483.50	V	29.12	21.21	31.50	60.62	52.71	74.00	54.00	Y/E
4960.87	V	45.47	37.56	5.94	51.41	43.50	74.00	54.00	Y/H

- (1) All readings are Peak unless otherwise stated QP in column of  $\[\]$  Note  $\]$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency.
  "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand

- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) , Final AV=PK-7.91







	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	58 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	TX 2480MHz –CH64		

Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lir	nit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	HN	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2479.75	Н	51.05	43.14	31.50	82.55	74.64			Y/F
2483.50	Н	28.64	20.73	31.50	60.14	52.23	74.00	54.00	Y/E
4959.25	Н	44.26	36.25	5.93	50.19	42.18	74.00	54.00	Y/H

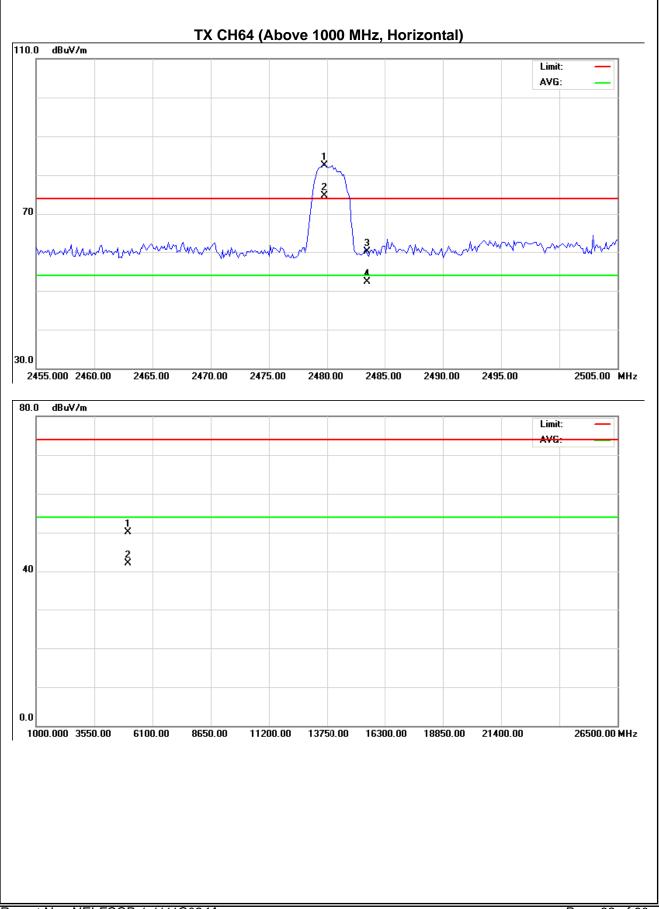
Remark :

- (1) All readings are Peak unless otherwise stated QP in column of  $\[\]$  Note  $\]$ . Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform  $\[\circ\]$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency. "F" denotes fundamental frequency; "H" denotes spurious frequency.
  "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)
- (3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission
- (4) Data of measurement within this frequency range shown " \* " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- (5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.
- (6) EUT Orthogonal Axis:

"X" - denotes Laid on Table ; "Y" - denotes Vertical Stand ; "Z" - denotes Side Stand

- (7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna
- (8) The average value of fundamental frequency is: Average = Peak value + 20log(Duty cycle) , Final AV=PK-7.91





#### 5. NUMBER OF HOPPING CHANNEL

#### 5.1 APPLIED PROCEDURES / LIMIT

	FCC Part15 (15.247) , Subpart C				
Section	Test Item	Frequency Range (MHz)	Result		
15.247 (a)(1)(iii)	Number of Hopping Channel	2400-2483.5	PASS		

#### 5.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2012

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

Spectrum Parameters	Setting	
Attenuation	Auto	
Span Frequency	> Operating Frequency Range	
RB	100 kHz	
VB	100 kHz	
Detector	Peak	
Trace	Max Hold	
Sweep Time	Auto	

#### 5.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

#### 5.1.3 DEVIATION FROM STANDARD

No deviation.

#### 5.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

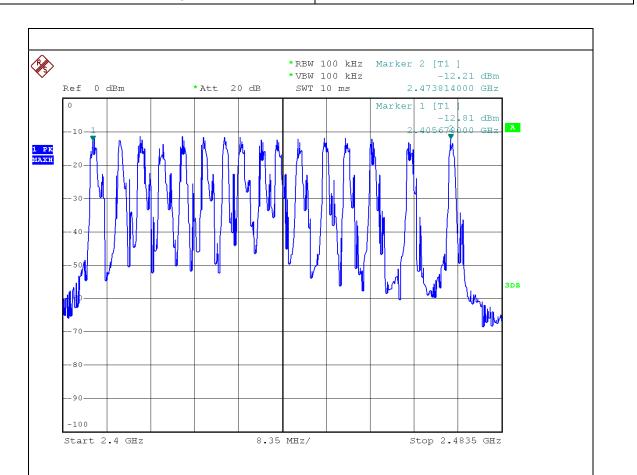
#### 5.1.5 EUT OPERATION CONDITIONS

#### 5.1.6 TEST RESULTS

EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1010 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Hopping Mode -Group 3		

16

#### Number of Hopping Channel



Date: 16.DEC.2011 16:19:10

#### 6. AVERAGE TIME OF OCCUPANCY

#### 6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(1)(iii)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS

#### 6.1.1 MEASUREMENT INSTRUMENTS LIST

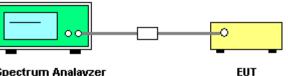
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2012

Remark: " N/A" denotes No Model Name, Serial No. or No Calibration specified.

#### 6.1.2. TEST PROCEDURES

- a. The transmitter output (antenna port) was connected to the spectrum analyzer
- b. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
- C. Use a video trigger with the trigger level set to enable triggering only on full pulses.
- d. Sweep Time is more than once pulse time.
- e. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
- f Measure the maximum time duration of one single pulse.
- g. Set the EUT for packet transmitting.
- $\tilde{h}$  Measure the maximum time duration of one single pulse.
- i. Dwell time = [spreading rate/16] x duty-cycle x 0.4 seconds

#### 6.1.3. TEST SETUP LAYOUT



Spectrum Analavzer

#### **6.1.4. TEST DEVIATION**

There is no deviation with the original standard.

#### 6.1.5. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting/Hopping mode.



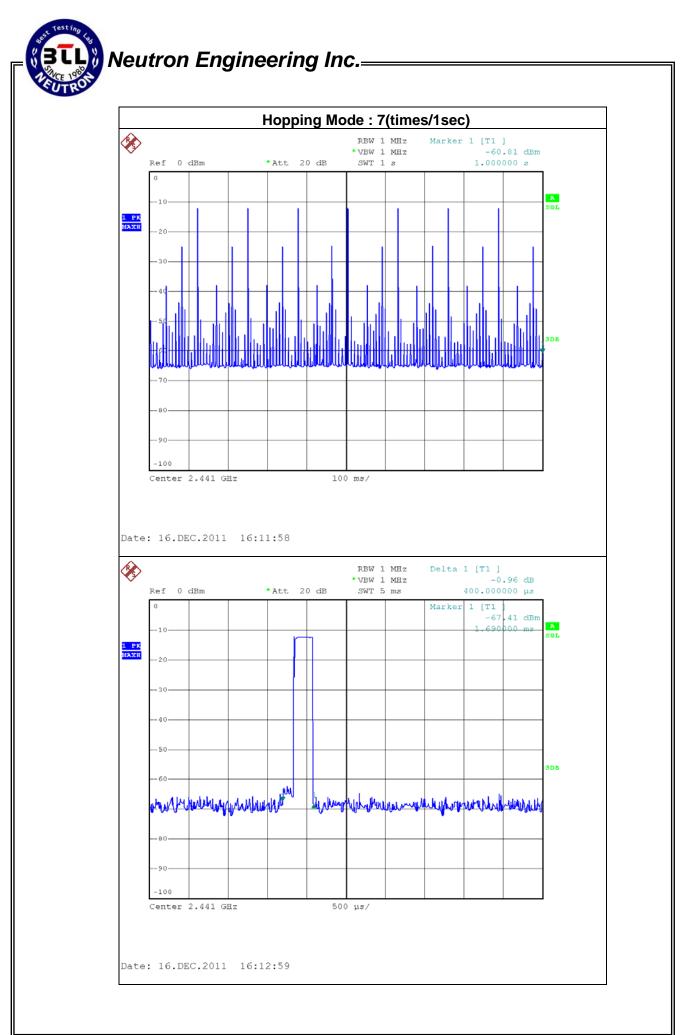
#### 6.1.6. TEST RESULTS

EUT :	Wireless Controller for PS3	Model Name :	PL-6310
Temperature :	<b>23</b> ℃	Relative Humidity :	58 %
Pressure :	1015 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Hopping Mode		

Mode	Number of transmission in a 6.4(16Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
2402 MHz	(7/1) *6.4=44.8 times <b>Note1</b>	0.4	17.92	400

Note1: 15 times of occupied channels per 1 second

	Results
Measured cycle (sec)	16 CH*0.4=6.4
The total number of frequency-hopping per second	((7/1)*6.4)=44.8
The number of occupied channels per second	44.8/6.4=7(number/sec)
occupied time for each channel(1)	0.4ms
The total number of channels occupied within one cycle (2)	(7/1) *6.4=44.8 times
The average time of occupancy within one cycle(1)*(2)	17.92msec
LIMIT (msec)	400msec





#### 7. HOPPING CHANNEL SEPARATION MEASUREMENT

#### 7.1 APPLIED PROCEDURES / LIMIT

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

#### 7.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2012

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 30 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

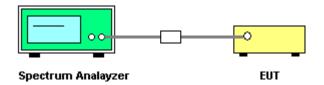
#### 7.1.2 TEST PROCEDURE

- a. The transmitter output (antenna port) was connected to the spectrum analyser in peak hold mode.
- b. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for 20 dB bandwidth measurement.
- c. The resolution bandwidth of 30 kHz and the video bandwidth of 100 kHz were utilised for channel separation measurement.

#### 7.1.3 DEVIATION FROM STANDARD

No deviation.

#### 7.1.4 TEST SETUP



#### 7.1.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in Hopping on mode.

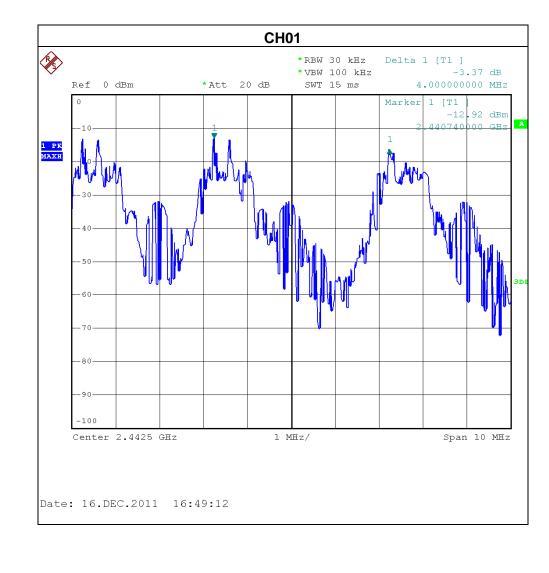


#### 7.1.6 TEST RESULTS

IEUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Hopping on -CH01 / CH36 /CH64		

Frequency	Ch. Separation (MHz)	20dB Bandwidth (MHz)	Result	
2441 MHz	4.000	2.130	Complies	

#### Ch. Separation Limits: >20dB bandwidth or >2/3 of 20dB bandwidth



#### 8. BANDWIDTH TEST

#### 8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247), Subpart C					
Section	Test Item	Limit	Frequency Range (MHz)	Result	
15.247 (a)(1)	Bandwidth	None	2400-2483.5	PASS	

#### 8.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2012

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 30 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

#### 8.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 30KHz, VBW=100KHz, Sweep time = Auto.

#### 8.1.3 DEVIATION FROM STANDARD

No deviation.

#### 8.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

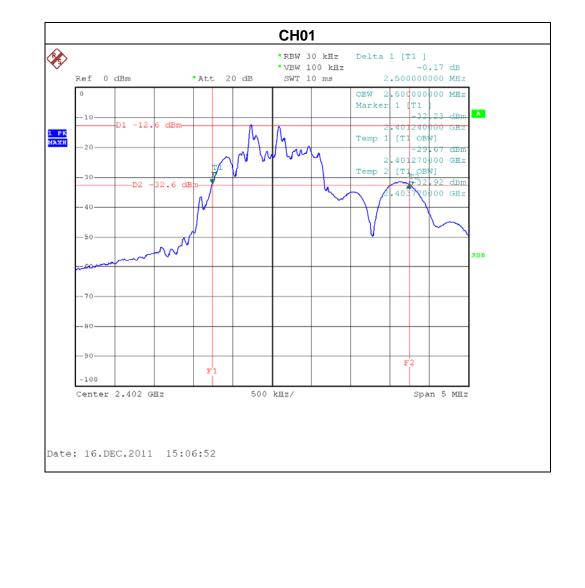
#### 8.1.5 EUT OPERATION CONDITIONS

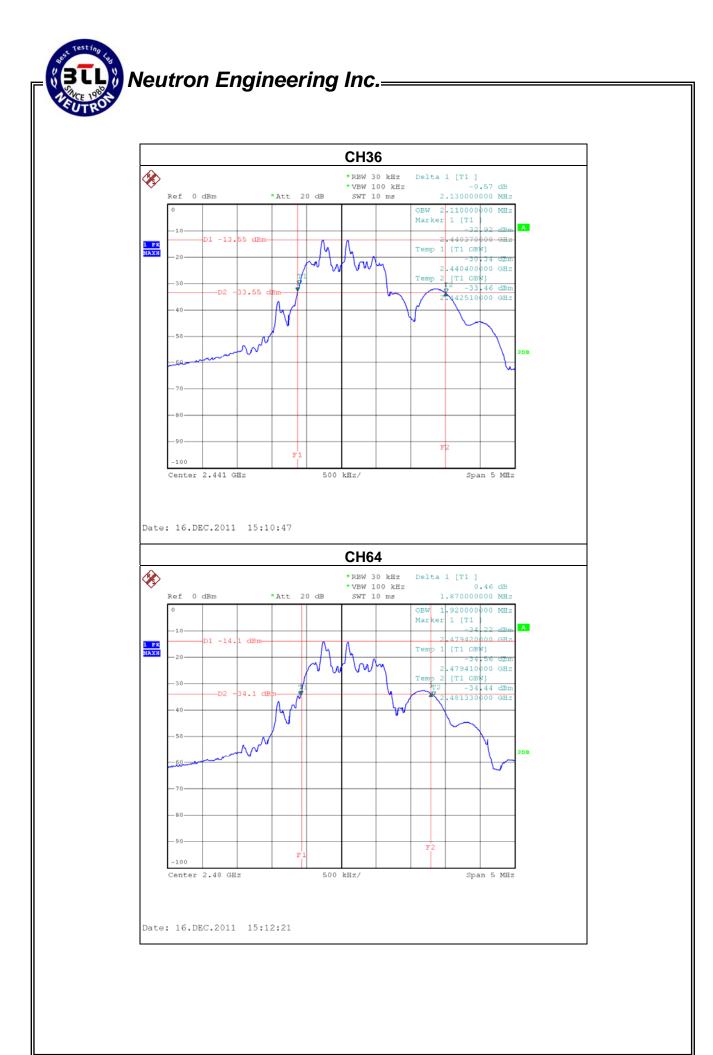


#### 8.1.6 TEST RESULTS

EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH01 / CH36 /CH64		

Frequency	20dB Bandwidth (MHz)	Channel Separation (MHz)	Result
2402 MHz	2.50	<= 4MHz	PASS
2441 MHz	2.13	<= 4MHz	PASS
2480 MHz	1.87	<= 4MHz	PASS





#### 9. PEAK OUTPUT POWER TEST

#### 9.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C					
Section	Test Item	Limit	Frequency Range (MHz)	Result	
15.247 (b)(1)	Peak Output Power	0.125watt or 21dBm	2400-2483.5	PASS	

#### 9.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2012

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

#### 9.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 3MHz, VBW= 3MHz, Sweep time = Auto.

#### 9.1.3 DEVIATION FROM STANDARD

No deviation.

#### 9.1.4 TEST SETUP

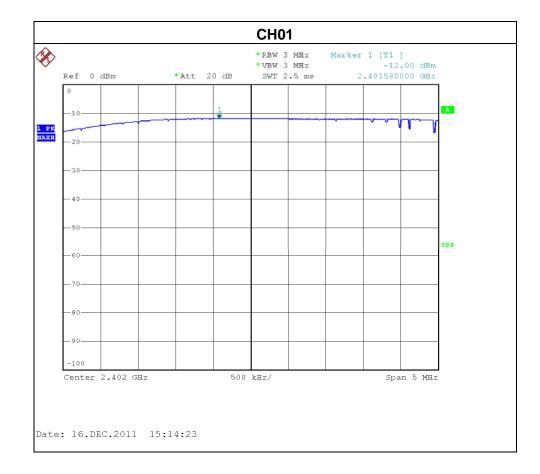


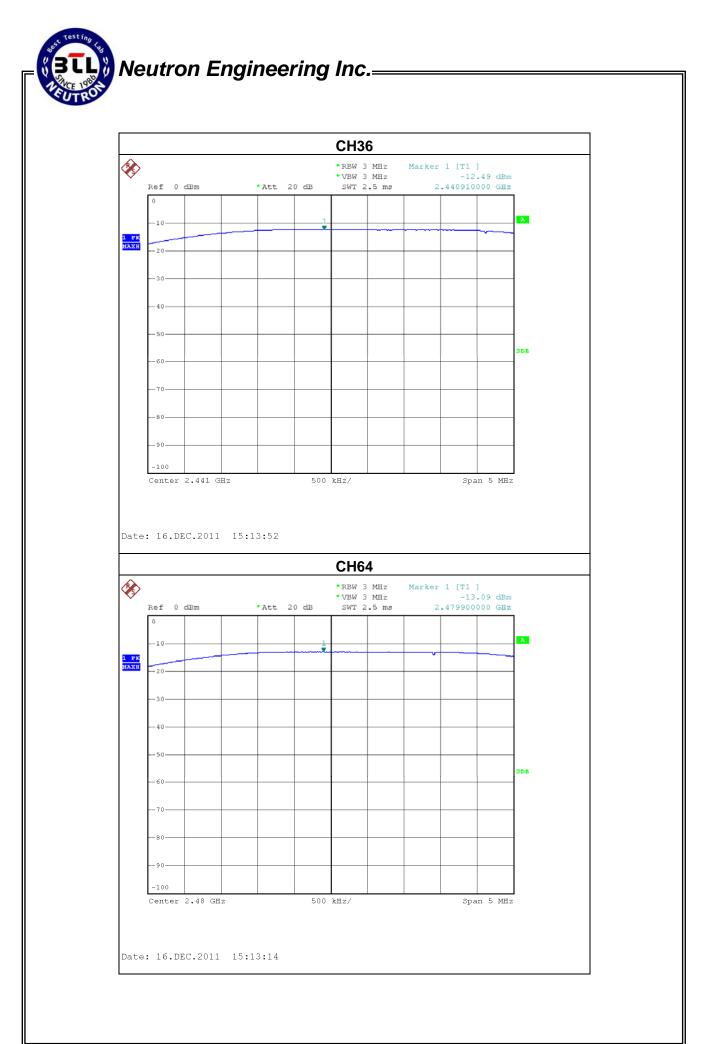
#### 9.1.5 EUT OPERATION CONDITIONS

#### 9.1.6 TEST RESULTS

	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH01/ CH36 /CH64		

Test Channel	Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
CH01	2402	-12.00	21	0.125
CH36	2441	-12.49	21	0.125
CH64	2480	-13.09	21	0.125





#### **10. ANTENNA CONDUCTED SPURIOUS EMISSION**

#### **10.1 APPLIED PROCEDURES / LIMIT**

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 (MHz)	Field Strength (micorvolts/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

#### 10.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.26.2012

Remark: " N/A" denotes No Model Name , Serial No. or No Calibration specified.

#### 10.1.2 TEST PROCEDURE

- a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
- b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

#### **10.1.3 DEVIATION FROM STANDARD**

No deviation.

#### 10.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

#### **10.1.5 EUT OPERATION CONDITIONS**

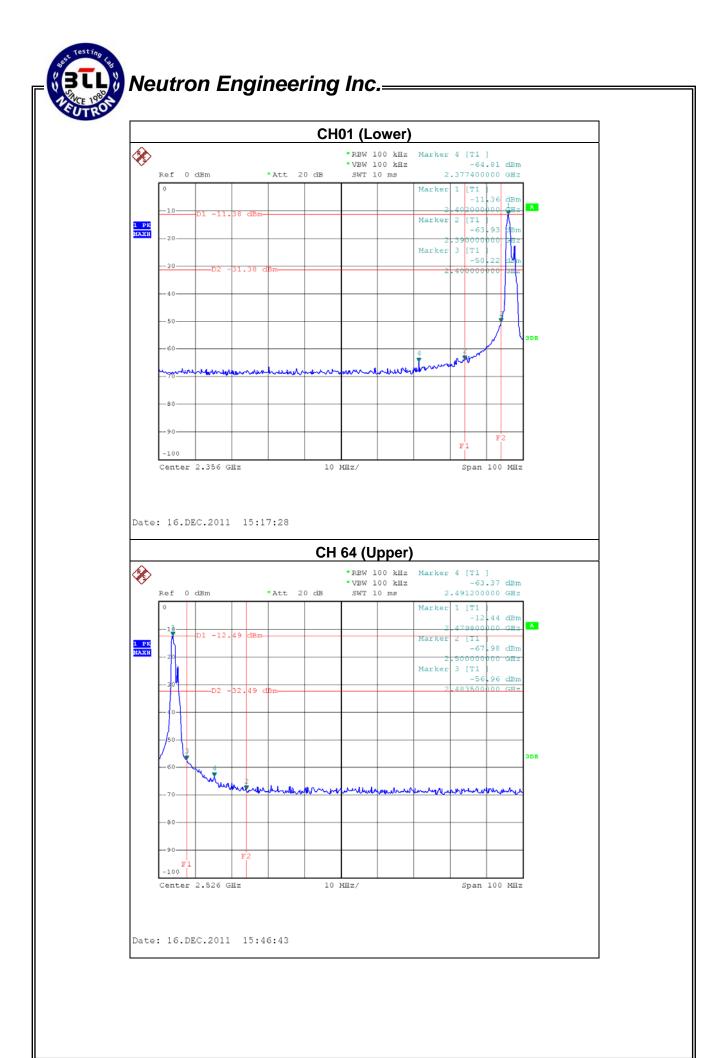


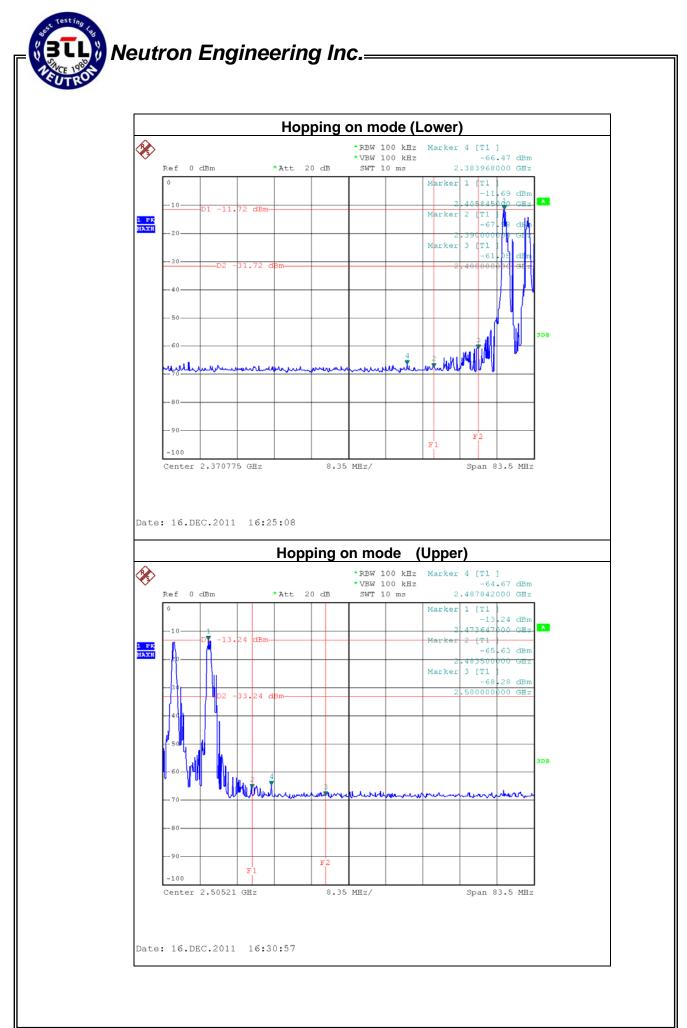
#### 10.1.6 TEST RESULTS

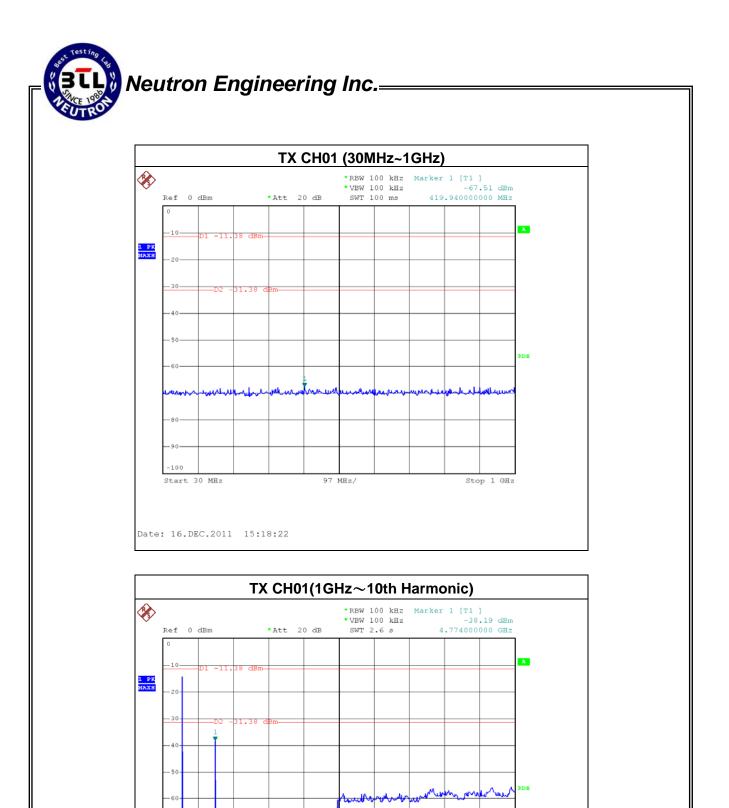
EUT :	Tron PS3 Wireless Controller-Dongle	Model Name :	PL-6390A
Temperature :	<b>25</b> ℃	Relative Humidity :	60 %
Pressure :	1012 hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	CH01 / CH36 / CH64 & Hopping on mode		

	cy power in any 100kHz ne frequency band	The max. radio frequend bandwidth outside t	cy power in any 100 kHz he frequency band.
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2400.00	-50.22	2483.5	-56.96
Result			

In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.







Mande

1. Must

2.55 GHz/

Stop 26.5 GHz

-100 Start 1 GHz

Date: 16.DEC.2011 15:19:54

