

FCC Radio TEST Report

FCC ID: TW8DG1343

This report concerns (check one) : Original Grant Class II Change

Issued Date : Jan. 06, 2009
Project No. : 0812C191

Equipment : PS3 SHADOW WIRELESS CONTROLLER WITH

RUMBLE

Model Name : DGPS3-1343;DGPS3-1353

Applicant : dreamGEAR, LLC

Address : 20001 S.WESTERN AVE TORRANCE, CA 90501

U.S.A.

Manufacturer: E-CORE TECHNOLOGY (CHINA) CO.,LTD.

Address : 3rd Building, Weidonglong Industry, Heping East

Road, LongHua, Shenzhen, China

Tested by:

Neutron Engineering Inc. EMC Laboratory

Date of Test:

Dec. 26, 2008 ~ Jan. 02, 2009

Testing Engineer :

(Jen Yan

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Authorized Signatory :

(Stayen Lu

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NV[A]







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.**

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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.

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1. CERTIFICATION

Equipment: PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE

Trade Name: dreamGEAR

Model Name: DGPS3-1343;DGPS3-1353

Applicant: dreamGEAR, LLC

F a c t o r y: E-CORE TECHNOLOGY (CHINA) CO.,LTD.

A d d r e s s: 3rd Building, Weidonglong Industry, Heping East Road, LongHua, Shenzhen,

China

Date of Test: Dec. 26, 2008 ~ Jan. 02, 2009 Test Item: ENGINEERING SAMPLE

Standards: FCC Part15, Subpart C(15.249)/ 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-1-0812C191) 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).

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2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15, Subpart C (15.249)				
Standard Section	Test Item	Judgment	Remark	
15.207	Conducted Emission	PASS		
15.249	Radiated Spurious Emission	PASS		

N	\cap	Γ⊏.
N	()	

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

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2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **C01/OS02** at the location of No.132-1, Lane 329, Sec. 2, Palain Road, Shijr City, Taipei, Taiwan. Neutron's test firm number is 95335

2.2 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 $\mathbf{95} \% \circ$

A. Conducted Measurement:

Test Site	Method	Measurement Frequency Range	U, (dB)	NOTE
C01	ANSI	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement:

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)	NOTE
OS-01	ANSI	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	Н	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	Н	3.94	
OS-02	ANSI	30MHz ~ 200MHz	V	2.48	
		30MHz ~ 200MHz	Η	2.16	
		200MHz ~ 1,000MHz	V	2.50	
		200MHz ~ 1,000MHz	Н	2.66	

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3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

_ ,	PS3 SHADOW WIRELI	ESS CONTROLLER WITH		
Equipment	RUMBLE			
Trade Name	dreamGEAR			
Model Name.	DGPS3-1343;DGPS3-1353			
OEM Brand/Model Name	N/A			
Model Difference	Model DGPS3-1353 is except the model desig	identical to model DGPS3-1343 nation.		
	The EUT is a PS3 SHA WITH RUMBLE.	DOW WIRELESS CONTROLLER		
	Product Type	Low Power Communication		
		Device		
	Operation Frequency:	2410~2470 MHz		
	Modulation Type:	MSK		
Product Description	Number Of Channel	75CH		
Froduct Description	Antenna Designation:	Printed antenna		
	Antenna Gain(Peak)	2.12 dBi		
	Output Power:	73.99 dBuV/m (AV Max.)		
	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 from Li-ion battery & Host System			
Power Rating	DC 3.7V			
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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2.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2410.0000	27	2431.0834	53	2452.1668
02	2410.8109	28	2431.8943	54	2452.9777
03	2411.6218	39	2432.7052	55	2453.7886
04	2412.4327	30	2433.5161	56	2454.5995
05	2413.2436	31	2434.3270	57	2455.4104
06	2414.0545	32	2435.1379	58	2456.2213
07	2414.8654	33	2435.9488	59	2457.0322
08	2415.6763	34	2436.7597	60	2457.8431
09	2416.4872	35	2437.5706	61	2458.6540
10	2417.2981	36	2438.3815	62	2459.4649
11	2418.1090	37	2439.1924	63	2460.2758
12	2418.9199	38	2440.0033	64	2461.0867
13	2419.7308	39	2440.8142	65	2461.8976
14	2420.5417	40	2441.6251	66	2462.7085
15	2421.3526	41	2442.4360	67	2463.5194
16	2422.1635	42	2443.2469	68	2464.3303
17	2422.9744	43	2444.0578	69	2465.1412
18	2423.7853	44	2444.8687	70	2465.9521
19	2424.5962	45	2445.6796	71	2466.7630
20	2425.4071	46	2446.4905	72	2467.5739
21	2426.2180	47	2447.3014	73	2468.3848
22	2427.0289	48	2448.1123	74	2469.1957
23	2427.8398	49	2448.9232	75	2470.0066
24	2428.6507	50	2449.7341		
25	2429.4616	51	2450.5450		
26	2430.2725	52	2451.3559		

3. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Printed Antenna	NA	2.12

ANT1 for Controller sample

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3.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based 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	CH Lower - 2410MHz
Mode 2	CH Middle - 2440MHz
Mode 3	CH Highest -2470MHz

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

For Conducted Test		
Final Test Mode	Description	
Mode 4	Charge Mode	

For Radiated Test		
Final Test Mode	Description	
Mode 1	CH Lower - 2410MHz	
Mode 2	CH Middle - 2440MHz	
Mode 3	CH Highest -2470MHz	

Note:

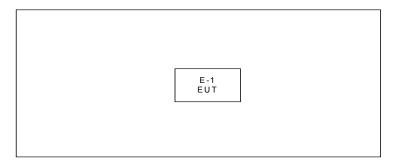
(1) The Controller used the new battery

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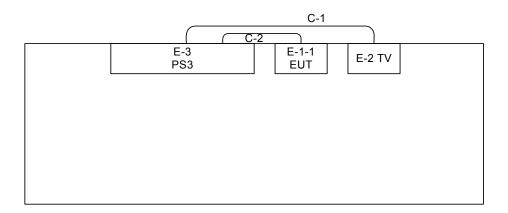


3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Mode



Conducted Mode



C-1: Audio+Video Cable C-2: USB Cable

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3.4 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	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	dreamGEAR	DGPS3-1343	TW8DG1343	N/A	EUT
E-2	TV	Hisense	T41418H	DOC	N/A	
E-3	PLAYSTATION	SONY	CECHH12	DOC	02-27432691-8924521- CECHH12	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.80M	
C-2	NO	NO	1.75M	

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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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)		Class B	Standard	
TREQUENCT (MITZ)	Quasi-peak	Average	Quasi-peak	Average	Stariuaru
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

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00042991	Jan. 24, 2009
2	LISN	EMCO	3816/2	00042990	Jan. 24, 2009
3	Pulse Limiter	Electro-Metrics	EM-7600	112644	Nov. 26, 2009
4	50Ω Terminator	N/A	N/A	N/A	May.12, 2009
5	Test Cable	N/A	C01	N/A	Nov. 26, 2009
6	EMI Test Receiver	R&S	ESCI	100082	Mar. 07, 2009

Remark: "N/A" denotes No Model Name., 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

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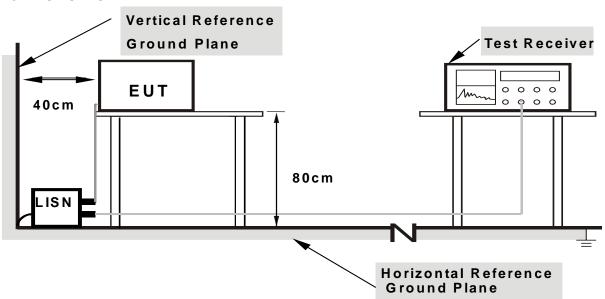
4.1.3 TEST PROCEDURE

- a. The EUT was placed 0.4 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



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

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.

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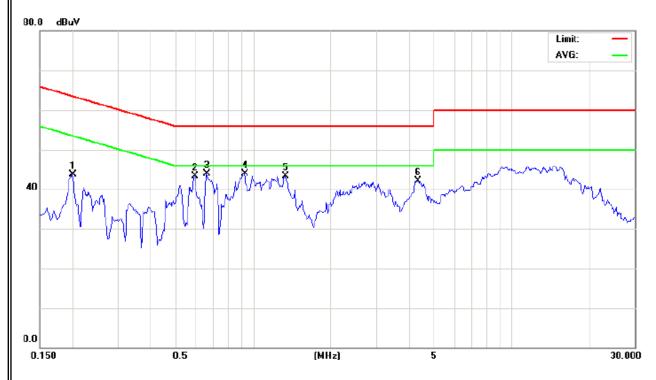
4.1.7 TEST RESULTS

EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	45%
Pressure:	1014 hPa	Test Power :	AC 120V 60Hz
Test Mode :	Charge Mode		

Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	NOLE
0.20	Line	43.69	*	63.61	53.61	-19.92	(QP)
0.60	Line	43.37	*	56.00	46.00	-12.63	(QP)
0.66	Line	43.91	*	56.00	46.00	-12.09	(QP)
0.93	Line	43.98	*	56.00	46.00	-12.02	(QP)
1.33	Line	43.39	*	56.00	46.00	-12.61	(QP)
4.14	Line	42.15	*	56.00	46.00	-13.85	(QP)

Remark

- (1) 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 •
- (2) Measuring frequency range from 150KHz to 30MHz.



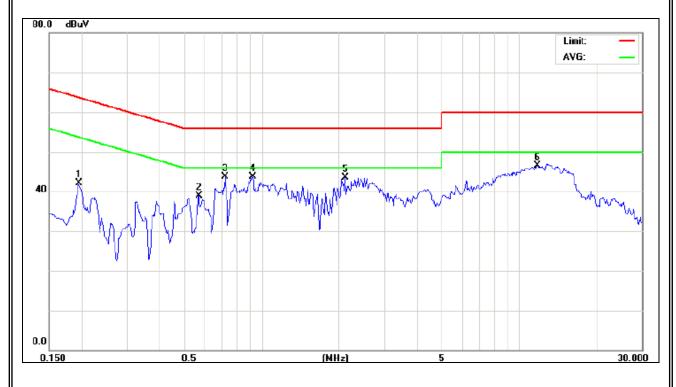
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⊢ [] [·	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature :	20 ℃	Relative Humidity:	53%
Pressure:	1014hPa	Test Power :	AC 120V/60Hz
Test Mode :	Charge Mode		

Freq.	Terminal	Measured(dBuV)		Limits(dBuV)		Margin	Note
(MHz)	L/N	QP-Mode	AV-Mode	QP-Mode	AV-Mode	(dB)	NOLE
0.20	Neutral	42.11	*	63.82	53.82	-21.71	(QP)
0.57	Neutral	38.95	*	56.00	46.00	-17.05	(QP)
0.72	Neutral	43.65	*	56.00	46.00	-12.35	(QP)
0.92	Neutral	43.78	*	56.00	46.00	-12.22	(QP)
2.11	Neutral	43.44	*	56.00	46.00	-12.56	(QP)
11.70	Neutral	46.48	*	60.00	50.00	-13.52	(QP)

- (1) 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 on this case, a " * " marked in AVG Mode column of Interference Voltage Measured on the Note of
- (2) Measuring frequency range from 150KHz to 30MHz \circ



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4.2 RADIATED EMISSION MEASUREMENT

4.2.1 RADIATED EMISSION LIMITS (FCC 15.209)

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

Harmonic emissions limits comply with below 54 dBuV/m at 3m. Other emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or comply with the radiated emissions limits specified in section 15.209(a) limit in the table below has to be followed.

Note:

- (1) The tighter limit applies at the band edges.
- (2) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.209)

FREQUENCY (MHz)	Class A (dBu	V/m) (at 3m)	Class B (dBuV/m) (at 3m)	
PREQUENCT (WITZ)	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	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).

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC Part 15.249)

FCC Part15 (15.249) , Subpart C					
Limit	Frequency Range (MHz)				
Field strength of fundamental 50000 μV/m (94 dBμV/m) @ 3 m	2400-2483.5				
Field strength of harmonics 500 μV/m (54 dBμV/m) @ 3 m	Above 2483.5				

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4.2.2 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Log-Bicon Antenna	Schwarzbeck	VULB 9160	3058	Nov. 26, 2009
2	Test Cable	N/A	10M_OS02	N/A	Nov. 26, 2009
3	Test Cable	N/A	OS02-1/-2/-3	N/A	Nov. 26, 2009
4	Pre-Amplifier	Anritsu	MH648A	M09961	Nov. 26, 2009
5	EMI Test Receiver	R&S	ESCI	100082	Jan. 30, 2009
6	Antenna Mast	Chance Most	CMTB-1.5	N/A	N/A
7	Turn Table	Chance Most	CMTB-1.5	N/A	N/A
8	Spectrum Analyzer	R&S	FSP_40	100129	Jan. 07, 2009
9	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-325	Oct. 23, 2009
10	Horn Antenna	Schwarzbeck	BBHA9170	9170187	Oct. 23, 2009
11	Microwave Pre_amplifier	Agilent	8449B	3008A01714	Mar. 09, 2009
12	Microflex Cable	United Microwave	57793	1m	Mar. 09, 2009
13	Microflex Cable	United Microwave	A30A30-5006	10M	Jul. 06, 2009

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)	1MHz / 3MHz 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

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Dwell time=ON/ON+OFF

ON: 0.41msec

ON+OFF:(total time):1.97msec

Dwell time:20.81%

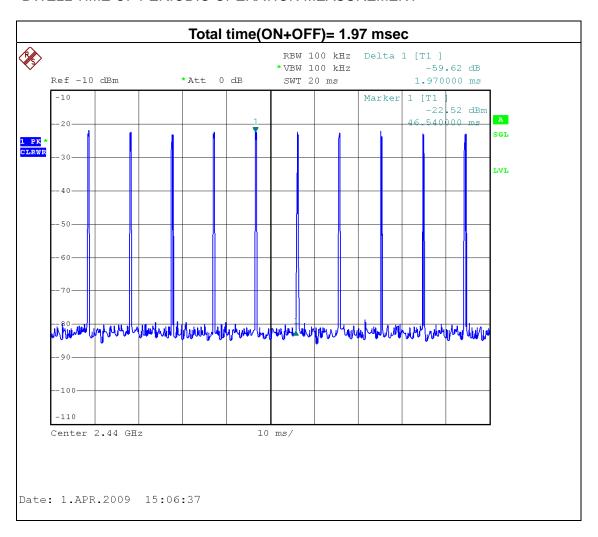
AV=PK+20 log(Dwell time)

AV=PK-13.63

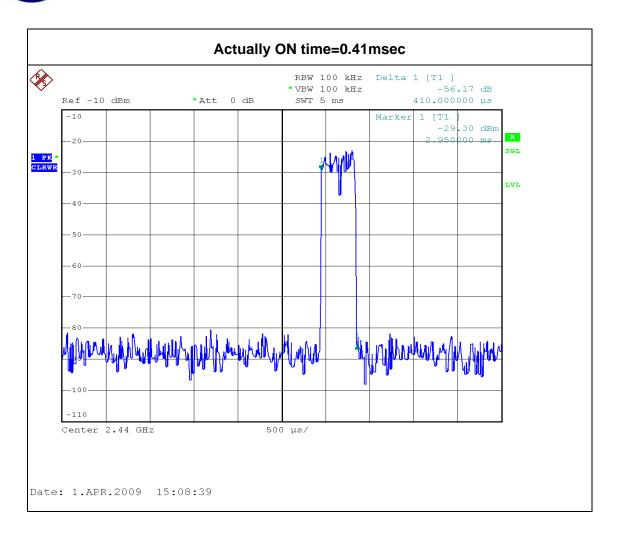
Note:

If measures duty cycle with normal sample, the transmit time of the sample is too short (40ms) to catch signal, so we test with the continuous transmit sample, then you can see the test data of 100ms on test rep

DWELL TIME OF PERIODIC OPERATION MEASUREMENT



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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 3m meter open area test site. 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

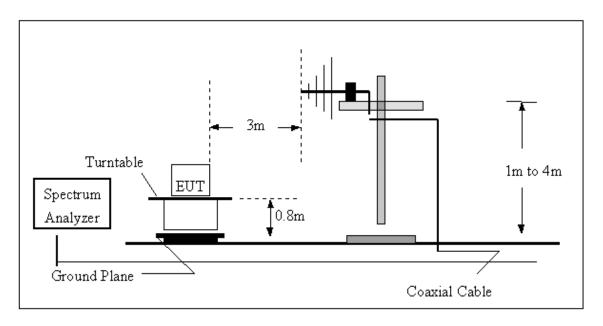
No deviation

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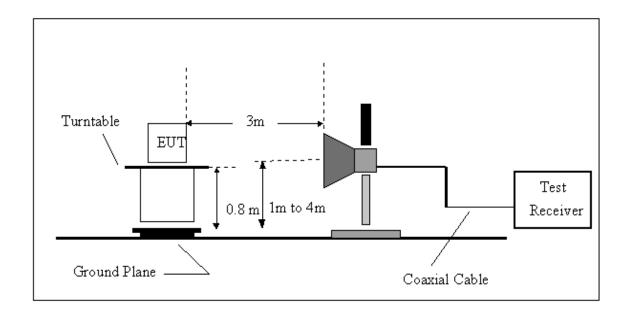


4.2.5 TEST SETUP

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(B) Radiated Emission Test Set-Up Frequency Above 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.

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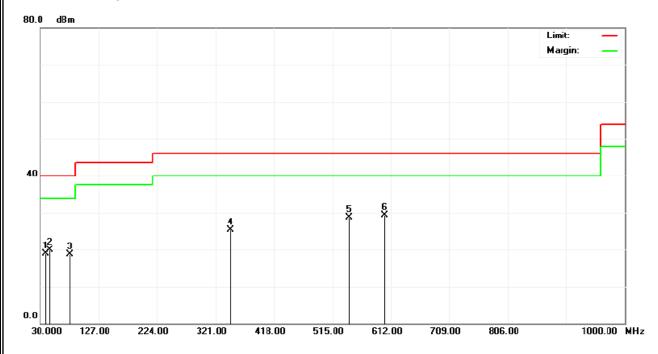
4.2.7 TEST RESULTS (BETWEEN 30 – 1000 MHz)

EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	48 %
Pressure:	1014hPa	Test Power :	DC 3.7V
Test Mode :	TX CH 2410MHz		

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	H/V	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	NOLE
39.30	V	34.76	-15.92	18.84	40.00	- 21.16	
45.40	V	38.23	-18.28	19.95	40.00	- 20.05	
79.20	V	40.13	-21.38	18.75	40.00	- 21.25	
345.30	V	37.38	-12.07	25.31	46.00	- 20.69	
541.40	V	36.24	-7.45	28.79	46.00	- 17.21	
602.10	V	35.26	-5.96	29.30	46.00	- 16.70	

Remark:

- (1) All readings are Peak unless otherwise stated QP in column of \lceil Note $_{
 m l}$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $_{
 m o}$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency \circ "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP 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.



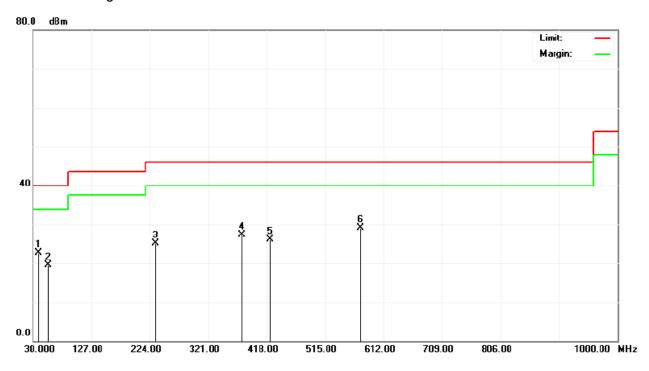
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EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	48 %
Pressure:	1014 hPa	Test Power :	DC 3.7V
Test Mode :	TX CH 2410MHz		

Freq.	Ant.	• • •	Corr.Factor(CF)		` '	Margin	Note
(MHz)	H/V	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
39.20	Ι	38.64	-15.86	22.78	40.00	- 17.22	
54.30	Ι	40.35	-20.79	19.56	40.00	- 20.44	
233.50	Ι	41.29	-16.13	25.16	46.00	- 20.84	
376.40	Ι	38.33	-11.09	27.24	46.00	- 18.76	
422.90	Ι	36.74	-10.61	26.13	46.00	- 19.87	
572.30	Ι	36.18	-7.05	29.13	46.00	- 16.87	

- (1) All readings are Peak unless otherwise stated QP in column of \lceil Note $_{
 m J}$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $_{
 m O}$
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency of "F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency.
- (3) Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Peak detector mode or QP detector mode of the emission \circ
- (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.



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4.2.8 TEST RESULTS (ABOVE 1000 MHz)

EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	48 %
Pressure:	1014 hPa	Test Power :	DC 3.7V
Test Mode :	TX 2410MHz		

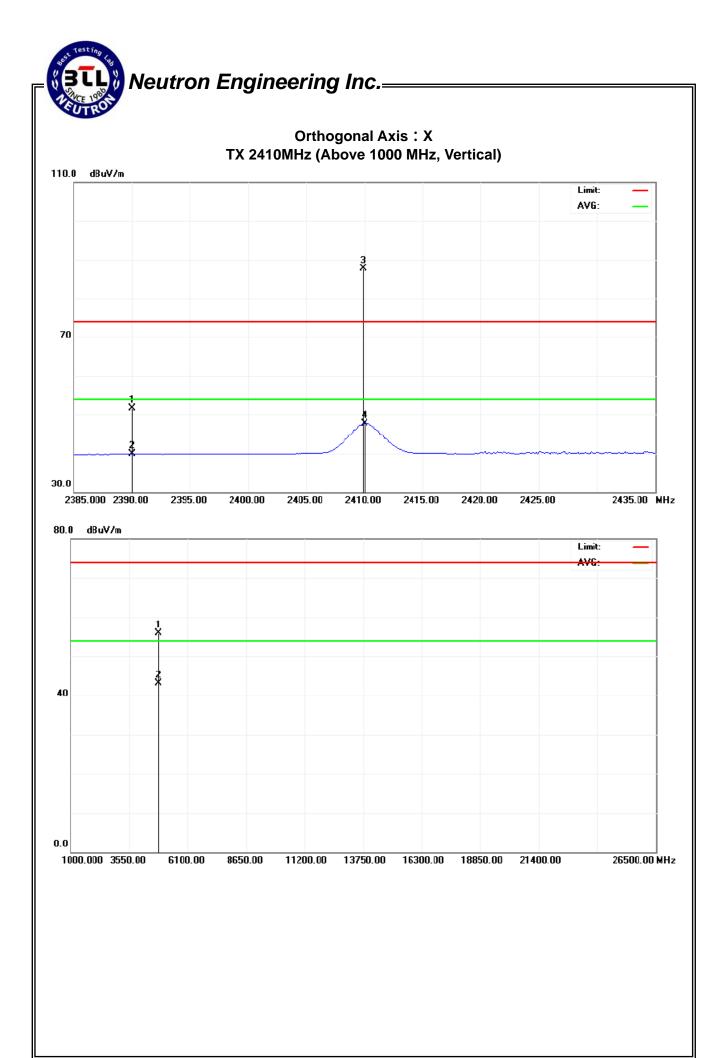
Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	17.01	3.38	34.77	51.78	38.15	74.00	54.00	X/E
2410.00	V	52.79	39.16	34.83	87.62	73.99	114.00	94.00	X/F
4820.10	V	48.12	34.49	7.80	55.92	42.29	74.00	54.00	X/H

Remark:

- (1) All readings are Peak unless otherwise stated QP in column of \lceil Note $_{
 m J}$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $_{
 m O}$
- (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 \circ
- (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-13.63

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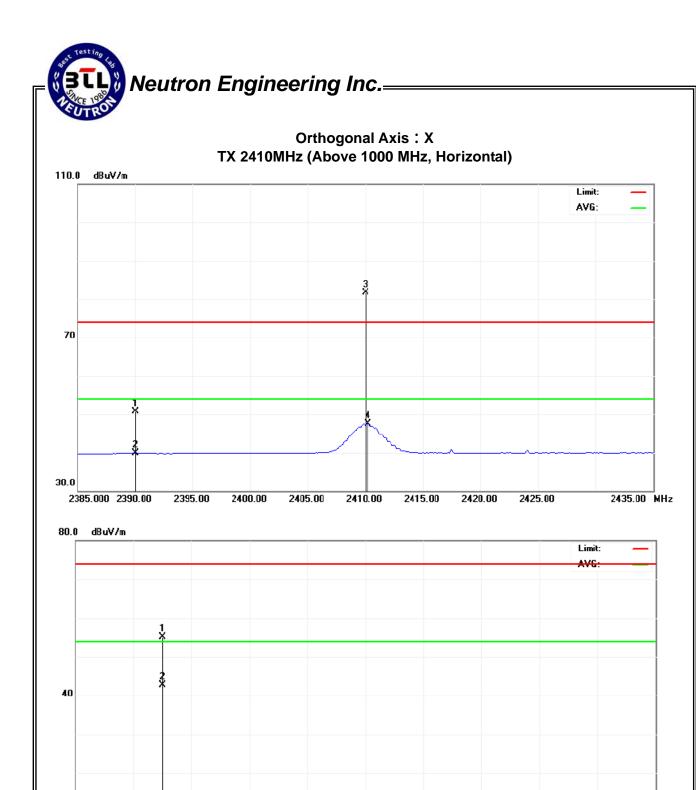
EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	48 %
Pressure:	1014 hPa	Test Power :	DC 3.7V
Test Mode :	TX 2410MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	A	Act.		Limit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	Н	15.87	2.24	34.77	50.64	37.01	74.00	54.00	X/E
2410.00	Н	46.83	33.20	34.83	81.66	68.03	114.00	94.00	X/F
4820.20	Н	47.25	30.62	7.80	55.05	38.42	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of \lceil Note $_{
 m J}$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $_{
 m O}$
- (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 \circ
- (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-13.63

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11200.00 13750.00 16300.00 18850.00 21400.00

6100.00

8650.00

1000.000 3550.00

26500.00 MHz

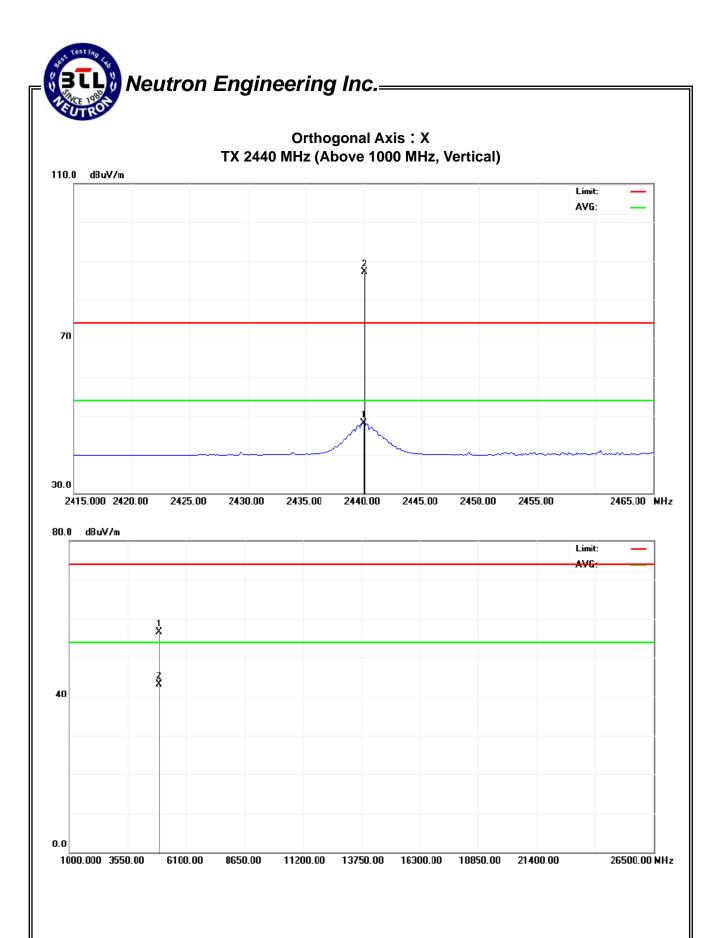
EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	48 %
Pressure:	1014 hPa	Test Power :	DC 3.7V
Test Mode :	TX 2440MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2440.00	V	52.13	38.50	34.92	87.05	73.42	114.00	94.00	X/F
4880.00	V	48.22	34.59	8.19	56.41	42.78	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of \lceil Note $_{
 m J}$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $_{
 m O}$
- (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 \circ
- (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-13.63

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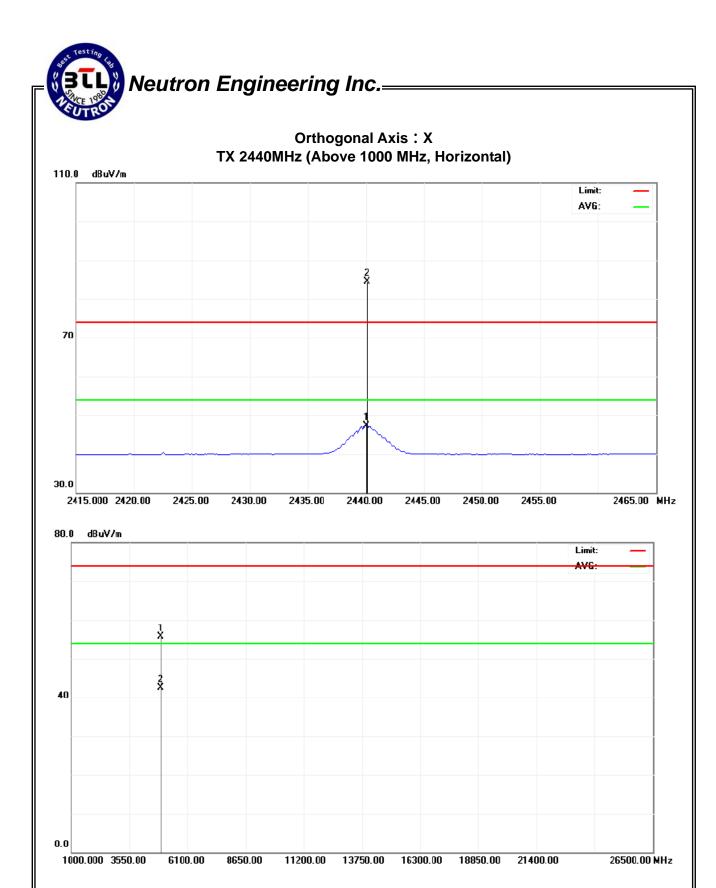
EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	48 %
Pressure:	1014 hPa	Test Power :	DC 3.7V
Test Mode :	TX 2440MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2440.00	Н	49.59	35.96	34.92	84.51	70.88	114.00	94.00	X/F
4880.20	Н	47.58	33.95	8.19	55.77	42.14	74.00	54.00	X/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 ∘
- (2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency of 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-13.63

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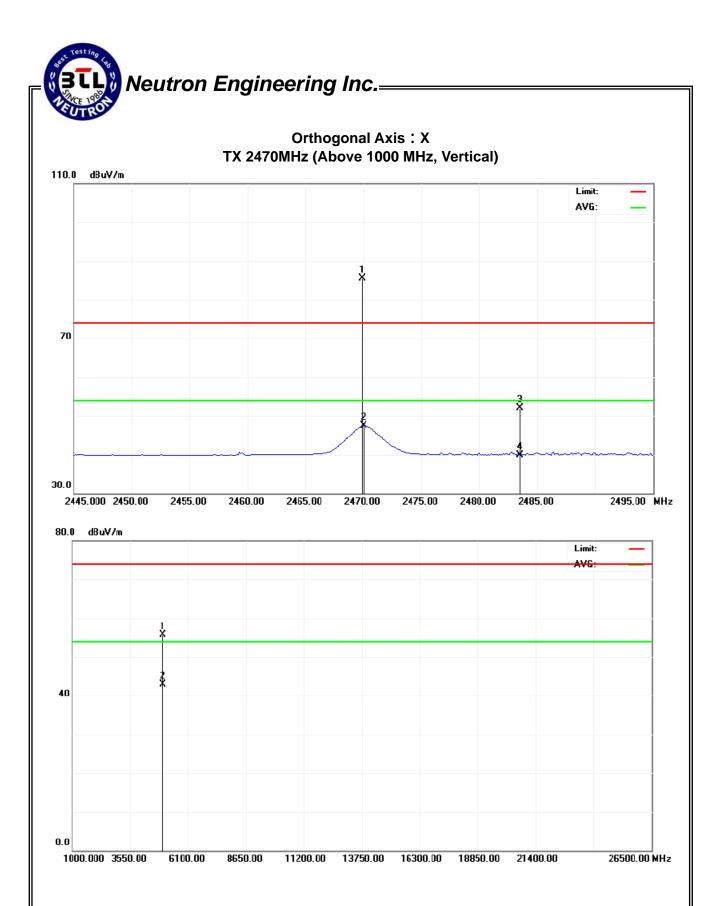
EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	48 %
Pressure:	1014 hPa	Test Power :	DC 3.7V
Test Mode :	TX 2470MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2470.00	V	50.56	36.93	35.00	85.56	71.93	114.00	94.00	X/F
2483.50	V	17.02	3.39	35.04	52.06	38.43	74.00	54.00	X/E
4940.30	V	47.24	33.61	8.55	55.79	42.16	74.00	54.00	X/H

- (1) All readings are Peak unless otherwise stated QP in column of \lceil Note $_{
 m J}$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $_{
 m O}$
- (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 \circ
- (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-13.63

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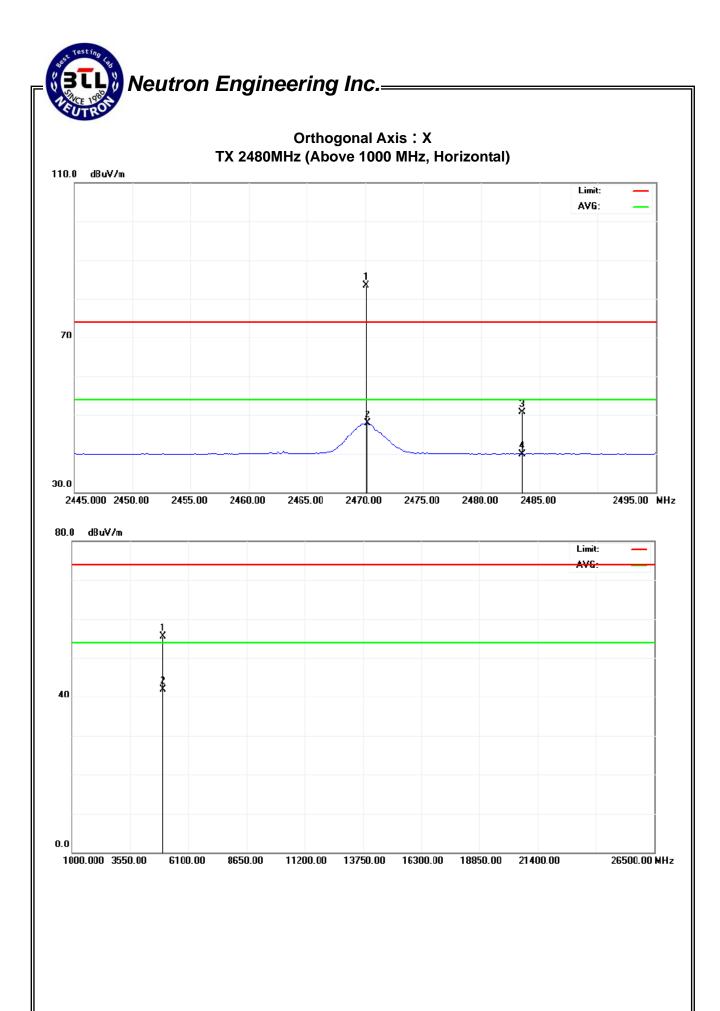
EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	48 %
Pressure:	1014 hPa	Test Power :	DC 3.7V
Test Mode :	TX 2470MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2470.10	Н	48.56	34.93	35.00	83.56	69.93	114.00	94.00	X/F
2483.50	Н	15.73	2.10	35.04	50.77	37.14	74.00	54.00	X/E
4940.20	Н	47.01	33.38	8.55	55.56	41.93	74.00	54.00	X/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 ∘
- (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 \circ
- (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-13.63

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4.2.9 TEST RESULTS (2400 – 2483.5 MHz)

EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343					
Temperature:	20 ℃	Relative Humidity:	48 %					
Pressure:	1014 hPa	Test Power :	DC 3.7V					
Test Mode :	TX CH 2410MHz/2440MHz/247	TX CH 2410MHz/2440MHz/2470MHz						

		Peak	AV		Peak	AV	Peak	AV	
Freq.	Ant.Pol.	Rea	Reading		Actua	Actual FS		Limit3m	
(MHz)	(H/V)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	NOTE
2410.00	V	52.79	39.16	34.83	87.62	73.99	114.00	94.00	CH01
2410.00	Н	46.83	33.20	34.83	81.66	68.03	114.00	94.00	CH01
2440.00	V	52.13	38.50	34.92	87.05	73.42	114.00	94.00	CH39
2440.00	Н	49.59	35.96	34.92	84.51	70.88	114.00	94.00	CH39
2470.00	V	50.56	36.93	35.00	85.56	71.93	114.00	94.00	CH75
2470.10	Н	48.56	34.93	35.00	83.56	69.93	114.00	94.00	CH75

Remark:

- (1) All readings are Peak unless otherwise stated QP in column of \lceil Note $_{
 m J}$. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform $_{
 m O}$
- (2) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (3) 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.
- (4) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (5) 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
- (6) The average value of fundamental frequency is:

 Average = Peak value + 20log(Duty cycle) , Final AV=PK-13.63

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4.2.10 TEST RESULTS (Restricted Bands Requirements)

EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343		
Temperature:	20 ℃	Relative Humidity:	48 %		
Pressure:	1014 hPa	Test Power :	DC 3.7V		
Test Mode :	TX CH 2410MHz/2470MHz(Vertical)				
Note:	The emission of the carrier radiated field strength is measured for (Peak and AV) as following: 1. The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel (CH01). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was configured with the worst case antenna and setup to transmit at the highest channel (CH75). Then the field strength was measured at 2483.5-2500 MHz.				

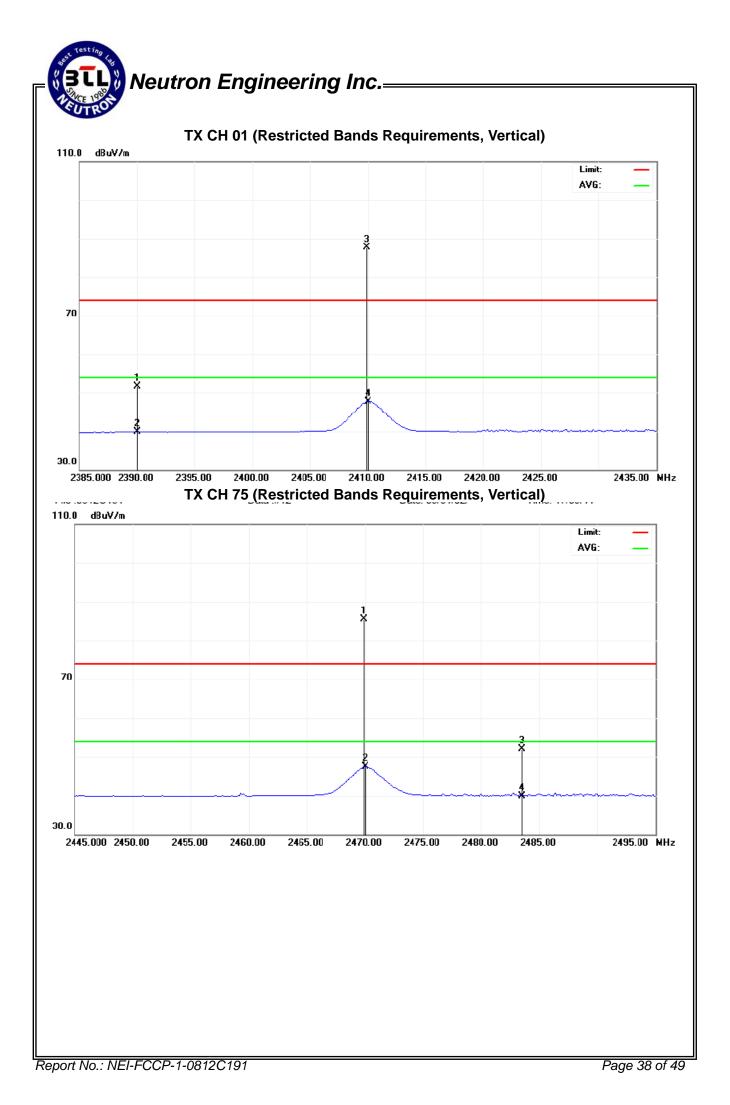
Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lir	nit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	17.01	3.38	34.77	51.78	38.15	74.00	54.00	CH01
2483.50	V	17.02	3.39	35.04	52.06	38.43	74.00	54.00	CH75

Remark:

- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (2) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (3) 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
- (4) The average value of fundamental frequency is:

 Average = Peak value + 20log(Duty cycle) , Final AV=PK-13.63

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EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343	
Temperature:	20 ℃	Relative Humidity:	48 %	
Pressure:	1014 hPa	Test Power :	DC 3.7V	
Test Mode :	TX CH 2410MHz/2470MHz (Horizontal)			
Note:	The emission of the carrier radiated field strength is measured for (Peak and AV) as following: 1. The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel (CH01). Then the field strength was measured at 2310-2390 MHz. 2. The transmitter was configured with the worst case antenna and setup to transmit at the highest channel (CH75). Then the field strength was measured at 2483.5-2500 MHz.			

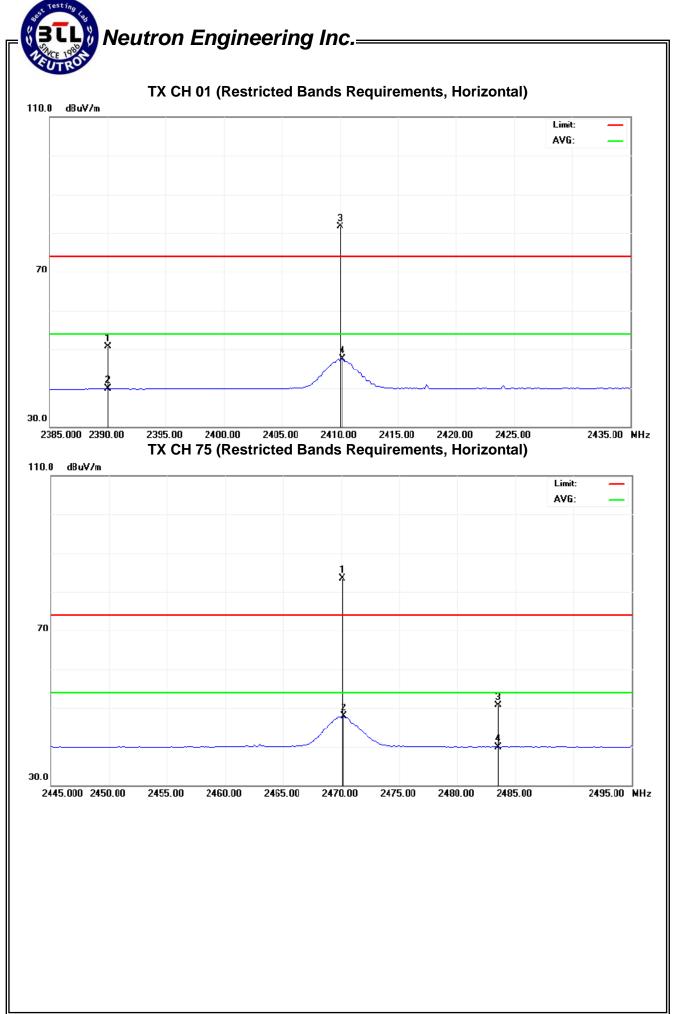
Freq.	Ant.Pol.	Rea	ding	Ant./CF	A	ct.	Lir	mit	
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	Н	15.87	2.24	34.77	50.64	37.01	74.00	54.00	CH01
2483.50	Н	15.73	2.10	35.04	50.77	37.14	74.00	54.00	CH75

Remark:

- (1) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission \circ
- (2) EUT Orthogonal Axis:
 - "X" denotes Laid on Table; "Y" denotes Vertical Stand; "Z" denotes Side Stand
- (3) 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
- (4) The average value of fundamental frequency is:

 Average = Peak value + 20log(Duty cycle) , Final AV=PK-13.63

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5. BANDWIDTH TEST

5.1 MEASUREMENT INSTRUMENTS LIST

Iter	n Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP_40	100129	Jan. 07, 2009

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

5.2 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 = 20 ms.

5.3 DEVIATION FROM STANDARD

No deviation.

5.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

5.5 EUT OPERATION CONDITIONS

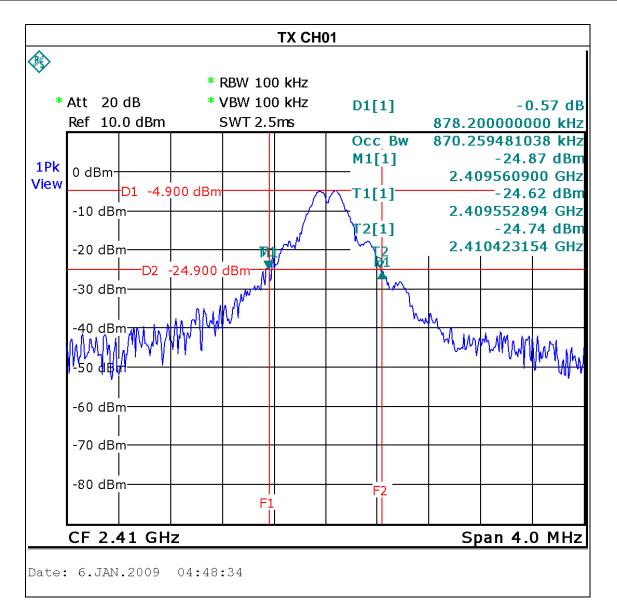
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

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5.6 TEST RESULTS

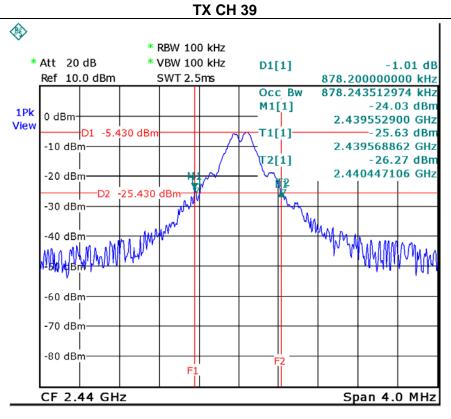
EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	45 %
Pressure:	1014 hPa	Test Power :	DC 3.7V
Test Mode :	TX CH 01/39/75		

Test Channel	Frequency (MHz)	20 dBc Bandwidth (MHz)	99% occupied Bandwidth(MHz)
CH01	2410	0.878	0.870
CH39	2440	0.878	0.878
CH75	2470	0.870	0.934

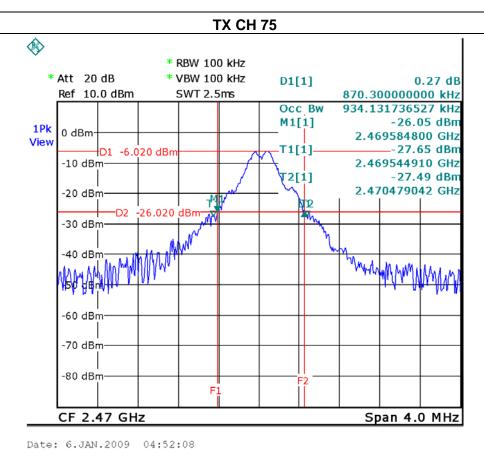


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Date: 6.JAN.2009 04:50:32





6. ANTENNA CONDUCTED SPURIOUS EMISSION

6.1 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

6.1.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
8	Spectrum Analyzer	R&S	FSP_40	100129	Jan. 07, 2009

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

The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	100 MHz
RB / VB (emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (other emission)	100 KHz /100 KHz for Peak

6.1.2 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 = 10 ms.

6.1.3 DEVIATION FROM STANDARD

No deviation.

6.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

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6.1.6 TEST RESULTS

EUT:	PS3 SHADOW WIRELESS CONTROLLER WITH RUMBLE	Model Name. :	DGPS3-1343
Temperature:	20 ℃	Relative Humidity:	45 %
Pressure:	1014 hPa	Test Power :	DC 3.7V
Test Mode :	TX CH01, CH75		

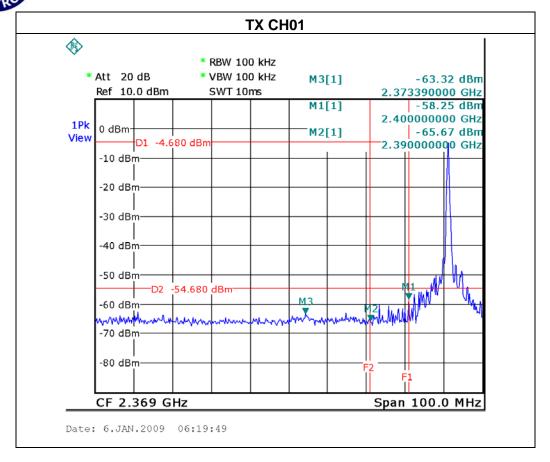
Channel of Worst Data: CH75					
		The max. radio frequency power in any 100 kHz			
bandwidth outside	the frequency band	bandwidth within the frequency band.			
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)		
2373.39	-63.32	2484.66	-61.31		
Posult					

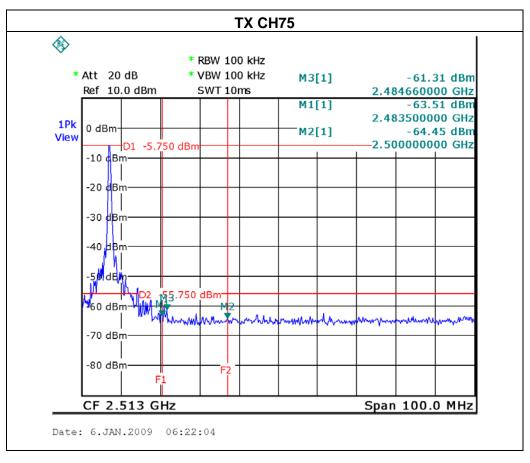
Result

In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 50dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.

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7. EUT TEST PHOTO

Conducted Measurement Photos





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Radiated Measurement Photos





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