

FCC/IC Radio Test Report

FCC ID: PP23300PI IC: 7497B-3300P

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

Issued Date : Jan. 12, 2012 **Project No.** : 1110C112A

Equipment: Wireless Optical Mouse

Model Name : 3300P

Applicant: ShenZhen Rapoo Technology Co., Ltd.

Address : Block A1,B1,B2,1st second stage, 1st Industrial Park,

3rd Industrial Zone ,Fenghuang Fuyong, BaoAn ,

Shenzhen, P.R.CHINA

Tested by:

Neutron Engineering Inc. EMC Laboratory

Date of Receipt: Jan. 04, 2012

Date of Test:

Jan. 04, 2012 ~ Jan. 11, 2012

Testing Engineer

(David Mao)

Technical Manager

(Leo Huna)

Authorized Signatory

(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.

Report No.: NEI-FICP-1-1110C112A Page 2 of 50

	Table of Contents	Page
1	. CERTIFICATION	5
2	. SUMMARY OF TEST RESULTS	6
	2.1 TEST FACILITY	7
	2.2 MEASUREMENT UNCERTAINTY	7
3	. GENERAL INFORMATION	8
	3.1 GENERAL DESCRIPTION OF EUT	8
	3.2 DESCRIPTION OF TEST MODES	10
	3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED) 11
	3.4 DESCRIPTION OF SUPPORT UNITS	12
4	. EMC EMISSION TEST	13
	4.1 CONDUCTED EMISSION MEASUREMENT	13
	4.1.1 POWER LINE CONDUCTED EMISSION LIMITS	13
	4.1.2 MEASUREMENT INSTRUMENTS LIST 4.1.3 TEST PROCEDURE	13 14
	4.1.4 DEVIATION FROM TEST STANDARD	14
	4.1.5 TEST SETUP	14
	4.1.6 EUT OPERATING CONDITIONS	14
	4.1.7 TEST RESULTS	15
	4.2 RADIATED EMISSION MEASUREMENT	16
	4.2.1 RADIATED EMISSION LIMITS	16
	4.2.2 MEASUREMENT INSTRUMENTS LIST	17
	4.2.3 TEST PROCEDURE 4.2.4 DEVIATION FROM TEST STANDARD	20 20
	4.2.5 TEST SETUP	21
	4.2.6 EUT OPERATING CONDITIONS	21
	4.2.7 TEST RESULTS (BETWEEN 30 – 1000 MHz)	22
	4.2.8 TEST RESULTS (ABOVE 1000 MHz)	26
	4.2.9 TEST RESULTS (5725 – 5875 MHz)	40
5	BANDWIDTH TEST	41
	5.1 MEASUREMENT INSTRUMENTS LIST 5.2 TEST PROCEDURE	41 41
	5.3 DEVIATION FROM STANDARD	41
	5.4 TEST SETUP	41
	5.5 EUT OPERATION CONDITIONS	41
	5.6 TEST RESULTS	42
6	. ANTENNA CONDUCTED SPURIOUS EMISSION	44

Report No.: NEI-FICP-1-1110C112A Page 3 of 50



Table of Contents	Page
6.1 APPLIED PROCEDURES / LIMIT	44
6.1.1 MEASUREMENT INSTRUMENTS LIST	44
6.1.2 TEST PROCEDURE	44
6.1.3 DEVIATION FROM STANDARD	44
6.1.4 TEST SETUP	44
6.1.5 EUT OPERATION CONDITIONS	44
6.1.6 TEST RESULTS	45
7 . EUT TEST PHOTO	50

Report No.: NEI-FICP-1-1110C112A Page 4 of 50

1. CERTIFICATION

Equipment: Wireless Optical Mouse

Brand Name: RAPOO Model Name: 3300P

A p p I i c a n t: ShenZhen Rapoo Technology Co., Ltd.

Date of Test: Jan. 04, 2012 ~ Jan. 11, 2012 Test Item: ENGINEERING SAMPLE

Standards: FCC Part15, Subpart C(15.249)/ ANSI C63.4: 2003/ Canada RSS-210:2010

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-FICP-1-1110C112A) 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).

Report No.: NEI-FICP-1-1110C112A Page 5 of 50



2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15, Subpart C (15.249) ; Canada RSS-210:2010						
StandardSection		Test Item	Judgment	Remark		
FCC	RSS-210	rest tem	daagment	Remark		
15.207		Conducted Emission	N/A	Note(1)		
15.209		Radiated Emission	PASS			
15.249 A2.9(a)		Radiated Spurious Emission	PASS			

NOTE:

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

Report No.: NEI-FICP-1-1110C112A Page 6 of 50

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 for FCC 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 $\mathbf{y} \pm \mathbf{U}$, where expended uncertainty \mathbf{U} is based on a standard uncertainty multiplied by a coverage factor of $\mathbf{k=2}$, providing a level of confidence of approximately 95 %.

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	V 2.48	
DG-CB03	CISPR	30MHz ~ 200MHz	Н	2.16	
DG-CB03	CISER	200MHz ~ 1,000MHz	V	2.50	
		200MHz ~ 1,000MHz	Н	2.66	

Report No.: NEI-FICP-1-1110C112A Page 7 of 50



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	Wireless Optical Mouse	Wireless Optical Mouse		
Brand Name	RAPOO			
Model Name.	3300P			
OEM Brand/Model Name	N/A			
Model Difference	N/A			
	The EUT is a Wireless	Optical Mouse.		
	Product Type	Low Power Communication		
		Device		
	Operation Frequency:	5727~5804 MHz		
	Modulation Type:	GFSK		
	Date rate:	1Mbps		
	Number of Channel	16CH .Please see Note 2.		
Product Description	Antenna Designation:	Chip antenna		
	Antenna Gain(Peak)	1.4 dBi		
	Output Power:	72.06 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 1*AA battery.			
Power Rating	DC 1.5V			
Connecting I/O Port(s)	Please refer to the Use	r's Manual		

Note:

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

Report No.: NEI-FICP-1-1110C112A Page 8 of 50

2.

Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	5727MHz	09	5771MHz
02	5730MHz	10	5776MHz
03	5734MHz	11	5779MHz
04	5738MHz	12	5782MHz
05	5750MHz	13	5796MHz
06	5753MHz	14	5799MHz
07	5756MHz	15	5802MHz
08	5759MHz	16	5804MHz

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	ACX	AT1005-T5R5LGA	Chip ANT	N/A	1.4

Report No.: NEI-FICP-1-1110C112A Page 9 of 50

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 – 5727MHz
Mode 2	CH Middle – 5771MHz
Mode 3	CH Highest -5804MHz

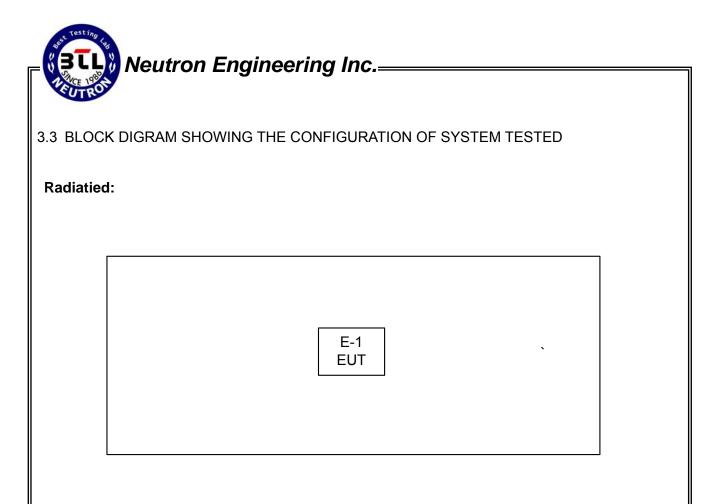
For Conducted Test		
Final Test Mode	Description	
	" N/A" denotes test is not applicable in this Test Report	

For Radiated Test		
Final Test Mode	Description	
Mode 1	CH Lower – 5727MHz	
Mode 2	CH Middle – 5771MHz	
Mode 3	CH Highest -5804MHz	

Note:

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

Report No.: NEI-FICP-1-1110C112A Page 10 of 50



Report No.: NEI-FICP-1-1110C112A Page 11 of 50

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/ IC ID	Series No.	Note
E-1	Wireless Optical Mouse	RAPOO	3300P	PP23300PI / 7497B-3300P	N/A	EUT

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 m in <code>[Length]</code> column.

Report No.: NEI-FICP-1-1110C112A

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 (dBuV)		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

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 Name., Serial No. or No Calibration specified.

The following table is the setting of the receiver

The felletting desire is the secting of the reserver			
Receiver Parameters	Setting		
Attenuation	10 dB		
Start Frequency	0.15 MHz		
Stop Frequency	30 MHz		
IF Bandwidth	9 kHz		

Report No.: NEI-FICP-1-1110C112A Page 13 of 50

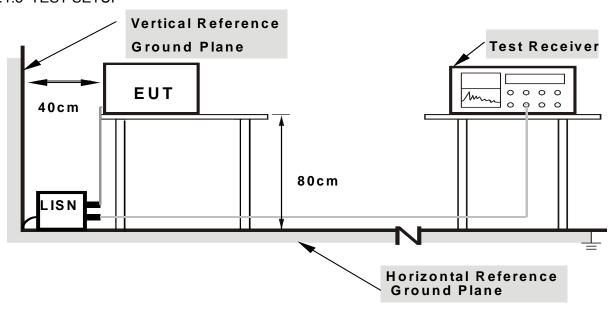
4.1.3 TEST PROCEDURE

- 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



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.

The EUT was programmed to be in continuously transmitting mode.

Report No.: NEI-FICP-1-1110C112A Page 14 of 50

4.1.7 TEST RESULTS

EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature:		Relative Humidity:	
Pressure :		Test Power :	
Test Mode :	" N/A" denotes test is not applic	es test is not applicable in this Test Report	

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.

Report No.: NEI-FICP-1-1110C112A Page 15 of 50



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.

LIMITS OF RADIATED EMISSION MEASUREMENT (FCC 15.209)

FREQUENCY (MHz)	(dBuV/m) (at 1.5m)		
FREQUENCT (MITZ)	PEAK	AVERAGE	
Above 1000	80	60	

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).

The limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m

Distance extrapolation factor = 20 log (3m/1.5m) dB;

Limit line = specific limits (dBuV) + 6 dB

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 th harmonic of the highest frequency or 40 GHz, whichever is lower

Report No.: NEI-FICP-1-1110C112A Page 16 of 50

4.2.2 MEASUREMENT INSTRUMENTS LIST

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	Antenna	ETS	3115	00075789	May.26.2012
6	Amplifier	Agilent	8449B	3008A02274	May.26.2012
7	Spectrum	Agilent	E4408B	US39240143	Nov.25.2012
8	Test Cable	HUBER+SUHNER	C-45	N/A	May.04.2012
9	Controller	СТ	SC100	N/A	N/A
10	Triple Loop Antenna	Schwarzbeck	HXYZ9170	9170-110	May.26.2012
11	Active Loop Antenna	R&S	HFH2-Z2	830749/020	May.26.2012
12	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Aug.15.2012
13	Amplifier	EMC	EMC2654045	980039	Aug.12.2012

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	1 MHz / 1 MHz for Peak,
band)	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

Report No.: NEI-FICP-1-1110C112A Page 17 of 50

DUTY CYCLE: TX 5771MHz (1Mbps)

Dwell time=ON/ON+OFF

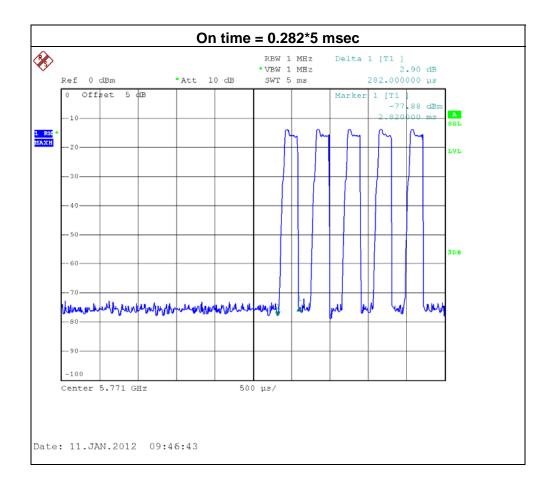
ON: 1.41msec

ON+OFF: (total time):8.060msec

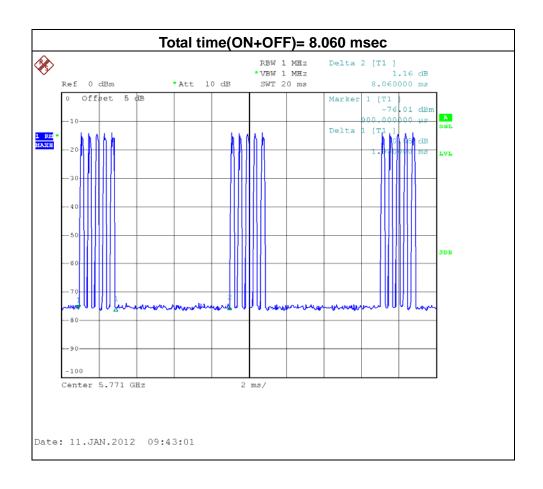
Dwell time: 17.49%

AV=PK+20 log(Dwell time)

AV=PK-15.14



Report No.: NEI-FICP-1-1110C112A Page 18 of 50





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 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.

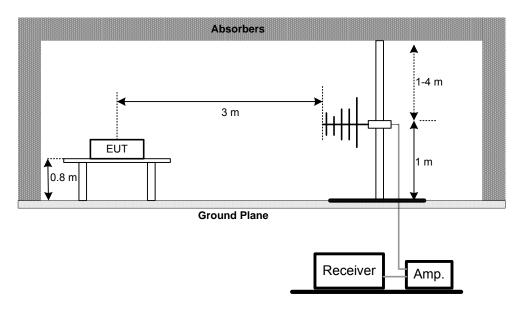
4.2.4 DEVIATION FROM TEST STANDARD
No deviation

Report No.: NEI-FICP-1-1110C112A Page 20 of 50

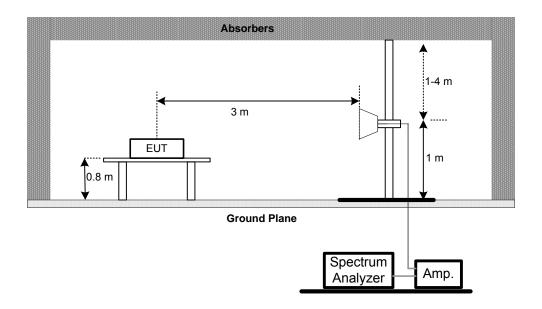


4.2.5 TEST SETUP

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



(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.

Report No.: NEI-FICP-1-1110C112A Page 21 of 50

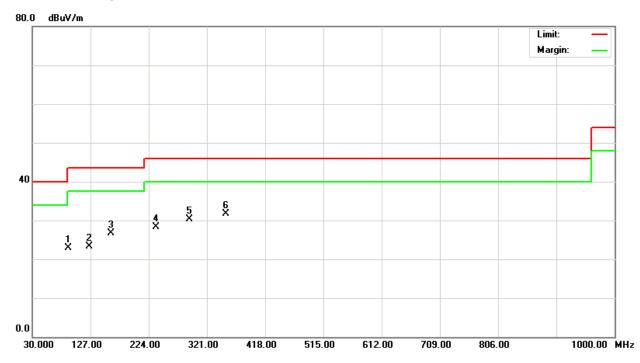
4.2.7 TEST RESULTS (BETWEEN 30 – 1000 MHz)

EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20℃	Relative Humidity:	58 %
Pressure :	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX Mode 5727MHz		

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	H/V	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	NOIC
89.86	V	41.98	-19.07	22.91	43.50	- 20.59	
122.46	V	41.64	-18.25	23.39	43.50	- 20.11	
160.34	V	44.43	-17.64	26.79	43.50	- 16.71	
235.37	V	43.74	-15.37	28.37	46.00	- 17.63	
291.62	V	42.33	-12.06	30.27	46.00	- 15.73	
352.33	V	42.54	-10.76	31.78	46.00	- 14.22	

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.
- (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.
- (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.



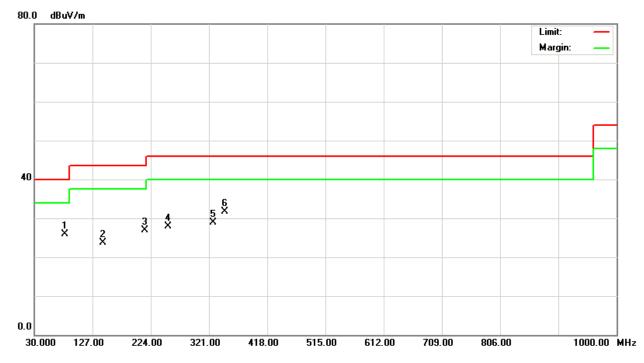
Report No.: NEI-FICP-1-1110C112A Page 22 of 50



EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure:	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX Mode 5727MHz		

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	H/V	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
79.54	Η	44.85	-19.04	25.81	40.00	- 14.19	
142.21	Ι	41.44	-17.70	23.74	43.50	- 19.76	
212.34	Ι	43.07	-16.21	26.86	43.50	- 16.64	
251.21	Η	42.47	-14.48	27.99	46.00	- 18.01	
327.35	Η	40.27	-11.39	28.88	46.00	- 17.12	
345.64	Н	42.72	-10.95	31.77	46.00	- 14.23	

- (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.
- (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.

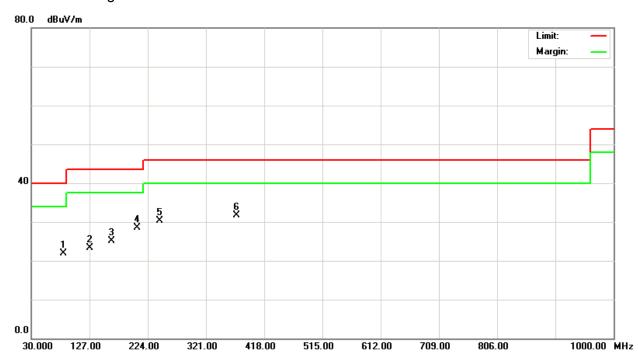


Report No.: NEI-FICP-1-1110C112A Page 23 of 50

EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure :	1009 hPa	Test Power :	DC 1.5V
Test Mode :	RX Mode		

Freq.	Ant.	Reading(RA)	Corr.Factor(CF)	Measured(FS)	Limits(QP)	Margin	Note
(MHz)	H/V	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	NOLE
83.07	>	41.05	-19.09	21.96	40.00	- 18.04	
125.67	V	41.58	-18.19	23.39	43.50	- 20.11	
163.31	V	42.72	-17.53	25.19	43.50	- 18.31	
205.60	V	44.99	-16.42	28.57	43.50	- 14.93	
242.46	>	45.29	-15.02	30.27	46.00	- 15.73	
371.85	V	41.82	-10.04	31.78	46.00	- 14.22	

- (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.
- (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.



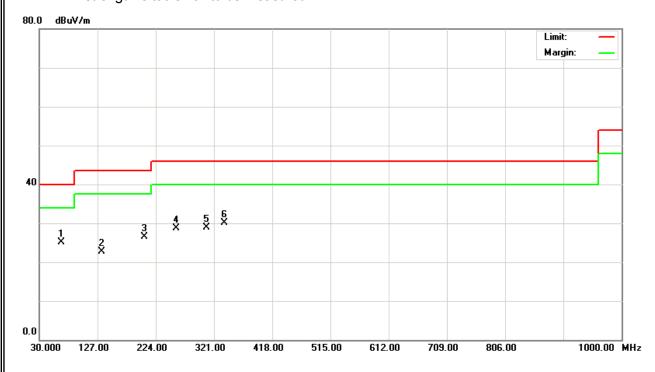
Report No.: NEI-FICP-1-1110C112A Page 24 of 50



EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure :	1009 hPa	Test Power :	DC 1.5V
Test Mode :	RX Mode		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
65.50	Н	42.80	-17.68	25.12	40.00	- 14.88	
132.01	Н	40.77	-18.03	22.74	43.50	- 20.76	
202.60	Н	43.06	-16.50	26.56	43.50	- 16.94	
257.45	Н	42.72	-14.03	28.69	46.00	- 17.31	
307.40	Н	40.77	-11.89	28.88	46.00	- 17.12	
337.88	Н	41.21	-11.14	30.07	46.00	- 15.93	

- (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.
- (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.



4.2.8 TEST RESULTS (ABOVE 1000 MHz)

EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure :	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX 5727MHz		

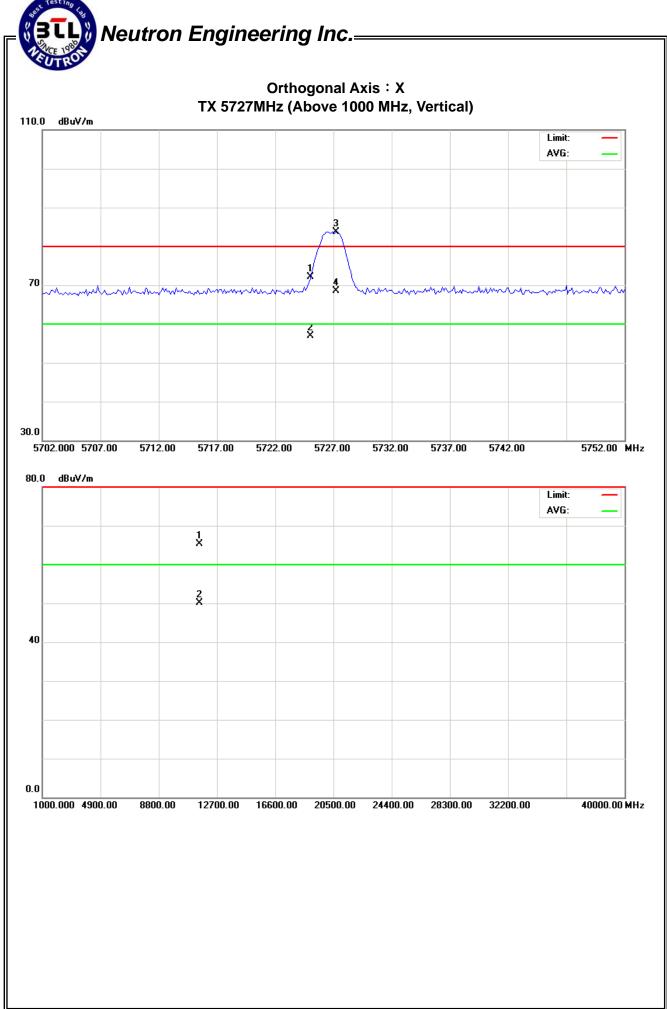
Freq.	Ant.Pol.	Rea	ding	Ant./CF	nt./CF Act.		Lir		
		Peak	AV		Peak	AV	Peak	AV	Note
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
5725.00	V	31.15	16.01	40.90	72.05	56.91	80.00	60.00	X/E
5727.25	V	42.81	27.67	40.90	83.71	68.57	120.00	100.00	X/F
11454.11	V	52.01	36.87	13.25	65.26	50.12	80.00	60.00	X/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.
- (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 limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m
 - Distance extrapolation factor = 20 log (3m/1.5m) dB;
 - Limit line = specific limits (dBuV) + 6 dB
- (9) The average value of fundamental frequency is:

 Average = Peak value + 20log(Duty cycle) , Final AV=PK-15.14

Report No.: NEI-FICP-1-1110C112A Page 26 of 50



Report No.: NEI-FICP-1-1110C112A Page 27 of 50

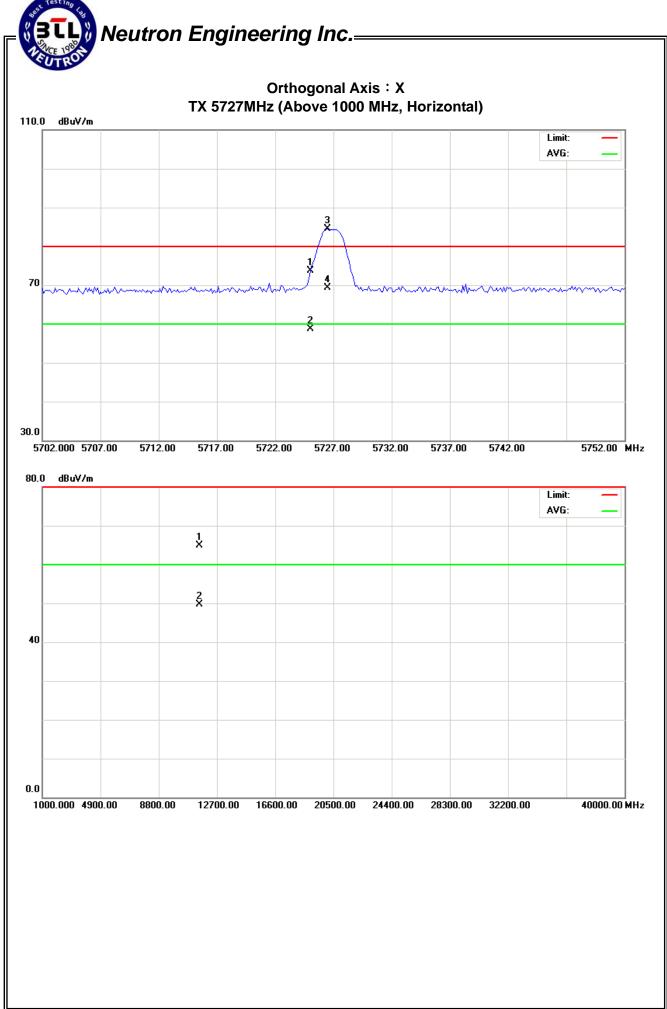
EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure:	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX 5727MHz		

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)	
5725.00	Н	32.88	17.74	40.90	73.78	58.64	80.00	60.00	X/E
5726.50	Н	43.59	28.45	40.90	84.49	69.35	120.00	100.00	X/F
11454.05	Н	51.68	36.54	13.25	64.93	49.79	80.00	60.00	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 .
- (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 limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m
 - Distance extrapolation factor = $20 \log (3m/1.5m) dB$:
 - Limit line = specific limits (dBuV) + 6 dB
- (9) The average value of fundamental frequency is:

Average = Peak value + 20log(Duty cycle) , Final AV=PK-15.14

Report No.: NEI-FICP-1-1110C112A Page 28 of 50

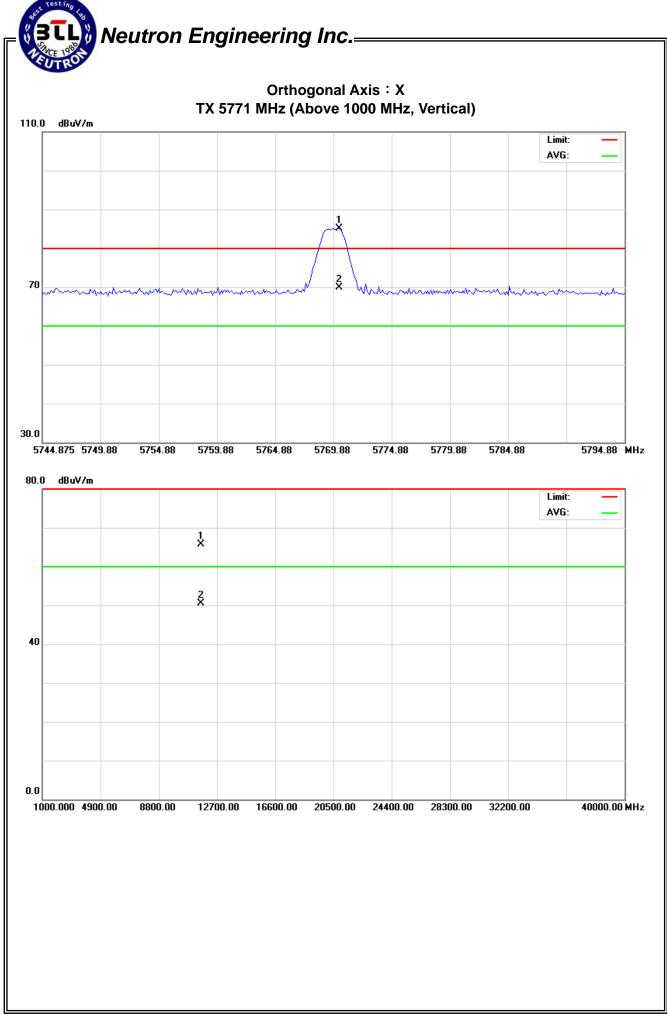


EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure:	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX 5771MHz		

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)	
5770.38	V	44.05	28.91	41.07	85.12	69.98	120.00	100.00	X/F
11542.17	V	52.34	37.20	13.33	65.67	50.53	80.00	60.00	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 .
- (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 limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m
 - Distance extrapolation factor = 20 log (3m/1.5m) dB;
 - Limit line = specific limits (dBuV) + 6 dB
- (9) The average value of fundamental frequency is:
 - Average = Peak value + 20log(Duty cycle) , Final AV=PK-15.14

Report No.: NEI-FICP-1-1110C112A Page 30 of 50



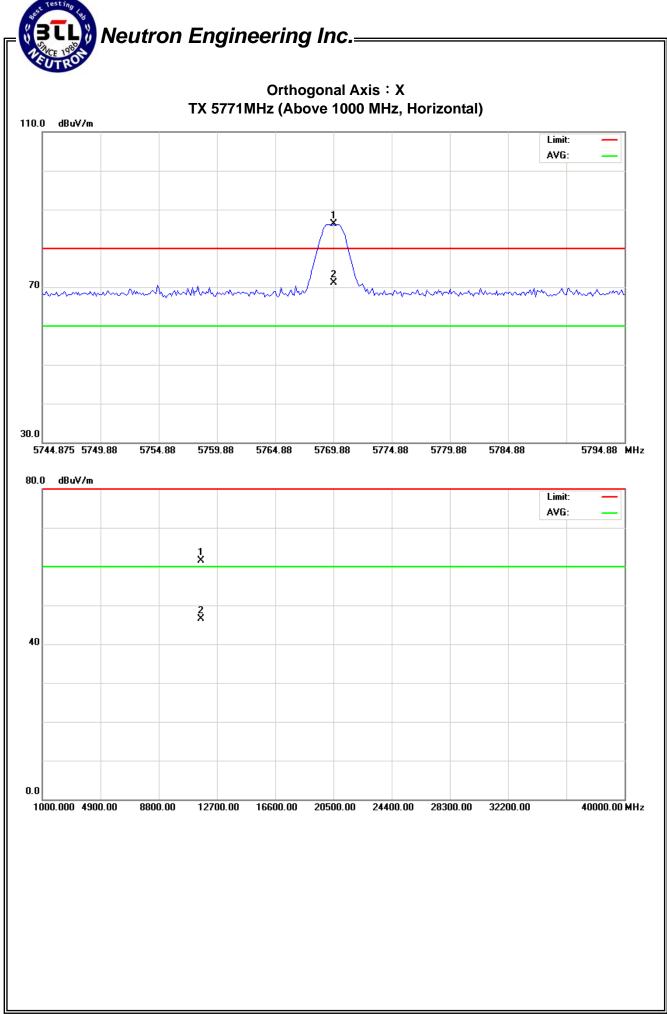
EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature:	20 ℃	Relative Humidity:	58 %
Pressure:	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX 5771MHz		

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)	
5769.88	Н	45.14	30.00	41.07	86.21	71.07	120.00	100.00	X/F
11541.12	Н	48.24	33.10	13.33	61.57	46.43	80.00	60.00	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 .
- (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 limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m
 - Distance extrapolation factor = 20 log (3m/1.5m) dB;
 - Limit line = specific limits (dBuV) + 6 dB
- (9) The average value of fundamental frequency is:

 Average = Peak value + 20log(Duty cycle) , Final AV=PK-15.14

Report No.: NEI-FICP-1-1110C112A Page 32 of 50



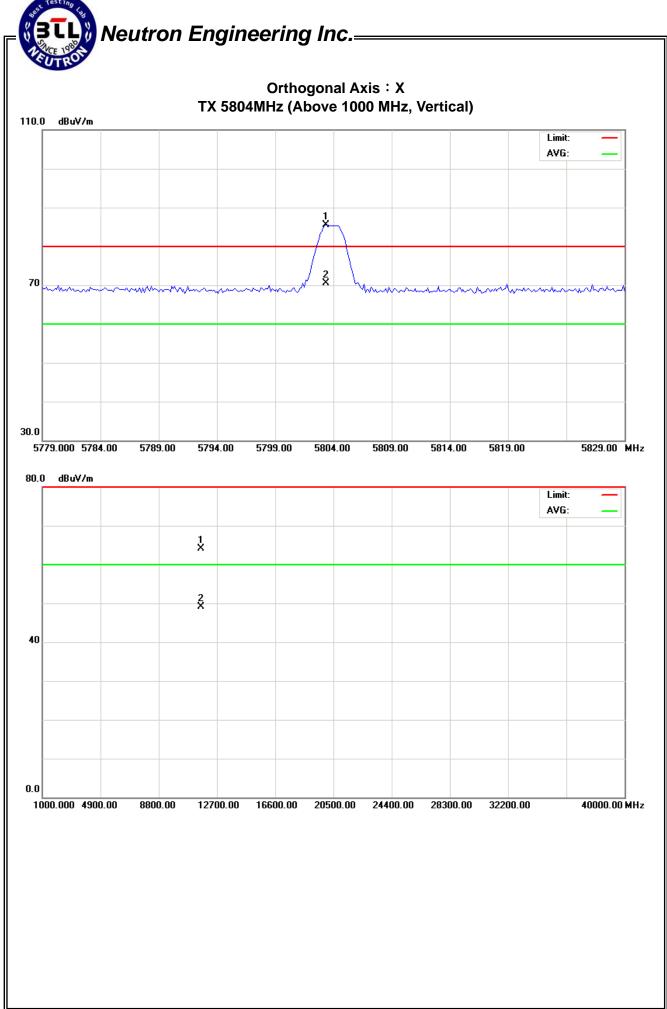
EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure :	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX 5804MHz		

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)	
5803.38	V	44.38	29.24	41.20	85.58	70.44	120.00	100.00	X/F
11608.27	V	50.76	35.62	13.39	64.15	49.01	80.00	60.00	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 .
- (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 limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m
 - Distance extrapolation factor = 20 log (3m/1.5m) dB;
 - Limit line = specific limits (dBuV) + 6 dB
- (9) The average value of fundamental frequency is:

 Average = Peak value + 20log(Duty cycle) Final AV=PK-15.14

Report No.: NEI-FICP-1-1110C112A Page 34 of 50



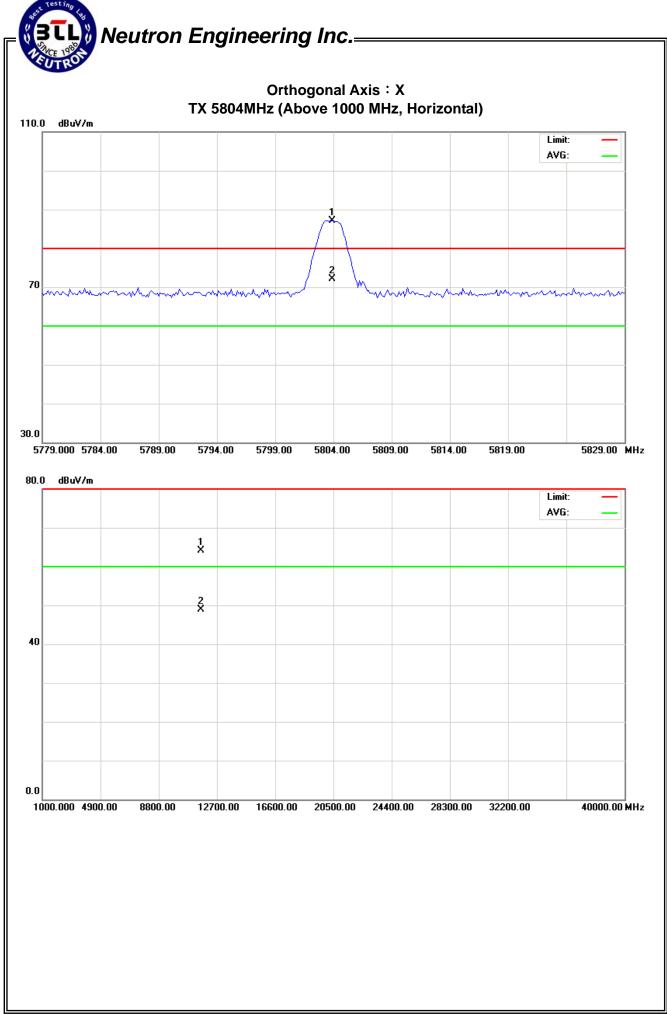
EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure :	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX 5804MHz		

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)	
5803.88	Н	46.00	30.86	41.20	87.20	72.06	120.00	100.00	X/F
11607.85	Н	50.64	35.50	13.39	64.03	48.89	80.00	60.00	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 .
- (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 limits above 5GHz shall be extrapolated to the specified distance using an extrapolation factor of 20dB/decade form 3m to 1.5m
 - Distance extrapolation factor = 20 log (3m/1.5m) dB;
 - Limit line = specific limits (dBuV) + 6 dB
- (9) The average value of fundamental frequency is:

Average = Peak value + 20log(Duty cycle) , Final AV=PK-15.14

Report No.: NEI-FICP-1-1110C112A Page 36 of 50



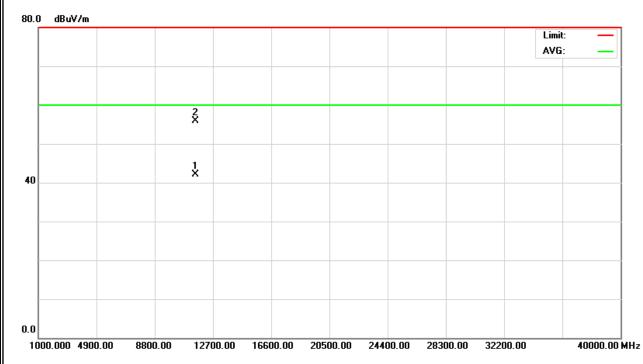
EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure:	1009 hPa	Test Power :	DC 1.5V
Test Mode :	RX Mode		

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)	
11454.07	V	42.71	28.90	13.25	55.96	42.15	74.00	54.00	X/E

Remark:

- (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 1000MHz to 6000MHz 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) The average value of fundamental frequency is:

 Average = Peak value + 20log(Duty cycle) , Final AV=PK-15.14



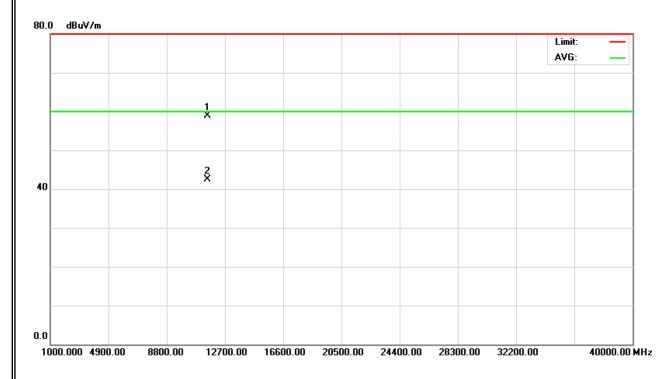
EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	20 ℃	Relative Humidity:	58 %
Pressure :	1009 hPa	Test Power :	DC 1.5V
Test Mode :	RX Mode		

I	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)	
	11454.12	Н	45.58	29.30	13.25	58.83	42.55	74.00	54.00	X/E

Remark:

- (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 1000MHz to 6000MHz 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) The average value of fundamental frequency is:

 Average = Peak value + 20log(Duty cycle) , Final AV=PK-15.14



4.2.9 TEST RESULTS (5725 - 5875 MHz)

EUT:	Wireless Optical Mouse	Model Name. :	3300P			
Temperature :	20 ℃	Relative Humidity:	58 %			
Pressure:	1009 hPa	009 hPa Test Power : D				
Test Mode :	TX CH 5727MHz/5771MHz/5804MHz					

		Peak	AV		Peak	AV	Peak	AV	
Freq.	Ant.Pol.	Rea	ding	Ant./CL/	Actua	al FS	Lim	it3m	
(MHz)	(H/V)	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	NOTE
5727.25	V	42.81	27.67	40.90	83.71	68.57	120.00	100.00	CH01
5726.50	Н	43.59	28.45	40.90	84.49	69.35	120.00	100.00	CH01
5770.38	V	44.05	28.91	41.07	85.12	69.98	120.00	100.00	CH09
5769.88	Н	45.14	30.00	41.07	86.21	71.07	120.00	100.00	CH09
5803.38	V	44.38	29.24	41.20	85.58	70.44	120.00	100.00	CH16
5803.88	Н	46.00	30.86	41.20	87.20	72.06	120.00	100.00	CH16

Remark:

- (1) All readings are Peak unless otherwise stated QP in column of <code>『Note』</code>. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.
- (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 .
- (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) The average value of fundamental frequency is:

 Average = Peak value + 20log(Duty cycle) , Final AV=PK-15.14

Report No.: NEI-FICP-1-1110C112A Page 40 of 50

5. BANDWIDTH TEST

5.1 MEASUREMENT INSTRUMENTS LIST

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2012

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

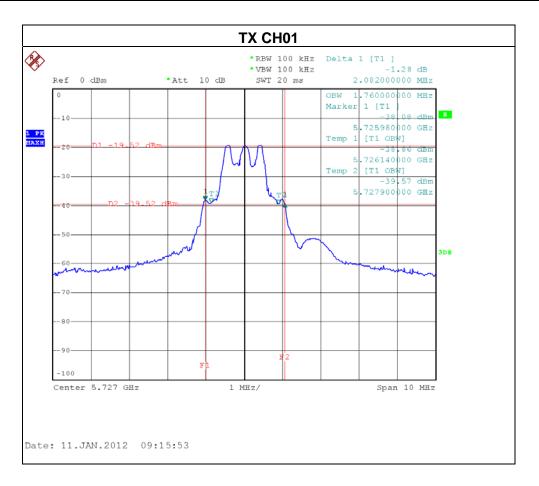
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

Report No.: NEI-FICP-1-1110C112A Page 41 of 50

5.6 TEST RESULTS

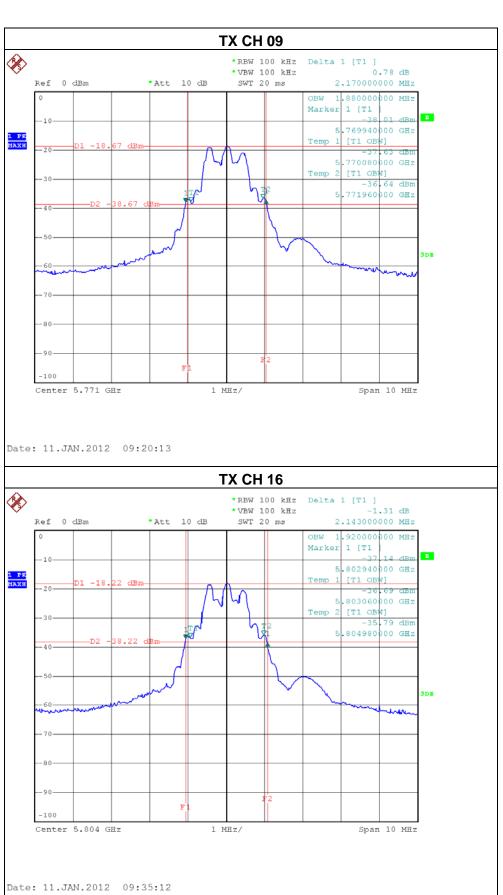
EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	25 ℃	Relative Humidity:	55 %
Pressure :	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX CH 01/09/16		

Test Channel	Frequency (MHz)	20 dBc Bandwidth (MHz)	99% occupied Bandwidth(MHz)
CH01	5727	2.082	1.760
CH 09	5771	2.170	1.880
CH16	5804	2.143	1.920



Report No.: NEI-FICP-1-1110C112A Page 42 of 50

Neutron Engineering Inc.



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
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2012

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

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 = 20 ms.

6.1.3 DEVIATION FROM STANDARD

No deviation.

6.1.4 TEST SETUP

EUT	SPECTRUM
	ANALYZER

6.1.5 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.

Report No.: NEI-FICP-1-1110C112A Page 44 of 50

6.1.6 TEST RESULTS

EUT:	Wireless Optical Mouse	Model Name. :	3300P
Temperature :	25 ℃	Relative Humidity:	55 %
Pressure :	1009 hPa	Test Power :	DC 1.5V
Test Mode :	TX CH01, CH09, CH16		

Channel of Worst Data: CH16					
	cy power in any 100kHz the frequency band	The max. radio frequency power in any 100 kHz bandwidth within the frequency band.			
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)		
5725.00	-59.13	5873.30	-69.66		
Posult					

Result

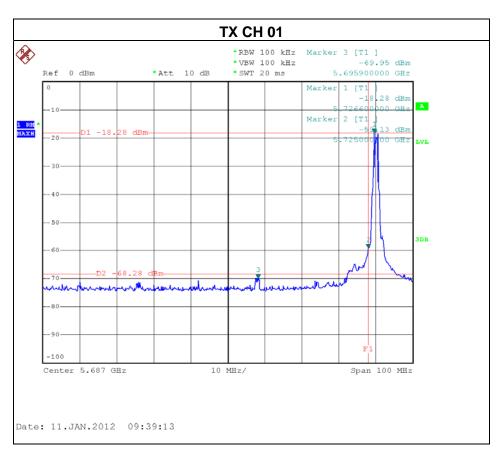
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 50dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.

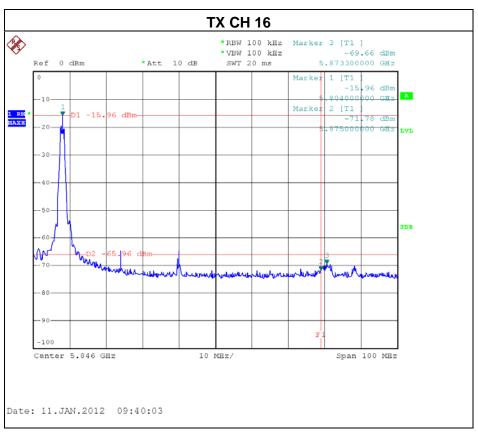
Band-edge test results –apply marker delta method

	CH01	
Peak fundamental frequency measured	84.49dBuV/m	
Delta	59.13dBm-18.28dBm=40.85dB	
Peak field strength at 2400.0MHz	84.49dBuV/m-40.85dB=43.64dBuV/m	
Result	PASS < Limits 74 dBuV/m	

Report No.: NEI-FICP-1-1110C112A Page 45 of 50



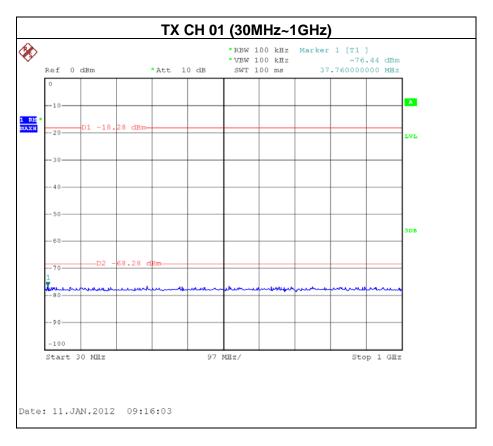


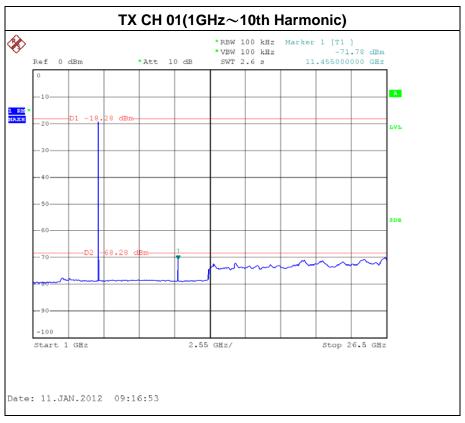


Page 46 of 50

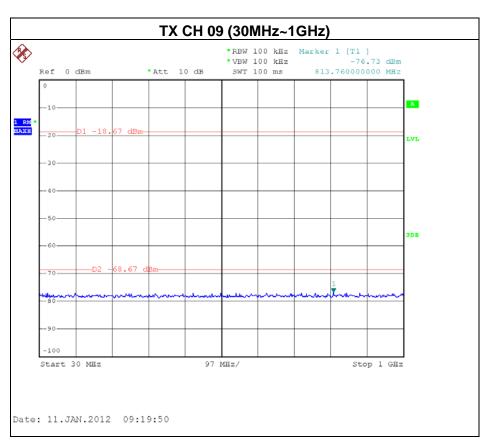
Report No.: NEI-FICP-1-1110C112A

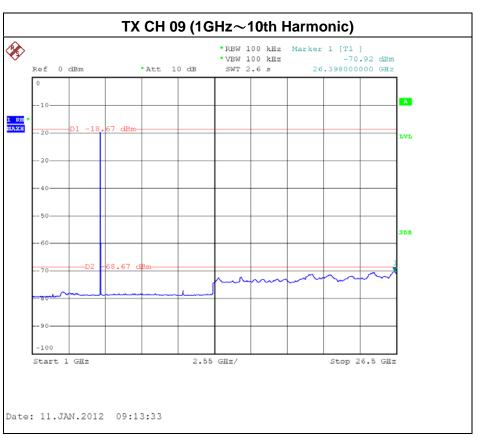






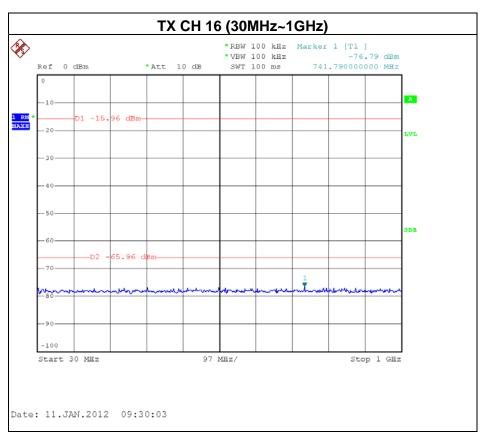


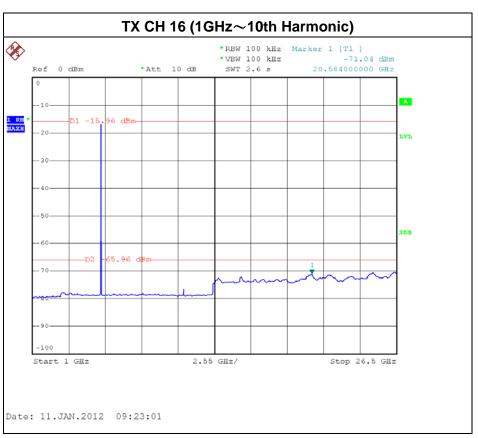




Report No.: NEI-FICP-1-1110C112A Page 48 of 50





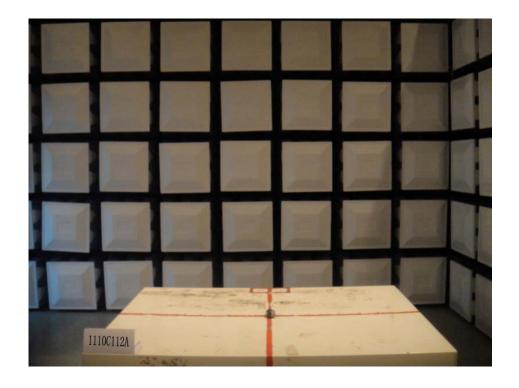


Report No.: NEI-FICP-1-1110C112A Page 49 of 50



7. EUT TEST PHOTO

Radiated Measurement Photos





Report No.: NEI-FICP-1-1110C112A Page 50 of 50