



Neutron Engineering Inc.

FCC TEST Report

Issued Date : Feb. 16, 2009
Project No. : 0901C071
Equipment : 9865W Wireless Memo Mouse USB receiver
Model Name : 9865W
Applicant : Chows Industrial (China) Limited
Address : Rm 3A, JinFeng Building, 1001 ShanBu south
Rd, FuTian, ShenZhen city, China

Tested by:
Neutron Engineering Inc. EMC Laboratory
Date of Test:
Jan. 19, 2009 ~ Feb. 13, 2009

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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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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 : 9865W Wireless Memo Mouse USB receiver
Trade Name : CHOWS
Model Name : 9865W
Applicant : Chows Industrial (China) Limited
Date of Test : Jan. 19, 2009 ~ Feb. 13, 2009
Test Item : ENGINEERING SAMPLE
Standards : FCC Part 15, Subpart B, Class B
CISPR 22: 1997+A1: 2000, Class B
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-FCCE-1-0901C071) 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).



2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15, Subpart B CISPR 22:1997+A1: 2000	Conducted Emission	Class B	PASS	
	Radiated Emission	Class B	PASS	

NOTE:



2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **C01/OS02** at the location of B1, No.37, Lane 365, YangGuang St., NeiHu District 114., Taipei, Taiwan

2.2 MEASUREMENT UNCERTAINTY

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

A. Conducted Measurement :

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

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U , (dB)	NOTE
OS01	ANSI	30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
OS02	ANSI	30MHz ~ 200MHz	V	2.48	
		30MHz ~ 200MHz	H	2.16	
		200MHz ~ 1,000MHz	V	2.50	
		200MHz ~ 1,000MHz	H	2.66	



3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	9865W Wireless Memo Mouse USB receiver
Trade Name	CHOWS
Model Name	9865W
OEM Brand/Model No.	N/A
Model Difference	N/A
Product Description	The EUT is a 9865W Wireless Memo Mouse USB receiver . 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.
Power Source	DC Voltage supplied from Host system(Dongle)
Power Rating	I/P AC 120V/60Hz O/P DC (Dongle)
Connecting I/O Port(s)	Please refer to the User's Manual
Products Covered	N/A
EUT Modification(s)	N/A

Note:

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



3.2 DESCRIPTION OF TEST MODES

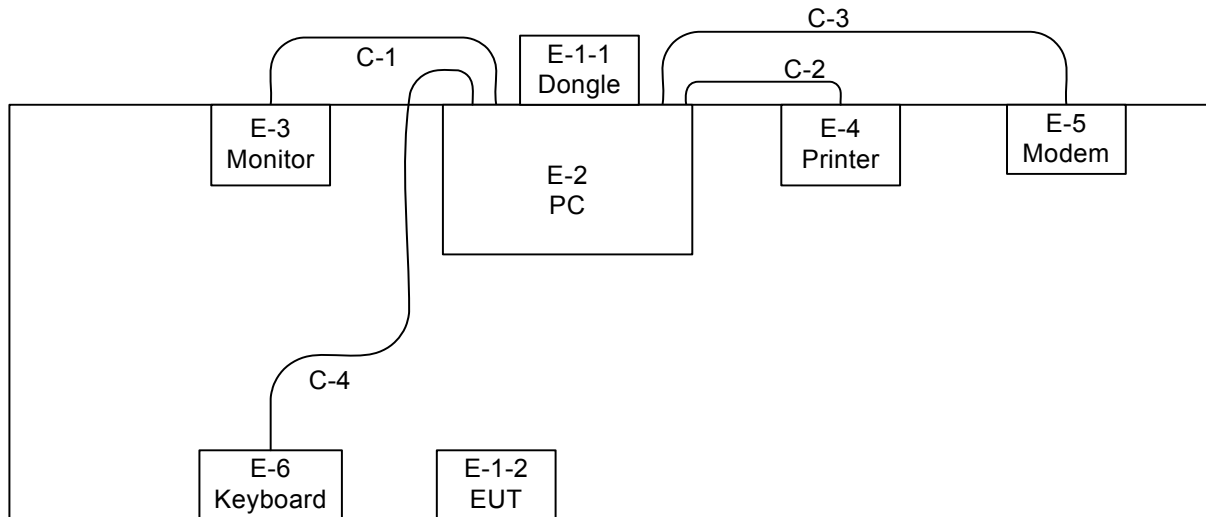
To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

Pretest Mode	Description
Mode 1	Normal Link (TX/RX Sample)

For Conducted Test	
Final Test Mode	Description
Mode 1	Normal Link(TX/RX Sample)

For Radiated Test	
Final Test Mode	Description
Mode 1	Normal Link (TX/RX Sample)

3.3 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED



C-1: VGA CABLE
C-2: PARALLEL CABLE
C-3: SERIES CABLE
C-4: USB CABLE



3.3 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-1-1	9865W Wireless Memo Mouse USB receiver	CHOWS	9865W	DOC	N/A	RX
E-1-2	Wireless Mouse	CHOWS	9865W	DOC	N/A	TX
E-2	PC	HP	xw8200	DOC	SGH50402C3	
E-3	19" LCD Monitor	DELL	193P	GH19PH	DI19H4JXC05517A	
E-4	Printer	SII	DPU-414	DOC	1045105A	
E-5	Modem	ACEEX	DM-1414V	DOC	8041708	
E-6	USB K/B	DELL	M-SAW34	DOC	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	YES	YES	1.8M	
C-2	YES	NO	1.8M	
C-3	YES	NO	1.8M	
C-4	YES	YES	1.8M	

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 『Length』 column.



4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

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

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

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. 23, 2010
2	LISN	EMCO	3816/2	00042990	Jan. 23, 2010
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 No. , Serial No. or No Calibration specified.

The following table is the setting of the receiver

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

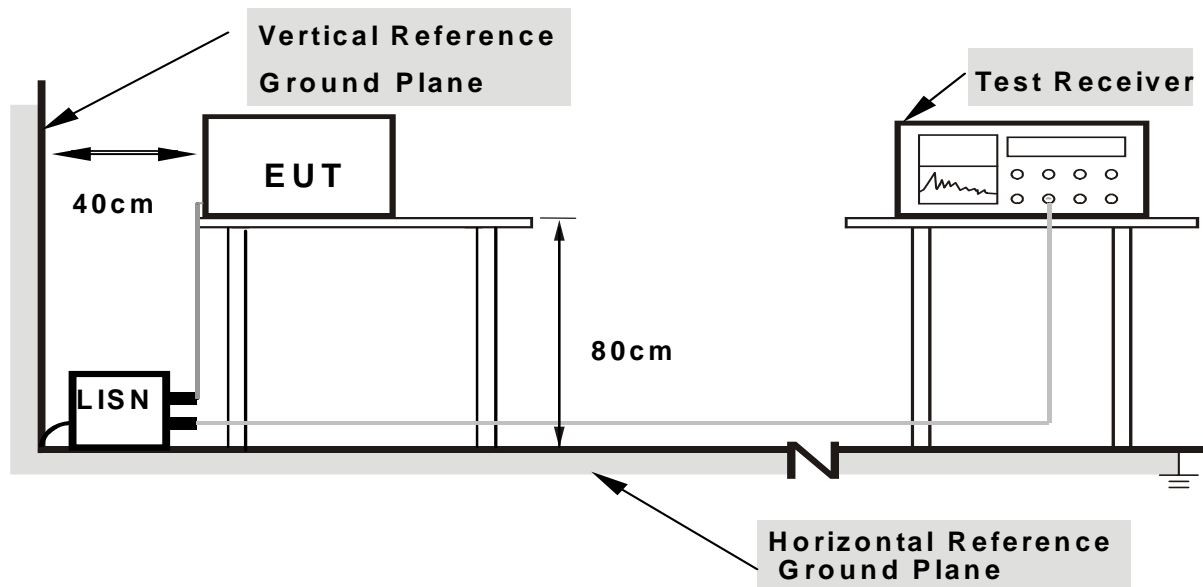
4.1.3 TEST PROCEDURE

- 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.
- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- LISN at least 80 cm from nearest part of EUT chassis.
- 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.



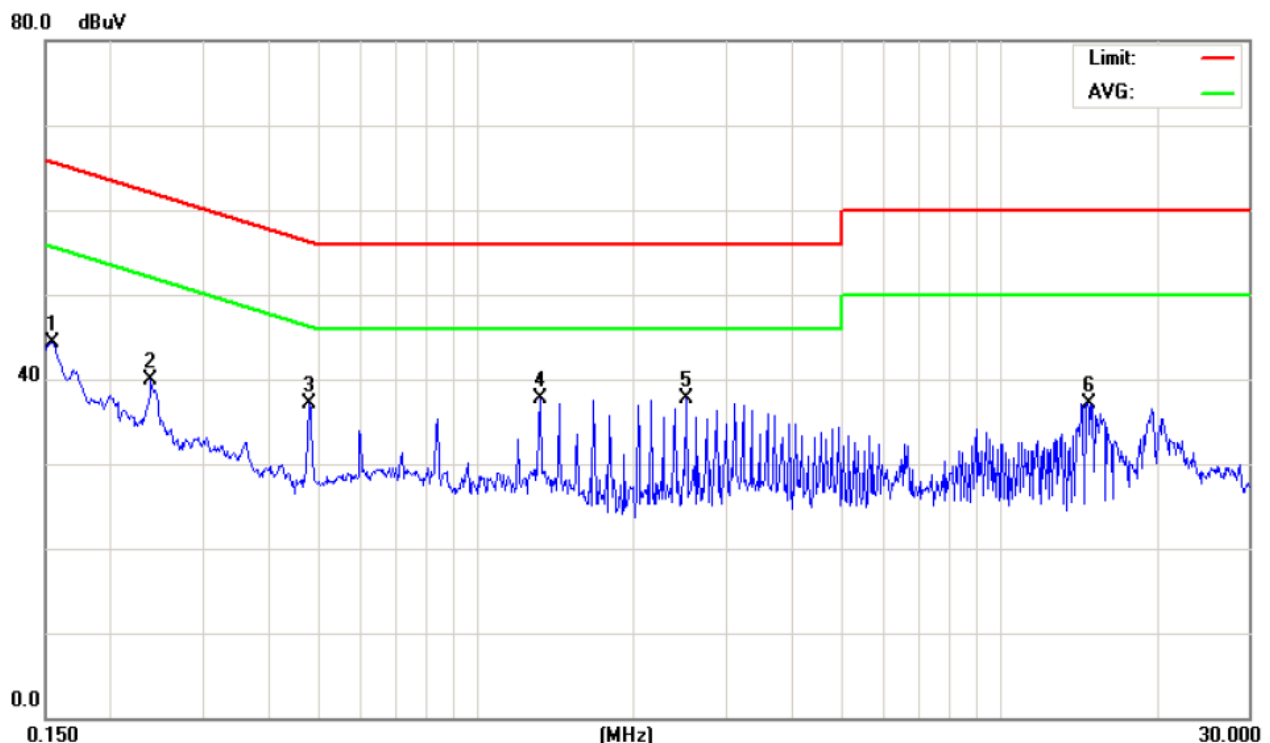
4.1.7 TEST RESULTS

EUT :	9865W Wireless Memo Mouse USB receiver	Model Name :	9865W
Temperature :	21 °C	Relative Humidity :	58%
Pressure :	1010hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Normal link		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.15	Line	44.27	*	65.76	55.76	-21.49	(QP)
0.24	Line	39.81	*	62.14	52.14	-22.33	(QP)
0.48	Line	37.03	*	56.37	46.37	-19.34	(QP)
1.32	Line	37.66	*	56.00	46.00	-18.34	(QP)
2.52	Line	37.71	*	56.00	46.00	-18.29	(QP)
14.71	Line	37.10	*	60.00	50.00	-22.90	(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.



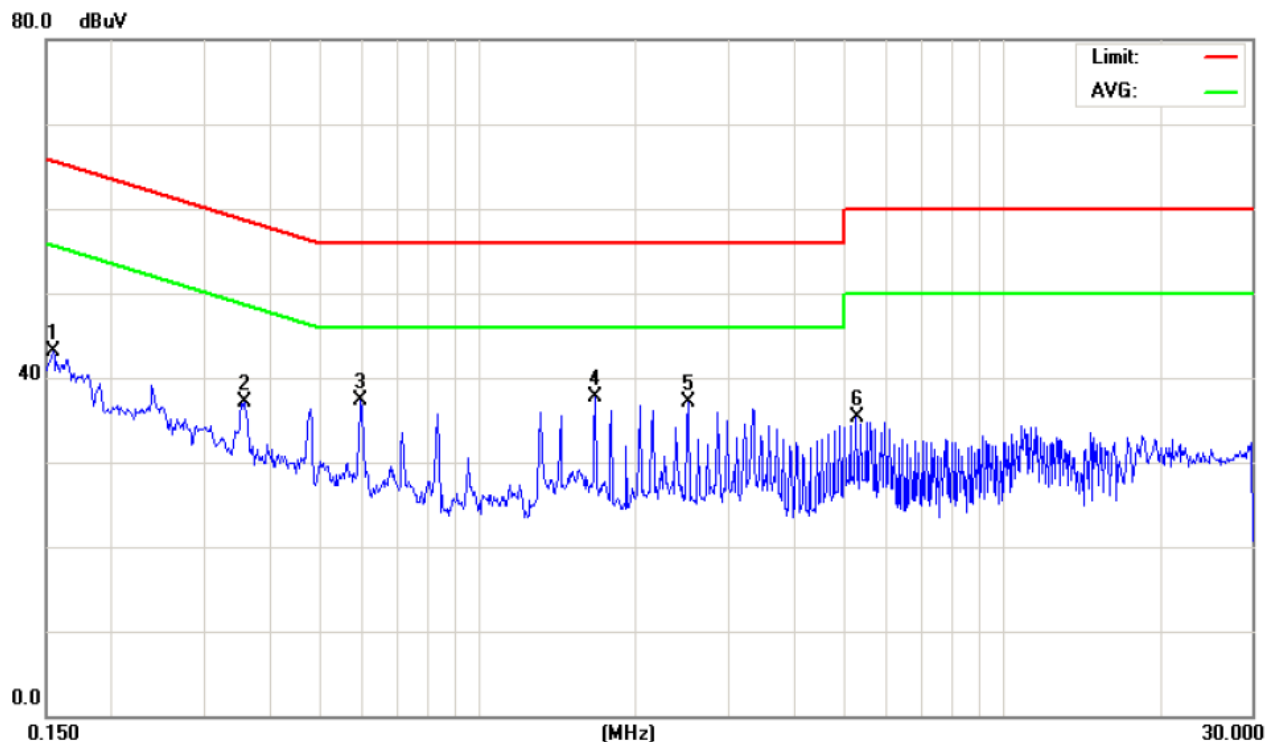


EUT :	9865W Wireless Memo Mouse USB receiver	Model Name :	9865W
Temperature :	21 °C	Relative Humidity :	58%
Pressure :	1010hPa	Test Voltage :	AC 120V/60Hz
Test Mode :	Normal link		

Freq. (MHz)	Terminal L/N	Measured(dBuV)		Limits(dBuV)		Margin (dB)	Note
		QP-Mode	AV-Mode	QP-Mode	AV-Mode		
0.15	Neutral	43.09	*	65.76	55.76	-22.67	(QP)
0.36	Neutral	37.03	*	58.77	48.77	-21.74	(QP)
0.60	Neutral	37.23	*	56.00	46.00	-18.77	(QP)
1.68	Neutral	37.73	*	56.00	46.00	-18.27	(QP)
2.52	Neutral	37.07	*	56.00	46.00	-18.93	(QP)
2.25	Neutral	35.31	*	56.00	46.00	-20.69	(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.



4.2 RADIATED EMISSION MEASUREMENT

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT (Below 1000MHz)

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30~88	39.1	40.0
88~216	43.5	43.5
216~960	46.4	46.0
Above 960	49.5	54.0

Notes:

- (1) The limit for radiated test was performed according to as following:
CISPR 22/ FCC PART 15B /ICES-003.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3m)		Class B (dBuV/m) (at 3m)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

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

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

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



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. 29, 2010
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. 06, 2010
9	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-325	Oct. 23, 2009
10	Horn Antenna	Schwarzbeck	BBHA9170	9170187	Oct. 24, 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	A30A30-500 6	10M	Jul. 06, 2009

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

4.2.3 TEST PROCEDURE

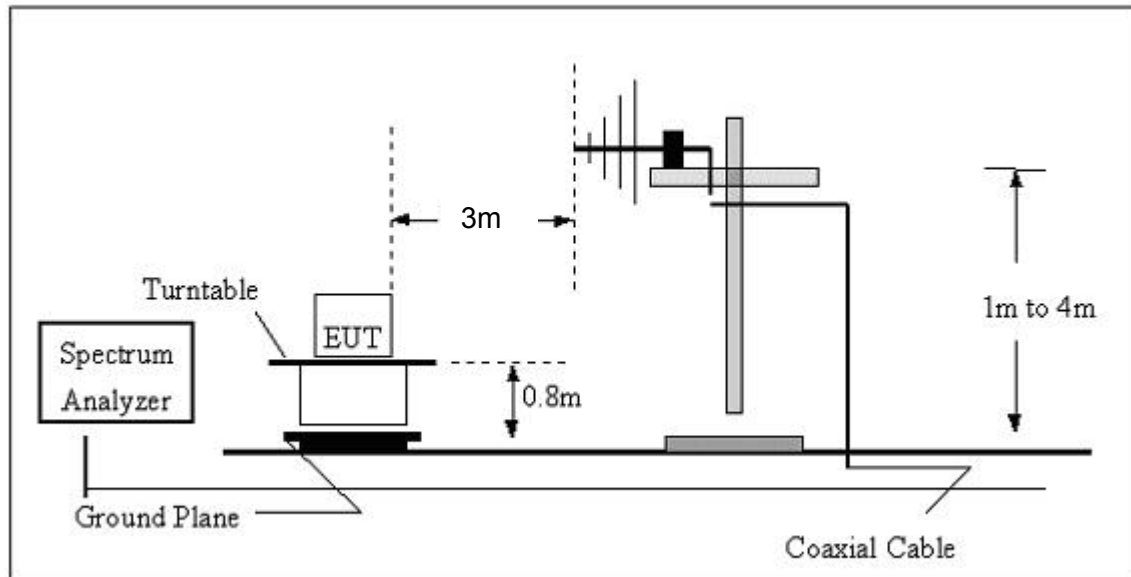
- The measuring distance of at 3 m shall be used for measurements at frequency below 1GHz. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1G)
- The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1G)
- 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.
- 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.
- 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.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.2.4 DEVIATION FROM TEST STANDARD

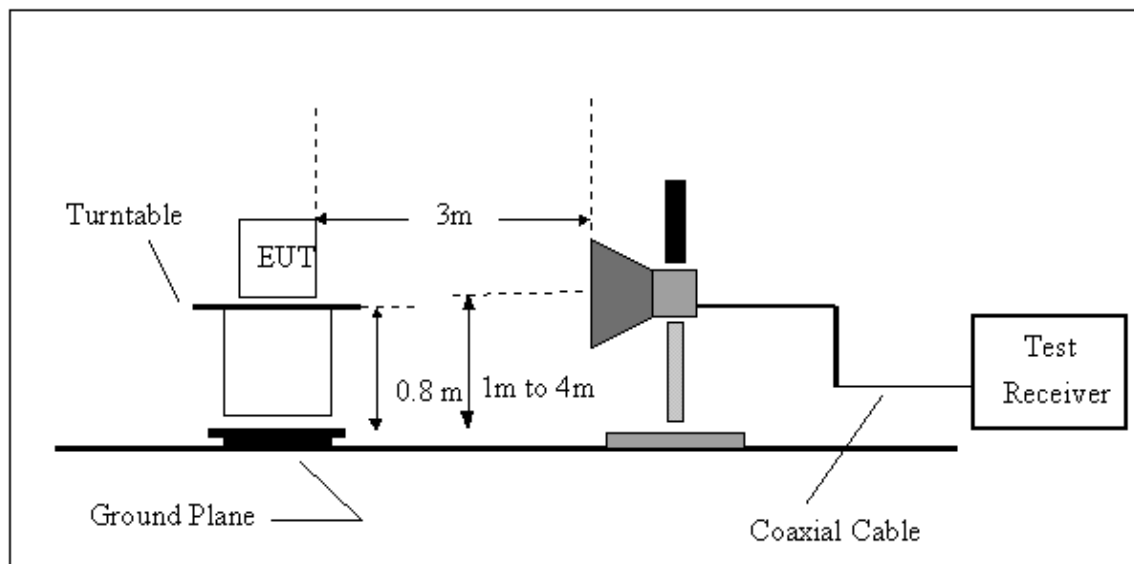
No deviation

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.

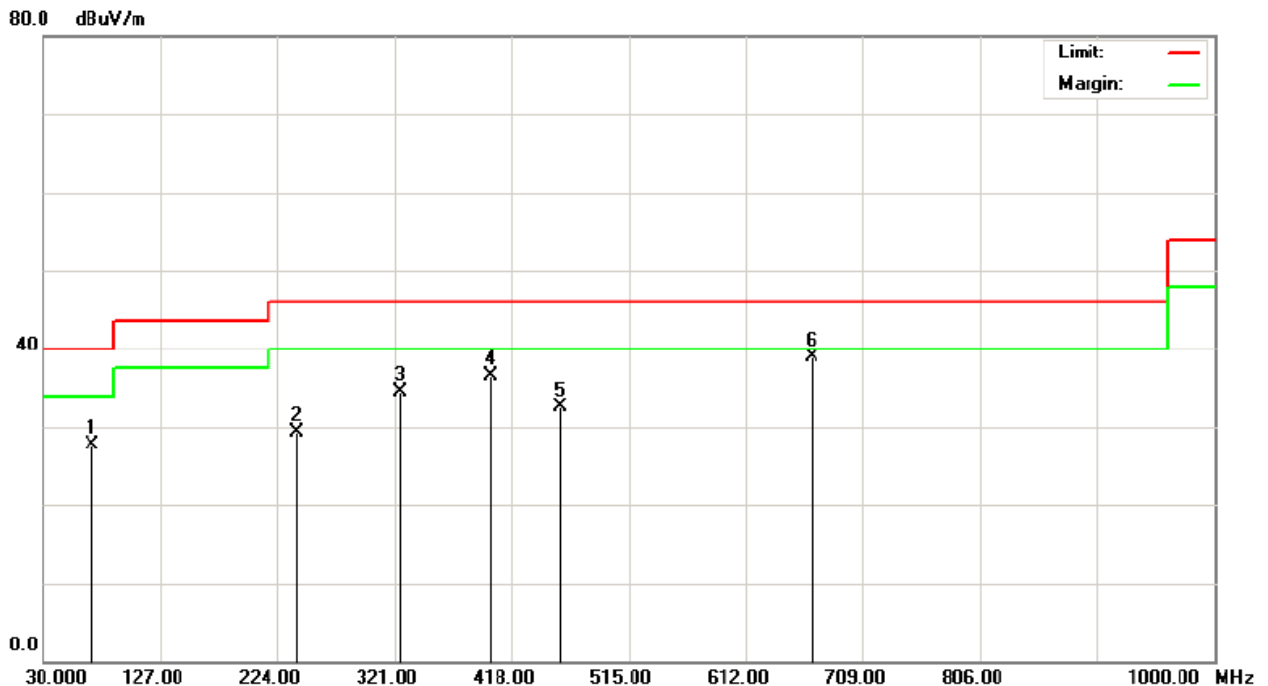
4.3.7. TEST RESULTS (30MHz~1GHz)

EUT :	9865W Wireless Memo Mouse USB receiver	Model Name :	9865W
Temperature :	21 °C	Relative Humidity :	60%
Pressure :	1010 hPa	Test Power :	AC 120V/60Hz
Test Mode :	Normal Link		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
70.74	V	49.69	-21.89	27.80	40.00	- 12.20	
239.52	V	45.22	-15.86	29.36	46.00	- 16.64	
324.88	V	47.18	-12.65	34.53	46.00	- 11.47	
400.54	V	47.15	-10.60	36.55	46.00	- 9.45	
458.74	V	42.08	-9.59	32.49	46.00	- 13.51	
666.32	V	43.12	-4.29	38.83	46.00	- 7.17	

Remark :

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz .
- (2) 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 .
- (3) Measuring frequency range from 30MHz to 1000MHz .
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table .



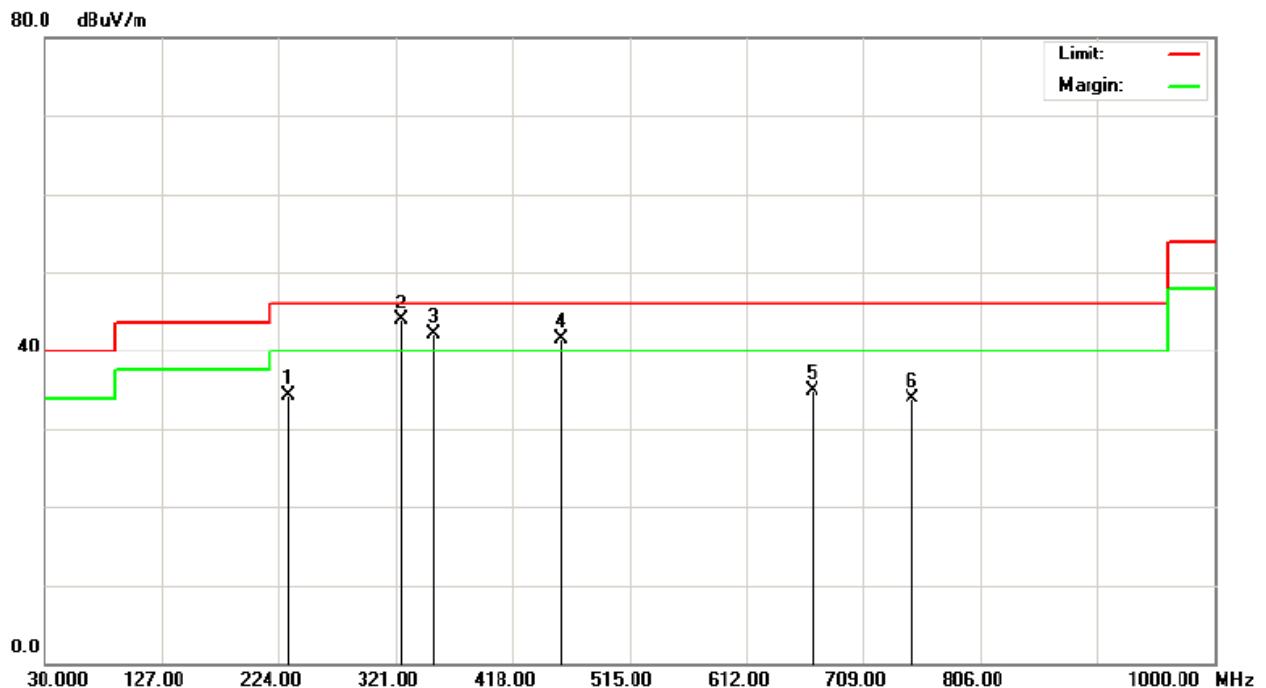


EUT :	9865W Wireless Memo Mouse USB receiver	Model Name :	9865W
Temperature :	21 °C	Relative Humidity :	60%
Pressure :	1010 hPa	Test Power :	AC 120V/60Hz
Test Mode :	Normal Link		

Freq. (MHz)	Ant. H/V	Reading(RA) (dBuV)	Corr.Factor(CF) (dB)	Measured(FS) (dBuV/m)	Limits(QP) (dBuV/m)	Margin (dB)	Note
231.76	H	50.57	-16.21	34.36	46.00	- 16.42	
324.88	H	56.50	-12.65	43.85	46.00	- 2.15	(QP)
352.04	H	54.02	-11.88	42.14	46.00	- 3.86	
458.74	H	51.00	-9.59	41.41	46.00	- 4.59	
666.32	H	39.21	-4.29	34.92	46.00	- 11.08	
749.74	H	37.30	-3.42	33.88	46.00	- 12.12	

Remark :

- (1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz ; SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz .
- (2) 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 .
- (3) Measuring frequency range from 30MHz to 1000MHz .
- (4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table .





5. EUT TEST PHOTO

Conducted Measurement Photos Normal Link (TX/RX Sample)



**Conducted Measurement Photos
Normal Link (TX/RX Sample)**



**Radiated Measurement Photos
Normal Link (TX/RX Sample)**



**Radiated Measurement Photos
Normal Link (TX/RX Sample)**

