RF TEST REPORT

Test report No.:	**EMC- FCC- R0005**
FCC ID:	**WB6GC424787**
Type of equipment:	**Wireless Slim Mouse**
Brand Name:	**SLIM G4**
Model Name:	**SLIM G4-WL**
Applicant:	**U&Me Co.,Ltd**
FCC Rule Part(s):	**FCC part 15, subpart C §15.227**
Fundamental Frequency:	**27.045 MHz**
Test result:	**Complied**

The above equipment was tested by EMC compliance Testing Laboratory for compliance with the requirements of FCC Rules and Regulations.
The results of testing in this report apply to the product/system which was tested only. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Date of test: May 6, 2008 ~ May 14, 2008
Issued date: May 15, 2008

Tested by: KIM, CHANG MIN

Approved by: YOO, SUNG YOUNG

82-1 Jeil-ri, Yangji-myun, Churingu, Yongin-city, Kyungki-do,Korea 449-825,
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1. Client information

Applicant:	U&Me Co.,Ltd
Address:	3Fl Inno Tree Bldg., 66-1, Sangdaewon-Dong, Jungwon-Gu, Seongnam-City, Kyonggi-Do, Korea
Telephone number:	+8231-735-7740
Facsimile number :	+8231-735-7745
Contact person:	KIWUNG PARK/ Business Director

Manufacturer:	U&Me Co.,Ltd
Address:	3Fl Inno Tree Bldg., 66-1, Sangdaewon-Dong, Jungwon-Gu, Seongnam-City, Kyonggi-Do, Korea
Telephone number:	+8231-735-7740
Facsimile number:	+8231-735-7745
Contact person:	KIWUNG PARK/ Business Director

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2. Laboratory information

Address
EMC Compliance Ltd.
82-1, JEIL-RI, YANGJI-MYUN, CHURINGU, YONGIN-CITY, KYUNGGI-DO,
KOREA 449-825
Telephone Number: 82 31 336 9919 Facsimile Number: 82 31 336 4767

Certificate
CBTL Testing Laboratory, KOLAS NO.: 231
FCC Filing No.: 793334
VCCI Registration No.: C-1713, R-1606, T-258

SITE MAP

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3. Description of E.U.T.

3.1 Basic description

Applicant :	U&Me Co.,Ltd
Address of Applicant:	3Fl Inno Tree Bldg., 66-1, Sangdaewon-Dong, Jungwon-Gu, Seongnam-City, Kyonggi-Do, Korea
Manufacturer:	U&Me Co.,Ltd
Address of Manufacturer:	3Fl Inno Tree Bldg., 66-1, Sangdaewon-Dong, Jungwon-Gu, Seongnam-City, Kyonggi-Do, Korea
Type of equipment:	Wireless Slim Mouse
Basic Model:	SLIM G4-WL
Brand name:	SLIM G4
Serial number:	Proto Type

3.2 General description

Frequency	27.045 MHz
Type of Modulation	8K50F1D
Channel capacity	1 ch
Power supply	DC 3.7 V (LI-ION Rechageable battery)
Battery life	2~3 days
Operating temperature	-10 °C ~ 55 °C
Dimension	Transmitter: 85 * 54 * 5 mm Receiver: 60 * 20 * 10 mm
Weight	Transmitter: 23g Receiver: 6.5g
Antenna type	PCB Pattern antenna
Antenna connector	NA

3.3 Test frequency

Frequency	**27.045 MHz**

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4. Summary of test results

4.1 Standards & results

Rule Reference	Parameter	Status
Part 15 Subpart C		
15.227 (a)	Field strength of Fundamental Emission	C
15.215 (c)	20dB Spectrum Bandwidth	C
15.227(b)	Radiated Emission	C
15.227(b)	Band edge Emission	C
15.203	Antenna Requirements	C
15.207	Power line Conducted Emission	C

Note: C=complies
NC= Not complies
NT=Not tested
NA=Not Applicable

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5. Test results

5.1 Field strength of Fundamental Emission

5.1.1 Minimum Standard

The field strength of emission within these bands specified at a distance of 3 meters shall comply with the following table.

Frequency band	Fundamental emissions Limit(dBuV/m) at 3m
26.96~27.28 MHz	100(Peak)
	80(Average)

5.1.2Test procedures

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the Turn table 0.8meter above the ground. The phase center of the loop receiving antenna mounted antenna tower was placed 3 meters far away from the Turn table.
2. Power on the EUT and all the supporting units. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
3. The highest of the receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
4. For fundamental emissions, use the receiver to measure peak and average reading.
5. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the averaging absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.

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5.1.3 Test Result

Complies

Fundamental Emission				
Frequency	Measuring Bandwidth	Detector	Emission Level(dBuV/m)	Limit (dBuV/m)
27.045	9 kHz	PK	39.07	100
27.045	9 kHz	AV	35.17	80
Uncertainty			3.795 dB	

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5.2 20dB Spectrum Bandwidth

5.2.1 Minimum Standard

Intentional radiators must be designed to ensure that the 20dB bandwidth of the Emissions in the specific band (26.96 ~ 27.28 MHz).

5.2.2 Test procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The resolution bandwidth of 1 kHz and the video bandwidth of 1 kHz were used.
3. Measured the spectrum width with power higher than 20dC below carrier.

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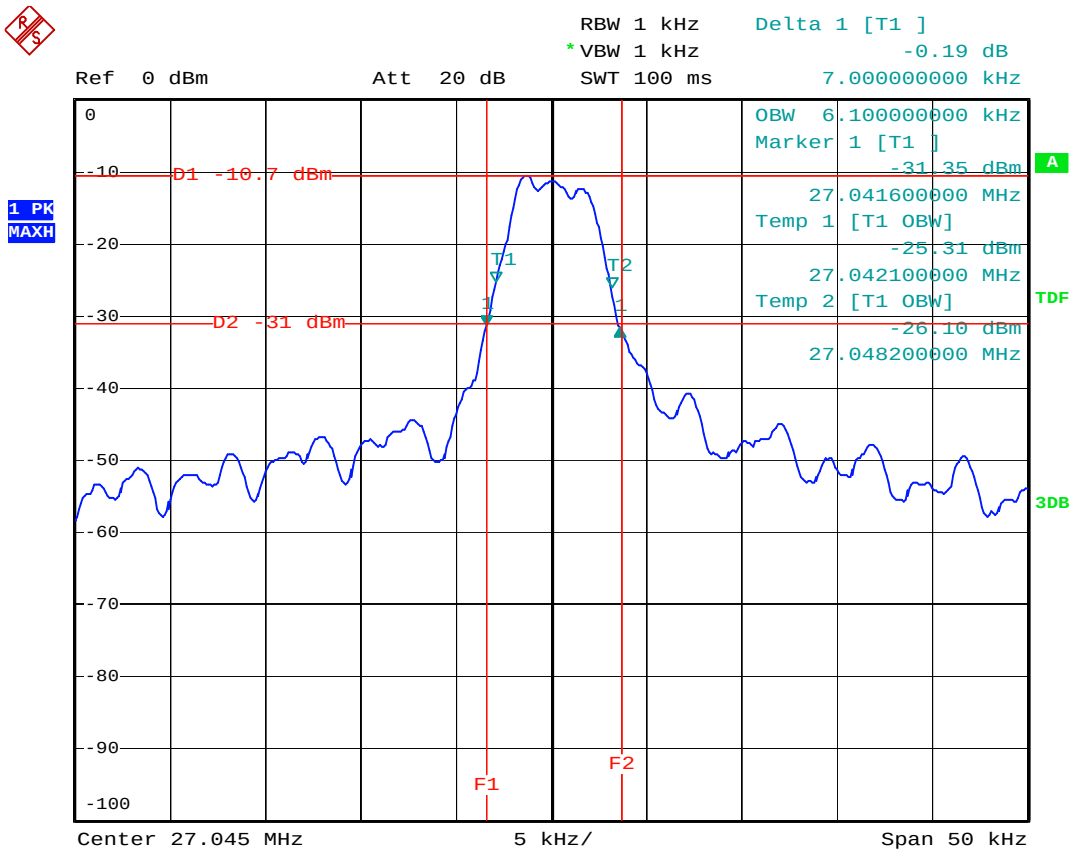
5.2.3 Test Result

frequency	20 dB BW (kHz)	99% BW (kHz)	Frequency range(MHz) f_L>26.96 MHz	Frequency range(MHz) f_H<27.28 MHz	Test Result
27.045MHz	7.0	6.1	27.0416	27.0486	complies

-Test plot



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5.3 Radiated Emission (15.227 (b))

5.3.1 Minimum Standard

Fundamental Frequency (MHz)	Field Strength (uV/m)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	2400/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
**Except as provided in paragraph (g),fundamental emission from intentional		

5.3.2 Test procedures

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the Turn table 0.8meter above the ground. The phase center of the loop receiving antenna mounted antenna tower was placed 3 meters far away from the Turn table.
2. Power on the EUT and all the supporting units. The turn table was rotated by 360 degrees to determine the position of the highest radiation.
3. The highest of the receiving antenna was fixed at one meter above ground to find the maximum emissions field strength.
4. For each suspected emissions, the antenna was varied between one meter and four meters above ground to find the maximum emission field strength of both horizontal and vertical polarization.
5. Set the test receiver systems to peak or CISPR quasi-peak detect function with specified bandwidth under maximum hold mode.
6. When the radiated emissions limits are expressed in terns of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the averaging absolute voltage during a 0.1 second interval during which the field strength is at its maximum value.
7. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High-Low scan is not required in this case.

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5.3.3 Measurement Data

Measurement Distance: 3m (OATS)

Freq (MHz)	Pol	Reading (dBuV)	Correction Factor		Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
			antenna	cable			
54.10	H	11.8	12.14	1.78	25.72	40.0	14.28
54.10	V	5.2	12.14	1.78	19.12	40.0	20.88
81.15	H	10.8	7.84	2.23	20.87	40.0	19.13
81.15	V	3.2	7.84	2.23	13.27	40.0	26.73
108.20	H	10.3	10.04	2.53	22.87	43.5	20.63
108.20	V	2.9	10.04	2.53	15.47	43.5	28.03
135.25	H	4.8	12.37	2.77	19.94	43.5	23.56
135.25	V	-1.0	12.37	2.77	14.14	43.5	29.36
162.30	H	2.8	12.67	3.00	18.47	43.5	25.03
162.30	V	-2.2	12.67	3.00	13.47	43.5	30.03
189.35	H	4.6	10.29	3.28	18.17	43.5	25.33
189.35	V	-1.6	10.29	3.28	11.97	43.5	31.53
216.40	H	3.8	9.89	3.51	17.20	46.0	28.80
216.40	V	0.8	9.89	3.51	14.20	46.0	31.80
243.45	H	4.3	10.94	3.73	18.97	46.0	27.03
243.45	V	-2.2	10.94	3.73	12.47	46.0	33.53
270.50	H	1.2	11.81	3.96	16.97	46.0	29.03
270.50	V	-3.2	11.81	3.96	12.57	46.0	33.43
225.01	H	6.7	10.24	3.57	20.51	46.0	25.49
225.01	V	0.4	10.24	3.57	14.21	46.0	31.79

Remarks

Emission Level = Ant Factor (dB) + Cable Loss (dB) + Reading (dBuV)
Margin = Limit (dB) - Emission Level (dBuV/m)

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5.4 Band edge Emission

5.4.1 Minimum Standard

Band edge emission outside of the frequency bands shown in below table.

Outside frequency band edge	Limit (dBuV/m) at 3m
Low Band edge	69.54 (QP)
High Band edge	69.54(QP)

5.4.2 Test procedures

The test procedure is the same as section 4.2.3, only the frequency range Investigated is limit to 2MHz around band edges.

5.4.3 Test Result

- **Complies**

Freq (MHz)	Pol	Reading (dBuV)	Correction Factor		Emission level (dBuV/m)	Limit (dBuV/m)	Margin (dB)
			antenna	cable			
26.96	H	15.7	8.00	1.98	25.72	69.54	43.82
26.96	H	14.5	8.00	1.98	24.48	69.54	45.06
27.28	V	16.0	7.96	1.99	25.92	69.54	43.62
27.28	V	14.1	7.96	1.99	24.01	69.54	45.53

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5.5 Antenna requirements

5.5.1 Minimum Standard

Except for special regulations, the low power radio frequency devices must not be equipped with any jacket for installing an antenna with extension cable. An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.
The use of permanently attached antenna or an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that the user can replaced a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

5.5.2 Antenna Connector Construction

Please refer to section 3.2 in this test report, all antenna connectors comply with the requirements.

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5.6 Power line Conducted Emission

5.6.1 Minimum Standard

Frequency[MHz]	Quasi-peak(dBuV)	Average(dBuV)
0.15 - 0.5	66-56	56-46
0.5 - 5	56	46
5 - 30	60	50

5.6.2 Test procedures

1. Configure the EUT according to ANSI C63.4. The EUT or host of EUT has to be placed 0.4 meter far from the conducting wall of the shielding room and least 80 centimeters from any other grounded conducting surface.
2. Connect the EUT or host EUT to the power mains through a line impedance stabilization network (LISN).
3. All the support units are connected to the other LISNs. The LISN should provide 50uH/50ohms coupling impedance.
4. The frequency range from 150kHz to 30MHz was searched.
5. Set the test-receiver system to peak Detect Function and specified Bandwidth with maximum Hold Mode.
6. The measurement has to be done between each power line and ground at the power terminal.

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5.6.3 Test Result

Frequency	Correction Factor		Line	QP			AV		
				Limit	Reading	Result	Limit	Reading	Result
[MHz]	LISN	Cable		[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]	[dBuV]
0.150	0.25	0.1	H	66.00	48.59	48.94	56.00	34.17	34.52
0.153	0.10	0.1	N	65.84	48.19	48.39	55.84	35.55	35.75
0.159	0.25	0.1	H	65.52	46.66	47.01	55.52	33.01	33.36
0.165	0.25	0.1	H	65.21	45.25	45.60	55.21	28.57	28.92
0.243	0.23	0.1	H	61.99	43.50	43.83	51.99	26.56	26.89
0.366	0.10	0.1	N	60.94	39.01	39.21	50.94	29.63	29.83
0.591	0.11	0.2	N	56.00	33.90	34.21	46.00	24.59	24.90
0.597	0.24	0.2	H		30.73	31.17		21.64	22.08
0.639	0.11	0.2	N		33.12	33.43		21.45	21.76
0.723	0.12	0.1	N		30.51	30.73		19.55	19.77
0.873	0.12	0.2	N		31.15	31.47		21.51	21.83
1.098	0.13	0.2	N		30.28	30.61		21.73	22.06
7.640	0.32	0.4	N	60.00	24.56	25.28	50.00	18.18	18.90
19.400	0.90	0.3	H		27.55	28.75		21.54	22.74
20.730	0.96	0.3	H		28.12	29.38		22.11	23.37
22.600	0.86	0.3	N		24.81	25.97		18.84	20.00
24.000	1.06	0.3	H		30.59	31.95		25.90	27.26
25.100	0.94	0.3	N		25.63	26.87		19.34	20.58

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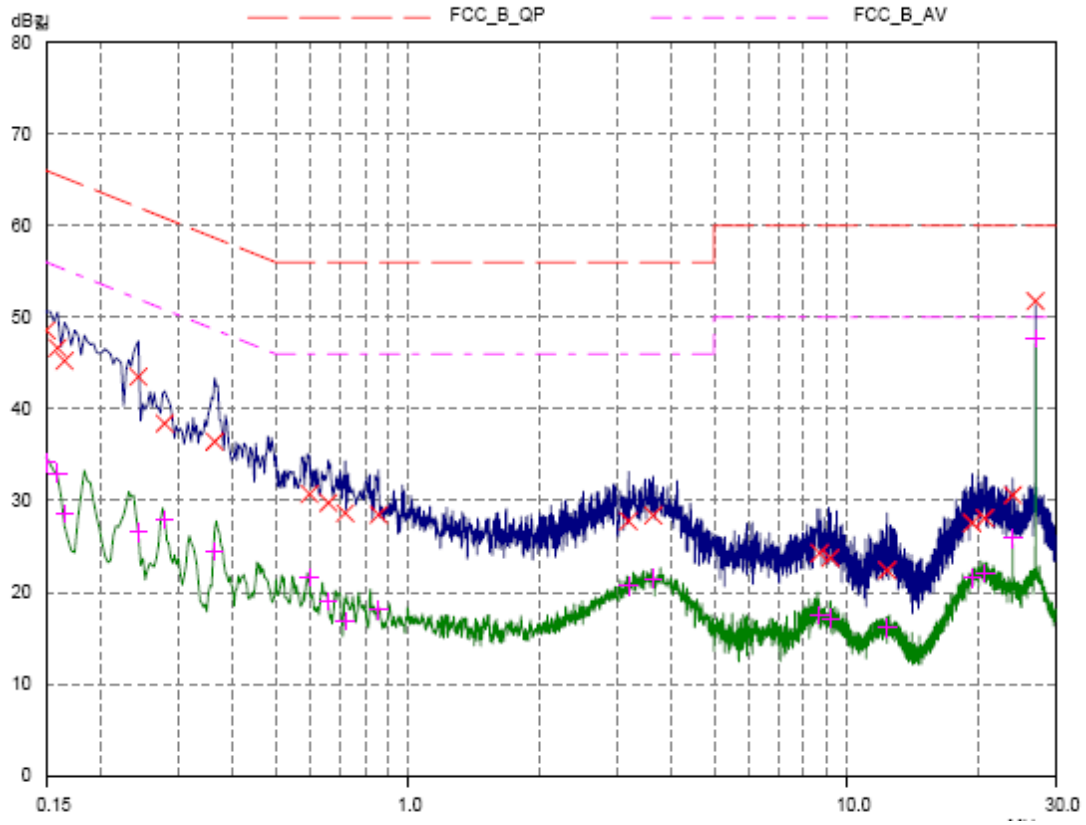
EUT: MOUSE
Manuf:
Op Cond: H
Operator:
Test Spec: FCC Class B Conducted Emission
Comment:

Result File: mo_h.dat : MOUSE OP_H

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	3MHz	3kHz	10kHz	PK+AV	5msec	Auto	OFF	60dB
3MHz	30MHz	10kHz	10kHz	PK+AV	2msec	Auto	OFF	60dB

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Peaks: 8
Acc Margin: 25 dB



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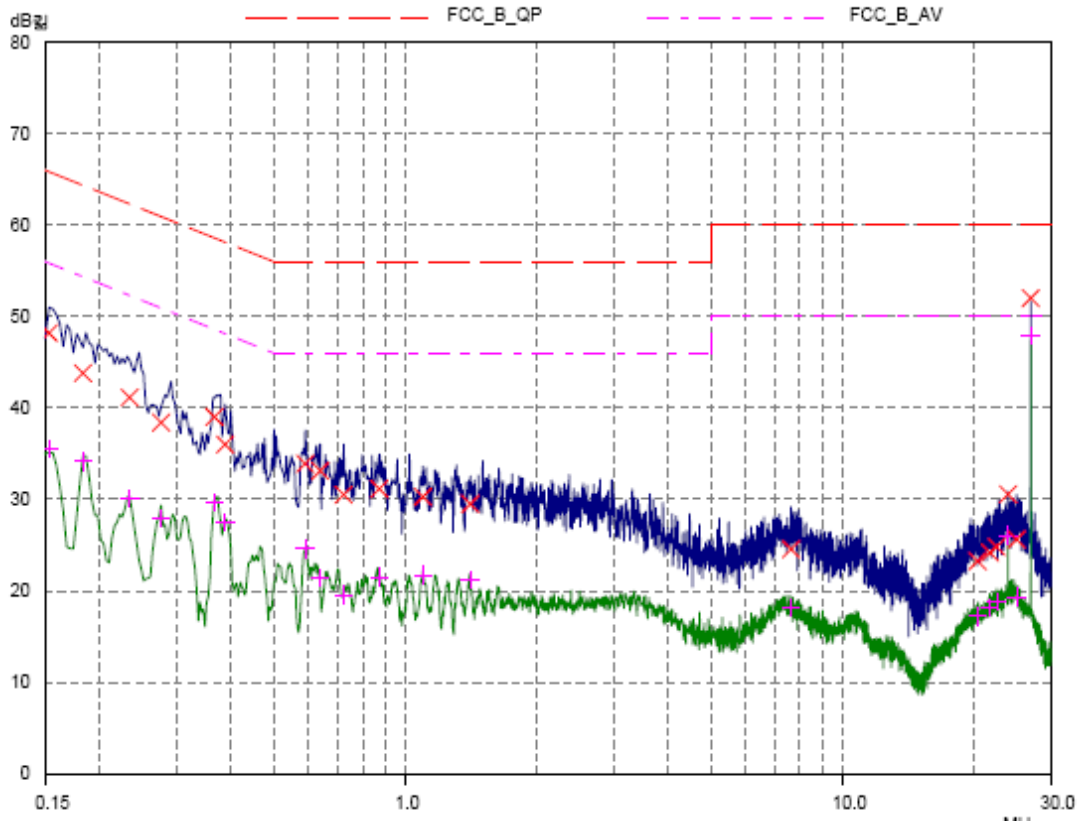
EUT: MOUSE
Manuf:
Op Cond: N
Operator:
Test Spec: FCC Class B Conducted Emission
Comment:

Result File: mo_n.dat : MOUSE OP_N

Scan Settings (2 Ranges)

Frequencies			Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
150kHz	3MHz	3kHz	10kHz	PK+AV	5msec	Auto	OFF	60dB
3MHz	30MHz	10kHz	10kHz	PK+AV	2msec	Auto	OFF	60dB

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Peaks: 8
Acc Margin: 25 dB



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6. Test equipment used for test

	Description	Manufacture	Model No.	Serial No.	Next Cal Date.
☐	Temp & humidity chamber	taekwang	TK-04	TK001	08.12.12
☐	Temp & humidity chamber	taekwang	TK-500	TK002	08.09.06
☐	Power Meter	Agilent	E4416A	GB41292365	08.11.02
☐	Frequency Counter	HP	5351B	3049A01295	08.11.02
■	Spectrum Analyzer	Agilent	E4407B	US39010142	08.11.02
■	Spectrum Analyzer	R & S	FSP40	100209	08.11.19
■	Signal Generator	HP	E4432B	GB39340611	08.11.02
☐	Modulation Analyzer	HP	8901B	3538A05527	08.11.08
☐	Function Generator	Agilent	33120A	US36018826	08.11.02
☐	Audio Analyzer	HP	8903B	3011A10372	08.11.02
☐	Audio Analyzer	HP	8903B	3729A18248	08.11.02
☐	AC Power Supply	KIKUSUI	PCR2000W	GB001619	08.11.02
■	DC Power Supply	Tektronix	PS2520G	TW50517	09.02.15
☐	DC Power Supply	Tektronix	PS2521G	TW53135	08.11.02
☐	Dummy Load	BIRD	8141	7560	-
☐	Dummy Load	BIRD	8401-025	799	-
■	EMI Test Receiver	R&S	ESCI	100001	08.11.16
■	Attenuator	HP	8494A	2631A09825	08.11.06
■	Attenuator	HP	8496A	3308A16640	08.11.06
☐	Attenuator	R&S	RBS1000	D67079	08.11.05
☐	Attenuator	BIRD	50-A-MFN-20	0403002	08.11.02
☐	Attenuator	HP	11581A	29738	09.01.08
☐	Power sensor	Agilent	E9321A	US40390422	08.11.03
☐	Power sensor	Agilent	E9325A		08.11.03
■	LOOP Antenna	EMCO	EMCO6502	9205-2745	09.05.28
■	BILOG Antenna	Schwarzbeck	VULB 9160	3138	10.02.21
☐	HORN Antenna	ETS	3115	00086706	09.12.13
☐	Power Divider	HP	11636A	05441	08.11.07
☐	Signal Generator	HP	E4421B	GB40052295	08.11.02
☐	Signal Generator	IFR	IFR2023A	202304/278	08.05.03
☐	Power Divider	Weinschel	1580-1	NX375	08.11.07
☐	Power Divider	Weinschel	1580-1	NX379	07.10.31
☐	Power Divider	Weinschel	1580-1	NX380	08.11.16
☐	PRE-AMP	AGILENT	8449B	3008A02343	09.02.15
■	Test Receiver	R&S	ESHS10	843276/003	08.05.22
■	LISN	R&S	ESH3-Z5	100267	08.07.02

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