

FCC TEST REPORT

REPORT NO.: RF980312H10

MODEL NO.: E-X5E-16

RECEIVED: March 12, 2009

TESTED: March 18 to 23, 2009

ISSUED: March 26, 2009

APPLICANT: LOGITECH FAR EAST LTD.

ADDRESS: #2 Creation Rd. 4, Science-Based Ind. Park

Hsinchu Taiwan, R.O.C.

ISSUED BY: Bureau Veritas Consumer Products Services

(H.K.) Ltd., Taoyuan Branch

TEST LOCATION: No. 81-1, Lu Liao Keng, 9th Ling, Wu Lung

Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307,

Taiwan

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Table of Contents

1	CERTIFICATION	
2	SUMMARY OF TEST RESULTS	4
2.1	MEASUREMENT UNCERTAINTY	4
3	GENERAL INFORMATION	5
3.1	GENERAL DESCRIPTION OF EUT	5
3.2	DESCRIPTION OF TEST MODES	
3.3	GENERAL DESCRIPTION OF APPLIED STANDARDS	6
3.4	DESCRIPTION OF SUPPORT UNITS	
3.5	CONFIGURATION OF SYSTEM UNDER TEST	
4	TEST PROCEDURES AND RESULTS	
4.1	RADIATED EMISSION MEASUREMENT	
4.1.1	LIMITS OF RADIATED EMISSION MEASUREMENT	_
4.1.2	TEST INSTRUMENTS	
4.1.3	TEST PROCEDURES	
4.1.4	DEVIATION FROM TEST STANDARD	
4.1.5	TEST SETUP	
4.1.6	EUT OPERATING CONDITIONS	
4.1.7	TEST RESULTS	
4.2	CONDUCTED - OUT BAND MEASUREMENT	
4.2.1	LIMITS OF CONDUCTED - OUT BAND MEASUREMENT	
4.2.2	TEST INSTRUMENTS	
4.2.3	TEST PROCEDURE	
4.2.4	DEVIATION FROM TEST STANDARD	
4.2.5	EUT OPERATING CONDITION	
4.2.6	TEST RESULTS	
5	INFORMATION ON THE TESTING LABORATORIES	19
6	APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING	
	CHANGES TO THE EUT BY THE LAB	20



1 CERTIFICATION

PRODUCT: Wireless Game Controller

BRAND NAME: SONY

MODEL NO.: E-X5E-16

TESTED: March 18 to 23, 2009

TEST SAMPLE: MASS-PRODUCTION

APPLICANT: LOGITECH FAR EAST LTD.

STANDARDS: 47 CFR Part 15, Subpart C (Section 15.249),

ANSI C63.4-2003

The above equipment (Model: E-X5E-16) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY: (a) , DATE: March 26, 2009

(Carol Liao, Specialist)

TECHNICAL ACCEPTANCE: March 26, 2009

Responsible for RF (Hank Chung, Deputy Manager)

APPROVED BY : , DATE: *March 26, 2009*

(May Chen, Deputy Manager)



2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

	APPLIED STANDARD: 47 CFR Part 15, Subpart C					
Standard Paragraph	Test Type	Result	Remark			
15.207	Conducted Emission Test	NA	Not Applicable			
15.249	Radiated Emission Test	PASS	Minimum passing margin is -12.36dB at 434.00MHz			
15.249	Conducted out-band Emission Limit: 50 dB less than the peak value of fundamental frequency	PASS	Meet the requirement of limit			

2.1 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:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Radiated emissions (30MHz-1GHz)	3.94 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB



3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	Wireless Game Controller
MODEL NO.	E-X5E-16
FCC ID	JNZEX5E16
POWER SUPPLY	DC 3V from two AA Alkaline batteries
MODULATION TYPE	GFSK
MODULATION	FHSS
TECHNOLOGY	11100
CARRIER FREQUENCY OF EACH CHANNEL	2402MHz ~ 2480MHz
NUMBER OF CHANNEL	79
ANTENNA TYPE	Printed meander line on PCB antenna without connector (Antenna Gain : 4.61dBi)
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT was pre-tested under the following test modes:

Test Mode	Description
Mode A	X-Y plane
Mode B	X-Z plane
Mode C	Y-Z plane

From the above modes, the worst radiated emission was found in **Mode C**. Therefore only the test data of the mode was recorded in this report individually.

2. The above EUT information was declared by the manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.



3.2 DESCRIPTION OF TEST MODES

Seventy-nine channels are provided to this EUT.

Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)	Channel	Freq. (MHz)
0	2402	20	2422	40	2442	60	2462
1	2403	21	2423	41	2443	61	2463
2	2404	22	2424	42	2444	62	2464
3	2405	23	2425	43	2445	63	2465
4	2406	24	2426	44	2446	64	2466
5	2407	25	2427	45	2447	65	2467
6	2408	26	2428	46	2448	66	2468
7	2409	27	2429	47	2449	67	2469
8	2410	28	2430	48	2450	68	2470
9	2411	29	2431	49	2451	69	2471
10	2412	30	2432	50	2452	70	2472
11	2413	31	2433	51	2453	71	2473
12	2414	32	2434	52	2454	72	2474
13	2415	33	2435	53	2455	73	2475
14	2416	34	2436	54	2456	74	2476
15	2417	35	2437	55	2457	75	2477
16	2418	36	2438	56	2458	76	2478
17	2419	37	2439	57	2459	77	2479
18	2420	38	2440	58	2460	78	2480
19	2421	39	2441	59	2461		

NOTE:

- 1. Below 1 GHz, the channel 0, 39, and 78 were pre-tested in chamber. The channel 0, worst case one, was chosen for final test.
- 2. Above 1 GHz, the channel 0, 39, and 78 were tested individually.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a Wireless Game Controller. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR Part 15, Subpart C (Section 15.249) ANSI C63.4: 2003

All tests have been performed and recorded as per the above standards.



2 <i>1</i> [DESCRII	DTION (7F 611E	PTIMII

The EUT has been tested as an independent unit.

3.5 CONFIGURATION OF SYSTEM UNDER TEST

	EUT	
TEST TABLE		



4 TEST PROCEDURES AND RESULTS

4.1 RADIATED EMISSION MEASUREMENT

4.1.1 LIMITS OF RADIATED EMISSION MEASUREMENT

According to 15.249 the field strength of emissions from intentional radiators operated under these frequencies bands shall not exceed the following:

Fundamental Frequency	Field Strength of Fund	damental (dBuV/m)
(MHz)	Peak	Average
	114	94
2400 ~ 2483.5	Field Strength of Ha	rmonics (dBuV/m)
	74	54

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 to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Emissions radiated outside of the specified bands, shall be according to the general radiated limits in 15.209 as following:

Frequencies (MHz)	Field strength (microvolts/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

As shown in 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.



4.1.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ADVANTEST Spectrum Analyzer	R3271A	85060311	July 16, 2008	July 15, 2009
HP Pre_Amplifier	8449B	3008A01922	Sep. 25, 2008	Sep. 24, 2009
ROHDE & SCHWARZ Test Receiver	ESCS30	100375	April 01, 2008	Mar. 31, 2009
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	April 30, 2008	April 29, 2009
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 09, 2008	Dec. 08, 2009
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 23, 2009	Jan. 22, 2010
RF Switches	EMH-011	08009	Oct. 07, 2008	Oct. 06, 2009
RF CABLE (Chaintek)	SF102	22054-2	Dec. 06, 2008	Dec. 05, 2009
RF Cable	8DFB	STCCAB-30M -1GHz	Oct. 07, 2008	Oct. 06, 2009
Software	ADT_Radiated _V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

- Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
 2. The horn antenna, HP preamplifier (model: 8449B) and Spectrum Analyzer (model: R3271A) are used only for the measurement of emission frequency above 1GHz if tested.

 - The test was performed in Open Site No. C.
 The FCC Site Registration No. is 656396.
 The VCCI Site Registration No. is R-1626.
 The CANADA Site Registration No. is IC 7450G-3.



4.1.3 TEST PROCEDURES

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna is a broadband antenna, and its height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10 dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

NOTE:

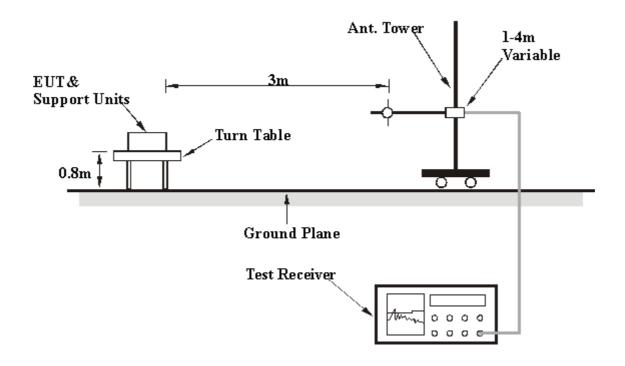
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth is 1MHz and video bandwidth of test receiver/spectrum analyzer is 3MHz for Peak detection at frequency above 1GHz. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz for Average detection (AV) at frequency above 1GHz.
- 3. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 10 Hz for Average detection (AV) at frequency above 1GHz.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation



4.1.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.1.6 EUT OPERATING CONDITIONS

Set the EUT under transmission / receiver condition continuously at specific channel frequency.



4.1.7 TEST RESULTS

EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 0		FREQUENCY RANGE	Below 1000MHz	
INPUT POWER DC 3V from batteries		DETECTOR FUNCTION	Quasi-Peak	
ENVIRONMENTAL CONDITIONS	25deg. C, 61%RH 965hPa	TESTED BY	Frank Liu	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	127.60	27.16 QP	43.50	-16.34	1.00 H	0	12.89	14.27		
2	151.44	25.21 QP	43.50	-18.29	1.25 H	0	8.96	16.25		
3	284.67	29.31 QP	46.00	-16.69	1.25 H	226	12.76	16.55		
4	343.26	25.00 QP	46.00	-21.00	1.25 H	189	6.21	18.79		
5	655.80	28.65 QP	46.00	-17.35	1.25 H	19	2.61	26.04		
6	825.49	29.41 QP	46.00	-16.59	1.00 H	74	-0.78	30.19		
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	IO. FREQ. (MHz) EMISSION LIMIT (dBuV/m) MARGIN (dB) ANTENNA HEIGHT (m) TABLE ANGLE (dBuV) FACTOR (dB/m)									
1	127.60	24.52 QP	43.50	-18.98	1.00 V	186	10.25	14.27		
2	162.09	27.23 QP	43.50	-16.27	1.00 V	253	11.37	15.86		
3	343.26	26.02 QP	46.00	-19.98	1.00 V	135	7.23	18.79		
4	434.00	33.64 QP	46.00	-12.36	1.00 V	19	11.99	21.65		
5	631.75	31.14 QP	46.00	-14.86	1.00 V	228	5.65	25.49		

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.4. Margin value = Emission level Limit value.



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 0		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	DC 3V from batteries	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 965hPa	TESTED BY	Eric Lee	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	2399.99	60.75 PK	74.00	-13.25	1.75 H	137	30.43	30.32		
2	2399.99	40.37 AV	54.00	-13.63	1.75 H	137	10.05	30.32		
3	*2402.00	92.93 PK	114.00	-21.07	1.75 H	137	62.60	30.33		
4	*2402.00	72.55 AV	94.00	-21.45	1.75 H	137	42.22	30.33		
5	4804.00	58.52 PK	74.00	-15.48	1.20 H	293	21.79	36.73		
6	4804.00	38.14 AV	54.00	-15.86	1.20 H	293	1.41	36.73		
7	7206.00	52.93 PK	74.00	-21.07	1.18 H	66	9.79	43.14		
8	7206.00	32.55 AV	54.00	-21.45	1.18 H	66	-10.59	43.14		
9	9612.00	58.65 PK	74.00	-15.35	1.02 H	241	12.73	45.92		
10	9612.00	38.27 AV	54.00	-15.73	1.02 H	241	-7.65	45.92		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
I NO. I FREQ. (MHz) I LEVEL I IMARGIN (dB)I I ANGLE I						RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)			
1	2399.99	59.52 PK	74.00	-14.48	1.56 V	174	29.20	30.32		
2	2399.99	39.14 AV	54.00	-14.86	1.56 V	174	8.82	30.32		
3	*2402.00	91.70 PK	114.00	-22.30	1.56 V	174	61.37	30.33		
4	*2402.00	71.32 AV	94.00	-22.68	1.56 V	174	40.99	30.33		
5	4804.00	58.12 PK	74.00	-15.88	1.10 V	121	21.39	36.73		
6	4804.00	37.74 AV	54.00	-16.26	1.10 V	121	1.01	36.73		
7	7206.00	53.07 PK	74.00	-20.93	1.08 V	20	9.93	43.14		
8	7206.00	32.69 AV	54.00	-21.31	1.08 V	20	-10.45	43.14		
9	9612.00	55.84 PK	74.00	-18.16	1.15 V	160	9.92	45.92		

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " * ": Fundamental frequency.
- 6. Duty cycle = 9.6%
- 7. Average value = peak reading + 20log(duty cycle).



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 39		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	DC 3V from batteries	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 965hPa	TESTED BY	Eric Lee	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*2441.00	91.06 PK	114.00	-22.94	1.62 H	115	60.59	30.47		
2	*2441.00	70.68 AV	94.00	-23.32	1.62 H	115	40.21	30.47		
3	4882.00	59.67 PK	74.00	-14.33	1.19 H	309	22.73	36.94		
4	4882.00	39.29 AV	54.00	-14.71	1.19 H	309	2.35	36.94		
5	7323.00	54.08 PK	74.00	-19.92	1.20 H	78	10.95	43.13		
6	7323.00	33.70 AV	54.00	-20.30	1.20 H	78	-9.43	43.13		
7	9764.00	57.65 PK	74.00	-16.35	1.03 H	265	11.56	46.09		
8	9764.00	37.27 AV	54.00	-16.73	1.03 H	265	-8.82	46.09		
		ANTENNA	A POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO.	NO. FREQ. (MHz) LEVEL LIMIT (dBuV/m) MARGIN (dB) ANTENNA ANGLE RAW VALUE FACTOR (dBuV) FACTOR (dBuV)						CORRECTION FACTOR (dB/m)			
1	*2441.00	86.90 PK	114.00	-27.10	1.63 V	184	56.43	30.47		
2	*2441.00	66.52 AV	94.00	-27.48	1.63 V	184	36.05	30.47		
3	4882.00	59.11 PK	74.00	-14.89	1.10 V	217	22.17	36.94		
4	4882.00	38.73 AV	54.00	-15.27	1.10 V	217	1.79	36.94		
5	7323.00	53.29 PK	74.00	-20.71	1.12 V	118	10.16	43.13		
6	7323.00	32.91 AV	54.00	-21.09	1.12 V	118	-10.22	43.13		
7	9764.00	56.40 PK	74.00	-17.60	1.40 V	269	10.31	46.09		
8	9764.00	36.02 AV	54.00	-17.98	1.40 V	269	-10.07	46.09		

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " * ": Fundamental frequency.
- 6. Duty cycle = 9.6%
- 7. Average value = peak reading + 20log(duty cycle).



EUT TEST CONDITION		MEASUREMENT DETAIL		
CHANNEL Channel 78		FREQUENCY RANGE	1 ~ 25GHz	
INPUT POWER	DC 3V from batteries	DETECTOR FUNCTION	Peak (PK) Average (AV)	
ENVIRONMENTAL CONDITIONS	23deg. C, 67%RH 965hPa	TESTED BY	Eric Lee	

	ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M									
NO.	FREQ. (MHz)	EMISSION LEVEL (dBuV/m)	LIMIT (dBuV/m)	MARGIN (dB)	ANTENNA HEIGHT (m)	TABLE ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
1	*2480.00	92.73 PK	114.00	-21.27	1.65 H	129	62.11	30.62		
2	*2480.00	72.35 AV	94.00	-21.65	1.65 H	129	41.73	30.62		
3	2483.50	52.12 PK	74.00	-21.88	1.65 H	129	21.49	30.63		
4	2483.50	31.74 AV	54.00	-22.26	1.65 H	129	1.11	30.63		
5	4960.00	58.69 PK	74.00	-15.31	1.21 H	298	21.54	37.15		
6	4960.00	38.31 AV	54.00	-15.69	1.21 H	298	1.16	37.15		
7	7440.00	55.14 PK	74.00	-18.86	1.15 H	30	12.02	43.12		
8	7440.00	34.76 AV	54.00	-19.24	1.15 H	30	-8.36	43.12		
9	9920.00	58.90 PK	74.00	-15.10	1.01 H	148	12.65	46.25		
10	9920.00	38.52 AV	54.00	-15.48	1.01 H	148	-7.73	46.25		
		ANTENNA	POLARITY	/ & TEST DI	STANCE: V	ERTICAL A	T 3 M			
NO. FREQ. (MHz) EMISSION LEVEL (dBuV/m) MARGIN (dB) HEIGHT (m) TAI ANTENNA ANG						TABLE		CORRECTION		
NO.	FREQ. (MHz)	LEVEL		MARGIN (dB)		ANGLE (Degree)	RAW VALUE (dBuV)	CORRECTION FACTOR (dB/m)		
NO .	*2480.00	LEVEL		MARGIN (dB) -27.02		ANGLE		FACTOR		
	` ,	LEVEL (dBuV/m)	(dBuV/m)	, í	HEIGHT (m)	ANGLE (Degree)	(dBuV)	FACTOR (dB/m)		
1	*2480.00	LEVEL (dBuV/m) 86.98 PK	(dBuV/m)	-27.02	HEIGHT (m) 1.34 V	ANGLE (Degree)	(dBuV) 56.36	FACTOR (dB/m) 30.62		
1 2	*2480.00 *2480.00	LEVEL (dBuV/m) 86.98 PK 66.60 AV	(dBuV/m) 114.00 94.00	-27.02 -27.40	1.34 V 1.34 V	ANGLE (Degree) 161 161	(dBuV) 56.36 35.98	FACTOR (dB/m) 30.62 30.62		
1 2 3	*2480.00 *2480.00 2483.50	LEVEL (dBuV/m) 86.98 PK 66.60 AV 46.37 PK	(dBuV/m) 114.00 94.00 74.00	-27.02 -27.40 -27.63	1.34 V 1.34 V 1.34 V	ANGLE (Degree) 161 161 161	(dBuV) 56.36 35.98 15.74	FACTOR (dB/m) 30.62 30.62 30.63		
1 2 3 4	*2480.00 *2480.00 2483.50 2483.50	LEVEL (dBuV/m) 86.98 PK 66.60 AV 46.37 PK 25.99 AV	(dBuV/m) 114.00 94.00 74.00 54.00	-27.02 -27.40 -27.63 -28.01	1.34 V 1.34 V 1.34 V 1.34 V	ANGLE (Degree) 161 161 161	(dBuV) 56.36 35.98 15.74 -4.64	FACTOR (dB/m) 30.62 30.62 30.63 30.63		
1 2 3 4 5	*2480.00 *2480.00 2483.50 2483.50 4960.00	LEVEL (dBuV/m) 86.98 PK 66.60 AV 46.37 PK 25.99 AV 60.78 PK	(dBuV/m) 114.00 94.00 74.00 54.00 74.00	-27.02 -27.40 -27.63 -28.01 -13.22	1.34 V 1.34 V 1.34 V 1.34 V 1.34 V 1.23 V	ANGLE (Degree) 161 161 161 161 221	(dBuV) 56.36 35.98 15.74 -4.64 23.63	FACTOR (dB/m) 30.62 30.62 30.63 30.63 37.15		
1 2 3 4 5 6	*2480.00 *2480.00 2483.50 2483.50 4960.00	LEVEL (dBuV/m) 86.98 PK 66.60 AV 46.37 PK 25.99 AV 60.78 PK 40.40 AV	(dBuV/m) 114.00 94.00 74.00 54.00 74.00 54.00	-27.02 -27.40 -27.63 -28.01 -13.22 -13.60	1.34 V 1.34 V 1.34 V 1.34 V 1.23 V 1.23 V	ANGLE (Degree) 161 161 161 161 221 221	(dBuV) 56.36 35.98 15.74 -4.64 23.63 3.25	FACTOR (dB/m) 30.62 30.62 30.63 30.63 37.15 37.15		
1 2 3 4 5 6 7	*2480.00 *2480.00 2483.50 2483.50 4960.00 4960.00 7440.00	LEVEL (dBuV/m) 86.98 PK 66.60 AV 46.37 PK 25.99 AV 60.78 PK 40.40 AV 52.57 PK	(dBuV/m) 114.00 94.00 74.00 54.00 74.00 54.00 74.00	-27.02 -27.40 -27.63 -28.01 -13.22 -13.60 -21.43	1.34 V 1.34 V 1.34 V 1.34 V 1.23 V 1.23 V 1.23 V	ANGLE (Degree) 161 161 161 161 221 221 120	(dBuV) 56.36 35.98 15.74 -4.64 23.63 3.25 9.45	FACTOR (dB/m) 30.62 30.62 30.63 30.63 37.15 43.12		

- 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB).
- 3. The other emission levels were very low against the limit.
- 4. Margin value = Emission level Limit value.
- 5. " * ": Fundamental frequency.
- 6. Duty cycle = 9.6%
- 7. Average value = peak reading + 20log(duty cycle).



4.2 CONDUCTED - OUT BAND MEASUREMENT

4.2.1 LIMITS OF CONDUCTED - OUT BAND MEASUREMENT

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 to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100036	Dec. 09, 2008	Dec. 08, 2009

NOTE:

- 1.The measurement uncertainty is less than +/- 2.6dB, which is calculated as per the NAMAS document NIS81. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
- 2. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.2.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer via a low lose cable. Set both RBW and VBW of spectrum analyzer to 100 kHz with suitable frequency span including 300 MHz bandwidth from band edge. The band edges was measured and recorded.

4.2.4 DEVIATION FROM TEST STANDARD

No deviation

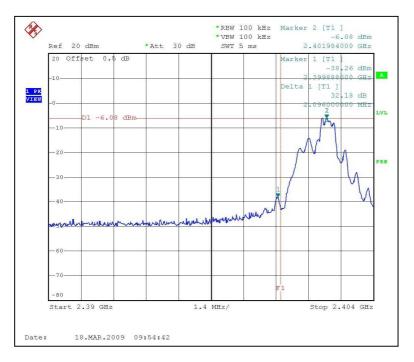
4.2.5 EUT OPERATING CONDITION

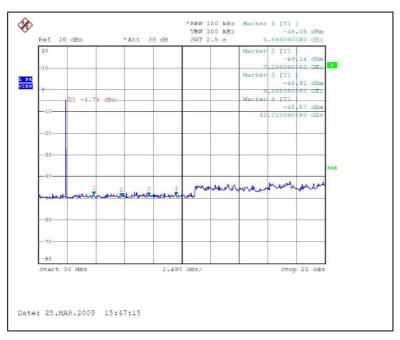
The software provided by client enabled the EUT to transmit and receive data at lowest, middle and highest channel frequencies individually.



4.2.6 TEST RESULTS

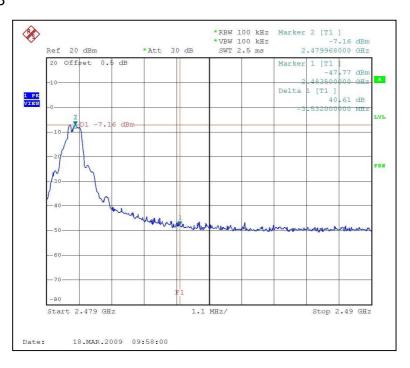
Emissions radiated outside of the specified frequency bands, please refer pages form 12 to 15 for met the requirement of the general radiated emission limits in § 15.209. CH0

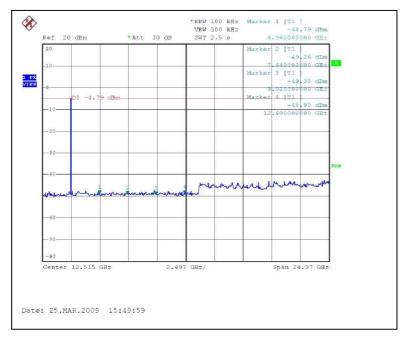






CH78







5 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA FCC, NVLAP
Germany TUV Rheinland

Japan VCCI Norway NEMKO

Canada INDUSTRY CANADA, CSA

R.O.C. TAF, BSMI, NCC

Netherlands Telefication

Singapore GOST-ASIA (MOU)
Russia CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab: Hsin Chu EMC/RF Lab:

Tel: 886-2-26052180 Tel: 886-3-5935343 Fax: 886-2-26051924 Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232 Fax: 886-3-3185050

Email: service@adt.com.tw
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.



6 APPENDIX A - MODIFICATIONS RECORDERS FOR ENGINEERING CHANGES TO THE EUT BY THE LAB

No any modifications are made to the EUT by the lab during the test.

--- END ---