

FCC TEST REPORT

REPORT NO.: 061018FIA01

MODEL NO.: AT132

RECEIVED: Oct. 31, 2006

TESTED: Oct. 31 ~ Nov. 13, 2006

ISSUED: Nov. 13, 2006

APPLICANT: SHENZHEN AEE TECHNOLOGY CO., LTD

ADDRESS: 1/F., Blog. B, Tsinghua Hi-Tech Park,
Northern Hi-Tech Industrial Park,
Nanshan District, Shenzhen, P. R. C

ISSUED BY: ADT (Shanghai) Corporation

ADDRESS: 2F, Building C, No.1618, Yishan rd., 201103,
Shanghai, China

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ADT (Shanghai) Corporation.



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1 CERTIFICATION

PRODUCT: 2.4G wireless camera
BRAND NAME: AEE
MODEL NO.: AT132
APPLICANT: SHENZHEN AEE TECHNOLOGY CO., LTD
TESTED: Oct. 31 ~ Nov. 13, 2006
TEST ITEM: ENGINEERING SAMPLE
STANDARDS: 47 CFR Part 15, Subpart C (Section 15.249),
ANSI C63.4-2003

The above equipment has been tested by **ADT (Shanghai) Corporation**, 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.

TECHNICAL

ACCEPTANCE : _____ , **DATE:** NOV. 13, 2006
(Bright Tong)
Engineering Supervisor

APPROVED BY : _____ , **DATE:** NOV. 13, 2006
(Wallace Pan)
Director of Operations

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	N/A	
15.249	Radiated Emission Test (Mode A1, Channel 1, 30 ~ 1000 MHz)	PASS	Minimum passing margin is -27.22 dB at 905.42 MHz
	Radiated Emission Test (Mode A2, Channel 1, 30 ~ 1000 MHz)	PASS	Minimum passing margin is -8.92 dB at 95.55 MHz
	Radiated Emission Test (Mode B1, Channel 1, 30 ~ 1000 MHz)	PASS	Minimum passing margin is -21.89 dB at 369.27 MHz
	Radiated Emission Test (Mode B2, Channel 1, 30 ~ 1000 MHz)	PASS	Minimum passing margin is -4.84 dB at 96.60 MHz
	Radiated Emission Test (Mode A1, Channel 1, Above 1 GHz)	PASS	Minimum passing margin is -1.58 dB at 2413.4 MHz
	Radiated Emission Test (Mode A1, Channel 3, Above 1 GHz)	PASS	Minimum passing margin is -3.62 dB at 2450.6 MHz
	Radiated Emission Test (Mode A1, Channel 4, Above 1 GHz)	PASS	Minimum passing margin is -2.18 dB at 2468.5 MHz
	Radiated Emission Test (Mode A2, Channel 1, Above 1 GHz)	PASS	Minimum passing margin is -1.09 dB at 2413.2 MHz
	Radiated Emission Test (Mode A2, Channel 3, Above 1 GHz)	PASS	Minimum passing margin is -3.87 dB at 2450.6 MHz
	Radiated Emission Test (Mode A2, Channel 4, Above 1 GHz)	PASS	Minimum passing margin is -2.32 dB at 2468.3 MHz
15.249	Band Edge Measurement	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:

Measurement	Value
Conducted emissions	1.8dB
Radiated emissions	3.5dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	2.4G wireless camera
MODEL NO.	AT132
POWER SUPPLY	For test mode A1 & B1: 3.8 Vdc from batteries For test mode A2 & B2: 12 Vdc
CHARGING CABLE SUPPLIED	1m, non-shielded, detachable
MODULATION TYPE	FM
FREQUENCY RANGE OF OPERATION	2.414 ~ 2.468 MHz
CHANNEL SEPARATION	18 MHz
NUMBER OF CHANNEL	4
ANTENNA TYPE	Soldered on PCB
DATA CABLE SUPPLIED	N/A
I/O PORTS	N/A

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

3.2 DESCRIPTION OF TEST MODES

Four channels are provided to this EUT:

Channel	Frequency
1	2.414 GHz
2	2.432 GHz
3	2.450 GHz
4	2.468 GHz

Test Mode Applicability AND TESTED CHANNEL DETAIL:

EUT configure mode	Applicable to					Description
	PLC	RE<1G	RE≥1G	APM	BE	
A1	-	√	√	-	√	Set the EUT under daylight mode powered by batteries
A2	-	√	√	-	-	Set the EUT under daylight mode Powered by charging
B1	-	√	-	-	-	Set the EUT under night mode powered by batteries
B2	-	√	-	-	-	Set the EUT under daylight mode, powered by charging

Where PLC: Power Line Conducted Emission
 RE≥1G: Radiated Emission above 1GHz
 BE: Band Edge Measurement

RE<1G RE: Radiated Emission below 1GHz
 APM: Antenna Port Measurement

Radiated Emission Test (Below 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, and X.Y.Z. axis.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Test Mode	Available Channel	Tested Channel	Modulation Type	Axis
A1	1~4	1	FM	X
A2	1~4	1	FM	X
B1	1~4	1	FM	X
B2	1~4	1	FM	X

Radiated Emission Test (Above 1 GHz):

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, and X.Y.Z. axis.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Test Mode	Available Channel	Tested Channel	Modulation Type	Axis
A1	1~4	1, 3, 4	FM	X
A2	1~4	1, 3, 4	FM	X

Band Edge Measurement

- ☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, and X.Y.Z. axis.
- ☒ Following channel(s) was (were) selected for the final test as listed below.

Test Mode	Available Channel	Tested Channel	Modulation Type	Axis
A1	1~4	1, 4	FM	X



3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a 2.4G wireless camera. 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 test items have been performed and recorded as per the above standards.

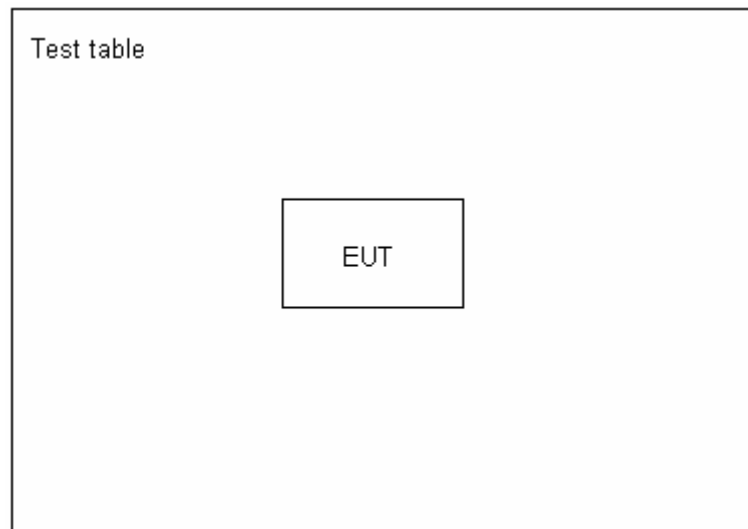
3.4 DESCRIPTION OF SUPPORT UNITS

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.

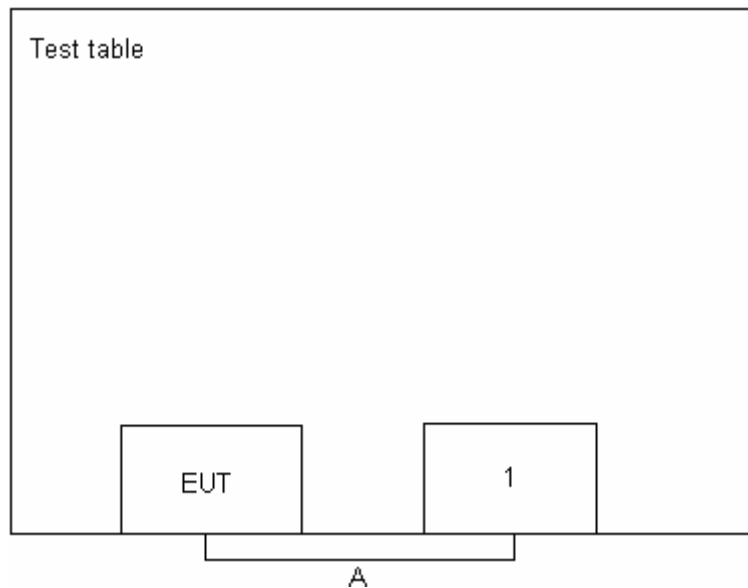
NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Battery	KOBA	NF78-550	N/A	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
A	1m non-shielded charging cable.

For test mode: A1 & B1



For test mode: A2 & B2



4 EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

Frequency (MHz)	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

NOTES: 1. The lower limit shall apply at the transition frequencies.

2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.

4.1.2 TEST RESULTS

Since the EUT does not have AC port, the test item is not applicable.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 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 (MHz)	Field Strength of Fundamental (dBuV/m)	
	Peak	Average
2400 ~ 2483.5	113.98	93.98

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	$2400/F(\text{kHz})$	300
0.490-1.705	$24000/F(\text{kHz})$	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.



4.2.2 TEST INSTRUMENTS

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	E1R1001	Apr. 19, 2007
BILOG Antenna SCHWARZBECK	VULB9168	E1A1001	Sept. 26, 2007
Preamplifier Agilent	8447D	E1A2001	Jan. 27, 2007
Preamplifier Agilent	8449B	E1A2002	Jan. 27, 2007
Double Ridged Broadband Horn Antenna Schwarzbeck	BBHA 9120D	E1A1002	Feb. 15, 2007
Spectrum Analyzer Agilent	E4403B	E1S1001	Jan. 13, 2007
Spectrum Analyzer ROHDE & SCHWARZ	FSP30	E1S1002	May. 15, 2007
RF signal cable Woken	RG-402	E1CBH01	May. 30, 2007
RF signal cable Woken	RG-402	E1CBH02	May. 30, 2007
RF signal cable Woken	RG-402	E1CBH03	May. 30, 2007
RF signal cable Woken	RG-412	E1CBL02	May. 30, 2007
RF signal cable Woken	RG-412	E1CBL03	May. 30, 2007
RF signal cable Woken	RG-412	E1CBL04	May. 30, 2007
Software ADT	ADT_Radiated_V7.5	N/A	N/A

- NOTE:**
1. The calibration interval of the above test instruments is 12 months.
 2. The horn antenna and Agilent preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
 3. The Spectrum Analyzer (model: FSP30) and RF signal cable (SERIAL: E1CBH05&E1CBH07) are used only for the measurement of emission frequency above 1GHz if tested.



4.2.3 TEST PROCEDURE

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. 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 the quasi-peak method or average method as specified and then reported in Data sheet peak mode and QP mode.

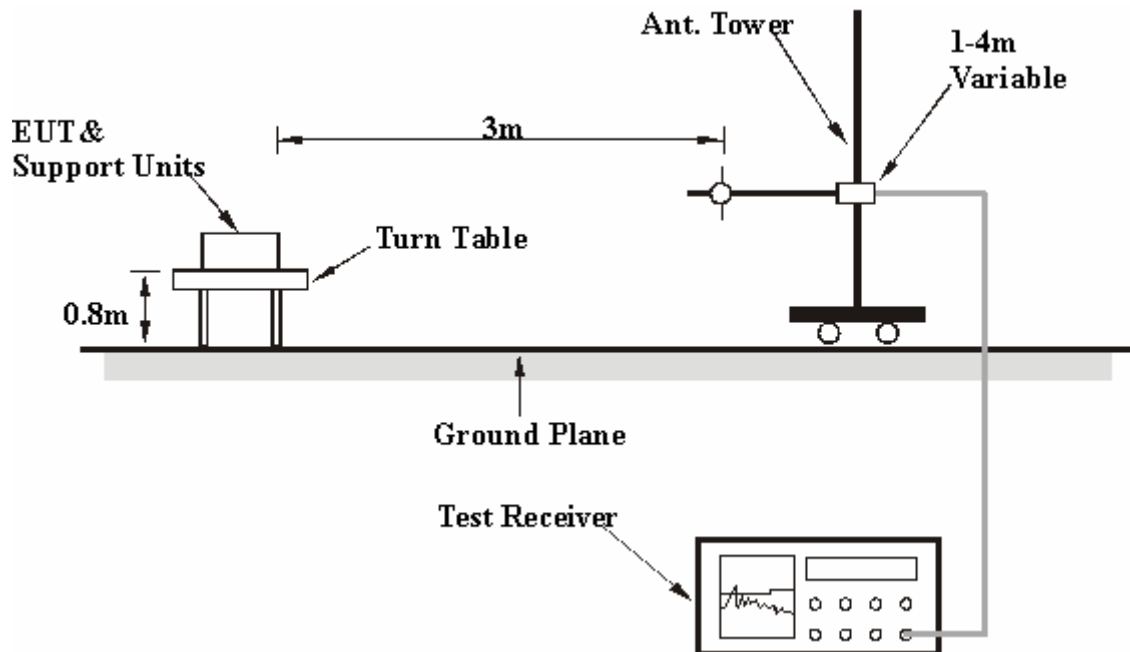
NOTE:

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

4.2.4 DEVIATION FROM TEST STANDARD

No deviation.

4.2.5 TEST SETUP



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

4.2.6 EUT OPERATING CONDITIONS

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

4.2.7 TEST RESULTS

Mode A1

EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 1	FREQUENCY RANGE	30 ~ 1000 MHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	3.8 Vdc from batteries
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Jeffrey		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	143.97	16.52	-11.18	5.33	43.50	-38.17	136.00	340.00
2	369.50	18.02	-8.54	9.47	46.00	-36.53	210.00	278.00
3	544.10	21.90	-8.63	13.28	46.00	-32.72	282.00	218.00
4	684.75	24.34	-8.09	16.24	46.00	-29.76	400.00	95.00
5	813.27	26.11	-8.59	17.51	46.00	-28.49	353.00	157.00
6	905.42	27.33	-8.55	18.78	46.00	-27.22	358.00	28.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	153.68	17.01	-9.28	7.73	43.50	-35.77	100.00	155.00
2	248.25	14.80	-8.81	5.99	46.00	-40.01	100.00	89.00
3	442.25	19.92	-8.74	11.18	46.00	-34.82	100.00	215.00
4	587.75	22.88	-9.09	13.79	46.00	-32.21	100.00	274.00
5	672.62	24.15	-8.62	15.53	46.00	-30.47	100.00	26.00
6	786.60	25.71	-8.83	16.88	46.00	-29.12	100.00	331.00

- NOTE:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

**Mode A2**

EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 1	FREQUENCY RANGE	30 ~ 1000 MHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	12 Vdc
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Jeffrey		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	95.30	12.19	21.15	33.34	43.50	-10.16	319.00	242.00
2	122.10	14.89	18.62	33.52	43.50	-9.98	329.00	145.00
3	147.28	16.77	10.88	27.65	43.50	-15.85	267.00	207.00
4	243.53	14.77	16.80	31.57	46.00	-14.43	105.00	118.00
5	410.73	19.00	-1.39	17.61	46.00	-28.39	146.00	58.00
6	701.73	24.62	-8.42	16.20	46.00	-29.80	100.00	99.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	95.55	12.21	22.37	34.58	43.50	-8.92	399.00	127.00
2	124.58	15.04	10.30	25.34	43.50	-18.16	100.00	2.00
3	151.25	16.98	8.23	25.22	43.50	-18.28	249.00	149.00
4	242.85	14.77	14.46	29.23	46.00	-16.77	100.00	201.00
5	407.12	18.88	-0.52	18.36	46.00	-27.64	104.00	44.00
6	631.40	23.67	-8.91	14.76	46.00	-31.24	107.00	109.00

- NOTE:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

**Mode B1**

EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 1	FREQUENCY RANGE	30 ~ 1000 MHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	3.8 Vdc from batteries
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Jeffrey		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	141.55	16.34	-8.58	7.76	43.50	-35.74	222.00	63.00
2	350.34	17.48	5.58	23.06	46.00	-22.94	298.00	0.00
3	369.27	18.01	6.10	24.11	46.00	-21.89	399.00	63.00
4	478.62	20.56	-8.10	12.46	46.00	-33.54	291.00	187.00
5	587.75	22.88	-8.45	14.43	46.00	-31.57	154.00	157.00
6	755.08	25.39	-8.72	16.67	46.00	-29.33	241.00	230.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	39.70	15.89	-12.04	3.85	40.00	-36.15	106.00	64.00
2	151.25	16.98	-10.55	6.44	43.50	-37.06	102.00	329.00
3	369.27	18.01	1.10	19.11	46.00	-26.89	102.00	214.00
4	445.02	19.99	0.39	20.39	46.00	-25.61	100.00	0.00
5	636.25	23.73	-8.40	15.33	46.00	-30.67	102.00	291.00
6	755.08	25.39	-9.00	16.39	46.00	-29.61	106.00	146.00

- NOTE:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

**Mode B2**

EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 1	FREQUENCY RANGE	30 ~ 1000 MHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	12 Vdc
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	Quasi-Peak
TESTED BY	Jeffrey		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	96.60	12.29	26.37	38.66	43.50	-4.84	310.00	243.00
2	127.25	15.20	22.42	37.62	43.50	-5.88	251.00	119.00
3	150.43	16.97	19.61	36.59	43.50	-6.91	281.00	251.00
4	241.85	14.76	24.33	39.09	46.00	-6.91	100.00	276.00
5	308.87	16.75	6.92	23.67	46.00	-22.33	100.00	237.00
6	595.02	23.03	-8.92	14.11	46.00	-31.89	120.00	149.00

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
1	95.87	12.23	21.30	33.53	43.50	-9.97	379.00	324.00
2	124.03	15.01	14.79	29.80	43.50	-13.70	100.00	232.00
3	151.25	16.98	11.17	28.15	43.50	-15.35	100.00	278.00
4	244.28	14.78	16.83	31.61	46.00	-14.39	100.00	316.00
5	350.34	17.48	3.66	21.14	46.00	-24.86	277.00	207.00
6	369.26	18.01	7.19	25.20	46.00	-20.80	400.00	0.00

- NOTE:** 1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + Cable Factor (dB)
 3. The other emission levels were very low against the limit.
 4. Margin value = Emission level – Limit value.

Above 1 GHz**Mode A1**

EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 1	FREQUENCY RANGE	Above 1GHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	3.8 Vdc from batteries
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	PK / AV: 1MHz
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2412 PK	32.72	70.46	103.18	114	-10.82	400	19
*1	2413.4 AV	32.72	59.7	92.42	94	-1.58	400	19
2	4828 PK	37.2	14.48	51.68	74	-22.32	100	23
2	4828 AV	37.2	0.23	37.44	54	-16.56	100	23
3	7242 PK	43.84	10.96	54.81	74	-19.19	100	44
3	7242 AV	43.84	-1.22	42.63	54	-11.37	100	44
4	9656 PK	46.7	8.94	55.65	74	-18.35	100	97
4	9656 AV	46.7	-2.44	44.27	54	-9.73	100	97
5	12070 PK	47.68	9.23	56.91	74	-17.09	100	46
5	12070 AV	47.68	-1.65	46.03	54	-7.97	100	46

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2411 PK	32.72	58.95	91.67	114	-22.33	100	19
*1	2413.4 AV	32.72	51.49	84.21	94	-9.79	100	19
2	4828 PK	37.2	15.39	52.6	74	-21.4	100	34
2	4828 AV	37.2	0.34	37.54	54	-16.46	100	34
3	7242 PK	43.84	10.47	54.31	74	-19.69	100	48
3	7242 AV	43.84	-1.3	42.55	54	-11.45	100	48
4	9656 PK	46.7	8.98	55.69	74	-18.31	100	66
4	9656 AV	46.7	-2.44	44.26	54	-9.74	100	66
5	12070 PK	47.68	9.53	57.21	74	-16.79	100	228
5	12070 AV	47.68	-1.8	45.88	54	-8.12	100	228

- NOTE:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + 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. The other emission levels were very low against the limit.



EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 3	FREQUENCY RANGE	Above 1GHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	3.8 Vdc from batteries
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	PK / AV: 1MHz
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2450 PK	32.73	66.63	99.36	114	-14.64	400	19
*1	2450.6 AV	32.73	57.65	90.38	94	-3.62	400	19
2	4900 PK	37.42	14.51	51.93	74	-22.07	100	114
2	4900 AV	37.42	-0.21	37.21	54	-16.79	100	114
3	7350 PK	44.05	10.05	54.1	74	-19.9	100	46
3	7350 AV	44.05	-1.17	42.88	54	-11.12	100	46
4	9800 PK	46.85	9.1	55.95	74	-18.05	100	89
4	9800 AV	46.85	-2.81	44.04	54	-9.96	100	89
5	12250 PK	47.58	10.17	57.75	74	-16.25	100	67
5	12250 AV	47.58	-1.31	46.27	54	-7.73	100	67

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2450.8 PK	32.73	54.53	87.26	114	-26.74	400	270
*1	2450 AV	32.73	48.48	81.21	94	-12.79	400	270
2	4900 PK	37.42	14.63	52.05	74	-21.95	100	46
2	4900 AV	37.42	-0.2	37.22	54	-16.78	100	46
3	7350 PK	44.05	10.8	54.85	74	-19.15	100	267
3	7350 AV	44.05	-1.09	42.96	54	-11.04	100	267
4	9800 PK	46.85	8.55	55.4	74	-18.6	100	168
4	9800 AV	46.85	-2.92	43.93	54	-10.07	100	168
5	12250 PK	47.58	9.57	57.15	74	-16.85	100	269
5	12250 AV	47.58	-1.44	46.13	54	-7.87	100	269

- NOTE:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + 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. The other emission levels were very low against the limit.



EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 4	FREQUENCY RANGE	Above 1GHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	3.8 Vdc from batteries
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	PK / AV: 1MHz
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2468 PK	32.73	67.75	100.48	114	-13.52	400	19
*1	2468.5 AV	32.73	59.09	91.82	94	-2.18	400	19
2	4936 PK	37.52	12.57	50.09	74	-23.91	100	114
2	4936 AV	37.52	0.26	37.79	54	-16.21	100	114
3	7404 PK	44.15	10.15	54.29	74	-19.71	100	223
3	7404 AV	44.15	-1.86	42.29	54	-11.71	100	223
4	9872 PK	46.8	9.09	55.89	74	-18.11	100	49
4	9872 AV	46.8	-2.28	44.52	54	-9.48	100	49
5	12340 PK	47.53	10.55	58.08	74	-15.92	100	6
5	12340 AV	47.53	-1.38	46.15	54	-7.85	100	6

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2468 PK	32.73	55.59	88.32	114	-25.68	400	320
*1	2468.4 AV	32.73	48.98	81.71	94	-12.29	400	320
2	4936 PK	37.52	12.51	50.04	74	-23.96	100	0
2	4936 AV	37.52	0.17	37.69	54	-16.31	100	0
3	7404 PK	44.15	9.09	53.24	74	-20.76	100	76
3	7404 AV	44.15	-1.81	42.34	54	-11.66	100	76
4	9872 PK	46.8	8.83	55.63	74	-18.37	100	84
4	9872 AV	46.8	-2.27	44.53	54	-9.47	100	84
5	12340 PK	47.53	9.63	57.16	74	-16.84	100	168
5	12340 AV	47.53	-1.44	46.09	54	-7.91	100	168

- NOTE:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + 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. The other emission levels were very low against the limit.

Mode A2

EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 1	FREQUENCY RANGE	Above 1 GHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	12 Vdc
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	PK / AV: 1MHz
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2412 PK	32.72	71.65	104.37	114	-9.63	400	0
*1	2413.2 AV	32.72	60.19	92.91	94	-1.09	400	0
2	4828 PK	37.2	14.98	52.18	74	-21.82	100	116
2	4828 AV	37.2	0.47	37.68	54	-16.32	100	116
3	7242 PK	43.84	10.4	54.25	74	-19.75	100	224
3	7242 AV	43.84	-1.12	42.72	54	-11.28	100	224
4	9656 PK	46.7	10.34	57.05	74	-16.95	100	79
4	9656 AV	46.7	-2.42	44.29	54	-9.71	100	79
5	12070 PK	47.68	9.5	57.18	74	-16.82	100	84
5	12070 AV	47.68	-1.68	46	54	-8	100	84

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2412 PK	32.72	60.71	93.43	114	-20.57	400	19
*1	2413.2 AV	32.72	52.05	84.77	94	-9.23	400	19
2	4828 PK	37.2	15.1	52.3	74	-21.7	100	68
2	4828 AV	37.2	0.51	37.72	54	-16.28	100	68
3	7242 PK	43.84	9.67	53.51	74	-20.49	100	76
3	7242 AV	43.84	-1.22	42.63	54	-11.37	100	76
4	9656 PK	46.7	9.36	56.06	74	-17.94	100	236
4	9656 AV	46.7	-2.56	44.14	54	-9.86	100	236
5	12070 PK	47.68	9.52	57.2	74	-16.8	100	198
5	12070 AV	47.68	-1.88	45.8	54	-8.2	100	198

- NOTE:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + 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. The other emission levels were very low against the limit.



EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 3	FREQUENCY RANGE	Above 1 GHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	12 Vdc
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	PK / AV: 1MHz
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2450 PK	32.73	67.73	100.46	114	-13.54	400	19
*1	2450.6 AV	32.73	57.4	90.13	94	-3.87	400	19
2	4900 PK	37.42	11.5	48.92	74	-25.08	100	234
2	4900 AV	37.42	0.04	37.46	54	-16.54	100	234
3	7350 PK	44.05	11.02	55.07	74	-18.93	100	78
3	7350 AV	44.05	-0.97	43.08	54	-10.92	100	78
4	9800 PK	46.85	9.01	55.86	74	-18.14	100	36
4	9800 AV	46.85	-2.73	44.12	54	-9.88	100	36
5	12250 PK	47.58	10.04	57.62	74	-16.38	100	48
5	12250 AV	47.58	-1.23	46.34	54	-7.66	100	48

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M								
No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2450.3 PK	32.73	55.93	88.66	114	-25.34	400	0
*1	2450.6 AV	32.73	47.93	80.66	94	-13.34	400	0
2	4900 PK	37.42	12.13	49.55	74	-24.45	100	76
2	4900 AV	37.42	-0.15	37.27	54	-16.73	100	76
3	7350 PK	44.05	10.24	54.29	74	-19.71	100	69
3	7350 AV	44.05	-1.1	42.95	54	-11.05	100	69
4	9800 PK	46.85	8.77	55.62	74	-18.38	100	116
4	9800 AV	46.85	-2.94	43.91	54	-10.09	100	116
5	12250 PK	47.58	10.28	57.86	74	-16.14	100	98
5	12250 AV	47.58	-1.1	46.48	54	-7.52	100	98

- NOTE:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + 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. The other emission levels were very low against the limit.



EUT	2.4G wireless camera	MODEL NO.	AT132
CHANNEL	Channel 4	FREQUENCY RANGE	Above 1 GHz
MODULATION TYPE	FM	INPUT POWER (SYSTEM)	12 Vdc
ENVIRONMENTAL CONDITIONS	20 deg. C, 65% RH, 1000 hPa	DETECTOR FUNCTION	PK / AV: 1MHz
TESTED BY	REBECCA		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2468 PK	32.73	68.99	101.72	114	-12.28	400	19
*1	2468.3 AV	32.73	58.95	91.68	94	-2.32	400	19
2	4936 PK	37.52	12.38	49.9	74	-24.1	100	65
2	4936 AV	37.52	0.26	37.79	54	-16.21	100	65
3	7404 PK	44.15	9.74	53.89	74	-20.11	100	98
3	7404 AV	44.15	-1.71	42.44	54	-11.56	100	98
4	9872 PK	46.8	9.33	56.13	74	-17.87	100	116
4	9872 AV	46.8	-2.27	44.53	54	-9.47	100	116
5	12340 PK	47.53	10.5	58.03	74	-15.97	100	69
5	12340 AV	47.53	-1.32	46.21	54	-7.79	100	69

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Factor (dB/M)	Reading (dBuV/M)	Emission (dBuV/M)	Limit (dBuV/M)	Margin (dB)	Ant. Height (cm)	Table Angle (Deg.)
*1	2468 PK	32.73	56.91	89.64	114	-24.36	400	0
*1	2468.3 AV	32.73	48.7	81.43	94	-12.57	400	0
2	4936 PK	37.52	11.85	49.38	74	-24.62	100	168
2	4936 AV	37.52	0.16	37.69	54	-16.31	100	168
3	7404 PK	44.15	9.4	53.55	74	-20.45	100	236
3	7404 AV	44.15	-1.96	42.19	54	-11.81	100	236
4	9872 PK	46.8	8.93	55.73	74	-18.27	100	48
4	9872 AV	46.8	-2.25	44.55	54	-9.45	100	48
5	12340 PK	47.53	10.31	57.83	74	-16.17	100	69
5	12340 AV	47.53	-1.41	46.12	54	-7.88	100	69

- NOTE:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB)
 2. Correction Factor (dB) = Antenna Factor (dB) + 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. The other emission levels were very low against the limit.

4.3 BAND EDGES MEASUREMENT

4.3.1 LIMITS OF BAND EDGES MEASUREMENT

Below -20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SIGNAL ANALYZER Rohde & Schwarz	FSP30	E1S1002	May. 16. 2007

4.3.3 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 100MHz bandwidth from band edge. The band edges was measured and recorded.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 EUT OPERATING CONDITION

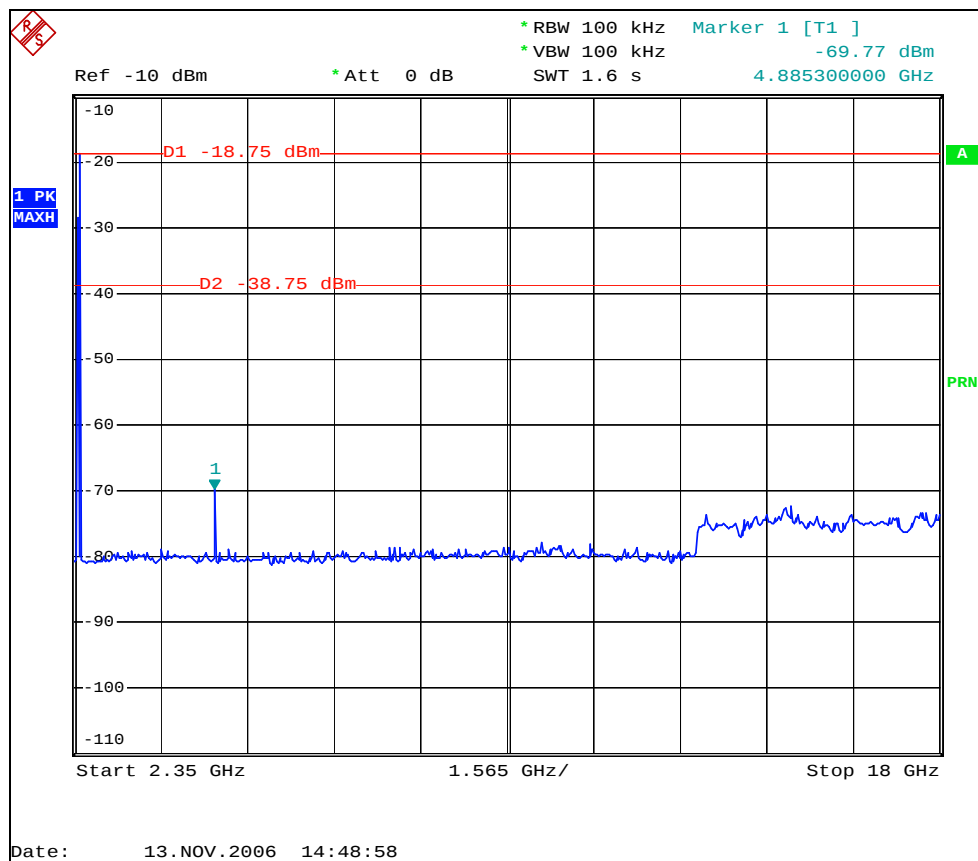
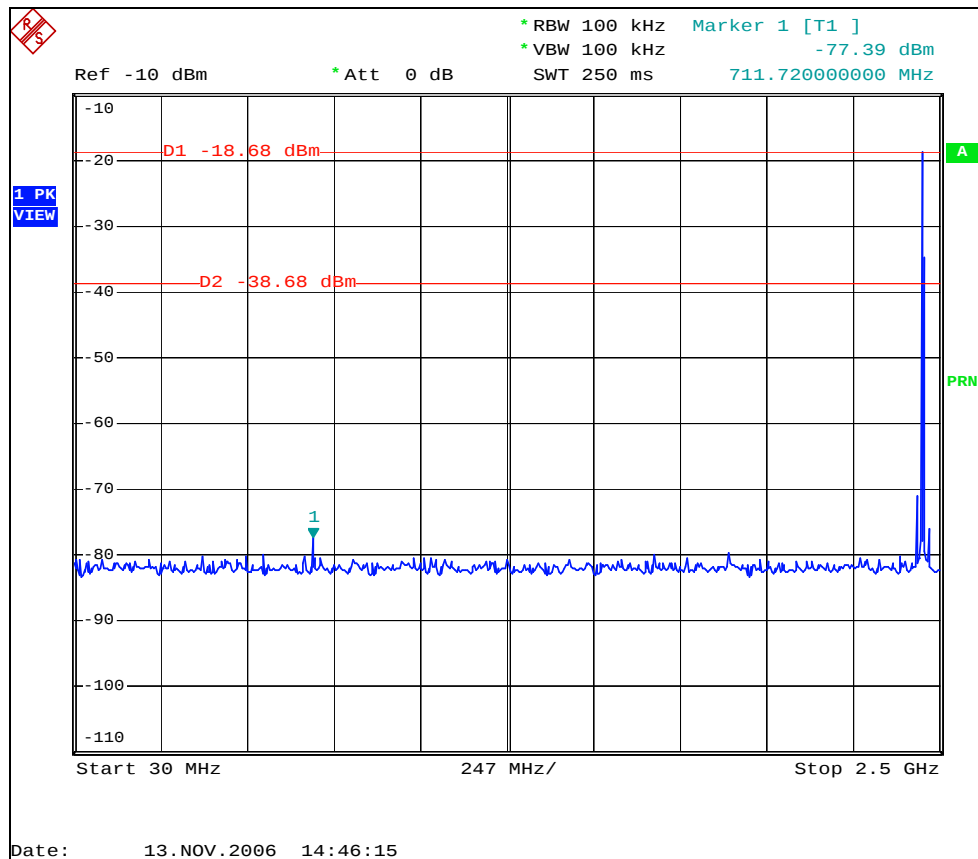
Enable the EUT to transmit data at lowest and highest channel frequencies individually.

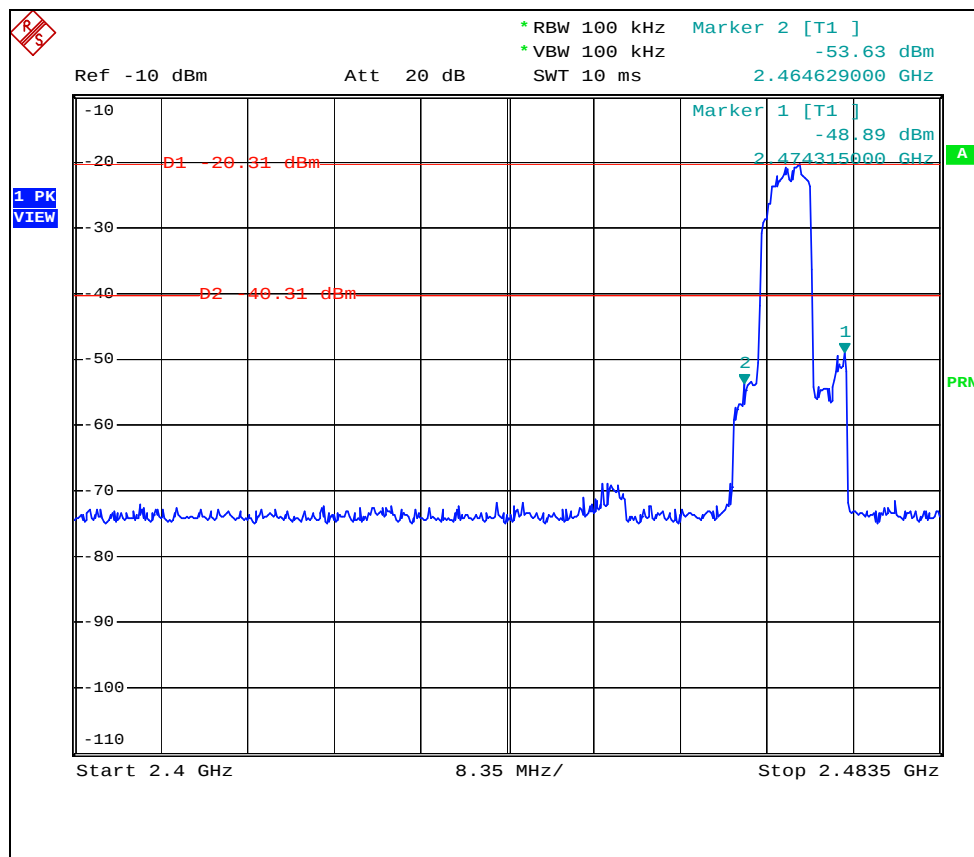
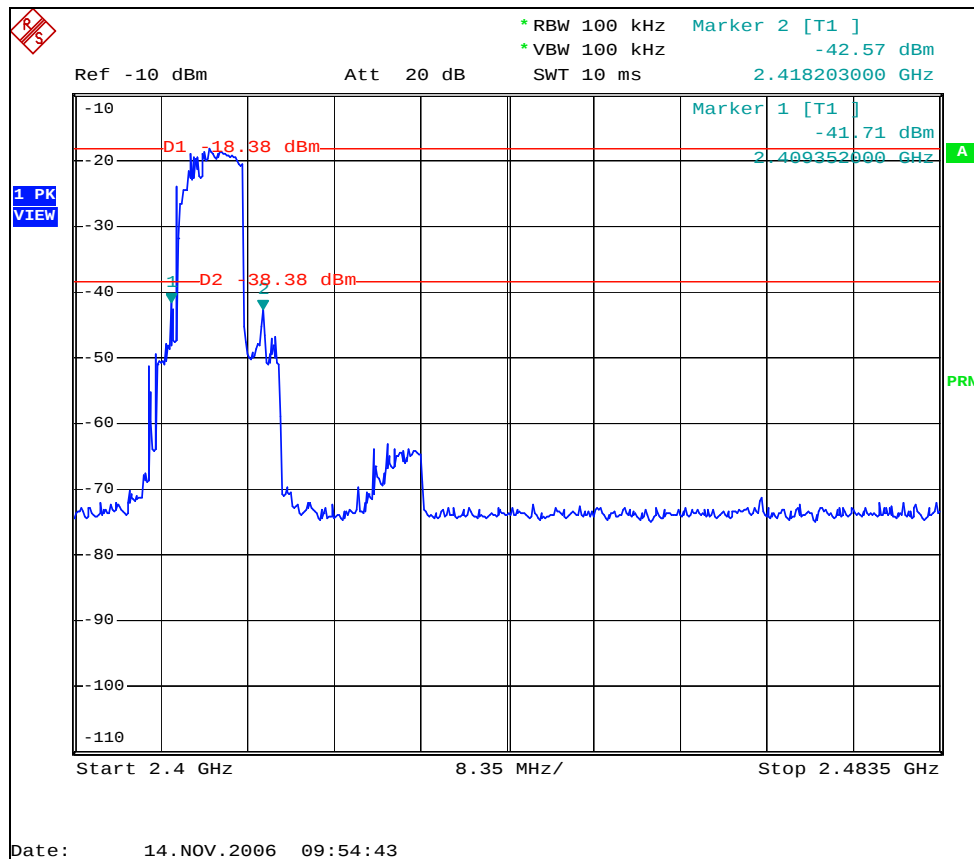


4.3.6 TEST RESULTS

For Emissions outside of the specified frequency bands (Radiated), please refer to report section 4.2.7 which met the requirement of the general radiated emission limits in § 15.209.

For Emissions outside of the specified frequency bands (Conducted), the spectrum plots are attached on the following 2 plots. D2 line indicates the highest level, D1 line indicates the 20dB offset below D2. It shows compliance with the requirement in part 15.249.





5 APPENDIX - INFORMATION ON THE TESTING LABORATORY

We, ADT (Shanghai) Corp., were founded in 2003 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 (2005).

JAPAN	VCCI
USA	FCC, A2LA
Norway	DNV



Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.cnadt.com

If you have any comments, please feel free to contact us at the following:

ADT (Shanghai) Corporation

TEL :86-21-6465-9091

Fax : 86-21-6465-9092

Email: service@adt-sh.com

Web Site: www.cnadt.com