FCC TEST REPORT

REPORT NO.: 070808FIA01

MODEL NO.: V-march301

RECEIVED: Aug. 14, 2007

TESTED: Aug. 14 ~ Sept. 30, 2007

ISSUED: Oct. 8, 2007

APPLICANT: Qianhe precision Component Ltd.

ADDRESS: HeShan Rd Shaping Town Heshan Guang Dong China

ISSUED BY: ADT (Shanghai) Corporation

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

ADT (Shanghai) Corporation

ACCREDITED
No.: 2343.01

V 2.1.0

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1 CERTIFICATION

PRODUCT: 3N1 Inverter
MODEL NO.: V-march301
APPLICANT: Qianhe precision Component Ltd.
TESTED: Aug. 14 ~ Sept. 30, 2007
TEST ITEM: Engineering Sample
STANDARDS: FCC Part 15: 2007, Subpart C (Section 15.239), ANSI C63.4-2003

We, **ADT (Shanghai) Corporation**, declare that the equipment above has been tested in our facility and found compliance with the requirement limits of applicable standards. The test record, data evaluation and Equipment Under Test (EUT) configurations represented herein are true and accurate under the standards herein specified.

TECHNICAL ACCEPTANCE : Joy zhu , **DATE:** Oct. 10, 2007
Joy Zhu
Engineering Supervisor

APPROVED BY : , **DATE:** Oct. 10, 2007
Wallace Pan
Director of Operations

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 15, Subpart C			
STANDARD PARAGRAPH	**TEST TYPE**	**RESULT**	**REMARK**
15.207	Conducted Emission Test	N/A	Refer to 4.1.2
15.239	Radiated Emission Test (Test mode 1)	PASS	Minimum passing margin is –4.95 dB at 360 MHz
	Radiated Emission Test (Test mode 2)	PASS	Minimum passing margin is –5.95 dB at 360 MHz
15.239(c)	Emission Bandwidth Test (Test mode 1)	PASS	Meet the requirements

NOTE: The information of measurement uncertainty is available upon the customer's request.

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	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz ~ 30MHz	3.04 dB
Radiated emissions	30MHz ~ 200MHz (Horizontal)	4.42 dB
	30MHz ~ 200MHz (Vertical)	4.62 dB
	200MHz ~ 1000MHz (Horizontal)	4.06 dB
	200MHz ~ 1000MHz (Vertical)	4.16 dB

Note: The measurement uncertainty is factored into the compliance determination. The additional information is listed on APPENDIX B of this report.

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	3N1 Inverter
MODEL NO.	V-march301
POWER SUPPLY	12Vdc from battery
MODULATION TYPE	FM
CARRIER FREQUENCY OF EACH CHANNEL	88.1 ~ 107.9 MHz (88.1 ~ 88.9 MHz & 106.7 ~ 107.9 MHz)
NUMBER OF CHANNELS	12
BANDWIDTH	0.2MHz
ANTENNA TYPE	Soldered on PCB
ANTENNA JOINT TYPE	N/A
DATA CABLE	Audio line
I/O PORTS	USB，Audio，POWER
ASSOCIATED DEVICES	Ipod Nano，mobile telephone

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

12 channels are provided to this EUT.

CH	Freq. (MHz)	CH	Freq. (MHz)
1	88.1	7	106.9
2	88.3	8	107.1
3	88.5	9	107.3
4	88.7	10	107.5
5	88.9	11	107.7
6	106.7	12	107.9

NOTE: 1. The channel 1, 6 and 12 were tested individually.

2. Tuning controls were manually adjusted to verify maximum tuning range and no out-of-band operation violation observed.
3. The device has been tested in 3 orthogonal planes to find the worst case emissions. The final tests were performed at X axis.

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is the 3N1 Inverter. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC Part 15: 2007, Subpart C (15.239)
ANSI C63.4-2003

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

3.4 DESCRIPTION OF SUPPORT UNITS

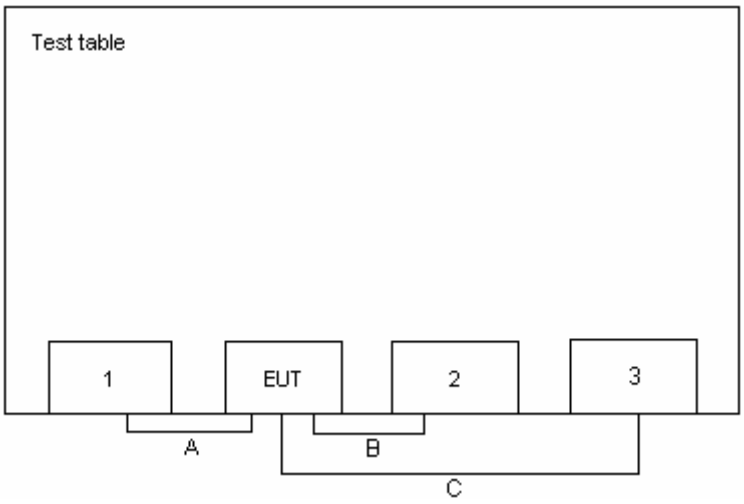
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	Battery	KOBA	NF78-550	N/A	N/A
2	Ipod MP3 player	Apple	A1137	5U621XFCUPR	FCC DoC Approved
3	Ipod MP3 player	Apple	A1059	JQ522CX3P59	FCC DoC Approved
4	Mobile phone	Motorola	V3	D54XFY3GVS	N/A
5	Charger	Motorola	DCH3-D5CH-0300	SPN5188A	N/A

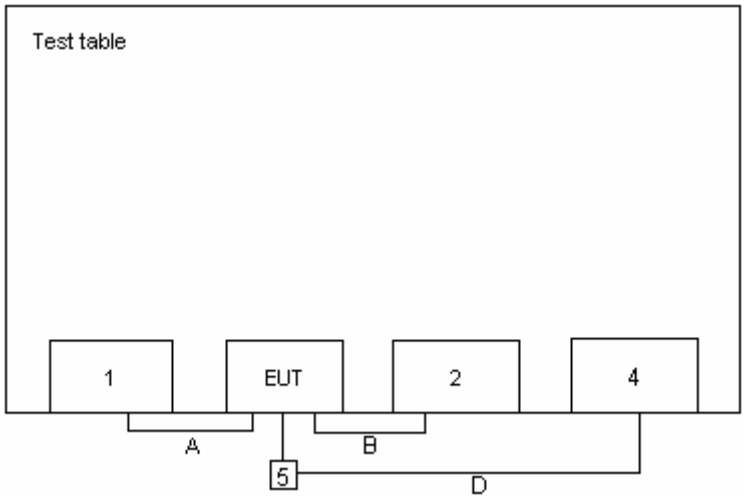
NO.	CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
A	0.5m non-shielded EUT input power cable.
B	1.1m non-shielded AV cable.
C	1.2m non-shielded USB cable.
D	2m non-shielded mobile phone charger cable.

3.5 CONFIGURATION OF SYSTEM UNDER TEST

Test mode 1



Test mode 2



4 TEST TYPES AND RESULTS

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY OF EMISSION (MHz)	CONDUCTED LIMIT (dBμV)	
	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.
(3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

4.1.2 TEST RESULTS

Since the EUT neither has AC port nor intends to be connected to the AC power source and is powered by the battery, so the test item is not applicable.

4.2 Radiated Emission Measurement

4.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

According to 15.239 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)	
88 to 108	Peak	Average
	67.96	47.96

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.

4.2.2 TEST INSTRUMENT

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED UNTIL
Test Receiver ROHDE & SCHWARZ	ESCS30	E1R1001	Apr. 19, 2008
BILOG Antenna SCHWARZBECK	VULB9168	E1A1001	Sept. 26, 2008
Preamplifier Agilent	8447D	E1A2001	Jan. 27, 2008
Preamplifier Agilent	8449B	E1A2002	Jan. 27, 2008
Double Ridged Broadband Horn Antenna Schwarzbeck	BBHA 9120D	E1A1002	Feb. 15, 2008
*Spectrum Analyzer Agilent	E4403B	E1S1001	Jan. 13, 2008
*Spectrum Analyzer ROHDE & SCHWARZ	FSP	E1S1002	May. 15, 2008
RF signal cable Woken	RG-402	E1CBH01	May. 30, 2008
RF signal cable Woken	RG-402	E1CBH16	May. 30, 2008
RF signal cable Woken	RG-402	E1CBH20	May. 30, 2008
RF signal cable Woken	RG-412	E1CBL02	May. 30, 2008
RF signal cable Woken	RG-412	E1CBL03	May. 30, 2008
RF signal cable Woken	RG-412	E1CBL04	May. 30, 2008
Software ADT	ADT_Radiated_V7.5	N/A	N/A

NOTE: 1. The calibration interval of the above test instruments is 12 months.
2. "*" = These equipment are used for the final measurement.
3. The horn antenna and HP preamplifier (model: 8449B) are used only for the measurement of emission frequency above 1GHz if tested.
4. The Spectrum Analyzer (model: FSP) 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.

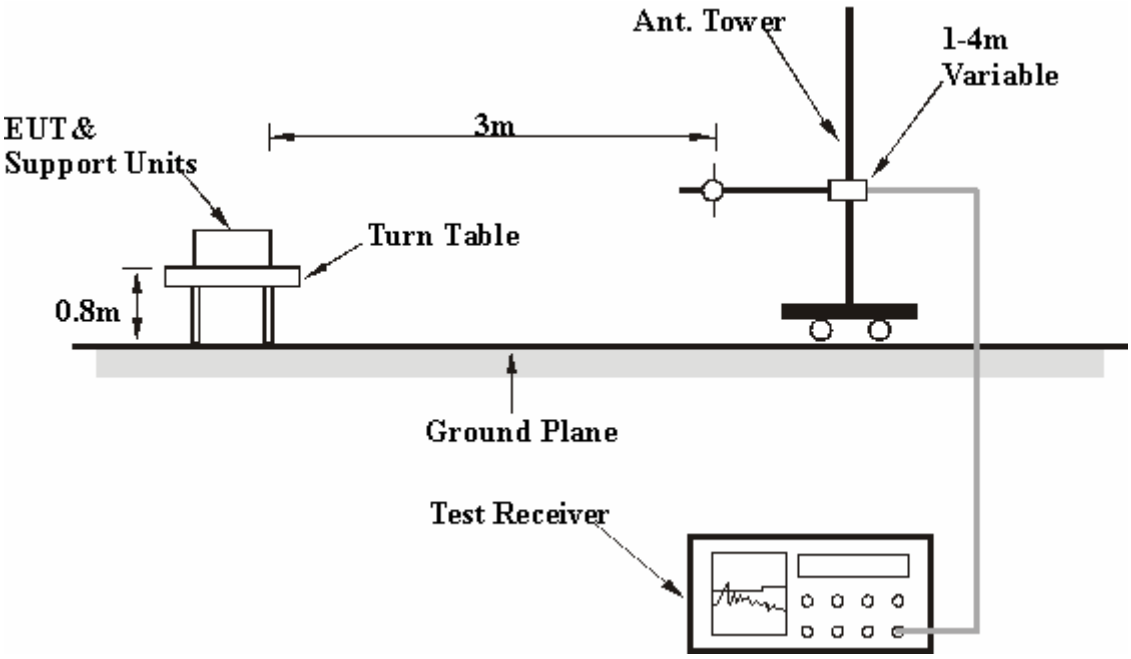
NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Peak detection (PK) and Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1 MHz for Peak detection 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. The analyzer settings used respectively for peak and average readings are RBW = 120kHz and VBW = 300kHz.
5. Span = 1MHz.

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 in this test report - Photographs of the Test Configuration.

4.2.6 EUT OPERATING CONDITION

a. Set the volume to the maximum on iPod Nano.
b. Adjust the working frequencies of the EUT and make it work under the specified frequency.
c. Make EUT full load.

Note: What the iPod Nano played is the symphony in MP3 format.

4.2.1 TEST RESULT

Test mode 1

EUT	3N1 Inverter	**MODEL NO.**	V-march301
CHANNEL	1	**INPUT POWER**	12 Vdc
FREQUENCY RANGE	30 ~ 2000 MHz	**DETECTOR** **FUNCTION & BANDWIDTH**	Peak(PK) Average (AV) Quasi-Peak
ENVIRONMENTAL CONDITIONS	21 deg. C, 76 % RH, 100kPa	**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	88.00QP	11.73	-0.21	11.52	40	-28.48	100	218
2*	88.1PK	11.74	17.82	29.55	68	-38.45	100	0
2*	88.1AV	11.74	8.65	20.39	48	-27.61	100	0
3	204QP	13.02	14.98	28	43.5	-15.5	99	336
4	360.01QP	17.75	19.3	37.05	46	-8.95	99	344
5	384QP	18.34	18.35	36.69	46	-9.31	99	336
6	408.01QP	18.91	15.71	34.62	46	-11.38	99	333
7	432.01QP	19.66	17.69	37.35	46	-8.65	99	321
8	456.01QP	20.21	14.72	34.93	46	-11.07	99	312

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	88.00QP	11.73	-0.23	11.50	40	-28.50	100	218
2*	88.1PK	11.73	16.7	28.43	68	-39.57	100	0
2*	88.1AV	11.74	14.57	26.3	48	-21.7	100	0
3	156QP	17.03	11.21	28.24	43.5	-15.26	99	137
4	192QP	13.34	12.24	25.58	43.5	-17.92	99	69
5	204QP	13.02	19.34	32.36	43.5	-11.14	99	158
6	360QP	17.75	19.86	37.61	46	-8.39	99	111
7	384.01QP	18.34	18.88	37.22	46	-8.78	99	132
8	432.01QP	19.66	12.28	31.94	46	-14.06	99	173

REMARKS:
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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.

EUT	3N1 Inverter	**MODEL NO.**	V-march301
CHANNEL	6	**INPUT POWER**	12 Vdc
FREQUENCY RANGE	30 ~ 2000 MHz	**DETECTOR** **FUNCTION & BANDWIDTH**	Peak(PK) Average (AV) Quasi-Peak
ENVIRONMENTAL CONDITIONS	21 deg. C, 76 % RH, 100kPa	**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*	106.7PK	13.25	15.04	28.29	68	-39.71	100	0
1*	106.7AV	13.24	12.91	26.15	48	-21.85	100	0
2	204QP	13.02	18.47	31.49	43.5	-12.01	99	326
3	252QP	14.87	16	30.87	46	-15.13	99	333
4	312QP	16.83	13.19	30.02	46	-15.98	99	320
5	360QP	17.75	23.14	40.89	46	-5.11	99	270
6	432.01QP	19.66	10.93	30.59	46	-15.41	99	353
7	456.01QP	20.21	10.39	30.6	46	-15.4	99	334

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*	106.7PK	13.26	19.86	33.12	68	-34.88	100	0
1*	106.7AV	13.31	11.48	24.79	48	-23.21	100	0
2	192QP	13.34	16.78	30.12	43.5	-13.38	100	222
3	204QP	13.02	24.43	37.45	43.5	-6.05	100	57
4	228QP	14.39	17.24	31.63	46	-14.37	100	88
5	336QP	17.29	15.51	32.79	46	-13.21	100	48
6	**360QP**	**17.75**	**23.3**	**41.05**	**46**	**-4.95**	**100**	**13**
7	384QP	18.34	15.2	33.54	46	-12.46	100	164

REMARKS:
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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.

EUT	3N1 Inverter	**MODEL NO.**	V-march301
CHANNEL	12	**INPUT POWER**	12 Vdc
FREQUENCY RANGE	30 ~ 2000 MHz	**DETECTOR** **FUNCTION & BANDWIDTH**	Peak(PK) Average (AV) Quasi-Peak
ENVIRONMENTAL CONDITIONS	21 deg. C, 76 % RH, 100kPa	**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*	107.9PK	13.38	15.9	29.29	68	-38.71	99	0
1*	107.9AV	13.38	10.26	23.64	48	-24.36	99	0
2	108QP	13.38	11.24	24.62	43.5	-18.88	99	214
3	204QP	13.02	21.7	34.72	43.5	-8.78	163	219
4	264QP	15.27	16.9	32.17	46	-13.83	99	141
5	360QP	17.75	22.66	40.41	46	-5.59	100	286
6	384QP	18.34	15.46	33.8	46	-12.2	99	119
7	432.01QP	19.66	17.63	37.29	46	-8.71	100	164
8	456.01QP	20.21	17.29	37.5	46	-8.5	99	173

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*	107.9PK	13.43	20.12	33.56	68	-34.44	100	0
1*	107.9AV	13.38	15.8	29.18	48	-18.82	100	0
2	108QP	13.38	10.45	23.83	43.5	-19.67	99	287
3	204QP	13.02	22.62	35.64	43.5	-7.86	99	313
4	228QP	14.39	16.85	31.24	46	-14.76	99	272
5	336QP	17.29	15.65	32.93	46	-13.07	99	295
6	360QP	17.75	22.96	40.71	46	-5.29	99	311
7	384QP	18.34	13.84	32.18	46	-13.82	99	302
8	432.01QP	19.66	12.96	32.62	46	-13.38	99	327

REMARKS:
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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.

Test mode 2

EUT	3N1 Inverter	**MODEL NO.**	V-march301
CHANNEL	1	**INPUT POWER**	12 Vdc
FREQUENCY RANGE	30 ~ 2000 MHz	**DETECTOR FUNCTION & BANDWIDTH**	Peak(PK) Average (AV) Quasi-Peak
ENVIRONMENTAL CONDITIONS	21 deg. C, 76 % RH, 100kPa	**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	88.00QP	11.73	-0.11	11.62	40	-28.38	100	212
2*	88.10PK	11.73	18.62	30.35	68	-37.65	100	0
2*	88.10AV	11.74	16.61	28.35	48	-19.65	100	0
3	93.05QP	12.01	13.71	25.72	43.5	-17.78	100	186
4	252.00QP	14.87	20.80	35.67	46	-10.33	146	346
5	360.01QP	17.75	20.05	37.8	46	-8.20	101	292
6	384.00QP	18.34	18.95	37.29	46	-8.71	101	352
7	432.01QP	19.66	17.41	37.07	46	-8.93	100	327
8	456.00QP	20.21	13.14	33.35	46	-12.65	100	309

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	88QP	11.73	-0.12	11.61	40	-28.39	100	212
2*	88.1PK	11.73	18.13	29.86	68	-38.14	100	0
2*	88.1AV	11.74	9.64	21.38	48	-26.62	100	0
3	204QP	13.02	24.35	37.37	43.5	-6.13	100	343
4	228QP	14.39	12.67	27.06	46	-18.94	100	186
5	264QP	15.27	15.43	30.7	46	-15.3	100	273
6	336QP	17.29	17.48	34.76	46	-11.24	100	299
7	360QP	17.75	21.15	38.9	46	-7.1	100	316
8	384QP	18.34	16.24	34.58	46	-11.42	100	323

REMARKS:
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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.

EUT	3N1 Inverter	**MODEL NO.**	V-march301
CHANNEL	6	**INPUT POWER**	12 Vdc
FREQUENCY RANGE	30 ~ 2000 MHz	**DETECTOR** **FUNCTION & BANDWIDTH**	Peak(PK) Average (AV) Quasi-Peak
ENVIRONMENTAL CONDITIONS	21 deg. C, 76 % RH, 100kPa	**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*	106.7PK	13.26	17.08	30.34	68	-37.66	100	0
1*	106.7AV	13.26	12.2	25.46	48	-22.54	100	0
2	204QP	13.02	20.38	33.4	43.5	-10.1	99	318
3	252QP	14.87	15.44	30.31	46	-15.69	99	212
4	336QP	17.29	15.39	32.67	46	-13.33	99	332
5	360.01QP	17.75	19.8	37.55	46	-8.45	99	309
6	408.01QP	18.91	16.79	35.7	46	-10.3	99	351
7	432QP	19.66	17.35	37.01	46	-8.99	99	322

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*	106.7PK	13.26	20.08	33.33	68	-34.67	100	0
1*	106.7AV	13.32	20.96	34.28	48	-13.72	100	0
2	204QP	13.02	22.24	35.26	43.5	-8.24	99	247
3	228QP	14.39	19.96	34.35	46	-11.65	99	134
4	336QP	17.29	16.72	34	46	-12	99	43
5	**360QP**	**17.75**	**22.3**	**40.05**	**46**	**-5.95**	**99**	**312**
6	384QP	18.34	16.57	34.91	46	-11.09	99	126
7	432.01QP	19.66	12.74	32.4	46	-13.6	99	136

REMARKS:
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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.

EUT	3N1 Inverter	**MODEL NO.**	V-march301
CHANNEL	12	**INPUT POWER**	12 Vdc
FREQUENCY RANGE	30 ~ 2000 MHz	**DETECTOR** **FUNCTION & BANDWIDTH**	Peak(PK) Average (AV) Quasi-Peak
ENVIRONMENTAL CONDITIONS	21 deg. C, 76 % RH, 100kPa	**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*	107.9PK	13.38	19.17	32.53	68	-35.47	100	0
1*	107.9AV	13.38	13.85	27.23	48	-20.77	100	0
2	108QP	13.38	10.98	24.36	43.5	-19.14	99	247
3	204QP	13.02	19.99	33.01	43.5	-10.49	99	285
4	252QP	14.87	16.9	31.77	46	-14.23	99	304
5	336QP	17.29	16.96	34.25	46	-11.75	99	304
6	360.01QP	17.75	21.44	39.19	46	-6.81	99	241
7	408.01QP	18.91	15.12	34.03	46	-11.97	99	274
8	432.01QP	19.66	19.25	38.91	46	-7.09	99	257

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*	107.9PK	13.38	23.04	36.4	68	-31.6	100	0
1*	107.9AV	13.38	21.27	34.64	48	-13.36	100	0
2	108QP	13.38	11.24	24.62	43.5	-18.88	99	218
3	144QP	16.52	12.27	28.79	43.5	-14.71	99	237
4	204QP	13.02	22.66	35.68	43.5	-7.82	99	250
5	228QP	14.39	16.54	30.93	46	-15.07	99	237
6	360QP	17.75	19.18	36.93	46	-9.07	99	267
7	384QP	18.34	18.4	36.74	46	-9.26	99	259
8	432QP	19.66	16.09	35.75	46	-10.25	99	280

REMARKS:
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB).
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.

4.3 EMISSION BAND MEASUREMENT

4.3.1 LIMITS OF EMISSION BAND MEASUREMENT

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency ranges of 88.1 ~ 107.9 MHz.

4.3.2 TEST INSTRUMENTS

Description & Manufacturer	Model No.	Serial No.	Calibrated Until
SPECTRUM ANALYZER R&S	FSP30	E1S1002	May. 15, 2008

NOTE: The calibration interval of the above test instruments is 12 months.

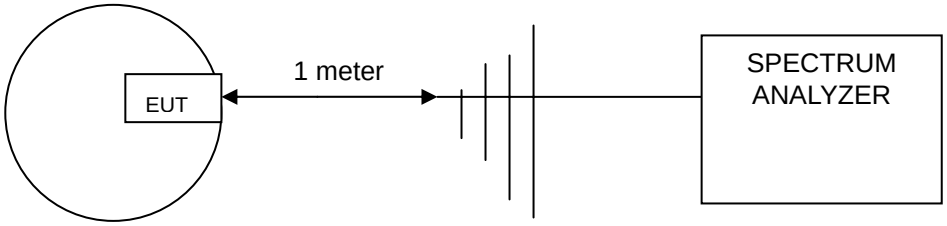
4.3.3 TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 10 kHz RBW and 30 kHz VBW. Measured the 26dBc bandwidth and plotted the graph.

4.3.4 DEVIATION FROM TEST STANDARD

No deviation.

4.3.5 TEST SETUP



4.3.6 EUT OPERATING CONDITIONS

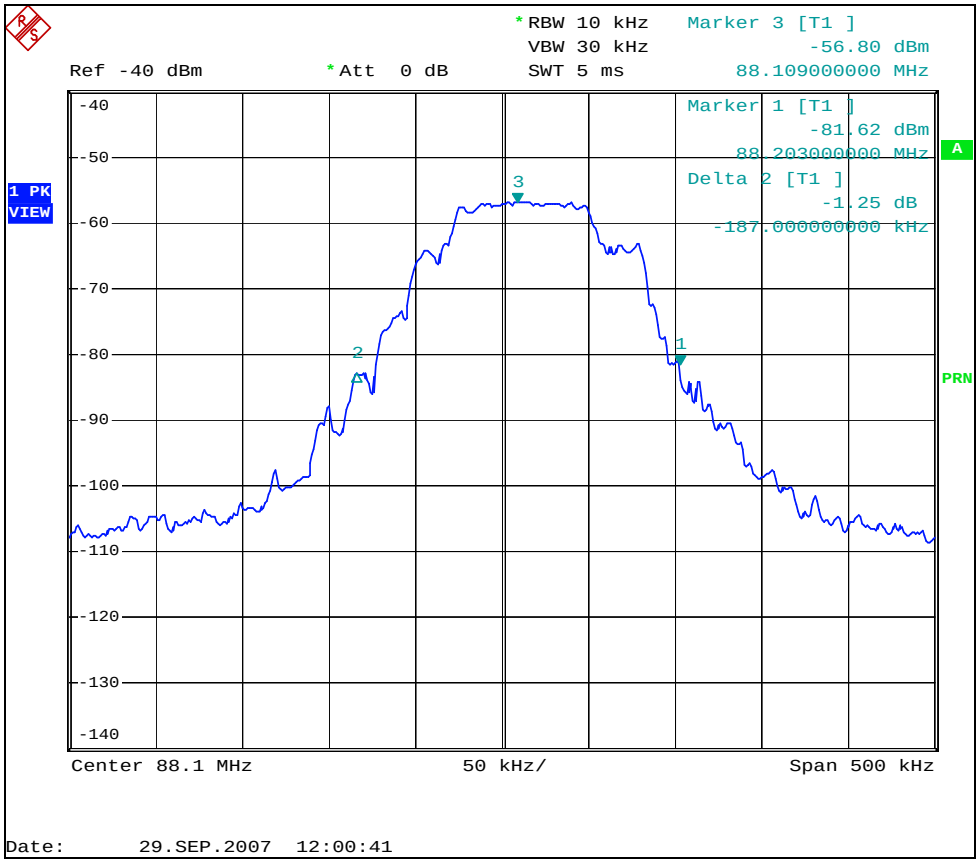
Same as 4.2.6.

4.3.7 TEST RESULTS

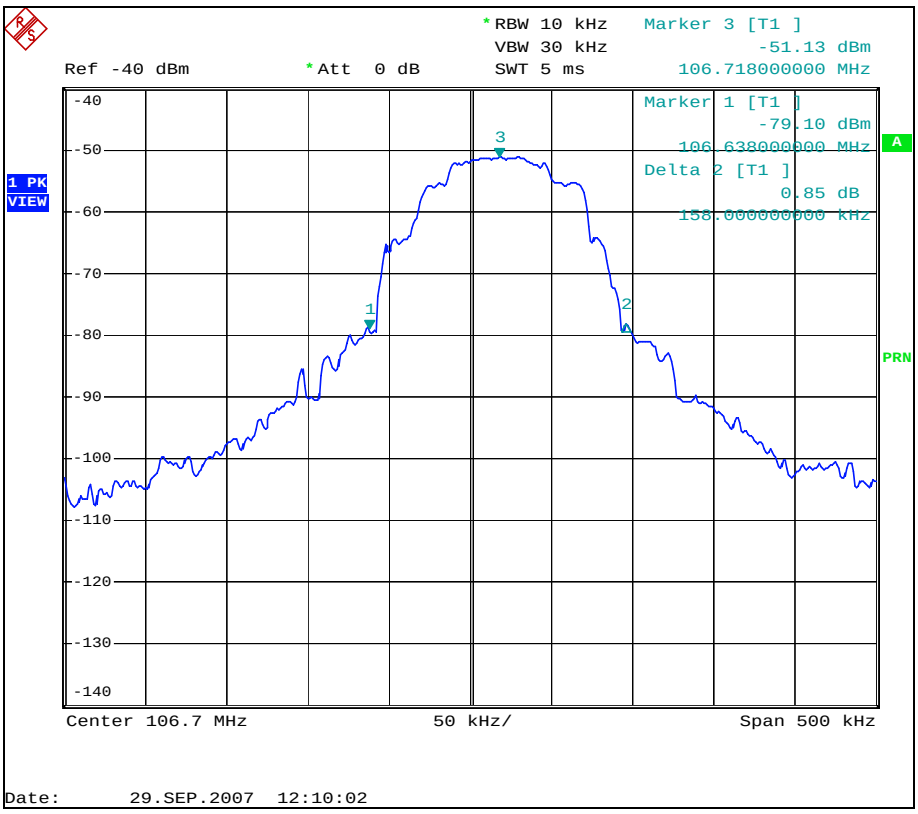
EUT	3N1 Inverter	MODEL NO.	V-march301
INPUT POWER (SYSTEM)	12 Vdc	ENVIRONMENTAL CONDITIONS	22deg. C, 74%RH, 991kPa
TEST BY	Rebecca		

CHANNEL	CHANNEL FREQUENCY (MHz)	26 dB BANDWIDTH (kHz)	MAXIMUM LIMIT (kHz)	PASS/FAIL
1	88.1MHz	187	200	PASS
6	106.7MHz	158	200	PASS
12	107.9MHz	176	200	PASS

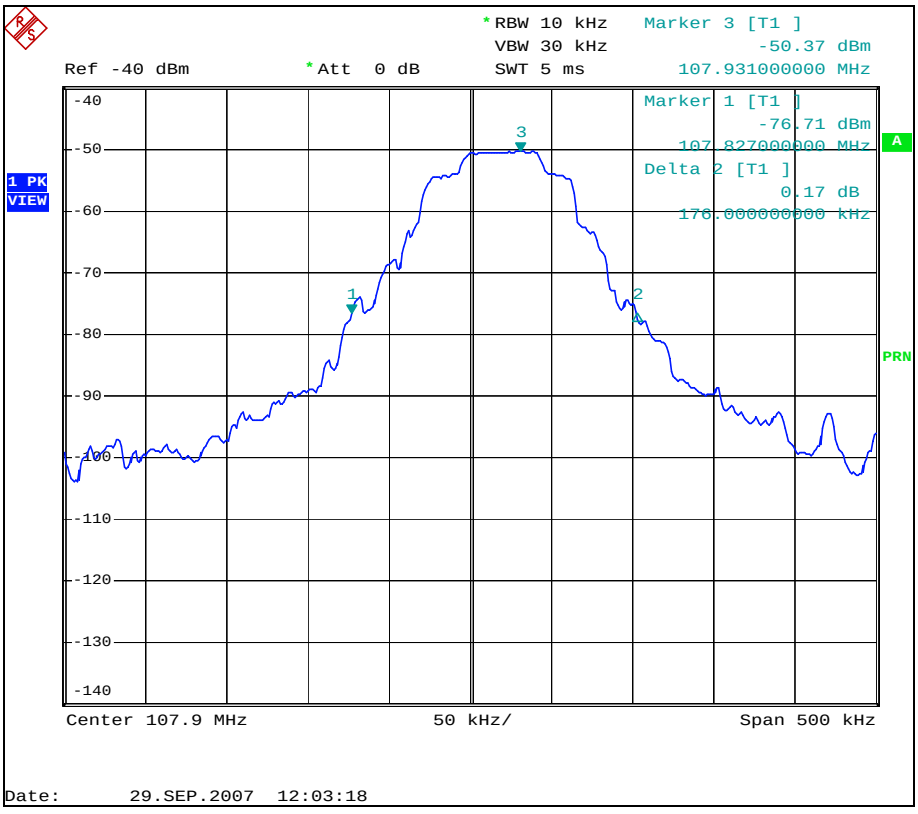
CH 1



CH 6

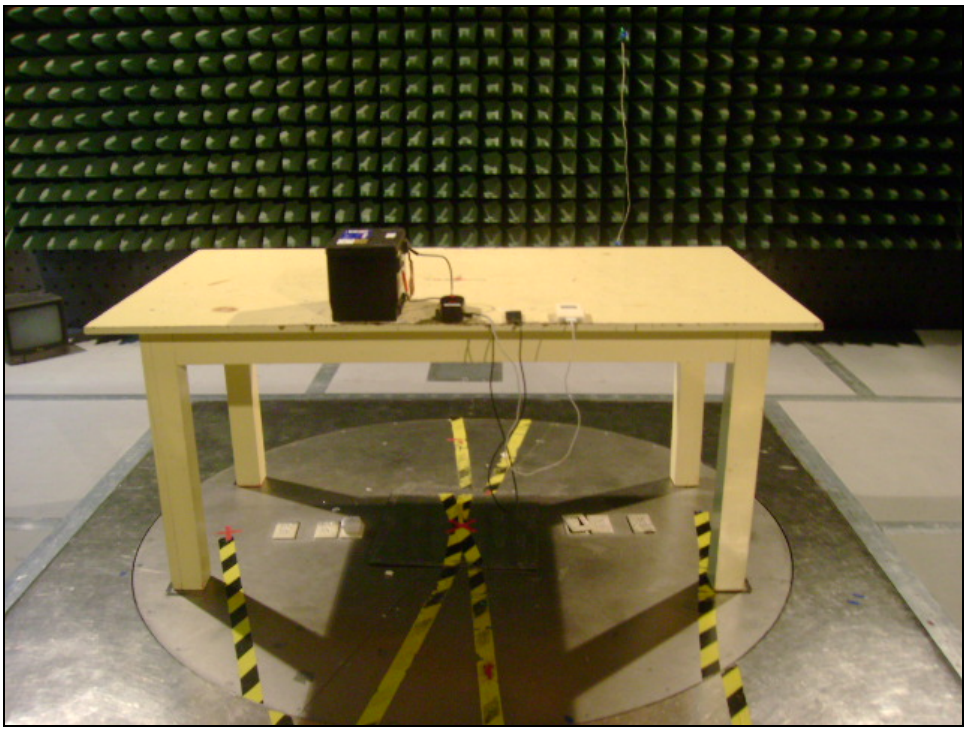

*RBW 10 kHz
VBW 30 kHz
SWT 5 ms
Marker 3 [T1]
-51.13 dBm
106.718000000 MHz
Ref -40 dBm
*Att 0 dB
Marker 1 [T1]
-79.10 dBm
106.638000000 MHz
Delta 2 [T1]
0.85 dB
158.000000000 kHz
1 PK
VIEW
A
PRN
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
Center 106.7 MHz
50 kHz/
Span 500 kHz
Date: 29.SEP.2007 12:10:02

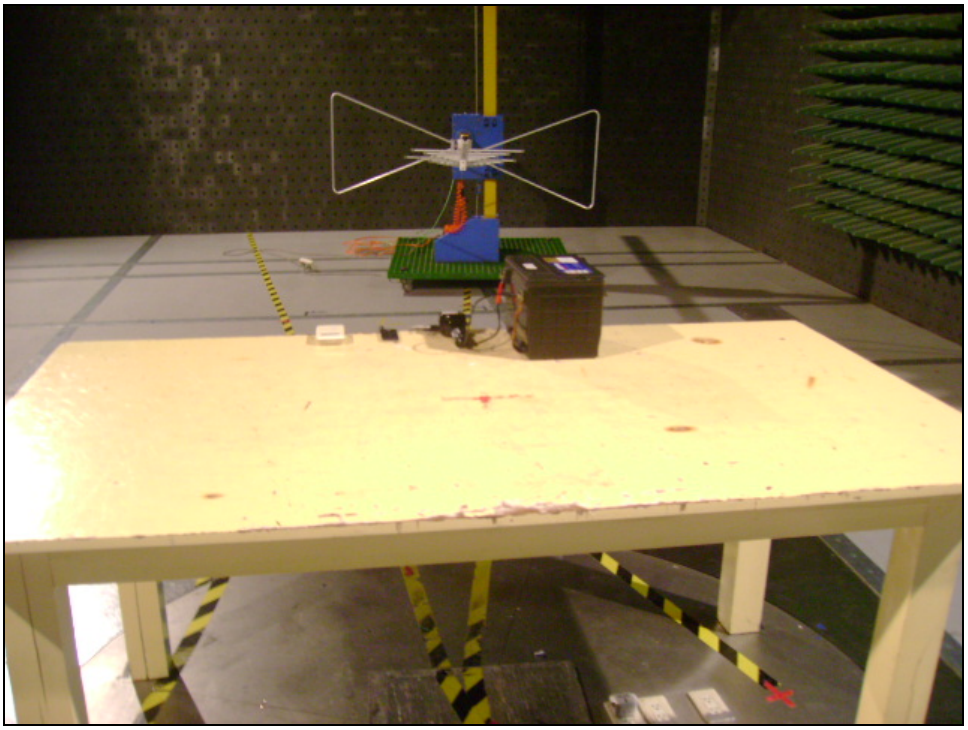
CH 12

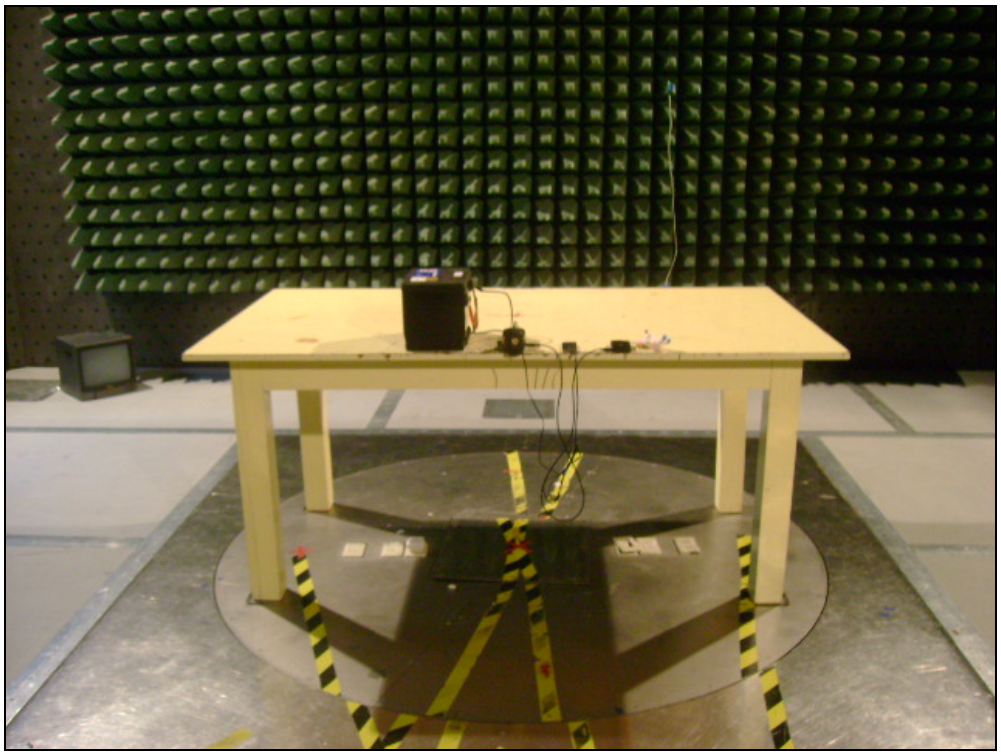

*RBW 10 kHz
VBW 30 kHz
SWT 5 ms
Marker 3 [T1]
-50.37 dBm
107.931000000 MHz
Ref -40 dBm
*Att 0 dB
Marker 1 [T1]
-76.71 dBm
107.827000000 MHz
Delta 2 [T1]
0.17 dB
176.000000000 kHz
1 PK
VIEW
A
PRN
-40
-50
-60
-70
-80
-90
-100
-110
-120
-130
-140
Center 107.9 MHz
50 kHz/
Span 500 kHz
Date: 29.SEP.2007 12:03:18

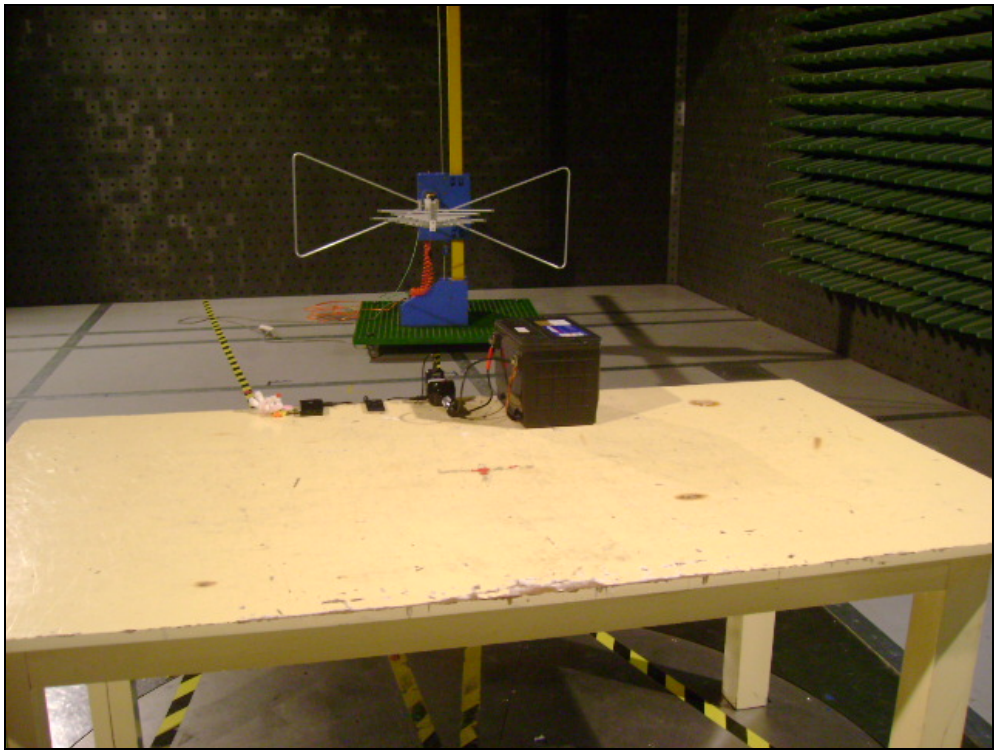
5 PHOTOGRAPHS OF THE TEST CONFIGURATION

RADIATED EMISSION TEST

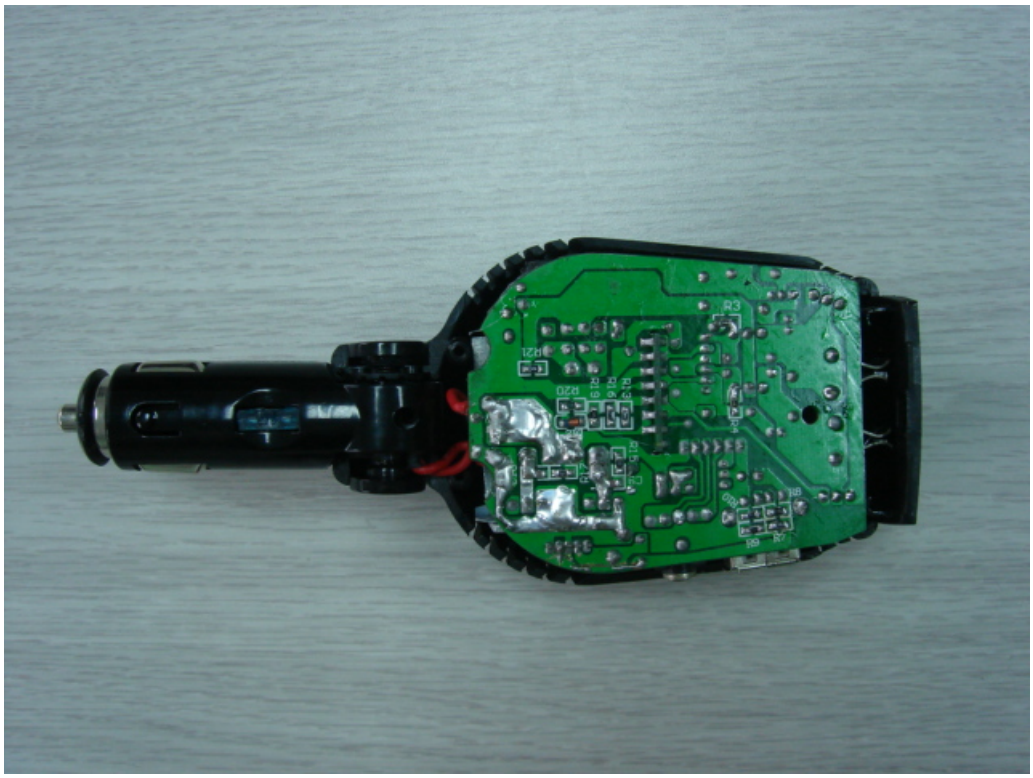


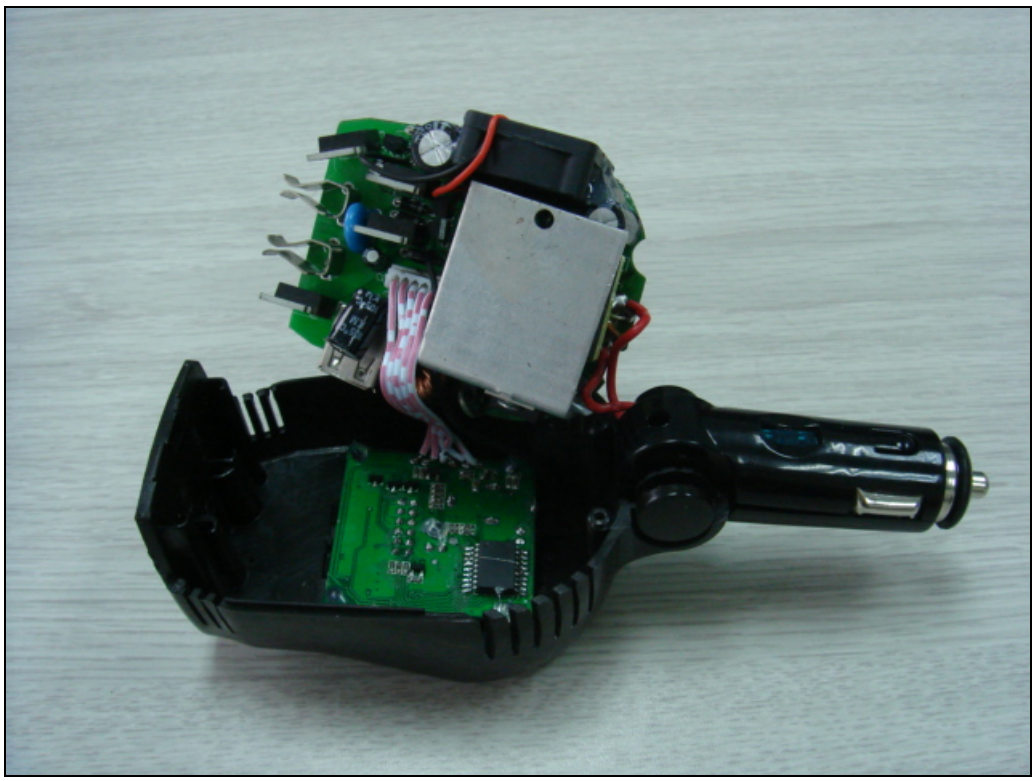


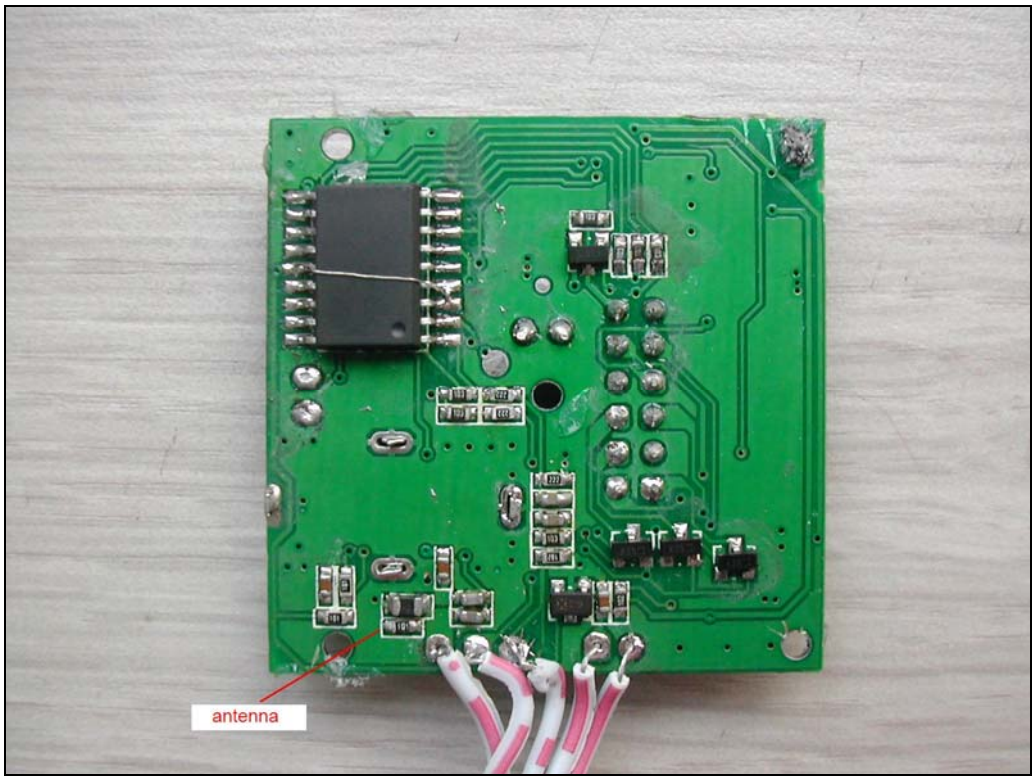


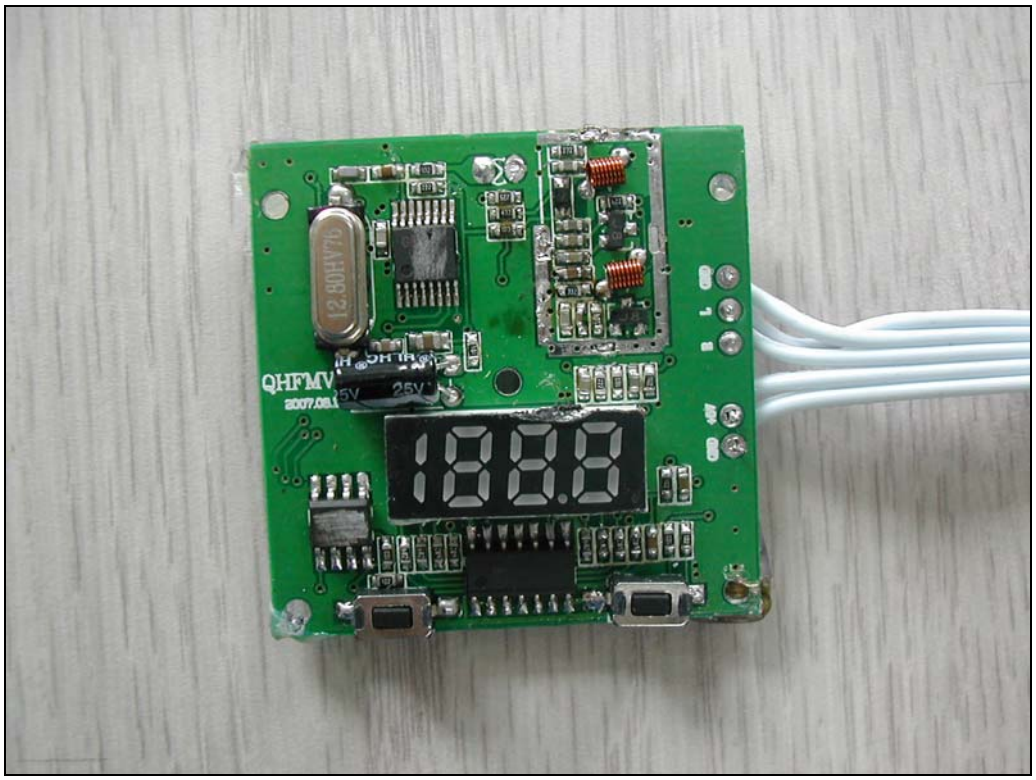


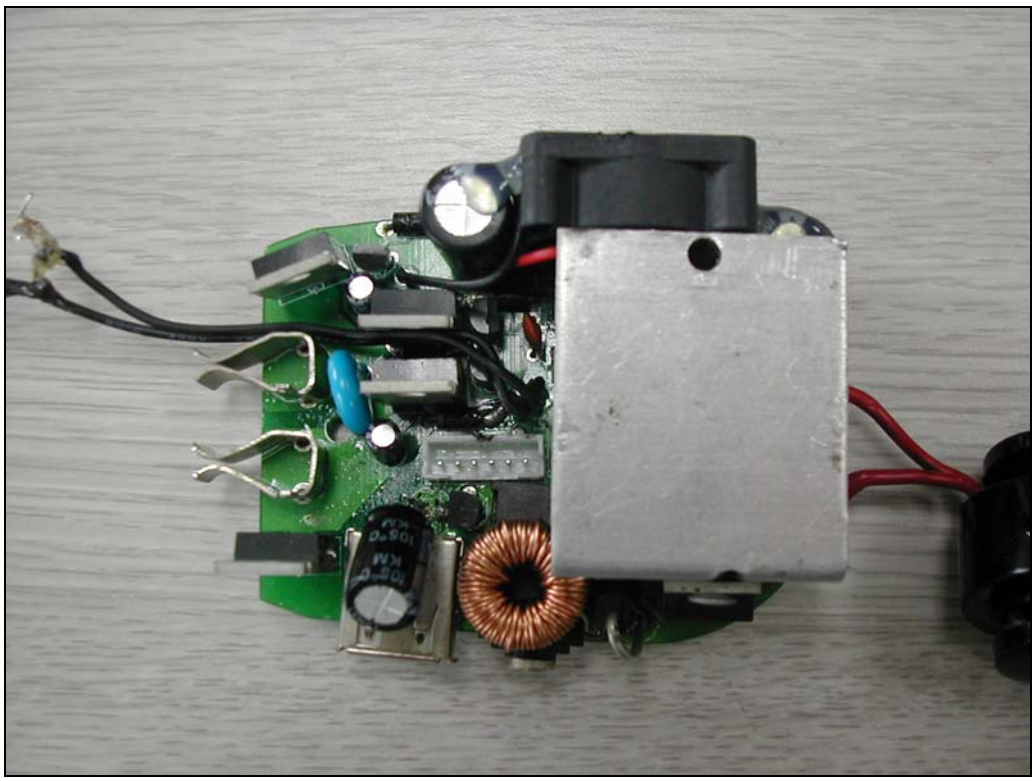
6 PHOTOGRAPHS OF THE EUT

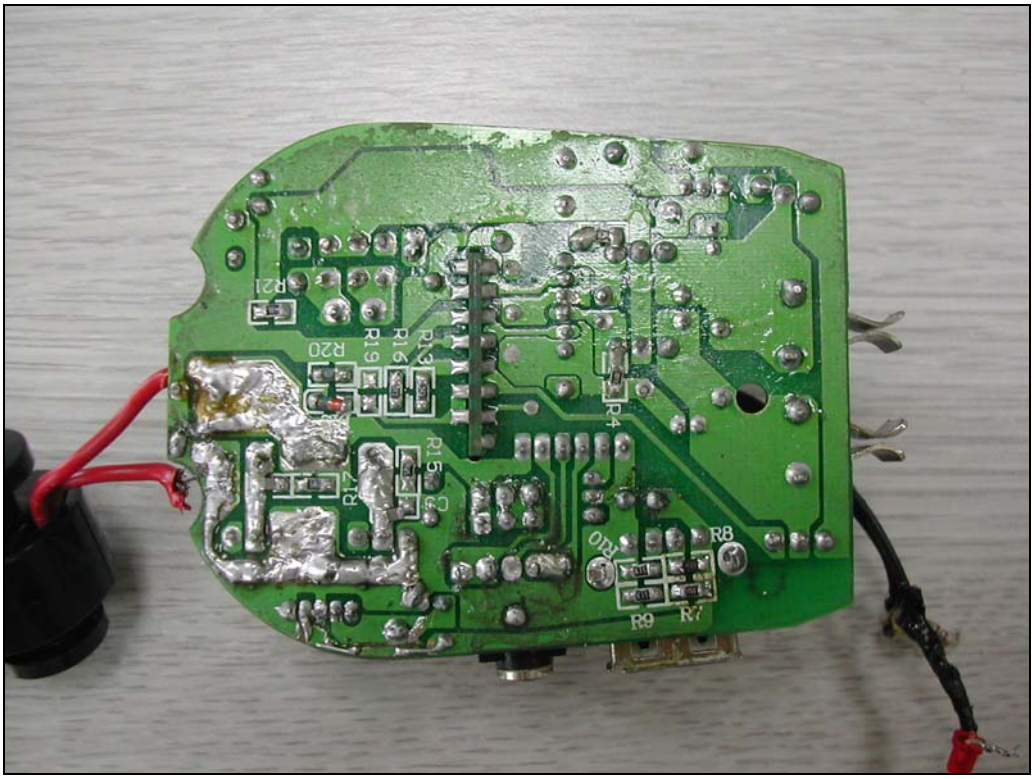


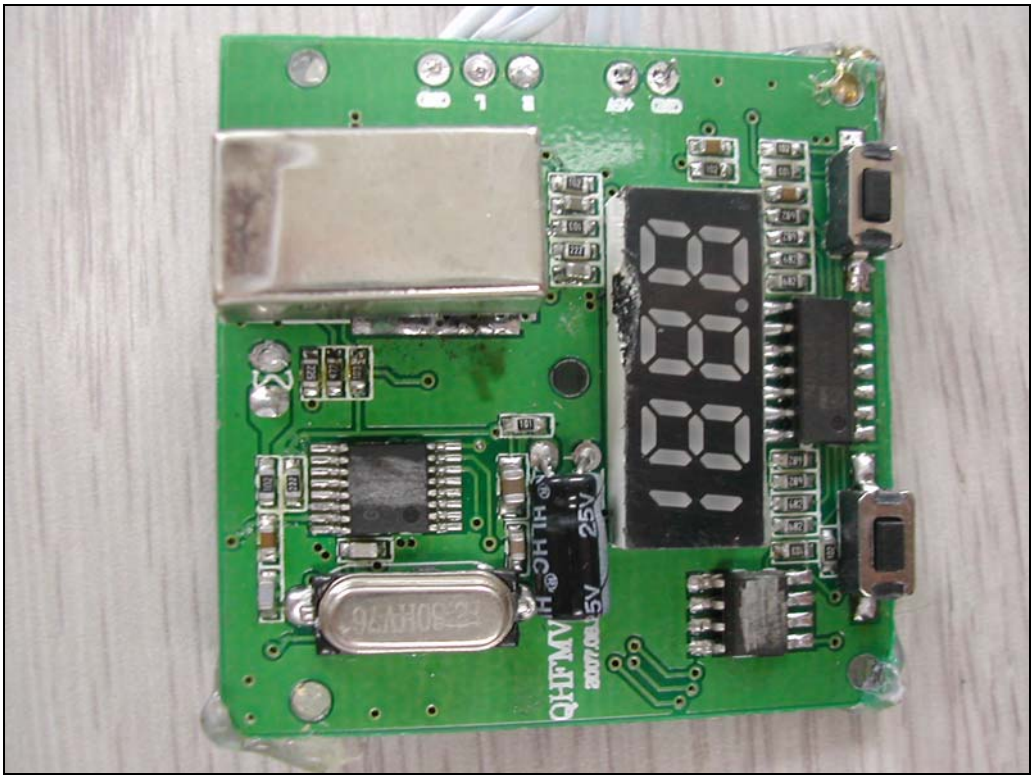



antenna






R21
R20
R16
R13
R4
R15
C2
R17
R10
R8
R9
R7


C2
25V
5V

7 APPENDIX A - INFORMATION ON THE TESTING LABORATORY

We, ADT (Shanghai) Corp., was founded in 2003 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratory is accredited and approved by the following approval agencies according to ISO / IEC 17025 (2005).

The client should not use it to claim product endorsement by CNAS, A2LA, or any government agency.

Japan	VCCI
USA	FCC, A2LA
Norway	DNV
China	CNAS

Copies of accreditation certificates of our laboratory 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

8 APPENDIX B - UNCERTAINTY IN EMC MEASUREMENT

As specified in CISPR 16-4-2, measurement instrumentation uncertainty shall be taken into account when determining compliance or non-compliance with a disturbance limit. A disturbance limit shall be determined in the following manner:

If U_{lab} is less than or equal to U_{cispr} in table 1, then:

※ Compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;

※ Non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If U_{lab} is greater than or equal to U_{cispr} in table 1, then:

※ Compliance is deemed to occur if no measured disturbance, increased by (U_{lab} -U_{cispr}), exceeds the disturbance limit;

※ Non-compliance is deemed to occur if any measured disturbance, increased by (U_{lab} -U_{cispr}), exceeds the disturbance limit.

Table 1 – Values of U_{cispr}

Measurement		U_{cispr}
Conducted disturbance (mains port)	(9kHz – 150kHz) (150kHz – 30MHz)	4,0 dB 3,6 dB
Disturbance power	(30MHz – 300MHz)	4,5 dB
Radiated disturbance (electric field strength on an open area test site or alternative test site)	(30MHz – 1000MHz)	5,2 dB
Other		Under consideration

ADT Shanghai hereby declare the U lab value are as the following:

Conducted test performed at SR1 shielded room with U_{lab} values: +/- 3.04 dB

Radiated test performed at SAC Chamber with U_{lab} values: +/- 4.62 dB

Based on the above specification, the U_{lab} values of our sites are less than U_{cispr} in table 1 and compliance is deemed to occur if no measured disturbance exceeds the disturbance limit.