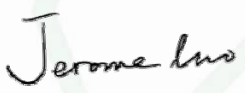
Shenzhen Huatongwei International Inspection Co., Ltd.
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Phone:86-755-26748019 Fax:86-755-26748089 http://www.szhtw.com.cn

FCC REPORT

Report Reference No. ..... :	**TRE1404000805**	R/C……..: 26547
FCC ID ..... :	2AB9CT722G	
Applicant's name ..... :	EVOLUCION TECNOLOGICA ETL S.A.	
Address.....:	ULTIMA PARK #8 SAN JOSE COST RICA	
Manufacturer.....:	KAYVE GROUP LIMITED	
Address.....:	8 Connaught Place, Central, Hong Kong	
Test item description ..... :	Tablet pc	
Trade Mark .....:	ZIF	
Model/Type reference.....:	T722G	
List Model .....:	/	
Standard ..... :	**47 CFR FCC Part 15 Subpart B - Unintentional Radiators** **ANSI C63.4: 2009**	
Date of receipt of test sample……..:	Apr 03 2014	
Date of testing……:	Apr 03 2014 ~ Apr 23 2014	
Date of issue……..:	Apr 24 2014	
Result..... ……..:	**Pass**	

Compiled by (position+printed name+signature)..:	File administrators Jerome Luo	
Supervised by (position+printed name+signature)..:	Test Engineer Yuchao Wang	
Approved by (position+printed name+signature)..:	Manager Hans Hu	

Testing Laboratory Name ..... :	**Shenzhen Huatongwei International Inspection Co., Ltd**
Address.....:	Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China

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1 . TEST STANDARDS AND TEST DESCRIPTION

1.1. Test Standards

The tests were performed according to following standards:

47 CFR FCC Part 15 Subpart B - Unintentional Radiators

ANSI C63.4: 2009 – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the
Range of 9 kHz to 40GHz

2 . SUMMARY

2.1. Client Information

Applicant:	EVOLUCION TECNOLOGICA ETL S.A.
Address:	ULTIMA PARK #8 SAN JOSE COST RICA
Manufacturer:	KAYVE GROUP LIMITED
Address:	8 Connaught Place, Central, Hong Kong

2.2. Product Description

Name of EUT	Tablet pc
Trade Mark:	ZIF
Model No.:	T722G
List Model:	/
Power supply:	DC 3.7V for lithium battery
Adapter information:	Model No.:THX-050200KKU Input: AC 100~240V, 50/60Hz, 0.65A Output: DC 5.0V 2A

2.3. EUT operation mode

The EUT has been tested under typical operating condition.

2.4. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

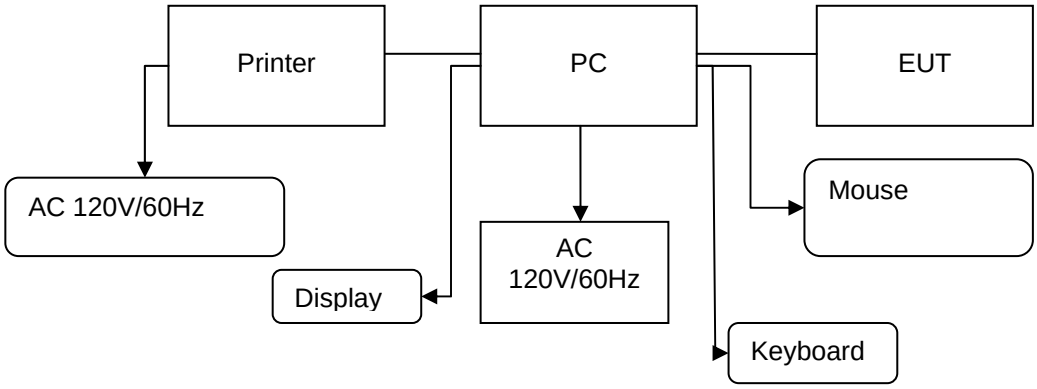
● - supplied by the manufacturer

○ - supplied by the lab

○	Power Cable	Length (m) :	/
		Shield :	/
		Detachable :	/
○	Multimeter	Manufacturer :	/
		Model No. :	/

2.5. Configuration of Tested System

Configuration of Tested System



Equipment Used in Tested System

No.	Equipment	Manufacturer	Model No.	Serial No.	Length	shielded/unshielded	Notes
1	PC	DELL	DIMENSION E520	1RNN42X	/	/	DOC
2	Printer	ESPOn	C3990	C3990A	/	/	DOC
3	Mouse	DELL	MO56UOA	G0E02SY7	1.00m	unshielded	DOC
4	Display	DELL	1707FPt	CN-OFC237-71618-65G-AAKC	/	/	DOC
5	Keyboard	DELL	L100	CNRH65665890726009L	/	/	DOC
6	USB Cable (EUT to PC)	ITALCOM GROUP	USB 2.0	N/A	0.80m	unshielded	N/A
7	USB Cable (Printer to PC)	Genshuo	USB 2.0	N/A	1.20m	unshielded	N/A
8	Power line	/	/	N/A	1.00m	unshielded	N/A

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2003) and CISPR Publication 22.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: Mar. 29, 2012. Valid time is until Feb. 28, 2015.

A2LA-Lab Cert. No. 2243.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until Sept. 30, 2015.

FCC-Registration No.: 662850

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 662850, Renewal date June. 01, 2012, valid time is until June. 01, 2015.

IC-Registration No.: 5377A

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Jan. 25, 2011, valid time is until Jan. 24, 2014.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

VCCI

The 3m Semi-anechoic chamber (12.2m×7.95m×6.7m) and Shielded Room (8m×4m×3m) of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2010. Valid time is until Dec. 23, 2013.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2009. Valid time is until Dec. 19, 2012.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2010. Valid time is until May 06, 2013.

DNV

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2016.

3.3. Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

3.4. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.24 dB	(1)
Radiated Emission	1~18GHz	5.16 dB	(1)
Radiated Emission	18-40GHz	5.54 dB	(1)
Conducted Disturbance	0.15~30MHz	3.39 dB	(1)

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

3.5. Equipments Used during the Test

Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due
1	EMI TEST RECEIVER	Rohde & Schwarz	ESCI	100106	2014/10/25
2	ARTIFICIAL MAINS	Rohde & Schwarz	ESH2-Z5	100028	2014/10/25
3	PULSE LIMITER	Rohde & Schwarz	ESHSZ2	100044	2014/10/25
4	EMI TEST SOFTWARE	Rohde & Schwarz	ES-K1	N/A	N/A

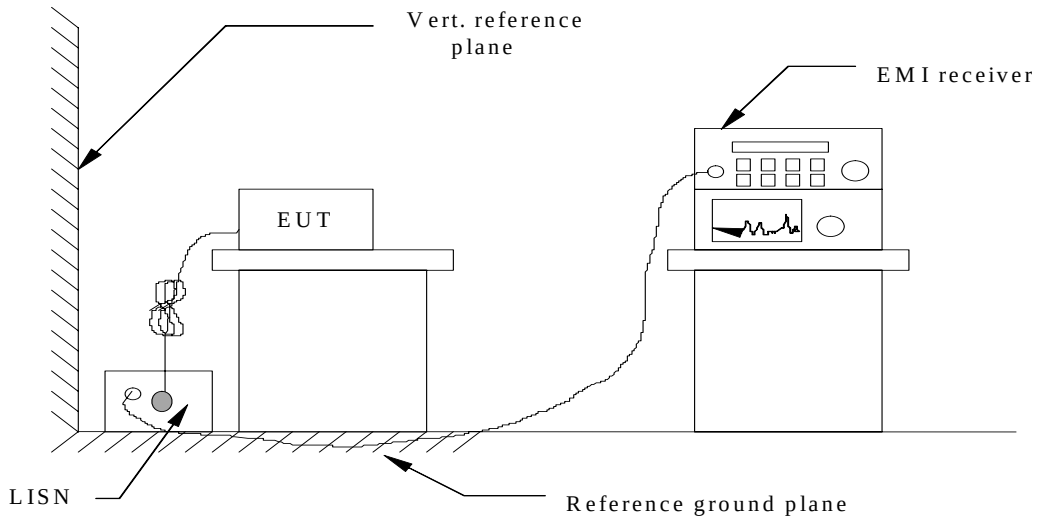
Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal.Due
1	ULTRA-BROADBAND ANTENNA	ShwarzBeck	VULB9163	538	2014/10/25
2	EMI TEST RECEIVER	Rohde & Schwarz	ESI 26	100009	2014/10/25
3	EMI TEST Software	Audix	E3	N/A	N/A
4	TURNTABLE	MATURO	TT2.0	----	N/A
5	ANTENNA MAST	MATURO	TAM-4.0-P	----	N/A
6	EMI TEST Software	Rohde & Schwarz	ESK1	N/A	N/A
7	ULTRA-BROADBAND ANTENNA	Rohde&Schwarz	HL562	100015	2014/10/25
8	Amplifer	Sonoma	310N	E009-13	2014/10/25
9	JS amplifer	Rohde & Schwarz	JS4-00101800-28-5A	F201504	2014/10/25
11	TURNTABLE	ETS	2088	2149	N/A
12	ANTENNA MAST	ETS	2075	2346	N/A
13	HORN ANTENNA	Rohde&Schwarz	HF906	100039	2014/10/25

The calibration interval was one year.

4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions Test

TEST CONFIGURATION



TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4-2009.
2. Support equipment, if needed, was placed as per ANSI C63.4-2009.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2009.
4. The EUT received DC 5.0 from USB powered from AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

CONDUCTED POWER LINE EMISSION LIMIT

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following：

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

* Decreasing linearly with the logarithm of the frequency

TEST RESULTS

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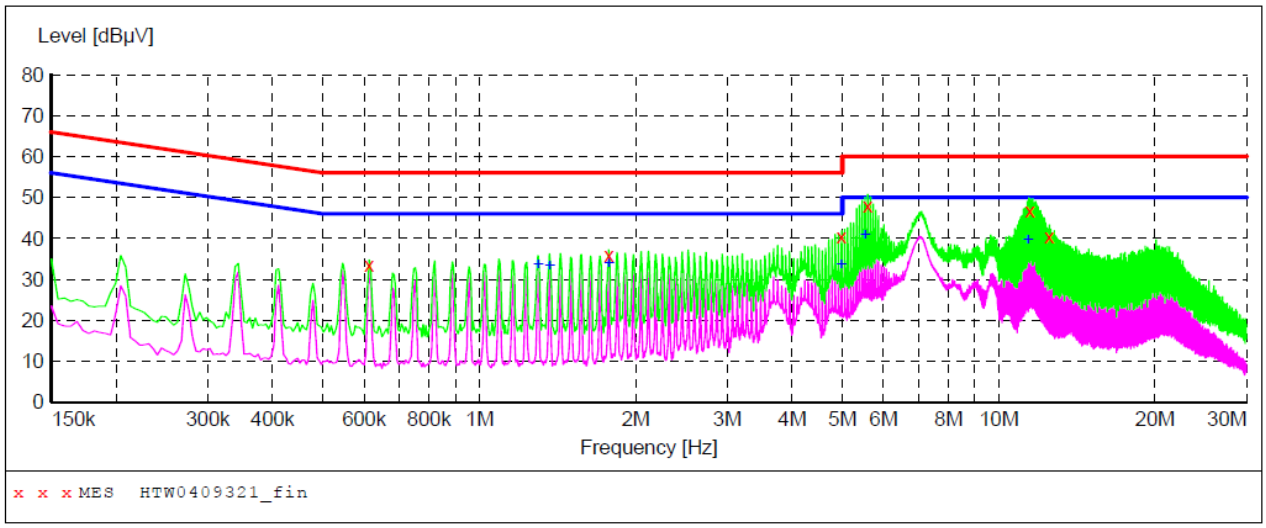
SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0409321_fin"

4/9/2014 2:33PM

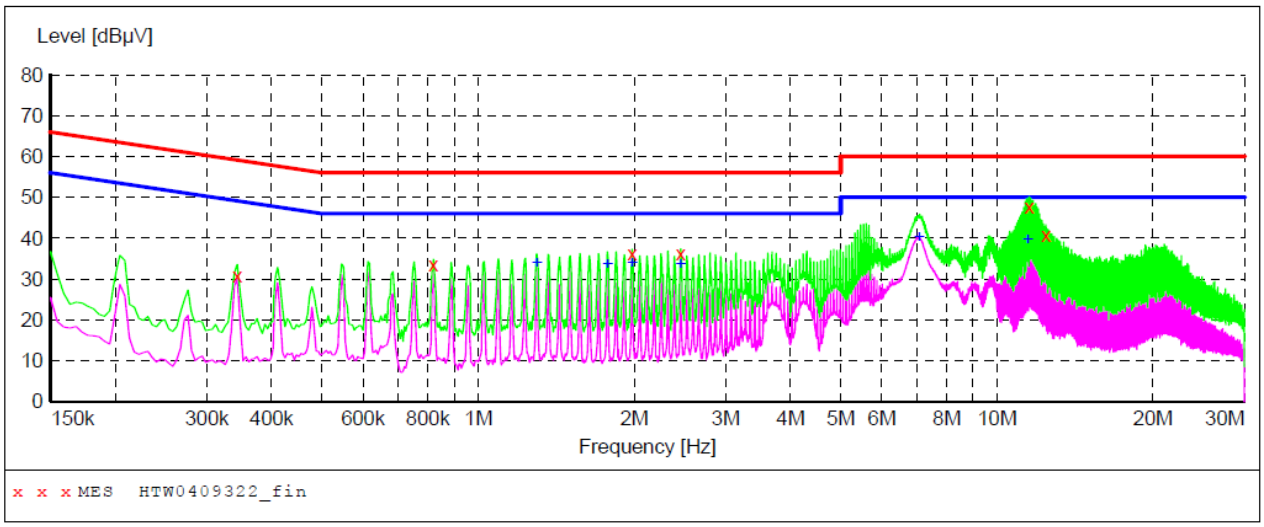
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.613500	33.50	10.3	56	22.5	QP	N	GND
1.774500	35.80	10.3	56	20.2	QP	N	GND
4.983000	40.50	10.3	56	15.5	QP	N	GND
5.595000	48.00	10.3	60	12.0	QP	N	GND
11.472000	46.70	10.6	60	13.3	QP	N	GND
12.493500	40.50	10.7	60	19.5	QP	N	GND

MEASUREMENT RESULT: "HTW0409321_fin2"

4/9/2014 2:33PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
1.297500	33.40	10.3	46	12.6	AV	N	GND
1.365000	33.30	10.3	46	12.7	AV	N	GND
1.774500	33.80	10.3	46	12.2	AV	N	GND
4.983000	33.50	10.3	46	12.5	AV	N	GND
5.532000	40.90	10.3	50	9.1	AV	N	GND
11.400000	39.40	10.6	50	10.6	AV	N	GND

SCAN TABLE: "Voltage (9K-30M)FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0409322_fin"

4/9/2014 2:37PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.343500	30.70	10.6	59	28.4	QP	L1	GND
0.820500	33.50	10.2	56	22.5	QP	L1	GND
1.981500	36.10	10.3	56	19.9	QP	L1	GND
2.458500	36.30	10.3	56	19.7	QP	L1	GND
11.544000	47.80	10.6	60	12.2	QP	L1	GND
12.430500	40.90	10.7	60	19.1	QP	L1	GND

MEASUREMENT RESULT: "HTW0409322_fin2"

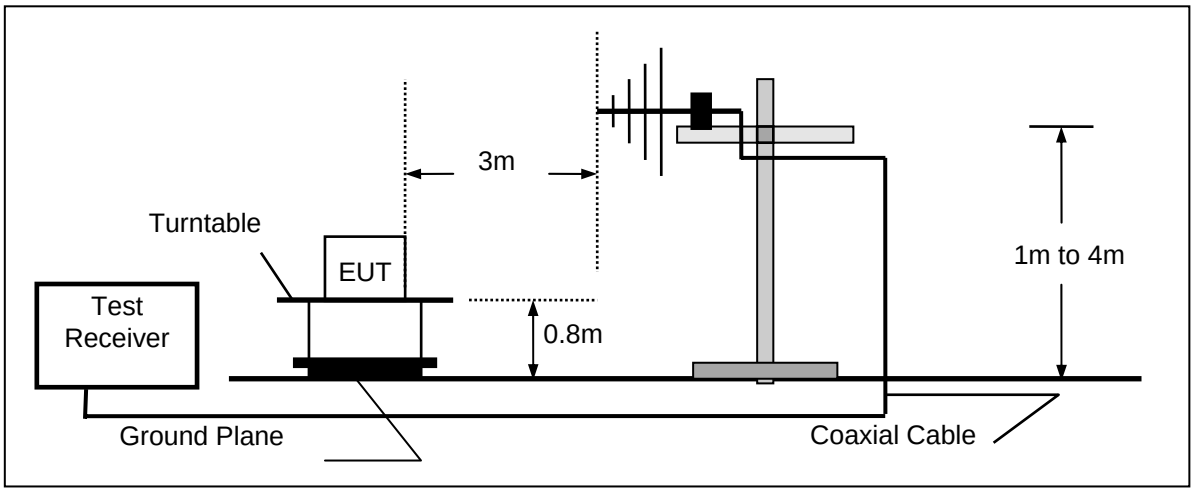
4/9/2014 2:37PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
1.297500	33.90	10.3	46	12.1	AV	L1	GND
1.774500	33.40	10.3	46	12.6	AV	L1	GND
1.981500	33.80	10.3	46	12.2	AV	L1	GND
2.458500	33.40	10.3	46	12.6	AV	L1	GND
7.080000	40.10	10.4	50	9.9	AV	L1	GND
11.472000	39.60	10.6	50	10.4	AV	L1	GND

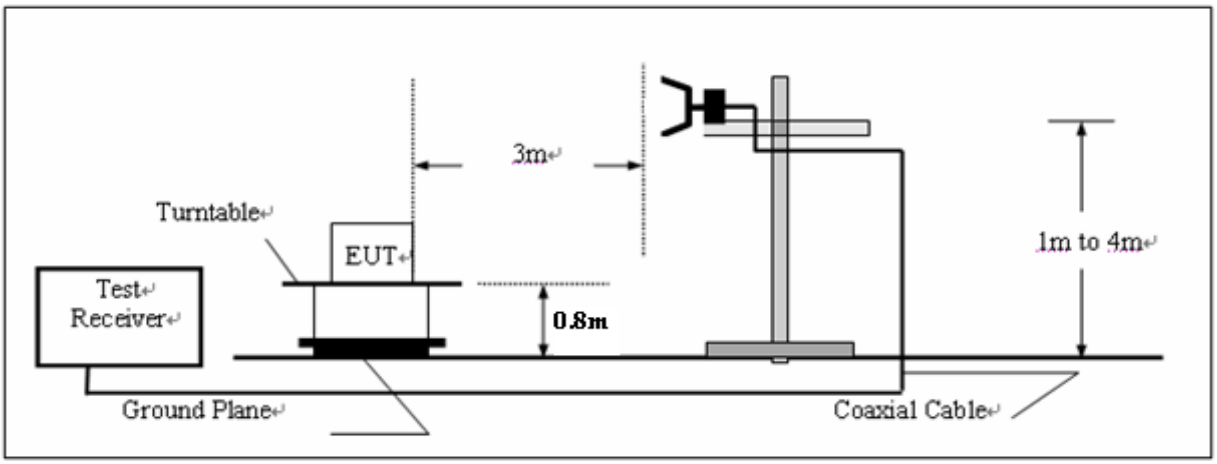
4.2. Radiated Emission Test

TEST CONFIGURATION

a) Radiated Emission Test Set-Up, Frequency below 1000MHz



b) Radiated Emission Test Set-Up, Frequency above 1000MHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The maximum operation frequency was 512MHz, the radiated emission test frequency from 30MHz to 18GHz.

FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

For example

Frequency (MHz)	FS (dBμV/m)	RA (dBμV/m)	AF (dB)	CL (dB)	AG (dB)	Transd (dB)
300.00	40	58.1	12.2	1.6	31.90	-18.1

Transd=AF +CL-AG

RADIATION LIMIT

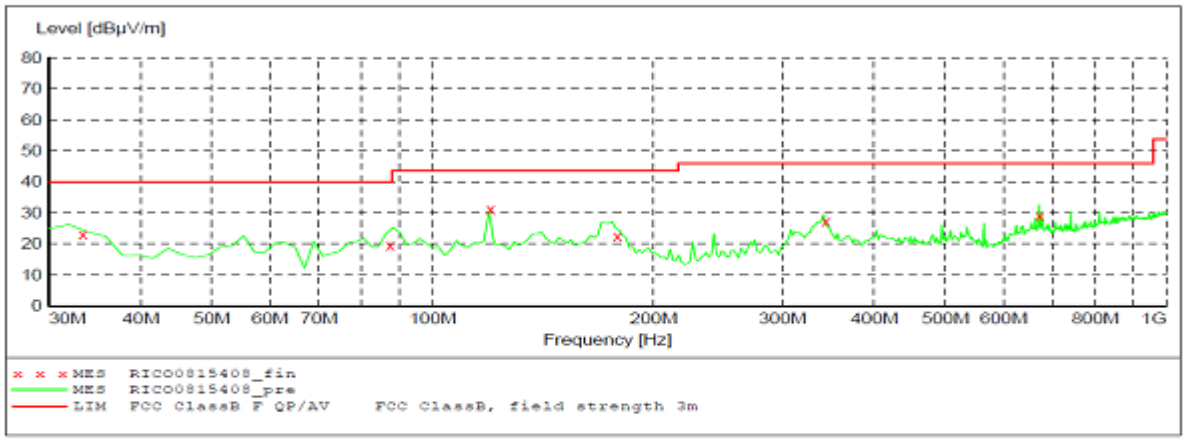
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values：

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST RESULTS

SCAN TABLE: "test Field(30M-1G)QP"

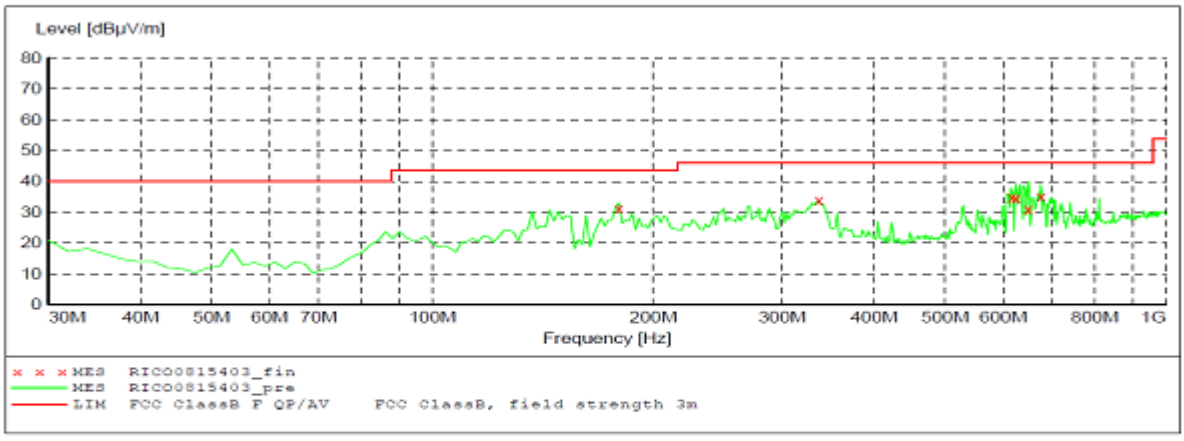
Short Description:			Field Strength(30M-1G)			
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562 201106



MEASUREMENT RESULT: "RICO0815408_fin"

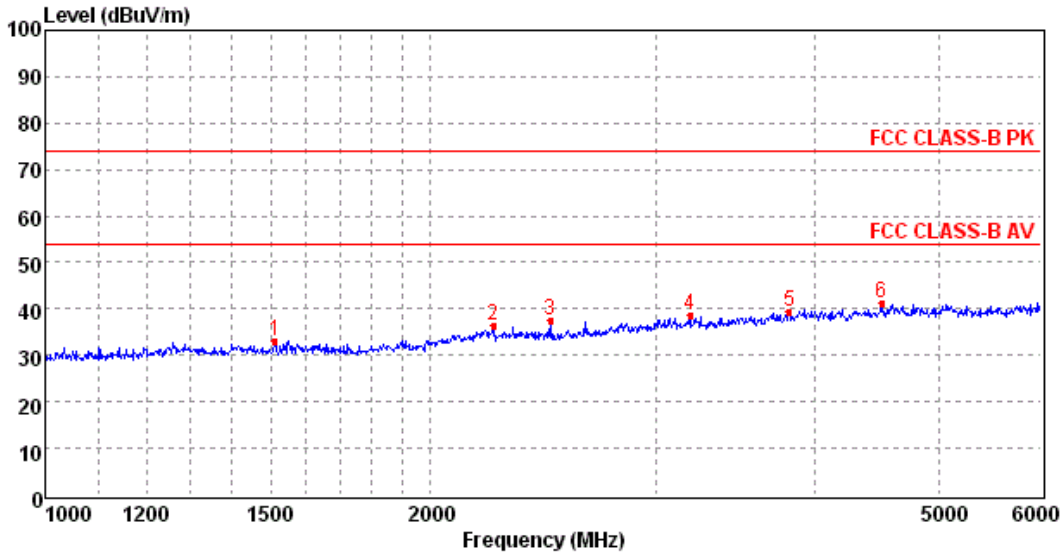
Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
33.360000	9.70	-11.8	40.0	30.3	QP	150.0	160.00	VERTICAL
87.600000	22.10	-19.2	40.0	17.8	QP	100.0	0.00	VERTICAL
120.000000	31.20	-17.8	43.5	12.3	QP	101.0	0.00	VERTICAL
178.740000	22.40	-20.7	43.5	21.1	QP	100.0	133.00	VERTICAL
343.740000	21.60	-14.7	46.0	24.4	QP	99.0	180.00	VERTICAL
672.720000	28.00	-7.5	46.0	18.0	QP	100.0	172.00	VERTICAL

Short Description:			Field Strength(30M-1G)			
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562 201106

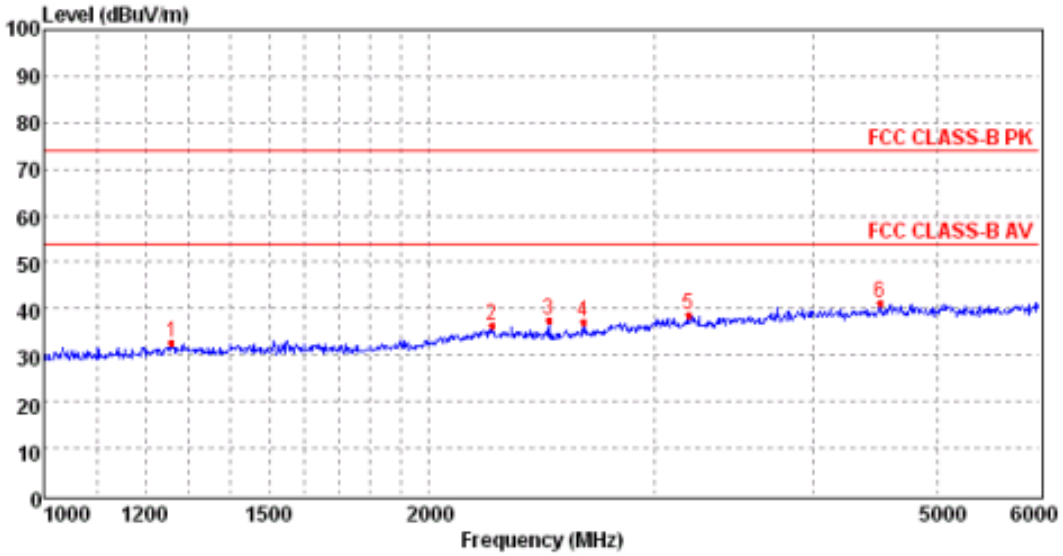


MEASUREMENT RESULT: "RICO0815403_fin"

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
179.700000	31.30	-20.5	43.5	12.2	QP	150.0	225.00	HORIZONTAL
336.780000	33.90	-14.6	46.0	12.1	QP	99.0	243.00	HORIZONTAL
617.340000	34.70	-9.3	46.0	11.3	QP	101.0	155.00	HORIZONTAL
625.620000	34.50	-9.0	46.0	11.5	QP	99.0	192.00	HORIZONTAL
649.140000	31.00	-8.4	46.0	15.0	QP	100.0	126.00	HORIZONTAL
676.020000	35.10	-7.5	46.0	10.9	QP	100.0	159.00	HORIZONTAL



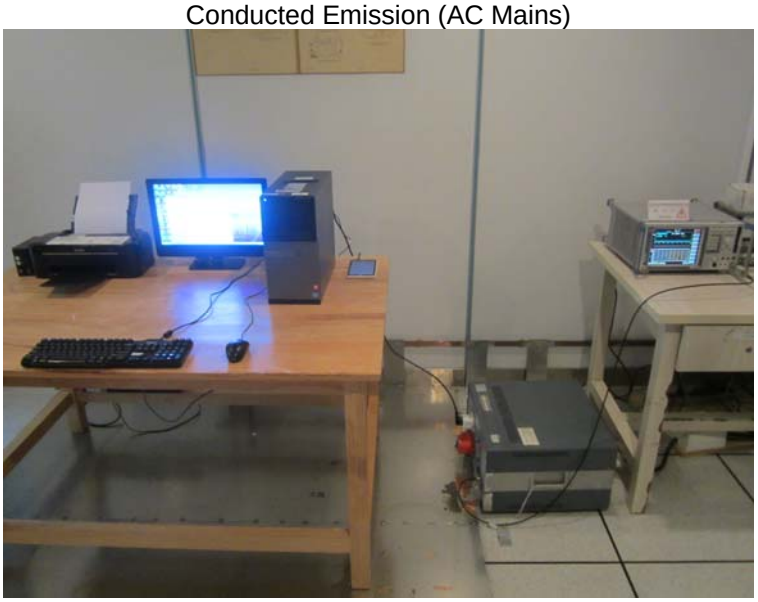
Mark	Frequency MHz	Level dBuv/m	Factor dB	Reading dBuv/m	Limit dBuv/m	Margin dB	Polarization	Det.
1	1512.70	33.17	-8.35	41.52	74.00	40.83	HORIZONTAL	Peak
2	2239.59	36.30	-4.95	41.25	74.00	37.70	HORIZONTAL	Peak
3	2480.41	37.73	-5.22	42.95	74.00	36.27	HORIZONTAL	Peak
4	3193.32	38.63	-2.80	41.43	74.00	35.37	HORIZONTAL	Peak
5	3813.11	39.44	-1.14	40.58	74.00	34.56	HORIZONTAL	Peak
6	4504.51	41.30	1.11	40.19	74.00	32.70	HORIZONTAL	Peak



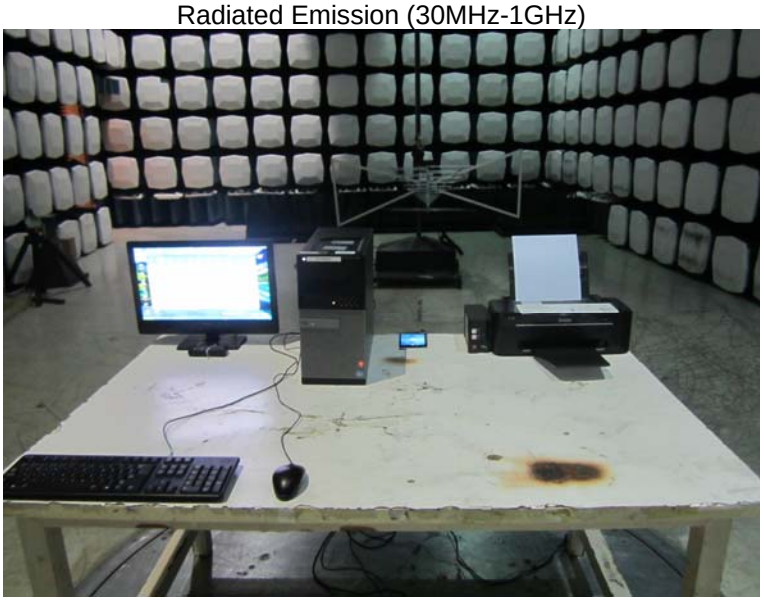
Mark	Frequency MHz	Level dBuv/m	Factor dB	Reading dBuv/m	Limit dBuv/m	Margin dB	Polarization	Det.
1	1260.03	32.86	-8.32	41.18	74.00	41.14	VERTICAL	Peak
2	2239.59	36.30	-4.95	41.25	74.00	37.70	VERTICAL	Peak
3	2480.41	37.73	-5.22	42.95	74.00	36.27	VERTICAL	Peak
4	2640.94	37.09	-4.70	41.79	74.00	36.91	VERTICAL	Peak
5	3193.32	38.63	-2.80	41.43	74.00	35.37	VERTICAL	Peak
6	4504.51	41.30	1.11	40.19	74.00	32.70	VERTICAL	Peak

5. Test Setup Photos of the EUT

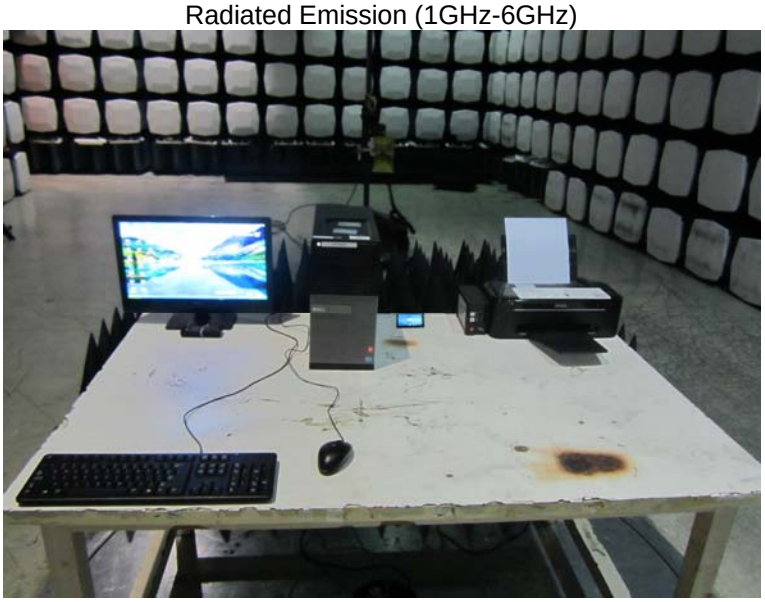
Conducted Emission (AC Mains)



Radiated Emission (30MHz-1GHz)



Radiated Emission (1GHz-6GHz)



6. External and Internal Photos of the EUT

Reference to the test report No. TRE1404000801

.....End of Report.....