

FCC PART 15D MEASUREMENT AND TEST REPORT

For

Telefield Ltd.

Flat D, 2/F., Valiant Industrial Centre,
2-12 Au Pui Wan Street, Fo Tan, N.T., Hong Kong.

FCC ID: MZVIP-172

Report Type: Original Report	Product Type: IP DECT Phone (Gateway Unit)
Test Engineer: Simon Wang	<i>Simon wang</i>
Report Number: RDG141117005-00FP	
Report Date: 2014-11-27	
Reviewed By: RF Engineer	<i>Jimmy xiao</i>
Prepared By:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

Note: This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The Telefield Ltd.'s product, model number: IP172 (FCC ID: MZVIP-172) or the "EUT" in this report was a gateway unit of IP DECT Phone, which was measured approximately: 13.0 cm (L) x 11.5 cm (W) x 3.0 cm (H), rated input voltage: DC 5V from adapter.

Adapter Information: AC Adapter
Model: 5E-AD050050-U;
Input: 100-240V~50/60Hz 0.15A;
Output: DC 5V, 0.5A

Note: The series product, for desktop phone models IP172, IP172X, IP172XX, IP172XXX, IP172-TC, IP172X-TC, IP172XX-TC, IP172XXX-TC, IP072, IP072X, IP072XX, IP072XXX, IP072-TC, IP072X-TC, IP072XX-TC, IP072XXX-TC, IP100, IP100X, IP100XX, IP100XXX they share the same product only named differently due to different combination and trade name per client's request, and "x" shall consist of a series of Arabic numerals, capital letters or a combination of thereof Model P172 was selected for testing, the detailed information can be referred to the attached declaration letter that stated and guaranteed by the applicant.

** All measurement and test data in this report was gathered from production sample serial number: 141117005 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2014-11-17.*

Objective

This test report was based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.17 - 2006 and ANSI C63.4 2009.

The tests were performed in order to determine the compliance of the EUT with FCC Part 15-Subpart D, section 15.203, 15.315, 15.317, 15.319 and 15.323 rules.

Related Submittal(s)/Grant(s)

FCC Part 15D PUE submission of portable portion with FCC ID: MZVIP-172.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.17 - 2006, 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 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen).

The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement uncertainty with radiated emission is 5.91 dB for 30MHz-1GHz and 4.92 dB for above 1GHz, 1.95dB for conducted measurement.

Test Facility

The test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in TBR6 mode which is provided by the manufacturer.

Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

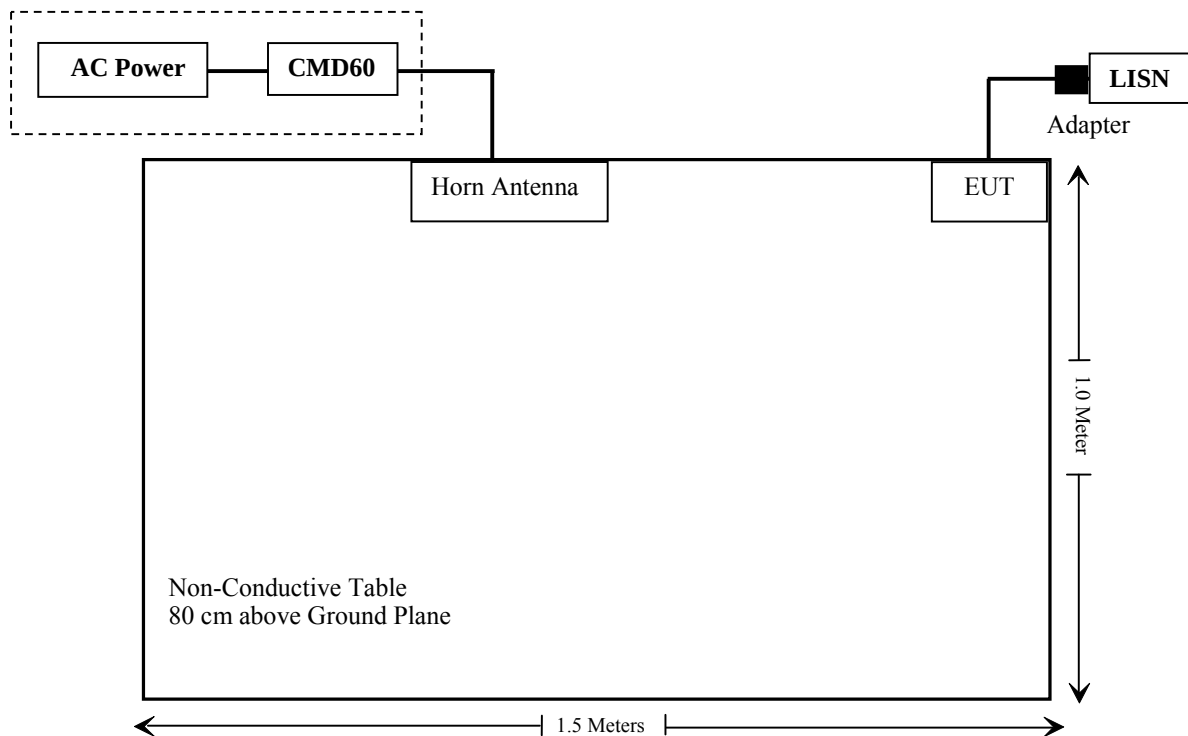
Manufacturer	Description	Model	Serial Number
R&S	Digital Radio-Communication Tester	CMD60	829902/026

External I/O Cable

Cable Description	Length (m)	From/Port	To
Unshielded Undetectable DC Power Cable	1.8	EUT	Adapter

Block Diagram of Test Setup

For conducted emissions



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 15.319 (i)&2.1091	Maximum Permissible exposure (MPE)	Compliance
§ 15.317, § 15.203	Antenna Requirement	Compliance
§ 15.315, § 15.207	Conducted Emission	Compliance
§ 15.323 (a)	Emission Bandwidth	Compliance
§ 15.319 (c)	Peak Transmit Power	Compliance
§ 15.319 (d)	Power Spectral Density	Compliance
§ 15.323 (d)	Emission Inside and Outside the sub-band	Compliance
§ 15.319 (g)	Radiated Emission	Compliance
§ 15.323 (f)	Frequency Stability Handset	Compliance
§ 15.323 (c)(e) § 15.319 (f)	Specific Requirements for UPCS	Compliance

Note: the EUT is fully identical to the previous certified device with model *IP170S* (FCC ID: *MZVIP-170*), the differences between them are the model number and ID, so all the test data is referred to report No.: R1DG131204003-00FP with FCC ID: *MZVIP-170* granted on 2014-03-13, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

§1.1307 (b) (1) & §2.1091- MAXIMUM PERMISSIBLE EXPOSURE (MPE)**Applicable Standard**

According to FCC §15.319(i) and §1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE) (§1.1310, §2.1091)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	842/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

MPE Calculation

Predication of MPE limit at a given distance

$$S = \frac{PG}{4\pi R^2}$$

Where: S = power density (in appropriate units, e.g. mW/cm²);

P = power input to the antenna (in appropriate units, e.g., mW);

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Channel	Frequency (MHz)	Antenna Gain		Conducted Power		Evaluation Distance (cm)	Power Density (mW/cm ²)	MPE Limit (mW/cm ²)
		(dBi)	(numeric)	(dBm)	(mW)			
Middle	1924.992	0	1	19.80	95.50	20	0.019	1.0

Result: The device meets MPE limit at 20 cm distance.

FCC§15.317 & §15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to FCC § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Antenna Connector Construction

The EUT have two integrated antennas arrangement, which were permanently attached and the gain was 0 dBi, fulfill the requirement of this section. Please refer to the internal photos.

Result: Compliant.

FCC§15.315 & §15.207 - CONDUCTED EMISSIONS

Applicable Standard

FCC§15.315, an unlicensed PCS device that is designed to be connected to the public utility (AC) power line must meet the limits specified in §15.207.

Test Data

Please refer to the report R1DG131204003-00FP with *FCC ID: MZVIP-170* granted on 2014-03-13, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

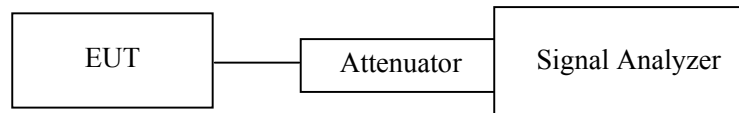
FCC§15.323 (a) - EMISSION BANDWIDTH

Applicable Standard

Operation shall be contained within the 1920–1930 MHz band. The emission bandwidth shall be less than 2.5 MHz and greater than 50 kHz.

The emission bandwidth is measured in accordance with ANSI C63.17 sub-clause 6.1.3 using the setup below:

Test Setup 1:



The width, in Hz, of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, that is 26 dB down relative to the maximum level of the modulated carrier. It is based on the use of measurement instrumentation employing a peak detector function with an instrument resolution bandwidth approximately equal to 1% of the emission band-width of the device under measurement. [Extraction from 47 CFR 15, subpart D, 15.303 (C)].

Test Data

Please refer to the report R1DG131204003-00FP with FCC ID: MZVIP-170 granted on 2014-03-13, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

FCC§15.319 (c) - PEAK TRANSMIT POWER

Applicable Standard

The peak power output as measured over an interval of time equal to the frame rate or transmission burst of the device under all conditions of modulation. Usually this parameter is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used[47 CFR 15, subpart D, 15.303].

The peak transmit power is according to ANSI C63.17-2006 §6.1.2

Per FCC Part15.319 (c) Peak transmit power shall not exceed 100 microwatts multiplied by the square root of the emission bandwidth in hertz. Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

Per FCC Part15.319 (e), the peak transmit power shall be reduced by the amount in decibels that the maximum directional gain of the antenna exceeds 3 dBi.

Calculation of Peak Transmit Power Limit:

$$\text{Peak Transmit Power Limit} = 100\mu\text{W} \times (\text{EBW})^{1/2}$$

EBW is the transmit emission bandwidth in Hz determined in the other test item:

Test Data

Please refer to the report R1DG131204003-00FP with FCC ID: MZVIP-170 granted on 2014-03-13, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

FCC§15.319 (d) - POWER SPECTRAL DENSITY

Applicable Standard

The average pulse energy in a 3 kHz bandwidth is divided by the pulse duration.

The power spectral density shall not exceed 3mW in any 3 kHz bandwidth as measured with a spectrum analyzer having a resolution bandwidth of 3 kHz.

The power spectral density is measured in accordance with ANSI C63.17.2006 Clause 6.1.5.

Test Data

Please refer to the report R1DG131204003-00FP with FCC ID: MZVIP-170 granted on 2014-03-13, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

FCC§15.323 (d) - EMISSION INSIDE AND OUTSIDE THE SUB-BAND

Applicable Standard

Emissions inside the sub-band must comply with the following emission mask:

1. In the bands between 1B and 2B measured from the center of the emission bandwidth the total power emitted by the device shall be at least 30 dB below the transmit power permitted for that device;
2. in the bands between 2B and 3B measured from the center of the emission bandwidth the total power emitted by an intentional radiator shall be at least 50 dB below the transmit power permitted for that radiator;
3. in the bands between 3B and the sub-band edge the total power emitted by an intentional radiator in the measurement bandwidth shall be at least 60 dB below the transmit power permitted for that radiator.

Where B = emission bandwidth

Emission Outside the sub-band shall be attenuated below a reference power of 112 mw (20.5 dBm) as follows:

1. 30 dB between the sub-band and 1.25 MHz above or below the sub-band;
2. 50 dB between 1.25 and 2.5 MHz above or below the sub-band;
3. 60 dB at 2.5 MHz or greater above or below the sub-band.

Test Data

Please refer to the report R1DG131204003-00FP with FCC ID: MZVIP-170 granted on 2014-03-13, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

FCC§15.319 (g) - RADIATED EMISSIONS

Applicable Standard

According to FCC§15.319(g), notwithstanding other technical requirements specified in this subpart, attenuation of emissions below the general emission limits in §15.209 is not required.

Test Data

Please refer to the report R1DG131204003-00FP with FCC ID: MZVIP-170 granted on 2014-03-13, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

FCC§15.323 (f) - FREQUENCY STABILITY

Applicable Standard

Per §15.323(f), the frequency stability of the carrier frequency of the intentional radiator shall be maintained within ± 10 ppm over 1 hour or the interval between channel access monitoring, whichever is shorter. The frequency stability shall be maintained over a temperature variation of -20°C to $+50^{\circ}\text{C}$ at normal supply voltage, and over a variation in the primary supply voltage of 85 percent to 115 percent of the rated supply voltage at a temperature of 20°C . For equipment that is capable only of operating from a battery, the frequency stability tests shall be performed using a new battery without any further requirement to vary supply voltage

Test Data

Please refer to the report R1DG131204003-00FP with FCC ID: MZVIP-170 granted on 2014-03-13, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

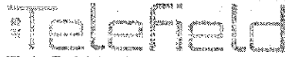
FCC§15.323 (c) (e) & §15.319(f) – SPECIFIC REQUIREMENTS FOR UPCS DEVICE

Automatic Discontinuation of Transmission, FCC Part 15.319(f)

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. The provisions in this section are not intended to preclude transmission of control and signaling information or use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Test Data

Please refer to the report R1DG131204003-00FP with FCC ID: MZVIP-170 granted on 2014-03-13, which was tested by Bay Area Compliance Laboratories Corp. (Shenzhen).

PRODUCT SIMILARITY DECLARATION LETTER

Telefield Ltd.

Flat D,2/F.,Valiant Industrial Centre, 2-12 Au Pui Wan Street,Fo Tan,N.T.,Hong Kong.

Tel: 852 26052811

Fax: 852 30078968

Product Similarity Declaration

Date: 2014-12-01

To Whom It May Concern,

We, Telefield Ltd., hereby declare that our product IP DECT Phone, Model Number: IP172, IP172X, IP172XX, IP172XXX, IP172-TC, IP172X-TC, IP172XX-TC, IP172XXX-TC, IP072, IP072X, IP072XX, IP072XXX, IP072-TC, IP072X-TC, IP072XX-TC, IP072XXX-TC, IP100, IP100X, IP100XX, IP100XXX are different in model name due to different combination. The Gateway and Desktop phone are the same.

A difference description of these models is as following:

ITEM #	MODEL NUMBER	COMBINATION	OTHER DETAILS
1	IP172	Gateway & Desktop phone	Color / packing difference
2	IP172X	Gateway & Desktop phone	Color / packing difference
3	IP172XX	Gateway & Desktop phone	Color / packing difference
4	IP172XXX	Gateway & Desktop phone	Color / packing difference
5	IP172-TC	Gateway & Desktop phone	Color / packing difference
6	IP172X-TC	Gateway & Desktop phone	Color / packing difference
7	IP172XX-TC	Gateway & Desktop phone	Color / packing difference
8	IP172XXX-TC	Gateway & Desktop phone	Color / packing difference
9	IP072	Desktop phone	Color / packing difference
10	IP072X	Desktop phone	Color / packing difference
11	IP072XX	Desktop phone	Color / packing difference
12	IP072XXX	Desktop phone	Color / packing difference
13	IP072-TC	Desktop phone	Color / packing difference
14	IP072X-TC	Desktop phone	Color / packing difference
15	IP072XX-TC	Desktop phone	Color / packing difference
16	IP072XXX-TC	Desktop phone	Color / packing difference
17	IP100	Gateway	Color / packing difference
18	IP100X	Gateway	Color / packing difference
19	IP100XX	Gateway	Color / packing difference
20	IP100XXX	Gateway	Color / packing difference

Note: "x" shall consist of a series of Arabic numerals, capital letters or a combination thereof.

The rest are the same.

Please contact me if you have any question.

For and on behalf of

TELEFIELD LTD.

Signature:


Authorized Signature(s)

Ho Wing Cheong

Senior Engineering Manager

******* END OF REPORT *******