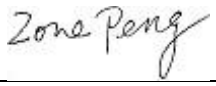
FCC Test Report

FCC EVALUATION REPORT FOR CERTIFICATION	
Project Reference No.	281776
Product	2.4G Wireless USB Dongle
Brand Name	Purekeys
Model	PK-KRF-01
Alternate Model	N/A
Tested according to	FCC Rules and Regulations Part 15 Subpart B Class B 2013, ANSI C63.4-2009

Tested in period	2015-04-10	
Issued date	2015-04-21	
Name and address of the Test House	Nemko Shanghai Ltd. Shenzhen Branch Unit CD, Floor 10, Tower 2, Kefa Road 8#, Hi-Technology Park, Nanshan District, Shenzhen, China Phone : +86 755 8221 0420 Fax : +86 755 8221 3363	
Tested by		2015-04-21
	Juno Wong	***date***
Verified by		2015-04-22
	Zone Peng	***date***

Contents of This Report

1. Client Information

1.1 Applicant

Company Name:	Purekeys BV
Company Address:	Rouaanstraat 23 C, 9723 CC Groningen, The Netherlands

1.2 Manufacturer

Company Name:	Zhuhai Heng Yu New Technology Company Limited
Company Address:	Heng Ke Technology Campus, Jin Hai Avenue, Sanzao, Jinwan District,Zhuhai, Guangdong, PRC

1.3 Scope

●Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission under FCC part 15.

2. Equipment under Test (EUT)

2.1 Identification of EUT

Category:	JBP
Name:	2.4G Wireless USB Dongle
Model Name:	PK-KRF-01
Alternate model:	N/A
Brand name:	Purekeys

2.2 Setup drawing

2.3 Additional Information Related to Testing

TM 1 **120V AC 60Hz** **Working mode**

Remark : EUT connect to PC and communicated with PC with normal working mode By pre-scan, only list the worst mode result in report

AE Equipment:

Manufacturer	Description	Model	Serial Number	FCC ID/DoC
Apple	PC	A1278	C1MN99ERDTY3	DoC
DELTA	ADAPTER	ADP-60ADT	N/A	VoC
DELL	KEYBOARD	SK-8115	N/A	DoC
DELL	MOUSE	MOC5UO	N/A	DoC

3. General Test Conditions

3.1 Location

Global United Technology Services Co., Ltd. -- Nemko ELA 632

2nd Floor, Block No.2, Laodong Industrial Zone, Xixiang Road Baoan District, Shenzhen, China

FCC Registration No.:600491

Note: all test are witnessed by NEMKO engineer

3.2 Operating Environment

All tests and measurements were performed in a shielded enclosure or a controlled environment suitable for the tests conducted. The climatic conditions in the test area are automatically controlled and recorded continuously.

Parameters	Recording during test	Accepted deviation
Ambient temperature	20-25°C	15 – 35 ºC
Relative humidity	45-55%	30 - 60%
Atmospheric pressure	101.2 kPa -101.3kPa	86-106kPa

3.3 Operating During Test

- The EUT is operated at 120V~ 60Hz during all tests.
- EUT connect to PC via USB port and working at data communication mode.

3.4 Test Equipment

The test equipments used in testing are calibrated on a regular basis. For most of the testing equipments accredited calibration is conducted once a year. For certain equipment the calibration interval is longer. Between the calibrations all test equipment are controlled and verified on a regular basis. The test equipments used are defined in each test section of this report.

4. Measurement Uncertainty

The Measurement Uncertainties stated were calculated in accordance with the requirements of NIST Technical Note 1297 with the confidence level of 95 %.

Conducted Emission : 0.15~30MHz 3.45dB

Radiated Emission: 30MHz~1000MHz 4.50dB

1GHz-18GHz 4.70dB

5. Radiated Electromagnetic Disturbances Test

5.1 Test Procedure

The EUT was placed on a non-metallic table, 80 cm above the ground plane inside a semi-anechoic chamber. An antenna was located 3m from the EUT on an adjustable mast.

The EUT were rotated 0 to 360 degree and the antenna height was varied between 1m and 4m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. The test result are reported as below.

For below 1GHz:

RBW=120 kHz; VBW=300KHz QP detector, The frequency range from 30MHz to 1000MHz is checked.

5.2 Measurement Equipment

	Equipment	Calibration due	Type	Serial No.	Manufacturer
☒	EMI Test Receiver	Jul. 04 2015	ESU26	GTS203	R&S
☒	BiConiLog Antenna	Feb. 26 2016	VULB9163	GTS214	SCHWARZBECK
☒	Horn Antenna	Feb. 26 2016	BBHA9120D	GTS215	SCHWARZBECK
☒	Horn Antenna	Feb. 26 2016	BBHA9170	GTS216	SCHWARZBECK
☒	Coaxial Cable	Apr. 01 2016	N/A	GTS213	GTS
☒	Coaxial Cable	Apr. 01 2016	N/A	GTS211	GTS
☒	Coaxial cable	Apr. 01 2016	N/A	GTS210	GTS
☒	Coaxial Cable	Apr. 01 2016	N/A	GTS212	GTS
☒	Amplifier	Jul. 04 2015	8347A	GTS204	HP

5.3 Test Result

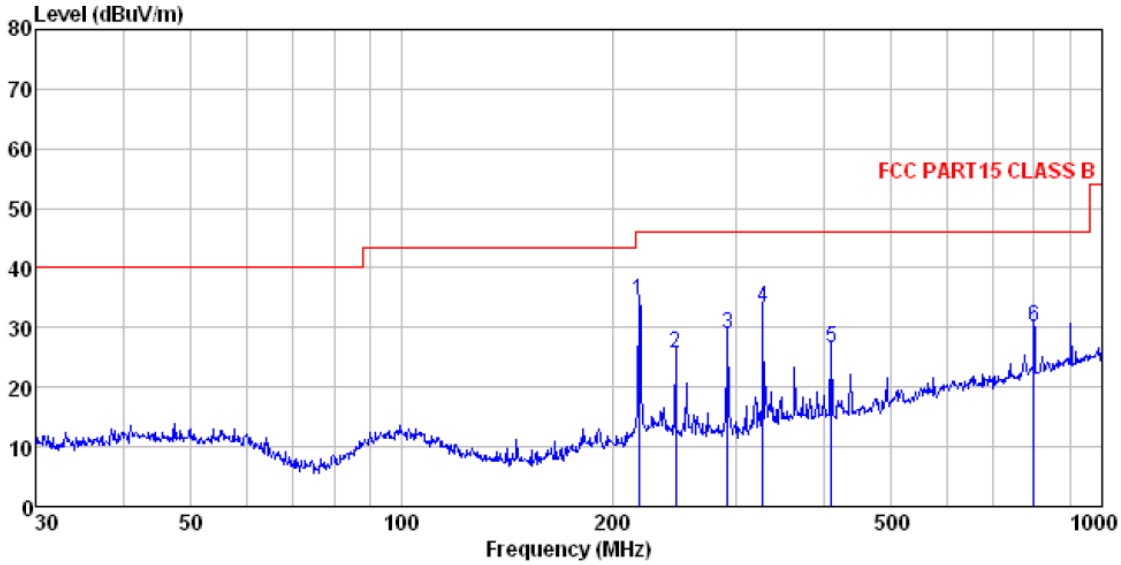
Worse result are reported:

Connect mode	Antenna Polarity	Remark	Test Data	Test Result
PC link mode	Horizontal	30-1000MHz	Diagram 5-1	Pass
	Vertical	30-1000MHz	Diagram 5-2	Pass

NOTES:

1. All modes of operation were investigated and the worst -case emission are reported.
2. H =Horizontal V=Vertical
3. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor
4. Measurements using CISPR quasi-peak mode.
5. The limit for Class B device is on the FCC Part section 15.109 .
6. Frequency = MHz Level = dBuV/m Limit = dBuV/m
7. **Internal frequency is lower than 108MHz ,so test above 1GHz is not applicable**

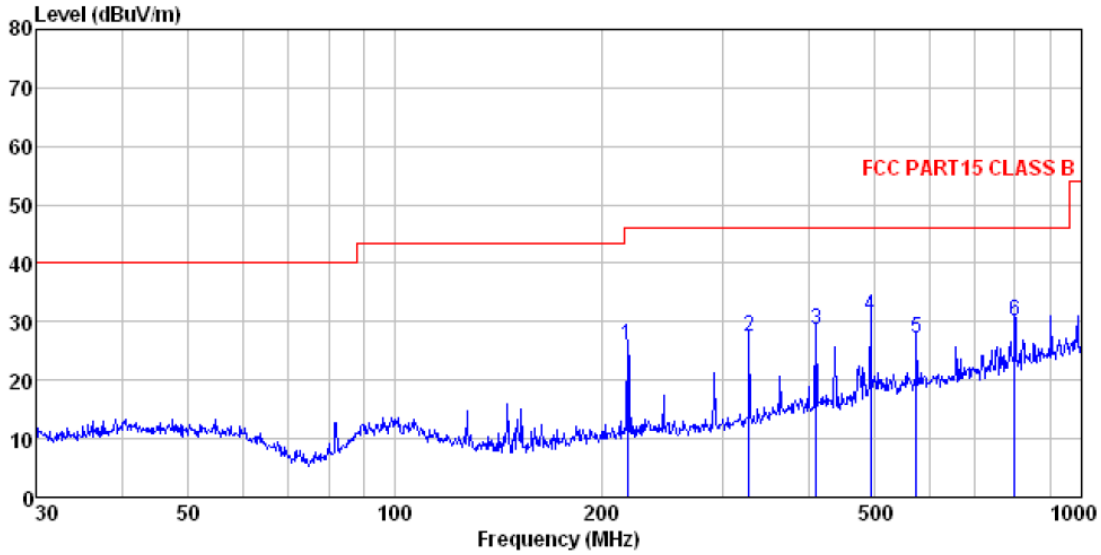
5.3.1 Diagram 5-1



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163-2013M HORIZONTAL
Job No. : 0278RF
Test Mode : Operation mode
Test Engineer: Chen

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	218.309	48.75	13.13	1.95	29.38	34.45	46.00	-11.55	QP
2	245.951	39.25	14.08	2.10	29.61	25.82	46.00	-20.18	QP
3	292.058	41.75	14.89	2.32	29.95	29.01	46.00	-16.99	QP
4	327.887	45.03	15.66	2.51	29.84	33.36	46.00	-12.64	QP
5	410.383	35.87	17.26	2.91	29.48	26.56	46.00	-19.44	QP
6	798.980	32.70	22.06	4.45	29.20	30.01	46.00	-15.99	QP

5.3.2 Diagram 5-2



Site : 3m chamber
Condition : FCC PART15 CLASS B 3m VULB9163-2013M VERTICAL
Job No. : 0278RF
Test Mode : Operation mode
Test Engineer: Chen

	Freq	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	218.309	40.20	13.13	1.95	29.38	25.90	46.00	-20.10	QP
2	327.887	39.00	15.66	2.51	29.84	27.33	46.00	-18.67	QP
3	410.383	37.96	17.26	2.91	29.48	28.65	46.00	-17.35	QP
4	492.469	38.80	18.39	3.27	29.32	31.14	46.00	-14.86	QP
5	574.626	32.74	20.03	3.63	29.30	27.10	46.00	-18.90	QP
6	798.980	32.88	22.06	4.45	29.20	30.19	46.00	-15.81	QP

6 POWER LINE CONDUCTED EMISSION TEST

6.1 Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power connected to the power mains through a line impedance stabilization network. This provided a 50-ohm coupling impedance for the EUT (Please refer to the test setup photographs). The other peripheral devices power cord connected to the power mains through another line impedance stabilization network.

Both sides of power line were checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipments and all of the interface cables were changed according to ANSI C63.4-2009 on conducted Emission test.

The bandwidth of test receiver is set at 9kHz. The frequency range from 150kHz to 30MHz is checked. The test result are reported as below.

6.2 Measurement Equipment

	Equipment	Calibration due	Type	Serial No.	Manufacturer
☒	Shielding Room	Jul. 04 2015	7.0(L)x3.0(W)x3.0(H)	GTS252	ZhongYu Electron
☒	EMI Test Receiver	Jul. 04 2015	ESCS30	1102.4500K30	Rohde & Schwarz
☒	10dB Pulse Limita	Jul. 04 2015	N/A	GTS224	Rohde & Schwarz
☒	LISN	Jul. 04 2015	NSLK 8127	8127549	SCHWARZBECK MESS-ELEKTRONIK
☒	Coaxial Cable	Apr. 01 2016	N/A	N/A	GTS

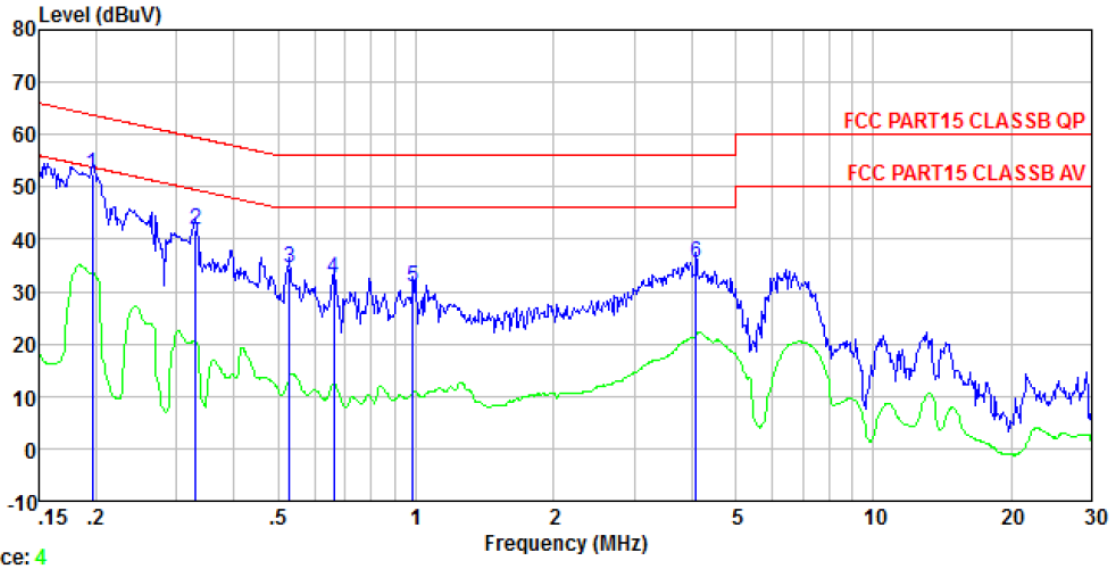
6.3 Test Result

Test mode	Power Line	Test Data	Test Result
PC link mode	Line	Diagram 6-1	Pass
	Neutral	Diagram 6-2	Pass

NOTES:

1. Measurements using CISPR quasi-peak mode & average mode.
2. All modes of operation were investigated and the worst -case emission are reported.
3. Result Level = Read Level +LISN Factor + Pluse Limiter Factor + Cable loss
4. LINE: L =Line, N = Neutral
5. The limit for Class B device is on the FCC Part section 15.107.
6. If QP Result comply with AV limit, AV Result is deemed to comply with AV limit

6.3.1 Diagram 6-1

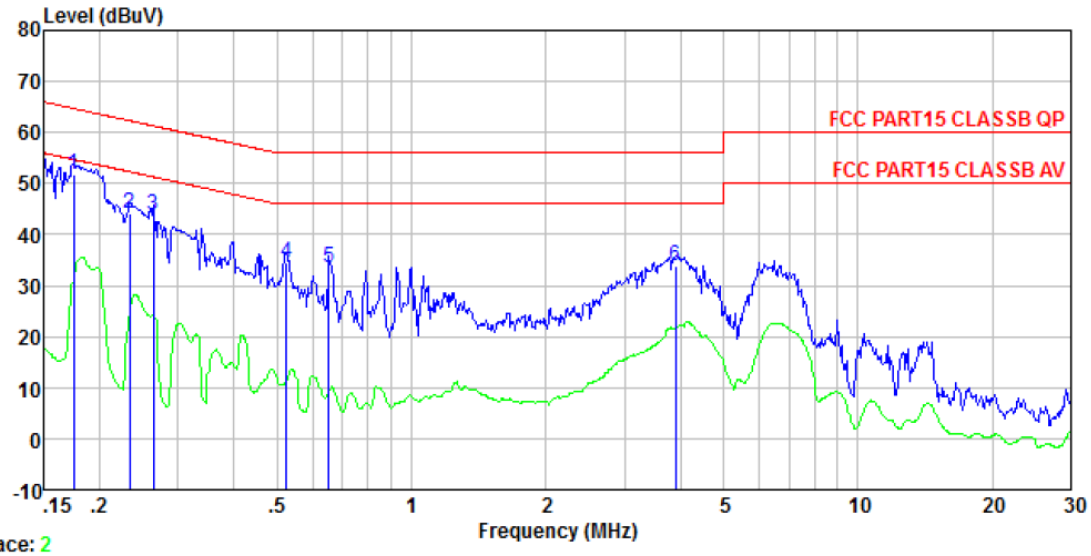


Trace: 4

Site : Shielded room
Condition : FCC PART15 CLASSB QP LISN-2013 LINE
Job No. : 0278RF
Test mode : Operation mode
Test Engineer: Qing

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.197	52.03	0.14	0.13	52.30	63.76	-11.46	QP
2	0.330	41.69	0.11	0.10	41.90	59.44	-17.54	QP
3	0.529	34.33	0.13	0.11	34.57	56.00	-21.43	QP
4	0.661	32.10	0.14	0.13	32.37	56.00	-23.63	QP
5	0.984	30.54	0.14	0.13	30.81	56.00	-25.19	QP
6	4.092	35.00	0.20	0.15	35.35	56.00	-20.65	QP

6.3.2 Diagram 6-2



Trace: 2

Site : Shielded room
Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL
Job No. : 0278RF
Test mode : Operation mode
Test Engineer: Qing

	Freq	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.175	51.63	0.07	0.13	51.83	64.72	-12.89	QP
2	0.234	44.08	0.06	0.12	44.26	62.30	-18.04	QP
3	0.264	43.70	0.06	0.11	43.87	61.29	-17.42	QP
4	0.524	34.47	0.07	0.11	34.65	56.00	-21.35	QP
5	0.654	33.47	0.07	0.13	33.67	56.00	-22.33	QP
6	3.901	33.64	0.14	0.15	33.93	56.00	-22.07	QP

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