Prüfbericht-Nr.: *Test Report No.:*	**17050212 002**	**Auftrags-Nr.:** *Order No.:*	164039123	Seite 1 von 21 *Page 1 of 21*
Kunden-Referenz-Nr.: *Client Reference No.:*	N/A	**Auftragsdatum:** *Order date:*	19.06.2015	
Auftraggeber: *Client:*	Dongguan Newmen Electronics Technology Co.,LTD No.5, Xifa Road, Lin Village, Tangxia Town, Dongguan, Guangdong, China			
Prüfgegenstand: *Test item:*	Wireless keyboard with Integrated Touch Pad			
Bezeichnung / Typ-Nr.: *Identification / Type No.:*	NS-PNK6811 (keyboard), MX-640 (Dongle)			
Auftrags-Inhalt: *Order content:*	FCC Certification			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15: Subpart B Section 15.107 CFR47 FCC Part 15: Subpart B Section 15.109			

Wareneingangsdatum: *Date of receipt:*	19.06.2015
Prüfmuster-Nr.: *Test sample No.:*	A000214899-001~003
Prüfzeitraum: *Testing period:*	19.06.2015 - 3.07.2015
Ort der Prüfung: *Place of testing:*	Accurate Technology Co., Ltd.
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.
Prüfergebnis*: *Test result*:*	Pass

geprüft von / *tested by:*			**kontrolliert von** / *reviewed by:*		
16.07.2015	Lin Lin / Project Manager		16.07.2015	Winnie Hou / Technical Certifier	
Datum *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*	**Datum** *Date*	**Name / Stellung** *Name / Position*	**Unterschrift** *Signature*

Sonstiges / *Other:*
FCC ID: V4P-NS-PNK6811 (keyboard)
FCC ID: V4P-MX-640 (dongle)

Zustand des Prüfgegenstandes bei Anlieferung: *Condition of the test item at delivery:*	Prüfmuster vollständig und unbeschädigt *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
Legend:	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.
This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.
V04

TEST SUMMARY

5.1.1 CONDUCTED EMISSIONS
RESULT: Pass

5.2.1 RADIATED EMISSION
RESULT: Pass

CONTENTS

1. General Remarks

1.1 Complementary Materials

None.

2. Test Sites

2.1 Test Facilities

Accurate Technology Co., Ltd.

(FCC Registration No.: 752051)
(Test site Industry Canada No.: 5077A-2)

F1, Bldg. A, Changyuan New Material Port
Keyuan Rd., Science & Industry Park, Nanshan
Shenzhen, P.R. China

The tests at the test site have been conducted under the supervision of a TÜV engineer.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radiated Emission					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	Jan.10, 2015	1 Year
Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan.10, 2015	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan.15, 2015	1 Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan.15, 2015	1 Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan.15, 2015	1 Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan.15, 2015	1 Year
RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	Jan.10, 2015	1 Year
Pre-Amplifier	Rohde&Schwarz	CBLU11835 40-01	3791	Jan.10, 2015	1 Year
50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	Jan.10, 2015	1 Year
RF Coaxial Cable	SUHNER	N-3m	No.8	Jan.10, 2015	1 Year
RF Coaxial Cable	RESENBERGER	N-3.5m	No.9	Jan.10, 2015	1 Year
RF Coaxial Cable	SUHNER	N-6m	No.10	Jan.10, 2015	1 Year
RF Coaxial Cable	RESENBERGER	N-12m	No.11	Jan.10, 2015	1 Year
RF Coaxial Cable	RESENBERGER	N-0.5m	No.12	Jan.10, 2015	1 Year
Conducted Emission					
Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Test Receiver	Rohde & Schwarz	ESCS30	100307	Jan.10, 2015	1 Year
L.I.S.N.	Schwarzbeck	NLSK8126	8126431	Jan.10, 2015	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100815	Jan.10, 2015	1 Year
50Ω Coaxial Switch	Anritsu Corp	MP59B	6200283933	Jan.10, 2015	1 Year
VOLTAGE PROBE	Schwarzbeck	TK9416	N/A	Jan.10, 2015	1 Year
RF CURRENT PROBE	Rohde & Schwarz	EZ-17	100048	Jan.10, 2015	1 Year
8-Wire Impedance Stabilisation Network	Schwarzbeck	CAT5 8158	8158-0035	Jan.10, 2015	1 Year
RF Coaxial Cable	SUHNER	N-2m	No.2	Jan.10, 2015	1 Year
RF Coaxial Cable	SUHNER	N-2m	No.3	Jan.10, 2015	1 Year
RF Coaxial Cable	SUHNER	N-2m	No.14	Jan.10, 2015	1 Year

2.3 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basics using in house standards or comparisons.

2.5 Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO/IEC 17025 are:

Table 2: Measurement Uncertainty

Items		Extended Uncertainty
Conducted Emission (0.15 - 30MHz)	Disturbance Voltage (dBuV)	U=±2.90dB, k=2, σ=95%
Radiated Emission (30 - 1000MHz)	Field strength (dBuV/m)	U=±4.27dB, k=2, σ=95%
Radiated Emission (1 - 26.5GHz)	Field strength (dBuV/m)	U=±4.46dB, k=2, σ=95%

2.6 Location of Original Data

The original copies of all test data taken during actual testing were retained in the TÜV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

Accurate Technology Co., Ltd. test facility located at F1, Bldg. A, Changyuan New Material Port Keyuan Rd., Science & Industry Park, Nanshan, Shenzhen, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

2.8 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

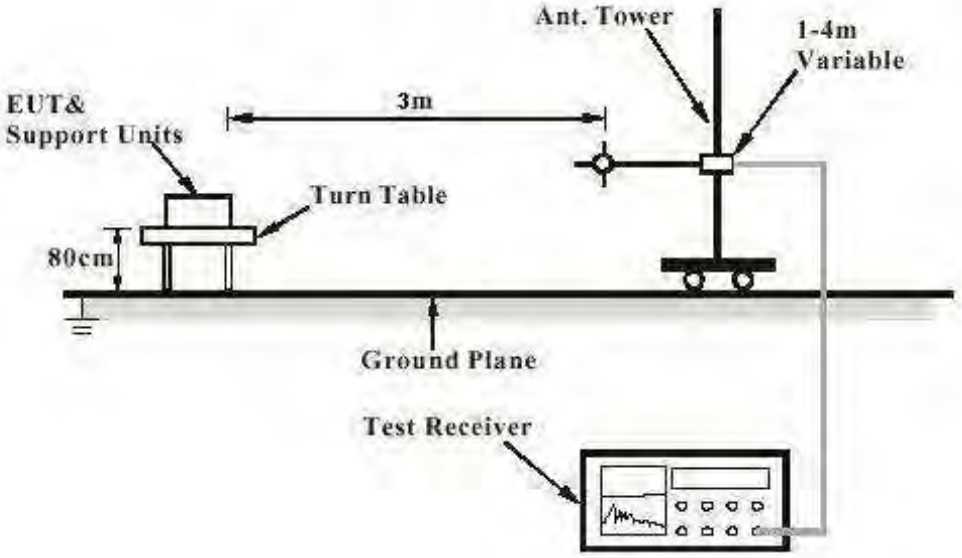
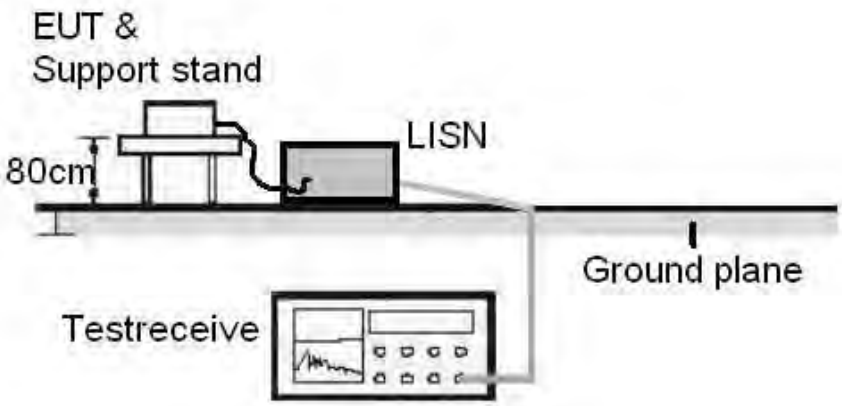


Diagram of Measurement Equipment Configuration for Conduction Measurement



3. General Product Information

3.1 Product Function and Intended Use

The product is a set of wireless kebyoard with dongle and operates at 2.4GHz ISM frequency band.
The test samples are engineering samples.

For details refer to the User Manual and Circuit Diagram.

3.2 Ratings and System Details

Table 3: Technical Specification of Dongle

Technical Specification	Value
Operating Frequency band	2408-2474MHz
Channel number	34
Operation Voltage	USB operated
Modulation	FSK
Antenna type	Internal antenna
Antenna Gain	0dBi
Chanel spacing	2MHz

3.3 Independent Operation Modes

The basic operation modes are:

A. Connected to PC

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Bill of Material
- Constructional Drawing
- PCB Layout
- Photo Document
- Circuit Diagram
- Instruction Manual
- Rating Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All testing were performed according to the procedures in ANSI C63.4: 2003.

4.3 Special Accessories and Auxiliary Equipment

The EUT was tested together with the following accessories:

Description	Manufacturer	Part No.	S/N
Notebook PC	Lenovo	4290-RT8	--
Printer	HP	laserjet 1015	CNFG030424

The EUT was tested with following cables:

N/A

4.4 Countermeasures to Achieve ERM Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF). No additional measures were employed to achieve compliance.

5. Test Results EMISSION

5.1 Conducted Emission

RESULT: **Pass**

Test standard	:	FCC Part 15.107 (a)
Basic standard	:	ANSI C63.4: 2003
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.107(a)
Kind of test site	:	Shield room

Test setup

Input Voltage	:	AC 120V, 60Hz
Operation Mode	:	A
Earthing	:	Not Connected
Ambient temperature	:	25℃
Relative humidity	:	52%
Atmospheric pressure	:	101kPa

For details refer to following test plot.

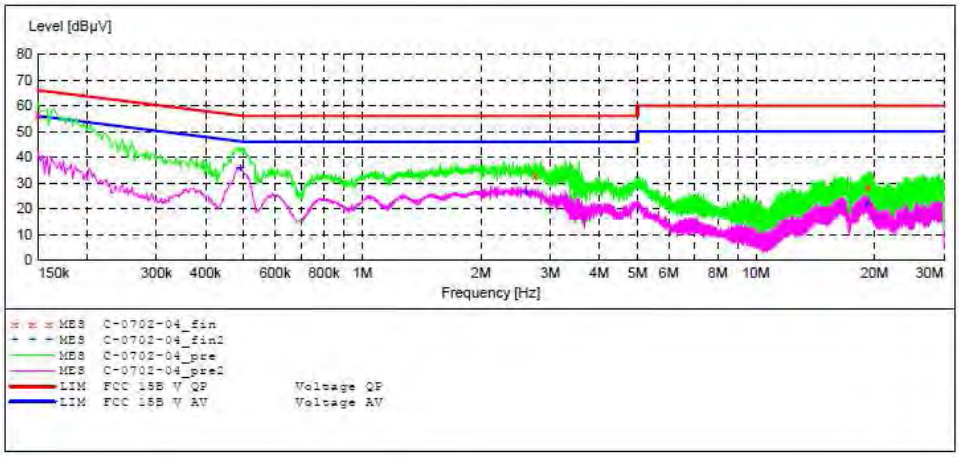
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

```
EUT:                  Dongle M/N:MX-640
Manufacturer:         Dongguan Newmen Electronics Technology Co.,LTD
Operating Condition:  Connecte to PC
Test Site:            1#Shielding Room
Operator:             LAN
Test Specification:   N 120V/60Hz
Comment:              Mains Port
Start of Test:        2015-7-2 /
```

SCAN TABLE: "V 150K-30MHz fin"

```
Short Description:                SUB STD VTERM2 1.70
Start      Stop       Step        Detector  Meas.     IF       Transducer
Frequency  Frequency  Width                 Time      Bandw.
150.0 kHz  30.0 MHz   4.5 kHz     QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "C-0702-04_fin"

2015-7-2

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	56.80	10.3	66	9.2	QP	N	GND
2.742500	32.90	11.7	56	23.1	QP	N	GND
19.302500	28.40	11.9	60	31.6	QP	N	GND

MEASUREMENT RESULT: "C-0702-04_fin2"

2015-7-2

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.490000	36.00	11.5	46	10.2	AV	N	GND
2.607500	26.50	11.7	46	19.5	AV	N	GND
19.109000	22.30	11.9	50	27.7	AV	N	GND

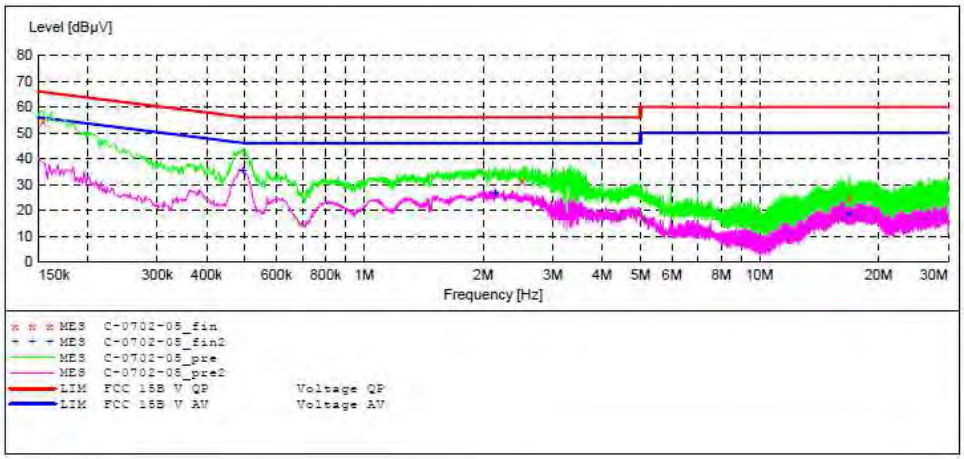
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

```
EUT:                  Dongle M/N:MX-640
Manufacturer:         Dongguan Newmen Electronics Technology Co.,LTD
Operating Condition:  Connecte to PC
Test Site:            1#Shielding Room
Operator:             LAN
Test Specification:   L 120V/60Hz
Comment:              Mains Port
Start of Test:        2015-7-2 /
```

SCAN TABLE: "V 150K-30MHz fin"

```
Short Description:                SUB STD VTERM2 1.70
Start      Stop       Step        Detector  Meas.     IF       Transducer
Frequency  Frequency  Width                 Time      Bandw.
150.0 kHz  30.0 MHz   4.5 kHz     QuasiPeak 1.0 s     9 kHz    NSLK8126 2008
                                  Average
```



MEASUREMENT RESULT: "C-0702-05_fin"

2015-7-2

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154000	54.70	10.4	66	11.1	QP	L1	GND
2.522000	31.30	11.7	56	24.7	QP	L1	GND
16.899500	24.60	11.9	60	35.4	QP	L1	GND

MEASUREMENT RESULT: "C-0702-05_fin2"

2015-7-2

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.494000	35.80	11.5	46	10.3	AV	L1	GND
2.144000	26.60	11.7	46	19.4	AV	L1	GND
16.899500	18.60	11.9	50	31.4	AV	L1	GND

5.2 Radiated Emission

RESULT: **Pass**

Test standard	:	FCC Part 15.109 (a)
Test procedure	:	ANSI C63.4: 2003
Frequency range	:	30 - 6000MHz
Equipment Classification	:	Class B
Limits	:	FCC Part 15.109(a)
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Input Voltage	:	AC 120V, 60Hz
Operation mode	:	A
Earthing	:	Not connected
Ambient temperature	:	23℃
Relative humidity	:	48%
Atmospheric pressure	:	101kPa

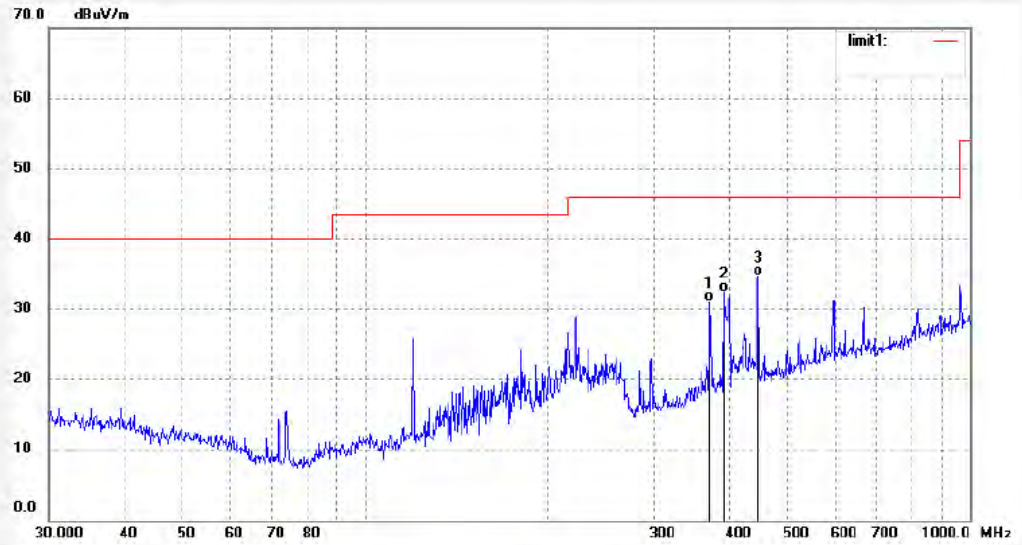
For details refer to following test plot.

ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: lan2015-2 #1176	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 15/07/02/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Dongle	Engineer Signature:
Mode: Connected to PC	Distance: 3m
Model: MX-640	
Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	370.7022	38.55	-7.50	31.05	46.00	-14.95	QP			
2	390.7225	39.71	-7.20	32.51	46.00	-13.49	QP			
3	446.4141	40.63	-5.84	34.79	46.00	-11.21	QP			

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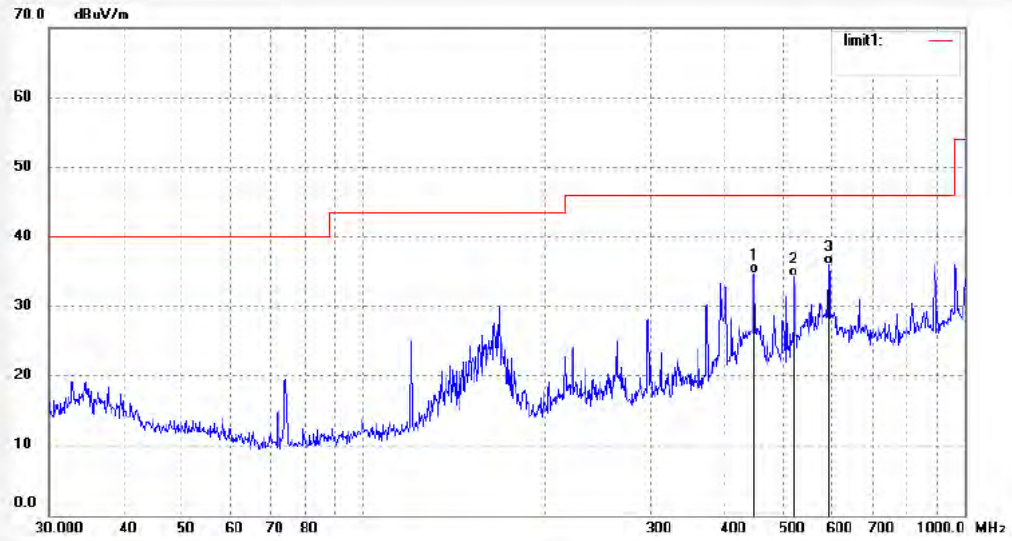
ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: lan2015-2 #1177	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 15/07/02/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Dongle	Engineer Signature:
Mode: Connected to PC	Distance: 3m
Model: MX-640	
Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	446.4141	40.55	-5.84	34.71	46.00	-11.29	QP			
2	519.0648	38.57	-4.36	34.21	46.00	-11.79	QP			
3	593.0497	38.95	-3.03	35.92	46.00	-10.08	QP			

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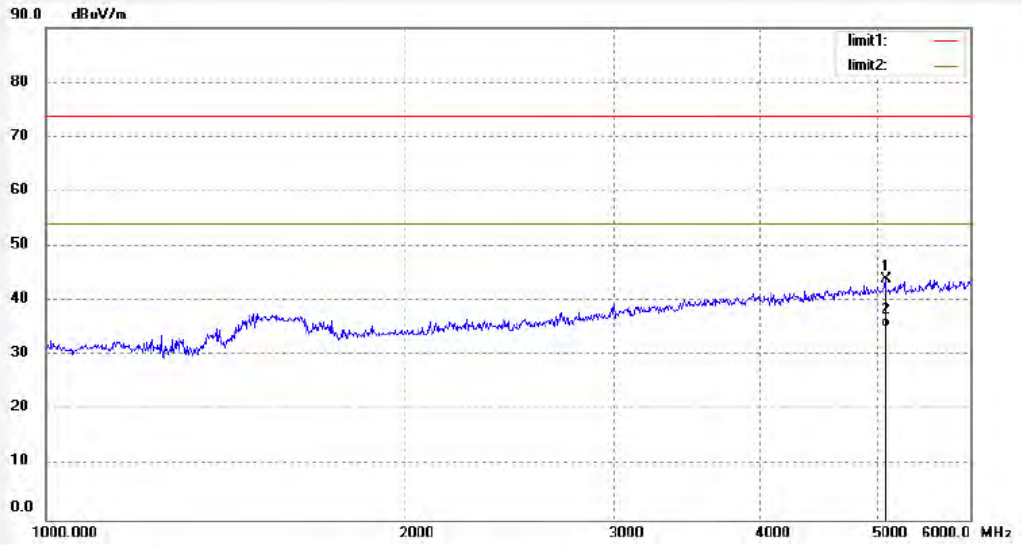
ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: lan2015-2 #1178	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 15/07/02/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Dongle	Engineer Signature:
Mode: Connected to PC	Distance: 3m
Model: MX-640	
Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD	

Note:



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	5088.167	43.53	0.38	43.91	74.00	-30.09	peak			
2	5088.167	34.73	0.38	35.11	54.00	-18.89	AVG			

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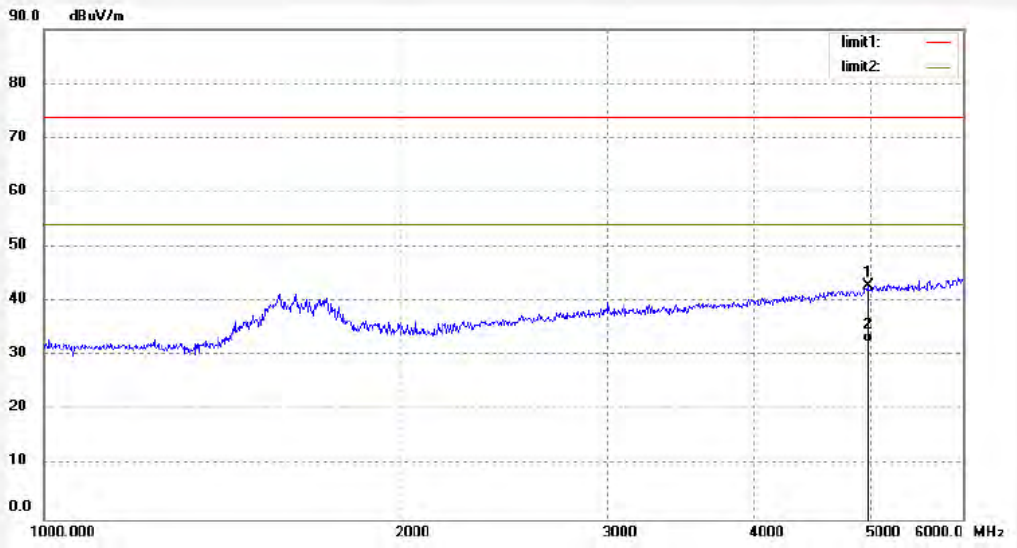
ACCURATE TECHNOLOGY CO., LTD.
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Ian2015-2 #1179	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 5V
Test item: Radiation Test	Date: 15/07/02/
Temp.(C)/Hum.(%) 23 C / 48 %	Time:
EUT: Dongle	Engineer Signature:
Mode: Connected to PC	Distance: 3m
Model: MX-640	
Manufacturer: Dongguan Newmen Electronics Technology Co.,LTD	

Note:

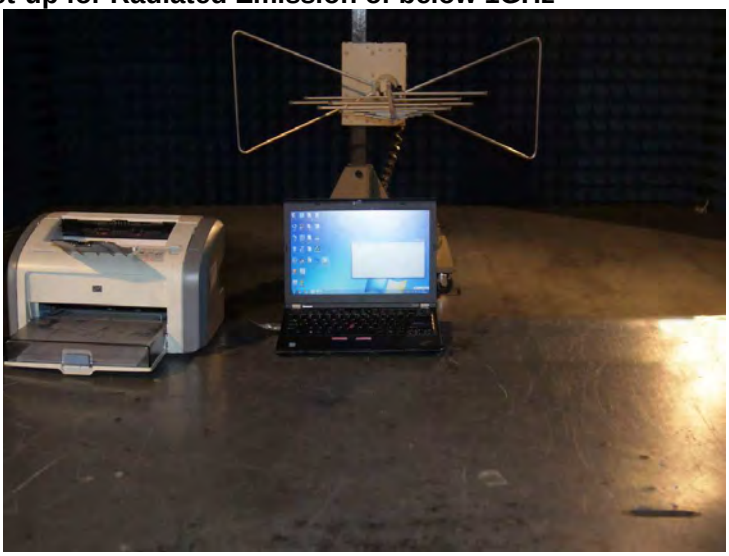


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4979.933	42.19	0.61	42.80	74.00	-31.20	peak			
2	4979.933	31.86	0.61	32.47	54.00	-21.53	AVG			

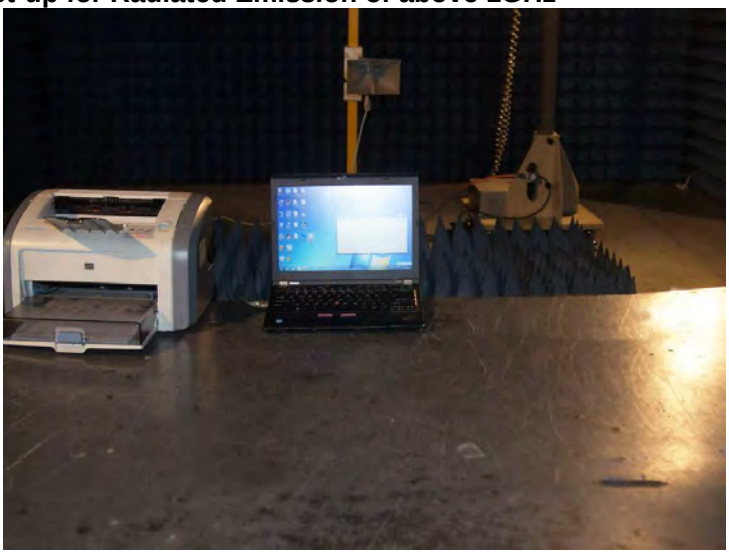
6. Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emission

Photograph 2: Set-up for Radiated Emission of below 1GHz



Photograph 3: Set-up for Radiated Emission of above 1GHz



7. List of Tables

8. List of Photographs