

Prüfbericht-Nr.: <i>Test Report No.:</i>	17038976 001	Auftrags-Nr.: <i>Order No.:</i>	164011004	Seite 1 von 17 <i>Page 1 of 17</i>			
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date:</i>	23.01.2014				
Auftraggeber: <i>Client:</i>	Blue Ocean Innovation Limited, Rm.1813, Fo Tan Industrial Centre, 26-28 Au Pui Wan Street, Hong Kong						
Prüfgegenstand: <i>Test item:</i>	JTECH PAGER						
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	450303, 450304, 450305, 450307 (JTECH Logo)						
Auftrags-Inhalt: <i>Order content:</i>	FCC Certification						
Prüfgrundlage: <i>Test specification:</i>	FCC Part 15 Subpart B ICES-003 Issue 5 August 2012 RSS-Gen Issue 3 December 2010						
Wareneingangsdatum: <i>Date of receipt:</i>	06.03.2014						
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000019276-002						
Prüfzeitraum: <i>Testing period:</i>	08.03.2014 - 11.03.2014						
Ort der Prüfung: <i>Place of testing:</i>	Accurate Technology Co., Ltd.						
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Shenzhen) Co., Ltd.						
Prüfergebnis*: <i>Test result*:</i>	Pass						
geprüft von / tested by: 29.04.2014 Owen Tian/Project Manager	Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>	Unterschrift <i>Signature</i>	kontrolliert von / reviewed by: 29.04.2014 Winne Hou/Technical Certifier	Datum <i>Date</i>	Name / Stellung <i>Name / Position</i>	Unterschrift <i>Signature</i>
Sonstiges / Other:							
Zustand des Prüfgegenstandes bei Anlieferung: Condition of the test item at delivery:				Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>			
<p>* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(pass) = entspricht o.g. Prüfgrundlage(n) F(fail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet</p> <p>Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(pass) = passed a.m. test specification(s) F(fail) = failed a.m. test specification(s) N/A = not applicable N/T = not tested</p>							
<p>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.</p>							

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TEST SUMMARY

5.1.1 CONDUCTED EMISSION

RESULT: Passed

5.2.1 RADIATED EMISSION

RESULT: Passed

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1. General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix 1: Test Result

2. Test Sites

2.1 Test Facilities

Shenzhen Accurate Technology Co., Ltd.

F1, Bldg. A, Changyuan New Material Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China

FCC Registration No.: 752051

Test site Industry Canada No.: 5077A

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

Kind of Equipment	Manufacturer	Type	S/N	Calibrated until
Conducted Emission				
Test Receiver	Rohde & Schwarz	ESCS30	100307	2015-01-11
L.I.S.N.	Schwarzbeck	NLSK8126	8126431	2015-01-11
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100815	2015-01-11
50Ω Coaxial Switch	Anritsu Corp	MP59B	6200283933	2015-01-11
Radiated Emission				
Signal Generator	Rohde&Schwarz	SMT03	100059	2015-01-11
Voltage Probe	Rohde&Schwarz	URV5-Z2	100012	2015-01-11
Voltage Probe	Rohde&Schwarz	URV5-Z2	100013	2015-01-11
Field Probe	ETS	HI-6005	121578	2015-01-11
Power Amplifier	AR	250W1000A	335304	2015-01-11
Power Amplifier	MILMEGA	AS0860-75/45	1040084	2015-01-11
Power Meter	Rohde & Schwarz	NRVD	100041	2015-01-11
Broadband antenna	CHASE	CBL6111C	2576	N/A
Horn Antenna	AR	AT4002A	305754	N/A

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 basis using in house standards or comparisons.

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2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements are $\pm 3\text{dB}$.

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix1 of this report and delivered to the applicant. A copy has been retained in the TUV Rheinland (Shenzhen) file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The Shenzhen Accurate Technology Co., Ltd. located at F1, Bldg. A, Changyuan New Meterial Port, Keyuan Rd., Science & Industry Park Nanshan District, Shenzhen 518057, P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3. General Product Information

3.1 Product Function and Intended Use

The EUTs are jtech pager, which are UHF receiver work at frequency band from 445.9 MHz to 467.925MHz. Detailed channel list refer to below table:

I-SPLIT Band	B-SPLIT Band	C-SPLIT Band
446.4750	457.5250	467.7500
446.5250	457.5500	467.7750
445.9000	457.5750	467.8000
445.9250	457.6000	467.8250
449.5750	459.0500	467.8500
449.7500	459.1000	467.8750
450.3250	462.7500	467.9000
450.3750		467.9250

The EUTs are used to call customers. All models are identical in circuit design, PCB layout and components employed except different color of enclosure.

For more information refer to the Instruction Manual & Circuit Diagram.

3.2 Ratings and System Details

Table 2: Rating of EUT

Kind of Equipment:	JTECH PAGER
Type Designation:	450303, 450304, 450305, 450307
FCC ID	VU3-RECHARG3

Table 3: Technical Specification of EUT

Technical Specification	Value
Operating Frequency band	445.9 MHz - 467.925MHz
Operation Voltage	DC2.4V
Modulation	FSK
Antenna Type	Internal Antenna, Non-User Replaceable

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3.3 Independent Operation Modes

The basic operation modes are:

- A. Receiving
 - 1. Low frequency
 - 2. Middle frequency
 - 3. High frequency
- B. Charging (via external specified charger)
- C. Stand by
- D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Circuit Diagram
- Construction Drawing
- User's Manual
- PCB Layout
- Bill of Material
- Label

4. Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation 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.
Due to models' differences indicated in clause 3.1, full test was applied on model 450303 only.

4.3 Special Accessories and Auxiliary Equipment

Item Description	Model No.	Manufacturer
AC/DC Adapter	TR36A-13 03A03	CINCON Electronics Co., Ltd.
Battery Plate	--	Ocean Springs Metal Manufacture Limited.

Note: the adapter is only for testing, not marketed with EUT.

4.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test

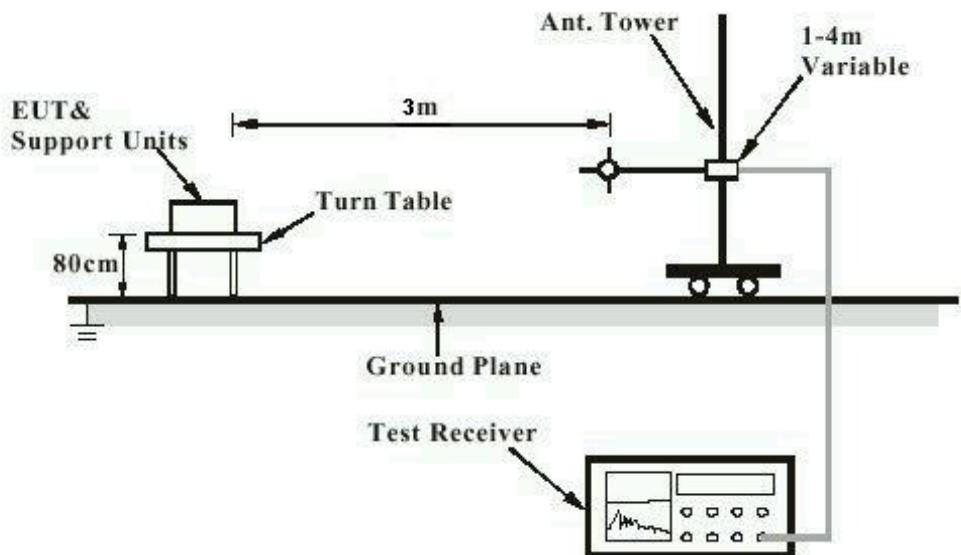
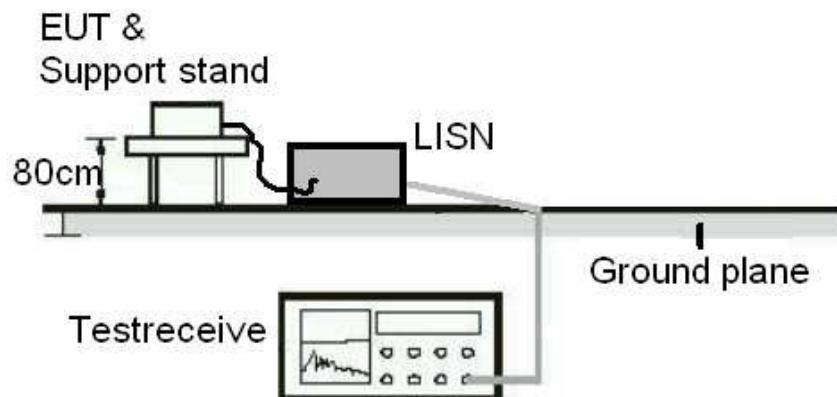


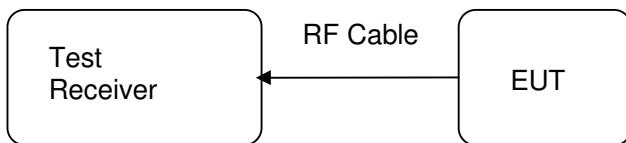
Diagram of Measurement Equipment Configuration for Mains Conduction Measurement



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Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement



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5. Test Results EMISSION

5.1 Emission in the Frequency Range up to 30 MHz

5.1.1 Conducted Emission

RESULT: Passed

Date of testing	:	2014-03-09
Test specification	:	FCC Part 15 Per Section 15.107(a) Clause 5.3 of ICES-003 RSS-Gen 7.2.4
Frequency range	:	0.15 – 30MHz
Classification	:	Class B
Test procedure	:	ANSI C63.4: 2003 CAN/CSA-CEI/IEC CISPR 22-02 Table 4 of RSS-GEN
Deviations from standard test procedure	:	None
Kind of test site	:	Shielded room

Test setup

Input Voltage	:	AC120V 60Hz to AC/DC Adapter
Operation mode	:	B
Artificial hand	:	Not applied
Earthing	:	Not connected

Test data refer to Appendix 1.

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5.2 Emission in the Frequency Range above 30 MHz

5.2.1 Radiated Emission

RESULT: Passed

Date of testing	:	2014-03-08
Test standard	:	FCC Part 15 Per Section 15.109(a) Clause 5.5 of ICES-003 RSS-Gen 7.1.4
Frequency range	:	30 - 6000MHz
Classification	:	Class B
Test procedure	:	ANSI C63.4: 2003 CAN/CSA-CEI/IEC CISPR 22-02 RSS-Gen Table 5
Deviation from standard test procedure	:	None
Kind of test site	:	3m Semi-Anechoic Chamber

Test setup

Input Voltage	:	AC120V 60Hz to AC/DC Adapter
Operation mode	:	A, B
Earthing	:	Not connected

Test data refer to Appendix 1.

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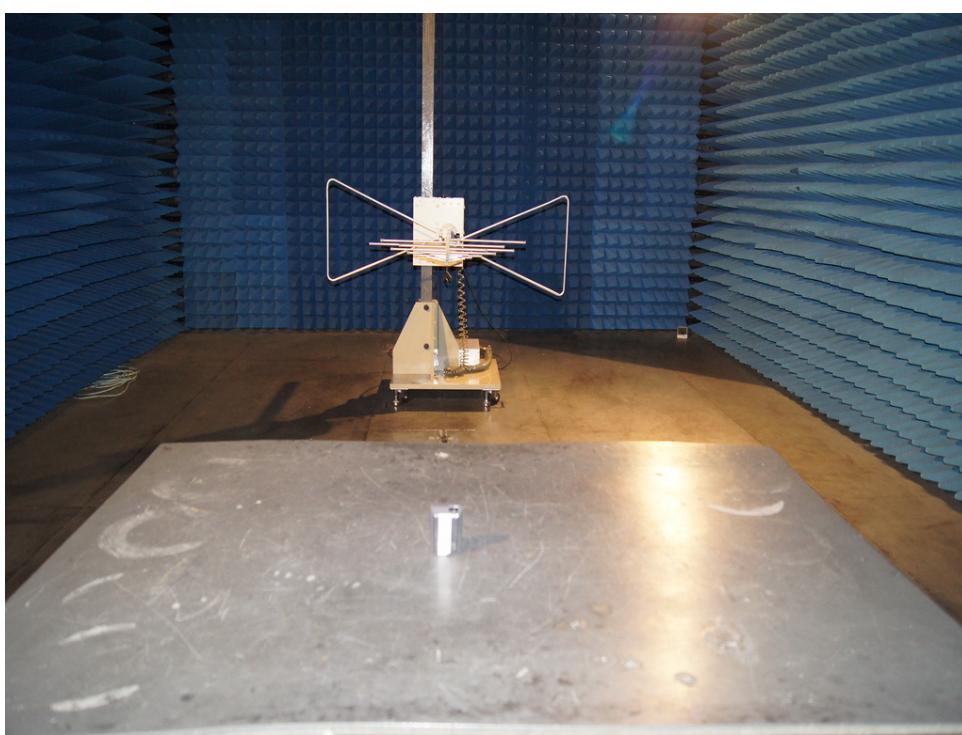
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6. Photographs of the Test Set-Up

Photograph 1: Set-up for Conducted Emission



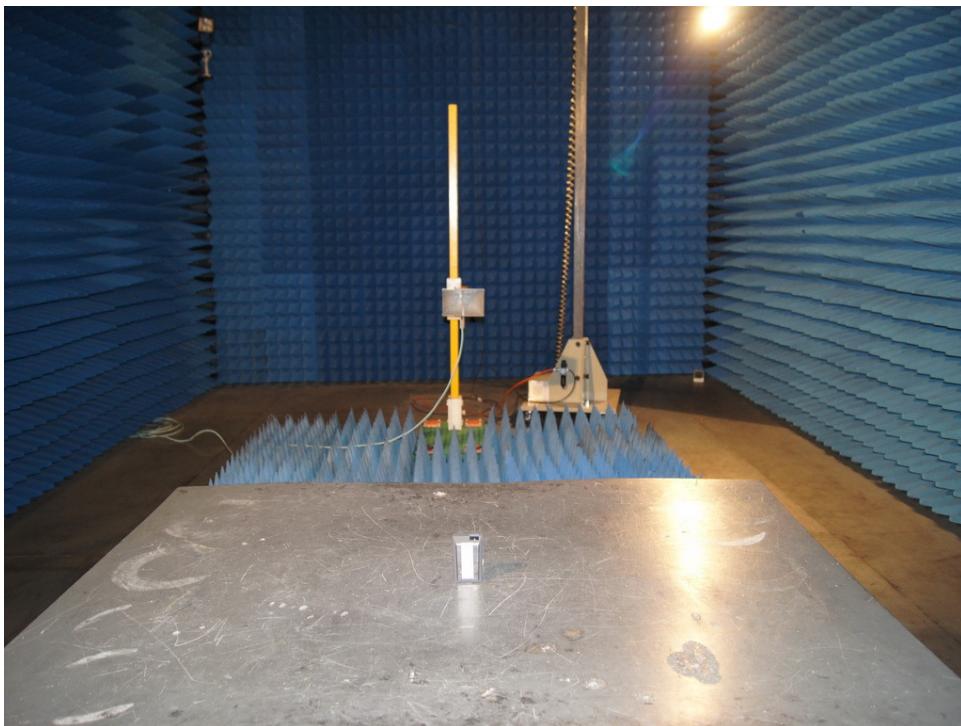
Photograph 2: Set-up for Radiated Emission, below 1GHz, mode A



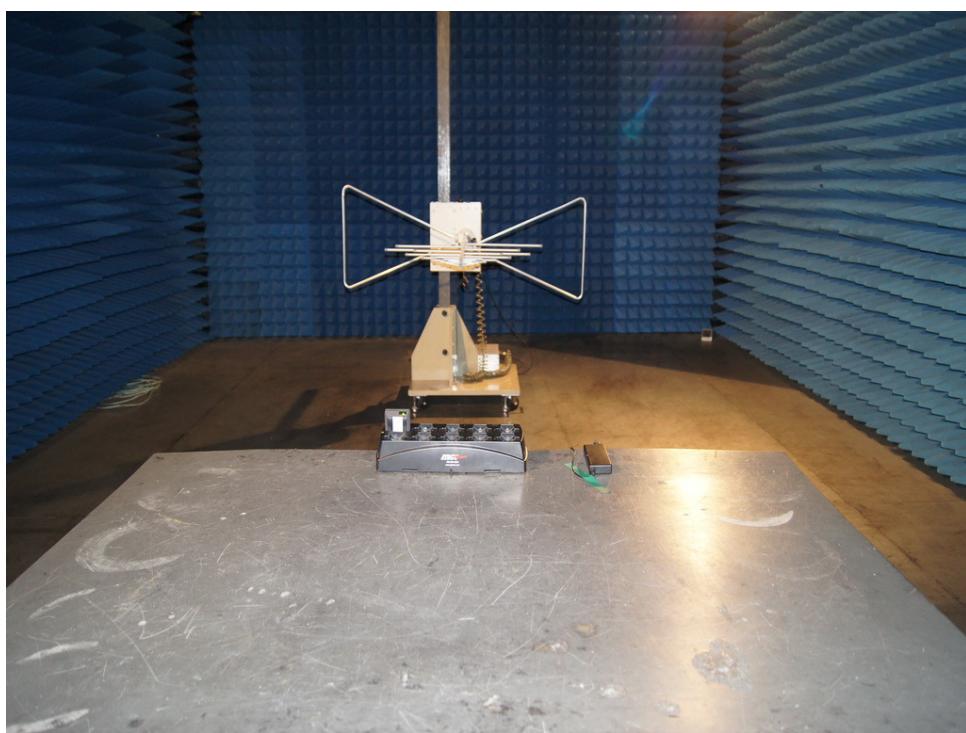
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Photograph 3: Set-up for Radiated Emission, above 1GHz, mode A



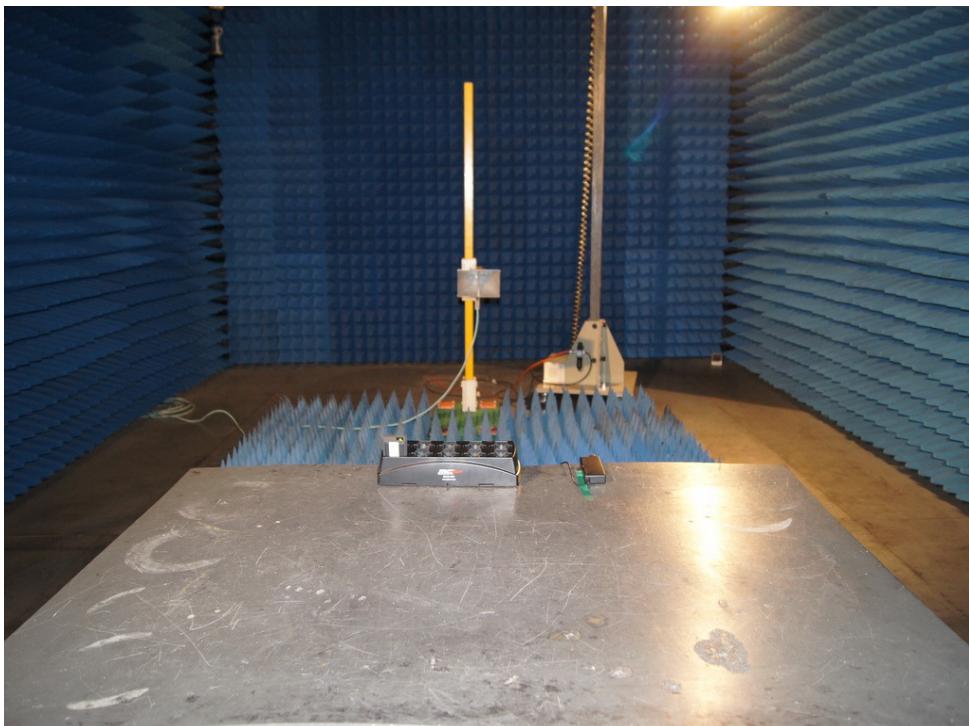
Photograph 4: Set-up for Radiated Emission, below 1GHz, mode B



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Photograph 5: Set-up for Radiated Emission, above 1GHz, mode B



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Figure 1: Test figure of conducted emissions, mode B, line live

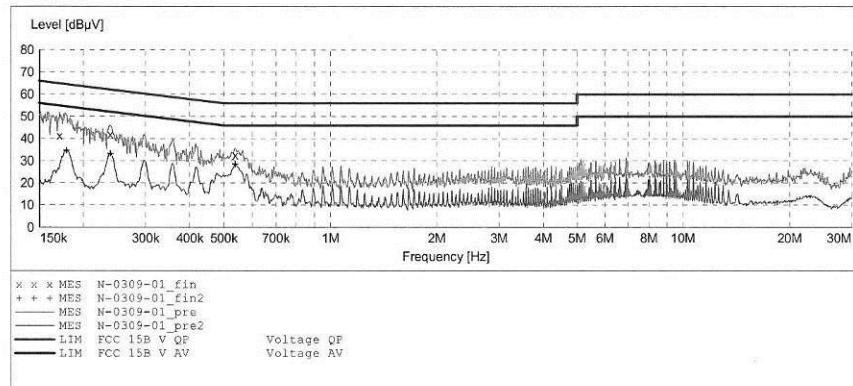
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: Jtech Pager(On-Site Paging) M/N:450303 (445.9MHz)
Manufacturer: Blue Ocean Innovation
Operating Condition: Charging
Test Site: 1#Shielding Room
Operator: LAN
Test Specification: L 120V/60Hz
Comment: Mains Port
Start of Test: 3/9/2014 / 2:4:47PM

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: "N-0309-01_fin"

3/9/2014 2:51PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dB μ V	dB	dB μ V	dB			
	0.171121	41.40	10.5	65	23.5	QP	L1	GND
	0.238343	42.00	10.6	62	20.2	QP	L1	GND
	0.538120	32.60	10.7	56	23.4	QP	L1	GND

MEASUREMENT RESULT: "N-0309-01_fin2"

3/9/2014 2:51PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dB μ V	dB	dB μ V	dB			
	0.178803	34.50	10.5	55	20.0	AV	L1	GND
	0.238343	33.20	10.6	52	19.0	AV	L1	GND
	0.538120	28.50	10.7	46	17.5	AV	L1	GND

Figure 2: Test figure of conducted emissions, mode B, line neutral

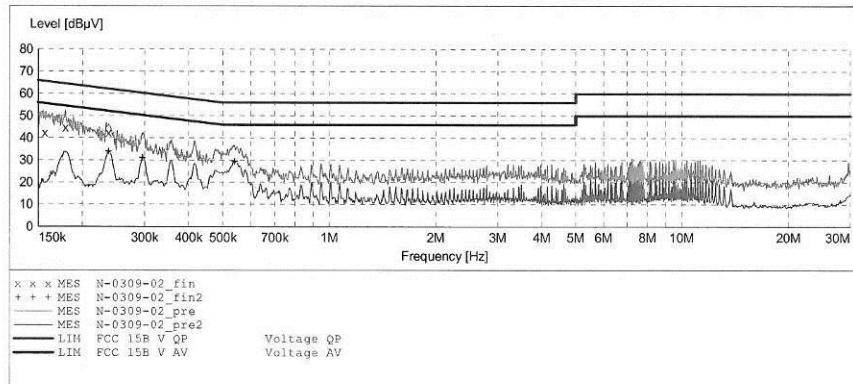
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15 B

EUT: JTech Pager(On-Site Paging) M/N:450303 (445.9MHz)
Manufacturer: Blue Ocean Innovation
Operating Condition: Charging
Test Site: 1#Shielding Room
Operator: LAN
Test Specification: N 120V/60Hz
Comment: Mains Port
Start of Test: 3/9/2014 / 2:52:44PM

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

Short Description: SUB_STP_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: "N-0309-02_fin"

3/9/2014 2:59PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dB μ V	dB	dB μ V	dB			
	0.156734	42.40	10.5	66	23.2	QP	N	GND
	0.178803	44.80	10.5	65	19.7	QP	N	GND
	0.237393	42.40	10.6	62	19.8	QP	N	GND

MEASUREMENT RESULT: "N-0309-02_fin2"

3/9/2014 2:59PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dB μ V	dB	dB μ V	dB			
	0.237393	33.90	10.6	52	18.3	AV	N	GND
	0.295680	31.10	10.6	50	19.3	AV	N	GND
	0.538120	29.40	10.7	46	16.6	AV	N	GND

Figure 3: Test figure of Radiated emissions, mode A.1, Horizontal polarity (30MHz – 1GHz)

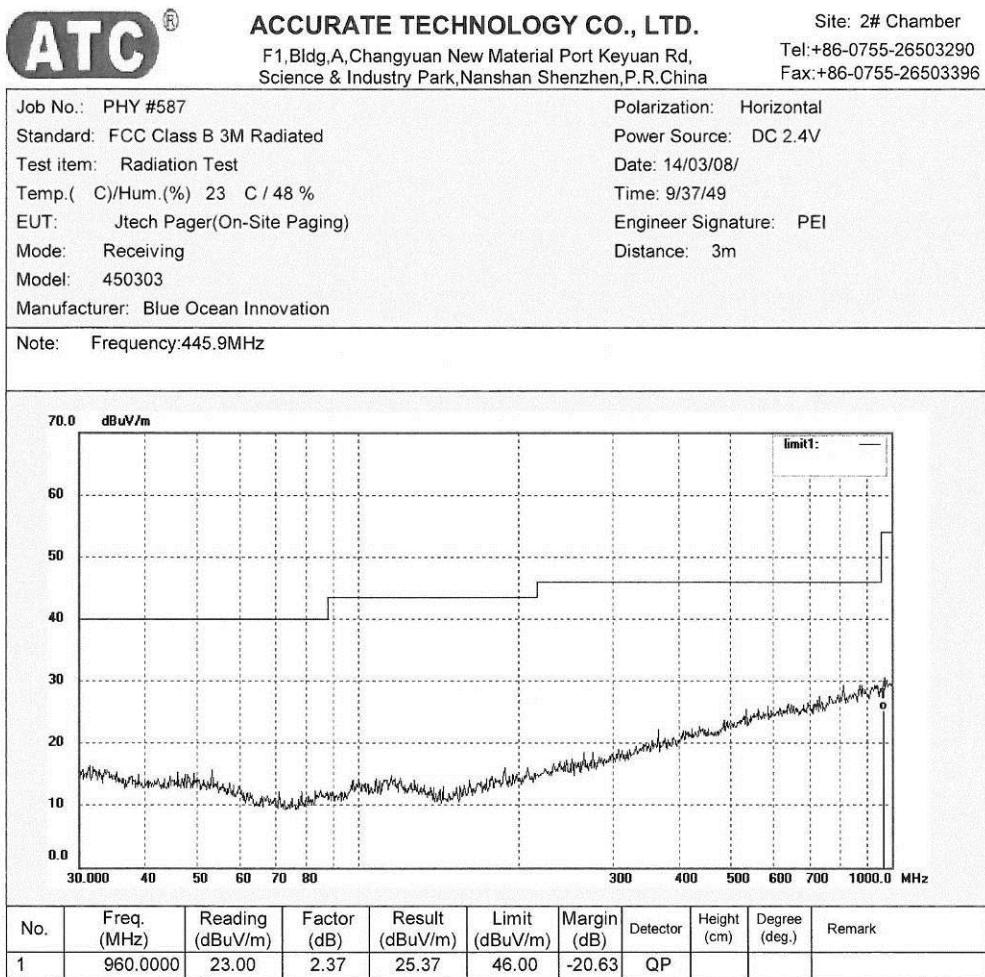


Figure 4: Test figure of Radiated emissions, mode A.1, Vertical polarity (30MHz – 1GHz)

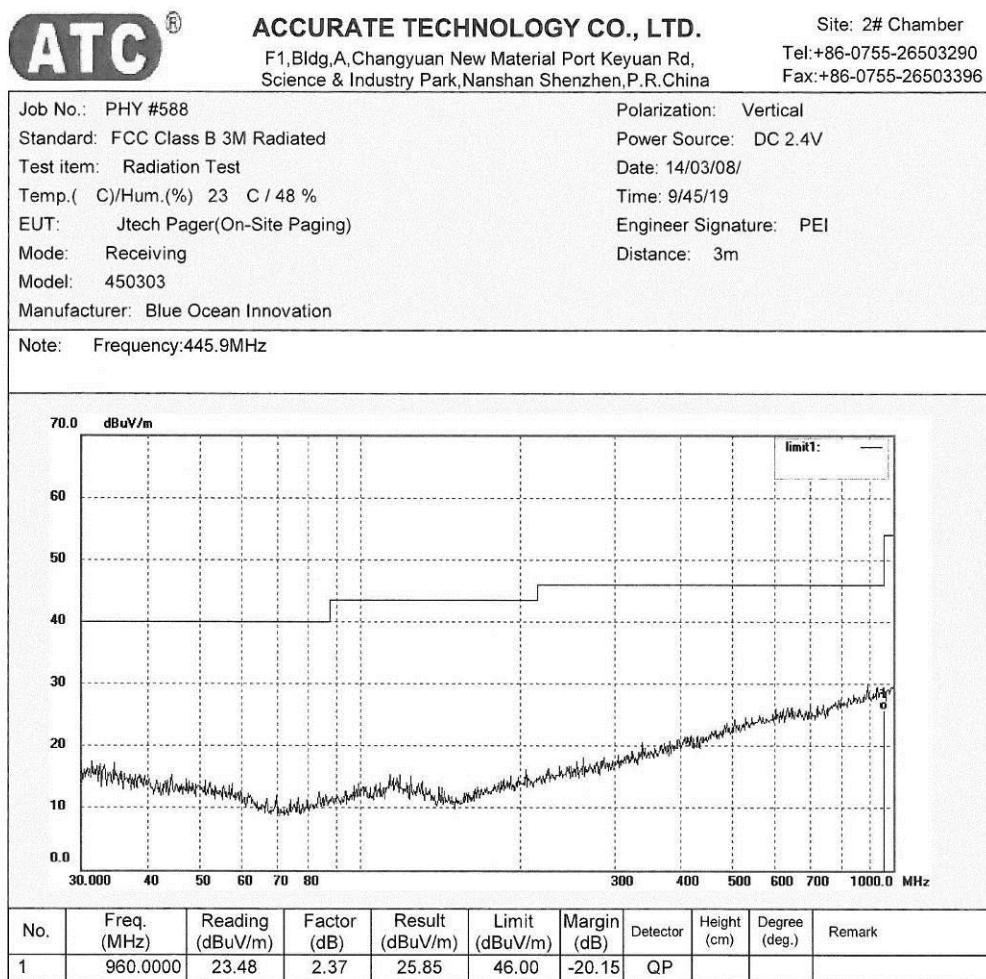


Figure 5: Test figure of Radiated emissions, mode A.1, Horizontal polarity (1GHz – 6GHz)

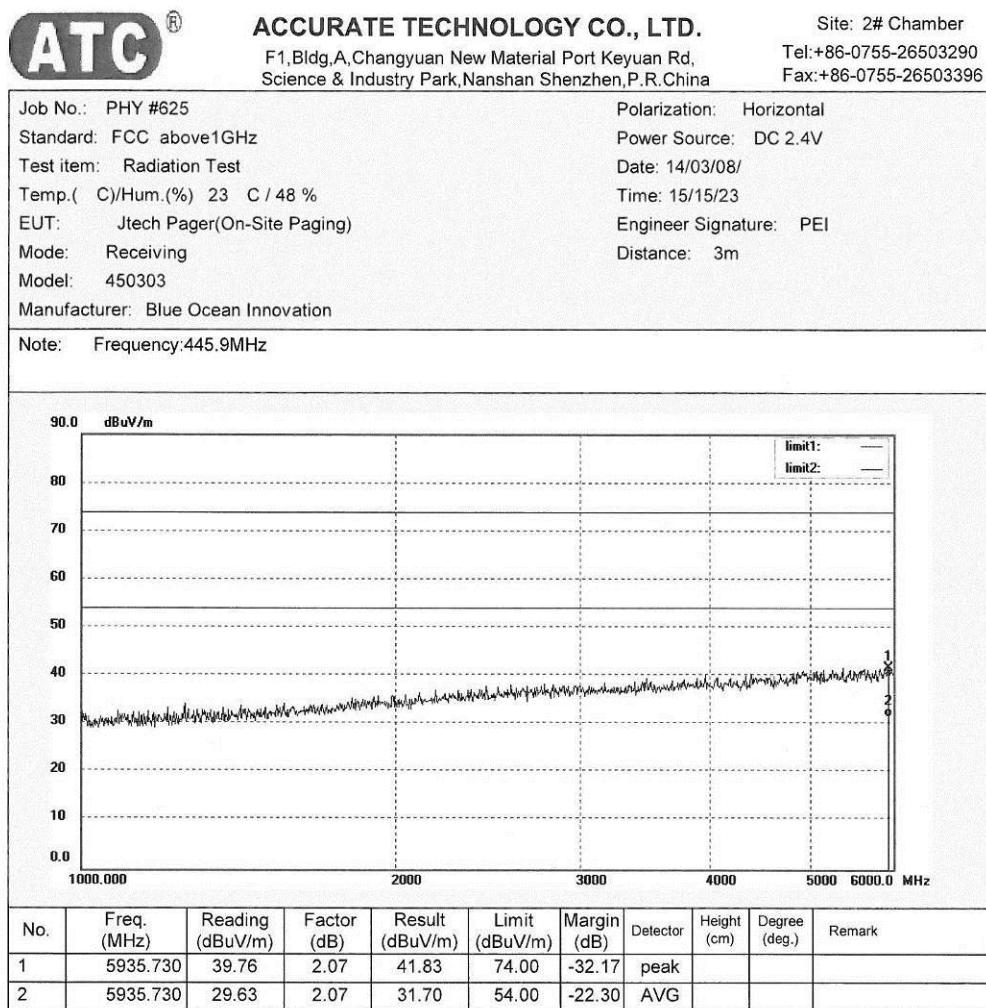


Figure 6: Test figure of Radiated emissions, mode A.1, Vertical polarity (1GHz – 6GHz)

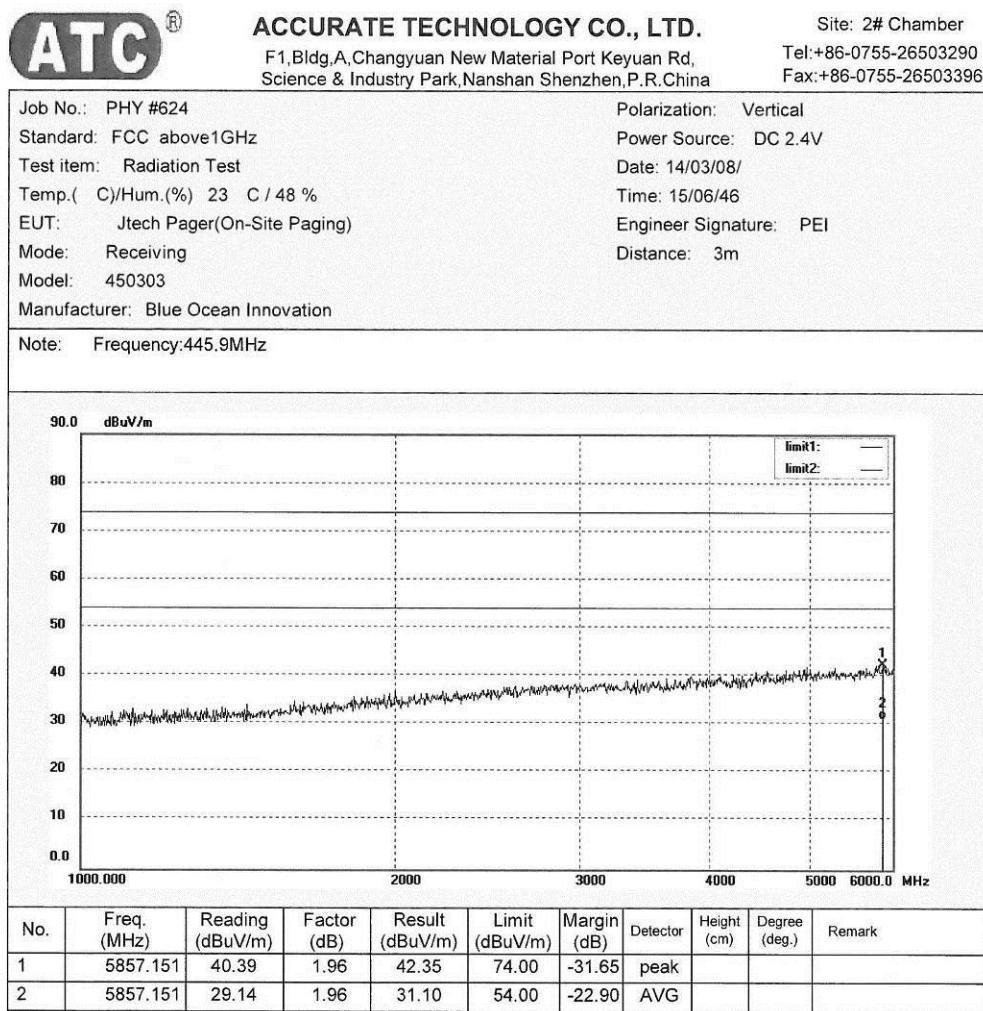


Figure 7: Test figure of Radiated emissions, mode A.2, Horizontal polarity (30MHz – 1GHz)

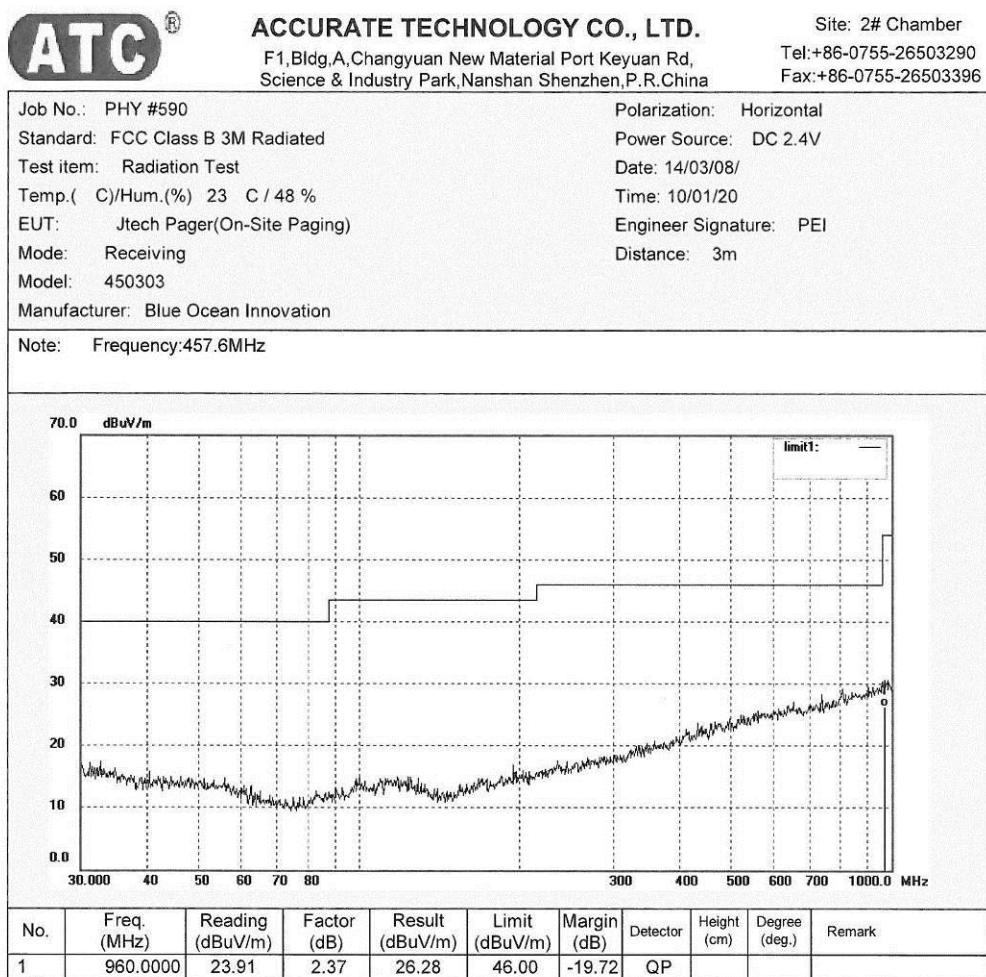


Figure 8: Test figure of Radiated emissions, mode A.2, Vertical polarity (30MHz – 1GHz)

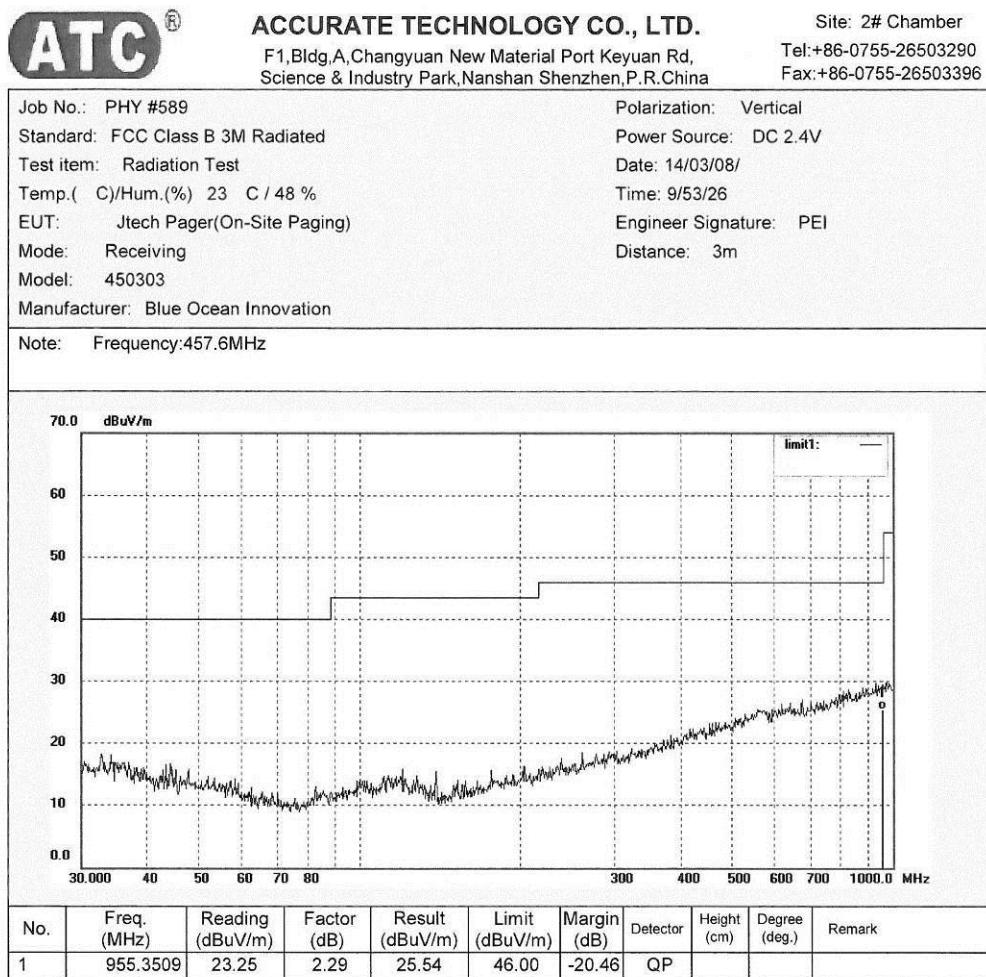


Figure 9: Test figure of Radiated emissions, mode A.2, Horizontal polarity (1GHz – 6GHz)

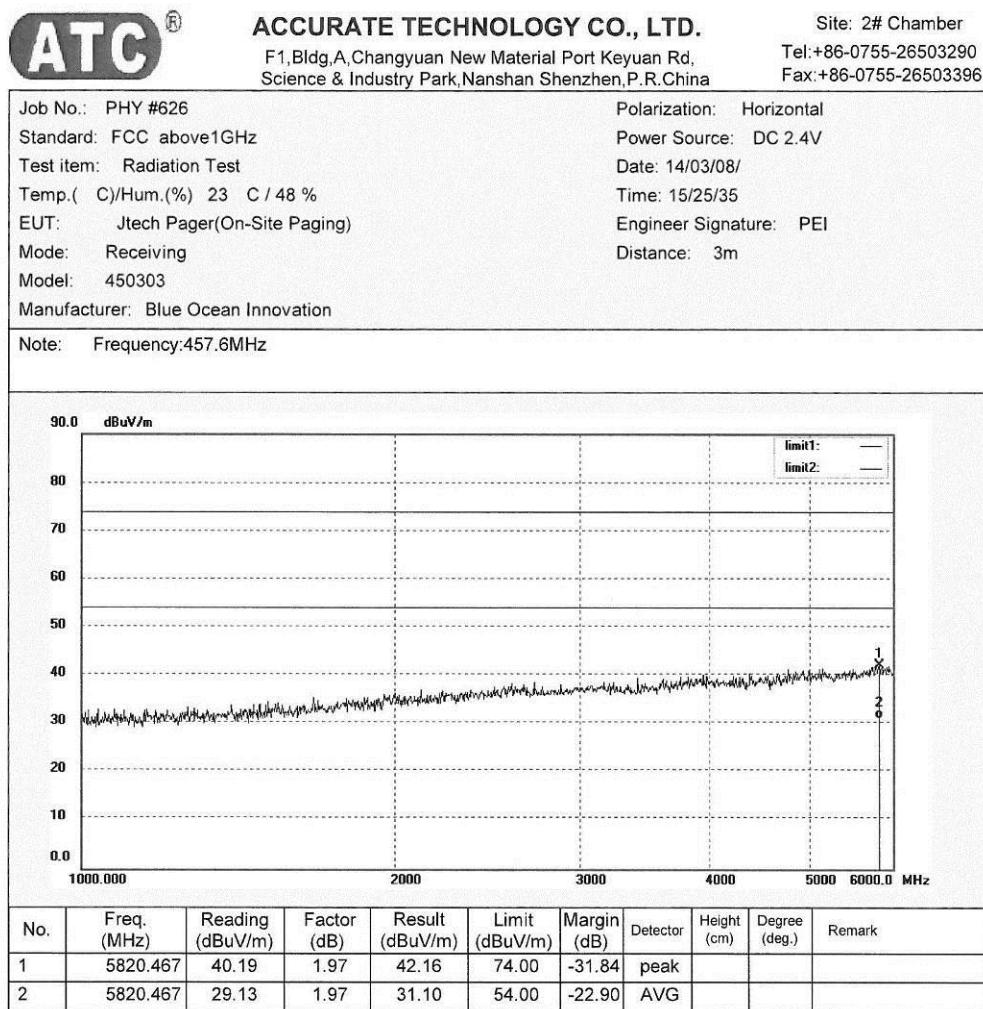


Figure 10: Test figure of Radiated emissions, mode A.2, Vertical polarity (1GHz – 6GHz)

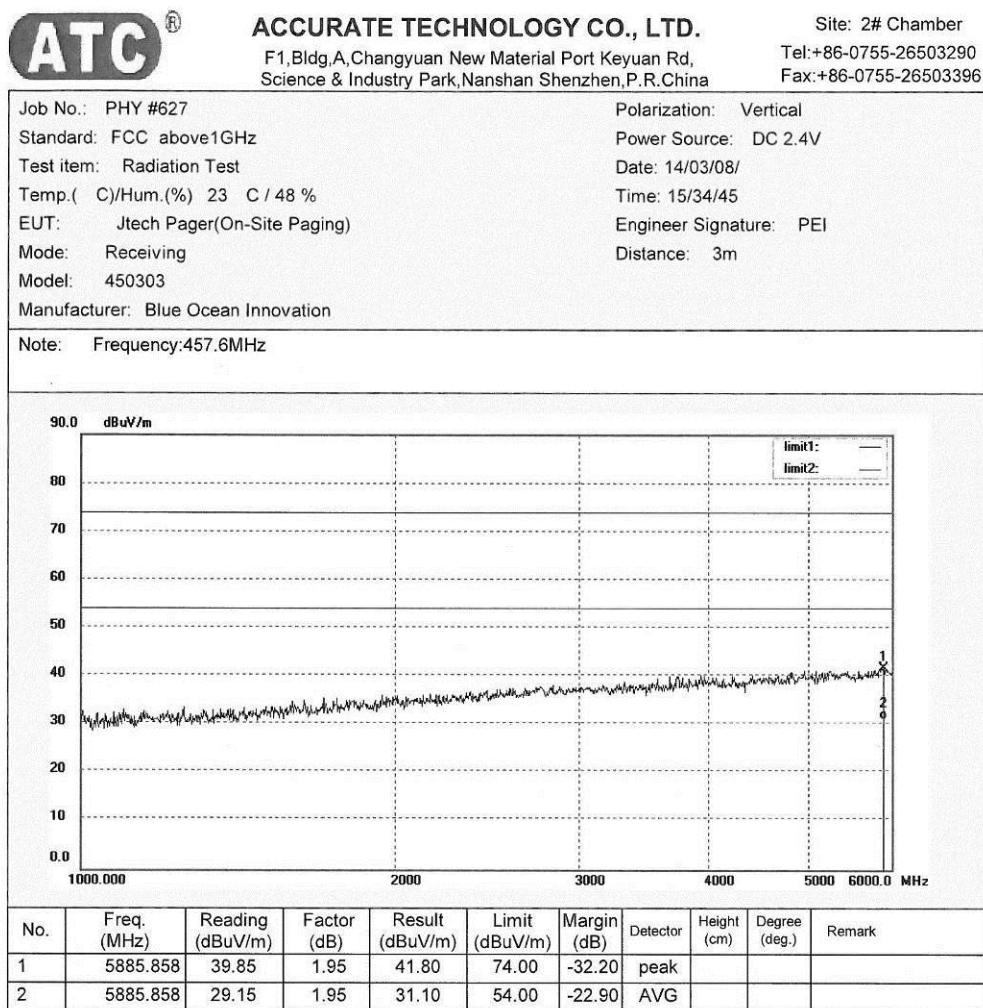


Figure 11: Test figure of Radiated emissions, mode A.3, Horizontal polarity (30MHz – 1GHz)

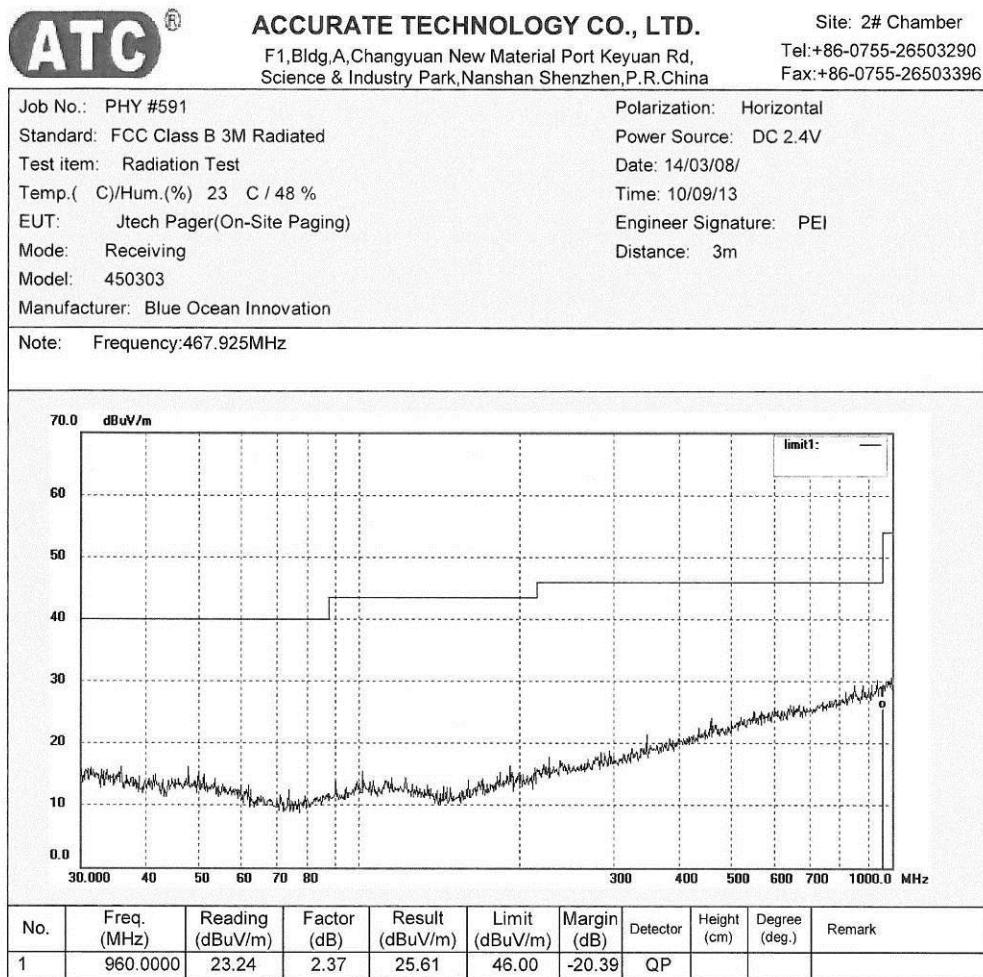


Figure 12: Test figure of Radiated emissions, mode A.3, Vertical polarity (30MHz – 1GHz)

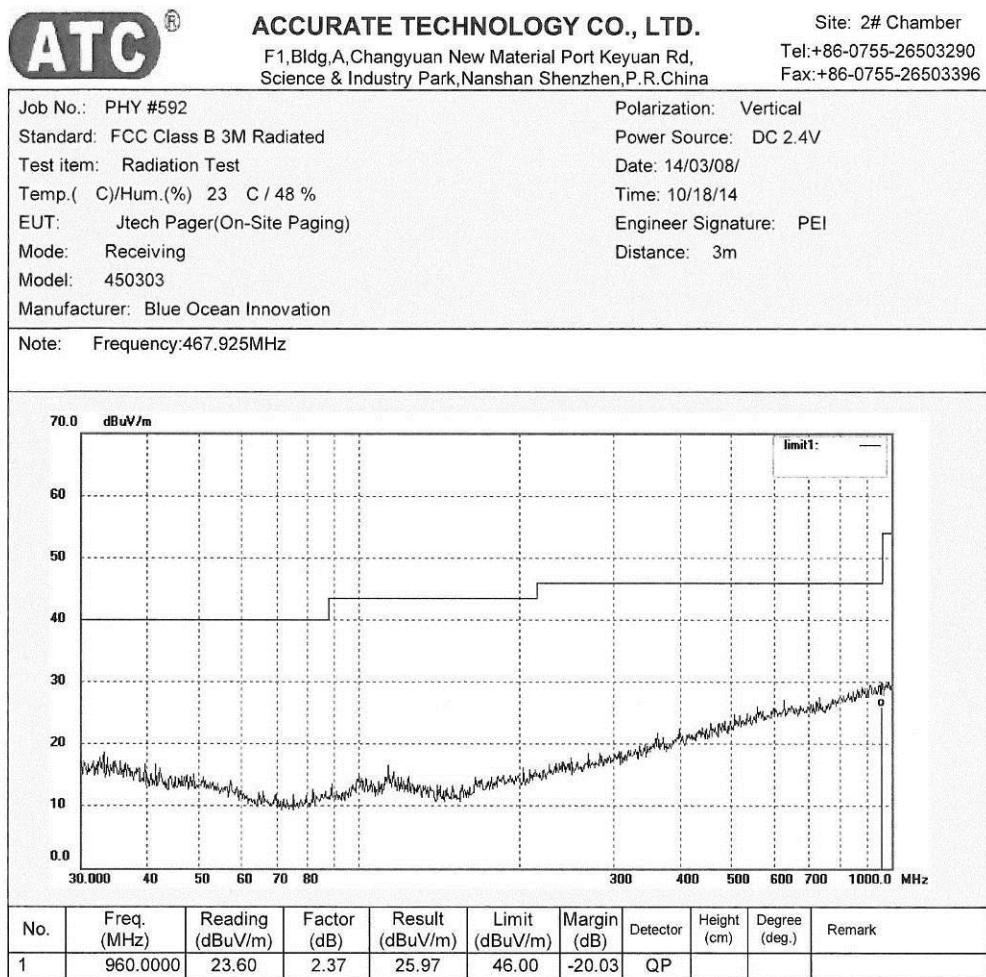


Figure 13: Test figure of Radiated emissions, mode A.3, Horizontal polarity (1GHz – 6GHz)

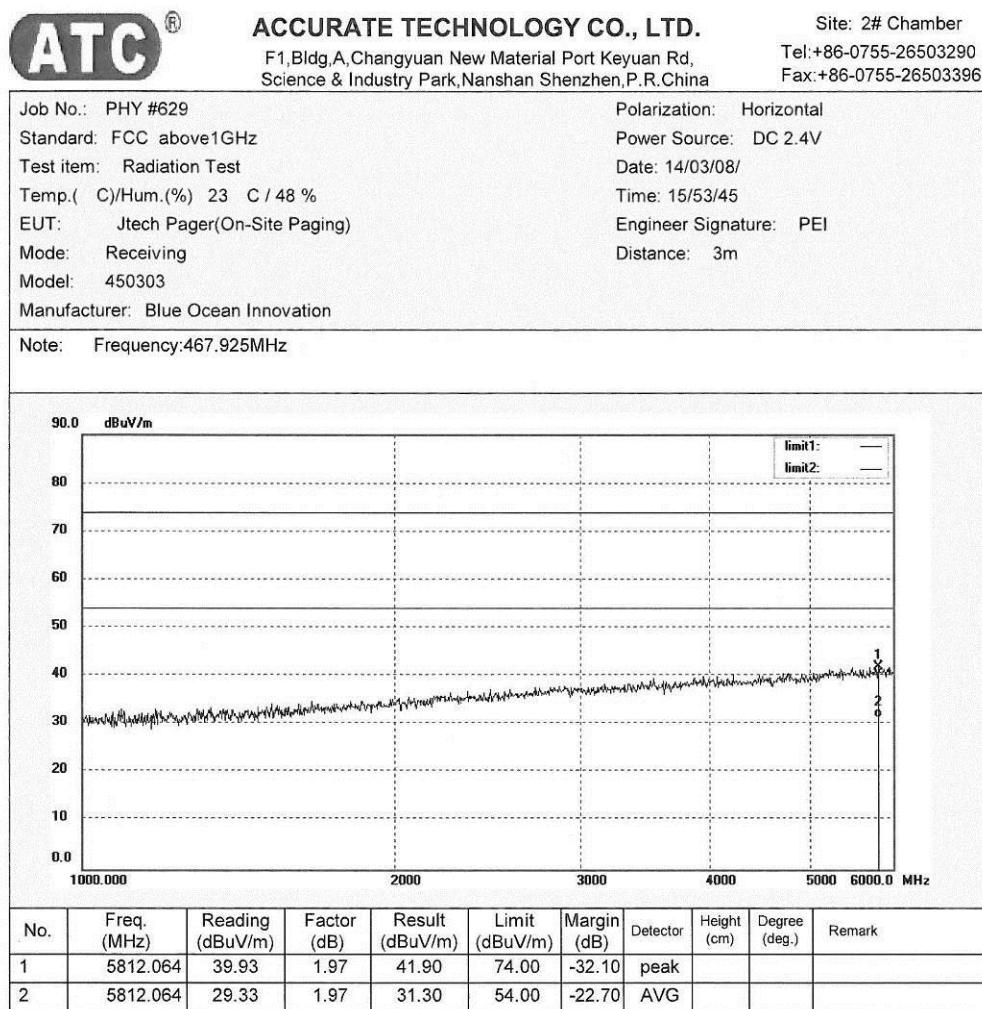


Figure 14: Test figure of Radiated emissions, mode A.3, Vertical polarity (1GHz – 6GHz)

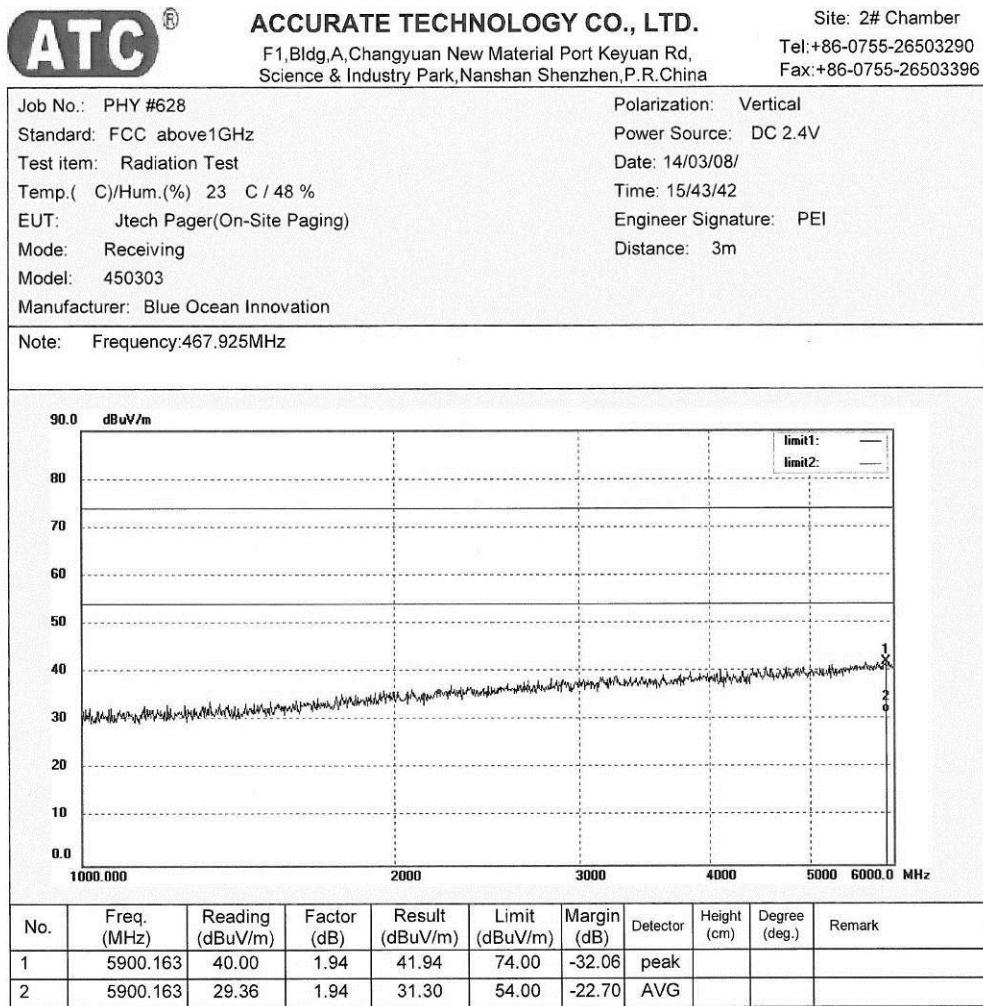


Figure 15: Test figure of Radiated emissions, mode B, Horizontal polarity (30MHz – 1GHz)

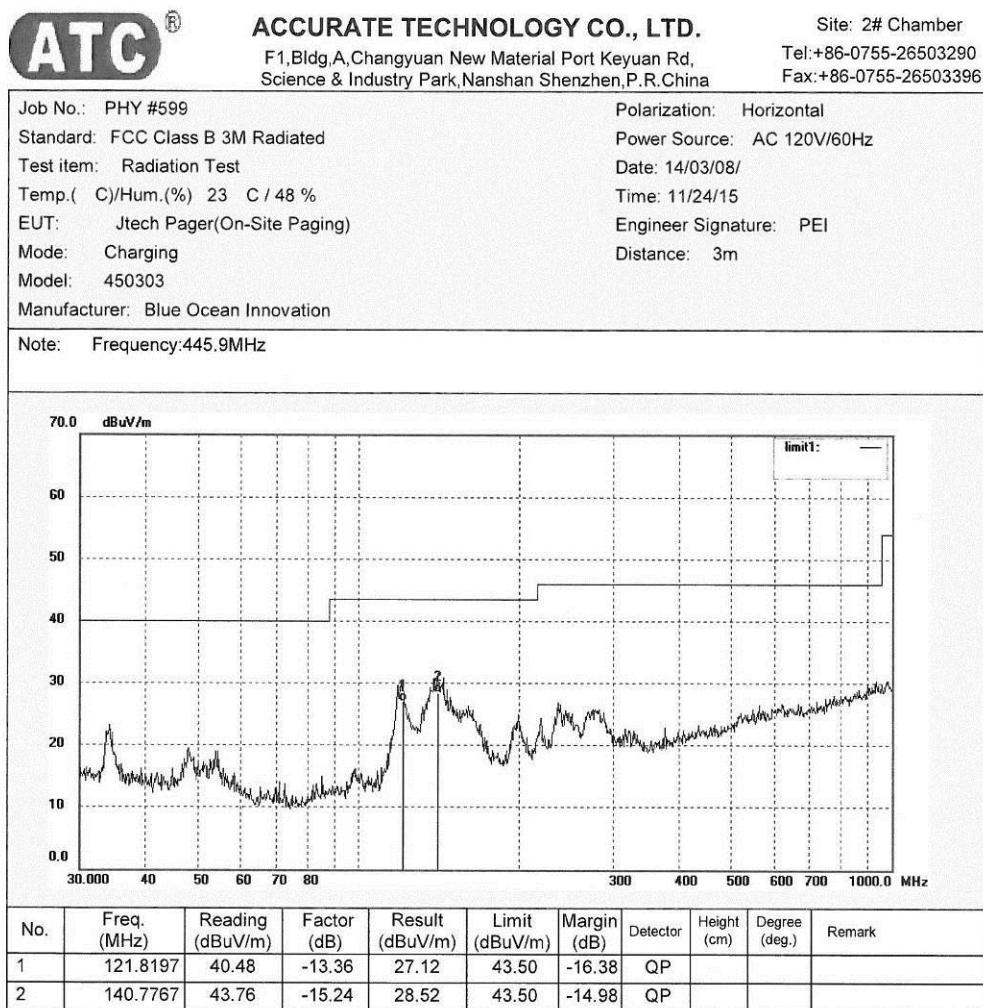


Figure 16: Test figure of Radiated emissions, mode B, Vertical polarity (30MHz – 1GHz)

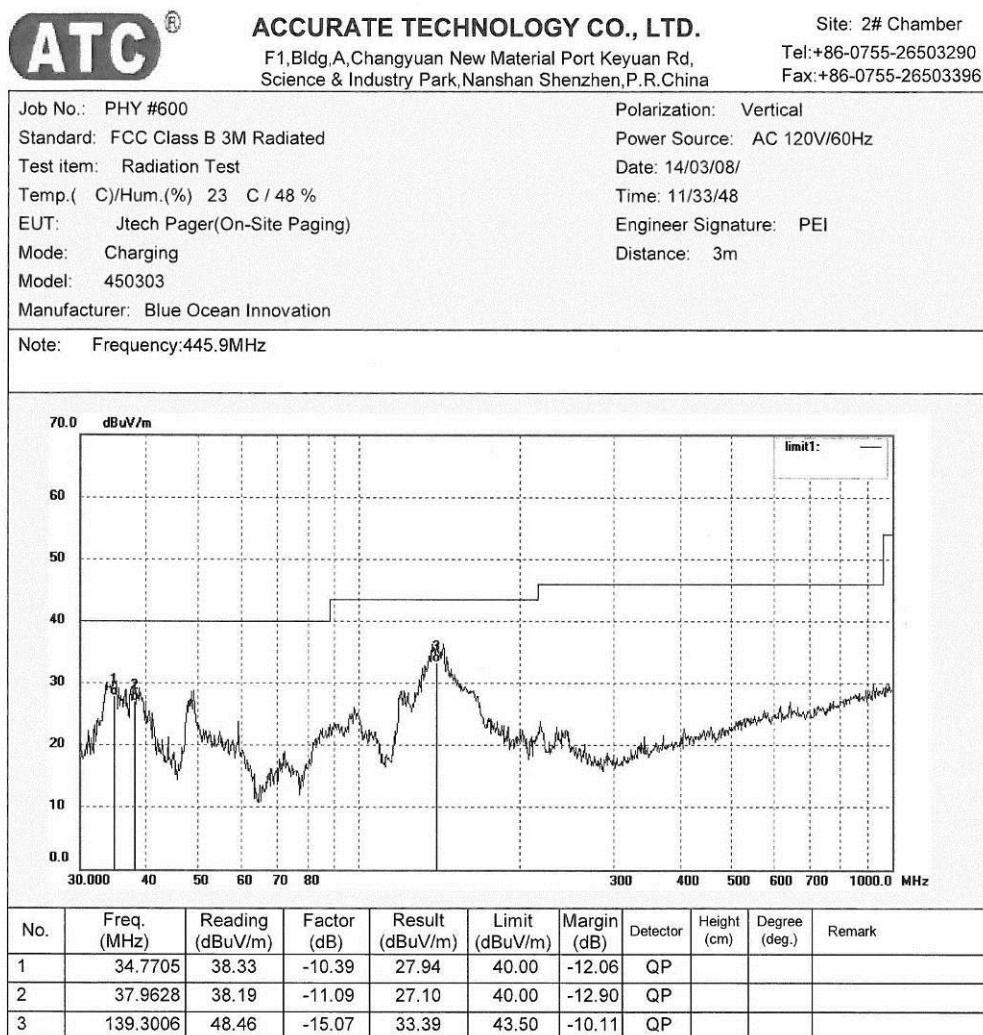
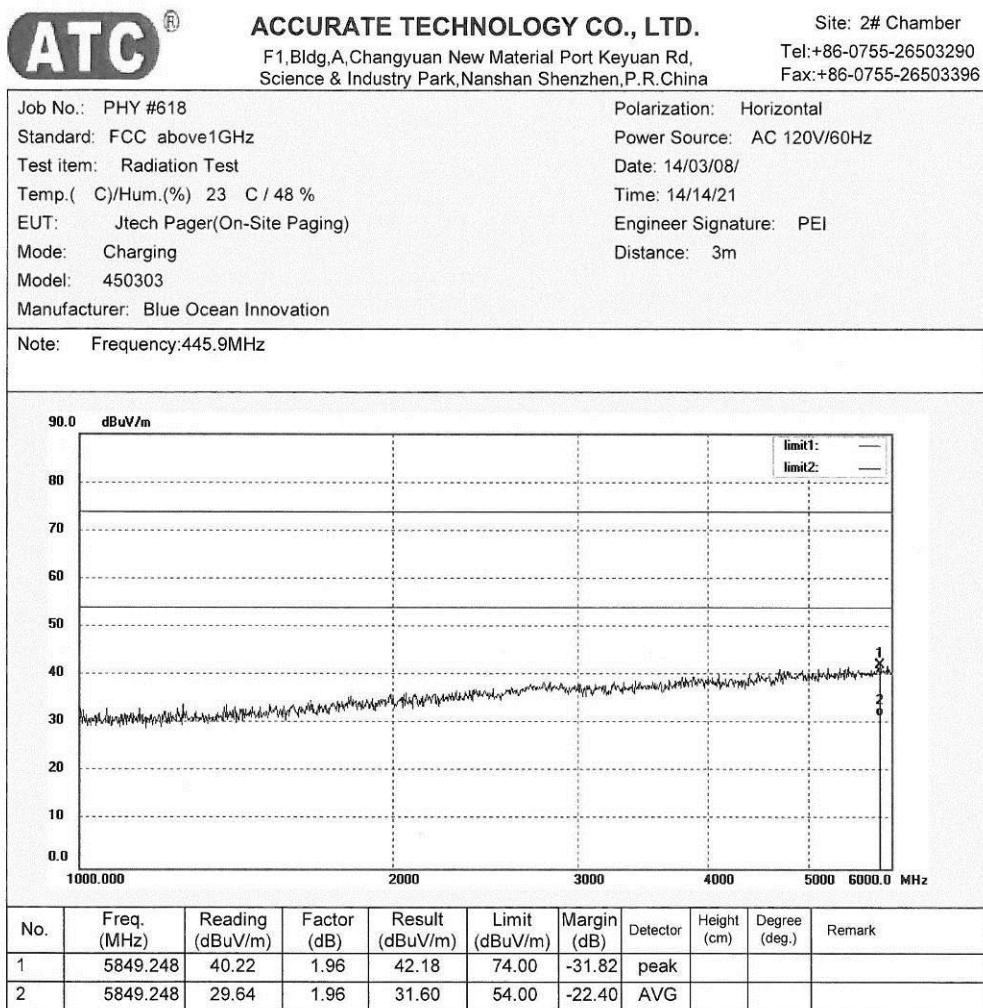


Figure 17: Test figure of Radiated emissions, mode B, Horizontal polarity (1GHz – 6GHz)



**Figure 18: Test figure of Radiated emissions, mode B, Vertical polarity
(1GHz – 6GHz)**

