Energy Efficiency Test Report

Product Name: ATN 905 Multi-service Access Equipment

Model Number: ATN 905A-V

Report No: SYBH (A) 01615681

Reliability Laboratory of Huawei Technologies Co., Ltd.

Administration Building, Headquarters of Huawei Technologies Co., Ltd.,

Bantian, Longgang District, Shenzhen, 518129, P.R.C

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Notice 1

1. The laboratory has passed the accreditation by China National Accreditation Service for Conformity Assessment (CNAS). The accreditation number is L0310.
2. The laboratory has passed the accreditation by The American Association for Laboratory Accreditation (A2LA). The accreditation number is 2174.01.
3. The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
4. The test report is invalid if there is any evidence of erasure and/or falsification.
5. The test report is only valid for the test samples.
6. Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

Notice 2

Modification Information

No.	Last Report No.	Modification Description
1	NA	First Report

Applicant:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Product Name:	ATN 905 Multi-service Access Equipment
Product Model:	ATN 905A-V

Test Result: See Section A

Approved by:	**2014-12-15**	**Kelvin Shi**	
	Date	Name	Signature

Prepared by:	**2014-12-15**	**Roger**	Roger
	Date	Name	Signature

REPORT BODY CONTENT

Basic Information

Applicant:

Applicant Name:	Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C

Test Item Description:

Manufacturer:	Huawei Technologies Co., Ltd.
Model / type:	ATN 905A-V
Rating(s):	~100-240V,60/50Hz
Mains supply tolerance (%):	±20% for AC
Rated temperature range:	-40°C – +55°C

Applied Standard:

APPLIED PRODUCT STANDARD	ATIS-0600015.03.2013
TEST METHODS	ATIS-0600015.03.2013 IEC/EN 62018, Jun,2003

Copy of Nameplate:

Section A: The Result of Test Configuration 1

Start of Test	2014-12-12
End of Test	2014-12-12
Test Site	Reliability laboratory of Huawei Technologies Co, Ltd
Address	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Test Engineer	Roger

1. General Poduct Information

1.1 Critical Modules Information

Name	Model	Quantity	Manufacturer
Power supply	PAC-30WA	1	VAPEL

1.2 Boards Information

1. Function board

Board Name	Description
ANP1CXPF	System Control, Cross-connect and Multi-protocol Process Unit
ANP1AVD6	VDSL2 interface Board
ANP2APA	Surge protection board

1.2 Software Version

V200R003C00

2. Test Conditions

2.1 Environmental conditions

Criteria	Specified Conditions	Test Conditions
Ambient Temperature:	22°C- 28°C [ATIS and Verizon]	25°C
Relative Humidity:	30% - 75% [ATIS and Verizon]	64%
Atmospheric Pressure:	81.2-102 kPa [ATIS]	96 kPa
	86-106 kPa [Verizon]	96 kPa

2.2 Test voltage

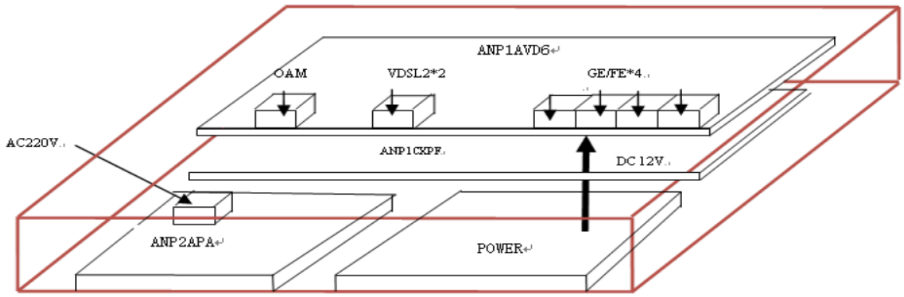
Criteria	Specified Conditions	Test Conditions
DC Voltage:	-52 to -54 VDC [ATIS]	N/A
	-52.75 to -53.25 VDC [Verizon]	N/A
AC Voltage:	115V± 1%, 60Hz± 1% or 230V± 1%, 50 or 60Hz± 1% [ATIS]	210V,50Hz; 220V,50Hz; 230V,50Hz; 240V,50Hz; 250V,50Hz;
	Vn± 1%, Fn± 1% [Verizon]	N/A

2.3 Cooling

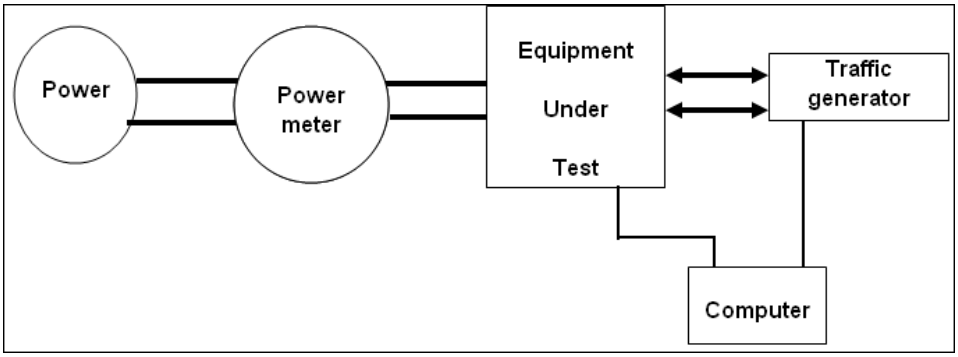
Fan(s) normally run to adapt ambient temperature.

3. Test Configuration

3.1 Module Configuration



3.2 Test connection network



3.3 Traffic Configuration

Packet type and size(Ethernet traffic)	☒Simple IMIX* ☐ Complete IMIX*
Port type (Non-Ethernet traffic)	☐ E1 ☐STM-1 ☐STM-4 ☐STM-16 ☐STM-64 ☐OTU1 ☐ OTU2 ☐ OTU3
☐0% utilization condition	All the ports are linked with traffic generators and no packets are transferred.
☐10% utilization condition	All the ports are operated at 10% of maximum load, in which packets of 10% maximum possible quantity are transferred in full duplex.
☐30% utilization condition	All the ports are operated at 30% of maximum load, in which packets of 30% maximum possible quantity are transferred in full duplex.
☐50% utilization condition	All the ports are operated at 50% of maximum load, in which packets of 50% maximum possible quantity are transferred in full duplex.
☒100% utilization condition	All the ports are operated at maximum load, in which packets of maximum possible quantity are transferred in full duplex.

Notes：

**Simple IMIX is showed in the following table:*

Package Size (Bytes)	*Percentage (100%)*	*Percentage (50%)*	*Percentage (30%)*	*Percentage (0%)*
64	*10.32*	*5.16*	*2.58*	*0*
594	*54.72*	*27.36*	*13.68*	*0*
1518	*34.96*	*17.48*	*8.74*	*0*

3.4 Throughput Calculation

Port Name	Board Name	Board Quantity	Ports per Board	Data Rate (Gbps)	Subtotal Throughput (Gbps)
GE	ANP1AVD6	1	4	1	4
VDSL	ANP1AVD6	1	2	0.05	0.1
Total Throughput(Gbps):					4.1

4. Power Consumption Measured

Voltage	Test item	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5
		P_0 (0%)	P_{10} (10%)	P_{30} (30%)	P_{50} (50%)	P_{100} (100%)
210V, 50Hz	U(V)	210.5	210.5	210.5	209.9	209.9
	I(mA)	225.60	224.12	251.79	247.16	241.29
	Wh/5min	1.7829	1.7808	1.8133	1.7871	1.7764
	W	21.39	21.37	21.7596	21.45	21.32
	VA	47.55	47.23	53.91	51.81	50.59
220V, 50Hz	U(V)	219.9	220.5	220.5	220.0	220.1
	I(mA)	220.1	220.31	248.16	238.8	234.4
	Wh/5min	1.7842	1.7802	1.8176	1.7828	1.779
	W	21.41	21.36	21.81	21.39	21.35
	VA	48.45	48.76	53.77	53.66	52.53
230V, 50Hz	U(V)	230.3	230.6	230.5	230.4	230.5
	I(mA)	217	212.56	241.42	235.16	232.37
	Wh/5min	1.7846	1.7834	1.8208	1.7798	1.7814
	W	21.42	21.40	21.85	21.36	21.38
	VA	50.1	49.46	55.66	53.5	53.93
240V, 50Hz	U(V)	239.6	240.0	240.1	240.1	240.1
	I(mA)	209.2	208.23	236.6	228.71	228.83
	Wh/5min	1.785	1.791	1.8224	1.7783	1.7836
	W	21.42	21.492	21.87	21.34	21.404
	VA	50.9	50.32	57.03	55.01	55.23
250V, 50Hz	U(V)	250.1	250.2	250.8	250.5	250.0
	I(mA)	207.2	203.16	233.9	226.1	223.6

	Wh/5min	1.7853	1.7998	1.8233	1.7911	1.7876
	W	21.42	21.60	21.88	21.49	21.45
	VA	51.90	50.77	57.58	56.83	55.96

Note: By using the integral function of Power Meter（time=5min）,we can know the average power of the ATN 905A-V.

5. Associated Equipment Used

No.	Name	Model	Manufacturer	S/N	Calibration Date	
					Last	Due
1	Thermometer and Hygrometer	TT-492	TANATA	N/A	2014-01-20	2015-01-19
2	Vacuum Meter	TN2920	TRINA TAINA	Q296455	2014-09-02	2015-09-01
3	Power Meter	WT210	YOKOGAWA	91K801825	2014-06-11	2014-06-11
4	Power supply	PCR 6000L	KIKUSUI	FA001076	2014-05-05	2014-05-04
5	DSLAM	MA5600T	HUAWEI	NA	NA	NA
6	Traffic generator	Smartbits600B	Spirent	A100126884	2014-08-02	2015-08-01

6. Photographs of Test Set-up

END