

Application for FCC Certification
On behalf of

Hisense Broadband Multimedia Technologies Co., Ltd

Product Name: GPON SFU

Model No.: G7269G, 7268G

Brand Name: Hisense, iPHOTONIX, Ligent, Adtran

FCC ID: R66002

(MPE Calculation)

Prepared For : Hisense Broadband Multimedia Technologies Co., Ltd
No.218 Qianwangang Road, Economy & Technology
Development Zone, Qingdao, China

Prepared By : Audix Technology (Shanghai) Co., Ltd.
3F and 4F, 34Bldg 680 Guiping Rd.,
Caohejing Hi-Tech Park,
Shanghai 200233, China

Tel: +86-21-64955500
Fax: +86-21-64955491

Report No. : ACI-F14080
Date of Test : May 13, 2014
Date of Report : May 21, 2014

TABLE OF CONTENTS

	Page
1 GENERAL INFORMATION.....	4
1.1 Description of Equipment Under Test.....	4
1.2 Description of Test Facility	5
1.3 Measurement Uncertainty	5
2 SUMMARY OF STANDARDS AND RESULTS.....	6
2.1 Applicable Standard	6
2.2 Specification Limits	6
2.3 MPE Calculation Method.....	6
2.4 Calculated Result.....	7

TEST REPORT FOR FCC CERTIFICATE

Applicant : Hisense Broadband Multimedia Technologies Co., Ltd

Manufacturer : Hisense Broadband Multimedia Technologies Co., Ltd

EUT Description : GPON SFU

(A) Model No. : 7269G, 7268G

(B) Brand Name : Hisense, iPHOTONIX, Ligent, Adtran

(C) Test Voltage : AC 120V/60Hz

Test Procedure Used:

FCC OET Bulletin 65 August 1997

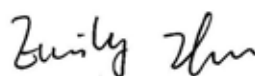
The device described above is tested by Audix Technology (Shanghai) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC OET Bulletin 65.

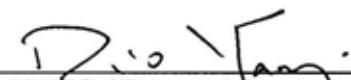
The test results are contained in this test report and Audix Technology (Shanghai) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. This report also shows that the EUT (M/N: Refer to Sec2.1), which was tested on May 13, 2014 is technically compliance with the FCC limits.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shanghai) Co., Ltd.

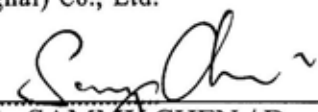
This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : May 13, 2014 Date of Report : May 21, 2014

Producer : 
EMILY ZHU / Assistant

Review : 
DIO YANG / Deputy Manager

 For and on behalf of
Audix Technology (Shanghai) Co., Ltd.

Signatory : 
Authorized Signature EMC SAMMY CHEN / Deputy Manager

1 GENERAL INFORMATION

1.1 Description of Equipment Under Test

Description : GPON SFU

Type of EUT ☒ Production ☐ Pre-product ☐ Pro-type

Model Number : 7269G, 7268G

Brand Name : Hisense, iPHOTONIX, Ligent, Adtran

Note : The different list between these two models are as follows:

M/N: 7269G	2POTS+2GE+CATV+ Return+WiFi+HPNA
M/N: 7268G	2POTS+2GE+CATV +WiFi+HPNA

Radio Tech : IEEE 802.11b/g/n (2.4GHz)

Freq. Band : 2412MHz ~ 2462MHz (Ch1-Ch11) for 802.11b/g
2412MHz ~ 2462MHz (Ch1-Ch11) for
802.11n 20MHz Band
2422MHz ~ 2452MHz (Ch3-Ch9) for
802.11n 40MHz Band

Tested Freq. : for 802.11b/g/n HT20
2412MHz (Ch1), 2437MHz (Ch6), 2462MHz (Ch11)
for 802.11n HT40
2422MHz (Ch3), 2437MHz (Ch6), 2452MHz (Ch9)

Modulation : DSSS for 802.11b
OFDM for 802.11g/n

Antenna Gain : 3.12 dBi (both ANT1 & ANT2)

Applicant : Hisense Broadband Multimedia Technologies Co., Ltd
No.218 Qianwangang Road, Economy & Technology
Development Zone, Qingdao, China

Manufacturer : Hisense Broadband Multimedia Technologies Co., Ltd
No.218 Qianwangang Road, Economy & Technology
Development Zone, Qingdao, China

1.2 Description of Test Facility

Site Description (Semi-Anechoic Chamber) : Sept. 17, 1998 file on
Mar 16, 2012 Renewed
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046, USA

Name of Firm : Audix Technology (Shanghai) Co., Ltd.

Site Location : 3F 34 Bldg 680 Guiping Rd.,
Caohejing Hi-Tech Park,
Shanghai 200233, China

FCC registration Number : 91789

Accredited by NVLAP, Lab Code : 200371-0

1.3 Measurement Uncertainty

Output Power Expanded Uncertainty : $U = \pm 1.56 \text{ dB}$

2 SUMMARY OF STANDARDS AND RESULTS

2.1 Applicable Standard

FCC OET Bulletin 65:1997

2.2 Specification Limits

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (E) (V/m)	Magnetic Field Strength (H) (A/m)	Power Density (S) (mW/cm ²)	Averaging Time E ² , H ² or S (minutes)
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	--	--	f/150	30
1500-100,000	--	--	1.0	30

f = frequency in MHz

*Plane-wave equivalent power density

NOTE: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

The limit value 1.0mW/cm² is available for this EUT.

2.3 MPE Calculation Method

$$S = PG/(4 \pi R^2)$$

$$R = [PG/(4 \pi S)]^{0.5}$$

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

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

(the measured power value see Report: F14079 Section 6.6)

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)

2.4 Calculated Result

2.4.1 Radio Frequency Radiation Exposure Evaluation – 802.11b ANT1

Frequency	Peak Power	Output Power to Antenna	Antenna Gain		Power Density	Limit
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(mW/cm ²)
2412	17.56	57.02	3.12	2.05	0.023	1.0
2437	17.95	62.37	3.12	2.05	0.025	1.0
2462	18.04	63.68	3.12	2.05	0.026	1.0

Separation distance R= 20cm.

Frequency	Peak Power	Output Power to Antenna	Antenna Gain		Limit	Distance
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(cm)
2412	17.56	57.02	3.12	2.05	1.0	3.05
2437	17.95	62.37	3.12	2.05	1.0	3.19
2462	18.04	63.68	3.12	2.05	1.0	3.22

The antenna used for this transmitter must be installed to provide a separation distance of at least 3.22cm from all persons.

Radio Frequency Radiation Exposure Evaluation – 802.11b ANT2

Frequency	Peak Power	Output Power to Antenna	Antenna Gain		Power Density	Limit
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(mW/cm ²)
2412	16.01	39.90	3.12	2.05	0.016	1.0
2437	16.37	43.35	3.12	2.05	0.018	1.0
2462	16.49	44.57	3.12	2.05	0.018	1.0

Separation distance R= 20cm.

Frequency	Peak Power	Output Power to Antenna	Antenna Gain		Limit	Distance
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(cm)
2412	16.01	39.90	3.12	2.05	1.0	2.55
2437	16.37	43.35	3.12	2.05	1.0	2.66
2462	16.49	44.57	3.12	2.05	1.0	2.70

The antenna used for this transmitter must be installed to provide a separation distance of at least 2.70cm from all persons.

2.4.2 Radio Frequency Radiation Exposure Evaluation – 802.11g ANT1

Frequency	Peak Power	Output Power to Antenna	Antenna Gain		Power Density	Limit
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(mW/cm ²)
2412	19.89	97.50	3.12	2.05	0.040	1.0
2437	20.23	105.44	3.12	2.05	0.043	1.0
2462	20.05	101.16	3.12	2.05	0.041	1.0

Separation distance R= 20cm.

Frequency	Peak Power	Output Power to Antenna	Antenna Gain		Limit	Distance
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(cm)
2412	19.89	97.50	3.12	2.05	1.0	3.99
2437	20.23	105.44	3.12	2.05	1.0	4.15
2462	20.05	101.16	3.12	2.05	1.0	4.06

The antenna used for this transmitter must be installed to provide a separation distance of at least 4.15cm from all persons.

Radio Frequency Radiation Exposure Evaluation – 802.11g ANT2

Frequency	Peak Power	Output Power to Antenna	Antenna Gain		Power Density	Limit
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(mW/cm ²)
2412	17.98	62.81	3.12	2.05	0.026	1.0
2437	18.35	68.39	3.12	2.05	0.028	1.0
2462	18.37	68.71	3.12	2.05	0.028	1.0

Separation distance R= 20cm.

Frequency	Peak Power	Output Power to Antenna	Antenna Gain		Limit	Distance
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(cm)
2412	17.98	62.81	3.12	2.05	1.0	3.20
2437	18.35	68.39	3.12	2.05	1.0	3.34
2462	18.37	68.71	3.12	2.05	1.0	3.35

The antenna used for this transmitter must be installed to provide a separation distance of at least 3.35cm from all persons.

2.4.3 Radio Frequency Radiation Exposure Evaluation–802.11n HT20

Frequency	Total Peak Power	Output Power to Antenna	Antenna Gain		Power Density	Limit
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(mW/cm ²)
2412	21.65	146.22	3.12	2.05	0.060	1.0
2437	21.89	154.53	3.12	2.05	0.063	1.0
2462	21.91	155.24	3.12	2.05	0.063	1.0

Separation distance R= 20cm.

Frequency	Total Peak Power	Output Power to Antenna	Antenna Gain		Limit	Distance
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(cm)
2412	21.65	146.22	3.12	2.05	1.0	4.88
2437	21.89	154.53	3.12	2.05	1.0	5.02
2462	21.91	155.24	3.12	2.05	1.0	5.03

The antenna used for this transmitter must be installed to provide a separation distance of at least 5.03cm from all persons.

2.4.4 Radio Frequency Radiation Exposure Evaluation – HT40

Frequency	Total Peak Power	Output Power to Antenna	Antenna Gain		Power Density	Limit
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(mW/cm ²)
2422	19.70	93.33	3.12	2.05	0.038	1.0
2437	19.75	94.41	3.12	2.05	0.039	1.0
2452	19.74	94.19	3.12	2.05	0.038	1.0

Separation distance R= 20cm.

Frequency	Total Peak Power	Output Power to Antenna	Antenna Gain		Limit	Distance
(MHz)	(dBm)	(mW)	(dBi)	(Numeric)	(mW/cm ²)	(cm)
2422	19.70	93.33	3.12	2.05	1.0	3.90
2437	19.75	94.41	3.12	2.05	1.0	3.92
2452	19.74	94.19	3.12	2.05	1.0	3.92

The antenna used for this transmitter must be installed to provide a separation distance of at least 3.92cm from all persons.