

H9222LG Series
FTTH CATV Optical Receiver
Technical Specification

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1.0 PRODUCT DESCRIPTION

Guangtai H9222LG, operating bandwidth of 47~862MHz, is a suitable digital television FTTH applications, ultra-low optical receiver, Whether the machine is used analog television or digital television, have high reception sensitivity and excellent intermodulation distortion index.. Due to the built-in optical AGC, at high optical power receiver, played limiting output, so H9222LG in the received optical power over a large dynamic range of +2 dBm ~-21dBm, and have excellent properties.

H9222LG for Analog TV, in $P_{in} = -10\text{dBm}$ when, $V_o \geq 83.3\text{dB } \mu\text{V}$, $\text{CNR} \geq 45.7\text{dB}$.

H9222LG for Digital TV, in $P_{in} = -17\text{dBm}$ when, $V_o \geq 79.0\text{dB } \mu\text{V}$, $\text{MER} \geq 37.1\text{dB}$.

H9222LG for Digital TV, in $P_{in} = -21\text{dBm}$ when, $V_o \geq 70.3\text{dB } \mu\text{V}$, $\text{MER} \geq 31.1\text{dB}$.

Digital TV FTTH applications, the H9222LG can save a lot of optical fiber amplifier power resources. For operators, can greatly reduce the cost of building the network. Suitable for rural power digital TV, FTTH, triple play of wide application.

H9222LG optical port mode of the following three selection:

H9222LG : operating wavelength 1260~1620nm.

H9222LG/WD: Built-in CWDM, suitable for single-fiber triple wavelength system, RFTV operating wavelength 1550nm, passwavelength 1310/1490nm, can conveniently connect the ONU of EPON, GPON.

H9222LG/WF: built-in 1310/1490nm filter, suitable for single-fiber triple wavelength system, RFTV operating wavelength 1550nm.

2.0 PRODUCT FEATURE

- Extra-low noise(3.8% modulate, -10dBm receive, $CNR \geq 45\text{dB}$)
- Wide dynamic receiving optical power range: within $P_{in}=-17$, $MER \geq 37.1\text{dB}$
- Applicable GPON, EPON, compatible with any FTTx PON technology
- Can save a large number of optical power resource, greatly reduce the network configuration cost
- Within 47~862MHz bandwidth, all with excellent flatness feature ($FL \leq \pm 0.75\text{dB}$)
- Metal case, offer safeguard for optoelectronic sensitive devices
- Interface on the same side, easy to install
- Low consumption, high performance, high reliability
- Excellent cost performance in area

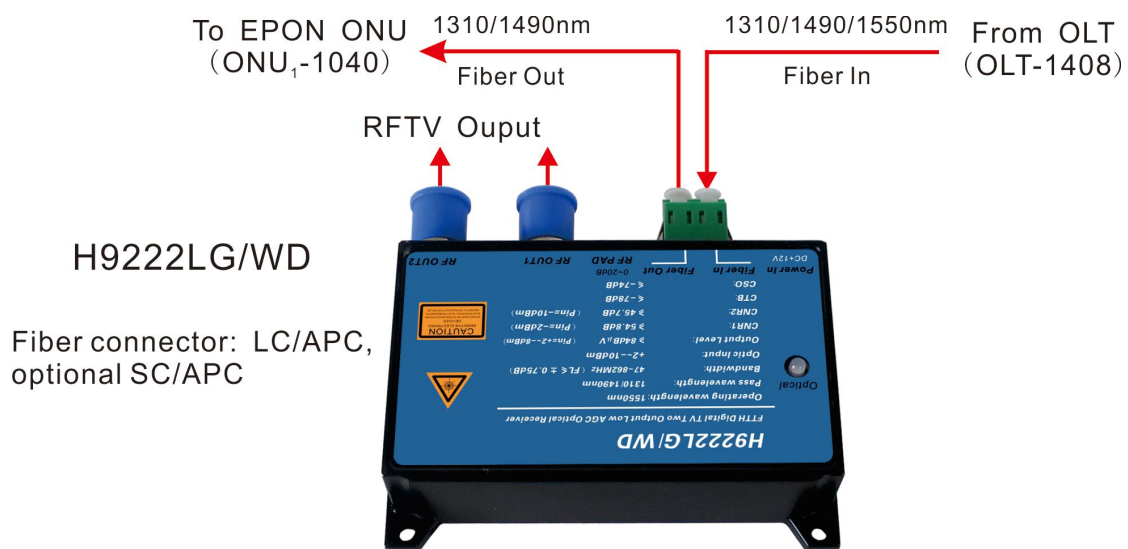
3.0 MAIN APPLICATION

- Digital TV FTTH
- Integration of three networks
- FTTH PON

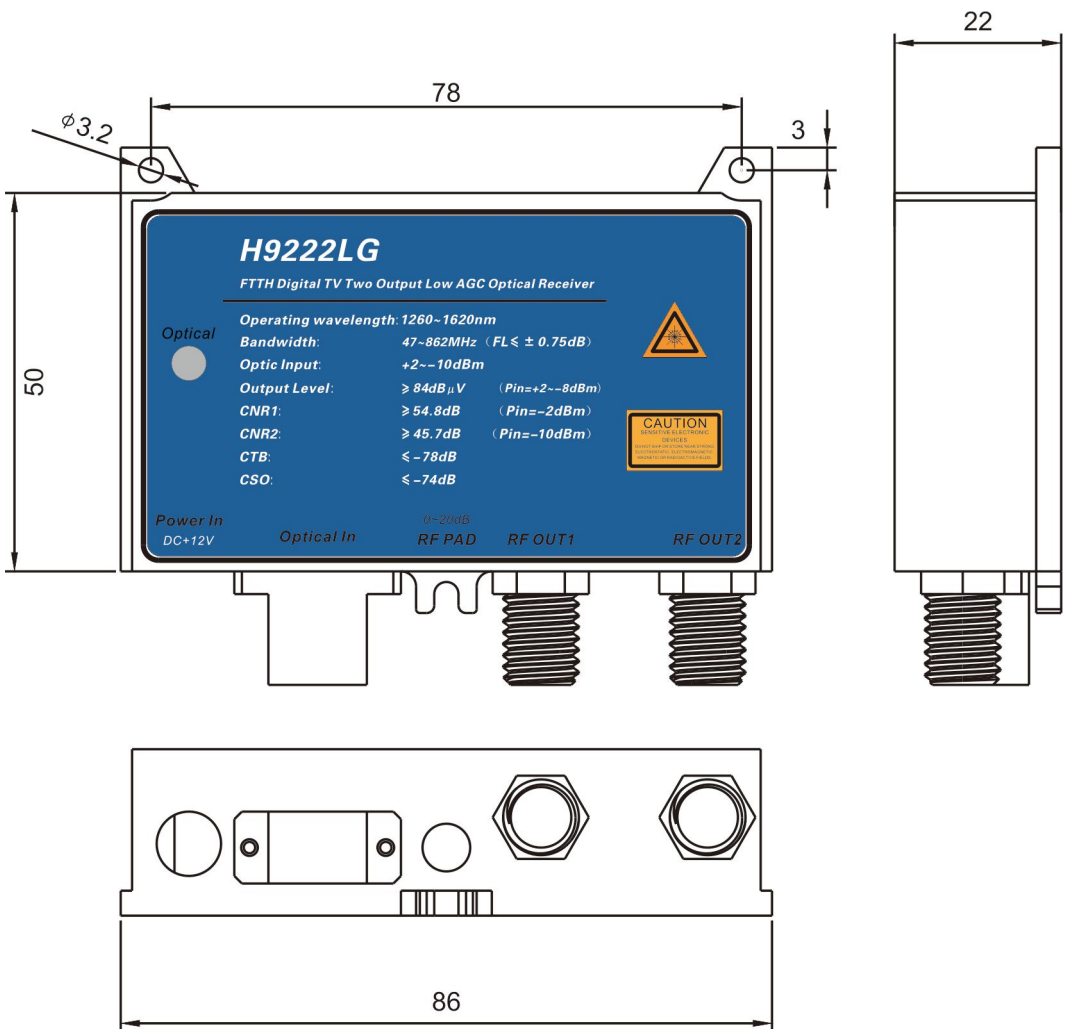
4.0 STATUS INDICATOR

- Red : >+2dBm
- Green : +2~-16dBm
- Orange : -16~-20dBm
- Red : <-20dBm

5.0 PRINCIPLE



6.0 Dimensions



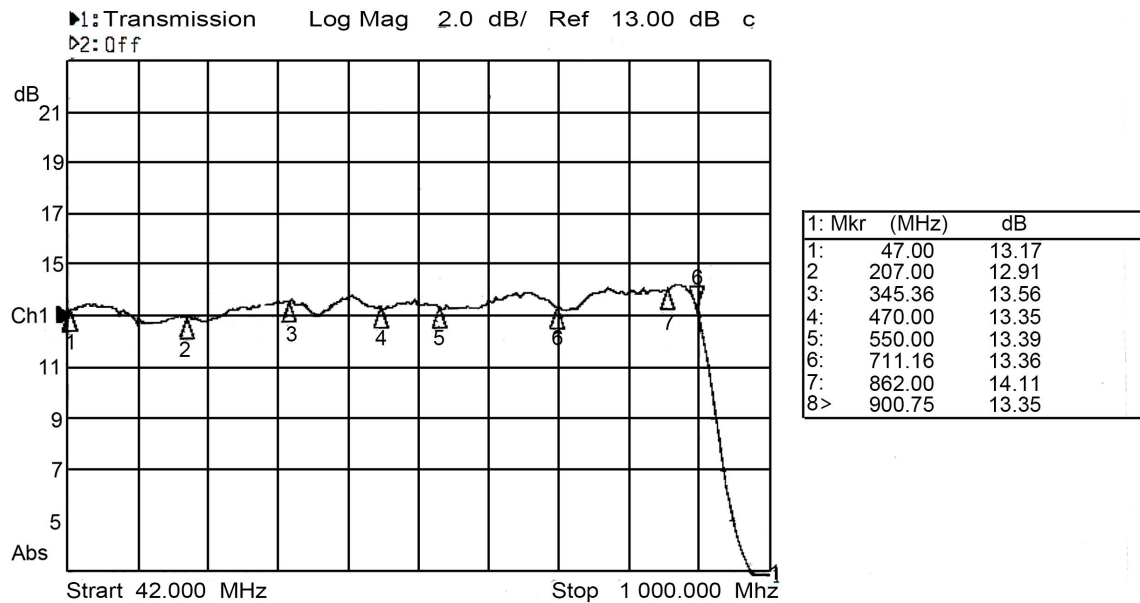
7.0 Technical index

Performance			Index	Supplement
Optic feature	CATV Work wavelength	(nm)	1260~1620	H9222LG
			1540~1563	H9222LG/WF,H9222LG/WD
	Pass wavelength	(nm)	1310, 1490	H9222LG/WD
	Channel Isolation	(dB)	≥40	1550nm & 1490nm
	Responsivity	(A/W)	≥0.85	1310nm
			≥0.9	1550nm
	Receiving power	(dBm)	+2~-10	Analog TV(CNR>45dB)
			+2~-21	Digital TV(MER>30dB)
	Optical return loss	(dB)	≥55	
	Optical fiber connector		SC/APC	H9222LG, H9222LG./WF
			LC/APC	H9222LG/WD
RF Feature	Work bandwidth	(MHz)	45 ~1000	
	Flatness	(dB)	≤±0.75	45~862MHz
	Output level	(dBμV)	>84	AnalogTV (Pin=+2~-8dBm)
			>82	Digital TV (Pin=-13dBm)
	ALC(AGC) character	(dB)	≤±1.0	Pin=+2.0~-8.0dBm
	Output level adjust	(dB)	0~18	MGC
	Return loss	(dB)	≥14	47 ~ 862MHz
	Output impedance	(Ω)	75	
	Output port number		1	
	RF tie-in		F-Female	
Analog TV Link Feature	Test channel	(CH)	59CH(PAL-D)	
	OMI	(%)	3.8	
	CNR1	(dB)	54..8	Pin=-2dBm
	CNR2	(dB)	45.7	Pin=-10dBm
	CTB	(dB)	≤-78	Pin: 0~-10dBm
	CSO	(dB)	≤-74	Pin: 0~-10dBm
Digital TV Link Feature	OMI	(%)	4.3	
	MER	(dB)	≥36	Pin=-17dBm
			≥31	Pin=-21dBm
	BER	(dB)	<1.0E-9	Pin:+2~-21dBm

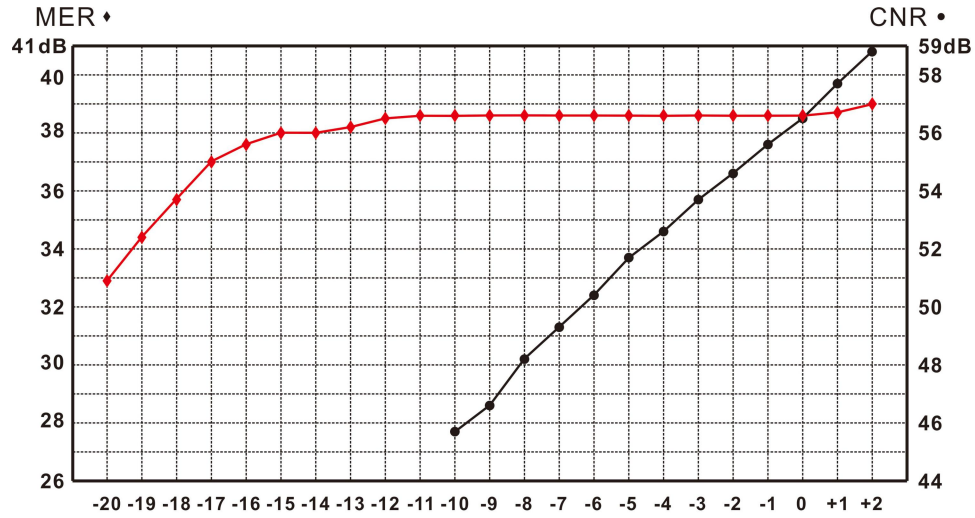
General feature	Power supply	(V)	DC+12V	±1.0V
	Power Consume	(W)	≤5.5	+12VDC,420mA
	Work temp	(℃)	-20 ~ +55	
	Storage temp	(℃)	-40 ~ 85	
	Work relative temp	(%)	5 ~ 95	
	Size	(mm)	86×50×22	

8.0 TEST DATA

8.1 Flatness



8.2 CNR, MER Degradation table



Note: 1. CNR Test conditions: 59CH PAL-D, OMI = 3.8%

2. MER test conditions: The Original Signal : MER = 39.0dB, BER <1.0E-9,

Test Frequency : 47 ~ 862MHz Full Channel, (The Curve is: 858. 00MHz) .

Orange curve: OMI=4.3%

3. Digital television Receiving Low Light, appropriate to increase the system modulation (OMI), can greatly improve the MER degradation.

8.3 Analog TV test data (PAL-D59CH, OMI=3.8%)

Pin(dBm)	+2	+1	0	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10
Vo(dBμV)	88.5	88.5	89.0	88.6	88.6	88.1	89.1	89.1	89.3	89.4	87.6	85.4	83.3
PAD(dB)	0	0	0	0	0	0	0	0	0	0	0	0	0
CNR(dB)	59.8	57.7	56.5	55.6	54.6	53.7	52.6	51.7	50.4	49.3	48.2	46.6	45.7
CTB(dB)	72.5	71.8	73.5	75.3	78.6	76.8	75.2	77.0	74.1	75.6	74.4	75.8	76.7
CSO(dB)	69.2	70.7	70.1	70.4	70.7	72.3	72.2	72.7	73.1	73.4	74.0	73.5	72.8

8.4 Digital TV test data (Pin=+2.0dBm ~ -20.0dBm)

Pin (dBm)	Vo (dB μ V)	MER	BER	
			POST	PRE
+2.0	99.8	39.0	<1.0E-9	<1.0E-9
+1.0	98.5	38.7	<1.0E-9	<1.0E-9
+0.0	98.5	38.6	<1.0E-9	<1.0E-9
-1.0	99.0	38.6	<1.0E-9	<1.0E-9
-2.0	99.2	38.6	<1.0E-9	<1.0E-9
-3.0	99.0	38.6	<1.0E-9	<1.0E-9
-4.0	98.6	38.6	<1.0E-9	<1.0E-9
-5.0	99.0	38.5	<1.0E-9	<1.0E-9
-6.0	98.6	38.6	<1.0E-9	<1.0E-9
-7.0	98.4	38.8	<1.0E-9	<1.0E-9
-8.0	97.4	38.6	<1.0E-9	<1.0E-9
-9.0	95.0	38.6	<1.0E-9	<1.0E-9

Pin (dBm)	Vo (dB μ V)	MER	BER	
			POST	PRE
-10.0	92.8	38.6	<1.0E-9	<1.0E-9
-11.0	90.6	38.6	<1.0E-9	<1.0E-9
-12.0	88.9	38.6	<1.0E-9	<1.0E-9
-13.0	87.3	38.2	<1.0E-9	<1.0E-9
-14.0	85.2	38.0	<1.0E-9	<1.0E-9
-15.0	82.9	38.0	<1.0E-9	<1.0E-9
-16.0	80.6	37.6	<1.0E-9	<1.0E-9
-17.0	78.7	37.0	<1.0E-9	<1.0E-9
-18.0	77.0	35.7	<1.0E-9	<1.0E-9
-19.0	74.7	34.4	<1.0E-9	<1.0E-9
-20.0	72.5	32.9	<1.0E-9	<1.0E-9
-21.0	70.5	31.1	<1.0E-9	<1.0E-9

Remark : 1. The Original Signal : MER = 39.0dB, BER <1.0E-9

2. Test Frequency : The Curve is: 858.00MHz, OMI=4.3%

9.0 Product series

Model	Input wavelength	CATV Operating wavelength	Data pass wavelength	Fiber connector
H9222LG	1310 或 1550nm	1260~1620nm	-	SC/APC
H9222LG/WD	1310, 1490/1550nm	1540~1563nm	1310/1490nm	LC/APC
H9222LG/WF	1310, 1490/1550nm	1540~1563nm	-	SC/APC

10.0 Model explanation

