

Hardware Unit Test Report

IR Range Test

Hardware version	FW version	Sample No.	eMMC Flash P/N
V015	r13	S/N:	KLM8G1GETF-B041

1. IR Range Test Setup

Equipment:

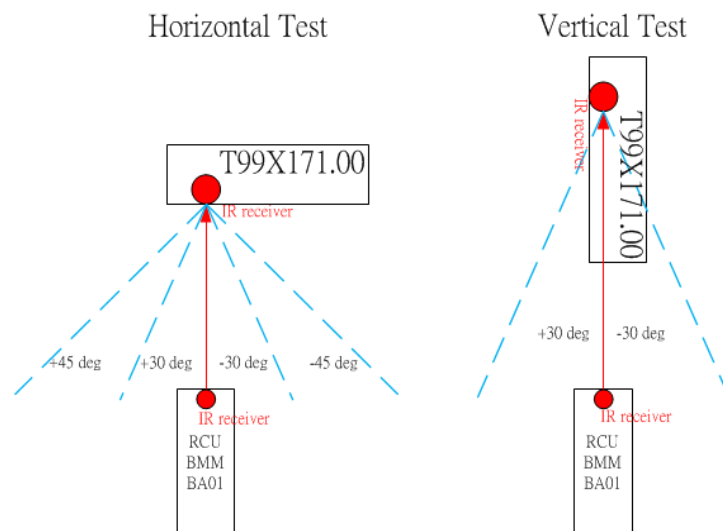
Monitor x 1, DUT x 1, adapter x 1, remote control BMM-BA01, HDMI cable x1, and table lamp x1.

Criteria:

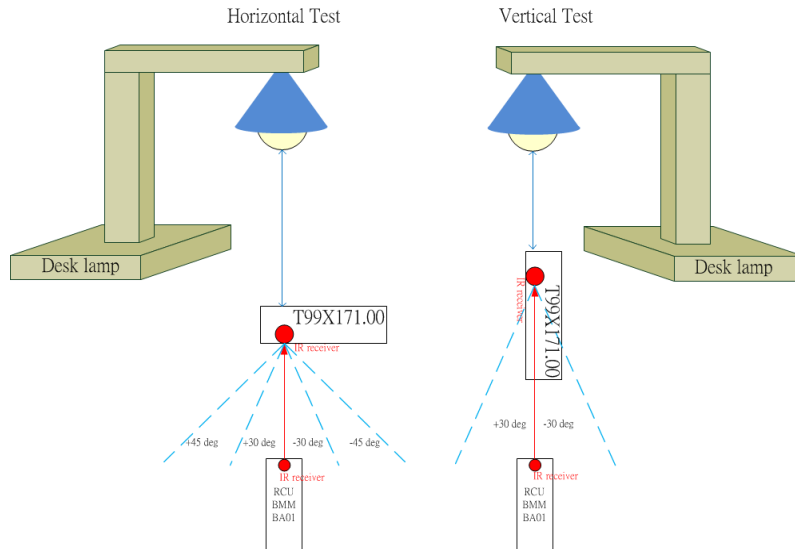
DUT MUST be able to receive and acknowledge commands transmitted by the Remote Control at a distance of 10M in 0 deg/30 deg and 7M in 45 deg

Environment setup:

Test w/o desk lamp



Test w/ desk lamp



Setup for horizontal test (Desk lamp on)



Setup for vertical test(Desk lamp on)



Setup for horizontal test (Desk lamp off)



Setup for vertical test(Desk lamp off)



2. Specification Analysis

1.1 Horizontal Deflection

	Azimuth: +45°	Azimuth: +30°	Azimuth: 0°	Azimuth: -30°	Azimuth: -45°
Available Receiver Distance (meter)	>7M	>10M	>10M	>10M	>7M

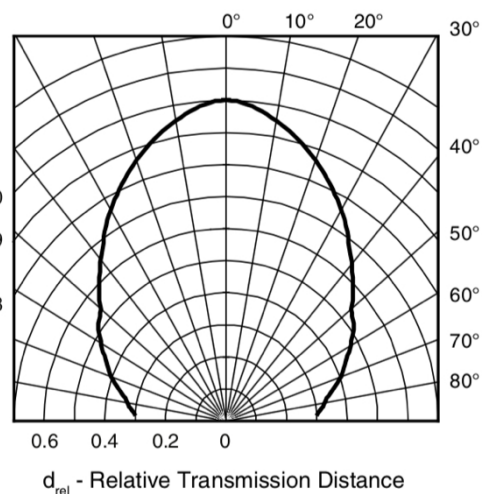
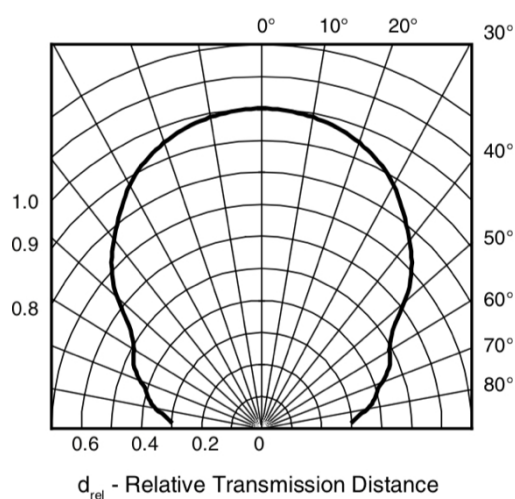
1.2 Vertical Deflection

	Elevation +30°	Elevation 0°	Elevation -30°
Available Receiver Distance (meter)	>10M	>10M	>10M

Component Specification Analysis

Component Specification Compare Result	
IR Component P/N	Vishay / TSOP75338TR
IR Carrier Frequency (KHz)	38
Minimum Irradiance, Ee min (mW/m2)	0.15

ELECTRICAL AND OPTICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified)						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply voltage		V _S	2.5		5.5	V
Supply current	E _v = 0, V _S = 3.3 V	I _{SD}	0.27	0.35	0.45	mA
	E _v = 40 klx, sunlight	I _{SH}		0.45		mA
Transmission distance	E _v = 0, test signal see fig. 1, IR diode TSAL6200, I _F = 250 mA	d		45		m
Output voltage low	I _{OSL} = 0.5 mA, E _e = 0.7 mW/m ² , test signal see fig. 1	V _{OSL}			100	mV
Minimum irradiance	Pulse width tolerance: t _{pi} - 5/f _o < t _{po} < t _{pi} + 6/f _o , test signal see fig. 1	E _e min.		0.15	0.35	mW/m ²
Maximum irradiance	t _{pi} - 5/f _o < t _{po} < t _{pi} + 6/f _o , test signal see fig. 1	E _e max.	30			W/m ²
Directivity	Angle of half transmission distance	φ _{1/2}		± 50		deg



3. Test Result

The test results are all pass.

Test Result

Test Item	W/O desk lamp		W/ desk lamp	
Nearby: >=20cm	>=20cm	Pass	>=20cm	Pass
Horizontal: +45°	15.6m	Pass	11.78m	Pass
Horizontal: +30°	15.6m	Pass	15.6m	Pass
Horizontal: 0°	15.6m	Pass	15.6m	Pass
Horizontal: -30°	15.6m	Pass	15.6m	Pass
Horizontal: -45°	15.6m	Pass	11.78m	Pass
Vertical: +30°	15.6m	Pass	15.6m	Pass
Vertical: 0°	15.6m	Pass	15.6m	Pass
Vertical: -30°	15.6m	Pass	15.6m	Pass