FCC Test Report

Project No.	:	1411055A
Equipment	:	PoE Extender
Model Name	:	GV-POEX0100
Applicant	:	GeoVision INC.
Address	:	9F, No. 246, Sec. 1, Neihu Rd. Neihu District, Taipei City 114, Taiwan

Date of Receipt	:	Nov. 07, 2014
Date of Test	:	Nov. 07, 2014 ~ Dec. 03, 2014
Issued Date	:	Feb. 11, 2015
Tested by	:	BTL Inc.

Testing Engineer : _____
(Kener Wu)

Technical Manager : _____
(Jeff Yang)

Authorized Signatory : _____
(Andy Chiu)

BTL INC.

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Testing Laboratory
0659

Declaration

BTL represents to the client that testing is done in accordance with standard procedures as applicable and that test instruments used has been calibrated with the standards traceable to National Measurement Laboratory (**NML**) of **R.O.C**., or National Institute of Standards and Technology (**NIST**) of **U.S.A.**

BTL's reports apply only to the specific samples tested under conditions. It is manufacture's responsibility to ensure that additional production units of this model are manufactured with the identical electrical and mechanical components. **BTL** shall have no liability for any declarations, inferences or generalizations drawn by the client or others from **BTL** issued reports.

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BTL's laboratory quality assurance procedures are in compliance with the **ISO Guide17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

For the use of the authority's logo is limited unless the Test Standard(s)/Scope(s)/Item(s) mentioned in this test report is (are) included in the conformity assessment authorities acceptance respective.

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REPORT ISSUED HISTORY

Issued No.	Description	Issued Date
BTL-FCCE-1-1411055	Original Report.	Dec. 04, 2014
BTL-FCCE-1-1411055A	Compared with previous report (BTL-FCCE-1-1411055), applicant, brand name, model name and appearance are changed, the rest are the same.	Feb. 11, 2015

1. CERTIFICATION

Equipment	:	PoE Extender
Brand Name	:	GeoVision INC.
Model Name	:	GV-POEX0100
Applicant	:	GeoVision INC.
Date of Test	:	Nov. 07, 2014 ~ Dec. 03, 2014
Standard(s)	:	FCC Part 15, Subpart B: 2013 Class B ICES-003 Issue 5: 2012 Class B CAN/CSA CISPR 22-10 Class B CISPR 22: 2008 Class B ANSI C63.4-2009

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCE-1-1411055A) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part 15, Subpart B: 2013 ICES-003 Issue 5: 2012 CAN/CSA CISPR 22-10 CISPR 22: 2008	Conducted emission	Class B	N/A	
	Radiated emissionBelow 1 GHz	Class B	PASS	
	Radiated emission Above 1 GHz	Class B	N/A	**NOTE (2)**

NOTE:

(1) ”N/A” denotes test is not applicable in this Test Report.

(2) If the EUT’s max operating frequency does not exceed 108 MHz, the test will not be performed.

2.1TEST FACILITY

The test facilities used to collect the test data in this report:

Radiated emission Test (Below 1 GHz):

OS02: (VCCI RN: R-2669; FCC RN: 95335; FCC DN: TW1010)
No.132-1, Ln. 329, Sec. 2, Balian Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)

2.2 MEASUREMENT UNCERTAINTY

The measurement uncertainty is not specified by FCC/ Industry Canada rules and for reference only.

The reported uncertainty of measurement **y ±U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95**%.

The measurement instrumentation uncertainty considerations contained in CISPR 16-4-2.

A. Radiated emission test:

Test Site	Measurement Frequency Range	Ant. H / V	U，(dB)	NOTE
OS02	30 MHz ~ 200 MHz	V	2.48	
	30 MHz ~ 200 MHz	H	2.16	
	200 MHz ~ 1, 000 MHz	V	2.50	
	200 MHz ~ 1, 000 MHz	H	2.66	

Our calculated Measurement Instrumentation Uncertainty is shown in the tables above.
These are our U_{lab}values in CISPR 16-4-2 terminology.
Since Table 1 of CISPR 16-4-2 has values of measurement instrumentation uncertainty, called U_{CISPR}, as follows:

Conducted Disturbance (mains port) – 150 kHz – 30 MHz : 3.6 dB
Radiated Disturbance (electric field strength on an open area test site or alternative test site) – 30 MHz – 1000 MHz : 5.2 dB

It can be seen that our U_{lab}values are smaller than U_{CISPR}.

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Equipment	PoE Extender
Brand Name	GeoVision INC.
Model Name	GV-POEX0100
Model Difference	N/A
PowerSource	Supplied from PoE
Power Rating	I/P DC 48~56V O/P DC 48~56V

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. The maximum operating frequency is 25MHz.

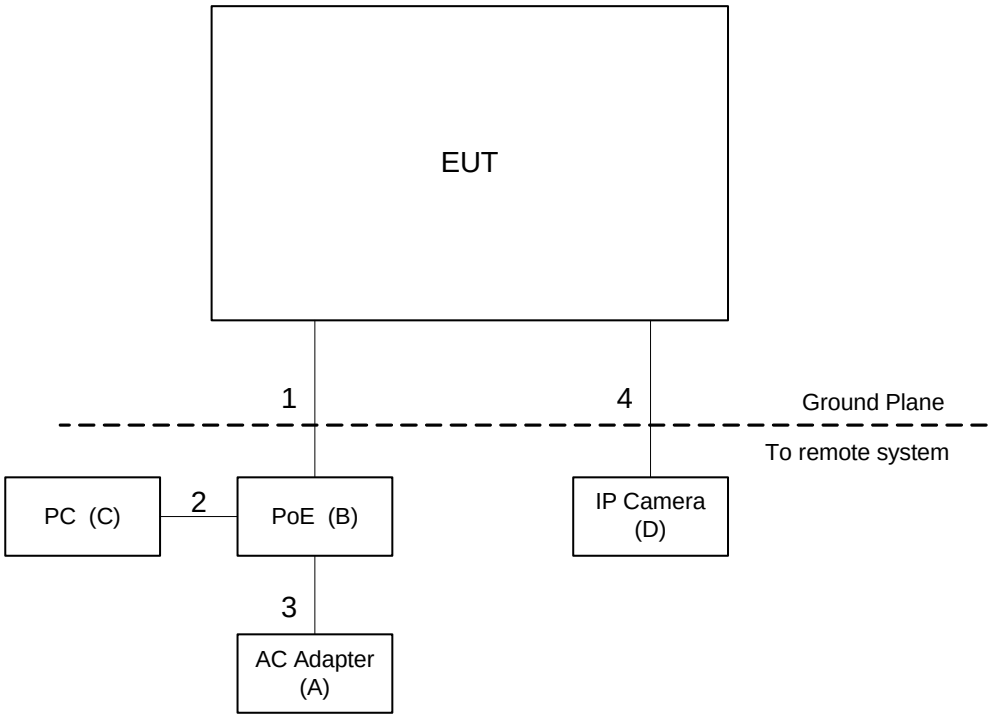
3.2DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Test Mode	Description
Mode 1	FULL SYSTEM

Radiated emission test	
Final Test Mode	Description
Mode 1	FULL SYSTEM

3.3BLOCKDIAGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED



3.4DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
A	AC Adapter	FAIRWAY	VAN90C-480B	DOC	10120700973-0F	
B	PoE	N/A	PS-201GV	N/A	N/A	
C	PC	DELL	OptiPlex 790 MT	DOC	64NJVBX	
D	IP Camera	GeoVision	GV-BX1200	DOC	00-13-E2-FF-00-9B	

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	10m	RJ-45 Cable
2	NO	NO	1m	RJ-45 Cable
3	YES	YES	1.8m	Power Cable
4	NO	NO	10m	RJ-45 Cable

Note:

(1) The support equipment was authorized by Declaration of Conformity (DOC).

3.5RADIATED EMISSION TEST

3.5.1 LIMITS

Below 1 GHz

Measurement Method and Applied Limits:

ANSI C63.4:

Frequency (MHz)	Class A (at 10m)		Class B (at 3m)	
	(uV/m) Field strength	(dBuV/m) Field strength	(uV/m) Field strength	(dBuV/m) Field strength
30 - 88	90	39	100	40
88 - 216	150	43.5	150	43.5
216 - 960	210	46.4	200	46
Above 960	300	49.5	500	54

CISPR 22 or CAN/CSA CISPR 22-10:

Frequency (MHz)	Class A (at 10m)	Class B (at 10m)
	dBuV/m	dBuV/m
30 - 230	40	30
230 - 1000	47	37

NOTE:

(1) The limit for radiated test was performed according to as following:
FCC Part 15, Subpart B: 2013; ICES-003 Issue 5: 2012.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).
3m Emission level = 10m Emission level + 20log(10m/3m).

(4) The test result calculated as following:
Measurement Value = Reading Level + Correct Factor
Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain(if use)
Margin Level = Measurement Value - Limit Value

3.5.2 MEASUREMENT INSTRUMENTS LIST

Below 1 GHz:

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Log-Bicon Antenna	Schwarzbeck	VULB 9160	3173	Nov. 27, 2015
2	Pre-Amplifier	Anritsu	MH648A	M98457	May. 28, 2015
3	Test Cable	TIMES	LMR-400	10M-OS01	May. 28, 2015
4	Test Cable	TIMES	LMR-400	OS02	May. 28, 2015
5	EMI Test Receiver	R&S	ESCI	100082	Apr. 13, 2015
6	System Controller (OS02)	CT	SC100	N/A	N/A
7	Turn Table	Chance Most	CMTB-1.5	N/A	N/A
8	Measurement Software	EZ	EZ_EMC (Version NB-03A)	N/A	N/A

Remark: “N/A” denotes No Model Name, No Serial No. or No Calibration specified.

3.5.3 TEST PROCEDURE

a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3m or 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
c. The initial step in collecting radiated emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
d. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

NOTE: (Below 1 GHz)

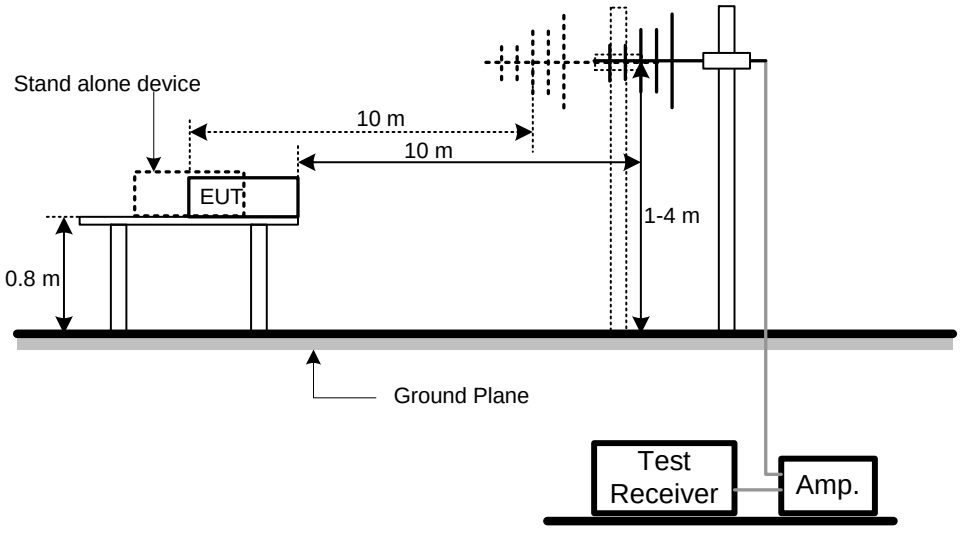
a. Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode with Detector BW=120 kHz.
b. All readings are Peak unless otherwise stated QP in column of Note. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform.

3.5.4 DEVIATION FROM TEST STANDARD

No deviation

3.5.5 TESTSETUP

Below 1 GHz



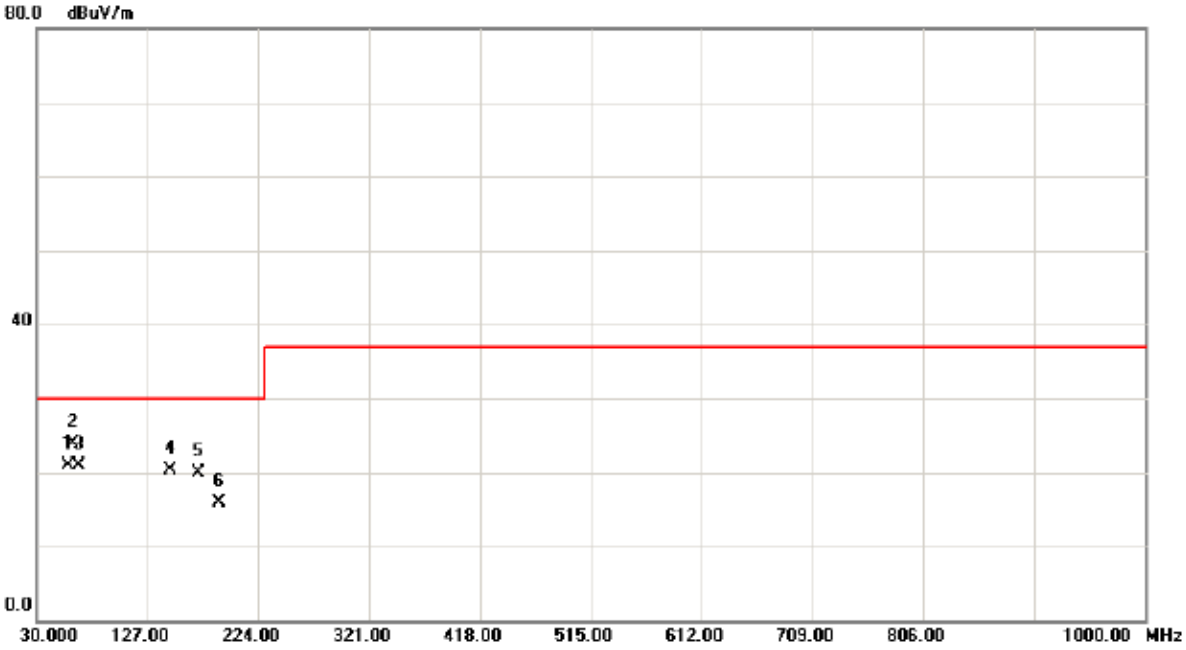
3.5.6EUT OPERATING CONDITIONS

The EUT used during radiated and/or conducted emission measurement was designed to exercise in a manner similar to a typical use.
Remote system sends/receives data to remote IP Camera via EUT.

3.5.7TEST RESULTS-BELOW 1 GHZ

E.U.T	PoE Extender	Model Name	GV-POEX0100
Temperature	21˚C	Relative Humidity	78%
Test Voltage	AC 120V/60Hz		
Test Mode	FULL SYSTEM		

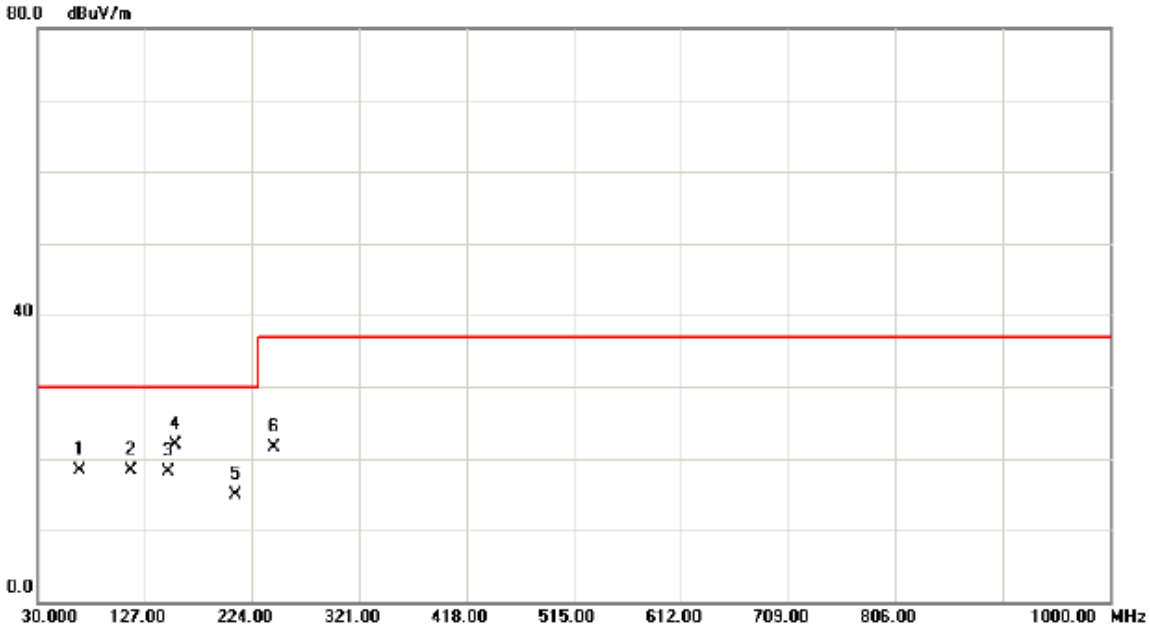
Polarization: Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		56.4480	26.80	-5.94	20.86	30.00	-9.14	QP	100	175	
2	*	61.9200	30.40	-6.43	23.97	30.00	-6.03	QP	100	100	
3		66.0240	27.80	-6.99	20.81	30.00	-9.19	QP	100	190	
4		145.6000	25.10	-4.77	20.33	30.00	-9.67	QP	100	80	
5		171.0760	24.70	-4.83	19.87	30.00	-10.13	QP	100	251	
6		189.9900	23.20	-7.21	15.99	30.00	-14.01	QP	100	150	

E.U.T	PoE Extender	Model Name	GV-POEX0100
Temperature	21˚C	Relative Humidity	78%
Test Voltage	AC 120V/60Hz		
Test Mode	FULL SYSTEM		

Polarization: Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		66.9360	25.40	-7.12	18.28	30.00	-11.72	QP	400	110	
2		114.3340	25.30	-6.93	18.37	30.00	-11.63	QP	400	64	
3		147.9160	22.80	-4.71	18.09	30.00	-11.91	QP	400	257	
4	*	154.8640	26.50	-4.61	21.89	30.00	-8.11	QP	400	184	
5		208.5180	22.50	-7.57	14.93	30.00	-15.07	QP	400	192	
6		244.1600	26.80	-5.39	21.41	37.00	-15.59	QP	400	249	

4. EUT TEST PHOTO

Radiated emission below 1 GHz test photos

FULL SYSTEM