FCC Part 15B
Measurement and Test Report

For

Tikaway

5 rue du Garet 69001 Lyon FRANCE

FCC ID: 2ALUQ-TIK1

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	Tik1 live camera
Tested Model:	Tik1
Report No.:	STR17038340I-4
Tested Date:	2017-03-29 to 2017-05-18
Issued Date:	2017-05-19
Tested By:	Leo Lee / Engineer
Reviewed By:	Silin Chen / EMC Manager
Approved & Authorized By:	Jandy So / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Tikaway
Address of applicant:	5 rue du Garet 69001 Lyon FRANCE
Manufacturer:	Tikaway
Address of manufacturer:	5 rue du Garet 69001 Lyon FRANCE

General Description of EUT	
Product Name:	Tik1 live camera
Trade Name:	Tikaway
Model No.:	Tik1
Adding Model(s):	/
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 3.7V by battery
Battery Capacity:	500mAh
Rated Power:	/
Power Adapter Model:	/
Lowest Internal Frequency:	26MHz
Highest Internal Frequency:	2.4GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Tikaway in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

FCC – Registration No.: 934118

Shenzhen SEM.Test Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Charge and camera mode	/
TM2	Download mode	/

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB cable	0.99	Shielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Adapter	Vonino	VNA-V50JS	/
Notebook	Lenovo	E445	/

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

1.6 Measurement Uncertainty

Measurement uncertainty		
Parameter	Conditions	Uncertainty
Conducted Emissions	Conducted	±2.88dB
Transmitter Spurious Emissions	Radiated	±5.1dB

1.7 Test Equipment List and Details

No.	Description	Manufacturer	Model	Serial No.	Cal Date	Due Date
SEMT-1072	Spectrum Analyzer	Agilent	E4407B	MY41440400	2016-06-04	2017-06-03
SEMT-1031	Spectrum Analyzer	Rohde & Schwarz	FSP30	836079/035	2016-06-04	2017-06-03
SEMT-1007	EMI Test Receiver	Rohde & Schwarz	ESVB	825471/005	2016-06-04	2017-06-03
SEMT-1008	Amplifier	Agilent	8447F	3113A06717	2016-06-04	2017-06-03
SEMT-1043	Amplifier	C&D	PAP-1G18	2002	2016-06-04	2017-06-03
SEMT-1011	Broadband Antenna	Schwarz beck	VULB9163	9163-333	2016-06-04	2017-06-03
SEMT-1042	Horn Antenna	ETS	3117	00086197	2016-06-04	2017-06-03
SEMT-1069	Loop Antenna	Schwarz beck	FMZB 1516	9773	2016-06-04	2017-06-03
SEMT-1001	EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2016-06-04	2017-06-03
SEMT-1003	L.I.S.N	Schwarz beck	NSLK8126	8126-224	2016-06-04	2017-06-03
SEMT-1002	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2016-06-04	2017-06-03

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

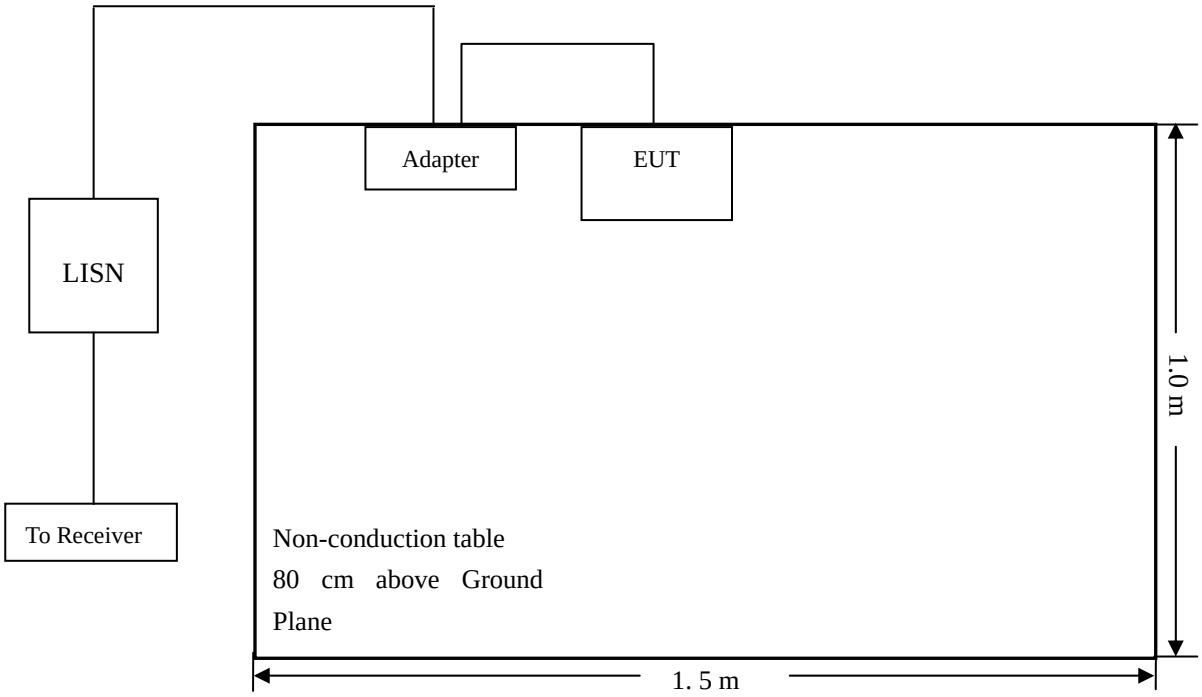
N/A: not applicable

3. Conducted Emissions

3.1 Test Procedure

Test is conducting under the description of ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

3.2 Basic Test Setup Block Diagram



3.3 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.4 Summary of Test Results/Plots

According to the data in section 3.5, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

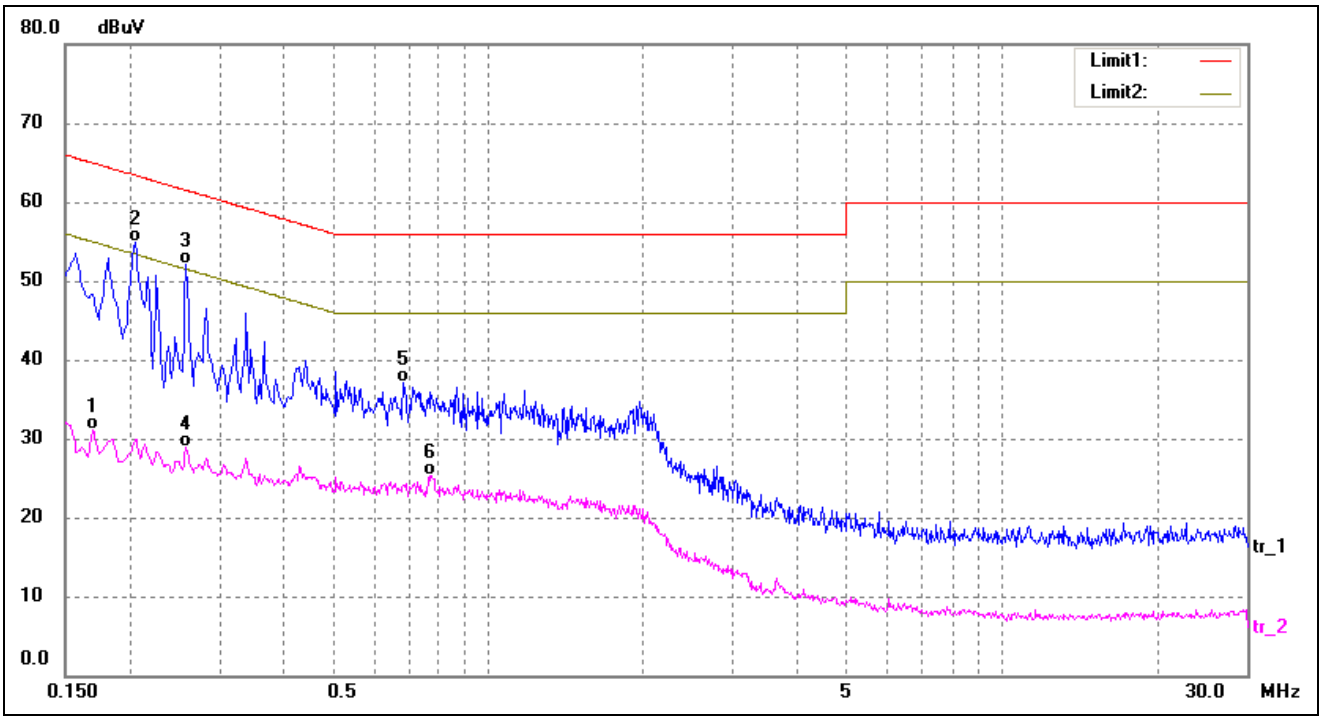
-7.10 dB at 0.1740 MHz in the **Line**, **QP** detector, **TM1** mode, 0.15-30MHz

3.5 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

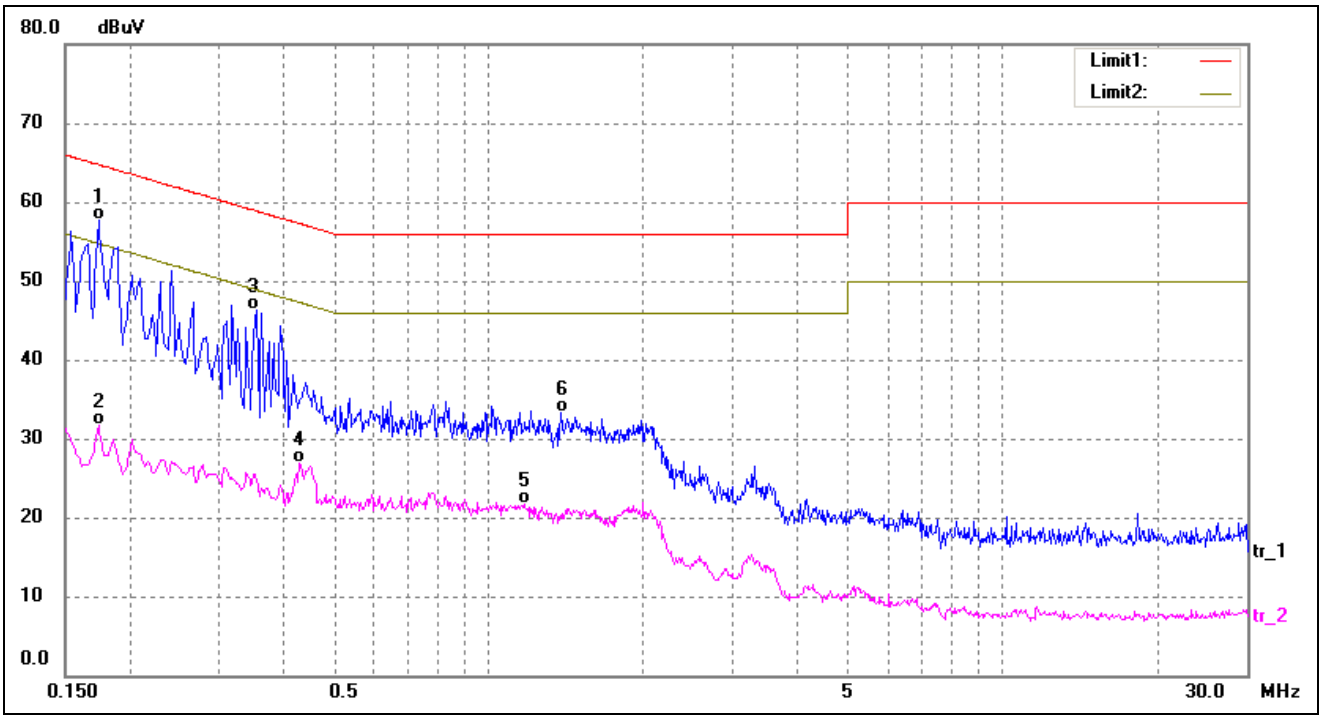
EUT: *Tik1 live camera*
Tested Model: *Tik1*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz, Adapter DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.1700	21.30	9.83	31.13	54.96	-23.83	AVG
2*	0.2060	45.10	9.80	54.90	63.36	-8.46	QP
3	0.2580	42.38	9.80	52.18	61.49	-9.31	QP
4	0.2580	19.10	9.80	28.90	51.49	-22.59	AVG
5	0.6860	27.28	9.79	37.07	56.00	-18.93	QP
6	0.7780	15.47	9.78	25.25	46.00	-20.75	AVG

Test Specification: *Line*

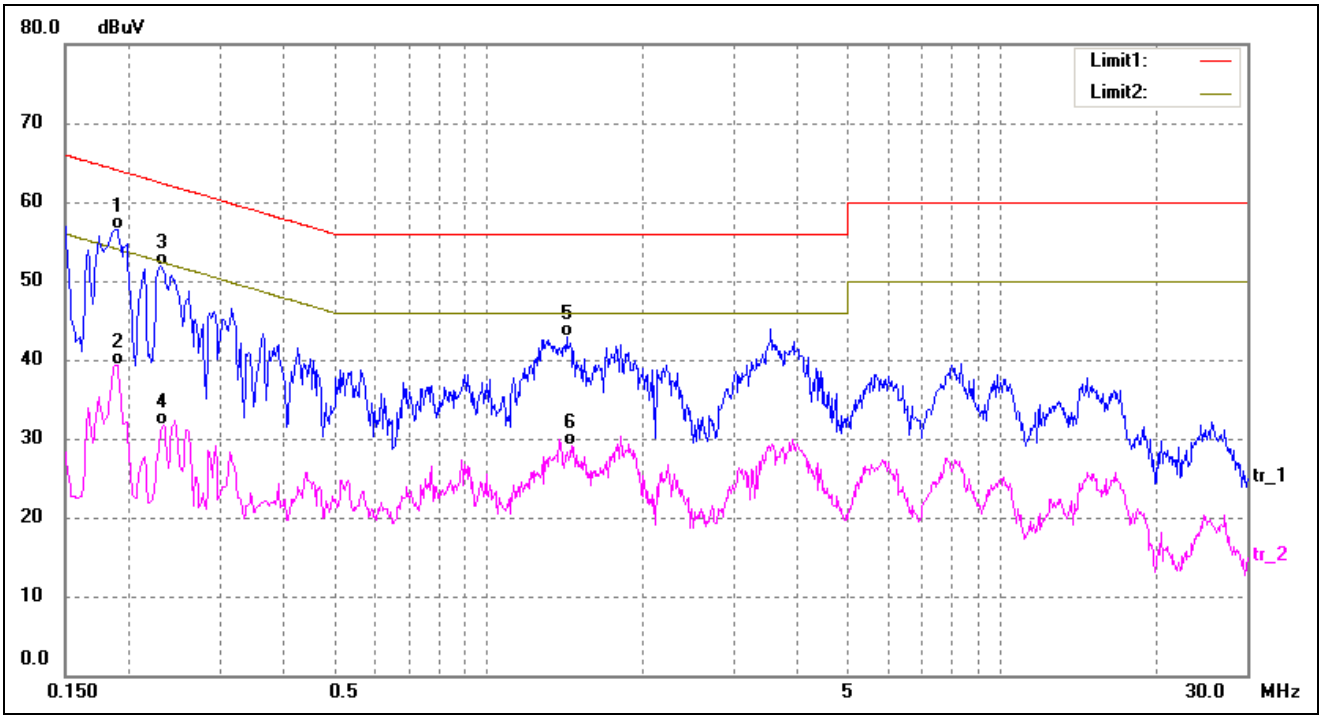


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1740	47.83	9.83	57.66	64.76	-7.10	QP
2	0.1740	21.88	9.83	31.71	54.76	-23.05	AVG
3	0.3540	36.52	9.80	46.32	58.87	-12.55	QP
4	0.4300	17.11	9.80	26.91	47.25	-20.34	AVG
5	1.1780	11.94	9.76	21.70	46.00	-24.30	AVG
6	1.3860	23.53	9.75	33.28	56.00	-22.72	QP

Plot of Conducted Emissions Test Data

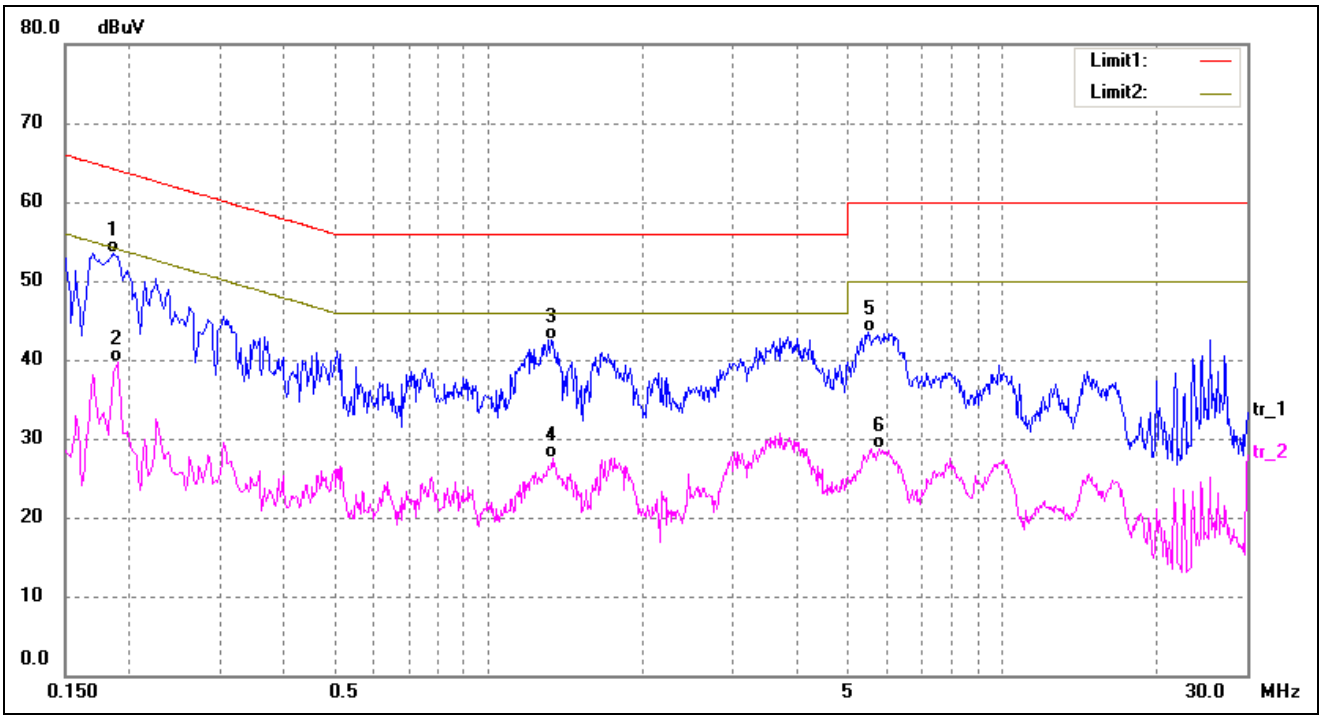
EUT: *Tik1 live camera*
Tested Model: *Tik1*
Operating Condition: *TM2*
Comment: *AC 120V/60Hz, USB DC 5V*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1900	46.79	9.81	56.60	64.03	-7.43	QP
2	0.1900	29.49	9.81	39.30	54.03	-14.73	AVG
3	0.2300	42.11	9.80	51.91	62.45	-10.54	QP
4	0.2340	21.81	9.80	31.61	52.30	-20.69	AVG
5	1.4217	33.06	9.75	42.81	56.00	-13.19	QP
6	1.4497	19.34	9.75	29.09	46.00	-16.91	AVG

Test Specification: *Line*

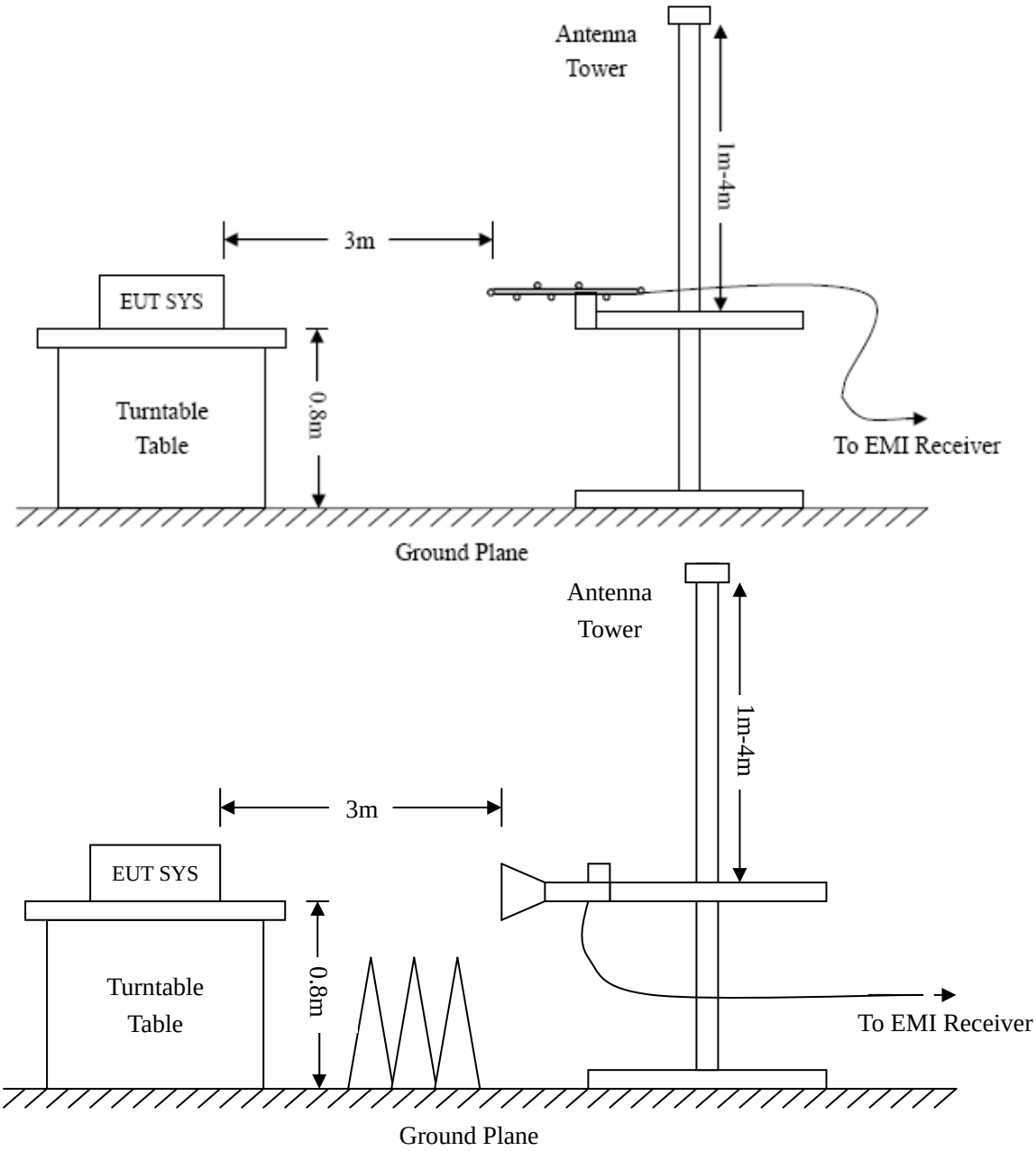


No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1*	0.1859	43.69	9.81	53.50	64.21	-10.71	QP
2	0.1900	29.94	9.81	39.75	54.03	-14.28	AVG
3	1.3300	32.80	9.75	42.55	56.00	-13.45	QP
4	1.3340	17.82	9.75	27.57	46.00	-18.43	AVG
5	5.4897	33.88	9.65	43.53	60.00	-16.47	QP
6	5.7778	19.06	9.64	28.70	50.00	-21.30	AVG

4. Radiated Emissions

4.1 Test Procedure

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15.109 Limit.
The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.
The spacing between the peripherals was 10 cm.



4.2 Test Receiver Setup

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

4.3 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading – Corr. Factor

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dBμV means the emission is 6dBμV below the maximum limit for a Class B device. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – FCC Part 15.109(a) Limit

4.4 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.5 Summary of Test Results/Plots

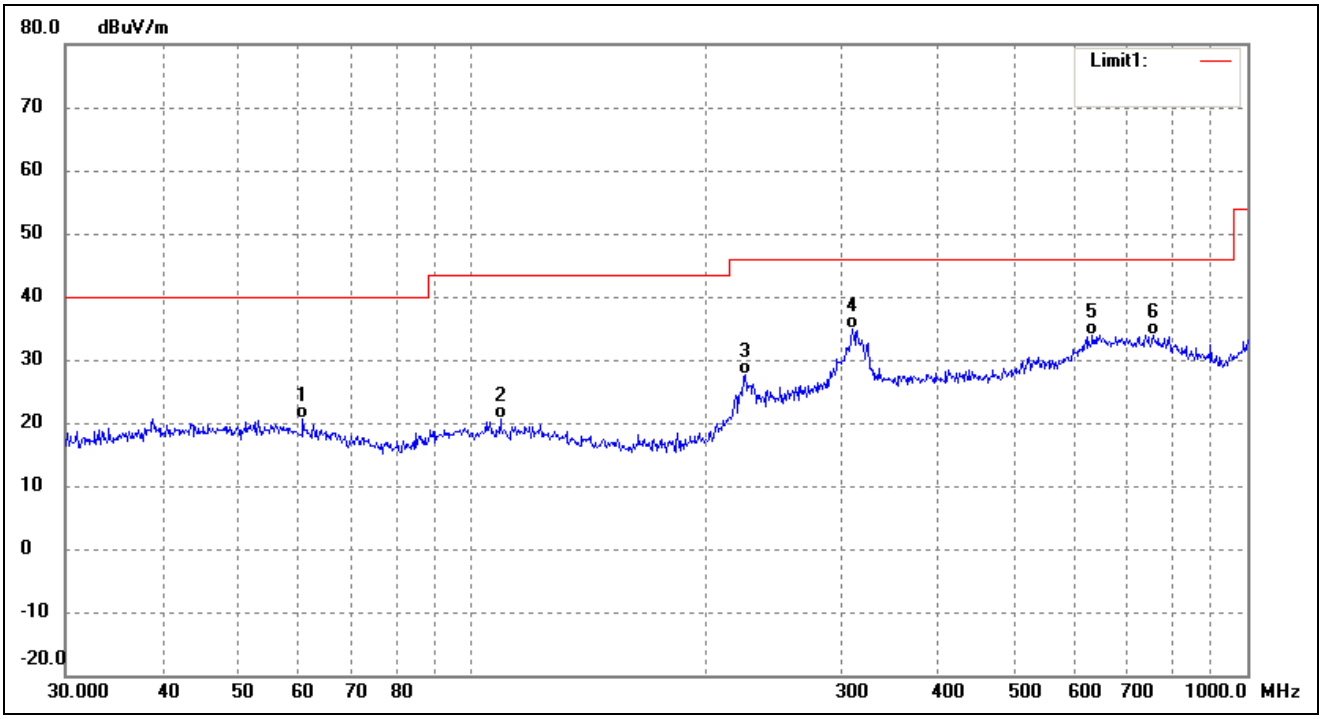
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-0.87 dB at **239.9874 MHz** in the **Horizontal** polarization, **TM2** mode, **30MHz** to **12.75 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

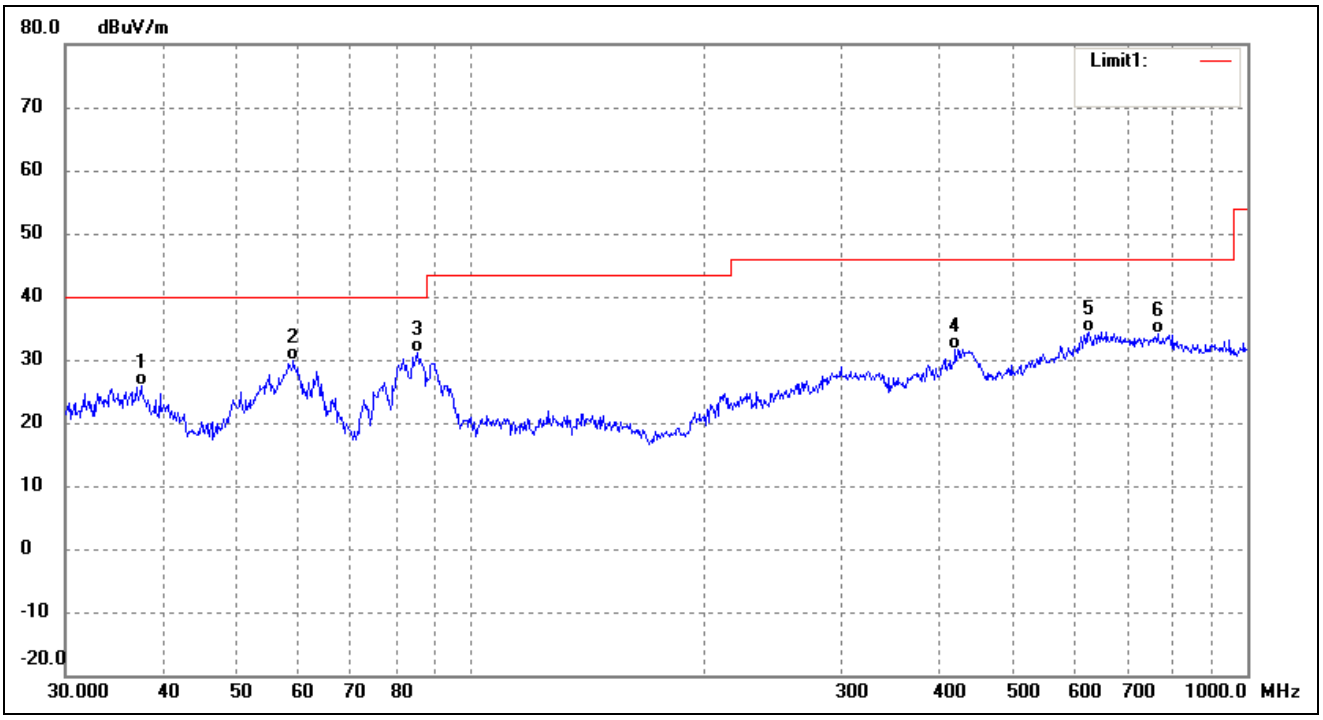
EUT: *Tik1 live camera*
Tested Model: *Tik1*
Operating Condition: *TM1*
Comment: *AC 120V/60Hz, Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	60.7044	15.85	4.90	20.75	40.00	-19.25	95	100	QP
2	109.0286	15.85	4.87	20.72	43.50	-22.78	264	100	QP
3	225.3080	19.64	8.00	27.64	46.00	-18.36	67	100	QP
4	309.9977	22.89	11.94	34.83	46.00	-11.17	234	100	QP
5	631.6884	16.12	17.78	33.90	46.00	-12.10	328	100	QP
6	755.3873	15.65	18.35	34.00	46.00	-12.00	157	100	QP

Test Specification: *Vertical*

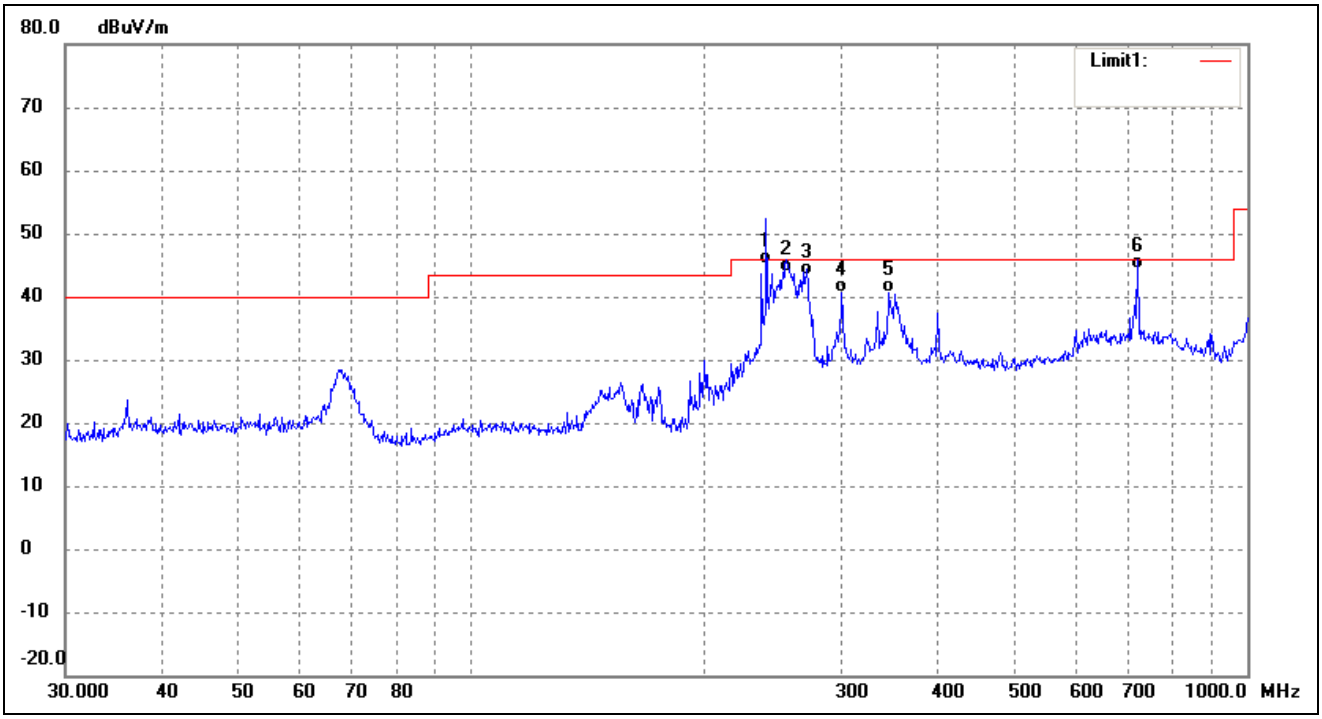


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	37.5478	21.24	4.57	25.81	40.00	-14.19	313	100	QP
2	59.0251	24.81	5.01	29.82	40.00	-10.18	213	100	QP
3	85.2981	28.48	2.61	31.09	40.00	-8.91	66	100	QP
4	420.5803	19.81	11.90	31.71	46.00	-14.29	290	100	QP
5	625.0778	16.80	17.55	34.35	46.00	-11.65	185	100	QP
6	766.0570	16.30	17.79	34.09	46.00	-11.91	241	100	QP

Plot of Radiated Emissions Test Data

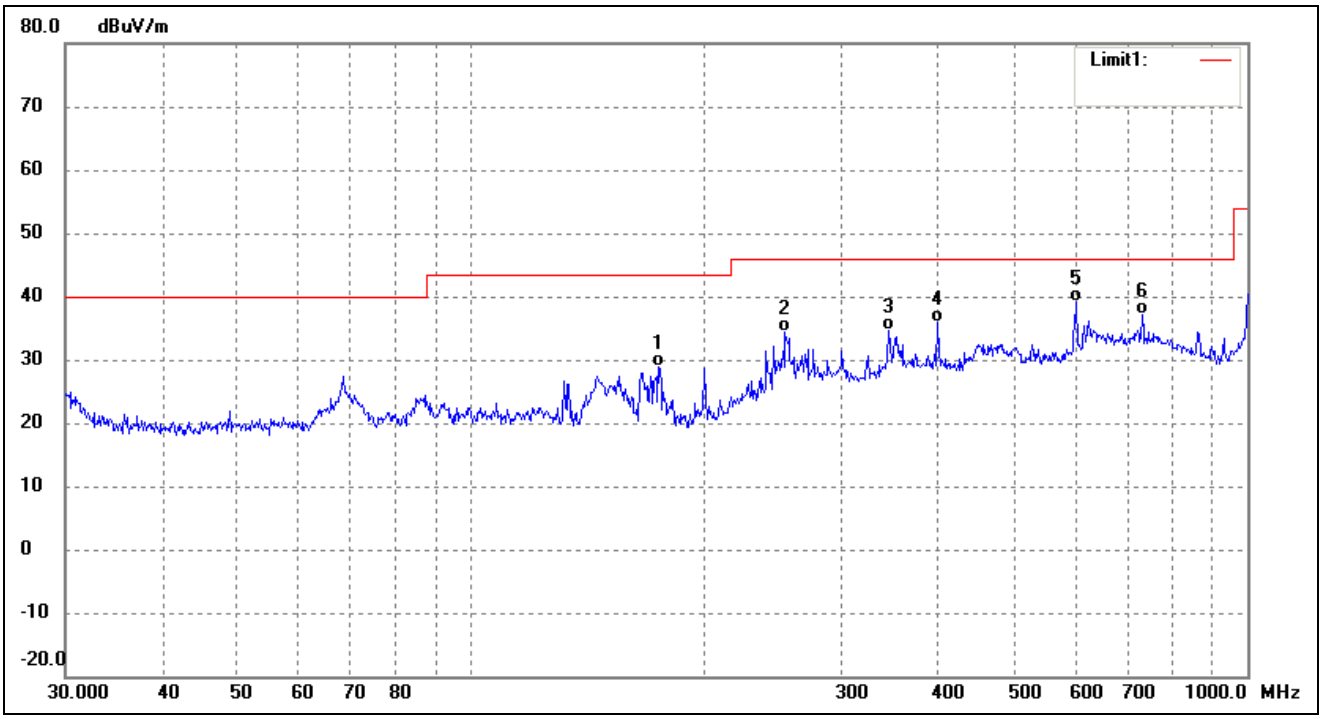
EUT: *Tik1 live camera*
Tested Model: *Tik1*
Operating Condition: *TM2*
Comment: *AC 120V/60Hz, USB DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	239.9874	36.20	8.93	45.13	46.00	-0.87	236	100	QP
2	254.7284	34.38	9.49	43.87	46.00	-2.13	97	100	QP
3	270.3748	32.96	10.44	43.40	46.00	-2.60	160	100	QP
4	300.3673	28.66	11.95	40.61	46.00	-5.39	109	100	QP
5	345.5952	28.99	11.52	40.51	46.00	-5.49	251	100	QP
6	721.7259	26.40	17.91	44.31	46.00	-1.69	125	100	QP

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	( )	(cm)	
1	174.4241	26.44	2.46	28.90	43.50	-14.60	328	100	QP
2	253.8367	24.89	9.46	34.35	46.00	-11.65	99	100	QP
3	345.5952	23.10	11.52	34.62	46.00	-11.38	52	100	QP
4	399.0302	23.12	12.64	35.76	46.00	-10.24	120	100	QP
5	601.4265	20.40	18.66	39.06	46.00	-6.94	102	100	QP
6	731.9203	18.48	18.54	37.02	46.00	-8.98	149	100	QP

Note: Testing is carried out with frequency rang 30MHz to the 12.75GHz, which above 1GHz are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

******* END OF REPORT *******