FCC RADIO TEST REPORT
FCC ID: 2ARZ2PIONA1925A

Product:	Panoramic Camera
Trade Mark:	Labpano
Model No.:	PIONA1925/A
Family Model:	PIONA1925/B, PIONA1925/C, PIONA1925/D, PIONA1925/E
Report No.:	S20082504102004
Issue Date:	11 Sep. 2020

Prepared for

Shenzhen Pisoftware Technology Co., Ltd.
Room 1221, 12F,Shenzhen Newspaper Group and Periodicals Building, Qinghu Community, Longhua Street,Longhua District, Shenzhen, China

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name	:	Shenzhen Pisoftware Technology Co., Ltd.
Address	:	Room 1221, 12F,Shenzhen Newspaper Group and Periodicals Building, Qinghu Community, Longhua Street,Longhua District, Shenzhen, China
Manufacturer's Name	:	Shenzhen Pisoftware Technology Co., Ltd.
Address	:	Room 1221, 12F,Shenzhen Newspaper Group and Periodicals Building, Qinghu Community, Longhua Street,Longhua District, Shenzhen, China

Product description

Product name	:	Panoramic Camera
Model and/or type reference	:	PIONA1925/A
Family Model	:	PIONA1925/B, PIONA1925/C, PIONA1925/D, PIONA1925/E
Standards	:	FCC Part15.407
Test procedure		ANSI C63.10-2013 and KDB 789033 D02 General UNII Test Procedures New Rules v02r01 FCC KDB 662911 D01 Multiple Transmitter Output v02r01 FCC KDB 662911 D02 MIMO With Cross Polarized Antenna V01

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements/ the Industry Canada requirements.. And it is applicable only to the tested sample identified in the report.

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Date of Test .....

Date (s) of performance of tests ..... Aug. 25, 2020 ~ Sep. 11, 2020

Date of Issue..... 11 Sep, 2020

Test Result..... **Pass**

Note: In addition to AC conduction and radiation data below 1G, other test data of this report are based on the original test report S19112901716004, dated by 2020-03-13.

Testing Engineer : Jerry Xie

(Jerry Xie)

Technical Manager : Jason chen

(Jason Chen)

Authorized Signatory : Sam . Chen

(Sam Chen)

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Revision History

Report No.	Version	Description	Issued Date
S19112901716004	Rev.01	Initial issue of report	13 Mar, 2020
S20082504102004	Rev.02	Added the GPS module and Update appearance photos. Update the AC Conducted Emission and Radiated Test data	11 Sep, 2020

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
15.207	AC Power Line Conducted Emissions	PASS	
15.209(a), 15.407 (b)(1) 15.407 (b)(2) 15.407 (b)(3) 15.407 (b)(4) 15.407 (b)(6)	Spurious Radiated Emissions	PASS	
15.407 (a)	26 dB and 99% Emission Bandwidth	N/A	
15.407(e)	Minimum 6 dB bandwidth	N/A	
15.407 (a)	Maximum Conducted Output Power	N/A	
15.407 (b)(1) 15.407 (b)(2) 15.407 (b)(3) 15.407 (b)(4)	Band Edge	N/A	
15.407 (a)	Power Spectral Density	N/A	
15.407(b)	Spurious Emissions at Antenna Terminals	N/A	
15.407(g)	Frequency Stability Measurement	N/A	
15.407(h)	Dynamic Frequency Selection(DFS)	N/A	
15.203	Antenna Requirement	N/A	

NOTE:

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

(2) This device operates with a duty cycle greater than 99%

1.1 FACILITIES AND ACCREDITATIONS

FACILITIES

All measurement facilities used to collect the measurement data are located at
1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District
Shenzhen, Guangdong, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10 and CISPR Publication 22.

LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

CNAS-Lab.	:	The Laboratory has been assessed and proved to be in compliance with CNAS-CL01:2006 (identical to ISO/IEC 17025:2005) The Certificate Registration Number is L5516.
IC-Registration		The Certificate Registration Number is 9270A. CAB identifier:CN0074
FCC- Accredited		Test Firm Registration Number: 463705. Designation Number: CN1184
A2LA-Lab.		The Certificate Registration Number is 4298.01 This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated 8 January 2009).
Name of Firm	:	Shenzhen NTEK Testing Technology Co., Ltd.
Site Location	:	1/F, Building E, Fenda Science Park Sanwei, Xixiang, Bao'an District Shenzhen, Guangdong, China

1.2 MEASUREMENT UNCERTAINTY

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 %.

No.	Item	Uncertainty
1	Conducted Emission Test	±2.80dB
2	RF power, conducted	±0.16dB
3	Spurious emissions, conducted	±0.21dB
4	All emissions, radiated(30MHz~1GHz)	±2.64dB
5	All emissions, radiated(1GHz~6GHz)	±2.40dB
6	All emissions, radiated(> 6GHz)	±2.52dB
7	Temperature	±0.5°C
8	Humidity	±2%

1. GENERAL INFORMATION

1.1 GENERAL DESCRIPTION OF EUT

Equipment	Panoramic Camera
Trade Mark	Labpano
Model Name	PIONA1925/A
Family Model	PIONA1925/B, PIONA1925/C, PIONA1925/D, PIONA1925/E
Model Difference	All models are the same circuit and RF module, except different model for different market purposes.
FCC ID	2ARZ2PIONA1925A
Product Description	<table><tr><td>Mode Supported</td><td>☒802.11a ☒802.11n(HT20) ☒802.11n(HT40) ☒802.11ac(HT20) ☒802.11ac(HT40) ☒802.11ac(HT80)</td></tr><tr><td>Data Rate</td><td>802.11a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20/HT40):MCS0-MCS15; 802.11ac(VHT20): NSS1, MCS0-MCS8 802.11ac(VHT40/VHT80):NSS1, MCS0-MCS9</td></tr><tr><td>Modulation</td><td>OFDM with BPSK/QPSK/16QAM/64QAM</td></tr><tr><td>Operating Frequency Range</td><td>☒ U-NII-1: 5180 MHz ~5240MHz ☐ U-NII-2A: 5260MHz~5320MHz ☐ U-NII-2C: 5500MHz~5700MHz ☒ U-NII-3: 5745 MHz ~5825 MHz</td></tr><tr><td>Function:</td><td>☐Outdoor AP ☐Indoor AP ☐Fixed P2P ☒Client</td></tr><tr><td>Support TPC</td><td>☐YES ☒NO</td></tr><tr><td>Antenna Type</td><td>Antenna 1: FPCB Print Antenna Antenna 2: FPCB Print Antenna</td></tr><tr><td>Antenna Gain</td><td>Antenna 1: 0.96dBi Antenna 2: 0.96dBi</td></tr><tr><td>Smart system</td><td>☒SISO for 802.11a ☒MIMO for 802.11n/ac</td></tr></table> Based on the application, features, or specification exhibited in User's Manual, More details of EUT technical specification, please refer to the User's Manual.
Ratings	DC 3.8V from Battery or DC 5V from Adapter
Adapter	☒Adapter supply: Model: A138A-120150U-US2 Input: 100-240V~50/60Hz 0.5A Output: 5V⎓2.5A/9V⎓2A/12V⎓1.5A
Battery	DC 3.8V/3400mAh
Connecting I/O Port(s)	Please refer to the User's Manual

HW Version	N/A
SW Version	N/A

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. Frequency and Channel list:

Band	20MHz		40MHz		80MHz	
	Channel	Frequency	Channel	Frequency	Channel	Frequency
U-NII-1	36	5180 MHz	38	5190 MHz	42	5210 MHz
	40	5200 MHz	46	5230 MHz	-	-
	44	5220 MHz				
	48	5240 MHz				
U-NII-2A	52	5260 MHz	54	5270 MHz	58	5290 MHz
	56	5280 MHz	62	5310 MHz		
	60	5300 MHz				
	64	5320 MHz				
U-NII-2C	100	5500 MHz	102	5510 MHz	106	5530 MHz
	104	5520 MHz	110	5550 MHz	122	5610 MHz
	108	5540 MHz	118	5590 MHz		
	112	5560 MHz	126	5630 MHz		
	116	5580 MHz	134	5670 MHz		
	120	5600 MHz				
	124	5620 MHz				
	128	5640 MHz				
	132	5660 MHz				
	140	5700 MHz				
U-NII-3	149	5745 MHz	151	5755 MHz	155	5775 MHz
	153	5765 MHz	159	5795 MHz		
	157	5785 MHz				
	161	5805 MHz				
	165	5825 MHz				

The module for 5G WIFI has two antennas, and different modes support different transmit mode what describe as Following form:

Mode	Tx/Rx
802.11a	1TX, 1RX
802.11n/ac	1TX/2TX, 1RX/2RX

For 5GHz mode, Antenna 1,2 are transmitting, each with the same directional gain.
For MIMO mode, Directional gain=$[10\log(10^{G1/20}+10^{G2/20})^2/N_{ANT}]$dBi =3.97 dBi in 5GHz
the 802.11n(20/40) ac(20/40/80) 5GHz has MIMO mode.

Note: G1 means antenna gain for ANT 1 in dBi.
G2 means antenna gain for ANT 2 in dBi.
N_{ANT} means the number of Antennas.

1.2 DESCRIPTION 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 Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a / n/ ac 20 CH36/ CH40/ CH 48 802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 3	802.11n/ ac40 CH38/ CH 46 802.11n/ ac40 CH 151 / CH 159
Mode 4	802.11 ac80 CH 42/CH 155

For Radiated Emission	
Final Test Mode	Description
Mode 1	Normal Link Mode
Mode 2	802.11a / n/ ac 20 CH36/ CH40/ CH 48 802.11a /n/ ac 20 CH149/ CH157/ CH 165
Mode 3	802.11n/ ac40 CH38/ CH 46 802.11n/ ac40 CH 151 / CH 159
Mode 4	802.11 ac80 CH 42/CH 155

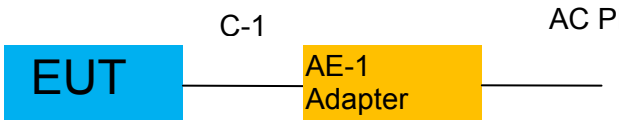
Note:

(1) The measurements are performed at the highest, middle, lowest available channels.

(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

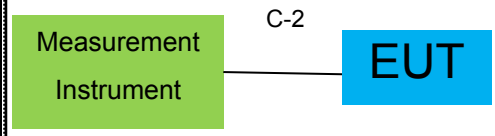
1.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

For AC Conducted Emission Mode



For Radiated Test Cases

For Conducted Test Cases



Note: 1. The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

1.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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	Brand	Model/Type No.	Series No.	Note
AE-1	Adapter	N/A	A824A-120150U-EU1	N/A	Peripherals

Item	Cable Type	Shielded Type	Ferrite Core	Length	Note
C-1	USB Cable	NO	NO	1.0m	
C-2	RF Cable	YES	NO	0.1m	

Note:

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

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

1.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation& Conducted Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Aglient	E4407B	MY45108040	2020.05.11	2021.05.10	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2020.7.13	2021.7.12	1 year
3	Spectrum Analyzer	R&S	FSV40	101417	2020.08.07	2021.08.06	1 year
4	Test Receiver	R&S	ESPI7	101318	2020.05.11	2021.05.10	1 year
5	Bilog Antenna	TESEQ	CBL6111D	31216	2020.04.11	2021.04.10	1 year
6	50Ω Coaxial Switch	Anritsu	MP59B	6200983705	2020.05.11	2023.05.10	3 year
7	Horn Antenna	EM	EM-AH-10180	2011071402	2018.04.08	2021.04.07	3 year
8	Broadband Horn Antenna	SCHWARZBECK	BBHA 9170	803	2019.11.18	2020.11.17	1 year
9	Amplifier	EMC	EMC051835SE	980246	2020.7.13	2021.7.12	1 year
10	Active Loop Antenna	SCHWARZBECK	FMZB 1519 B	055	2019.11.18	2020.11.17	1 year
11	Power Meter	DARE	RPR3006W	15I00041SNO84	2020.7.13	2021.7.12	1 year
12	Test Cable (9KHz-30MHz)	N/A	R-01	N/A	2019.08.06	2022.08.05	3 year
13	Test Cable (30MHz-1GHz)	N/A	R-02	N/A	2019.08.06	2022.08.05	3 year
14	High Test Cable(1G-40GHz)	N/A	R-03	N/A	2019.6.28	2022.6.27	3 year
15	High Test Cable(1G-40GHz)	N/A	R-04	N/A	2019.6.28	2022.6.27	3 year
16	Filter	TRILTHIC	2400MHz	29	2020.04.07	2023.04.06	3 year
17	temporary antenna connector (Note)	NTS	R001	N/A	N/A	N/A	N/A

Note:
We will use the temporary antenna connector (soldered on the PCB board) When conducted test
And this temporary antenna connector is listed within the instrument list

AC Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2020.05.11	2021.05.10	1 year
2	LISN	R&S	ENV216	101313	2020.05.11	2021.05.10	1 year
3	LISN	SCHWARZBECK	NNLK 8129	8129245	2020.05.11	2021.05.10	1 year
4	50Ω Coaxial Switch	ANRITSU CORP	MP59B	6200983704	2020.05.11	2023.05.10	3 year
5	Test Cable (9KHz-30MHz)	N/A	C01	N/A	2020.05.11	2023.05.10	3 year
6	Test Cable (9KHz-30MHz)	N/A	C02	N/A	2020.05.11	2023.05.10	3 year
7	Test Cable (9KHz-30MHz)	N/A	C03	N/A	2020.05.11	2023.05.10	3 year

Note: Each piece of equipment is scheduled for calibration once a year except the Test Cable& Aux Equipment which is scheduled for calibration every 3 years.

2. EMC EMISSION TEST

2.1 CONDUCTED EMISSION MEASUREMENT

2.1.1 APPLICABLE STANDARD

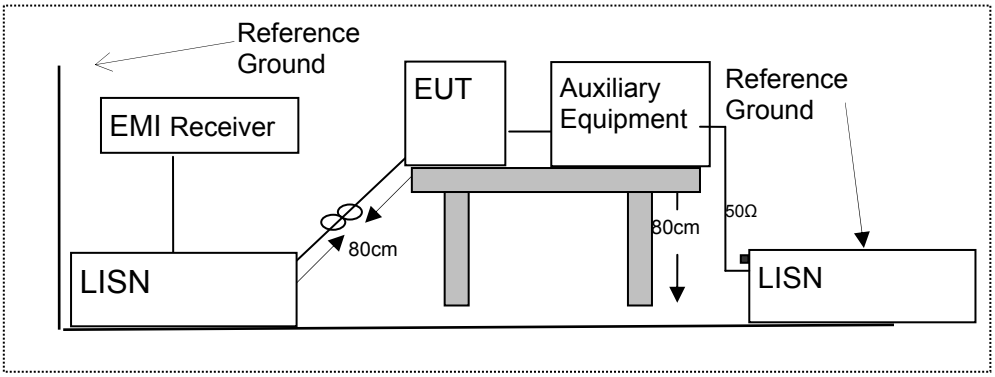
According to FCC Part 15.207(a)

2.1.2 CONFORMANCE LIMIT

Frequency(MHz)	Conducted Emission Limit	
	Quasi-peak	Average
0.15-0.5	66-56*	56-46*
0.5-5.0	56	46
5.0-30.0	60	50

Note: 1. *Decreases with the logarithm of the frequency
2. The lower limit shall apply at the transition frequencies
3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

2.1.3 TEST CONFIGURATION



2.1.4 TEST PROCEDURE

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.

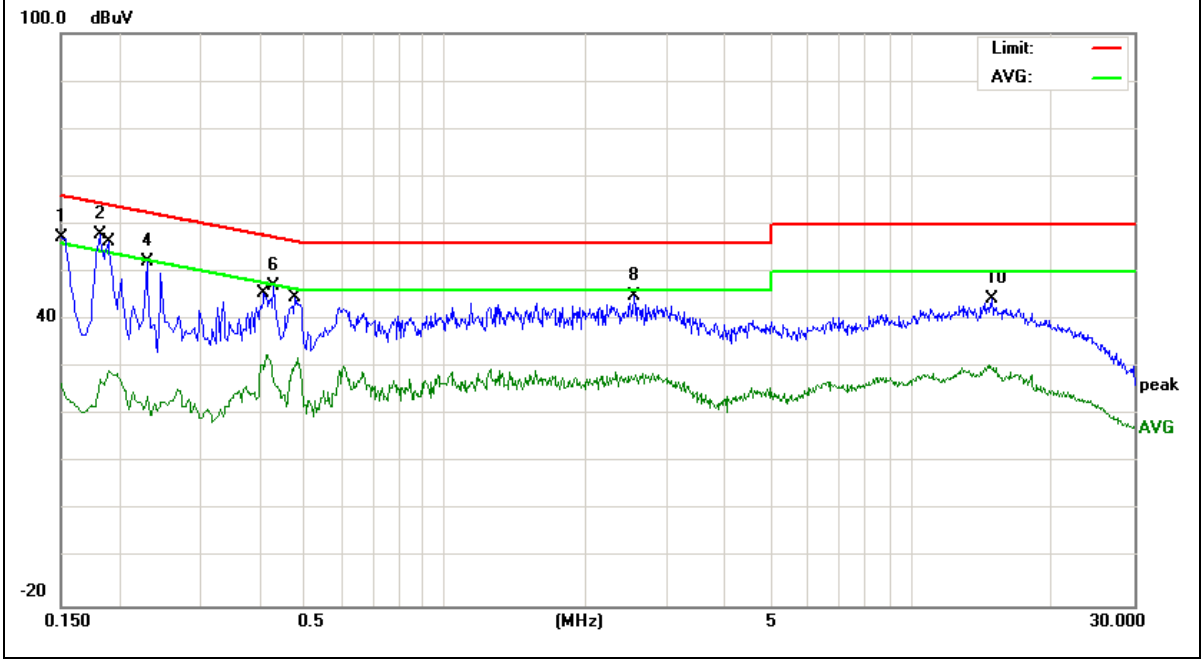
1. The EUT was placed 0.4 meter from the conducting wall of the shielding room.
2. The EUT was placed on a table which is 0.8m above ground plane.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
4. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40cm long.
5. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
6. LISN at least 80 cm from nearest part of EUT chassis.
7. The frequency range from 150KHz to 30MHz was searched.
8. Set the test-receiver system to Peak Detect Function and specified bandwidth(IF bandwidth=9KHz) with Maximum Hold Mode
9. For the actual test configuration, please refer to the related Item –EUT Test Photos.

EUT：	Panoramic Camera	Model Name. ：	PIONA1925/A
Temperature：	26 ℃	Relative Humidity：	56%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 5V from Adapter AC 120V/60Hz	Test Mode：	Mode 1(5.2G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1500	47.44	9.75	57.19	66.00	-8.81	QP
0.1820	48.15	9.76	57.91	64.39	-6.48	QP
0.1900	19.50	9.76	29.26	54.03	-24.77	AVG
0.2300	42.26	9.76	52.02	62.45	-10.43	QP
0.4140	22.92	9.74	32.66	47.57	-14.91	AVG
0.4300	37.25	9.74	46.99	57.25	-10.26	QP
0.4820	22.16	9.74	31.90	46.30	-14.40	AVG
2.5460	35.20	9.79	44.99	56.00	-11.01	QP
14.7179	20.47	10.10	30.57	50.00	-19.43	AVG
14.8899	34.17	10.10	44.27	60.00	-15.73	QP

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

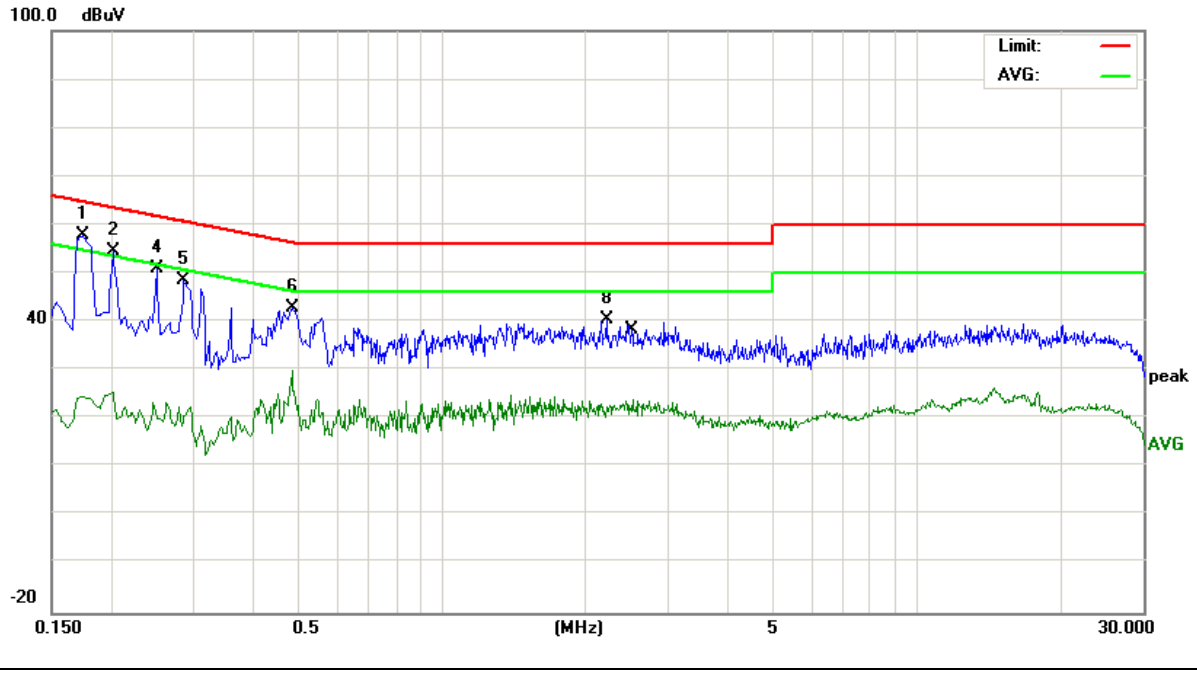


EUT：	Panoramic Camera	Model Name. ：	PIONA1925/A
Temperature：	26 ℃	Relative Humidity：	56%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 5V from Adapter AC 120V/60Hz	Test Mode：	Mode 1(5.2G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1740	48.07	9.73	57.80	64.76	-6.96	QP
0.2020	44.79	9.73	54.52	63.52	-9.00	QP
0.2020	15.79	9.73	25.52	53.52	-28.00	AVG
0.2500	41.12	9.74	50.86	61.75	-10.89	QP
0.2860	38.72	9.74	48.46	60.64	-12.18	QP
0.4820	33.11	9.75	42.86	56.30	-13.44	QP
0.4820	20.17	9.75	29.92	46.30	-16.38	AVG
2.2140	30.73	9.80	40.53	56.00	-15.47	QP
2.5260	14.20	9.82	24.02	46.00	-21.98	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

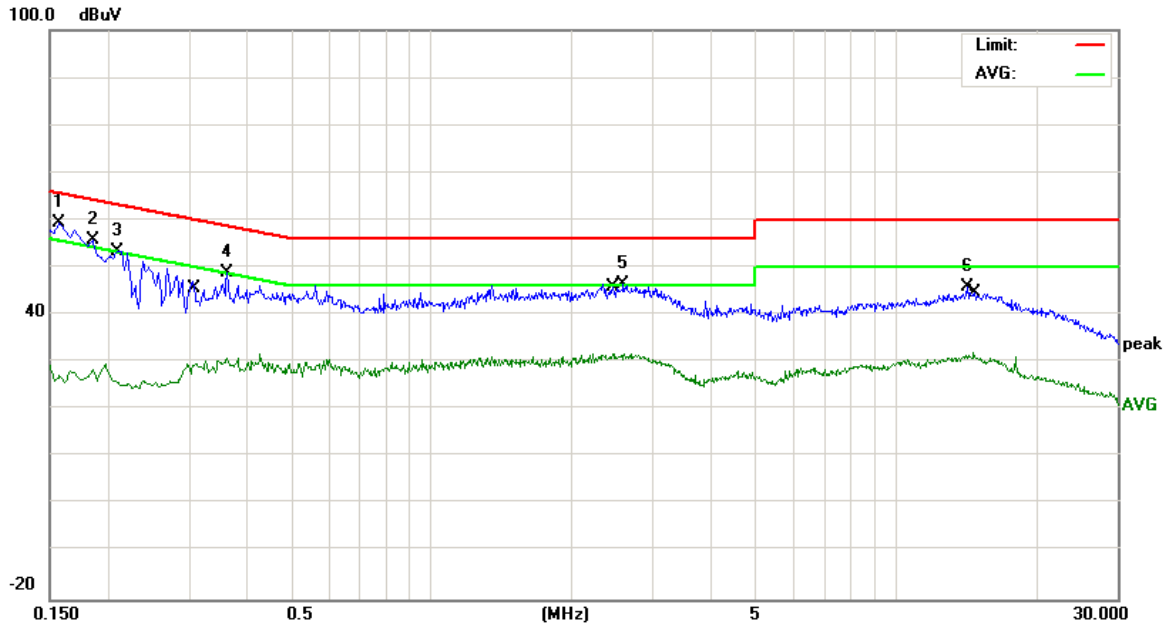


EUT：	Panoramic Camera	Model Name. ：	PIONA1925/A
Temperature：	26 ℃	Relative Humidity：	56%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	DC 5V from Adapter AC 120V/60Hz	Test Mode：	Mode 1(5.8G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1580	49.65	9.74	59.39	65.56	-6.17	QP
0.1860	46.12	9.73	55.85	64.21	-8.36	QP
0.2100	43.71	9.73	53.44	63.20	-9.76	QP
0.3620	39.07	9.75	48.82	58.68	-9.86	QP
2.5900	36.72	9.83	46.55	56.00	-9.45	QP
14.2659	35.71	10.09	45.80	60.00	-14.20	QP
0.3100	19.99	9.74	29.73	49.97	-20.24	AVG
2.4780	21.98	9.82	31.80	46.00	-14.20	AVG
14.7179	21.92	10.09	32.01	50.00	-17.99	AVG

Remark:

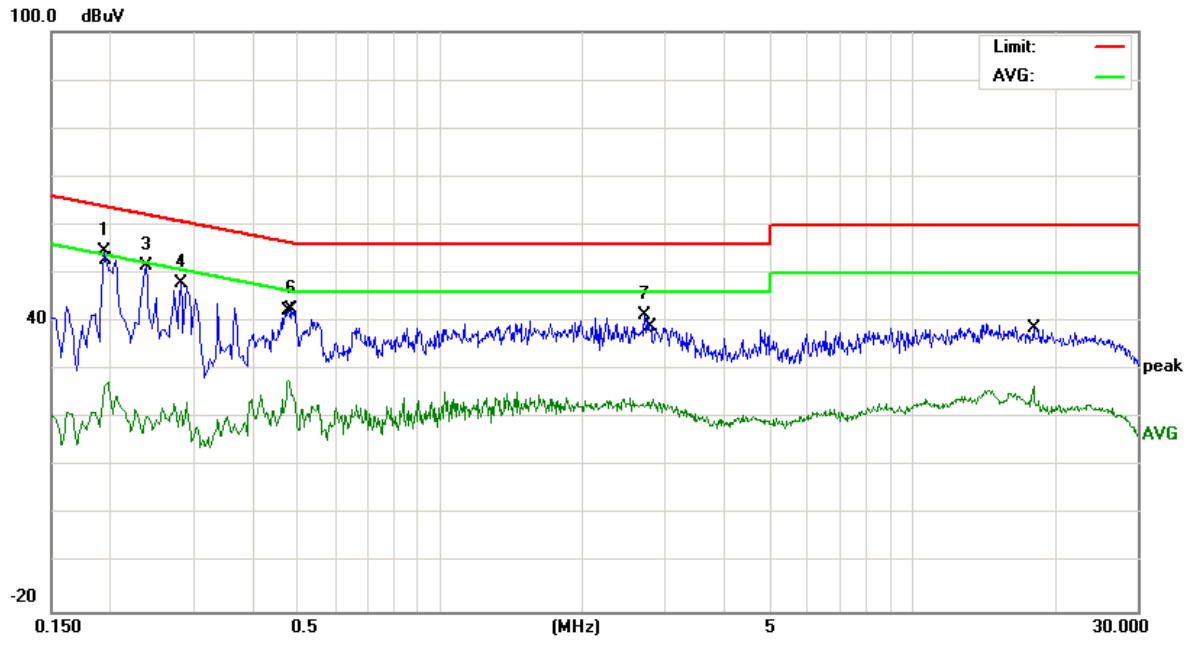
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



EUT：	Panoramic Camera	Model Name. ：	PIONA1925/A
Temperature：	26 ℃	Relative Humidity：	56%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 5V from Adapter AC 120V/60Hz	Test Mode：	Mode 1(5.8G)

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1940	44.86	9.73	54.59	63.86	-9.27	QP
0.1980	17.71	9.73	27.44	53.69	-26.25	AVG
0.2379	41.95	9.74	51.69	62.17	-10.48	QP
0.2819	38.33	9.74	48.07	60.76	-12.69	QP
0.4779	18.16	9.75	27.91	46.38	-18.47	AVG
0.4859	32.74	9.75	42.49	56.24	-13.75	QP
2.7139	31.48	9.84	41.32	56.00	-14.68	QP
2.8340	13.98	9.86	23.84	46.00	-22.16	AVG
18.0619	16.57	10.16	26.73	50.00	-23.27	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



2.2 RADIATED EMISSION MEASUREMENT

2.2.1 APPLICABLE STANDARD

According to FCC Part 15.407(d) and 15.209

2.2.2 CONFORMANCE LIMIT

According to FCC Part 15.407(b)(7): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	24000/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

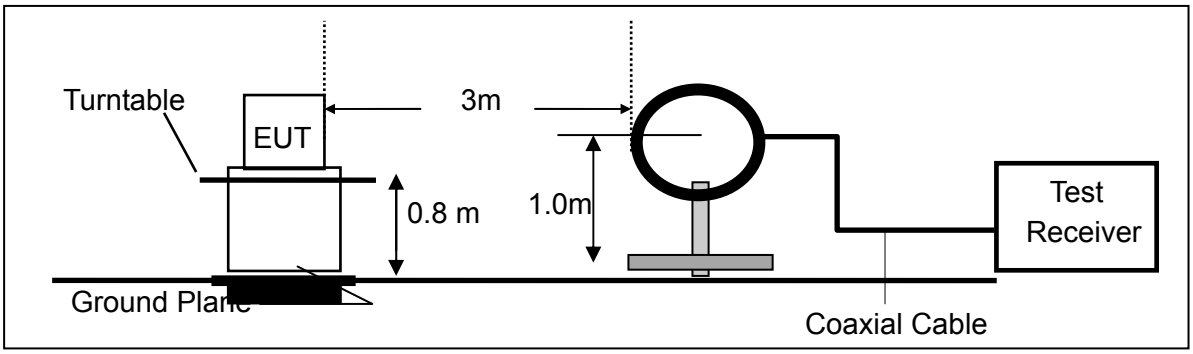
Remark :1. Emission level in dBuV/m=20 log (uV/m)
2. Measurement was performed at an antenna to the closed point of EUT distance of meters.
3. For Frequency 9kHz~30MHz:
Distance extrapolation factor =40log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.
For Frequency above 30MHz:
Distance extrapolation factor =20log(Specific distance/ test distance)(dB);
Limit line=Specific limits(dBuV) + distance extrapolation factor.

2.2.3 MEASURING INSTRUMENTS

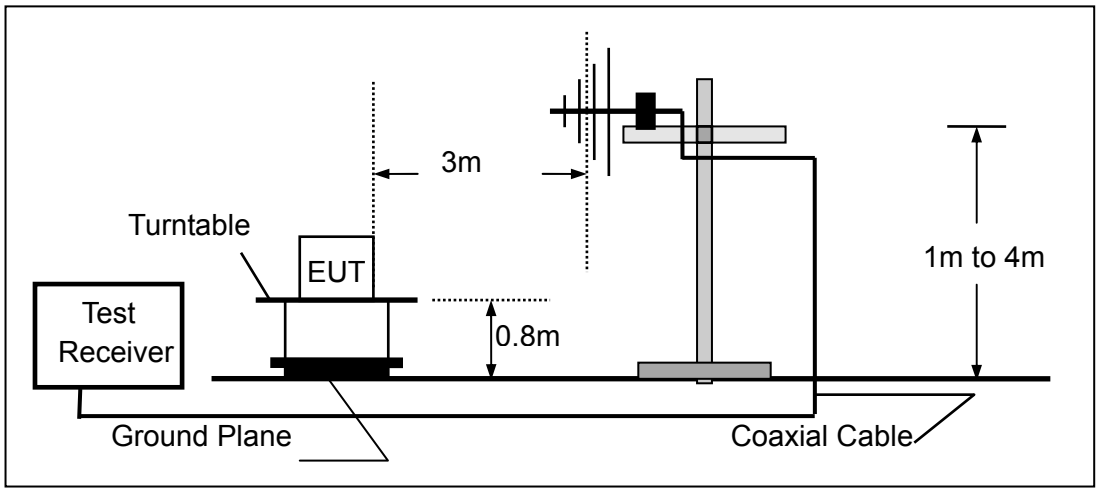
The Measuring equipment is listed in the section 6.3 of this test report.

2.2.4 TEST CONFIGURATION

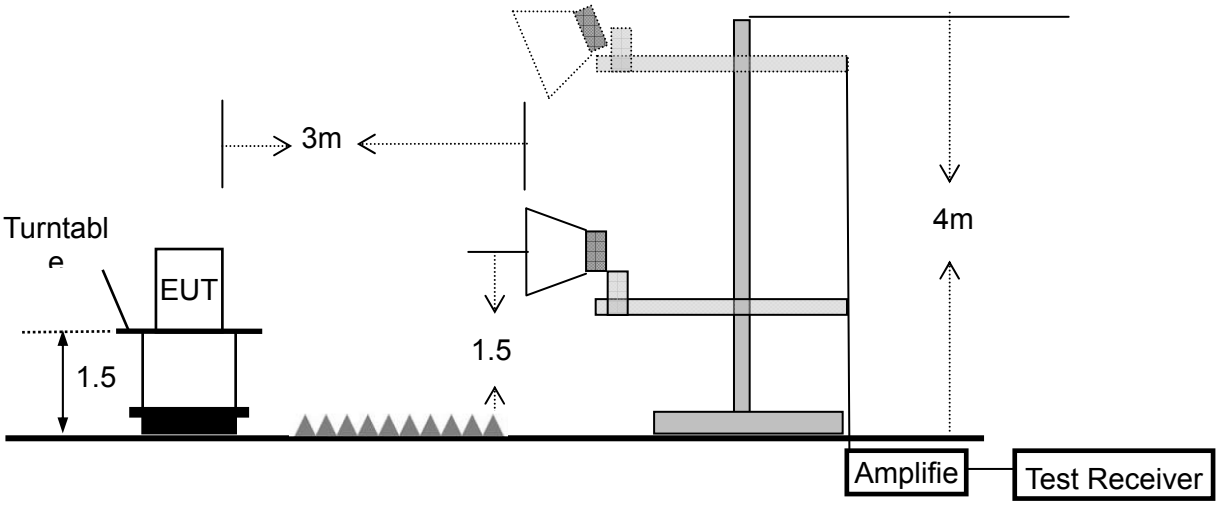
(a)For radiated emissions below 30MHz



(b)For radiated emissions from 30MHz to 1000MHz



(c) For radiated emissions above 1000MHz



2.2.5 TEST PROCEDURE

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.
This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205. It must be performed with the highest gain of each type of antenna proposed for use with the EUT.
Use the following spectrum analyzer settings:

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m for below 1GHz and 1.5m for above 1GHz; 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.
d. The initial step in collecting conducted 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.
e. 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.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

2.2.6 TEST RESULTS (9KHZ – 30 MHZ)

EUT：	Panoramic Camera	Model Name ：	PIONA1925/A
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Voltage ：	DC 3.8V
Test Mode ：	TX	Polarization：	--

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	N/A
--	--	--	--	N/A

NOTE:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

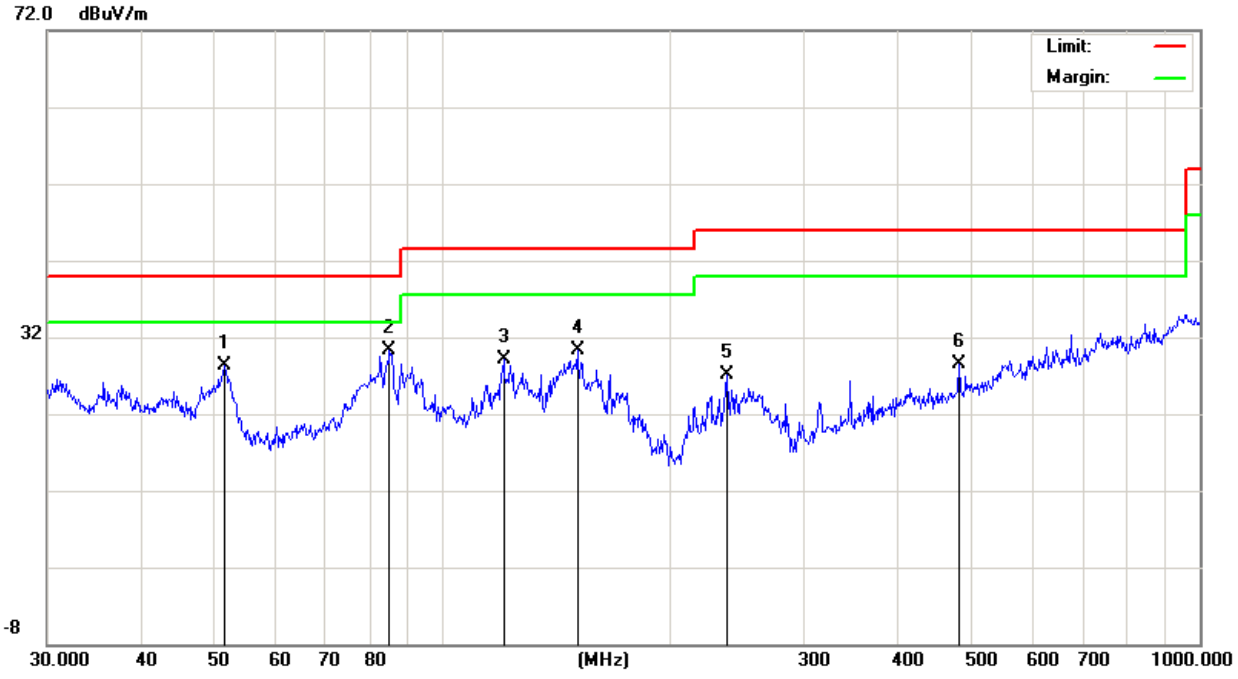
2.2.7 TEST RESULTS (30MHZ – 1GHZ)

EUT：	Panoramic Camera	Model Name ：	PIONA1925/A
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Voltage ：	DC 3.8V
Test Mode ：	TX(5.2G)- 802.11a (High CH)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	51.4806	20.41	7.89	28.30	40.00	-11.70	QP
V	84.9993	21.29	9.07	30.36	40.00	-9.64	QP
V	120.2766	16.74	12.34	29.08	43.50	-14.42	QP
V	150.5378	18.42	11.85	30.27	43.50	-13.23	QP
V	237.4757	15.59	11.47	27.06	46.00	-18.94	QP
V	480.5276	8.93	19.51	28.44	46.00	-17.56	QP

Remark:

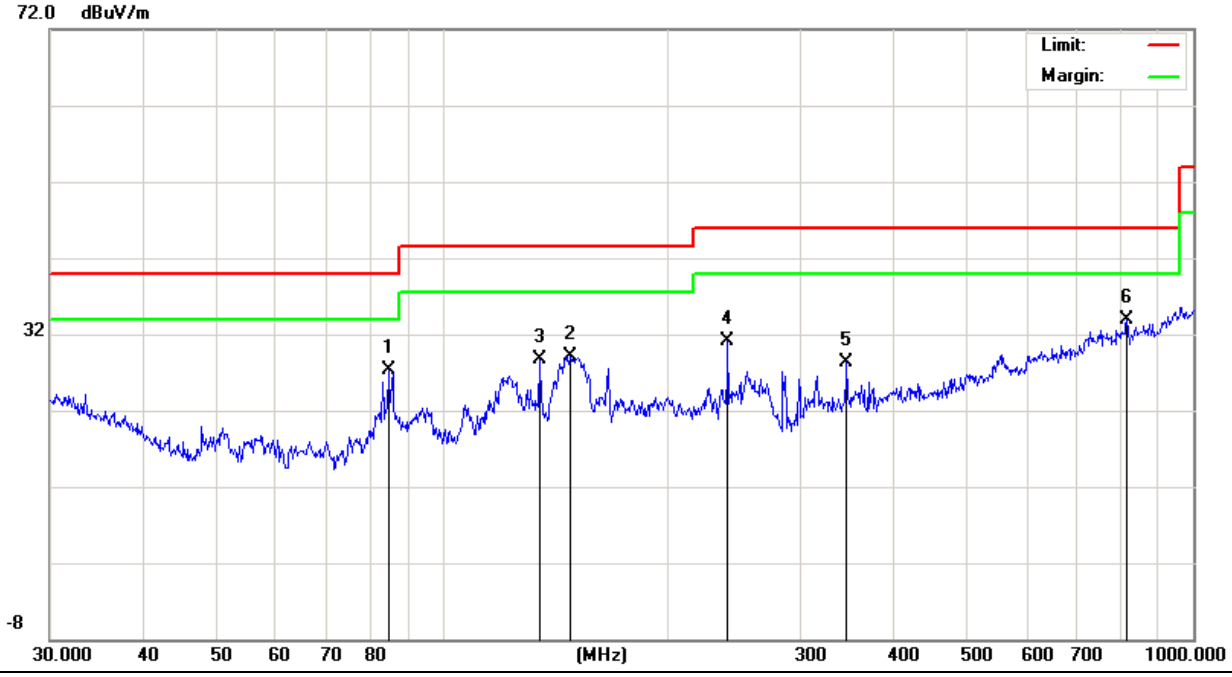
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	84.7018	18.31	8.97	27.28	40.00	-12.72	QP
H	147.9214	17.13	12.03	29.16	43.50	-14.34	QP
H	134.5592	16.28	12.50	28.78	43.50	-14.72	QP
H	239.9874	19.35	11.73	31.08	46.00	-14.92	QP
H	345.5951	12.39	15.97	28.36	46.00	-17.64	QP
H	815.9678	9.05	24.76	33.81	46.00	-12.19	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

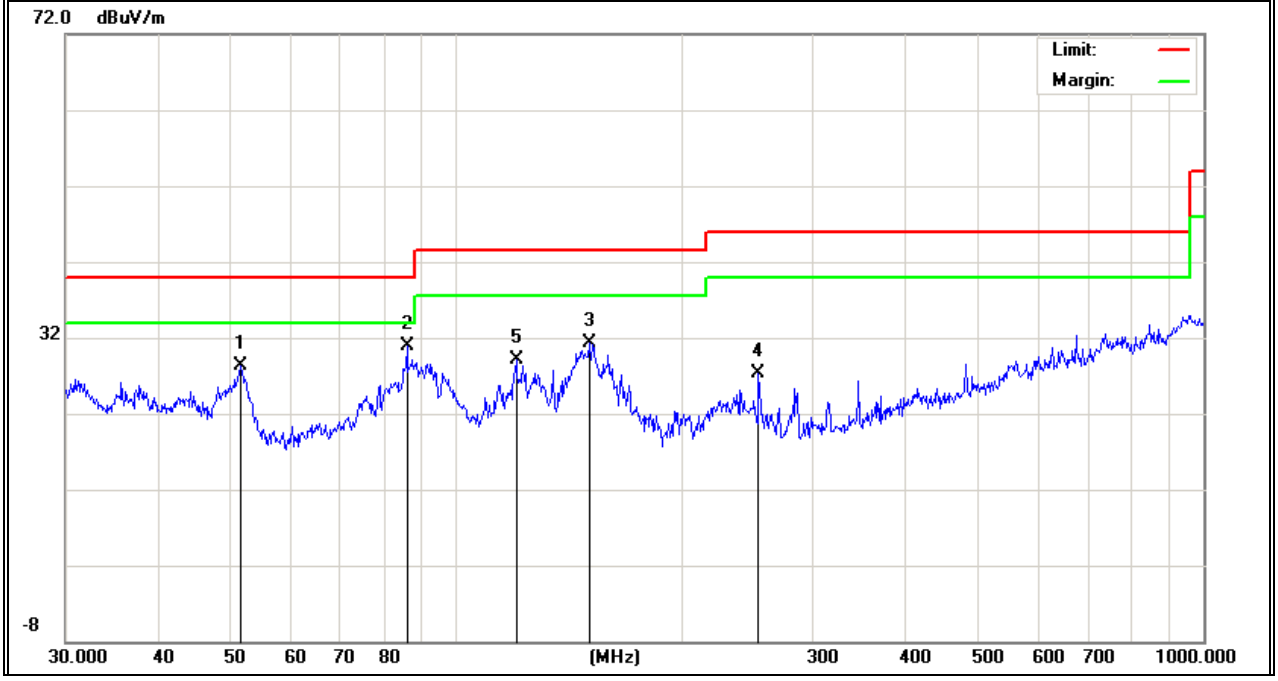


EUT：	Panoramic Camera	Model Name ：	PIONA1925/A
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Test Voltage ：	DC 3.8V
Test Mode ：	TX(5.8G) - 802.11a (High CH)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
V	51.4806	20.41	7.89	28.30	40.00	-11.70	QP
V	85.8983	21.50	9.38	30.88	40.00	-9.12	QP
V	150.5378	19.42	11.85	31.27	43.50	-12.23	QP
V	253.8367	13.28	14.00	27.28	46.00	-18.72	QP
V	120.2766	16.74	12.34	29.08	43.50	-14.42	QP

Remark:

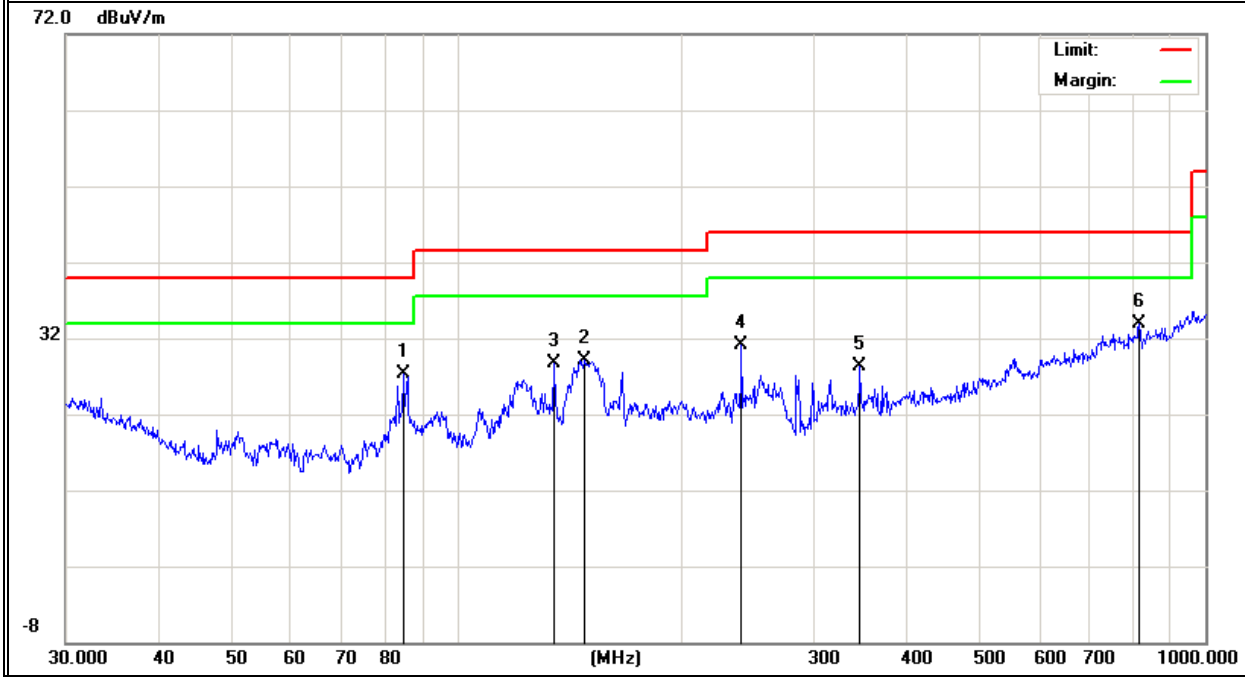
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
H	84.7018	18.31	8.97	27.28	40.00	-12.72	QP
H	147.9214	17.13	12.03	29.16	43.50	-14.34	QP
H	134.5592	16.28	12.50	28.78	43.50	-14.72	QP
H	239.9874	19.35	11.73	31.08	46.00	-14.92	QP
H	345.5951	12.39	15.97	28.36	46.00	-17.64	QP
H	815.9678	9.05	24.76	33.81	46.00	-12.19	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



END OF REPORT