



FCC/IC RADIO TEST REPORT

FCC ID:2AGZG-AEEAP120001

Product : Aerial photography equipment

Trade Name : AEE

Model Name : AP12

Serial Model : AP12+, AP12 Pro, AP12 A, AP12W, AP12 Plus,
AP11B, AP11+, AP9+, AP10B, JP12, JP12+,
JP12 Pro, JP12 A, JP12W, JP12 Plus, JP11B,
JP11+, JP9+, JP10B

Report No. : NTEK-2015NT1020958F1

Prepared for

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Prepared by

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TEST RESULT CERTIFICATION**Applicant's name** Shenzhen AEE Aviation Technology Co.,Ltd.Address AEE Hi-Tech Park,Tangtou Crossroads,Shiyan Town,Bao' an District
Shenzhen,China**Manufacture's Name**... Shenzhen AEE Aviation Technology Co.,Ltd.Address AEE Hi-Tech Park,Tangtou Crossroads,Shiyan Town,Bao' an District
Shenzhen,China**Product description**

Product name Aerial photography equipment

Model and/or type AP12
referenceSerial Model AP12+,AP12 Pro,AP12 A,AP12W,AP12 Plus,AP11B, AP11+,
AP9+, AP10B, JP12, JP12+,JP12 Pro, JP12 A, JP12W,
JP12 Plus, JP11B, JP11+, JP9+, JP10B**Standards** FCC Part15.407: 01 Oct. 2015

Test procedure ANSI C63.10-2013 and KDB 789033 D01 v01r04

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 20 Oct. 2015 ~30 Nov. 2015

Date of Issue..... 30 Nov. 2015

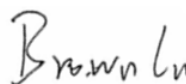
Test Result..... **Pass**

Testing Engineer :



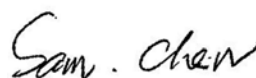
(Allen Liu)

Technical Manager :



(Brown Lu)

Authorized Signatory :



(Sam Chen)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.407) , Subpart E			
Standard Section	Test Item	Judgment	Remark
FCC §15.207	AC Power Line Conducted Emissions	N/A	
FCC §15.209(a),	Spurious Radiated Emissions	PASS	
FCC §15.407(a)	26 dB and 99% Emission Bandwidth	PASS	
FCC §407(a)(3)	Peak Output Power Measurement	PASS	
FCC §2.1051, §15.407(b)	Band Edges	PASS	
FCC §15.407(a)(3)	Power Spectral Density	PASS	
FCC §2.1051, §15.407(b)	Spurious Emissions at Antenna Terminals	PASS	
FCC §15.203	Antenna Requirement	PASS	

NOTE:

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

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd

Add.:1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration No.:238937; IC Registration No.:9270A-1

CNAS Registration No.:L5516

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement $y \pm U$, where expanded 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	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Aerial photography equipment	
Trade Name	AEE	
Model Name	AP12	
Serial Model	AP12+,AP12 Pro,AP12 A,AP12W,AP12 Plus,AP11B, AP11+, AP9+, AP10B, JP12, JP12+,JP12 Pro, JP12 A, JP12W, JP12 Plus, JP11B, JP11+, JP9+, JP10B	
Model Difference	All the model are the same circuit and RF module, except the model name and colour.	
Product Description	5G	
	Operation Frequency:	5728 MHz ~ 5803 MHz
	Modulation Type:	GFSK
	Number Of Channel	16CH
	Antenna Designation:	Please see Note 3.
	Antenna Gain (dBi)	Please see Note 3.
Channel List	Please refer to the Note 2.	
Ratings	DC 11.1V	
Adapter	Mode:HXY-126V5000A Input: 100-240V~, 50/60Hz, 1500mA Max Output:DC 12.6V---, 4A	
Battery	DC 11.1V, 6800mAh	
Connecting I/O Port(s)	Please refer to the User's Manual	

Note:

1. For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

2.

5GHz

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	5728	02	5731	03	5741	04	5744
05	5747	06	5750	07	5753	08	5755
09	5757	10	5763	11	5769	12	5772
13	5775	14	5784	15	5787	16	5803

3.

Table for Filed Antenna

Ant .	Brand	Model Name	Antenna Type	Gain (dBi)	NOTE
A	N/A	N/A	FPCB Antenna	1.5	N/A

2.2 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	CH01
Mode 2	CH09
Mode 3	CH16
Mode 4	Link Mode

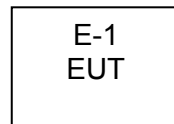
For Radiated Emission	
Final Test Mode	Description
Mode 1	CH01
Mode 2	CH09
Mode 3	CH16
Mode 4	Link Mode

Note:

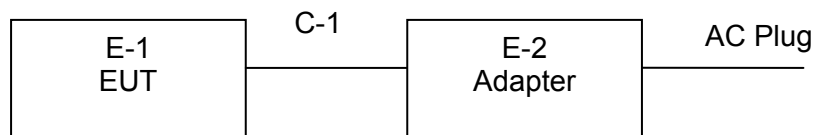
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

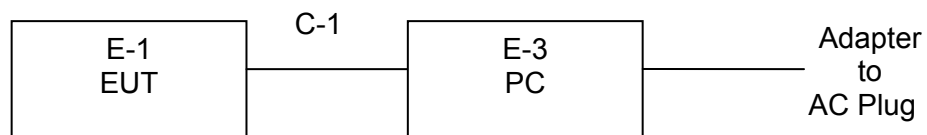
Radiated Spurious Emission Test



Conducted Emission Test 1



Conducted Emission Test 2



2.4 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.

E-1	Aerial photography equipment	AEE	AP12	N/A	EUT
E-2	Adapter	N/A	AD1	N/A	
E-3	PC	lenovo	Y43p	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.2m	

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.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2015.07.06	2016.07.05	1 year
2	Spectrum Analyzer	Agilent	N9020A	MY49100060	2015.07.06	2016.07.05	1 year
3	Test Receiver	R&S	ESPI	101318	2015.06.06	2016.06.05	1 year
4	Bilog Antenna	TESEQ	CBL6111D	31216	2015.07.06	2016.07.05	1 year
5	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2015.06.06	2016.06.05	1 year
6	Spectrum Analyzer	ADVANTEST	R3132	150900201	2015.06.06	2016.06.05	1 year
7	Horn Antenna	EM	EM-AH-10180	2011071402	2015.07.06	2016.07.05	1 year
8	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2015.07.06	2016.07.05	1 year
9	Amplifier	EM	EM-30180	060538	2014.12.22	2015.12.21	1 year
10	Loop Antenna	ARA	PLA-1030/B	1029	2015.06.06	2016.06.05	1 year
11	Power Meter	R&S	NRVS	100696	2015.07.06	2016.07.05	1 year
12	Power Sensor	R&S	URV5-Z4	0395.1619.05	2015.07.06	2016.07.05	1 year

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	2015.06.06	2016.06.05	1 year
2	LISN	R&S	ENV216	101313	2015.08.24	2016.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2015.06.06	2016.06.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2015.06.06	2016.06.05	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2015.06.06	2016.06.05	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2015.06.06	2016.06.05	1 year

1	Attenuation	MCE	24-10-34	BN9258	2015.06.06	2016.06.05	1 year
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3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC/ RSS-247
0.50 -5.0	73.00	60.00	56.00	46.00	FCC/ RSS-247
5.0 -30.0	73.00	60.00	60.00	50.00	FCC/ RSS-247

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

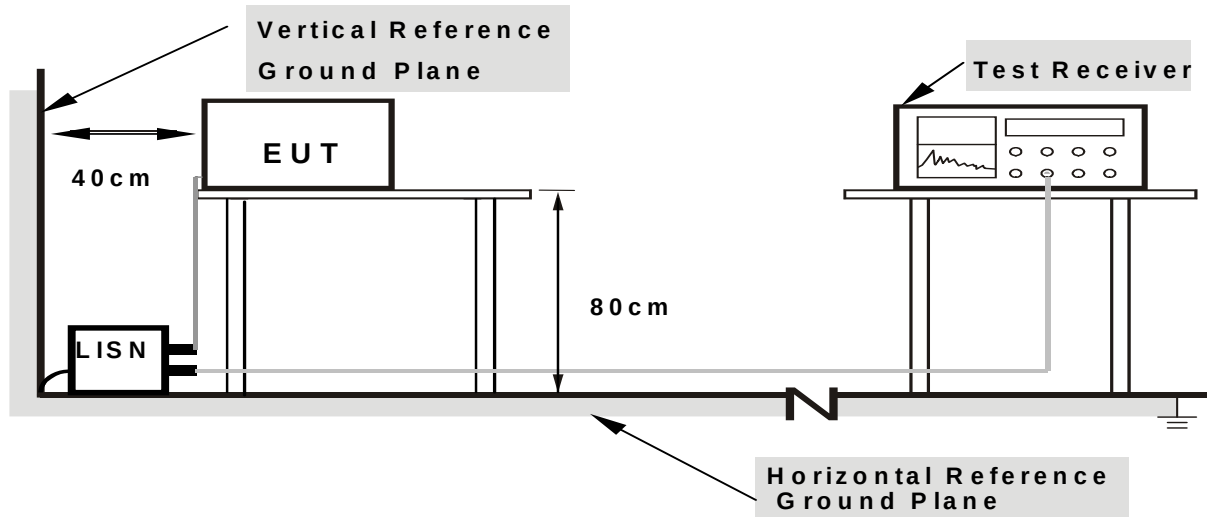
3.1.2 TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected 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.
- 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 40 cm long.
- 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.
- LISN at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP



Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

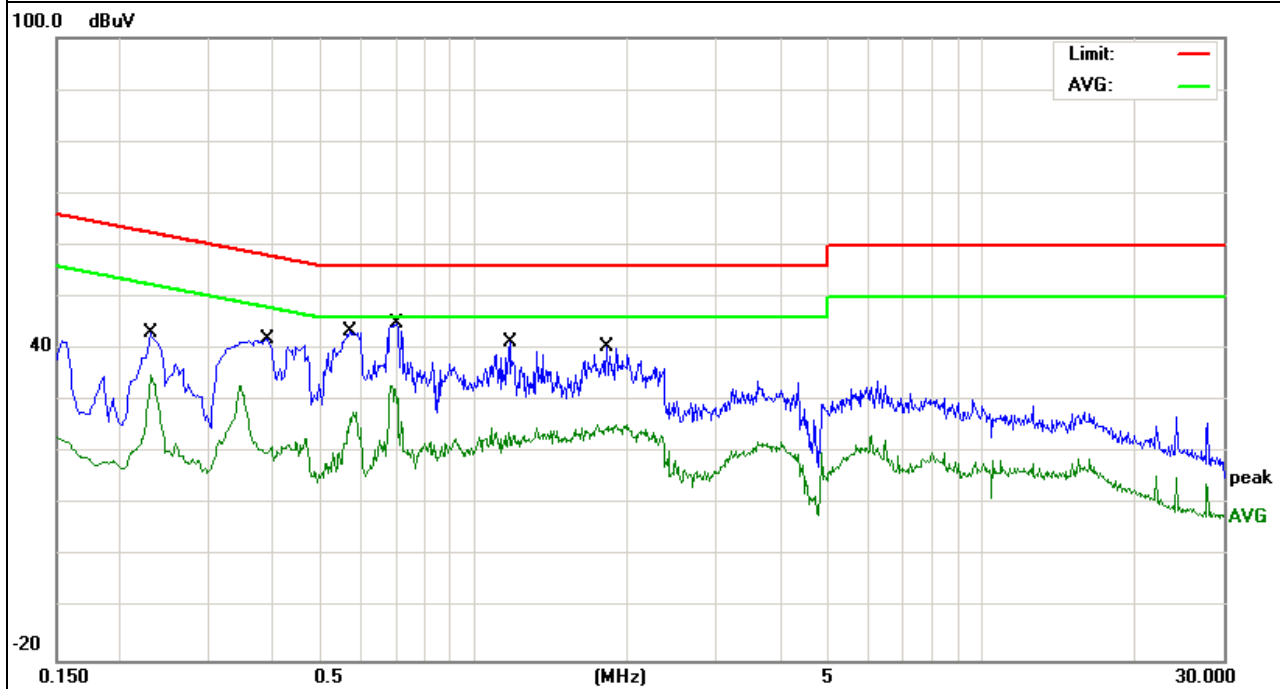
3.1.6 TEST RESULTS

EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form Adapter AC 120V/60Hz	Test Mode :	Mode 4

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.2300	33.56	9.49	43.05	62.45	-19.40	QP
0.2300	19.83	9.49	29.32	52.45	-23.13	AVG
0.3899	32.64	9.20	41.84	58.06	-16.22	QP
0.3899	17.49	9.20	26.69	48.06	-21.37	AVG
0.5698	33.79	9.56	43.35	56.00	-12.65	QP
0.5698	17.56	9.56	27.12	46.00	-18.88	AVG
0.7018	35.27	9.57	44.84	56.00	-11.16	QP
0.7018	19.28	9.57	28.85	46.00	-17.15	AVG
1.1778	31.64	9.56	41.20	56.00	-14.80	QP
1.1778	15.09	9.56	24.65	46.00	-21.35	AVG
1.8220	30.77	9.57	40.34	56.00	-15.66	QP
1.8220	18.53	9.57	28.10	46.00	-17.90	AVG

Remark:

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

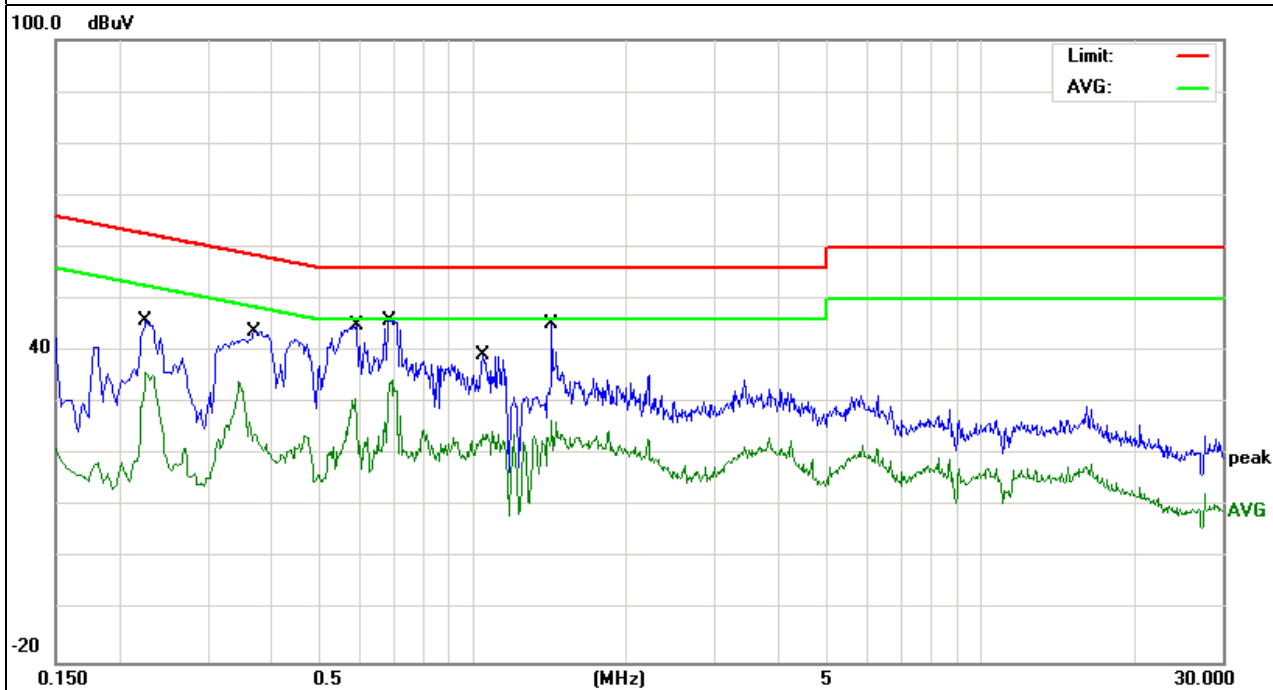


EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form Adapter AC 120V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.2260	36.28	9.48	45.76	62.59	-16.83	QP
0.2260	22.54	9.48	32.02	52.59	-20.57	AVG
0.3700	34.57	9.28	43.85	58.50	-14.65	QP
0.3700	23.86	9.28	33.14	48.50	-15.36	AVG
0.5899	35.25	9.56	44.81	56.00	-11.19	QP
0.5899	21.02	9.56	30.58	46.00	-15.42	AVG
0.6860	36.29	9.57	45.86	56.00	-10.14	QP
0.6860	18.45	9.57	28.02	46.00	-17.98	AVG
1.0460	29.75	9.56	39.31	56.00	-16.69	QP
1.0460	17.13	9.56	26.69	46.00	-19.31	AVG
1.4260	35.76	9.57	45.33	56.00	-10.67	QP
1.4260	21.82	9.57	31.39	46.00	-14.61	AVG

Remark:

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

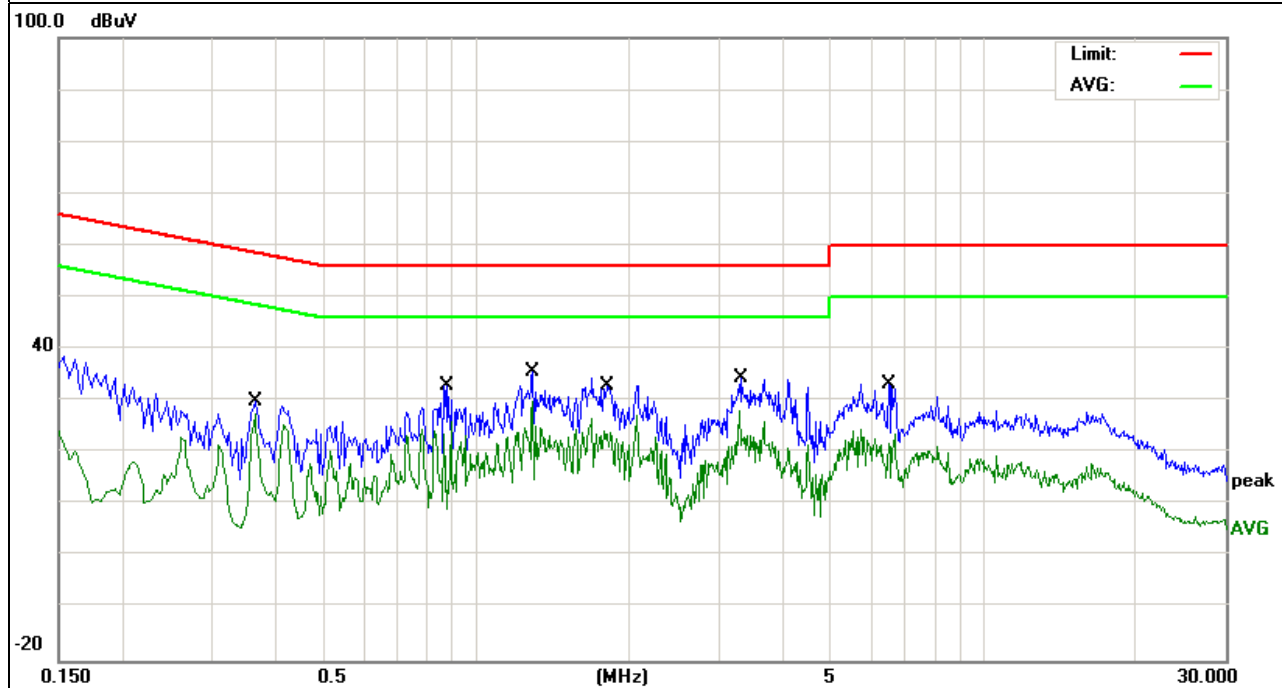


EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form Adapter AC 240V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.3659	20.59	9.44	30.03	58.59	-28.56	QP
0.3659	10.93	9.44	20.37	48.59	-28.22	AVG
0.8780	23.42	9.44	32.86	56.00	-23.14	QP
0.8780	10.25	9.44	19.69	46.00	-26.31	AVG
1.2900	26.07	9.45	35.52	56.00	-20.48	QP
1.2900	15.89	9.45	25.34	46.00	-20.66	AVG
1.8180	23.62	9.46	33.08	56.00	-22.92	QP
1.8180	9.13	9.46	18.59	46.00	-27.41	AVG
3.3340	24.83	9.47	34.30	56.00	-21.70	QP
3.3340	13.00	9.47	22.47	46.00	-23.53	AVG
6.5179	23.87	9.51	33.38	60.00	-26.62	QP
6.5179	14.18	9.51	23.69	50.00	-26.31	AVG

Remark:

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

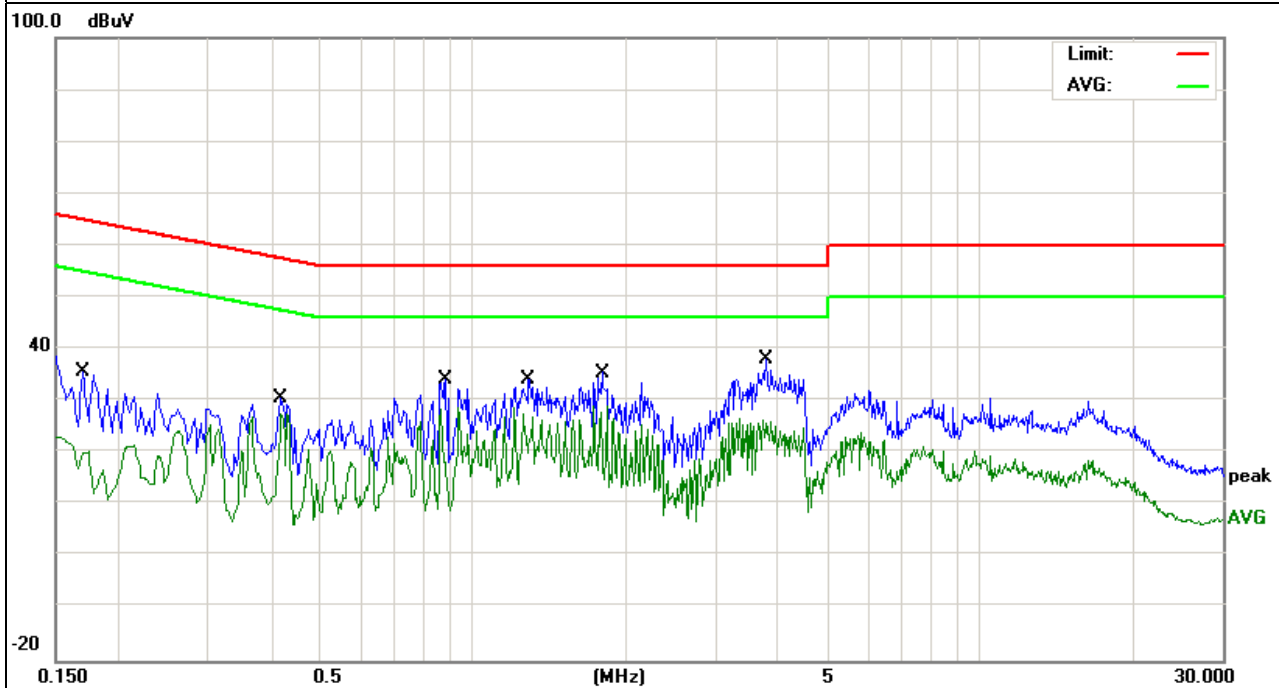


EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form Adapter AC 240V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1700	26.21	9.46	35.67	64.96	-29.29	QP
0.1700	13.56	9.46	23.02	54.96	-31.94	AVG
0.4179	21.13	9.44	30.57	57.49	-26.92	QP
0.4179	12.10	9.44	21.54	47.49	-25.95	AVG
0.8820	24.78	9.44	34.22	56.00	-21.78	QP
0.8820	11.14	9.44	20.58	46.00	-25.42	AVG
1.2860	24.85	9.45	34.30	56.00	-21.70	QP
1.2860	14.57	9.45	24.02	46.00	-21.98	AVG
1.7980	26.04	9.46	35.50	56.00	-20.50	QP
1.7980	12.12	9.46	21.58	46.00	-24.42	AVG
3.7900	28.70	9.47	38.17	56.00	-17.83	QP
3.7900	10.90	9.47	20.37	46.00	-25.63	AVG

Remark:

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

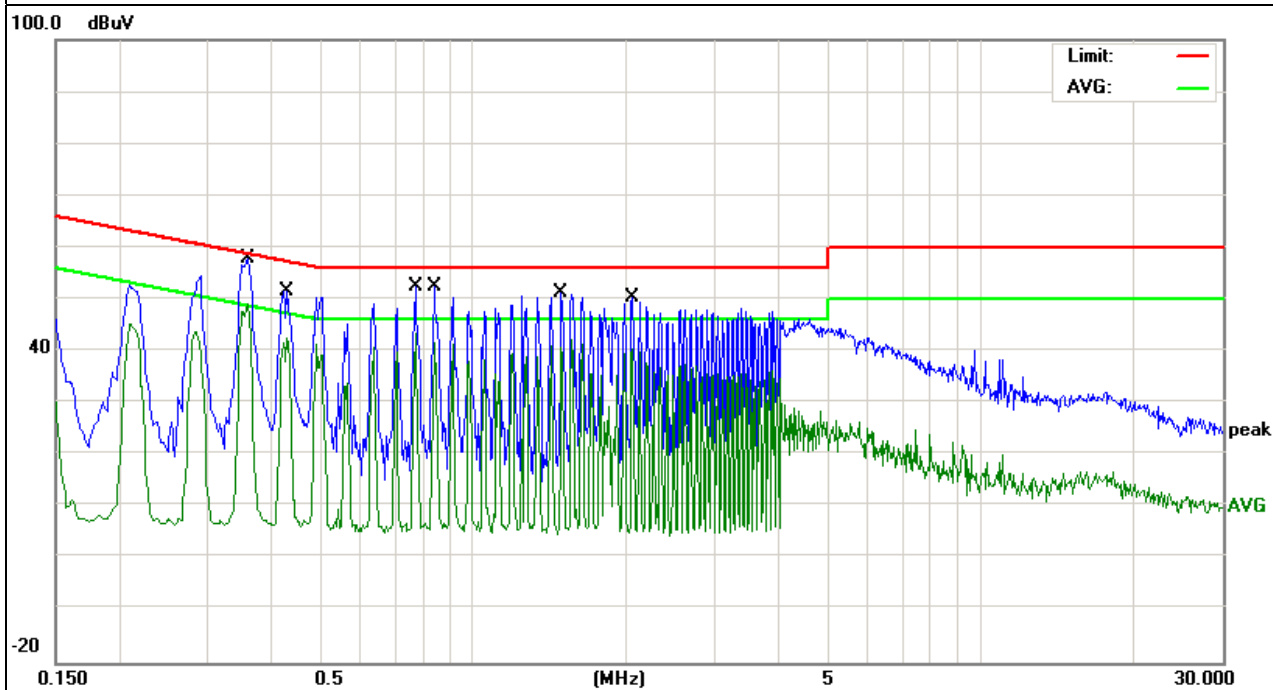


EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form PC AC 120V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.3579	43.58	9.44	53.02	58.78	-5.76	QP
0.3579	30.78	9.44	40.22	48.78	-8.56	AVG
0.4299	42.21	9.45	51.66	57.25	-5.59	QP
0.4299	27.20	9.45	36.65	47.25	-10.60	AVG
0.7700	40.69	9.43	50.12	56.00	-5.88	QP
0.7700	26.26	9.43	35.69	46.00	-10.31	AVG
0.8379	42.89	9.43	52.32	56.00	-3.68	QP
0.8379	28.90	9.43	38.33	46.00	-7.67	AVG
1.4939	41.71	9.45	51.16	56.00	-4.84	QP
1.4939	27.20	9.45	36.65	46.00	-9.35	AVG
2.0579	40.88	9.46	50.34	56.00	-5.66	QP
2.0579	27.76	9.46	37.22	46.00	-8.78	AVG

Remark:

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

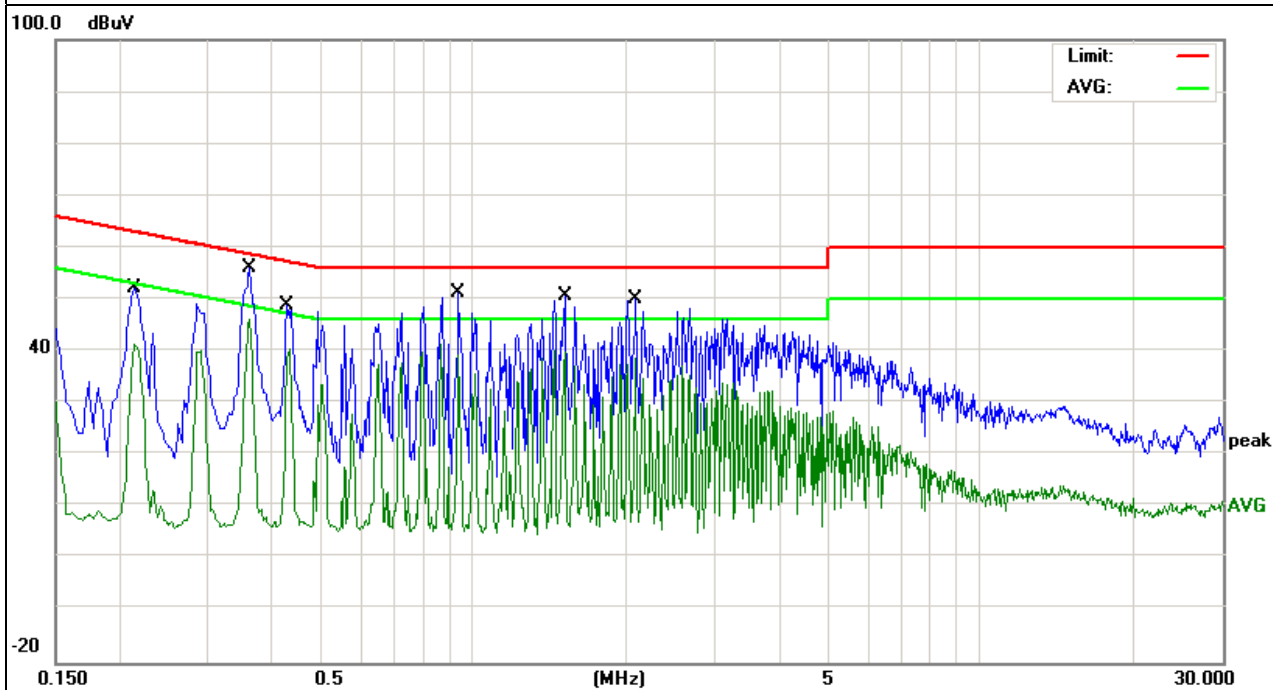


EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form PC AC 120V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.2140	42.79	9.46	52.25	63.04	-10.79	QP
0.2140	26.65	9.46	36.11	53.04	-16.93	AVG
0.3620	45.56	9.44	55.00	58.68	-3.68	QP
0.3620	30.56	9.44	40.00	48.68	-8.68	AVG
0.4300	39.53	9.45	48.98	57.25	-8.27	QP
0.4300	25.67	9.45	35.12	47.25	-12.13	AVG
0.9380	41.66	9.44	51.10	56.00	-4.90	QP
0.9380	24.84	9.44	34.28	46.00	-11.72	AVG
1.5140	41.35	9.45	50.80	56.00	-5.20	QP
1.5140	30.62	9.45	40.07	46.00	-5.93	AVG
2.0900	40.45	9.46	49.91	56.00	-6.09	QP
2.0900	25.56	9.46	35.02	46.00	-10.98	AVG

Remark:

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

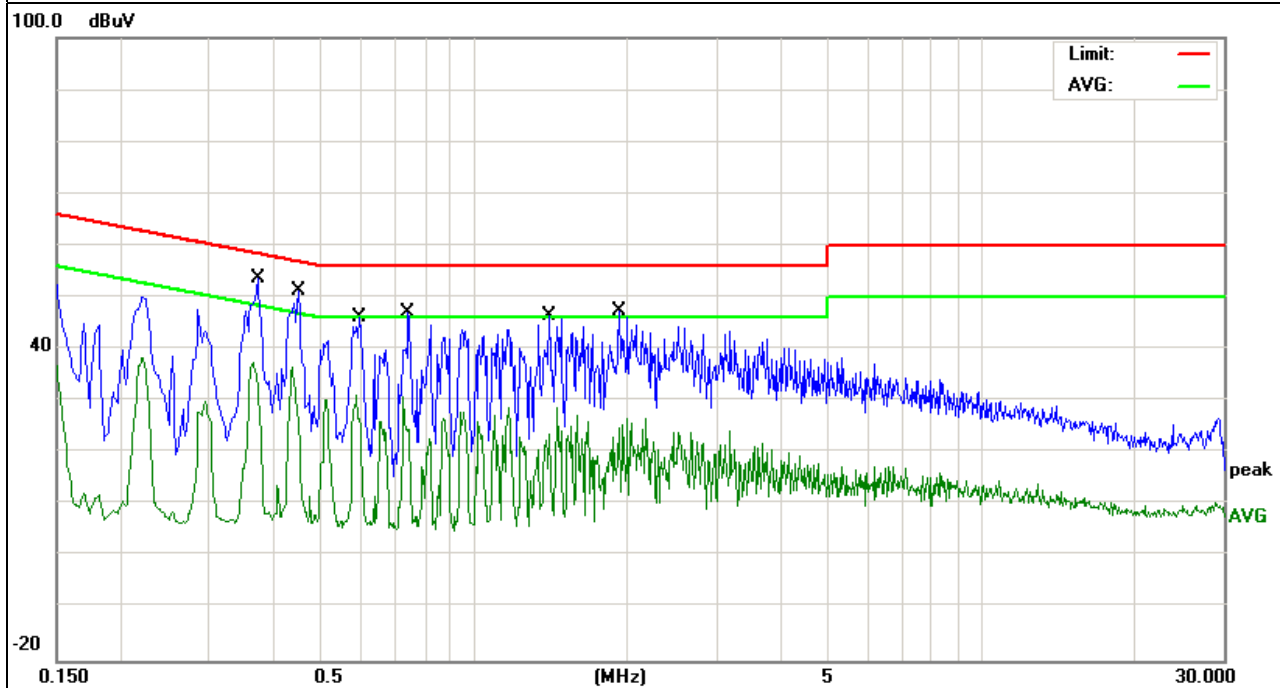


EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form PC AC 240V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.3740	44.10	9.44	53.54	58.41	-4.87	QP
0.3740	28.12	9.44	37.56	48.41	-10.85	AVG
0.4500	41.75	9.45	51.20	56.87	-5.67	QP
0.4500	27.03	9.45	36.48	46.87	-10.39	AVG
0.5940	36.69	9.45	46.14	56.00	-9.86	QP
0.5940	24.24	9.45	33.69	46.00	-12.31	AVG
0.7420	37.59	9.43	47.02	56.00	-8.98	QP
0.7420	25.69	9.43	35.12	46.00	-10.88	AVG
1.4100	36.90	9.45	46.35	56.00	-9.65	QP
1.4100	21.24	9.45	30.69	46.00	-15.31	AVG
1.9340	37.78	9.46	47.24	56.00	-8.76	QP
1.9340	23.12	9.46	32.58	46.00	-13.42	AVG

Remark:

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

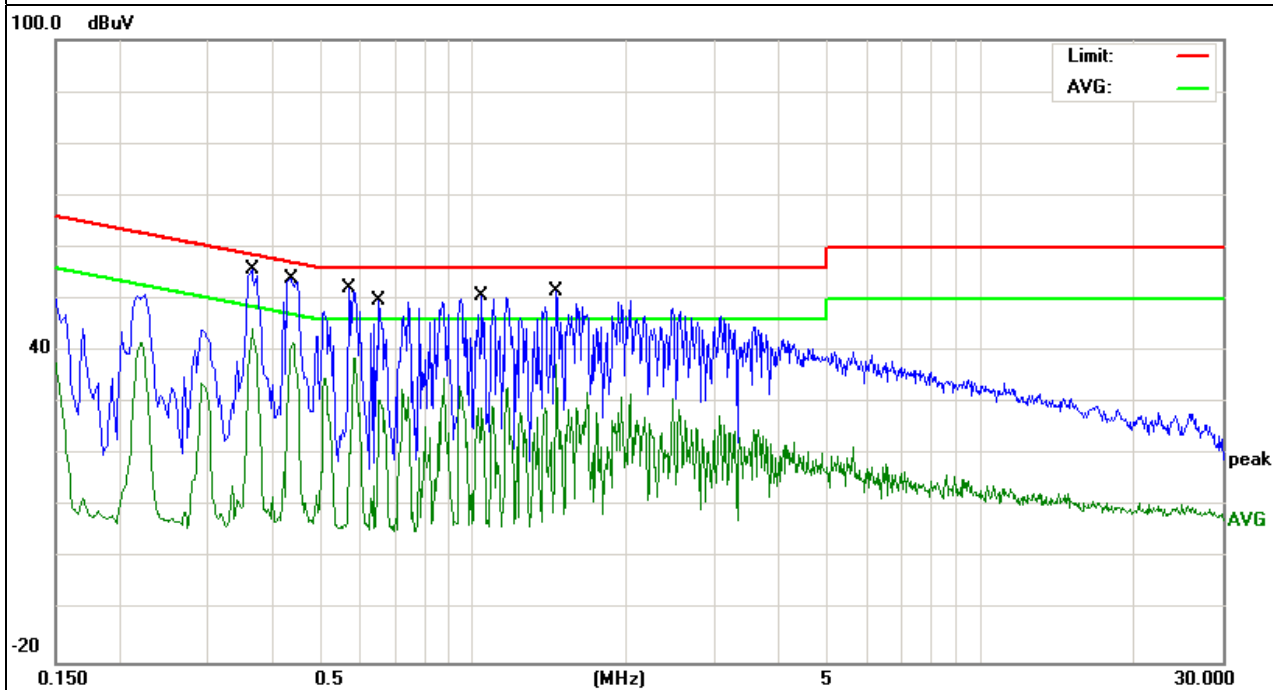


EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form PC AC 240V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.3660	40.92	9.44	50.36	58.59	-8.23	QP
0.3660	34.94	9.44	44.38	48.59	-4.21	AVG
0.4380	44.51	9.45	53.96	57.10	-3.14	QP
0.4380	32.07	9.45	41.52	47.10	-5.58	AVG
0.5700	42.59	9.45	52.04	56.00	-3.96	QP
0.5700	29.32	9.45	38.77	46.00	-7.23	AVG
0.6540	40.34	9.44	49.78	56.00	-6.22	QP
0.6540	28.58	9.44	38.02	46.00	-7.98	AVG
1.0420	41.08	9.44	50.52	56.00	-5.48	QP
1.0420	25.58	9.44	35.02	46.00	-10.98	AVG
1.4619	42.03	9.45	51.48	56.00	-4.52	QP
1.4619	27.24	9.45	36.69	46.00	-9.31	AVG

Remark:

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



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

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)/ RSS 247§6.2, then the 15.209(a)/ RSS-Gen limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class A (dBuV/m) (at 3M)		Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE	PEAK	AVERAGE
Above 1000	80	60	74	54

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15C/ RSS-Gen.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

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

3.2.2 TEST PROCEDURE

- 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 test site. 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:

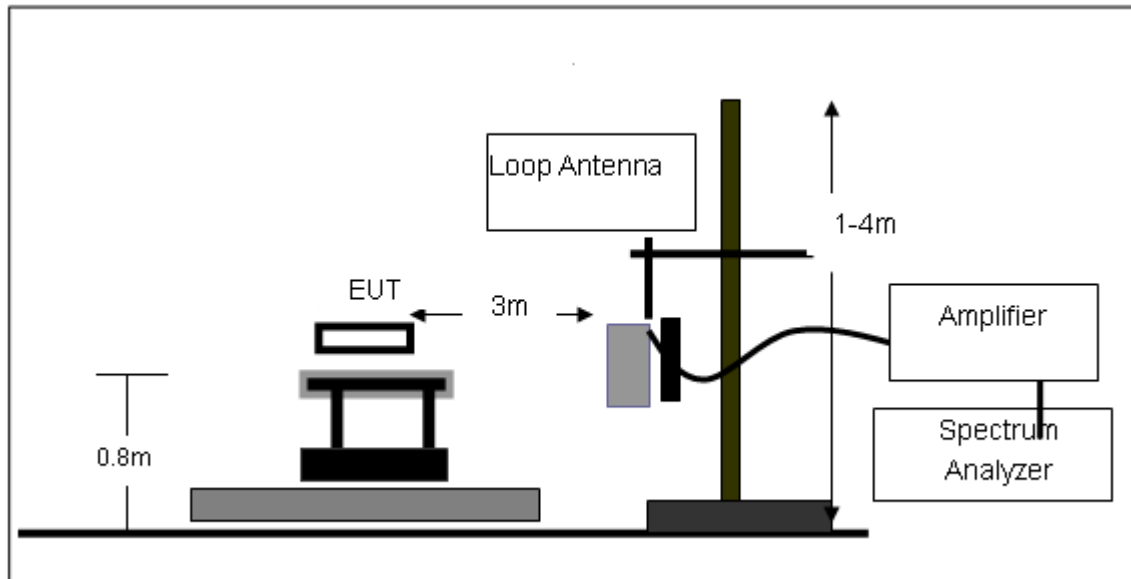
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Peak	1 MHz	10 Hz

3.2.3 DEVIATION FROM TEST STANDARD

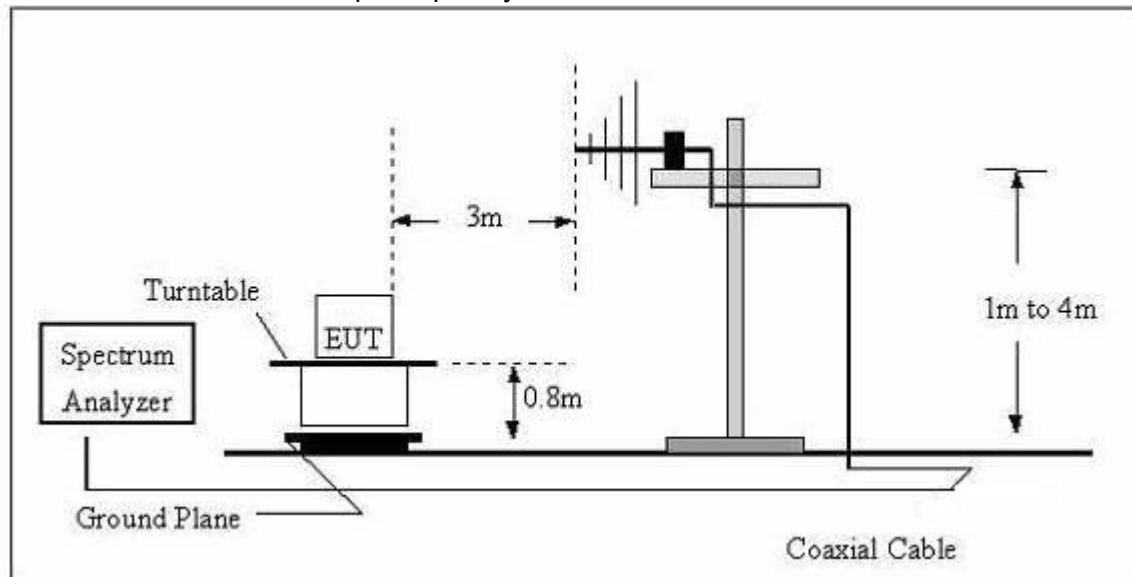
No deviation

3.2.4 TEST SETUP

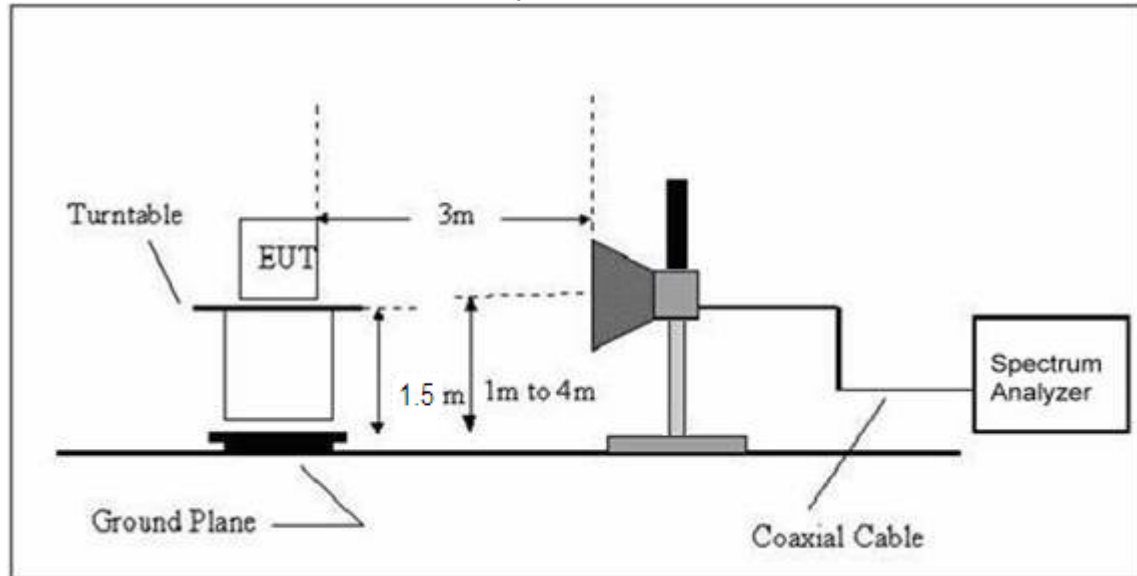
(A) Radiated Emission Test-Up Frequency Below 30MHz



(B) Radiated Emission Test-Up Frequency 30MHz~1GHz



(C) Radiated Emission Test-Up Frequency Above 1GHz

**3.2.5 EUT OPERATING CONDITIONS**

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)

EUT:	Aerial photography equipment	Model Name. :	AP12
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 11.1V
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.

Distance extrapolation factor = $40 \log (\text{specific distance/test distance})$ (dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

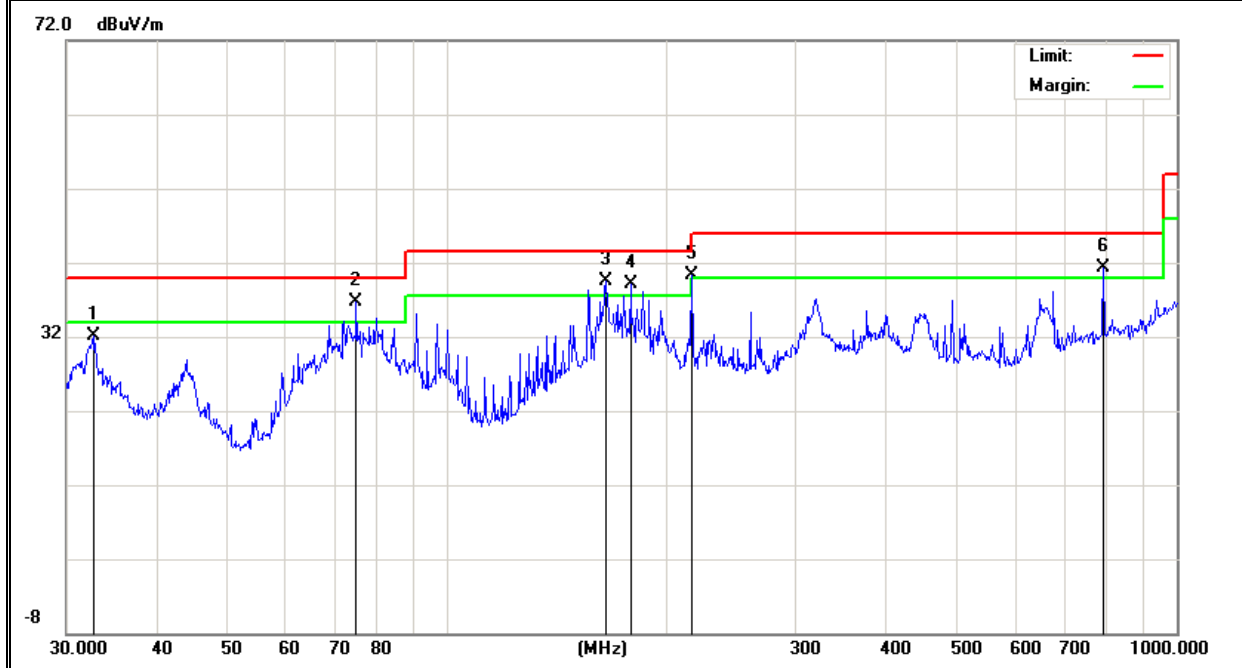
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 11.1V
Test Mode :	TX (5.0G)		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	32.6340	13.71	18.43	32.14	40.00	-7.86	QP
V	74.9191	26.99	9.69	36.68	40.00	-3.32	QP
V	164.9071	27.70	11.74	39.44	43.50	-4.06	QP
V	178.1323	26.96	12.06	39.02	43.50	-4.48	QP
V	216.0240	29.28	11.00	40.28	46.00	-5.72	QP
V	793.3958	18.72	22.62	41.34	46.00	-4.66	QP

Remark:

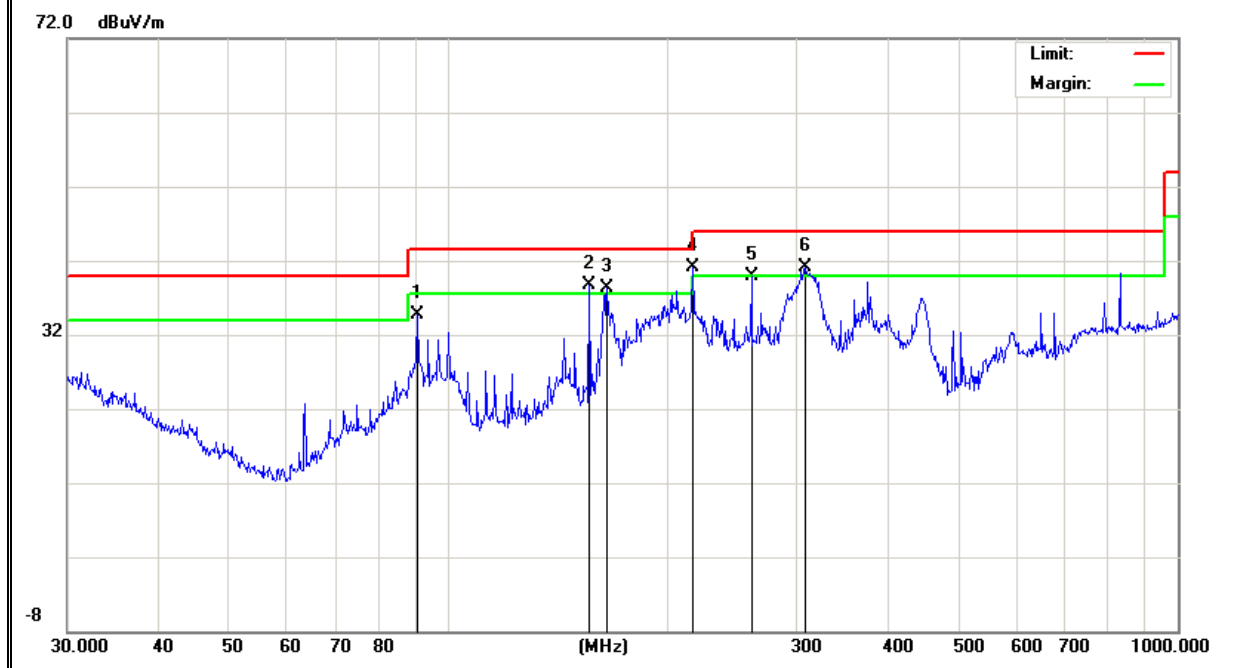
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	90.5374	24.90	9.75	34.65	43.50	-8.85	QP
H	155.9096	26.93	11.79	38.72	43.50	-4.78	QP
H	164.9071	26.63	11.74	38.37	43.50	-5.13	QP
H	216.0240	30.04	11.00	41.04	46.00	-4.96	QP
H	260.1444	28.96	10.88	39.84	46.00	-6.16	QP
H	307.8312	28.11	12.92	41.03	46.00	-4.97	QP

Remark:

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



3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Test Voltage :	DC 11.1V
Test Mode :	TX (5.0G)		

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel (5728 MHz)-Above 1G							
Vertical	11456.206	37.25	14.32	45.57	74	-28.43	Pk
Vertical	17184.331	36.44	16.39	52.83	74	-21.17	Pk
Horizontal	11456.077	35.87	14.32	50.19	74	-23.81	Pk
Horizontal	17184.296	37.12	16.39	53.51	74	-20.49	Pk
Mid Channel (5757 MHz)-Above 1G							
Vertical	11514.481	36.45	14.34	50.79	74	-23.21	Pk
Vertical	17271.144	36.24	16.42	52.66	74	-21.34	Pk
Horizontal	11514.224	35.77	14.34	50.11	74	-23.89	Pk
Horizontal	17271.339	38.12	16.42	54.54	74	-19.46	Pk
High Channel (5803 MHz)- Above 1G							
Vertical	11606.258	37.59	14.42	52.01	74	-21.99	Pk
Vertical	17409.189	37.33	16.48	53.81	74	-20.19	Pk
Horizontal	11606.149	36.45	14.42	50.87	74	-23.13	Pk
Horizontal	17409.447	37.59	16.57	54.16	74	-19.84	Pk

4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)(3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used,

4.1.1 TEST PROCEDURE

For devices operating in the band 5.725-5.85 GHz, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (i.e., 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

- a) Set $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3$ RBW.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10\log(500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ KHz})$ is the reduced resolution bandwidth of the spectrum analyzer set during measurement.
- d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add $10\log(1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ is the reduced resolution bandwidth of spectrum analyzer set during measurement.
- e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 KHz for the sections 5.c) and 5.d) above, since $RBW=100 \text{ KHz}$ is available on nearly all spectrum analyzers.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 11.1V
Test Mode :	TX a Mode /CH01, CH09, CH16		

Frequency	Measured Power Density (dBm)	Calculate power density (dBm)(Note 1)	Limit (dBm)	Result
5728 MHz	5.844	5.758	30.00	PASS
5757 MHz	4.310	4.224	30.00	PASS
5803 MHz	2.847	2.761	30.00	PASS

Note:

- (1) Calculate power density= Measured Power Density+10log(500kHz/RBW)
RBW=510KHz

TX CH01



TX CH09





5. 6 DB & 99% EMISSION BANDWIDTH

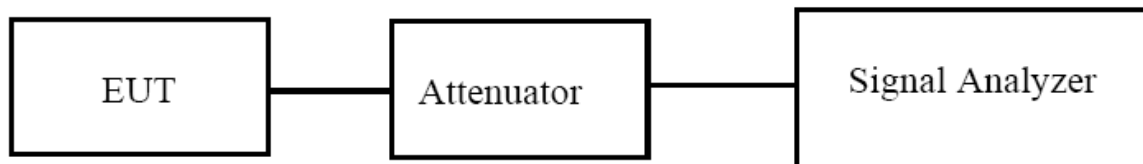
5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.407) , Subpart E/RSS 247§6.2.1(2)			
Section	Test Item	Limit	Result
15.407(a)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	PASS

(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.1.1 TEST PROCEDURE

- Set RBW = 100 kHz.
- Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
- Detector = Peak.
- Trace mode = max hold.
- Sweep = auto couple.
- Allow the trace to stabilize.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.



5.1.2 EUT OPERATION CONDITIONS

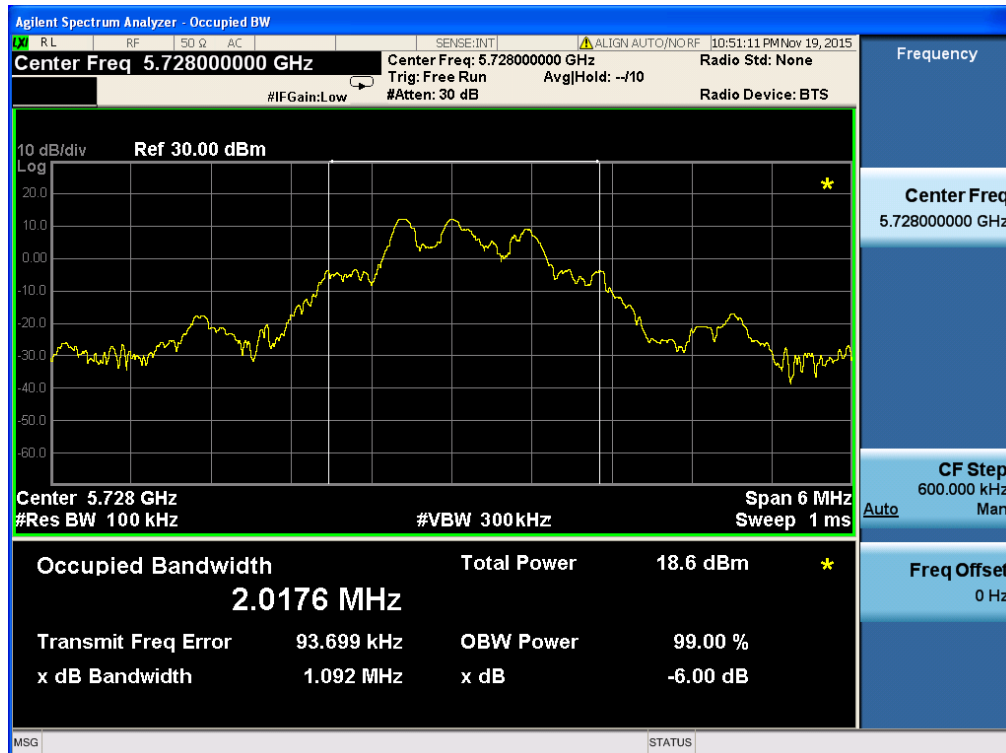
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.3 TEST RESULTS

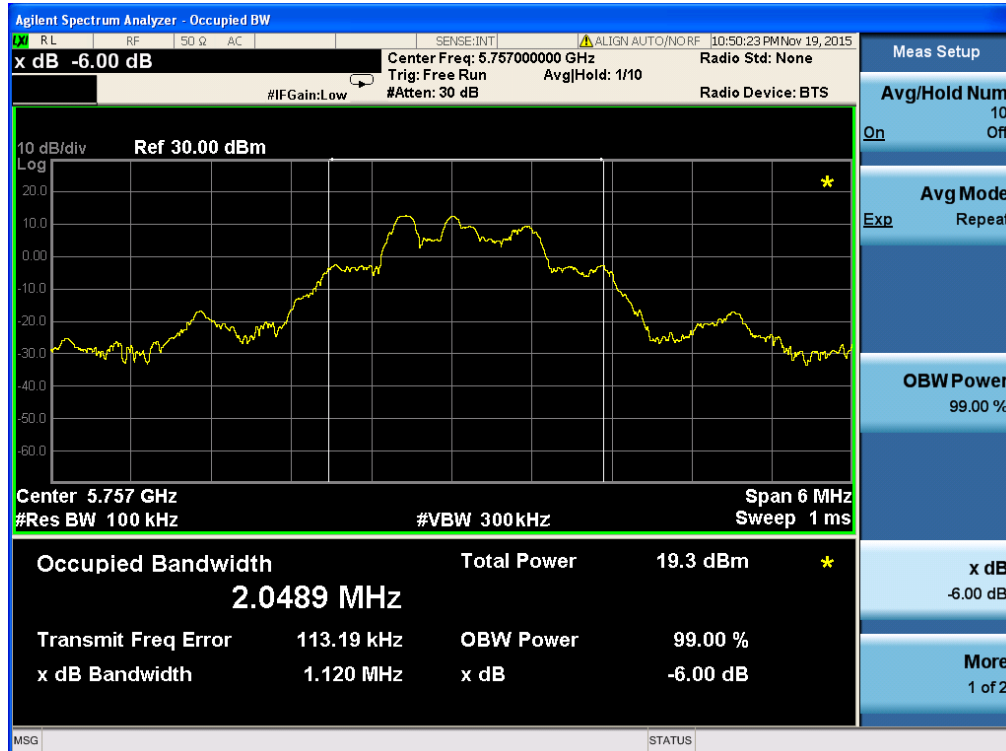
EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 11.1V
Test Mode :	TX a Mode /CH01, CH09, CH16		

Channel	Frequency (MHz)	99% bandwidth (MHz)	6dB bandwidth (MHz)	Limit (kHz)	Result
Low	5728	2.0176	1.092	500	Pass
Middle	5757	2.0489	1.120	500	Pass
High	5803	2.0386	1.122	500	Pass

TX CH 01



TX CH 19





6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

According to FCC §15.407(a)(3)

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

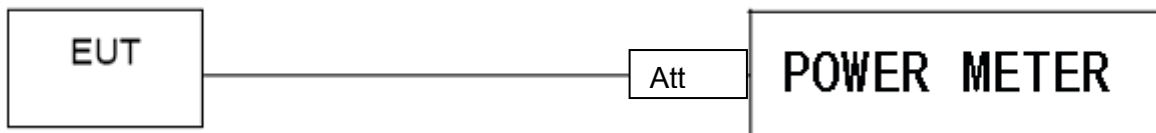
6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 11.1V
Test Mode :	TX (5G) Mode		

Test Channe	Frequency	Maximum output power. Antenna port		LIMIT
		(PK)	(AV)	
	(MHz)	(dBm)	(dBm)	dBm
TX 5G Mode				
CH01	5728	12.75	8.36	30
CH09	5757	12.63	8.89	30
CH16	5803	12.12	8.21	30

7. OUT OF BAND EMISSIONS

APPLICABLE STANDARD

According to FCC §15.407(b)

4) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of -27 dBm/MHz.

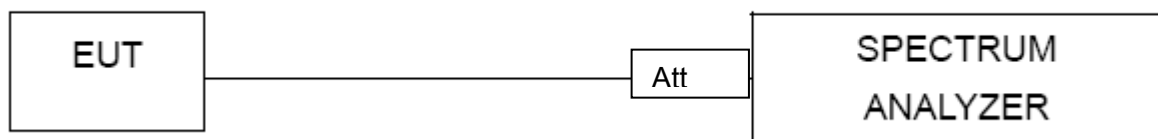
TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

7.1 DEVIATION FROM STANDARD

No deviation.

7.2 TEST SETUP



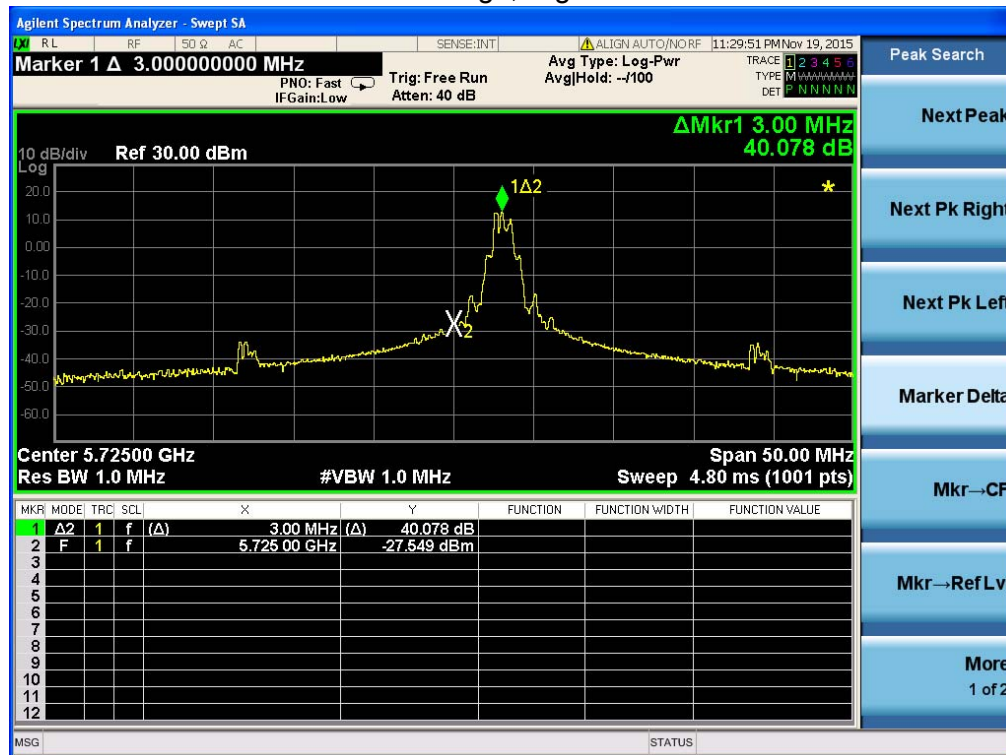
7.3 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.4 TEST RESULTS

EUT :	Aerial photography equipment	Model Name :	AP12
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 11.1V

Band Edge, Right Side



Band Edge, Left Side



8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

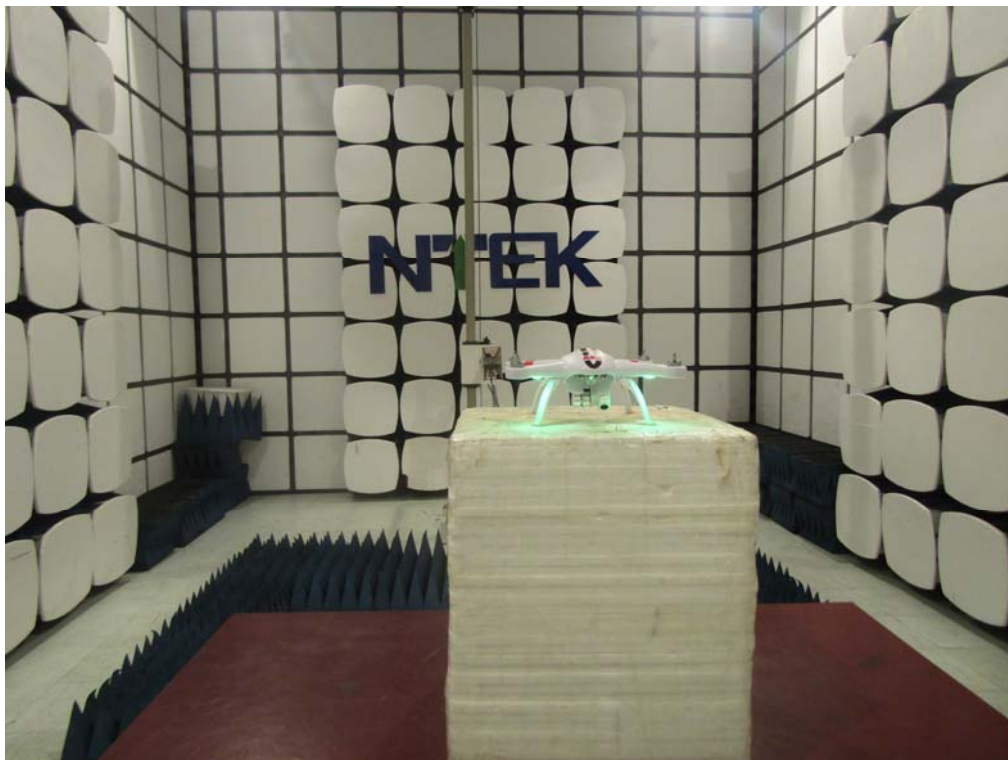
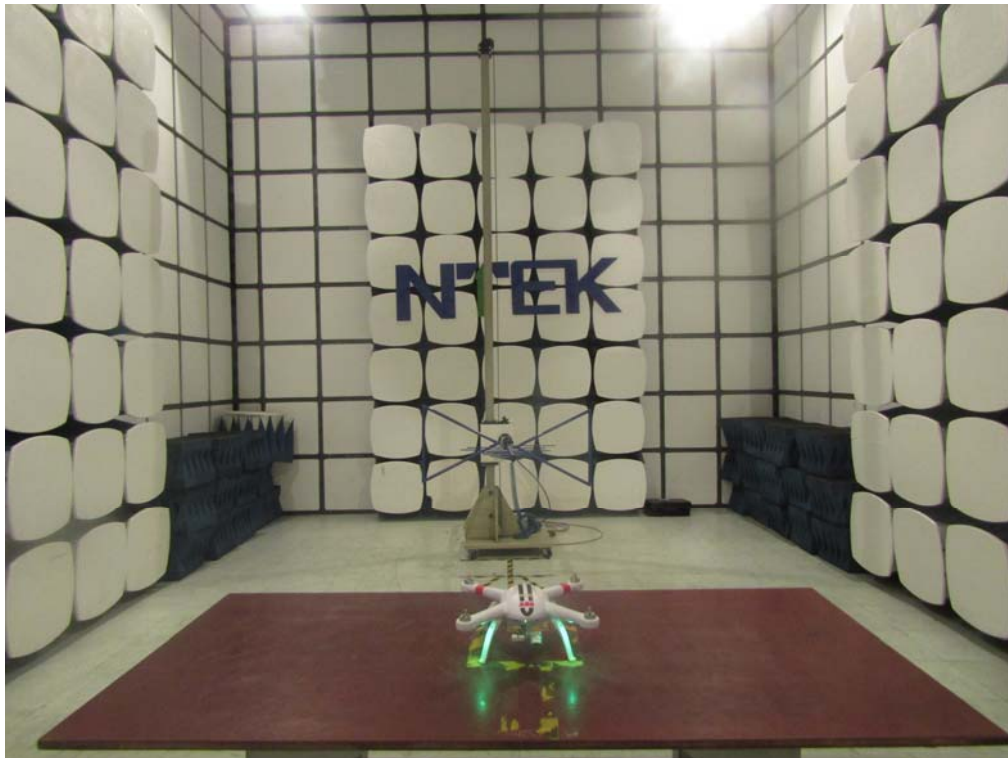
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is permanent attached antenna. It comply with the standard requirement.

9. EUT TEST PHOTO

Radiated Measurement Photos



CONDUCTED EMISSION Photos