



FCC/IC - TEST REPORT

Report Number	: 68.720.15.075.01	Date of Issue: <u>September 8, 2015</u>
Model	: MGOVS015, SDV5301, SDV2301, SDV6301, SDV8301, MG015	
Product Type	: Action Camera	
Applicant	: OMG ELECTRONIC LIMITED	
Address	: 7Floor, Huarong Building, Mintian Road, Futian District, Shenzhen, China	
Production Facility	: OMG ELECTRONIC LIMITED	
Address	: 7Floor, Huarong Building, Mintian Road, Futian District, Shenzhen, China	
Test Result	: <input checked="" type="checkbox"/> Positive <input type="checkbox"/> Negative	
Total pages including Appendices	: <u>18</u>	

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2 Details about the Test Laboratory

Details about the Test Laboratory

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Building 12&13, Zhiheng Wisdomland Business Park,
Nantou Checkpoint Road 2, Nanshan District,
Shenzhen City, 518052,
P. R. China

FCC Registration Number: 502708

Telephone: 86 755 8828 6998
Fax: 86 755 8828 5299

Test Site 2

Company name: Global United Technology Services Co., Ltd.
2nd Floor, Block No.2, Laodong Industrial Zone,
Xixiang Road, Baoan District,
Shenzhen, China 518102

FCC Registration Number: 600491

Telephone: 86 755 2779 8480
Fax: 86 755 2779 8960

Remark: All test items were performed at Site 2.



3 Description of the Equipment Under Test

Product:	Action Camera
Model no.:	MGOVS015, SDV5301, SDV2301, SDV6301, SDV8301, MG015
FCC ID:	2AAAO-MG015
Brand Name:	NIL
Rating:	For Camera: 3.7VDC Supplied by Li-ion rechargeable battery 5.0VDC Charged by the USB port For Remote: 1.5VDC by 1*AAA Battery
Description of the EUT:	The Equipment Under Test (EUT) is a Digital Video Camera with WIFI function operating at 2.4GHz.

4 Summary of Test Standards

Test Standards	
FCC Part 15 Subpart B 10-1-14 Edition	Unintentional Radiators

5 Summary of Test Results

Emission Tests				
FCC Part 15 Subpart B 10-1-14 Edition		Test Result		
Test Condition	Pages	Pass	Fail	N/A
Conducted Emission on AC 150kHz to 30MHz	9	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Emission 30MHz to 1000MHz	13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radiated Emission 1GHz to 6GHz	15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6 General Remarks

Remarks

The model MGOVS015 and other models are identical except the model name, so all the EMC requirements were applied on MGOVS015 and other models are deemed to fulfill the relevant EMC requirements without further testing.

SUMMARY:

All tests according to the regulations cited on page 5 were

- Performed

- **Not** Performed

The Equipment under Test

- **Fulfills** the general approval requirements.

- **Does not** fulfill the general approval requirements.

Sample Received Date: August 19, 2015

Testing Start Date: August 19, 2015

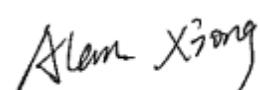
Testing End Date: September 6, 2015

- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch -

Reviewed by: Prepared by:



John Zhi
EMC Project Manager



Alan Xiong
EMC Project Engineer

7 Systems test configuration

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 Configuration List:

TEST MODE	DESCRIPTION	REMARK
TM1	REC Mode	---
TM2	TF Card Playing Mode	Playing 1KHz Color bar
TM3	HDMI Output Mode	Connect to Monitor
TM4	Downloading Mode	Connect to PC

Auxiliary Equipment Used during Test:

DESCRIPTION	MANUFACTURER	MODEL NO.(SHIELD)	S/N(LENGTH)
AOC	LCD TV	TFT24660AG	T49A5JA0006600B9
Apple	PC	A1278	C1MN99ERDTY3

Auxiliary Cable List and Details:

CABLE DESCRIPTION	LENGTH (M)	SHIELDED/ UNSHIELDED	WITH CORE/ WITHOUT CORE
HDMI Cable	1.5	Shielded	Without Core
USB Cable	1.0	Shielded	With two Core

8 Technical Requirement

8.1 Conducted Emission Test

Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

Limit

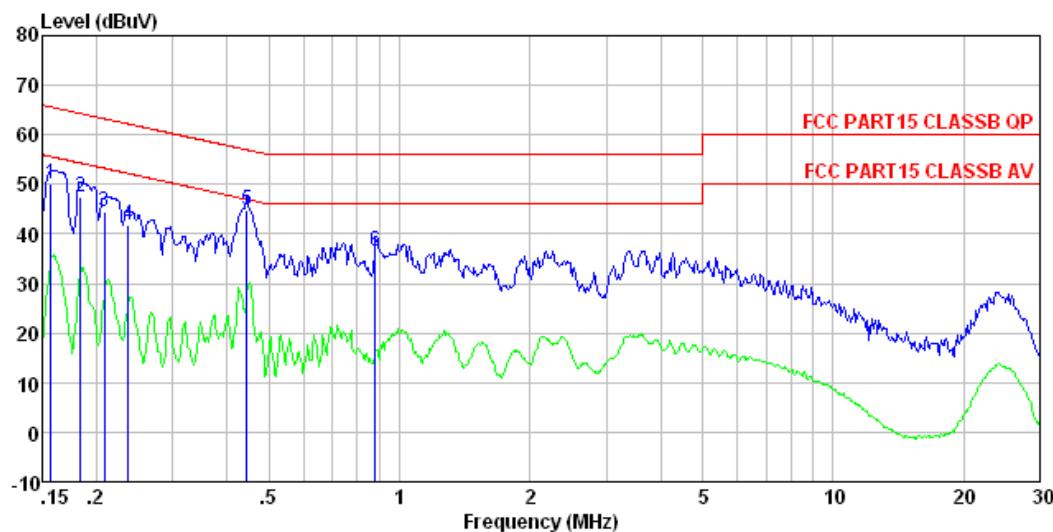
According to §15.107, conducted emissions limit as below:

Frequency MHz	QP Limit dB μ V	AV Limit dB μ V
0.150-0.500	66-56*	56-46*
0.500-5	56	46
5-30	60	50

Decreasing linearly with logarithm of the frequency

Conducted Emission

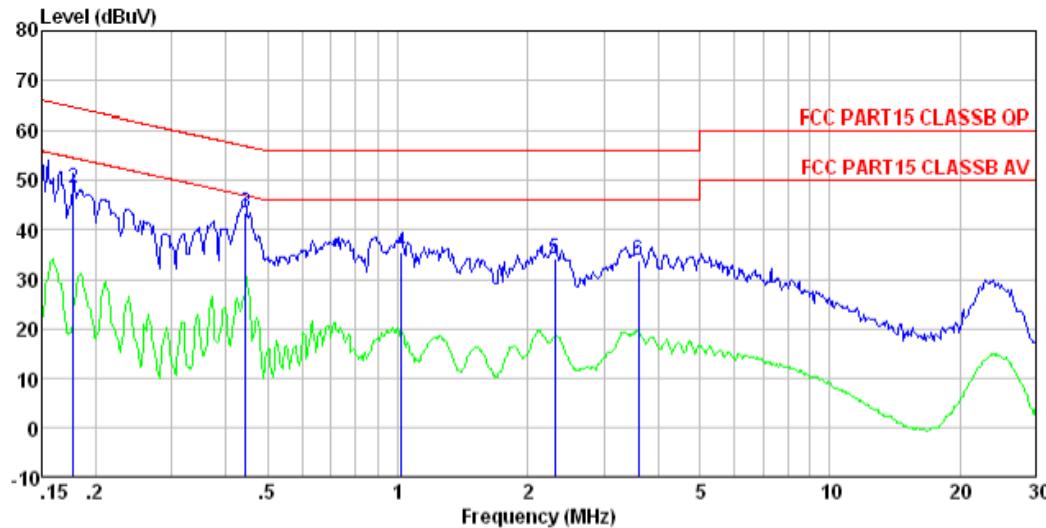
Product Type : Action Camera
 M/N : MGOVS15
 Operating Condition : TM1
 Test Specification : Live
 Comment : AC 120V/60Hz



Freq MHz	Read Level	LISN Factor	Cable Loss	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB
1	0.157	49.73	0.15	0.12	50.00	65.60	-15.60 QP
2	0.183	47.11	0.14	0.13	47.38	64.33	-16.95 QP
3	0.208	44.33	0.13	0.13	44.59	63.27	-18.68 QP
4	0.237	41.49	0.12	0.12	41.73	62.22	-20.49 QP
5	0.444	44.57	0.12	0.11	44.80	56.98	-12.18 QP
6	0.880	36.08	0.14	0.13	36.35	56.00	-19.65 QP

Conducted Emission

Product Type : Action Camera
 M/N : MGOVS015
 Operating Condition : TM1
 Test Specification : Neutral
 Comment : AC 120V/60Hz



Freq	Read	LISN	Cable	Limit	Over	Remark	
	Level	Factor	Loss				
	MHz	dBuV	dB	dB	dBuV	dB	
1	0.150	51.95	0.07	0.12	52.14	66.00	-13.86 QP
2	0.178	48.35	0.07	0.13	48.55	64.59	-16.04 QP
3	0.444	43.33	0.06	0.11	43.50	56.98	-13.48 QP
4	1.021	35.41	0.07	0.13	35.61	56.00	-20.39 QP
5	2.309	34.07	0.10	0.15	34.32	56.00	-21.68 QP
6	3.603	33.48	0.14	0.15	33.77	56.00	-22.23 QP

Remark: The testing was applied on all the modes, only the worst case data was shown in the report.

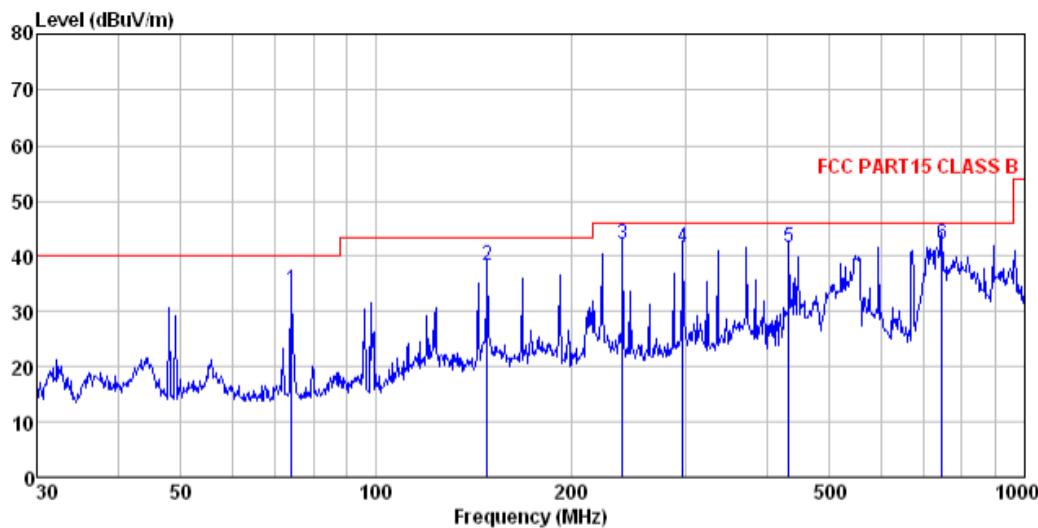
Test Equipment List

Conducted emission test

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
Shielding Room	ZhongYu Electron	7.0(L)x3.0(W)x3.0(H)	GTS264	Sep. 07 2013	Sep. 06 2015
EMI Test Receiver	Rohde & Schwarz	ESCS30	GTS223	June 30 2015	June 29 2016
10dB Pulse Limita	Rohde & Schwarz	N/A	GTS224	June 30 2015	June 29 2016
Coaxial Switch	ANRITSU CORP	MP59B	GTS225	June 30 2015	June 29 2016
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	GTS226	June 30 2015	June 29 2016
Coaxial Cable	GTS	N/A	GTS227	June 30 2015	June 29 2016
EMI Test Software	AUDIX	E3	N/A	N/A	N/A

8.2 Radiated Emission Test 30MHz – 1000MHz

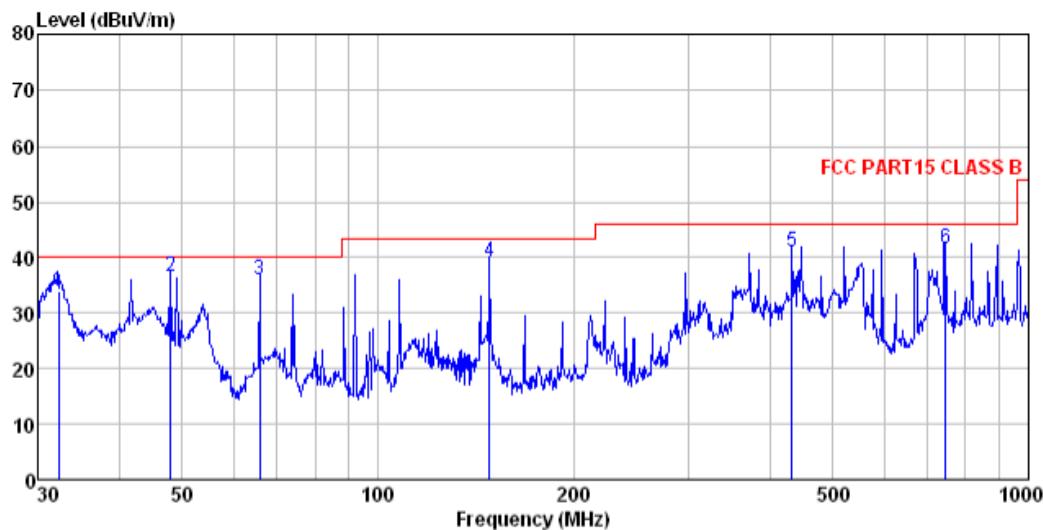
Product Type : Action Camera
 M/N : MGOVS015
 Operating Condition : TM3
 Ant. Polarity : Horizontal
 Comment : 30-1000MHz



Freq	Read	Antenna	Cable	Preamp	Limit	Over	Limit	Remark
	Freq	Level	Factor	Loss				
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	74.135	52.89	9.93	0.98	29.83	33.97	40.00	-6.03 QP
2	148.441	55.98	10.25	1.56	29.41	38.38	43.50	-5.12 QP
3	239.987	55.67	14.09	2.07	29.56	42.27	46.00	-3.73 QP
4	297.224	54.32	15.00	2.35	29.99	41.68	46.00	-4.32 QP
5	432.546	50.42	17.53	3.01	29.43	41.53	46.00	-4.47 QP
6	744.866	45.72	21.39	4.26	29.20	42.17	46.00	-3.83 QP

Radiated Emission Test 30MHz – 1000MHz

Product Type : Action Camera
 M/N : MGOVS015
 Operating Condition : TM3
 Ant. Polarity : Vertical
 Comment : 30-1000MHz

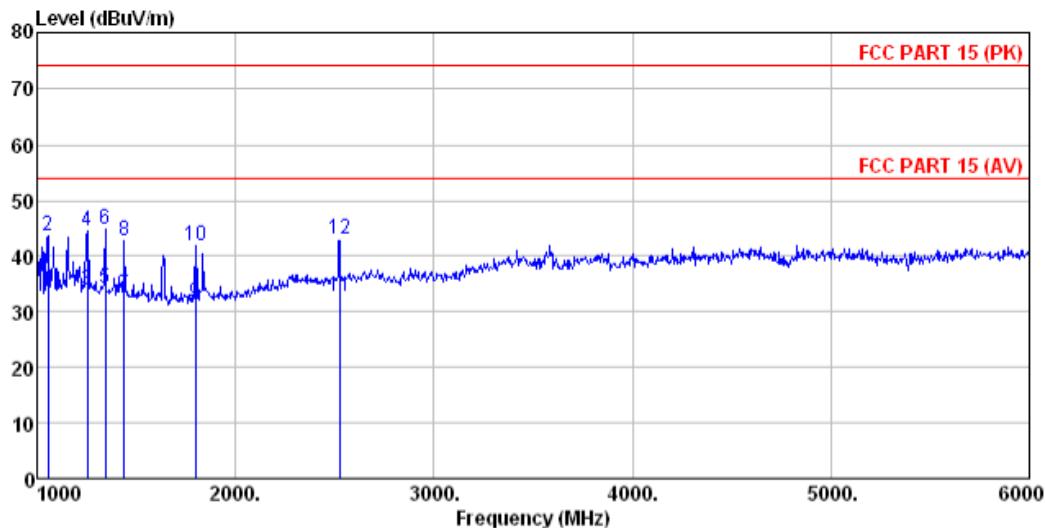


Freq MHz	Read	Antenna	Cable	Preamp	Limit Line dBuV/m	Over Limit dB	Remark
	Freq	Level Factor	Loss Factor	Level dB			
	MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB
1	32.293	49.18	14.32	0.58	30.09	33.99	40.00
2	47.994	50.44	15.36	0.75	30.01	36.54	40.00
3	65.803	52.64	12.30	0.91	29.88	35.97	40.00
4	148.441	56.81	10.25	1.56	29.41	39.21	43.50
5	432.546	50.06	17.53	3.01	29.43	41.17	46.00
6	744.866	45.29	21.39	4.26	29.20	41.74	46.00

Remark: The testing was applied on all the modes, only the worst case data was shown in the report.

8.3 Radiated Emission Test 1GHz – 6GHz

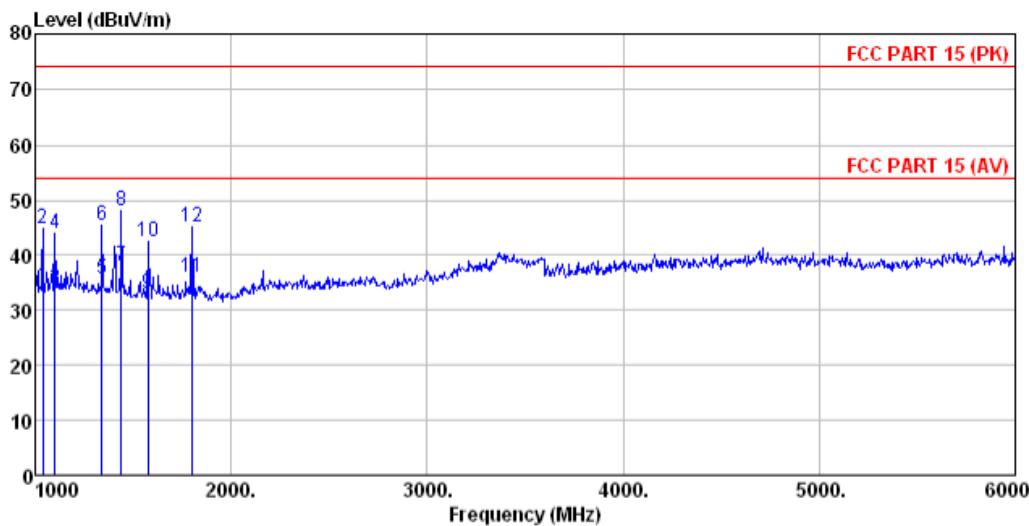
Product Type : Action Camera
 M/N : MGOVS015
 Operating Condition : TM3
 Ant. Polarity : Horizontal
 Comment : 1GHz-6GHz



Freq MHz	Read	Antenna	Cable	Preamp	Level dBuV/m	Limit Line dBuV/m	Over Limit dB	Remark
	Freq	Level Factor	Loss Factor	Level dB		dBuV/m	dBuV/m	
	MHz	dBuV	dB/m		dBuV/m	dBuV/m	dB	
1	1055.000	37.49	24.63	4.34	32.84	33.62	54.00	-20.38 Average
2	1055.000	47.61	24.63	4.34	32.84	43.74	74.00	-30.26 Peak
3	1255.000	37.15	25.54	4.51	33.18	34.02	54.00	-19.98 Average
4	1255.000	47.72	25.54	4.51	33.18	44.59	74.00	-29.41 Peak
5	1345.000	37.15	25.70	4.58	33.33	34.10	54.00	-19.90 Average
6	1345.000	47.90	25.70	4.58	33.33	44.85	74.00	-29.15 Peak
7	1440.000	36.55	25.38	4.64	33.50	33.07	54.00	-20.93 Average
8	1440.000	46.36	25.38	4.64	33.50	42.88	74.00	-31.12 Peak
9	1800.000	35.65	25.27	4.86	34.11	31.67	54.00	-22.33 Average
10	1800.000	45.88	25.27	4.86	34.11	41.90	74.00	-32.10 Peak
11	2525.000	33.54	27.58	5.51	33.86	32.77	54.00	-21.23 Average
12	2525.000	43.74	27.58	5.51	33.86	42.97	74.00	-31.03 Peak

Radiated Emission Test 1GHz – 6GHz

Product Type : Action Camera
 M/N : MGOVS015
 Operating Condition : TM3
 Ant. Polarity : Vertical
 Comment : 1GHz-6GHz



Freq MHz	Read	Antenna Level	Cable Loss	Preamp Factor	Line Level	Limit Line	Over Limit	Remark
	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB		
1 1040.000	38.19	24.60	4.33	32.81	34.31	54.00	-19.69	Average
2 1040.000	48.75	24.60	4.33	32.81	44.87	74.00	-29.13	Peak
3 1100.000	37.65	24.77	4.38	32.92	33.88	54.00	-20.12	Average
4 1100.000	47.78	24.77	4.38	32.92	44.01	74.00	-29.99	Peak
5 1340.000	38.65	25.69	4.57	33.33	35.58	54.00	-18.42	Average
6 1340.000	48.55	25.69	4.57	33.33	45.48	74.00	-28.52	Peak
7 1440.000	41.69	25.38	4.64	33.50	38.21	54.00	-15.79	Average
8 1440.000	51.63	25.38	4.64	33.50	48.15	74.00	-25.85	Peak
9 1575.000	36.95	25.02	4.73	33.74	32.96	54.00	-21.04	Average
10 1575.000	46.38	25.02	4.73	33.74	42.39	74.00	-31.61	Peak
11 1800.000	39.98	25.27	4.86	34.11	36.00	54.00	-18.00	Average
12 1800.000	49.03	25.27	4.86	34.11	45.05	74.00	-28.95	Peak

Remark: The testing was applied on all the modes, only the worst case data was shown in the report.

Test Equipment List

Radiated Emission Test

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date	Cal. Due date
3m Semi-Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	Mar. 27 2015	Mar. 26 2016
Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
Spectrum Analyzer	Agilent	E4440A	GTS533	Dec. 4 2014	Dec. 3 2015
EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June 30 2015	June 29 2016
BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June 30 2015	June 29 2016
Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	GTS208	June 26 2015	June 25 2016
Horn Antenna	ETS-LINDGREN	3160	GTS217	Mar. 27 2015	Mar. 26 2016
EMI Test Software	AUDIX	E3	N/A	N/A	N/A
Coaxial Cable	GTS	N/A	GTS213	Mar. 28 2015	Mar. 27 2016
Coaxial Cable	GTS	N/A	GTS211	Mar. 28 2015	Mar. 27 2016
Coaxial cable	GTS	N/A	GTS210	Mar. 28 2015	Mar. 27 2016
Coaxial Cable	GTS	N/A	GTS212	Mar. 28 2015	Mar. 27 2016
Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June 30 2015	June 29 2016
Amplifier(2GHz-20GHz)	HP	8349B	GTS206	June 30 2015	June 29 2016
Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 26 2015	June 25 2016
Band filter	Amindeon	82346	GTS219	Mar. 28 2015	Mar. 27 2016
Power Meter	Anritsu	ML2495A	GTS540	June 30 2015	June 29 2016
Power Sensor	Anritsu	MA2411B	GTS541	June 30 2015	June 29 2016

9 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

System Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz ~ 30MHz	± 4.34dB	(1)
Radiated Emission	30MHz ~ 1000MHz	± 4.24dB	(1)
Radiated Emission	1GHz ~ 26.5GHz	± 4.68dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	± 3.45dB	(1)

Note (1): The measurement uncertainty is for coverage factor of $k=2$ and a level of confidence of 95%.