FCC Radio Test Report

FCC ID: TW5GD9901

This report concerns (check one): ■ **Original Grant** □ **Class II Change**

Issued Date	: Jul. 24, 2013
Project No.	: 1306C254
Equipment	: 2.4GHZ Digital Wireless RearView Camera
Model Name	: GD9901
Applicant	: ShenZhen Gospell Smarthome Electronic Co., Ltd.
Address	: East of 01st-04st Floor, Block A,No.1 Industrial park, Feng Huang Gang, South of No.1 Baotian Road, Xixiang Street, Bao'an District, Shenzhen City, Guangdong Province 518126, P.R.China.

Tested by: Neutron Engineering Inc. EMC Laboratory

Date of Receipt: Jul. 01, 2013

Date of Test: Jul. 01, 2013~ Jul. 23, 2013

Testing Engineer : David Mao
(David Mao)

Technical Manager : Leo Hung
(Leo Hung)

Authorized Signatory : Steven Lu
(Steven Lu)

NEUTRON ENGINEERING INC.

No.3,Jinshagang 1st Road, ShiXia, Dalang Town,
Dong Guan, China.523792
TEL : +86-769-8318-3000 FAX : +86-769-8319-6000

Declaration

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

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

Neutron's reports must not be used by the client to claim product endorsement by the authorities or any agency of the Government.

This report is the confidential property of the client. As a mutual protection to the clients, the public and **Neutron-self**, extracts from the test report shall not be reproduced except in full with **Neutron**'s authorized written approval.

Neutron's laboratory quality assurance procedures are in compliance with the **ISO Guide 17025** requirements, and accredited by the conformity assessment authorities listed in this test report.

Limitation

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

Table of Contents Page

Table of Contents Page

1. CERTIFICATION

Equipment	:	2.4GHZ Digital Wireless RearView Camera
Brand Name	:	N/A
Model Name	:	GD9901
Applicant	:	ShenZhen Gospell Smarthome Electronic Co., Ltd.
Manufacturer	:	ShenZhen Gospell Smarthome Electronic Co., Ltd.
Address	:	East of 01st-04st Floor, Block A,No.1 Industrial park, Feng Huang Gang, South of No.1 Baotian Road, Xixiang Street, Bao'an District, Shenzhen City, Guangdong Province 518126, P.R.China.
Factory	:	ShenZhen Gospell Smarthome Electronic Co., Ltd.
Address	:	East of 01st-04st Floor, Block A,No.1 Industrial park, Feng Huang Gang, South of No.1 Baotian Road, Xixiang Street, Bao'an District, Shenzhen City, Guangdong Province 518126, P.R.China.
Date of Test	:	Jul. 01, 2013~ Jul. 23, 2013
Test Item	:	ENGINEERING SAMPLE
Standard(s)	:	FCC Part15, Subpart C(15.247) / ANSI C63.4 : 2009 FCC Public Notice DA 00-705, March 30, 2000.

The above equipment has been tested and found compliance with the requirement of the relative standards by Neutron Engineering Inc. EMC Laboratory.
The test data, data evaluation, and equipment configuration contained in our test report (Ref No. NEI-FCCP-1-1306C254) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of TAF according to the ISO-17025 quality assessment standard and technical standard(s).

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standard(s):

APPLIED STANDARD: 47 CFR Part 15, Subpart C			
Standard(s) Section **47 CFR Part 15**	Test Item	Judgment	Remark
15.207	Conducted Emission	N/A	Note(1)
15.247(d)	Antenna conducted Spurious Emission	PASS	
15.247 (a)(1)	Hopping Channel Separation	PASS	
15.247 (b)(1)	Peak Output Power	PASS	
15.247(d) 15.209	Radiated Spurious Emission	PASS	
15.247 (a)(1)(iii)	Number of Hopping Frequency	PASS	
15.247 (a)(1)(iii)	Dwell Time	PASS	
15.205	Restricted Bands	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this test report.

(2) According to FCC Public Notice DA 00-705, March 30, 2000.

2.1 TEST FACILITY

The test facilities used to collect the test data in this report is **DG-CB03** at the location of No.3,Jinshagang 1st Road, ShiXia, Dalang Town, Dong Guan, China.523792
Neutron's test firm number for FCC 319330

2.2 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

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** %.

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
DG-C02	CISPR	150 KHz ~ 30MHz	1.94	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	Ant. H / V	U,(dB)	NOTE
DG-CB03	CISPR	9K~30MHz	V	3.79	
		9K~30MHz	H	3.57	
		30MHz ~ 200MHz	V	3.82	
		30MHz ~ 200MHz	H	3.60	
		200MHz ~ 1,000MHz	V	3.86	
		200MHz ~ 1,000MHz	H	3.94	
		1GHz~18GHz	V	3.12	
		1GHz~18GHz	H	3.68	
		18GHz~40GHz	V	4.15	
		18GHz~40GHz	H	4.14	

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>2.4GHZ Digital Wireless RearView Camera</td></tr>
<tr><td>Brand Name</td><td>N/A</td></tr>
<tr><td>Model Name</td><td>GD9901</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>
<table>
<tr><td>Operation Frequency:</td><td>2406~2475 MHz</td></tr>
<tr><td>Modulation Technology:</td><td>16QAM,QPSK,BPSK</td></tr>
<tr><td>Bit Rate of Transmitter:</td><td>3Mbps</td></tr>
<tr><td>Number Of Channel</td><td>24 CH, Please see note 2. (Page 10)</td></tr>
<tr><td>Antenna Designation:</td><td rowspan="2">Please see note 3. (Page 10)</td></tr>
<tr><td>Antenna Gain(Peak)</td></tr>
<tr><td>Output Power:</td><td>12.92 dBm (Max)</td></tr>
</table>
More details of EUT technical specification, please refer to the User's Manual.
</td></tr>
<tr><td>Power Source</td><td>Supplied from car battery</td></tr>
<tr><td>Power Rating</td><td>DC 12V / 24V</td></tr>
<tr><td>Connecting I/O Port(s)</td><td>Please refer to the User's Manual</td></tr>
</table>

Note:

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

2.

Channel List

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2406	09	2430	17	2454
02	2409	10	2433	18	2457
03	2412	11	2436	19	2460
04	2415	12	2439	20	2463
05	2418	13	2442	21	2466
06	2421	14	2445	22	2469
07	2424	15	2448	23	2472
08	2427	16	2451	24	2475

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	Dipole	N/A	2.0

3.2 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	TX Mode **NOTE (1)**

For Conducted Emission	
Final Test Mode	Description
N/A	”N/A” denotes test is not applicable in this test report.

For Radiated Emission	
Final Test Mode	Description
Mode 1	TX Mode **NOTE (1)**

Note:

(1) The measurements are performed at the high, middle, low available channels.
(2) The EUT system operated during DC 12V and 24V, were found DC 24V to be the worst case.

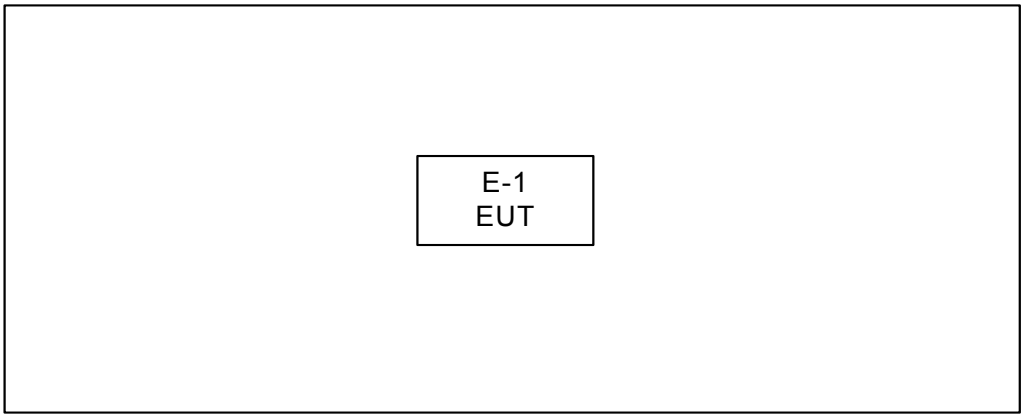
3.3 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of FHSS

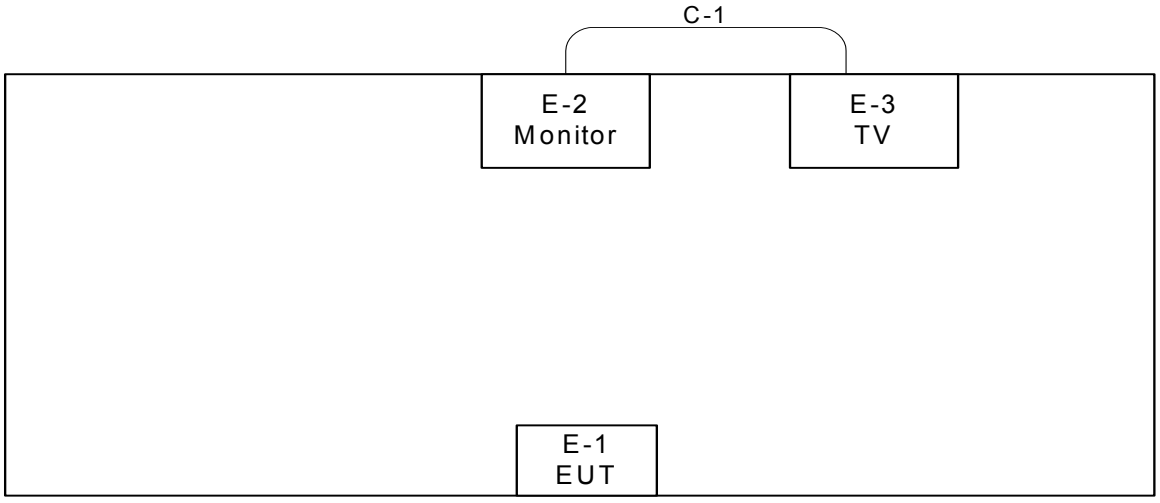
Test software version	Tera Term		
Frequency	2406MHz	2442MHz	2475MHz
Parameters-1Mbps	9.5	9.5	9.5

3.4 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated:



Conducted:



C-1: TV Cable

3.5 DESCRIPTION OF SUPPORT UNITS

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

Item	Equipment	Mfr/Brand	Model/Type No.	FCC ID	Series No.	Note
E-1	2.4GHZ Digital Wireless RearView Camera	N/A	GD9901	TW5GD9901	N/A	EUT
E-2	2.4GHZ Digital Wireless RearView monitor	N/A	GD7101	TW5GD7101	N/A	
E-3	TV	TechniSat	HD-Vision	VER	019103	

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

Note:

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

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

4.1.1 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
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	60.00	50.00	FCC

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.

4.1.2 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	LISN	EMCO	3816/2	00052765	Apr. 25, 2014
2	LISN	R&S	ENV216	100087	Nov.16.2013
3	Test Cable	N/A	C_17	N/A	Mar.15.2014
4	EMI TEST RECEIVER	R&S	ESCS30	826547/022	Apr. 25, 2014
5	50Ω Terminator	SHX	TF2-3G-A	08122902	Apr. 25, 2014

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

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

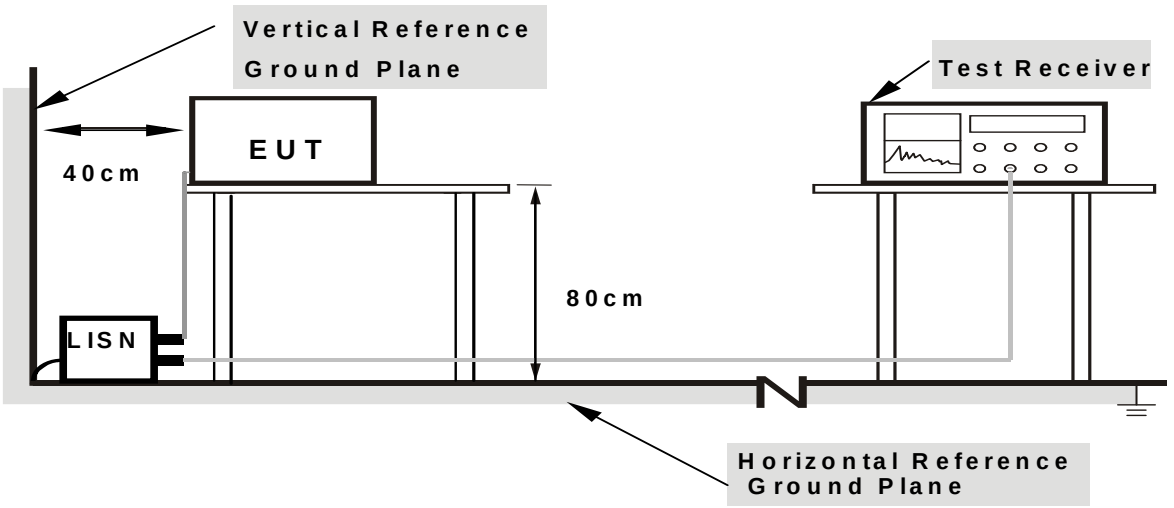
4.1.3 TEST PROCEDURE

a. 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.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.4 DEVIATION FROM TEST STANDARD

No deviation

4.1.5 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

4.1.6 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.
The EUT is continued Transmitter/Receive data or Hopping on mode.

4.1.7 TEST RESULTS

EUT:	2.4GHZ Digital Wireless RearView Camera	Model Name:	GD9901
Temperature:	--	Relative Humidity:	--
Test Power:	--	Phase:	--
Test Mode:	N/A		

Remark

(1) All readings are QP Mode value unless otherwise stated AVG in column of『Note』. If the QP Mode Measured value compliance with the QP Limits and lower than AVG Limits, the EUT shall be deemed to meet both QP & AVG Limits and then only QP Mode was measured, but AVG Mode didn't perform.In this case, a " * " marked in AVG Mode column of Interference Voltage Measured.

(2) Measuring frequency range from 150KHz to 30MHz.

(3) " N/A" denotes test is not applicable in this test report.

4.2 RADIATED EMISSION MEASUREMENT

4.2.1 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), then the 15.209(a) 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)	(dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

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

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

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5^{th} harmonic of the highest frequency or 40 GHz, whichever is lower

4.2.2 MEASUREMENT INSTRUMENTS LIST ANS SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Antenna	Schwarbeck	VULB9160	9160-3232	Apr. 25, 2014
2	Amplifier	HP	8447D	2944A09673	Apr. 25, 2014
3	Test Receiver	R&S	ESCI	100382	Apr. 25, 2014
4	Test Cable	N/A	C-01_CB03	N/A	Jul. 02, 2014
5	Antenna	ETS	3115	00075789	Apr. 25, 2014
6	Amplifier	Agilent	8449B	3008A02274	Apr. 25, 2014
7	Spectrum	Agilent	E4408B	US39240143	Nov. 16.2013
8	Test Cable	HUBER+SUHNER	C-45	N/A	Apr. 30, 2014
9	Controller	CT	SC100	N/A	N/A
10	Active Loop Antenna	R&S	HFH2-Z2	830749/020	Apr. 25, 2014
11	Broad-Band Horn Antenna	Schwarzbeck	BBHA 9170	9170319	Oct.12.2013
12	Horn Antenna	EMCO	3115	9605-4803	Apr. 25, 2014

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz for PK/AVG detector
Start ~ Stop Frequency	90kHz~110kHz for QP detector
Start ~ Stop Frequency	110kHz~490kHz for PK/AVG detector
Start ~ Stop Frequency	490kHz~30MHz for QP detector
Start ~ Stop Frequency	30MHz~1000MHz for QP detector

Duty cycle: TX 2408MHz

Duty cycle = T_{ON} /(T_{ON} + T_{OFF})

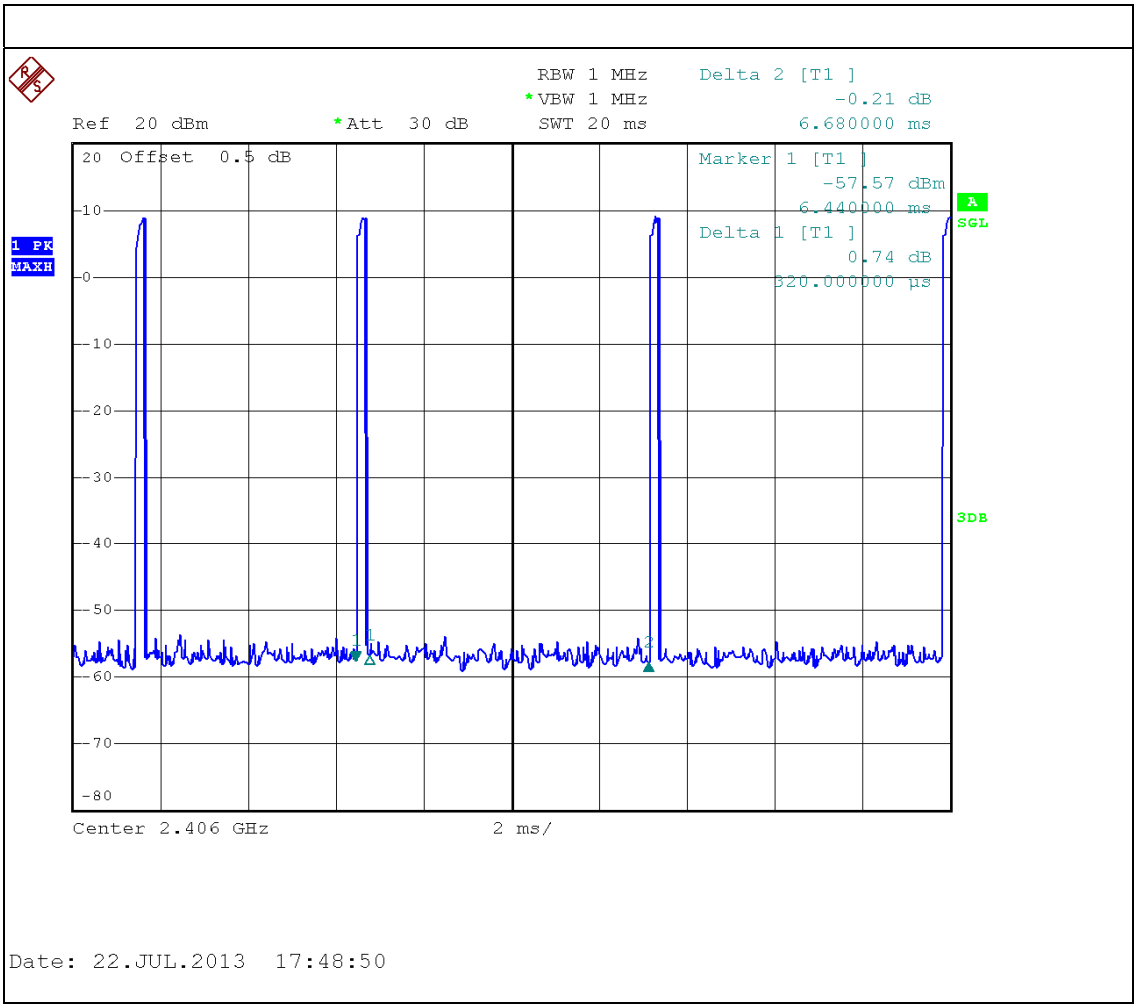
T_{ON}: 0.32 msec

T_{ON} + T_{OFF}: (total time): 6.68 msec

Duty cycle: 4.80%

AV=PK+20 log(Duty cycle)

AV=PK-26.39



4.2.3 TEST PROCEDURE

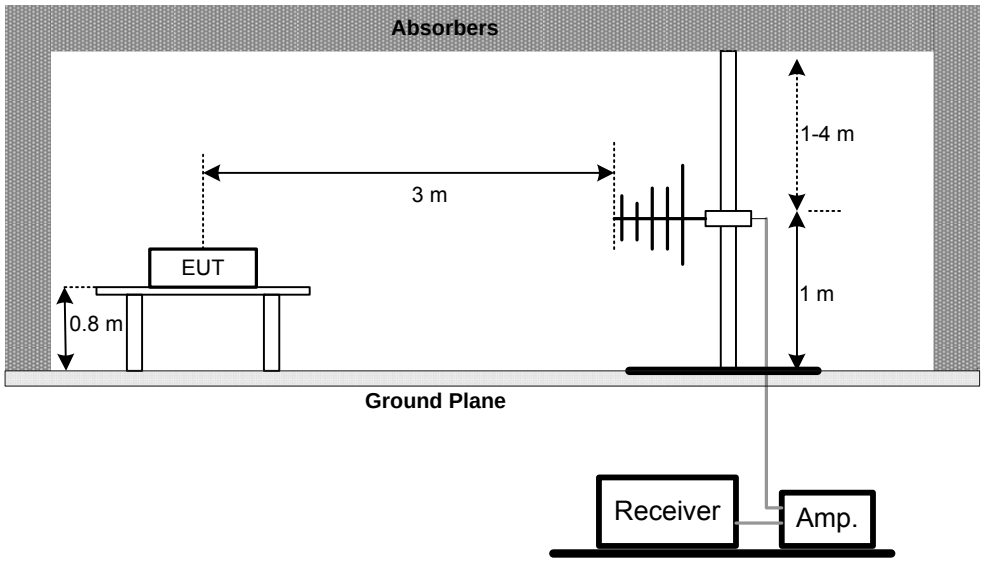
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(below 1GHz)
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.(above 1GHz)
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
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.

4.2.4 DEVIATION FROM TEST STANDARD

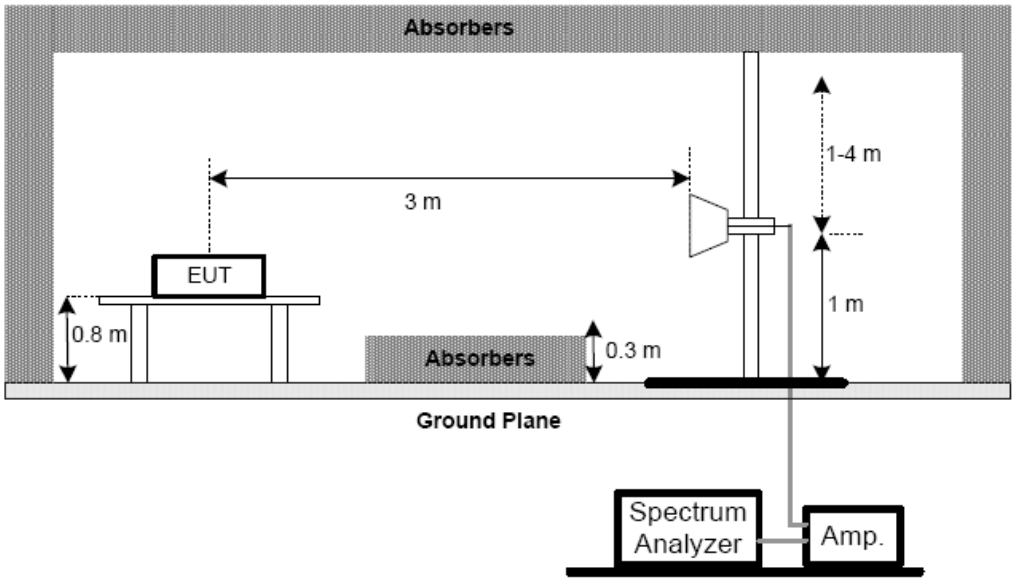
No deviation

4.2.5 TEST SETUP

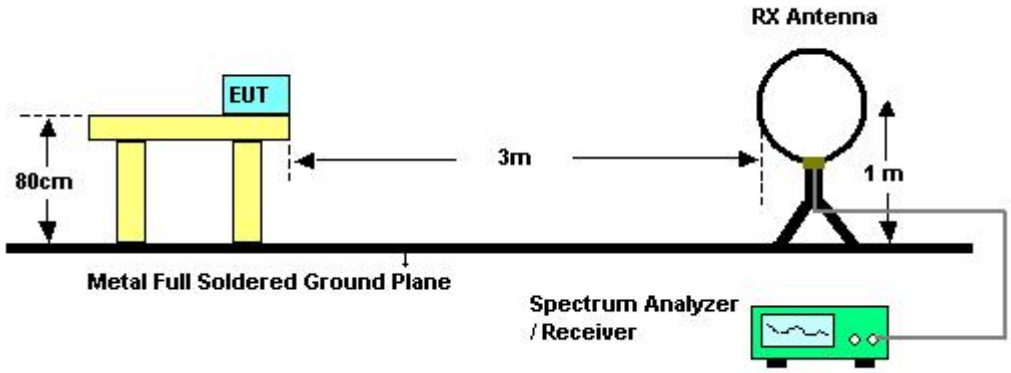
(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1 GHz



(C) For radiated emissions below 30MHz



4.2.6 EUT OPERATING CONDITIONS

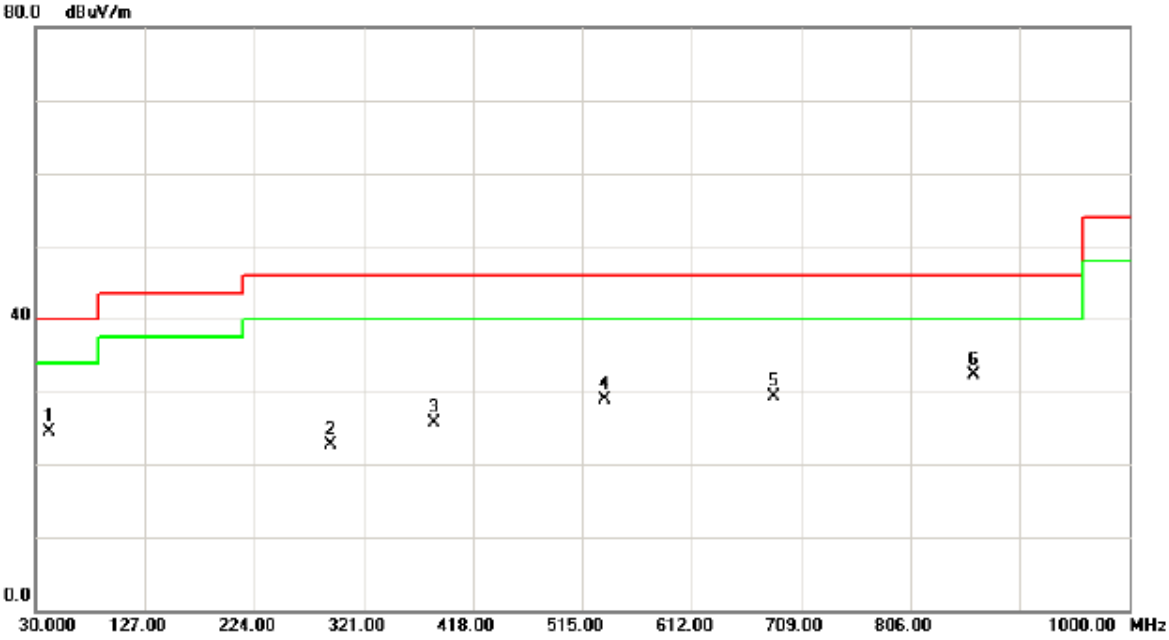
The EUT tested system was configured as the statements of **4.1.6** Unless otherwise a special operating condition is specified in the follows during the testing.

4.2.7 TEST RESULTS (BETWEEN30 – 1000 MHZ)

Remark：

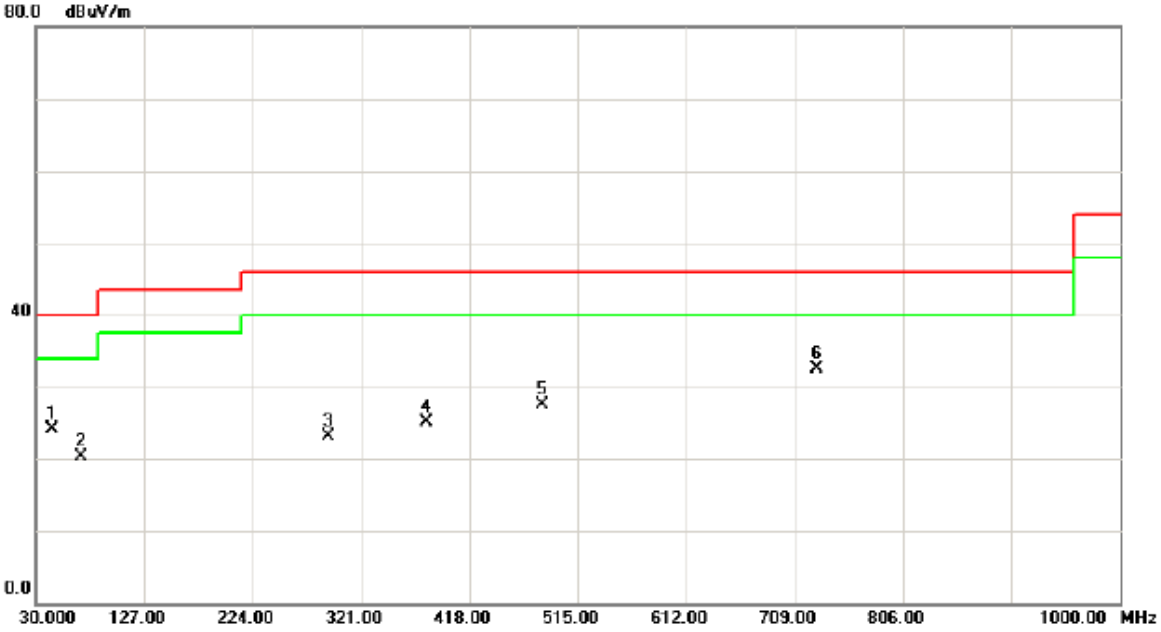
(1) Reading in which marked as QP or Peak means measurements by using are Quasi-Peak Mode or Peak Mode with Detector BW=120KHz；SPA setting in RBW=120KHz, VBW =120KHz, Swp. Time = 0.3 sec./MHz.
(2) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn‘t perform.
(3) Measuring frequency range from 30MHz to 1000MHz.
(4) If the peak scan value lower limit more than 20dB, then this signal data does not show in table.

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX Mode 2406MHz	Polarization:	Vertical



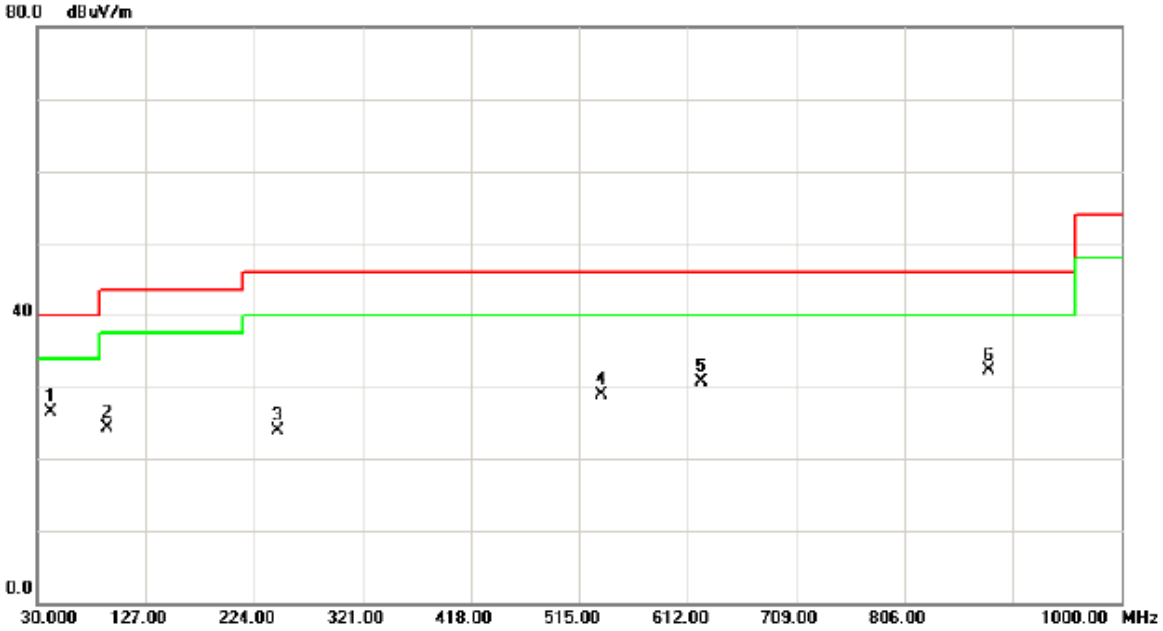
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		42.1250	41.09	-16.68	24.41	40.00	-15.59	peak	
2		291.9000	34.73	-12.06	22.67	46.00	-23.33	peak	
3		384.0500	35.29	-9.60	25.69	46.00	-20.31	peak	
4		534.4000	34.96	-6.07	28.89	46.00	-17.11	peak	
5		684.7500	32.60	-3.22	29.38	46.00	-16.62	peak	
6	*	861.7750	32.93	-0.69	32.24	46.00	-13.76	peak	

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX Mode 2406MHz	Polarization:	Horizontal



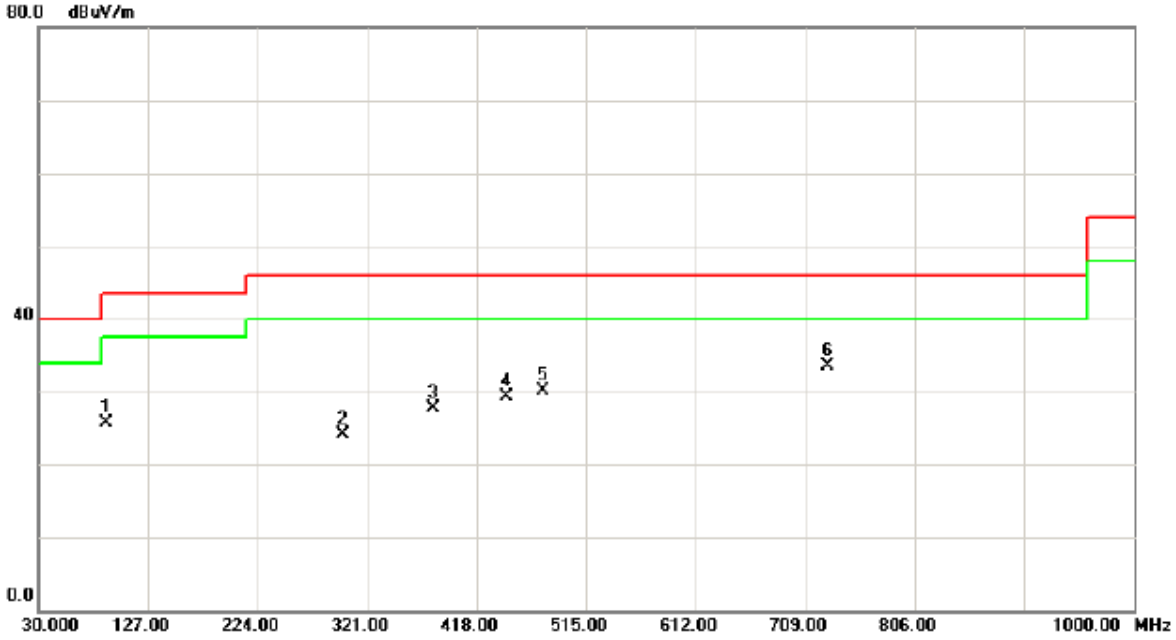
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		44.5500	41.17	-16.98	24.19	40.00	-15.81	peak	
2		71.2250	38.80	-18.46	20.34	40.00	-19.66	peak	
3		291.9000	35.10	-12.06	23.04	46.00	-22.96	peak	
4		379.2000	34.98	-9.78	25.20	46.00	-20.80	peak	
5		483.4750	35.11	-7.61	27.50	46.00	-18.50	peak	
6	*	728.4000	35.35	-2.83	32.52	46.00	-13.48	peak	

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX Mode 2442MHz	Polarization:	Vertical



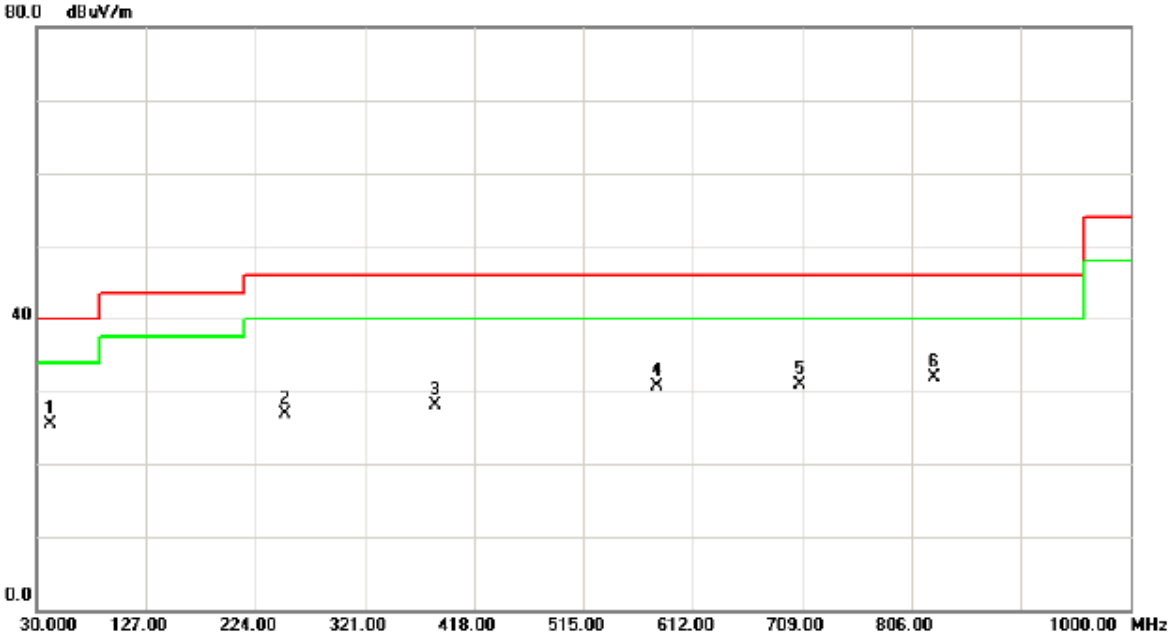
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	*	42.1250	43.09	-16.68	26.41	40.00	-13.59	peak	
2		93.0500	42.99	-18.71	24.28	43.50	-19.22	peak	
3		245.8250	38.69	-14.82	23.87	46.00	-22.13	peak	
4		534.4000	34.96	-6.07	28.89	46.00	-17.11	peak	
5		624.1250	34.61	-3.82	30.79	46.00	-15.21	peak	
6		881.1750	32.63	-0.39	32.24	46.00	-13.76	peak	

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX Mode 2442MHz	Polarization:	Horizontal



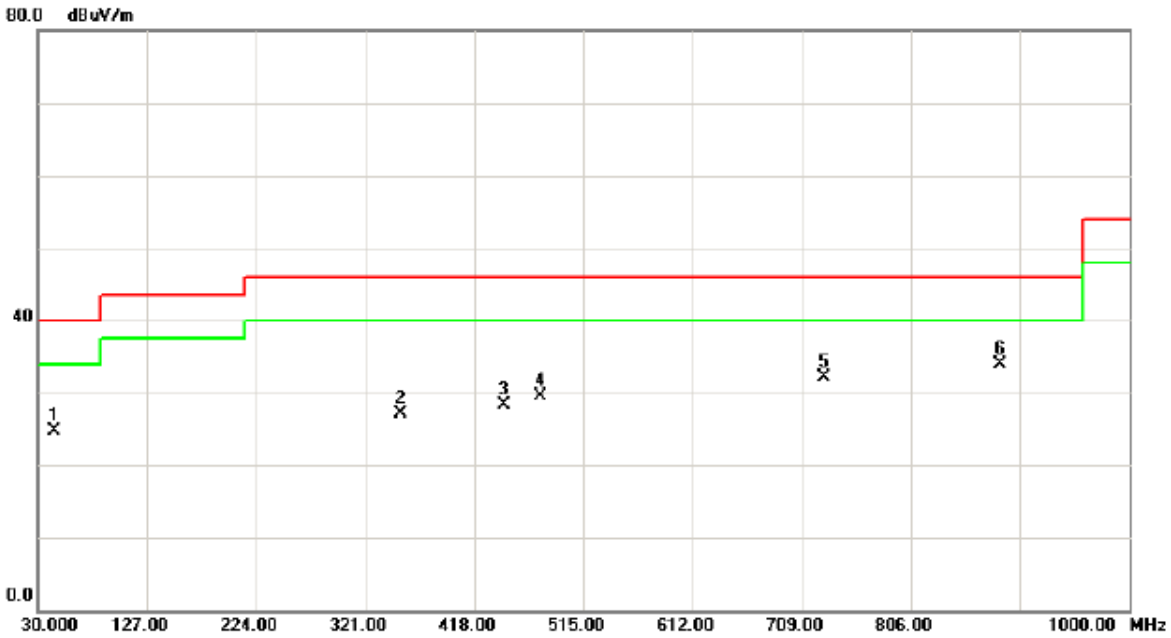
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		90.6250	44.79	-19.00	25.79	43.50	-17.71	peak	
2		299.1750	36.26	-12.06	24.20	46.00	-21.80	peak	
3		379.2000	37.48	-9.78	27.70	46.00	-18.30	peak	
4		444.6750	37.56	-8.21	29.35	46.00	-16.65	peak	
5		476.2000	37.79	-7.72	30.07	46.00	-15.93	peak	
6	*	728.4000	36.35	-2.83	33.52	46.00	-12.48	peak	

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX Mode 2475MHz	Polarization:	Vertical



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		42.1250	42.09	-16.68	25.41	40.00	-14.59	peak	
2		250.6750	41.32	-14.51	26.81	46.00	-19.19	peak	
3		384.0500	37.79	-9.60	28.19	46.00	-17.81	peak	
4		580.4750	35.48	-4.75	30.73	46.00	-15.27	peak	
5		706.5750	34.07	-3.09	30.98	46.00	-15.02	peak	
6	*	825.4000	33.32	-1.37	31.95	46.00	-14.05	peak	

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX Mode 2475MHz	Polarization:	Horizontal



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1		44.5500	41.67	-16.98	24.69	40.00	-15.31	peak	
2		352.5250	37.86	-10.75	27.11	46.00	-18.89	peak	
3		444.6750	36.56	-8.21	28.35	46.00	-17.65	peak	
4		476.2000	37.29	-7.72	29.57	46.00	-16.43	peak	
5		728.4000	34.85	-2.83	32.02	46.00	-13.98	peak	
6	*	886.0250	34.12	-0.30	33.82	46.00	-12.18	peak	

4.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX 2406MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Margin		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	V	22.74	-3.65	34.09	56.83	30.44	74.00	54.00	-17.17	-23.56	X/E
2406.40	**V**	**71.71**	**45.32**	**34.14**	**105.85**	**79.46**					**X/F**
4812.12	V	45.29	18.90	6.41	51.70	25.31	74.00	54.00	-22.30	-28.69	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

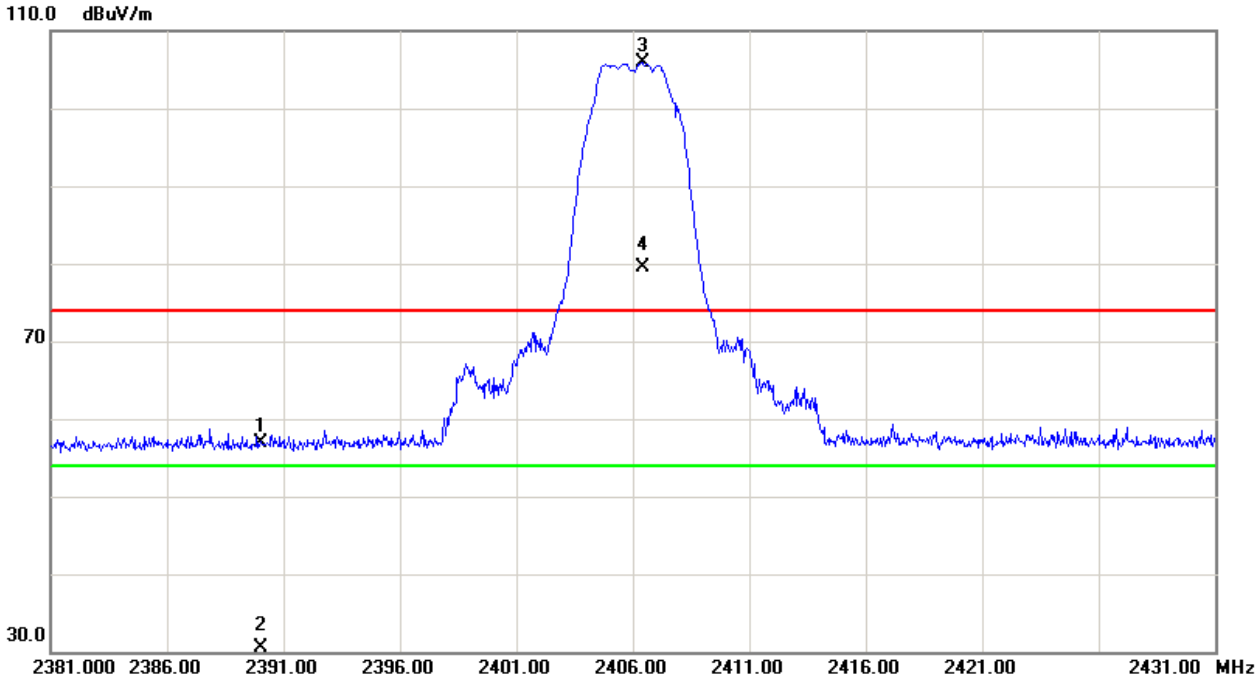
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

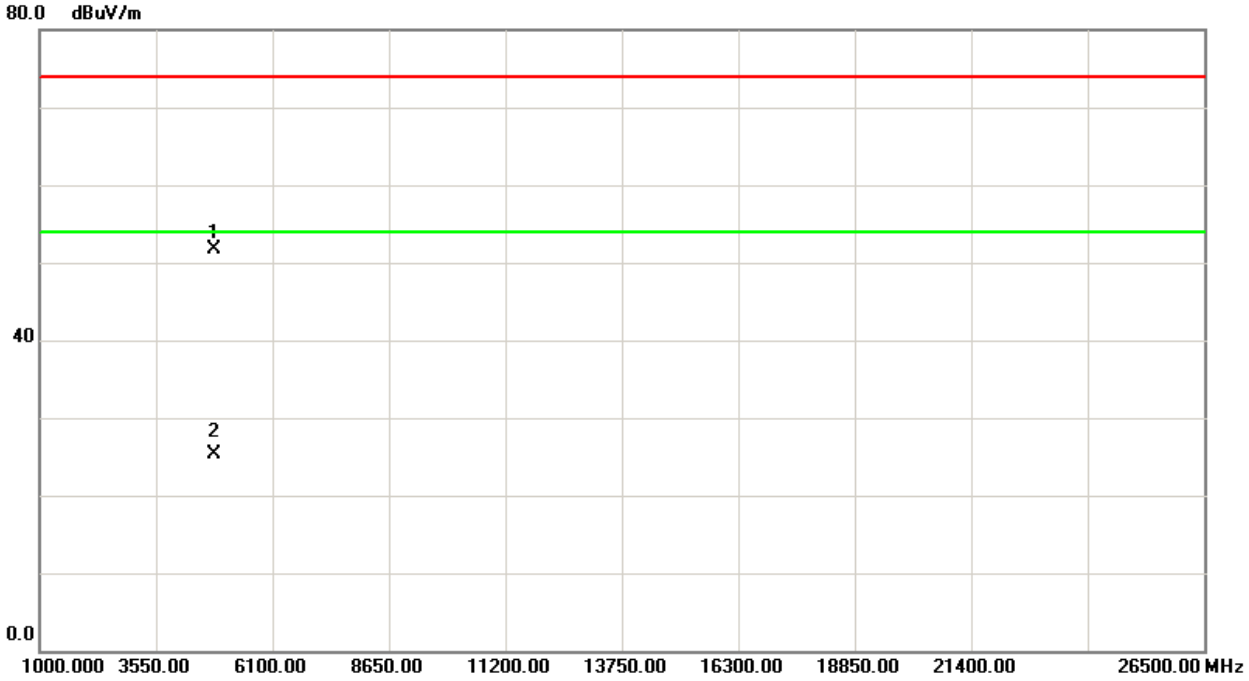
(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

(8) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ,Final AV=PK-26.39

TX 2406MHz(Above 1000 MHz, Vertical)





EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010hPa	Test Voltage ：	DC 24V
Test Mode ：	TX 2406MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Margin		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2390.00	H	22.24	-4.15	34.09	56.33	29.94	74.00	54.00	-17.67	-24.06	X/E
2406.40	**H**	**64.31**	**37.92**	**34.14**	**98.45**	**72.06**					**X/F**
4812.12	H	48.14	21.75	6.41	54.55	28.16	74.00	54.00	-19.45	-25.84	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

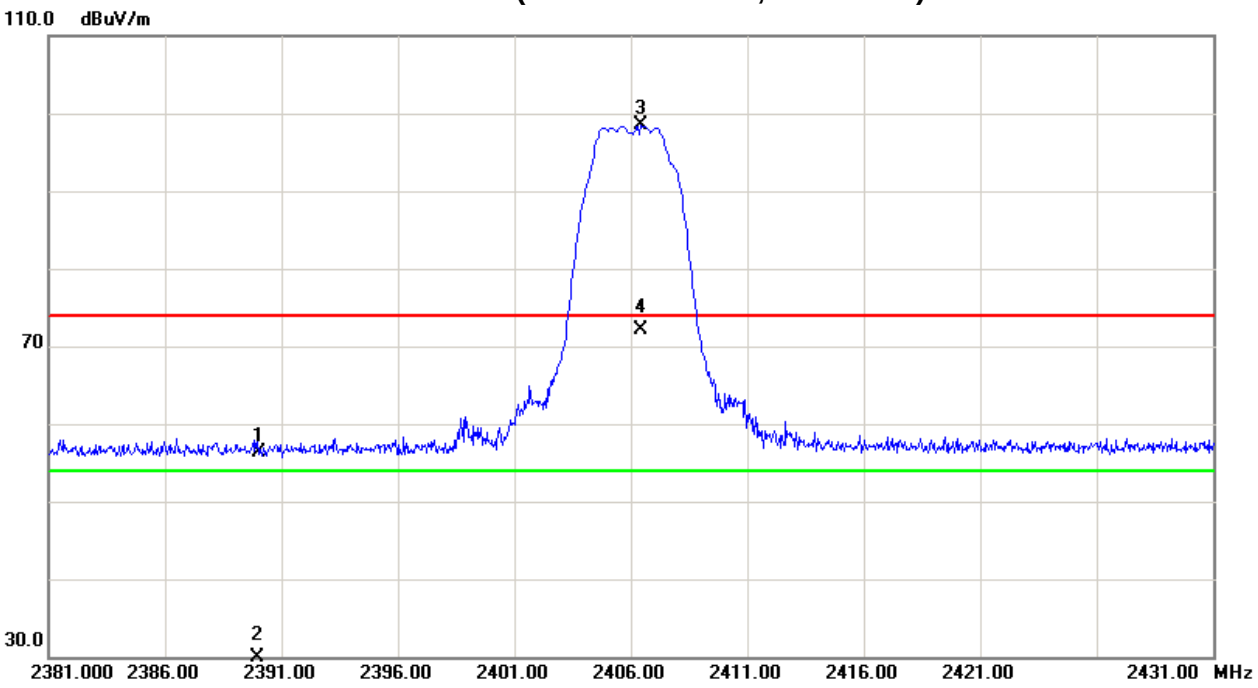
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

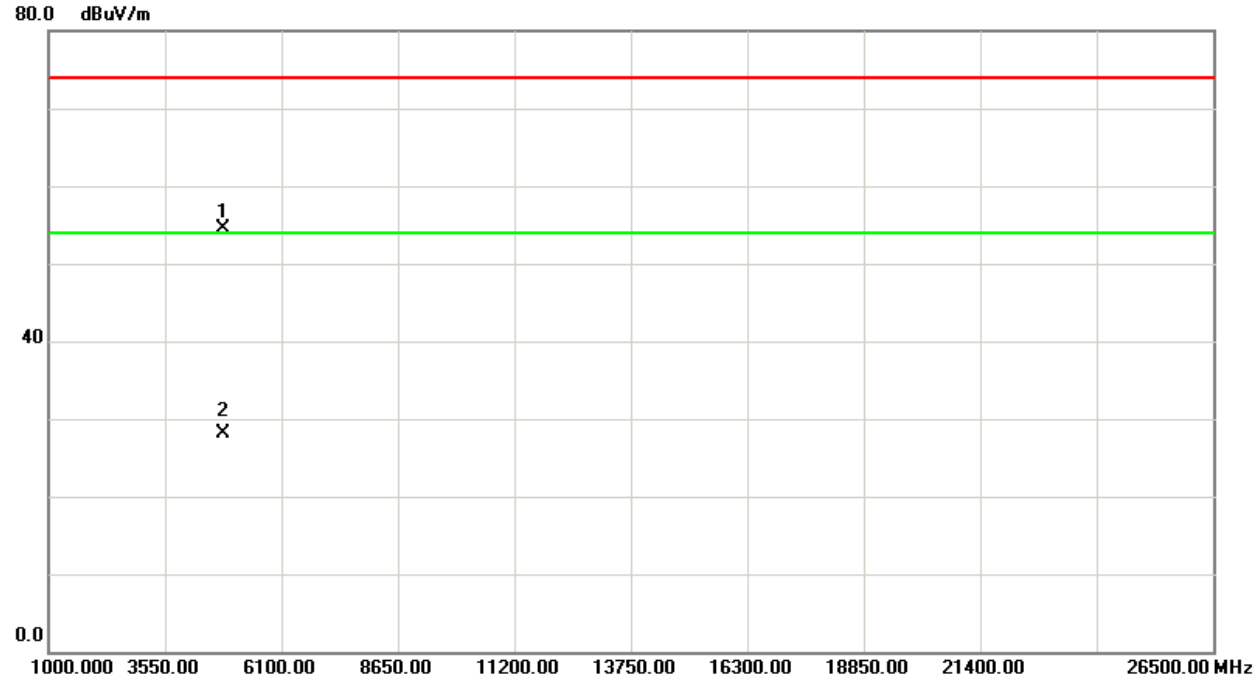
(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

(8) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ,Final AV=PK-26.39

TX 2406MHz(Above 1000 MHz, Horizontal)





EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX 2442MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Margin		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	dBuV/m	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2442.40	**V**	**71.37**	**44.98**	**34.25**	**105.62**	**79.23**					**X/F**
4884.11	V	44.13	17.74	6.62	50.75	24.36	74.00	54.00	-23.25	-29.64	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

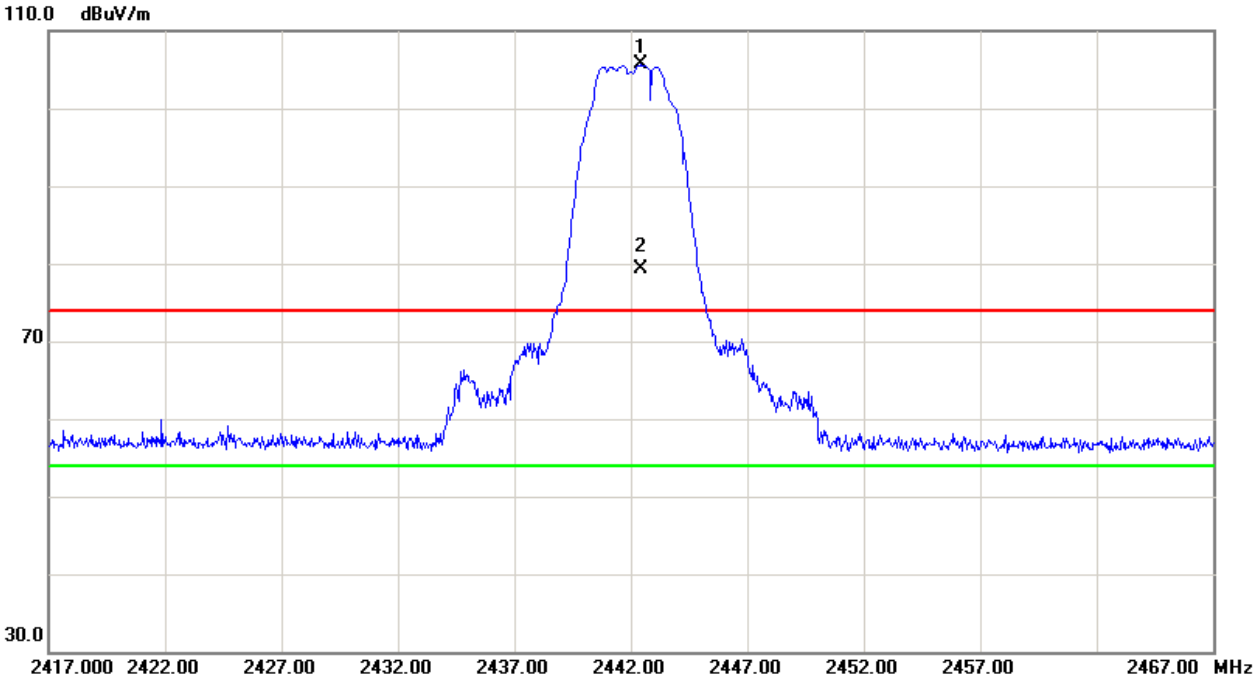
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

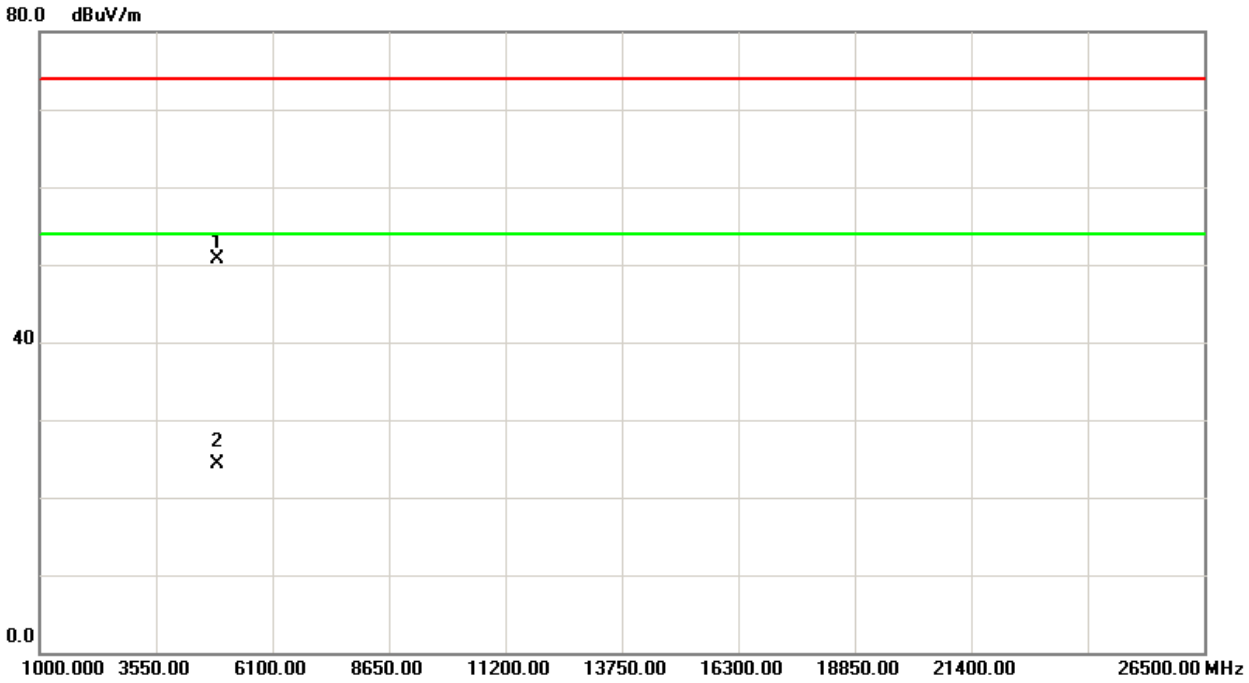
(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

(8) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ,Final AV=PK-26.39

TX 2442MHz (Above 1000 MHz, Vertical)





EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX 2442MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Margin		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	dBuV/m	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2441.65	**H**	**63.06**	**36.67**	**34.25**	**97.31**	**70.92**					**X/F**
4883.98	H	49.12	22.73	6.61	55.73	29.34	74.00	54.00	-18.27	-24.66	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

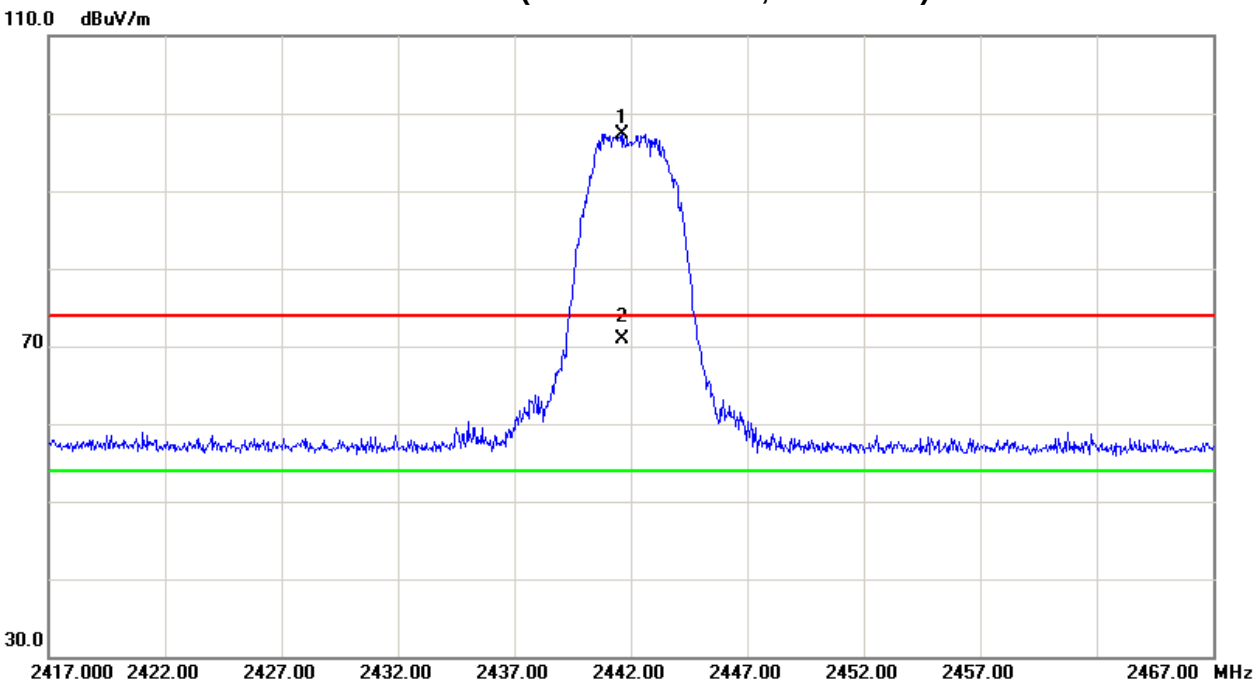
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

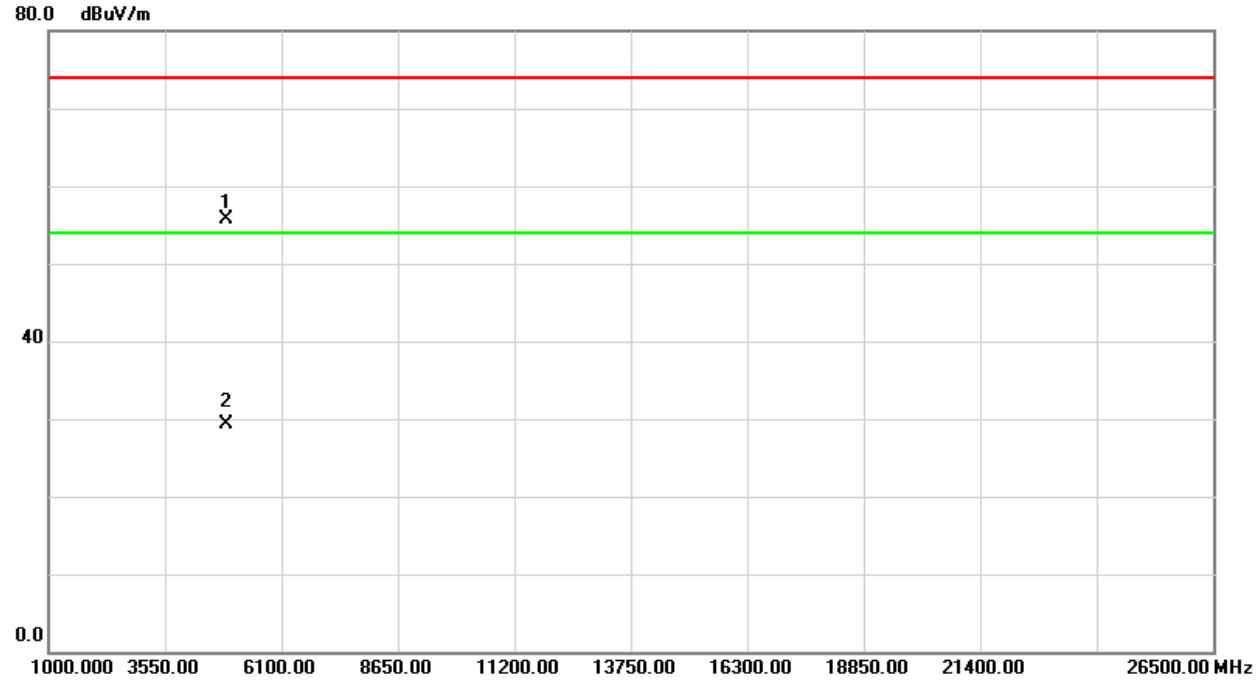
(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

(8) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ,Final AV=PK-26.39

TX 2442MHz (Above 1000 MHz, Horizontal)





EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010hPa	Test Voltage ：	DC 24V
Test Mode ：	TX 2475MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Margin		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2475.40	**V**	**71.15**	**44.76**	**34.35**	**105.50**	**79.11**					**X/F**
2483.50	V	22.19	-4.20	34.37	56.56	30.17	74.00	54.00	-17.44	-23.83	X/E
4950.12	V	45.68	19.29	6.81	52.49	26.10	74.00	54.00	-21.51	-27.90	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

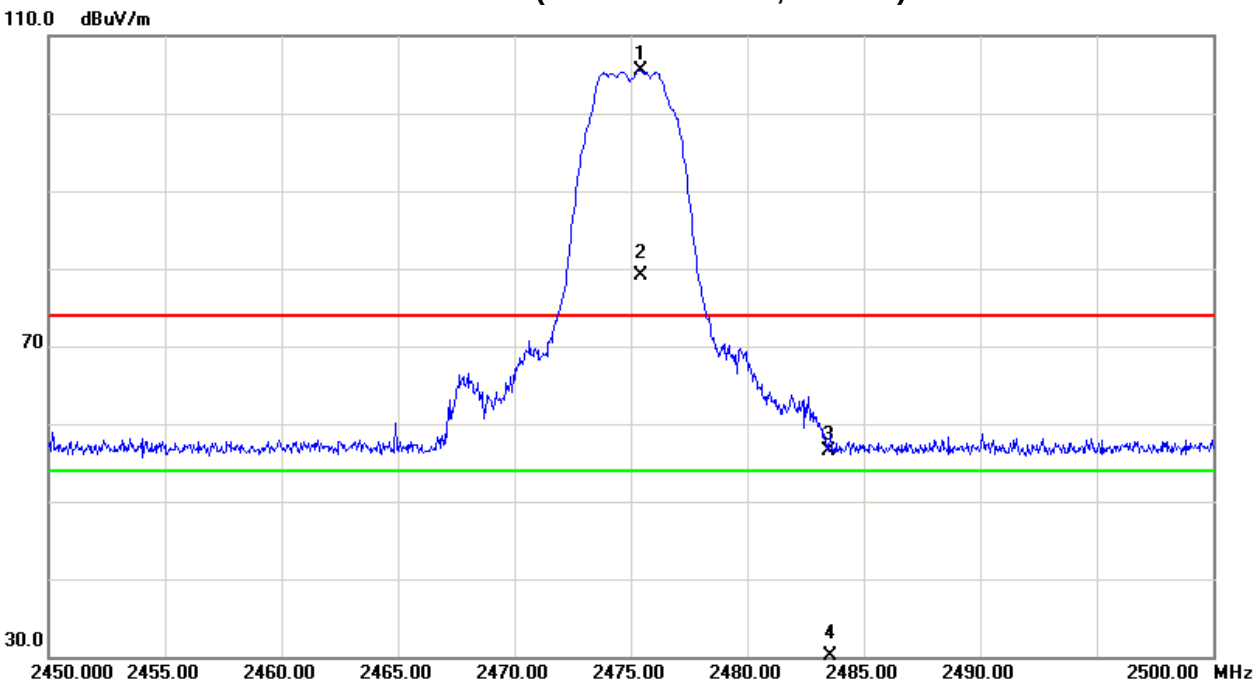
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

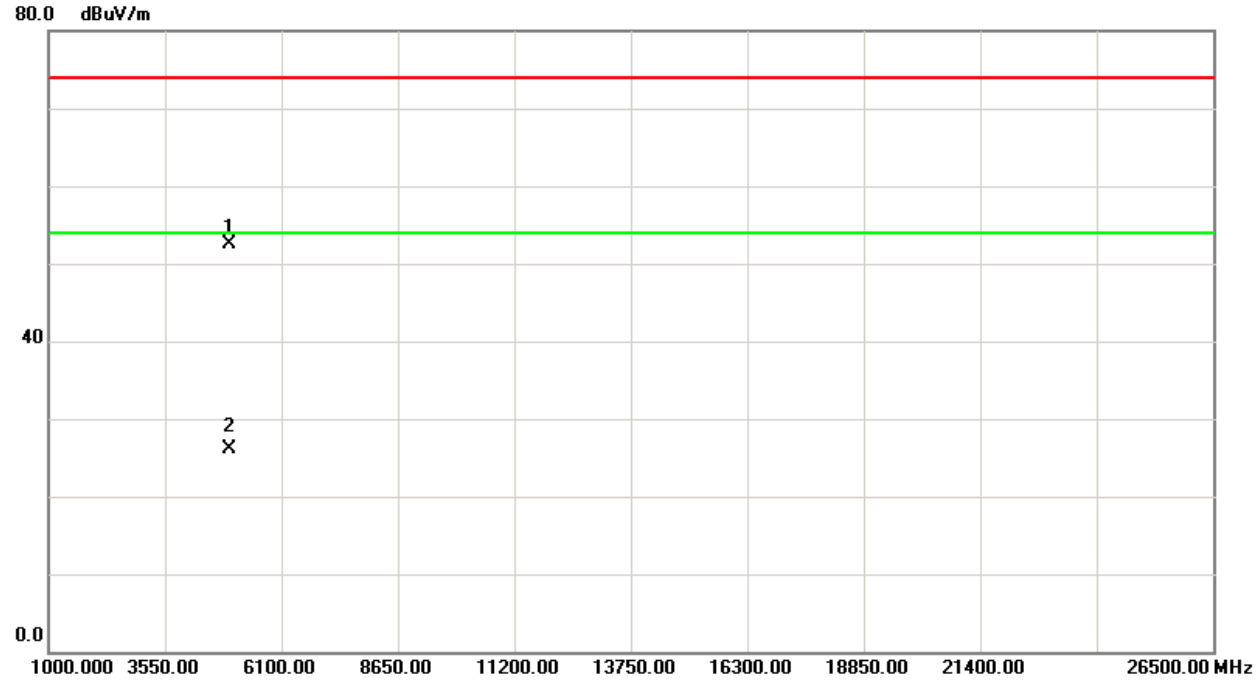
(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

(8) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ,Final AV=PK-26.39

TX 2475MHz(Above 1000 MHz, Vertical)





EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1010 hPa	Test Voltage ：	DC 24V
Test Mode ：	TX 2475MHz		

Freq.	Ant.Pol.	Reading		Ant./CF	Act.		Limit		Margin		Note
		Peak	AV		Peak	AV	Peak	AV	Peak	AV	
(MHz)	H/V	(dBuV)	(dBuV)	CF(dB)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	(dBuV/m)	
2475.35	**H**	**67.10**	**40.71**	**34.35**	**101.45**	**75.06**					**X/F**
2483.50	H	21.97	-4.42	34.37	56.34	29.95	74.00	54.00	-17.66	-24.05	X/E
4950.10	H	48.86	22.47	6.81	55.67	29.28	74.00	54.00	-18.33	-24.72	X/H

Remark：

(1) All readings are Peak unless otherwise stated QP in column of『Note』. Peak denotes that the Peak reading compliance with the QP Limits and then QP Mode measurement didn't perform.

(2) Measuring frequency range from 30MHz to 1000MHz or the 10th harmonic of highest fundamental frequency."F" denotes fundamental frequency; "H" denotes spurious frequency. "E" denotes band edge frequency. (This judgment method includes the Band Edge Requirement.)

(3) Radiated emissions measured in frequency range above 1000MHz were made with an instrument using Peak detector mode and AV detector mode of the emission .

(4) Data of measurement within this frequency range shown " * " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

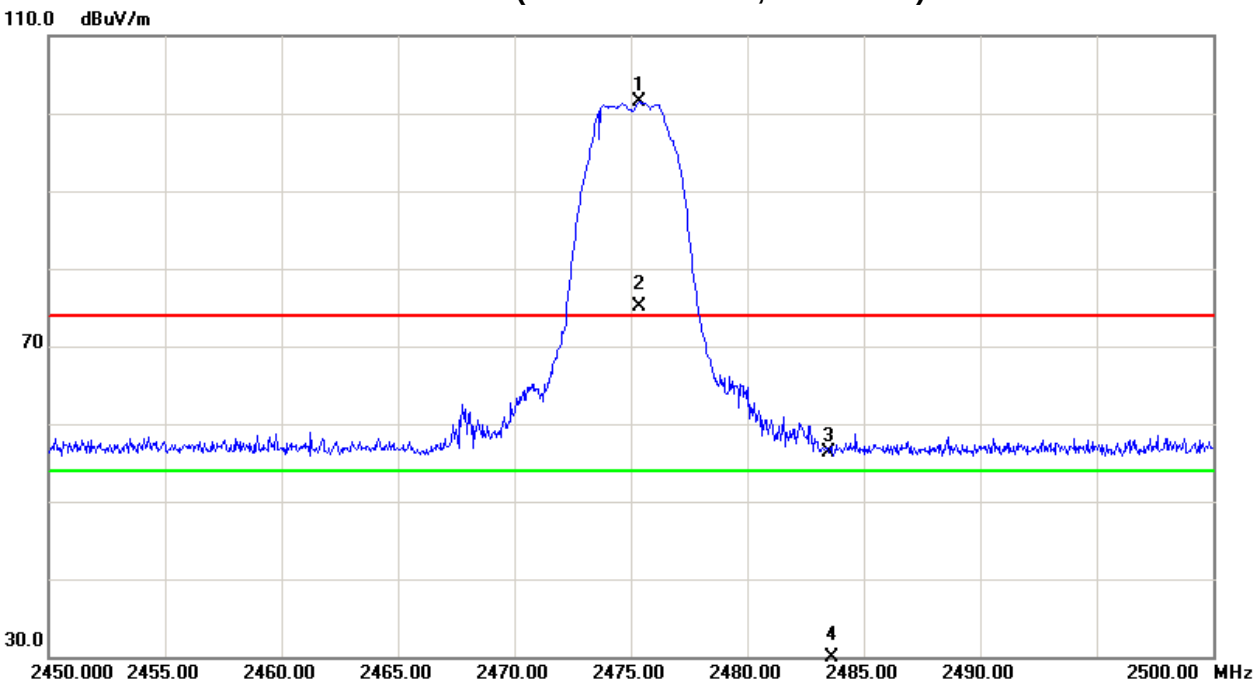
(5) A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

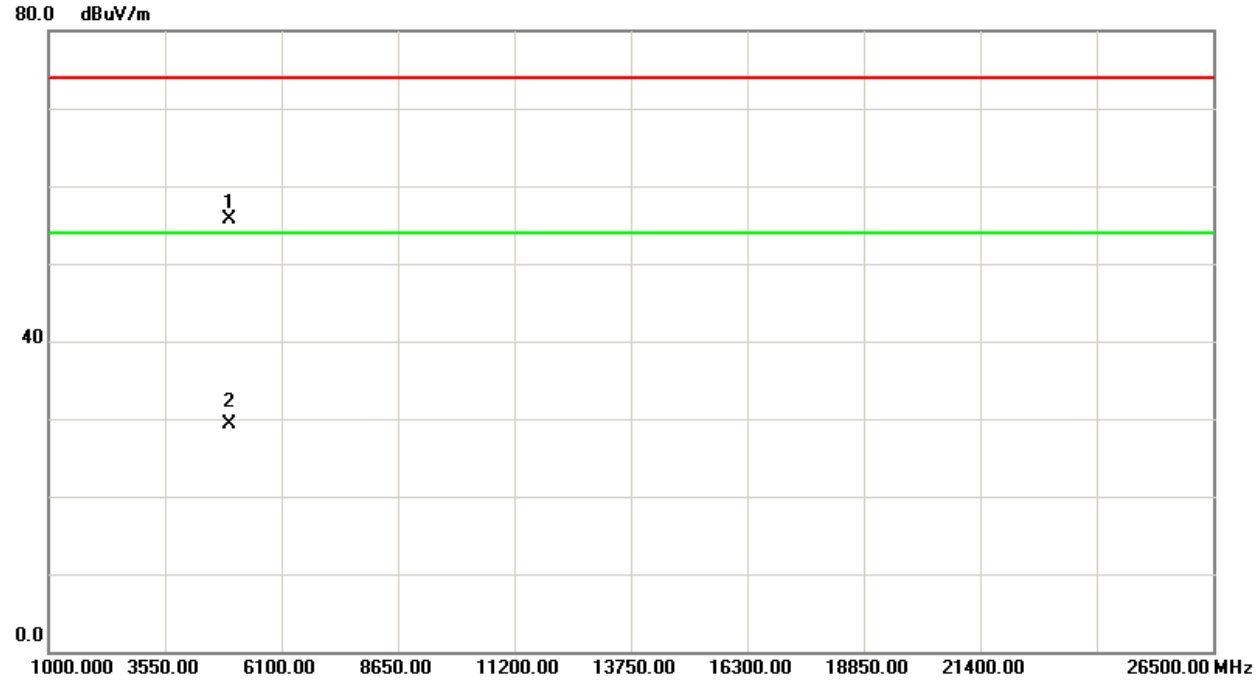
(6) EUT Orthogonal Axis：
"X" - denotes Laid on Table；"Y" - denotes Vertical Stand；"Z" - denotes Side Stand

(7) During the measurements above 1 GHz it is taken care of that the EUT is always within the 3 dB cone of radiation BW of the used antenna

(8) The average value of fundamental frequency is:
Average = Peak value + 20log(Duty cycle) ,Final AV=PK-26.39

TX 2475MHz(Above 1000 MHz, Horizontal)





5. NUMBER OF HOPPING CHANNEL

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.247 (a)(1)(iii)	Number of Hopping Channel	2400-2483.5	PASS

5.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

Spectrum Parameters	Setting
Attenuation	Auto
Span Frequency	> Operating Frequency Range
RB	100 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

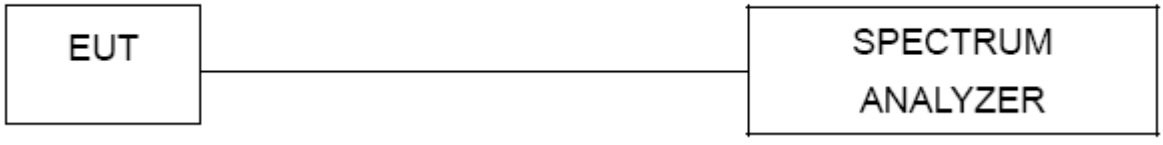
5.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

5.1.3 DEVIATION FROM STANDARD

No deviation.

5.1.4 TEST SETUP



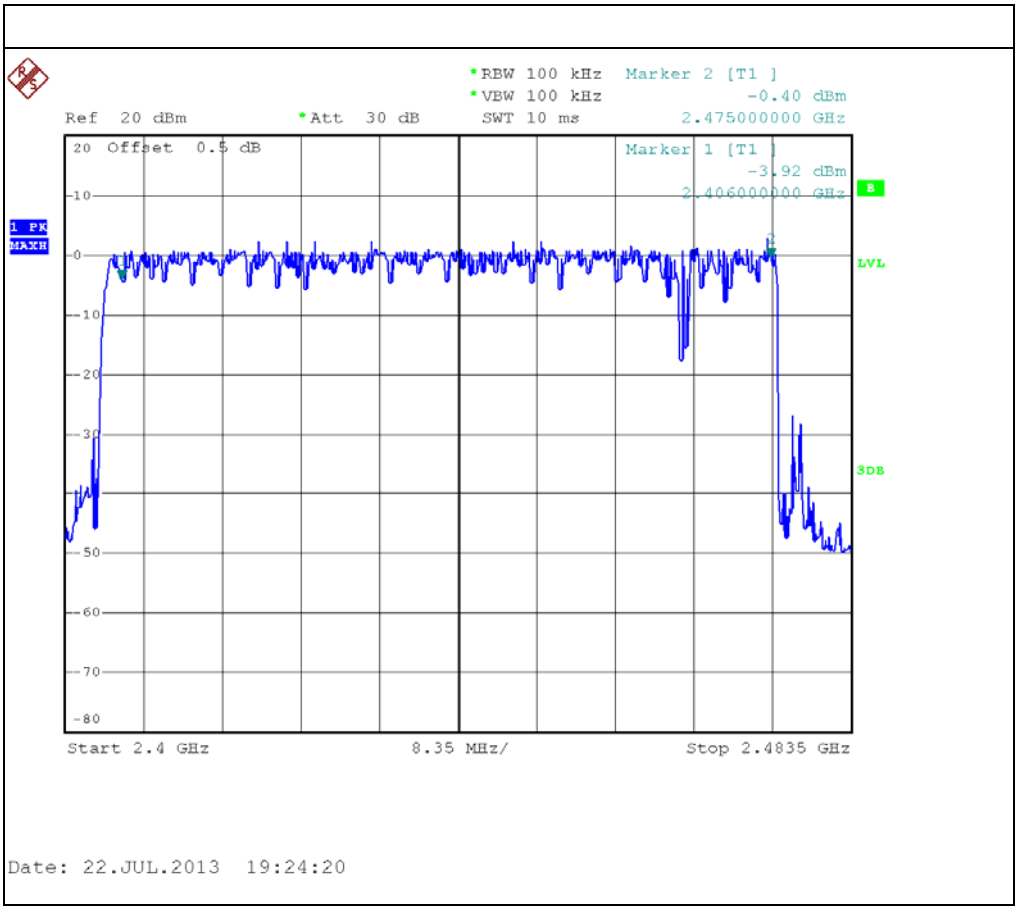
5.1.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.6 TEST RESULTS

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage ：	DC 24V
Test Mode ：	Hopping Mode		

Number of Hopping Channel	24



6. AVERAGE TIME OF OCCUPANCY

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (a)(1)(iii)	Average Time of Occupancy	0.4sec	2400-2483.5	PASS

6.1.1 MEASUREMENT INSTRUMENTS LIST

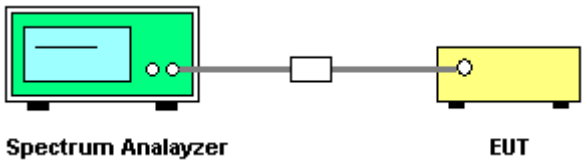
Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

6.1.2 TEST PROCEDURE

a. The transmitter output (antenna port) was connected to the spectrum analyzer
b. Set RBW of spectrum analyzer to 1MHz and VBW to 1MHz.
c. Use a video trigger with the trigger level set to enable triggering only on full pulses.
d. Sweep Time is more than once pulse time.
e. Set the center frequency on any frequency would be measure and set the frequency span to zero span.
f. Measure the maximum time duration of one single pulse.
g. Set the EUT for packet transmitting.
h. Measure the maximum time duration of one single pulse.
i. Dwell time = [spreading rate/16] x duty-cycle x 0.4 seconds

6.1.3. TEST SETUP LAYOUT



6.1.4. TEST DEVIATION

There is no deviation with the original standard.

6.1.5. EUT OPERATION DURING TEST

The EUT was programmed to be in continuously transmitting/Hopping mode.

6.1.6. TEST RESULTS

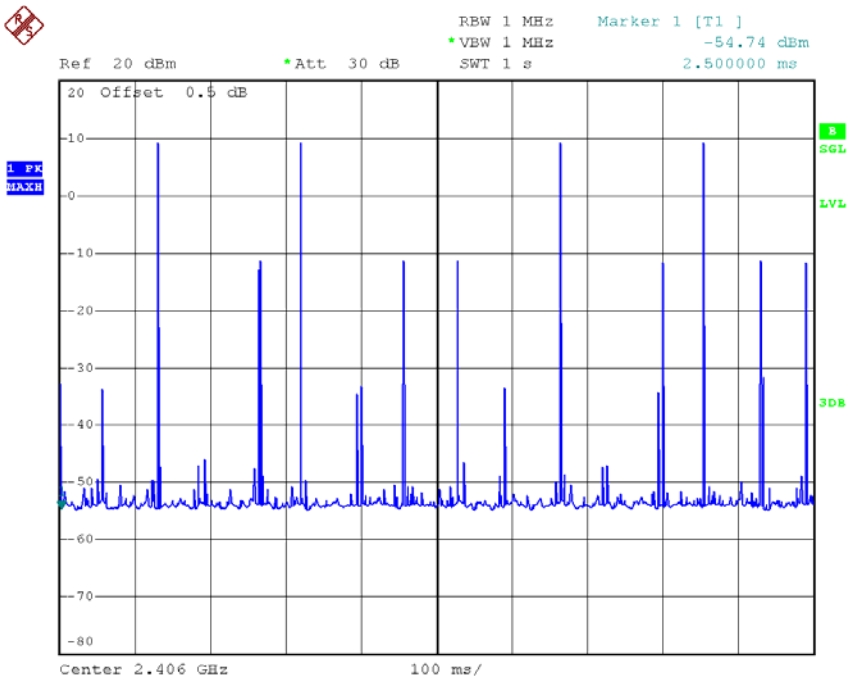
EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage ：	DC 24V
Test Mode ：	Hopping Mode		

Mode	Number of transmission in a 9.6(24Hopping*0.4)	Length of transmission time (msec)	Result (msec)	Limit (msec)
2406MHz	(4/1) *9.6=38.4 times **Note1**	0.28	10.752	400

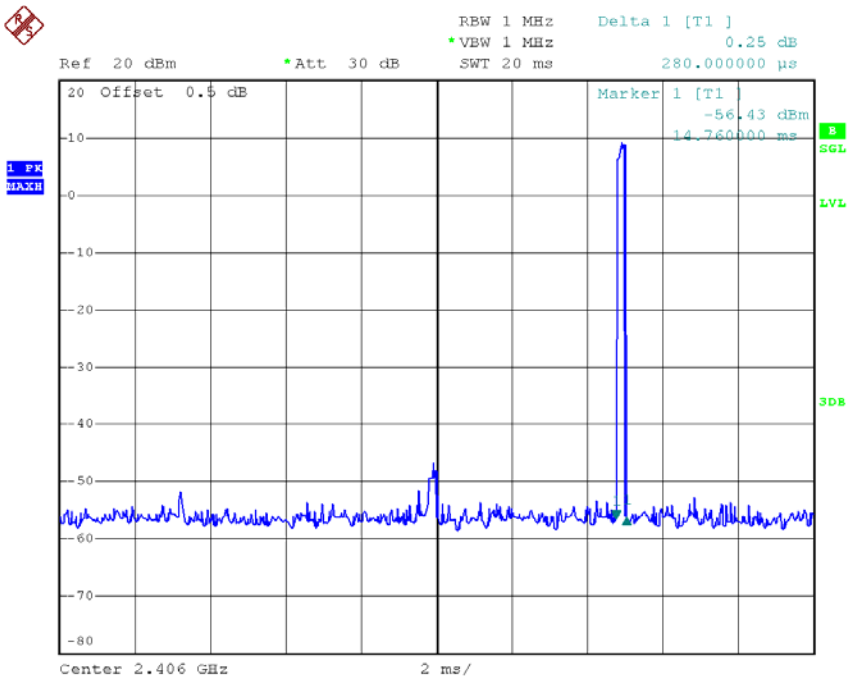
Note1: 4 times of occupied channels per 1 second

	Results
Measured cycle (sec)	24 CH*0.4=9.6
The total number of frequency-hopping per second	((4/1)*9.6)=38.4
The number of occupied channels per second	38.4/9.6=4(number/sec)
occupied time for each channel(1)	0.28 ms
The total number of channels occupied within one cycle (2)	(4/1) *9.6=38.4 times
The average time of occupancy within one cycle(1)*(2)	10.752msec
LIMIT (msec)	400msec

Hopping Mode : 4 (times/1sec)



Date: 23.JUL.2013 17:30:46



Date: 23.JUL.2013 17:31:31

7. HOPPING CHANNEL SEPARATION MEASUREMENT

7.1 APPLIED PROCEDURES / LIMIT

Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

7.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2013

Remark: "N/A" denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz
VB	100 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

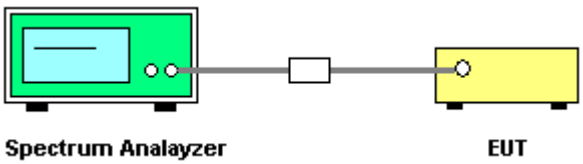
7.1.2 TEST PROCEDURE

a. The EUT must have its hopping function enabled
b. Span = wide enough to capture the peaks of two adjacent channels
Resolution (or IF) Bandwidth (RBW) ≥ 1% of the span
Video (or Average) Bandwidth (VBW) ≥ RBW
Sweep = auto
Detector function = peak
Trace = max hold

7.1.3 DEVIATION FROM STANDARD

No deviation.

7.1.4 TEST SETUP



7.1.5 EUT OPERATION CONDITIONS

The EUT was programmed to be in hopping mode.

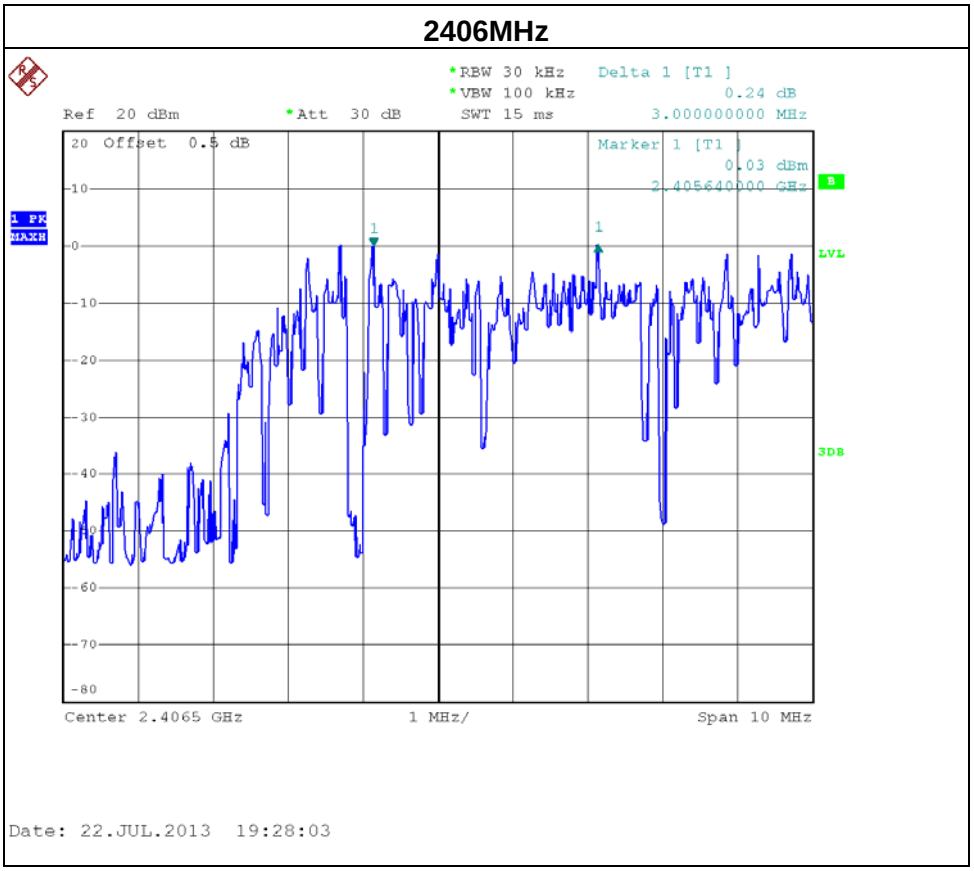
7.1.6 TEST RESULTS

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage ：	DC 24V
Test Mode ：	CH01 / CH13 / CH24		

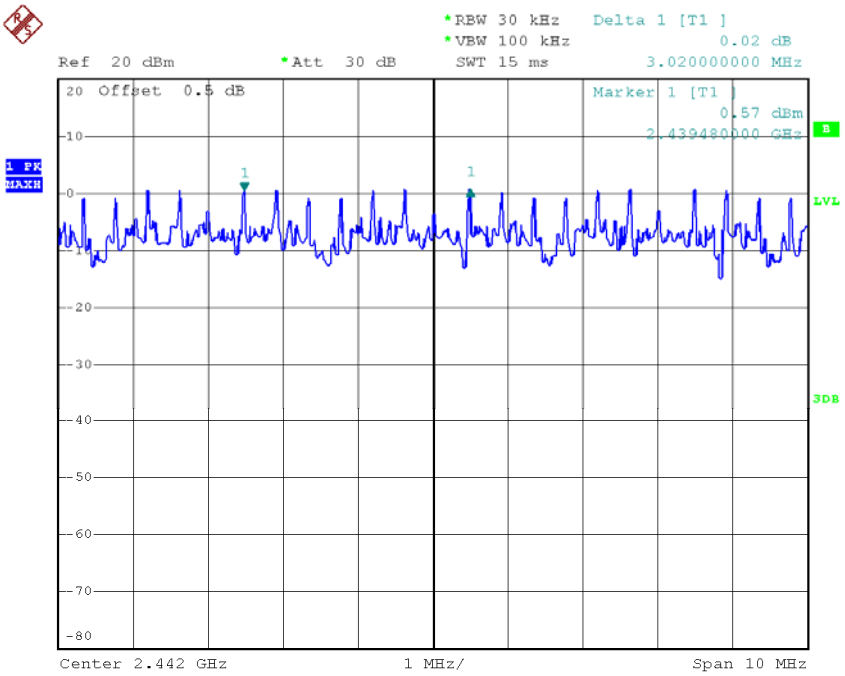
Frequency (MHz)	Ch. Separation (MHz)	20dB Bandwidth (MHz)	Result
2406	3.000	4.340	**Complies**
2442	3.020	4.360	**Complies**
2475	3.000	4.360	**Complies**

Ch. Separation Limits: >20dB bandwidth or >2/3 of 20dB bandwidth

2406MHz

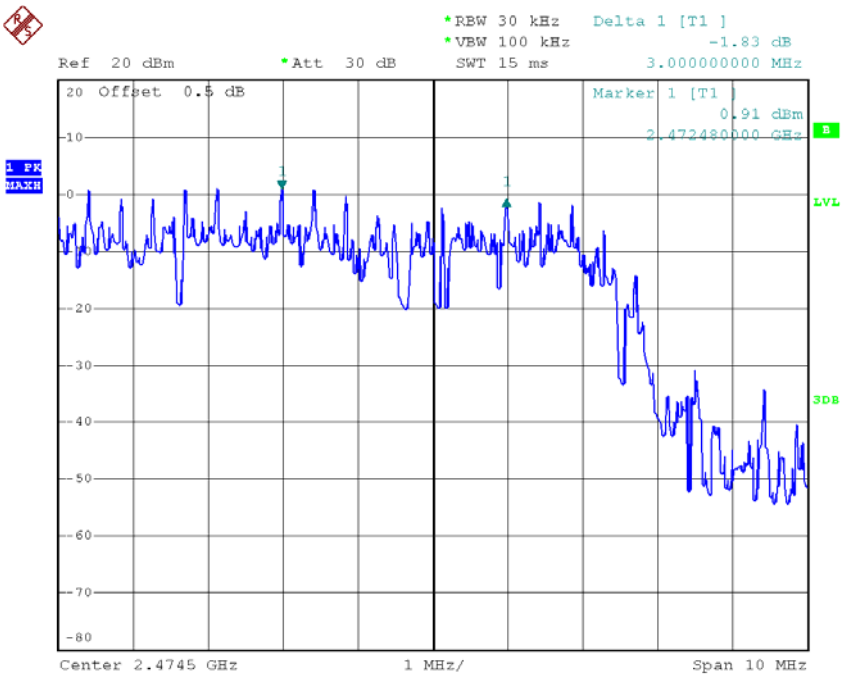


2442MHz



Date: 22.JUL.2013 19:32:37

2475MHz



Date: 22.JUL.2013 19:38:35

8. BANDWIDTH TEST

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C			
Section	Test Item	Frequency Range (MHz)	Result
15.247 (a)(1)	Bandwidth	2400-2483.5	PASS

8.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	30 kHz (20dB Bandwidth) / 30 kHz (Channel Separation)
VB	100 kHz (20dB Bandwidth) / 100 kHz (Channel Separation)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

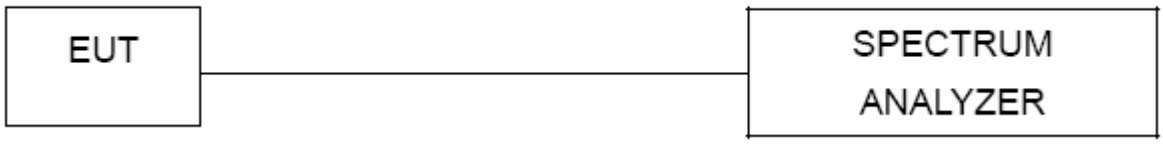
8.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 30KHz, VBW=100KHz, Sweep time = Auto.

8.1.3 DEVIATION FROM STANDARD

No deviation.

8.1.4 TEST SETUP



8.1.5 EUT OPERATION CONDITIONS

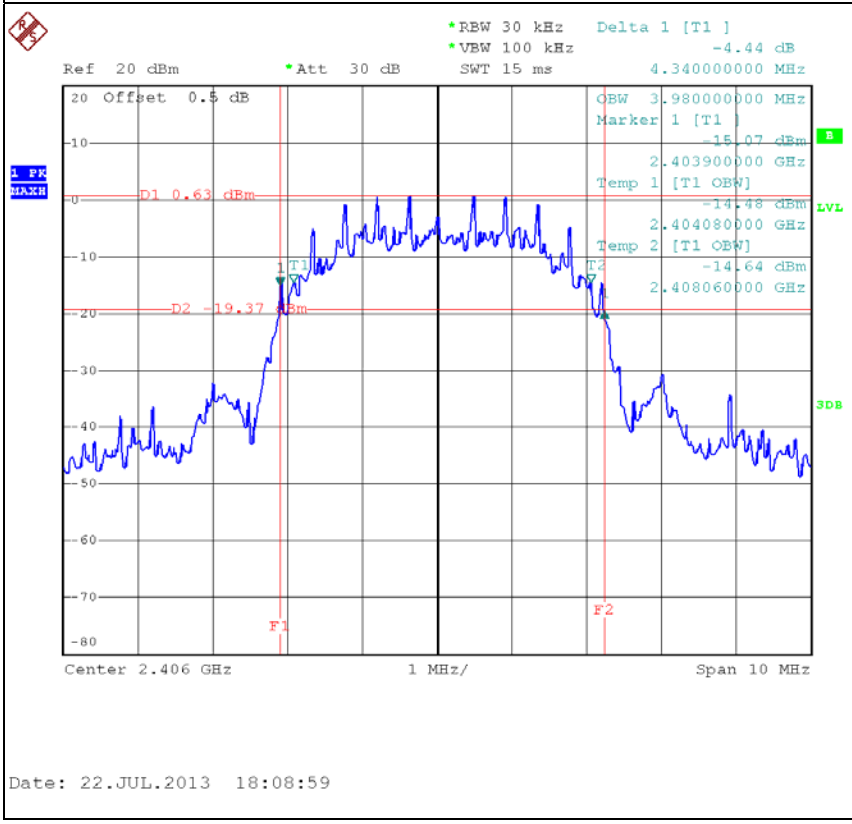
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.6 TEST RESULTS

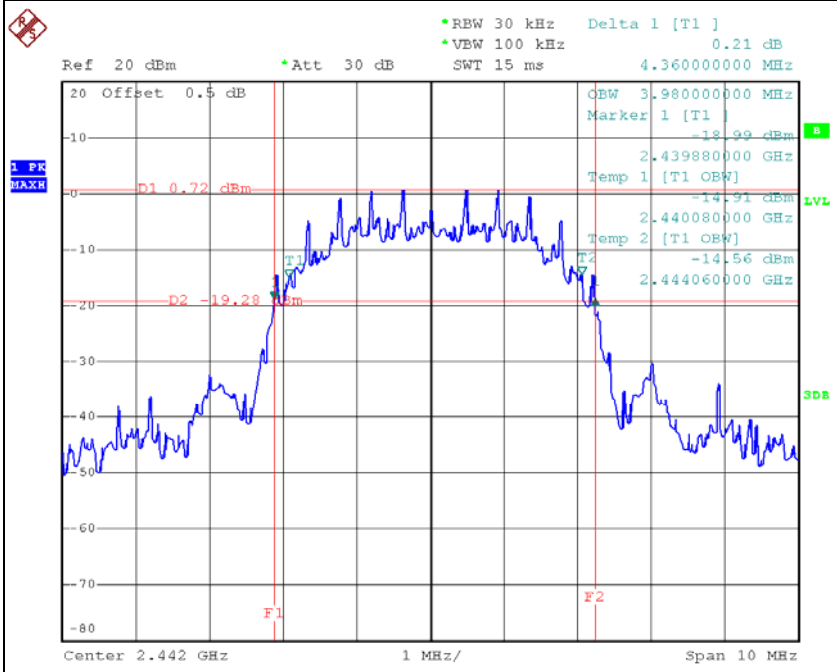
EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage ：	DC 24V
Test Mode ：	CH01 / CH13 / CH24		

Frequency (MHz)	20dB Bandwidth (MHz)	Result
2406	4.340	**PASS**
2442	4.360	**PASS**
2475	4.360	**PASS**

2406MHz

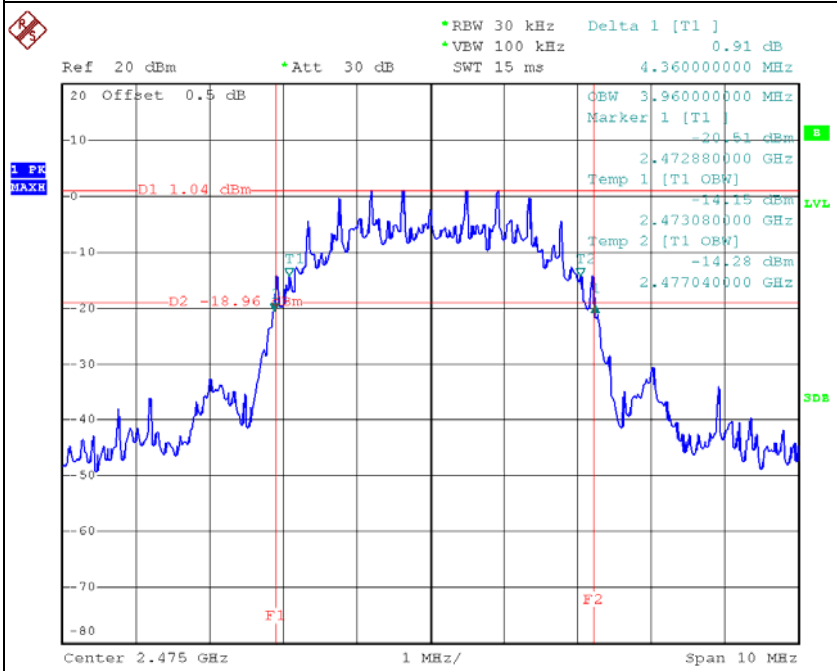


2442MHz



Date: 22.JUL.2013 18:59:09

2475MHz



Date: 22.JUL.2013 19:12:15

9. PEAK OUTPUT POWER TEST

9.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247 (b)(1)	Peak Output Power	0.125 watt or 21dBm	2400-2483.5	PASS

9.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

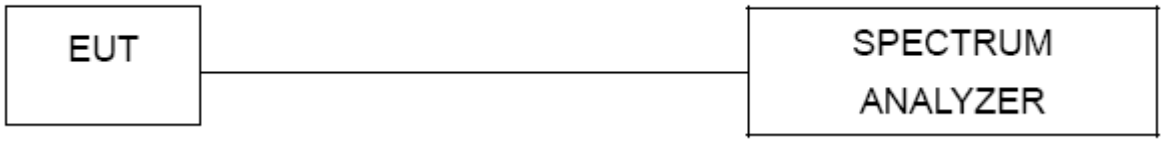
9.1.2 TEST PROCEDURE

a. The EUT was directly connected to the Spectrum Analyzer and antenna output port as show in the block diagram below,

9.1.3 DEVIATION FROM STANDARD

No deviation.

9.1.4 TEST SETUP



9.1.5 EUT OPERATION CONDITIONS

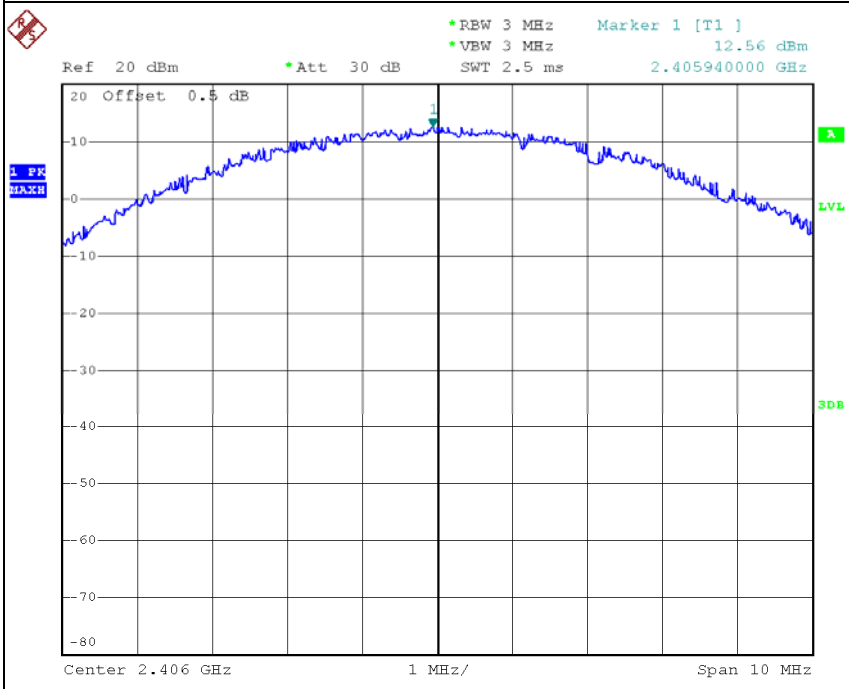
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

9.1.6 TEST RESULTS

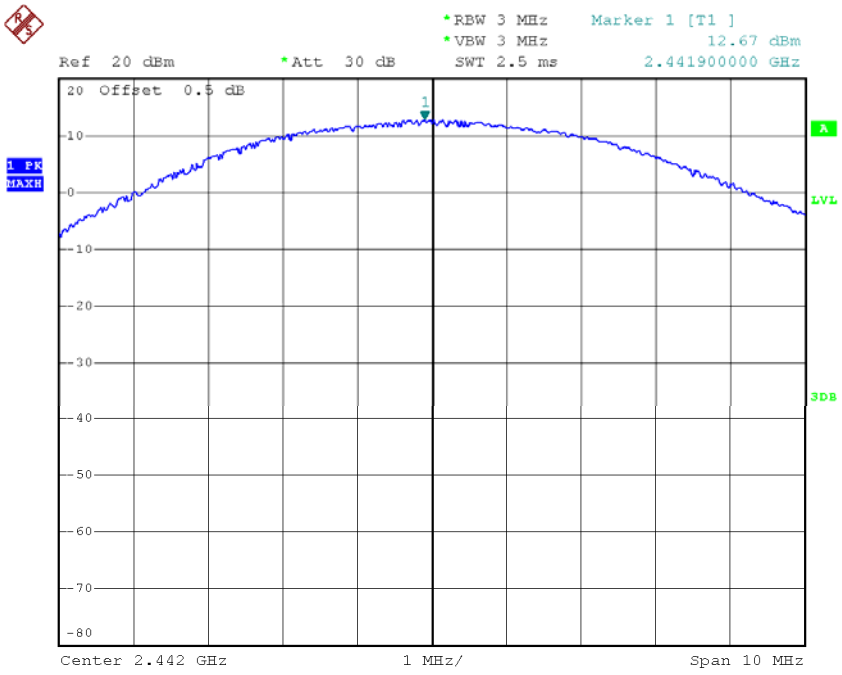
EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage ：	DC 24V
Test Mode ：	CH01 / CH13 / CH24		

Frequency (MHz)	Peak Output Power (dBm)	LIMIT (dBm)	LIMIT (W)
2406	12.56	21	0.125
2442	12.67	21	0.125
2475	12.92	21	0.125

2406MHz

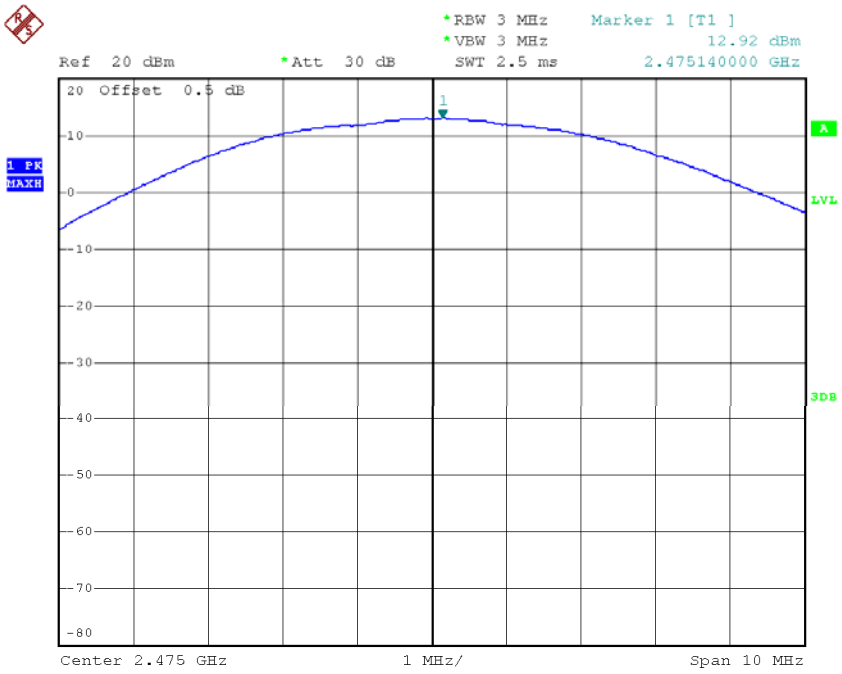


2442MHz



Date: 22.JUL.2013 18:57:52

2475MHz



Date: 22.JUL.2013 19:09:42

10. ANTENNA CONDUCTED SPURIOUS EMISSION

10.1 APPLIED PROCEDURES / LIMIT

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.

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

10.1.1 MEASUREMENT INSTRUMENTS LIST AND SETTING

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Calibrated until
1	Spectrum Analyzer	R&S	FSP 40	100185	Nov.25.2013

Remark: “N/A” denotes no model name, serial no. or calibration specified.
All calibration period of Equipment List is One Year.

10.1.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW=100KHz, Sweep time = Auto.

10.1.3 DEVIATION FROM STANDARD

No deviation.

10.1.4 TEST SETUP

10.1.5 EUT OPERATION CONDITIONS

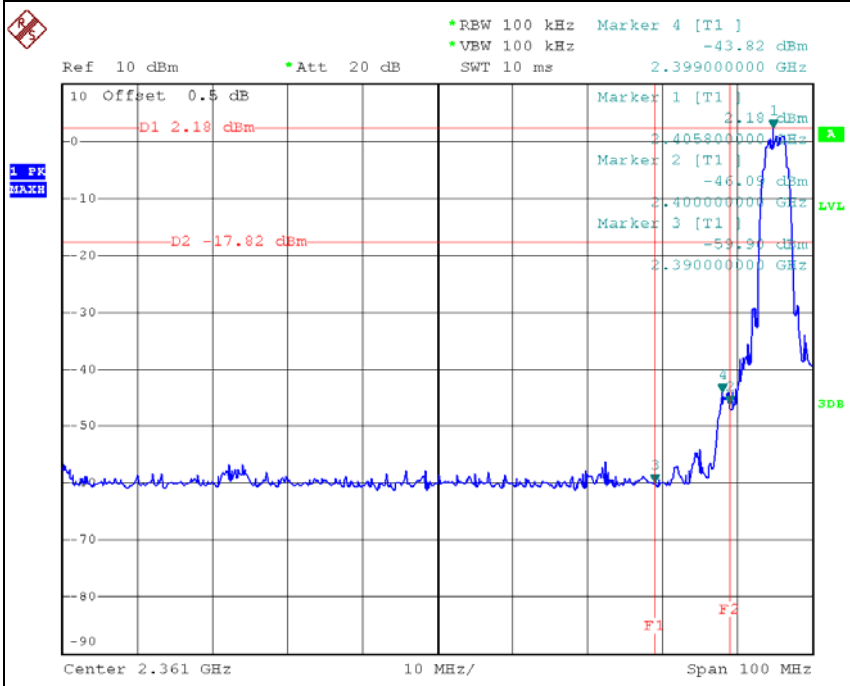
The EUT tested system was configured as the statements of 4.1.6 Unless otherwise a special operating condition is specified in the follows during the testing.

10.1.6 TEST RESULTS

EUT：	2.4GHZ Digital Wireless RearView Camera	Model Name ：	GD9901
Temperature：	25 ℃	Relative Humidity：	58 %
Pressure：	1009 hPa	Test Voltage ：	DC 24V
Test Mode ：	CH01 / CH13 / CH24 & Hopping on mode		

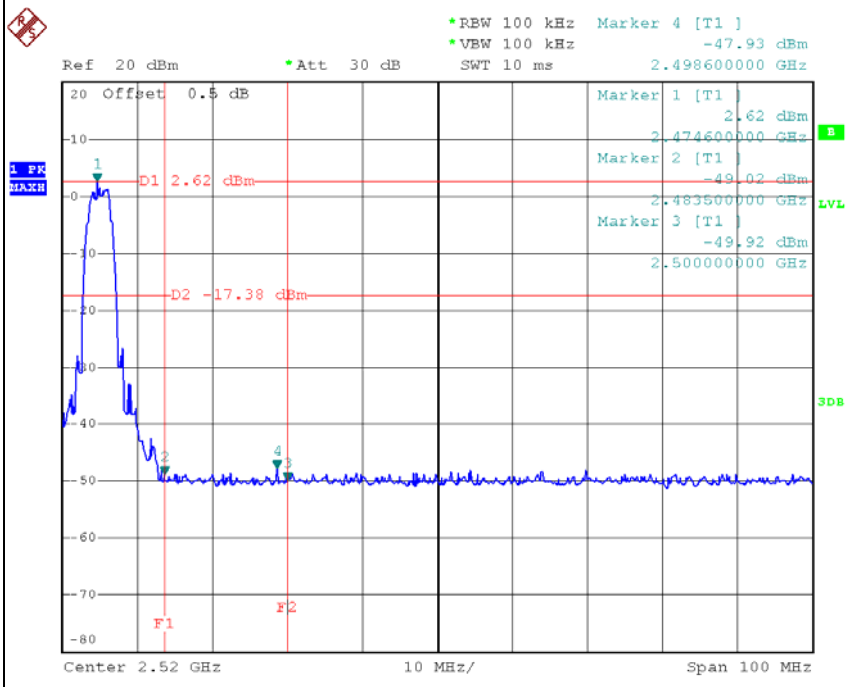
The max. radio frequency power in any 100kHz bandwidth outside the frequency band		The max. radio frequency power in any 100 kHz bandwidth within the frequency band.	
FREQUENCY(MHz)	POWER(dBm)	FREQUENCY(MHz)	POWER(dBm)
2399.00	-43.82	2498.60	-47.93
Result			
In any 100kHz bandwidth outside the frequency band, the radio frequency power is at least 20dB below that in the 100kHz bandwidth within the band that contains the highest lever of the desired power.			

2406MHz (Lower)



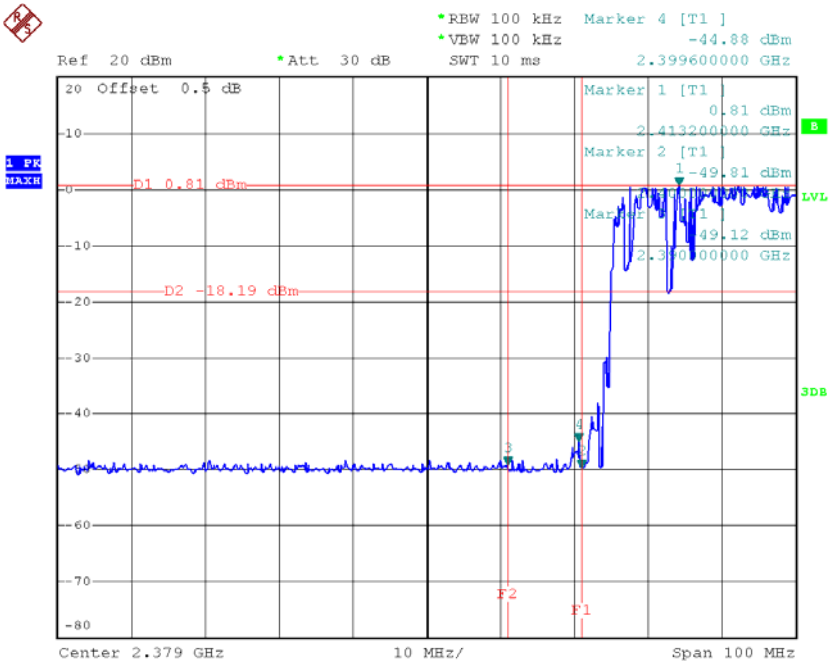
Date: 22.JUL.2013 18:15:18

2475MHz (upper)



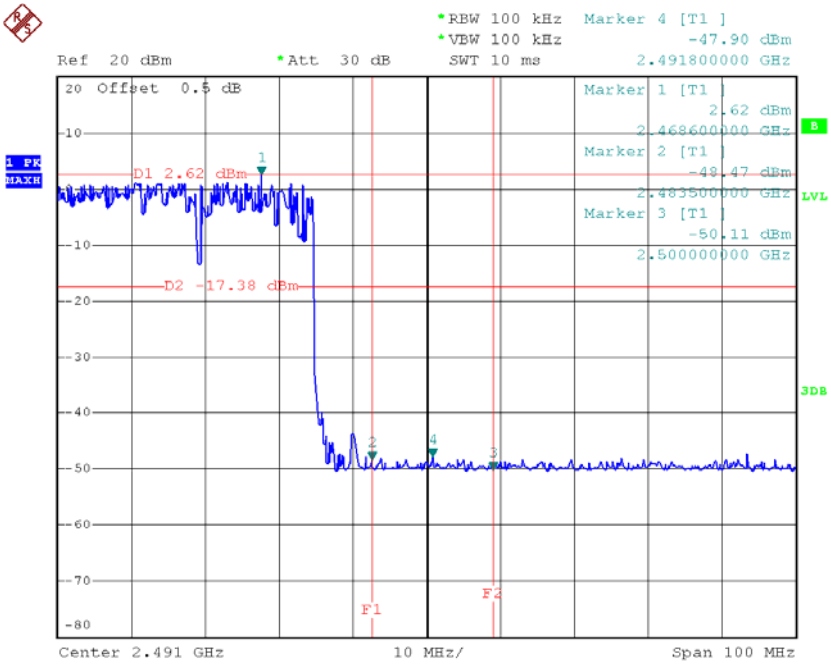
Date: 22.JUL.2013 19:15:20

Hopping on mode (Lower)



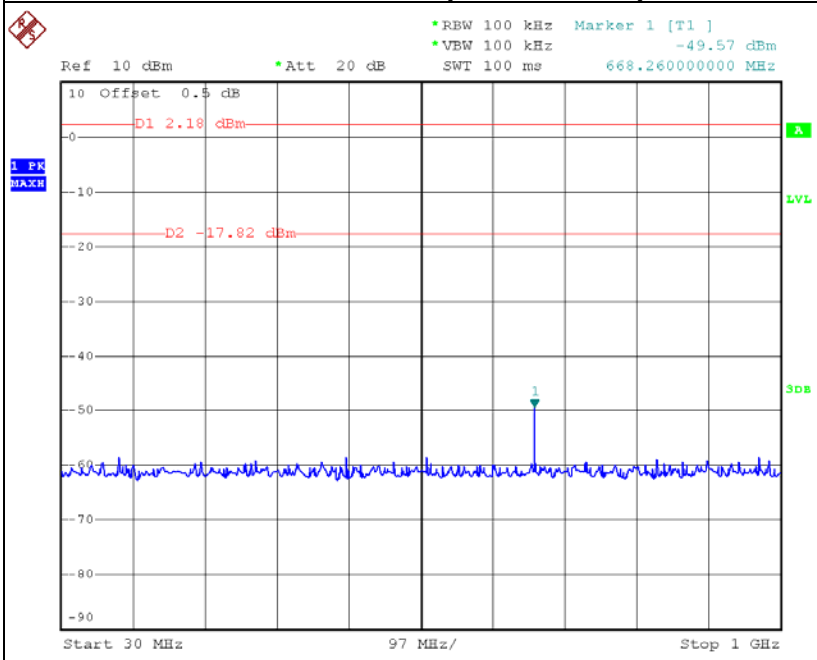
Date: 22.JUL.2013 19:43:39

Hopping on mode (upper)



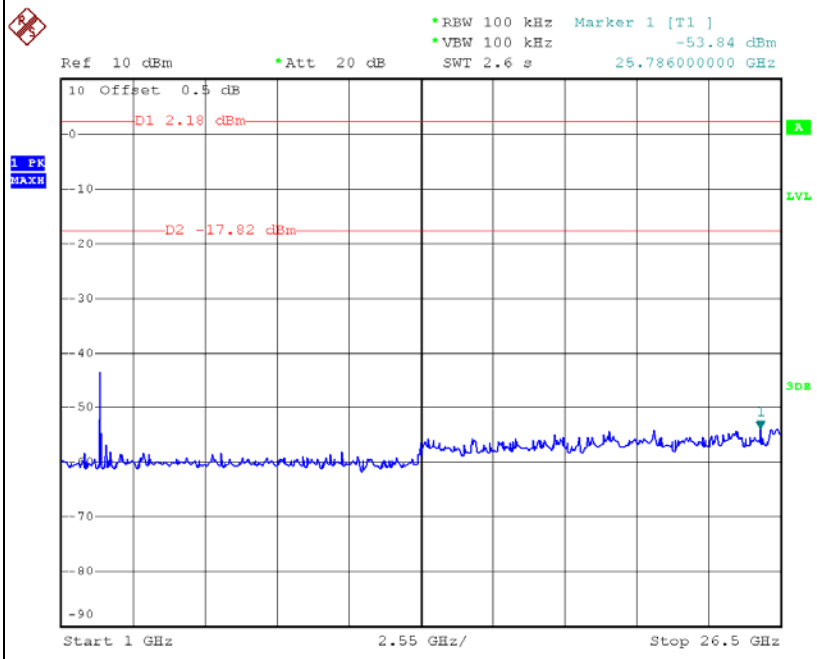
Date: 22.JUL.2013 19:47:41

2406MHz (30MHz~1GHz)



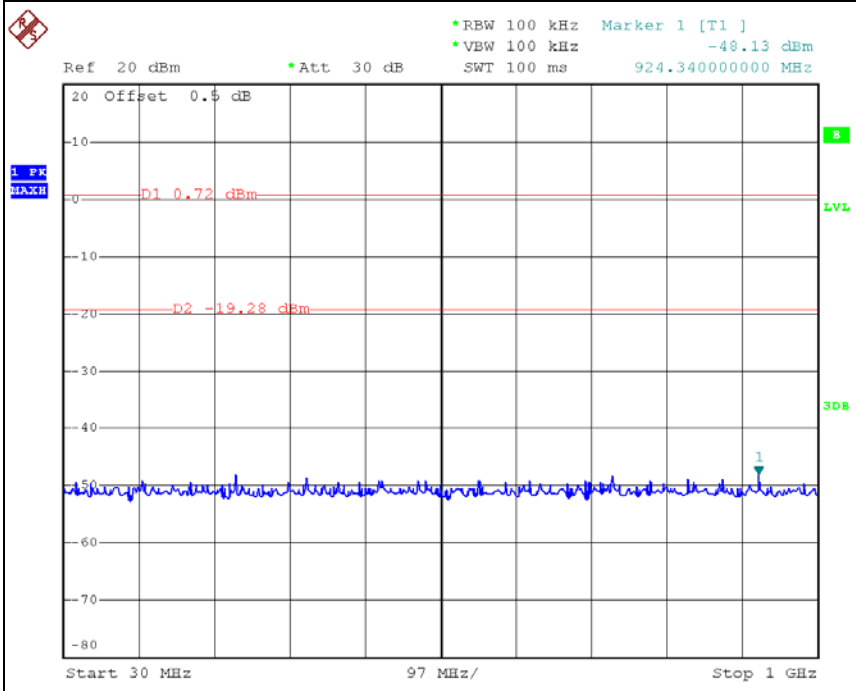
Date: 22.JUL.2013 18:15:34

2406MHz (1GHz～10th Harmonic)



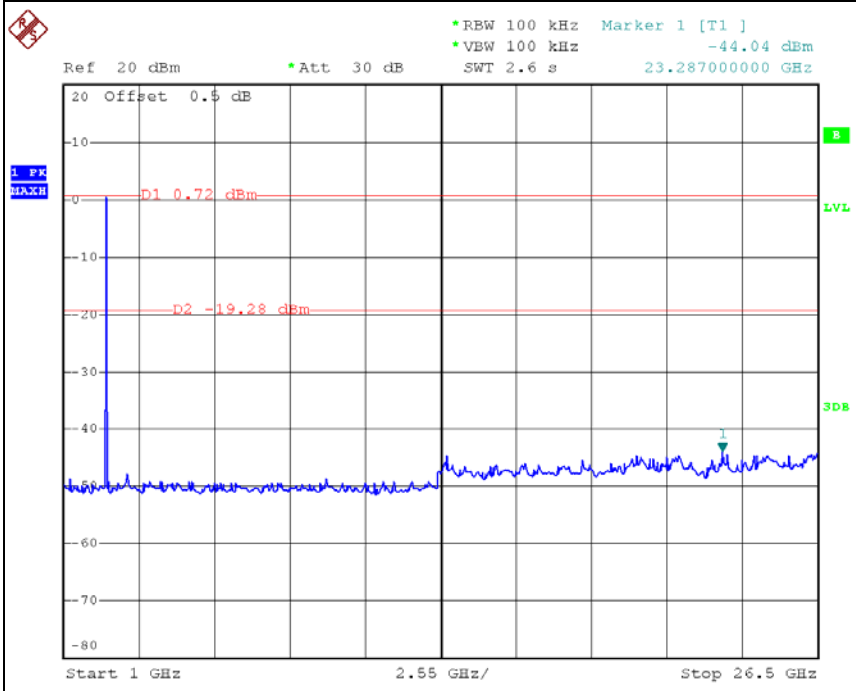
Date: 22.JUL.2013 18:15:51

2442MHz (30MHz~1GHz)



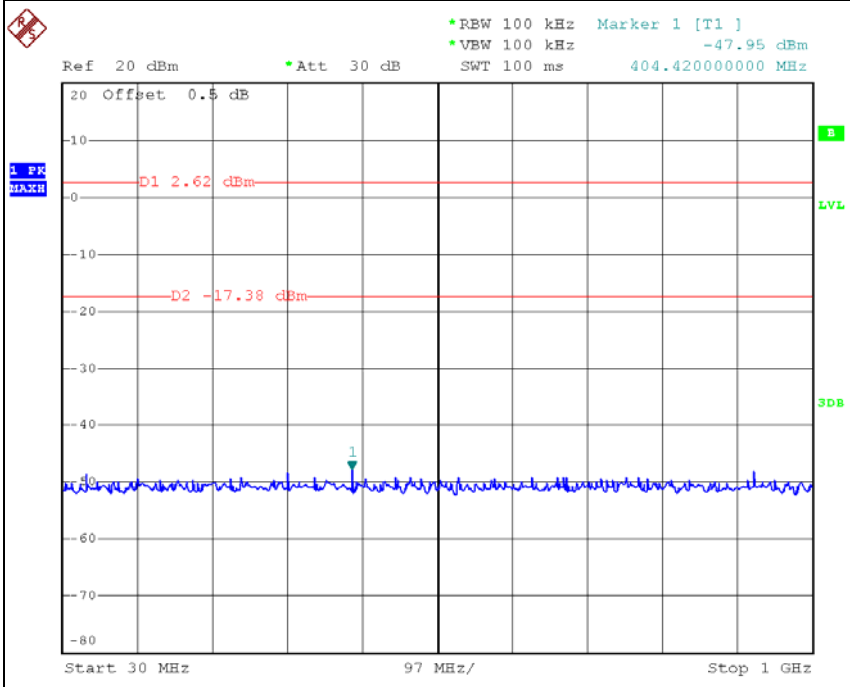
Date: 22.JUL.2013 18:59:34

2442MHz (1GHz～10th Harmonic)



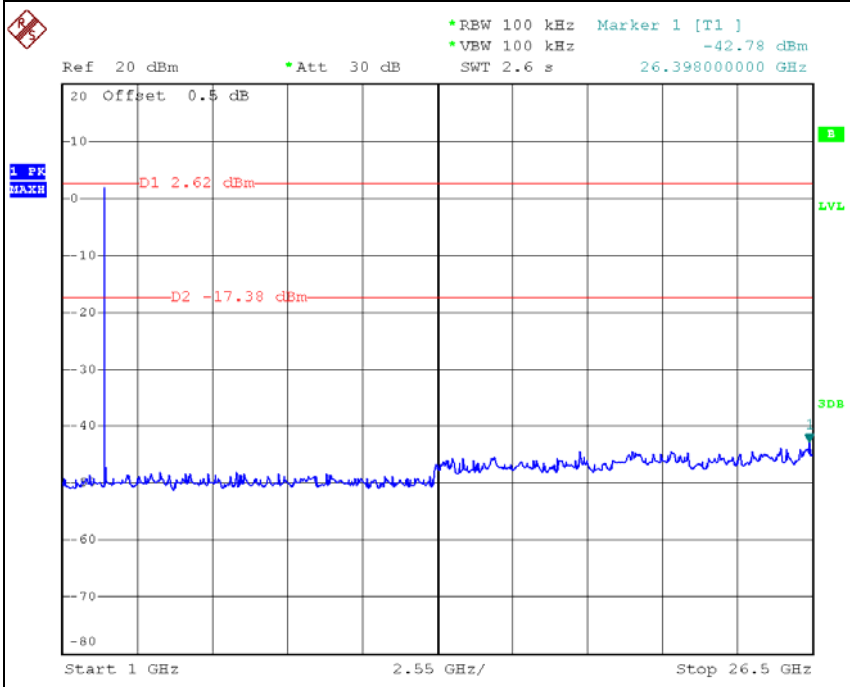
Date: 22.JUL.2013 18:59:51

2475MHz (30MHz~1GHz)



Date: 22.JUL.2013 19:15:44

2475MHz (1GHz～10th Harmonic)



Date: 22.JUL.2013 19:16:09

11. EUT PHOTOS

Radiated Measurement Photos