



FCC TEST REPORT

according to

FCC Rules and Regulations Part 15 Subpart C

Applicant : Zhejiang Dahua Vision Technology Co., Ltd.
Address : The 1st floor, building F, No.1199 Bin'an road,
Changhe Street, Binjiang District, Hangzhou, P.R. China.

Manufacturer : Zhejiang Dahua Vision Technology Co., Ltd.
Address : The 1st floor, building F, No.1199 Bin'an road,
Changhe Street, Binjiang District, Hangzhou, P.R. China.

Equipment : LeBoxSmart、 Central

Model No. : X1、G10、DH-CE-G100W、DH-CE-G100B、ICM-C110

FCC ID : SVNDHCEG100

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History of this test report

Original

Additional attachment as following record:

Attachment No.	Issue Date	Description



CERTIFICATE OF COMPLIANCE

According to

FCC Rules and Regulations Part 15 Subpart C

Applicant : Zhejiang Dahua Vision Technology Co., Ltd.
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Model No. : X1、G10、DH-CE-G100W、DH-CE-G100B、ICM-C110
FCC ID : SVNDHCEG100

I HEREBY CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4** The equipment was **passed** the test performed according to **FCC Rules and Regulations Part 15 Subpart C (2010)**.

The test was carried out on Dec. 08~Dec.18, 2014 at **Cerpass Technology (Suzhou) Co., Ltd**

Signature

Miro Chueh/ Technical director



1. Report of Measurements and Examinations

1.1 List of Measurements and Examinations

FCC Rules and Regulations Part 15 Subpart C		
Normative References	Test Parameter	Test Performed
15.207	. Conducted Emission	Pass
15.205	. Radiated Emission	Pass
15.215	. 20dB Bandwidth Measurement	Pass
15.231	Transmission Time	Pass



2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Model No.	X1、G10、DH-CE-G100W、DH-CE-G100B、ICM-C110
Remark	1) DH-CE-G100W was selected as the test model and its data have been recorded in this report. 2) No differences in function,only for the differnet groups of customers.
Carrier Frequency	915MHz
Antenna Specification	Antenna name: DCL-915-02THTX-01 Antenna type: internal antenna PIFA Antenna 2 dBi

Note: For more details, please refer to the User's manual of the EUT.



2.2 General Information of Test

Test Site:	CerpPASS Technology (Suzhou) Co., Ltd
Performed Location :	No.66,Tangzhuang Road, Suzhou Industrial Park, Jiangsu 215006, China
NVLAP LAB Code :	200814-0
FCC Registration Number :	916572, 331395
IC Registration Number :	7290A-1, 7290A-2
VCCI Registration Number :	T-343 for Telecommunication Test C-2919 for Conducted emission test R-2670 for Radiated emission test below 1GHz G-227 for Radiated emission test above 1GHz

2.3 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	±2.71 dB
Radiated Emission	30 MHz ~ 25GHz	Vertical	±4.11 dB
		Horizontal	±4.10 dB
Occupied Bandwidth	---	---	±7500 Hz
Maximum Peak Output Power	---	---	±1.4 dB
Band Edges	---	---	±2.2 dB
Power Spectral Density	---	---	±2.2 dB



3. Test of Conducted Emission

3.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2009 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

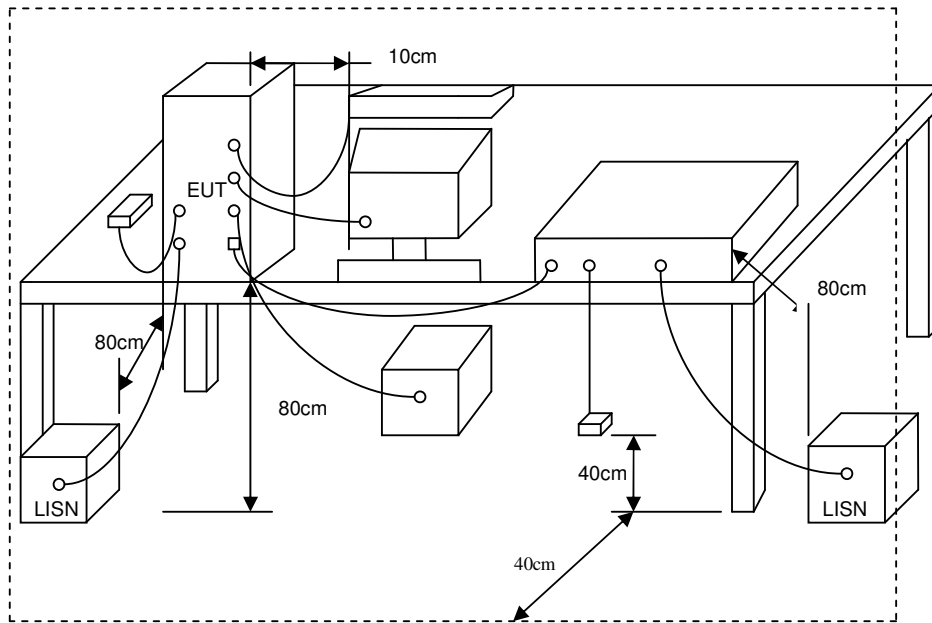
*Decreases with the logarithm of the frequency.

3.2 Test Procedures

- The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
- Connect EUT to the power mains through a line impedance stabilization network (LISN).
- All the support units are connecting to the other LISN.
- The LISN provides 50 ohm coupling impedance for the measuring instrument.
- The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
- Both sides of AC line were checked for maximum conducted interference.
- The frequency range from 150 kHz to 30 MHz was searched.
- Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



3.3 Typical Test Setup



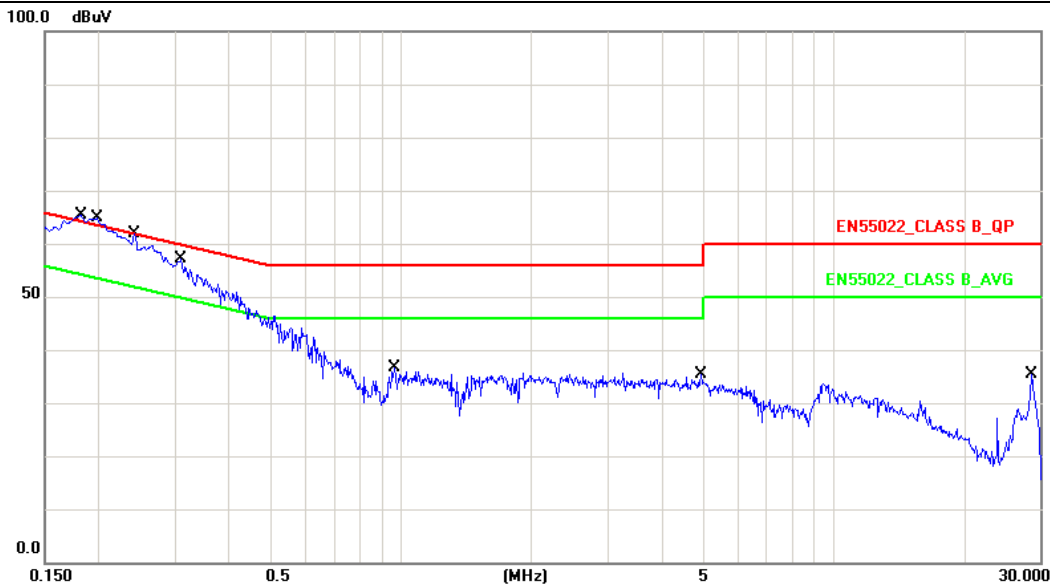
3.4 Measurement equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100565	2014.03.24	2015.03.23
AMN	R&S	ESH2-Z5	100182	2014.09.04	2015.09.03
Two-Line V-Network	R&S	ENV216	100325	2014.12.04	2015.12.03
ISN	FCC	FCC-TLISN-T2-02	20379	2014.03.24	2015.03.23
ISN	FCC	FCC-TLISN-T4-02	20380	2014.03.24	2015.03.23
ISN	FCC	FCC-TLISN-T8-02	20381	2014.03.24	2015.03.23
ISN	TESEQ	ISN ST08	30175	2014.03.24	2015.03.23
Current Probe	R&S	EZ-17	100303	2014.04.04	2015.04.03
Passive Voltage Probe	R&S	ESH2-Z3	100026	2014.03.24	2015.03.23
Pulse Limiter	R&S	ESH3-Z2	100529	2014.03.24	2015.03.23
Temperature/Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2014.03.31	2015.03.30



3.5 Test Result and Data

Test Mode :	Mode 1: Normal Operation		
AC Power :	AC 120V/60Hz	Phase :	LINE
Equipment :	LeBoxSmart \ Central	Model No :	DH-CE-G100W
Temperature :	26°C	Humidity :	60%
Pressure(mbar) :	1002	Date :	2014/12/18

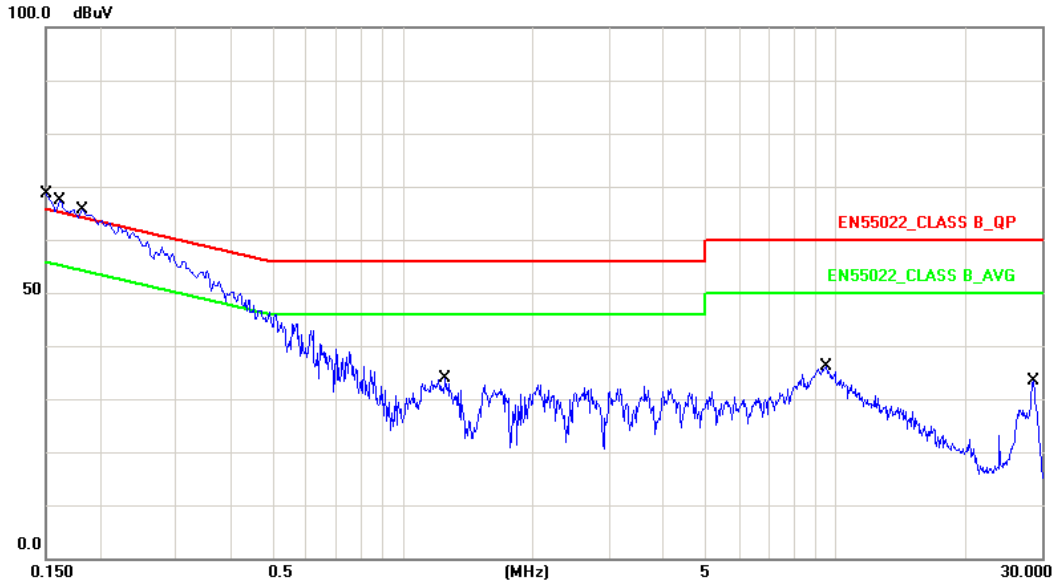


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1819	10.25	47.15	57.40	64.39	-6.99	QP
2	0.1819	10.25	19.80	30.05	54.39	-24.34	AVG
3	0.1980	10.25	46.78	57.03	63.69	-6.66	QP
4	0.1980	10.25	19.96	30.21	53.69	-23.48	AVG
5	0.2420	10.26	43.44	53.70	62.02	-8.32	QP
6	0.2420	10.26	17.60	27.86	52.02	-24.16	AVG
7	0.3100	10.27	38.21	48.48	59.97	-11.49	QP
8	0.3100	10.27	16.40	26.67	49.97	-23.30	AVG
9	0.9660	10.31	13.77	24.08	56.00	-31.92	QP
10	0.9660	10.31	4.55	14.86	46.00	-31.14	AVG
11	4.9420	10.29	18.15	28.44	56.00	-27.56	QP
12	4.9420	10.29	8.88	19.17	46.00	-26.83	AVG
13	28.7380	10.55	22.12	32.67	60.00	-27.33	QP
14	28.7380	10.55	13.38	23.93	50.00	-26.07	AVG

Note: Measurement Level = Reading Level + Correct Factor



Test Mode :	Mode 1: Normal Operation		
AC Power :	AC 120V/60Hz	Phase :	NEUTRAL
Equipment :	LeBoxSmart Central	Model No :	DH-CE-G100W
Temperature :	26°C	Humidity :	60%
Pressure(mbar) :	1002	Date :	2014/12/18



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.1500	10.19	50.55	60.74	65.99	-5.25	QP
2	0.1500	10.19	20.83	31.02	55.99	-24.97	AVG
3	0.1620	10.20	49.43	59.63	65.36	-5.73	QP
4	0.1620	10.20	19.72	29.92	55.36	-25.44	AVG
5	0.1819	10.20	47.73	57.93	64.39	-6.46	QP
6	0.1819	10.20	18.46	28.66	54.39	-25.73	AVG
7	1.2620	10.39	16.50	26.89	56.00	-29.11	QP
8	1.2620	10.39	4.09	14.48	46.00	-31.52	AVG
9	9.5420	10.62	18.84	29.46	60.00	-30.54	QP
10	9.5420	10.62	3.99	14.61	50.00	-35.39	AVG
11	28.6300	10.94	19.62	30.56	60.00	-29.44	QP
12	28.6300	10.94	7.66	18.60	50.00	-31.40	AVG

Note: Measurement Level = Reading Level + Correct Factor

Test engineer: Dean



4. Test of Radiated Emission

4.1 Test Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Fundamental frequency (MHz)	Field strength of fundamental (microvolts/meter)	Field strength of spurious emissions (microvolts/meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	1 1,250 to 3,750	1 125 to 375
174-260	3,750	375
260-470	1 3,750 to 12,500	1 375 to 1,250
Above 470	12,500	1,250

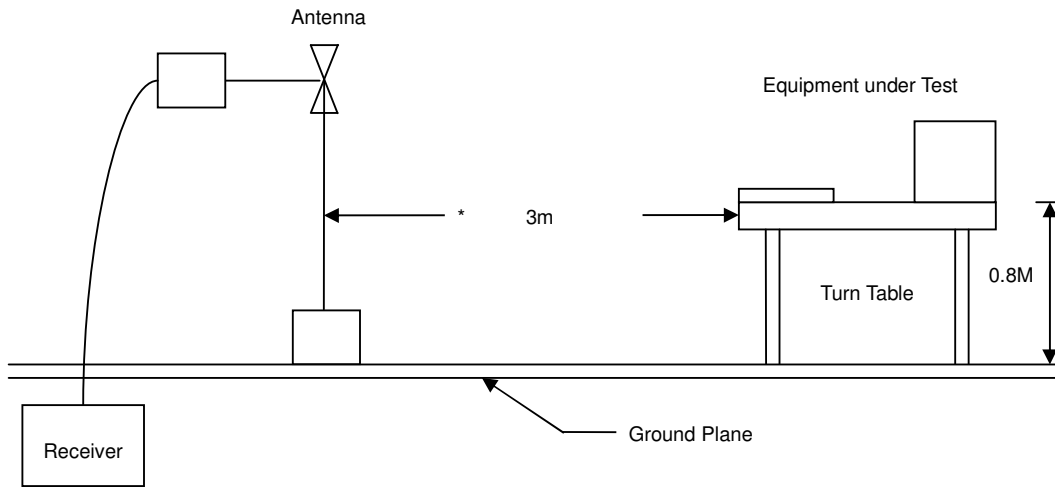
4.2 Test Procedures

- The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
- For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
- For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

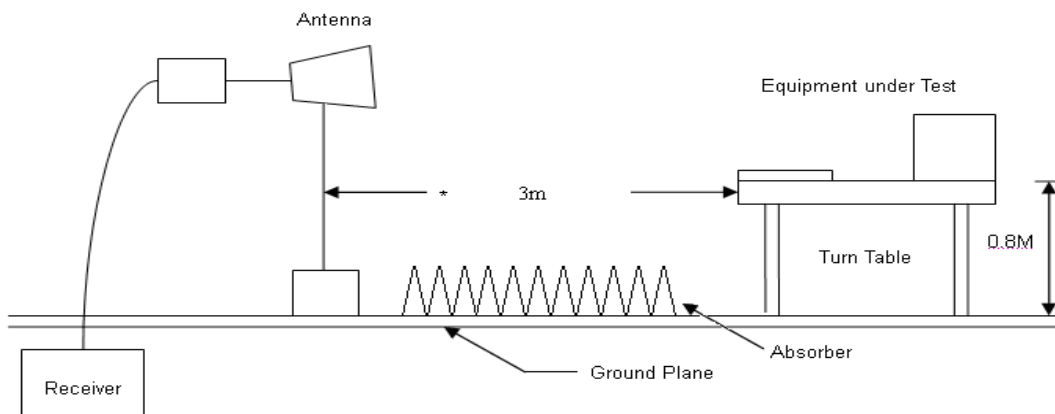


4.3 Typical Test Setup

Below 1GHz Test Setup



Above 1GHz Test Setup





4.4 Measurement equipment

Instrument	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
EMI Test Receiver	R&S	ESCI	100563	2014.02.10	2015.02.09
H64 Preamplifier	HP	8447F	3113A05582	2014.03.24	2015.03.23
Preamplifier	Agilent	8449B	3008A02342	2014.03.24	2015.03.23
Ultra Broadband Antenna	R&S	HL562	100362	2014.08.05	2015.08.04
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2014.05.24	2015.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2014.11.04	2015.11.03
Spectrum Analyzer	R&S	FSP40	100324	2014.03.23	2015.03.24
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2014.03.31	2015.03.30



4.5 Test Result and Data

A . Fundamental & Harmonics Radiated Emission Data

Test Date : 2014-12-15
 Temperature : 23°C
 Humidity : 65%
 Atmospheric Pressure : 1020 hPa

Fundamental Frequency: 915 MHz

VERTICAL

No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	915	-6.94	85.48	78.54	-23.4	101.94	PEAK
2	915	-6.94	84.11	77.17	-4.77	81.94	AVG

HORIZONTAL

No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	915	-6.94	84.13	77.19	-24.75	101.94	PEAK
2	915	-6.94	83.83	76.89	-5.05	81.94	AVG

**B. General Radiated Emission Data****Transmitter****Under 1GHz**

Site : EMC Lab AC 102	Time : 2014-12-15
Limit : FCC_CLASS_B_03M_QP	
Test mode: Normal link	Probe : VERTICAL/ HORIZONTAL

Frequency (MHz)	Factor (dB/m)	Reading (dBUV)	Level (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Antenna Pole (V/H)	Remark
130.8800	-17.19	46.53	29.34	40.00	-14.16	V	QP
152.2200	-18.63	48.79	30.16	43.50	-13.34	V	QP
193.9299	-17.65	43.70	26.05	43.50	-17.45	V	QP
591.6300	-11.43	38.36	26.93	43.50	-19.07	V	QP
879.7200	-6.75	40.80	34.05	46.00	-11.95	V	QP
892.3300	-6.10	47.13	41.03	46.00	-4.97	V	QP
50.3700	-19.61	48.39	28.78	43.5	-11.22	H	QP
94.9900	-22.39	47.41	25.02	43.5	-18.48	H	QP
149.3100	-17.92	43.05	25.13	43.5	-18.37	H	QP
201.6900	-17.01	41.01	24.00	46	-19.50	H	QP
583.8700	-11.79	39.88	28.09	46	-17.91	H	QP
832.1900	-7.79	46.12	38.33	46	-7.67	H	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Level = Reading Level + Correct Factor



Above 1GHz

Site : EMC Lab AC 102	Time : 2014-12-15
Limit : FCC_CLASS_B_03M_QP	
Test mode: Transmit by 915MHz	Probe : VERTICAL/ HORIZONTAL

	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type	Antenna Pole (V/H)
1	1828.000	-3.42	59.18	55.76	-26.18	81.94	PEAK	H
2	1828.000	-3.42	55.34	51.92	-10.02	61.94	AVG	H
1	1828.000	-3.42	60.66	57.24	-24.7	81.94	PEAK	V
2	1828.000	-3.42	58.23	54.81	-7.13	61.94	AVG	V

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. Level = Reading Level + Correct Factor



5. 20dB Bandwidth Measurement Data

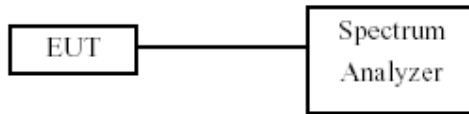
5.1 Test Limit

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

5.2 Test Procedures

- a. The transmitter output was connected to the spectrum analyzer.
- b. Set RBW of spectrum analyzer to 100 KHz and VBW to 300 KHz.
- c. The 20 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20 dB.

5.3 Test Setup Layout



5.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
EXA Signal analyser	Agilent	N9010A	MY53400169	2014.09.28	2015.09.27



5.5 Test Result and Data

Frequency (MHz)	20dB Bandwidth (KHz)	Limit (MHz)	Result
915	251.9	4.575MHz	Pass
<p>Note: Limit=915*0.5%=4.575MHz</p>			



6. Transmission Time

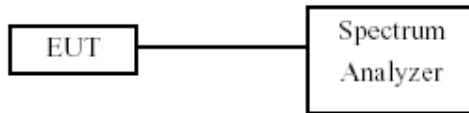
6.1 Test Limit

A transmitter activated automatically shall cease transmission within 5 seconds after activation.

6.2 Test Procedures

The transmitter output was connected to the spectrum analyzer.

6.3 Test Setup Layout



6.4 Measurement equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
EXA Signal analyser	Agilent	N9010A	MY53400169	2014.09.28	2015.09.27

6.5 Test Result and Data

Frequency (MHz)	Max Transmission Time (s)	Limit (s)	Result
915	1.535	5	Pass

