No.:
FCC2024-0020-RF

TEST REPORT

FCC ID	:	**2AEQT-DSTBX003**
NAME OF SAMPLE	:	**TELEMATICS MODULE TBOX**
APPLICANT	:	**Huizhou Desay SV Automotive Co., Ltd.**
CLASSIFICATION OF TEST	:	**N/A**

CVC Testing Technology Co., Ltd.

Applicant	**Name: Huizhou Desay SV Automotive Co., Ltd.** **Address: No. 103, Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone,Huizhou City, Guangdong Province, P.R. China**
Manufacturer	**Name: Huizhou Desay SV Automotive Co., Ltd.** **Address: No. 103, Hechang 5th Road West, Zhongkai National Hi-tech Industrial Development Zone,Huizhou City, Guangdong Province, P.R. China**
Equipment Under Test	**Name: TELEMATICS MODULE TBOX** **Model/Type: SGMW-TBOX-04** **Brand: DESAY SV** **Serial NO.: N/A** **Sample NO.: 1-1**

Date of Receipt.	**2024.05.17**	Date of Testing	**2024.07.19**

Test Specification	**Test Result**
FCC 47 CFR Part 2, 22(H),27 **ANSI/TIA-603-E** **ANSI C63.26-2015**	PASS

Evaluation of Test Result	The equipment under test was found to comply with the requirements of the standards applied. Seal of CVC **Issue Date: 2024.07.19**

Approved by:	Reviewed by:	Tested by:
Chen HuaWen	**Xuzhenfei**	**Luweiji**
Name Signature	Name Signature	Name Signature

Other Aspects: NONE.

Abbreviations:OK, Pass= passed Fail = failed N/A= not applicable EUT= equipment, sample(s) under tested

NOTE:1.This test report relates only to the EUT, and shall not be reproduced except in full, without written approval of CVC.
2.This report determines that uncertainty is not taken into account.

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
FCC2024-0020-RF	Original release	2024.07.19

1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications

1.1 WCDMA Band 5

FCC STANDARD SECTION	TEST TYPE	LIMIT	REPORT SECTION	RESULT
§2.1046	Conducted Power Output	---	See section 3.2	PASS
§22.913(a)(5)	Effective Radiated Power	ERP < 7 Watt	See section 3.2	PASS
§2.1049	Occupied Bandwidth	---	/	PASS
---	Peak-to-Average Power Ratio	<13 dB	/	PASS
§2.1055 §22.355	Frequency Stability	< 2.5 ppm	/	PASS
§2.1051 §22.917	Band Edge Compliance	< 43+10log10(P[Watts])	/	PASS
§2.1051 §22.917	Conducted Spurious Emission	< 43+10log10(P[Watts])	/	PASS
§2.1053 §22.917	Radiates Spurious Emission	< 43+10log10(P[Watts])	See section 3.1	PASS

1.2 LTE Band 5

FCC PART SECTION	TEST TYPE	LIMIT	REPORT SECTION	RESULT
§2.1046	Conducted Power Output	---	See section 3.2	PASS
§22.913(a)(5)	Equivalent Radiated Power	ERP < 7Watt	See section 3.2	PASS
§2.1049	Occupied Bandwidth	---	/	PASS
---	Peak-to-Average Power Ratio	<13 dB	/	PASS
§2.1055 §22.355	Frequency Stability	< 2.5 ppm	/	PASS
§2.1051 §22.917	Band Edge Compliance	< 43+10log10(P[Watts])	/	PASS
§2.1051 §22.917	Conducted Spurious Emission	< 43+10log10(P[Watts])	/	PASS
§2.1053 §22.917	Radiates Spurious Emission	< 43+10log10(P[Watts])	See section 3.1	PASS

1.3 LTE Band 7

FCC PART SECTION	TEST TYPE	LIMIT	REPORT SECTION	RESULT
§2.1046	Conducted Power Output	---	See section 3.2	PASS
§27.50(h)(2)	Equivalent Isotropic Radiated Power	EIRP < 2Watt	See section 3.2	PASS
§2.1049	Occupied Bandwidth	>1MHz	/	PASS
---	Peak-to-Average Power Ratio	<13 dB	/	PASS
§2.1055 §27.54	Frequency Stability	Within authorized bands of operation/frequency block.	/	PASS
§2.1051 §27.53(m4)	Band Edge Compliance	For mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least: (i) 40 + 10 log10 p from the channel edges to 5 MHz away (ii) 43 + 10 log10 p between 5 MHz and X MHz from the channel edges, and (iii) 55 + 10 log10 p at X MHz and beyond from the channel edges In addition, the attenuation shall not be less than 43 + 10 log(p) on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 log10 p at or below 2490.5 MHz	/	PASS
§2.1051 §27.53(m4)	Conducted Spurious Emission		/	PASS
§2.1053 §27.53(m4)	Radiates Spurious Emission		See section 3.1	PASS

1.4 LTE Band 38

FCC PART SECTION	TEST TYPE	LIMIT	REPORT SECTION	RESULT
§2.1046	Conducted Power Output	---	See section 3.2	PASS
§27.50(h)(2)	Equivalent Isotropic Radiated Power	EIRP < 2Watt	See section 3.2	PASS
§2.1049	Occupied Bandwidth	>1MHz	/	PASS
---	Peak-to-Average Power Ratio	<13 dB	/	PASS
§2.1055 §27.54	Frequency Stability	Within authorized bands of operation/frequency block.	/	PASS
§2.1051 §27.53(m4)	Band Edge Compliance	For mobile subscriber equipment, the power of any unwanted emissions measured as above shall be attenuated (in dB) below the transmitter power, P (dBW), by at least: (i) 40 + 10 log10 p from the channel edges to 5 MHz away (ii) 43 + 10 log10 p between 5 MHz and X MHz from the channel edges, and (iii) 55 + 10 log10 p at X MHz and beyond from the channel edges In addition, the attenuation shall not be less than 43 + 10 log(p) on all frequencies between 2490.5 MHz and 2496 MHz, and 55 + 10 log10 p at or below 2490.5 MHz	/	PASS
§2.1051 §27.53(m4)	Conducted Spurious Emission		/	PASS
§2.1053 §27.53(m4)	Radiates Spurious Emission		See section 3.1	PASS

Note: This mobile terminal has a LTE module (model: AG35-E). The LTE module have been certified. This report only tests stray Radiation emissions and Conducted Power Output and ERP/EIRP, and other testing items and data will refer to the module report(FCC ID:XMR201907AG35E).

1.5 LIST OF TEST AND MEASUREMENT INSTRUMENTS

Radiated Emission Test - 3M Chamber				
Equipment listTest Equipment	**Type/Mode**	**Equipment No.**	**ManμFacturer**	**Cal. Due**
3m Semi-Anechoic Chamber	FACT-4	WKNA-0024	ETS	2024/12/12
Spectrum Analyzer	N9010B	DZ-000174	KEYSIGHT	2025/01/02
EMI Test Receiver	N9038A-508	EM-000397	Agilent	2025/01/13
Broadband Antenna	VULB 9163	EM-000342	SCHWARZBECK	2025/06/07
Waveguide Horn Antenna	HF906	WKNA-0024-8	R&S	2025/01/13
Waveguide Horn Antenna	BBHA9170	DZ-000209-2	SCHWARZBECK	2024/08/05
Preamplifier	BBV 9721	DZ-000209-1	SCHWARZBECK	2025/06/02
Comprehensive tester	CMW500	DZ-000240-2	R&S	2024/12/03
GSM/WCDMA/LTE Test System				
Equipment listTest Equipment	**Type/Mode**	**Equipment No.**	**ManμFacturer**	**Cal. Due**
Communication Shielded Room 1	4m*3m*3m	VGDS-0699	CRT	2027/03/28
Spectrum Analyzer	FSV30	DZ-000235	R&S	2024/12/03
Comprehensive Test Instrument	CMW500	DZ-000342	R&S	2024/12/03
Analog Signal Generator	SMA100B	DZ-000239-2	R&S	2024/08/17
Vector Signal Generator	SMBV100B	DZ-000239-1	R&S	2025/04/27
Programmable DC Power Supply	E3642A	DZ-000242-2	KEYSIGHT	2024/08/03

1. The calibration interval of the above Shielding room, Anechoic chamber and Control room is 36 months.
2. The calibration interval of the above test instruments is 12 months.

Radiated Emission test software		
Software name	**Software version**	**Software Developer**
JS36-RSE Radiation stray test system	2.5.1.2	Shenzhen JS tonscend co.,ltd
GSM/WCDMA/LTE test software		
Software name	**Software version**	**Software Developer**
JS1120 RF Auto Test System	3.1.46	Shenzhen JS tonscend co.,ltd

2 GENERAL INFORMATION

The product main model of this application is SGMW-TBOX-04 and the family model is SGMW-TBOX-06. The TELEMATICS MODULE TBOX, Model No: SGMW-TBOX-04, SGMW-TBOX-06 are identical to each other on PCB layouts, constructions and appearance. The difference are as following:

1. Two models have different type of e-SIM card;
2. Model SGMW-TBOX-04 contains AMP and Codec, while SGMW-TBOX-06 doesn't have;
3. Model SGMW-TBOX-04 contains Steel Antenna, while SGMW-TBOX-06 doesn't have.

All the tests carried out on model SGMW-TBOX-04.

Two models are identical to each other on PCB layouts, constructions and appearance.
Model SGMW-TBOX-04 contains Steel Antenna on the PCB, while SGMW-TBOX-06 doesn't have.
During normal use, the steel antenna doesn't work, both SGMW-TBOX-04 and SGMW-TBOX-06 use external antenna only. Once the external antenna is disconnected by any reason, SGMW-TBOX-04 will switch to steel antenna to meet the needs of makingn emergency call.

2.1 GENERAL PRODUCT INFORMATION

PRODUCT	TELEMATICS MODULE TBOX		
BRAND	DESAY SV		
MODEL	SGMW-TBOX-04		
ADDITIONAL MODEL	SGMW-TBOX-06		
FCC ID	2AEQT-DSTBX003		
POWER SUPPLY	DC12V 0.6A		
MODULATION TYPE	WCDMA		QPSK, 16QAM
	LTE	UL	QPSK, 16QAM
		DL	QPSK, 16QAM, 64QAM
WCDMA BAND	B5		
LTE BAND	B5 / B7 / B38		
OPERATING FREQUENCY	See section 2.3		
MAXIMUM OUTPUT POWER	See section 2.3		
ANTENNA TYPE AND GAIN (Remark 4/5)	See section 2.2		
HARDWARE VERSION:	HW003		
SOFTWARE VERSION:	DSW03.00		
I/O PORTS	Refer to user's manual		

Remark:

1. For more detailed features description, please refer to the manufacturer's specifications or the User's Manual.
2. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.
3. Please refer to the EUT photo document (Reference No.: FCC2024-0020-EUT) for detailed product photo.
4. Please refer to the antenna report.
5. Since the above data and/or information is provided by the client relevant results or conclusions of this report are only made for these data and/or information, CVC is not responsible for the authenticity, integrity and results of the data and information and/or the validity of the conclusion.

2.2 ANTENNA TYPE AND GAIN

2.2.1 EXTERNAL ANTENNA

Mode	Band	Antenna Type		Antenna Gain(dBi)	
		Main	Diversity	Main	Diversity
WCDMA	WCDMA B5	External Antenna	External Antenna	-2.24	-2.24
LTE	LTE B5	External Antenna	External Antenna	-2.24	-2.24
	LTE B7	External Antenna	External Antenna	1.72	1.72
	LTE B38	External Antenna	External Antenna	1.72	1.72

2.2.2 INTERNAL ANTENNA-STEEL ANTENNA

Mode	Band	Antenna Type		Antenna Gain(dBi)	
		Main	Diversity	Main	Diversity
WCDMA	WCDMA B5	Internal Antenna	Internal Antenna	-0.839	-0.839
LTE	LTE B5	Internal Antenna	Internal Antenna	-0.839	-0.839
	LTE B7	Internal Antenna	Internal Antenna	5.556	5.556
	LTE B38	Internal Antenna	Internal Antenna	3.747	3.747

2.3 OPERATING FREQUENCY AND MAX CONDUTED POWER

Mode	Band	TX(MHz)	RX(MHz)	Maximum Output Power (dBm)
WCDMA	WCDMA B5	824 ~ 849	869 ~ 894	23.71
LTE	LTE B5	824 ~ 849	869 ~ 894	23.05
	LTE B7	2500 ~ 2570	2620 ~ 2690	23.24
	LTE B38	2570 ~ 2620	2570 ~ 2620	22.75

2.4 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

Pre-scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, XYZ axis and antenna ports.

EUT CONFIGURE MODE	DESCRIPTION
-	EUT with WCDMA or LTE link

Test modes are chosen as the worst case configuration below for WCDMA

TEST ITEM	AVAILABLE CHANNEL	TESTED CHANNEL	MODE
RF power output	4132 to 4233	4132, 4182, 4233	WCDMA Band 5
Effective Radiated Power	4132 to 4233	4132, 4182, 4233	WCDMA Band 5
Radiates Spurious Emission	4132 to 4233	4132, 4182, 4233	WCDMA Band 5

Test modes are chosen as the worst case configuration below for LTE

Test items	LTE	Bandwidth (MHz)						Modulation		RB			Test Channel		
		1.4	3	5	10	15	20	QPSK	16QAM	1%	50%	100%	L	M	H
RF power output	5	O	O	O	O	-	-	O	O	O	O	O	O	O	O
	7	-	-	O	O	O	O	O	O	O	O	O	O	O	O
	38	-	-	O	O	O	O	O	O	O	O	O	O	O	O
ERP/ EIRP	5	O	O	O	O	-	-	O	O	O	O	O	O	O	O
	7	-	-	O	O	O	O	O	O	O	O	O	O	O	O
	38	-	-	O	O	O	O	O	O	O	O	O	O	O	O
Radiates Spurious Emission (Note3)	5	O	O	O	O	-	-	O	-	O	-	-	O	O	O
	7	-	-	O	O	O	O	O	-	O	-	-	O	O	O
	38	-	-	O	O	O	O	O	-	O	-	-	O	O	O
Note	1. The mark “O” means that this configuration is chosen for testing. 2. The mark “-” means that this configuration is not testing. 3. Only the worst case was shown in test report														

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
RF power output	24.6deg. C, 53%RH	DC 12V	Chen Jiaxin
Effective Radiated Power	24.6deg. C, 53%RH	DC 12V	Chen Jiaxin
Equivalent Isotropic Radiated Power	24.6deg. C, 53%RH	DC 12V	Chen Jiaxin
Radiates Spurious Emission	24.6deg. C, 53%RH	DC 12V	Chen Jiaxin

2.5 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product, according to the specifications of the manufacturers. It must comply with the requirements of the following standards:

FCC 47 CFR PART 2

FCC 47 CFR PART 22

FCC 47 CFR PART 27

KDB 971168 D01 POWER MEAS LICENSE DIGITAL SYSTEMS V03R01

ANSI/TIA-603-E

ANSI C63.26-2015

ANSI C63.4-2014

Note: All test items have been performed and recorded as per the above standards

2.6 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.

Support Equipment					
NO	**Description**	**Brand**	**Model No.**	**Serial Number**	**Supplied by**
1	N/A	N/A	N/A	N/A	N/A

Support Cable							
NO	**Description**	**Quantity (Number)**	**Length (cm)**	**Detachable (Yes/ No)**	**Shielded (Yes/ No)**	**Cores (Number)**	**Supplied by**
1	N/A	N/A	N/A	N/A	N/A	N/A	N/A

2.7 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:

No.	Item	Measurement Uncertainty
1	Occupied Channel Bandwidth	±1.86 %
2	RF output power, conducted	±0.651 dB
3	Power Spectral Density, conducted	±0.8 dB
4	Conducted emission test	+/-1.427 dB
5	Radiated emission	+/-2.1618 dB
6	Temperature	±0.73 °C
7	Humidity	±3.90 %
8	Supply voltages	±0.37 %
9	Time	±0.27 %
Remark: 95% Confidence Levels, *k*=2.		

2.8 TEST LOCATION

The tests and measurements refer to this report were performed by RF testing Lab. Of CVC Testing Technology Co., Ltd.

Add.: No.3, Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou,Guangdong,510663, People's Republic of China

Telephone : +86-20-32293888

Fax : +86-20-32293889

FCC(Test firm designation number：CN1282)

IC(Test firm CAB identifier number：CN0103)

3 TEST TYPES AND RESULTS

3.1 RADIATED EMISSION MEASUREMENT

3.1.1 TEST PROCEDURES

a. Substitution method is used for E.I.R.P measurement. In the semi-anechoic chamber, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.

b. The substitution horn antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a TX cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step a. Record the power level of S.G

c. EIRP(dBm) = S.G.POWER – TX cable loss + Antenna gain.

d. E.R.P(dBm) = E.I.P.R – 2.15dBi.

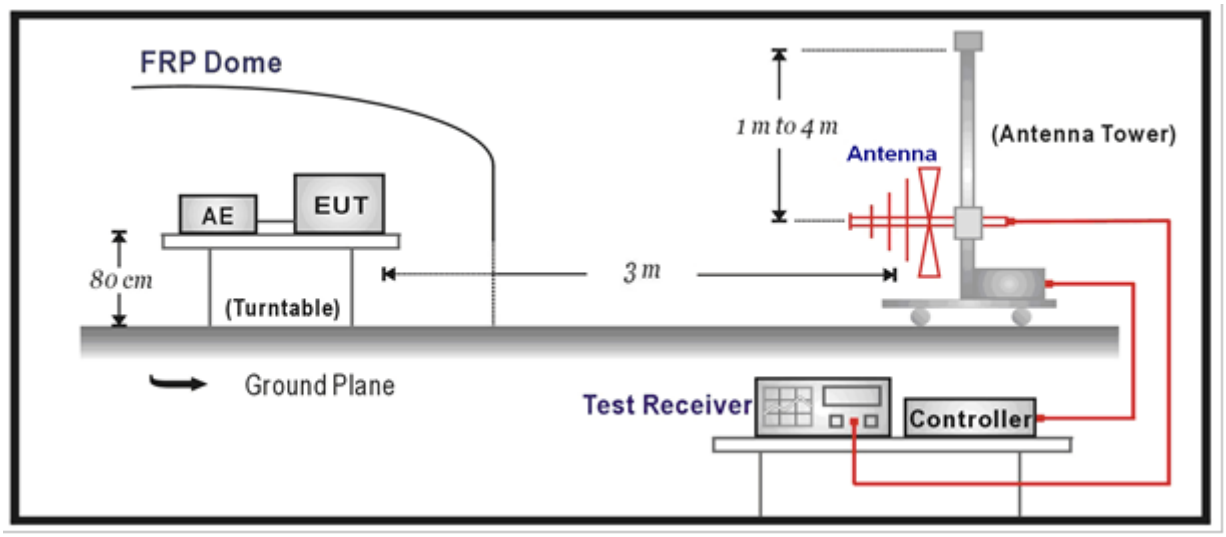
NOTE:

1.The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

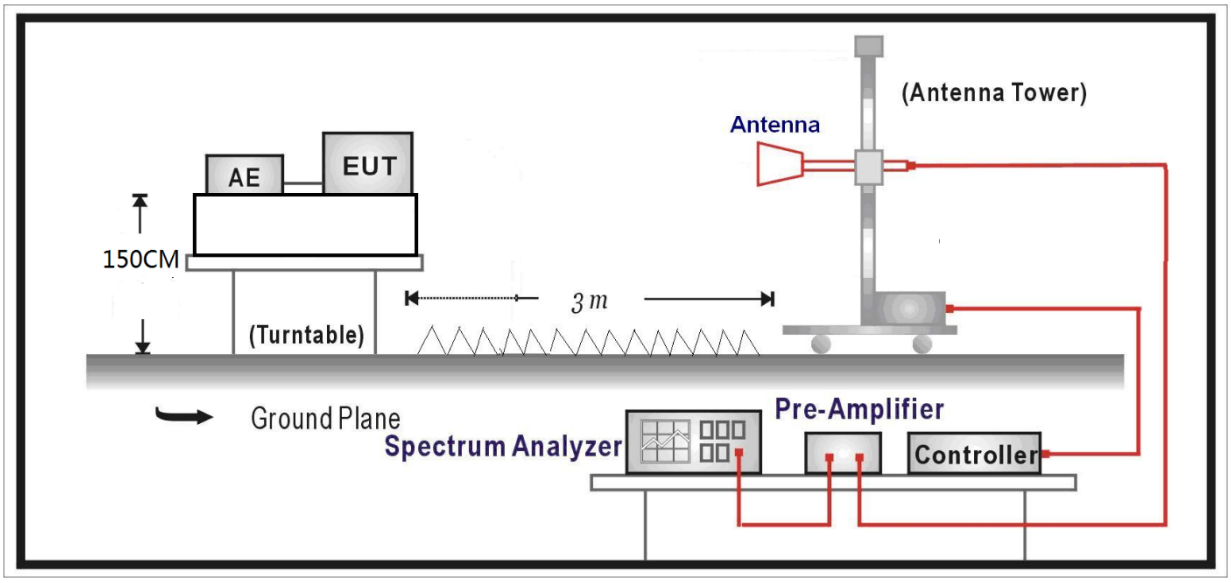
2.Only the worst case was shown in test report

3.1.2 TEST SETUP

Below 1GHz Test Setup:



Above 1GHz Test Setup:



Note: Above 1G is a directional antenna

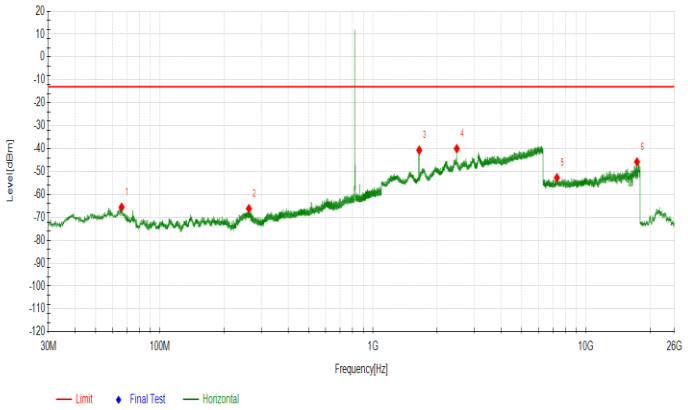
Depends on the EUT height and the antenna 3dB beamwidth both, refer to section 7.3 of CISPR 16-2-3.

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.1.3 TEST RESULTS- EXTERNAL ANTENNA

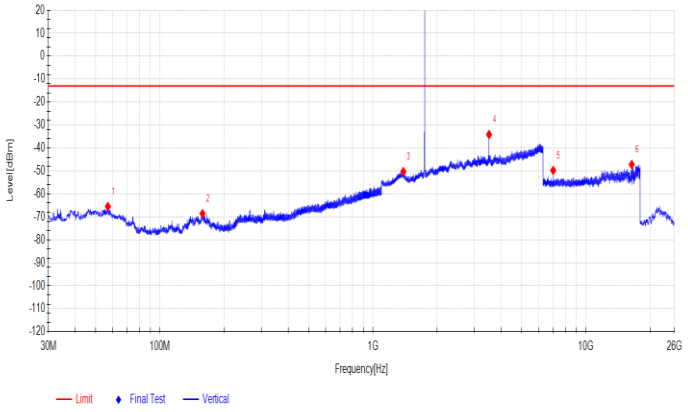
THE WORST CASE DATA

Test Mode	WCDMA B5	**Channel**	CH 4182



Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	66.0626	-91.61	-65.55	-13.00	52.55	26.06	202
2	261.3571	-89.41	-66.19	-13.00	53.19	23.22	202
3	1648.4497	-53.36	-40.67	-13.00	27.67	12.69	48
4	2472.8346	-59.40	-40.01	-13.00	27.01	19.39	233
5	7301.6202	-70.85	-52.72	-13.00	39.72	18.13	233
6	17352.9253	-78.96	-45.76	-13.00	32.76	33.20	296

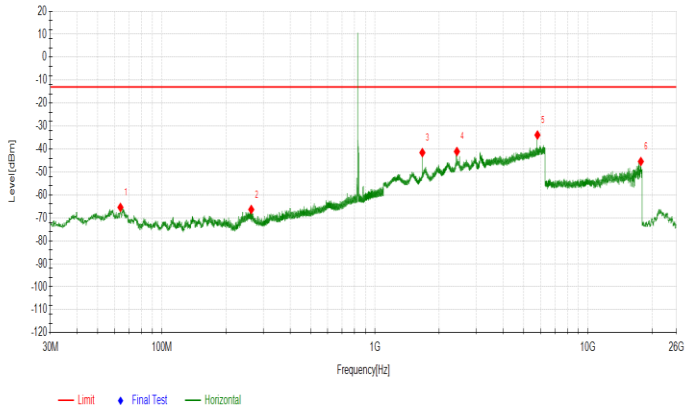


Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	56.9667	-92.74	-65.48	-13.00	52.48	27.26	278
2	158.4128	-93.49	-68.59	-13.00	55.59	24.90	360
3	1387.7175	-64.15	-50.28	-13.00	37.28	13.87	308
4	3507.5908	-56.30	-34.12	-13.00	21.12	22.18	263
5	7014.9415	-66.28	-49.76	-13.00	36.76	16.52	189
6	16387.5788	-77.51	-47.17	-13.00	34.17	30.34	350

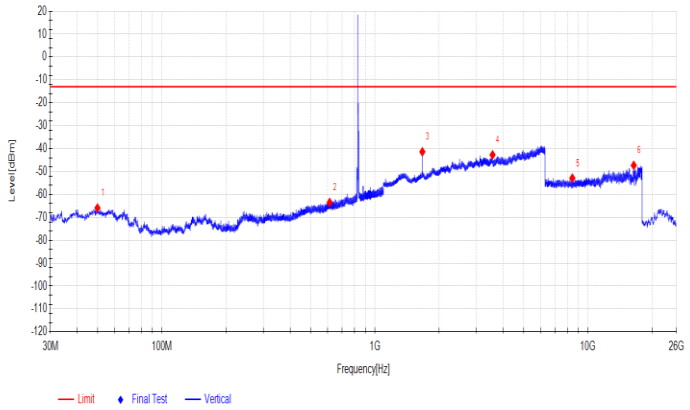
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBm) = Reading (dBm) + Factor (dB).
3. Margin(dB) = Limit[dBm] – Level [dBm]

Test Mode	LTE B5-QPSK-5MHz	**Channel**	CH 20525



Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	63.8154	-91.56	-65.44	-13.00	52.44	26.12	170
2	262.4272	-89.63	-66.36	-13.00	53.36	23.27	201
3	1668.5937	-55.13	-41.57	-13.00	28.57	13.56	45
4	2423.8048	-60.37	-41.08	-13.00	28.08	19.29	107
5	5790.0990	-61.08	-33.90	-13.00	20.90	27.18	125
6	17709.8110	-78.36	-45.44	-13.00	32.44	32.92	204

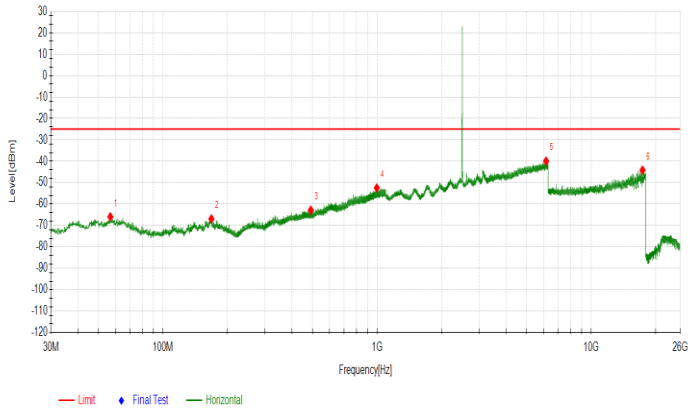


Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	49.7970	-93.61	-65.92	-13.00	52.92	27.69	253
2	612.6733	-93.67	-63.48	-13.00	50.48	30.19	97
3	1668.5937	-55.33	-41.38	-13.00	28.38	13.95	128
4	3563.0363	-65.82	-42.72	-13.00	29.72	23.10	0
5	8445.9946	-70.60	-52.90	-13.00	39.90	17.70	278
6	16395.7696	-77.14	-47.29	-13.00	34.29	29.85	308

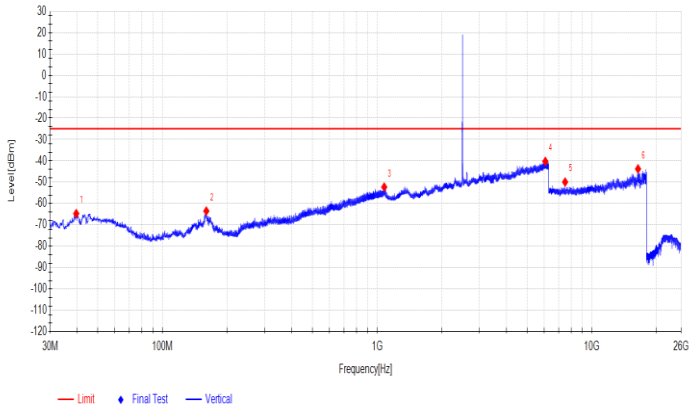
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBm) = Reading (dBm) + Factor (dB).
3. Margin(dB) = Limit[dBm] – Level [dBm]

Test Mode	LTE B7-QPSK-20MHz	**Channel**	CH 21100



Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	56.7527	-93.65	-65.93	-25.00	40.93	27.72	143
2	168.2578	-92.42	-66.87	-25.00	41.87	25.55	234
3	489.9320	-92.78	-62.81	-25.00	37.81	29.97	173
4	996.1996	-91.17	-52.46	-25.00	27.46	38.71	357
5	6150.4951	-60.26	-39.91	-25.00	14.91	20.35	255
6	17355.2655	-79.02	-44.14	-25.00	19.14	34.88	38

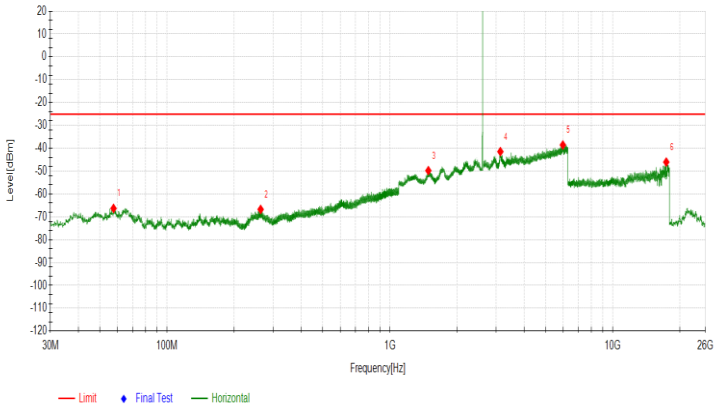


Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	39.6310	-91.91	-64.68	-25.00	39.68	27.23	142
2	159.9110	-89.80	-63.49	-25.00	38.49	26.31	172
3	1077.6348	-91.38	-52.26	-25.00	27.26	39.12	172
4	6065.3465	-60.74	-40.26	-25.00	15.26	20.48	130
5	7500.5401	-68.25	-49.91	-25.00	24.91	18.34	230
6	16395.7696	-77.55	-43.77	-25.00	18.77	33.78	357

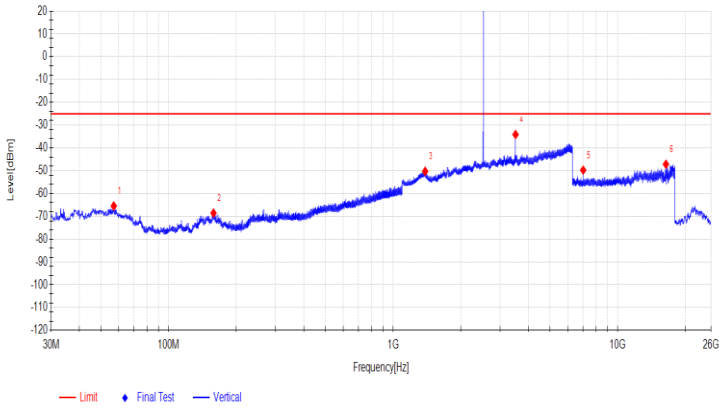
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBm) = Reading (dBm) + Factor (dB).
3. Margin(dB) = Limit[dBm] – Level [dBm]

Test Mode	LTE B38-QPSK-5MHz	**Channel**	CH 37775



Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	57.5018	-93.35	-66.30	-25.00	41.30	27.05	139
2	262.8553	-90.03	-66.76	-25.00	41.76	23.27	170
3	1487.2975	-63.91	-49.77	-25.00	24.77	14.14	263
4	3130.0330	-67.01	-41.48	-25.00	16.48	25.53	64
5	5970.2970	-66.66	-38.56	-25.00	13.56	28.10	186
6	17372.8173	-78.41	-46.03	-25.00	21.03	32.38	83



Vertical

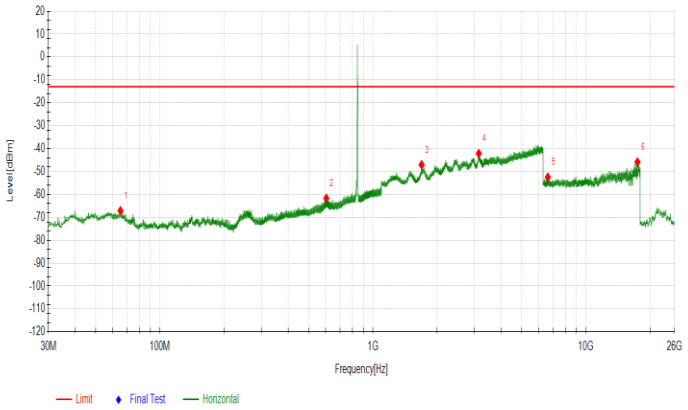
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	56.9667	-92.74	-65.48	-25.00	40.48	27.26	278
2	158.4128	-93.49	-68.59	-25.00	43.59	24.90	360
3	1387.7175	-64.15	-50.28	-25.00	25.28	13.87	308
4	3507.5908	-56.30	-34.12	-25.00	9.12	22.18	263
5	7014.9415	-66.28	-49.76	-25.00	24.76	16.52	189
6	16387.5788	-77.51	-47.17	-25.00	22.17	30.34	350

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBm) = Reading (dBm) + Factor (dB).
3. Margin(dB) = Limit[dBm] – Level [dBm]

3.1.4 TEST RESULTS- INTERNAL ANTENNA

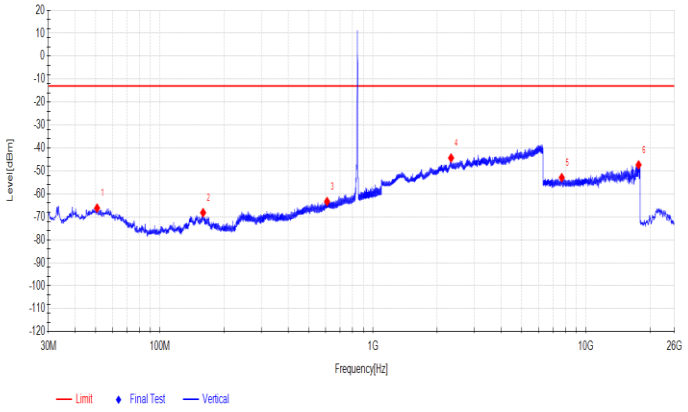
THE WORST CASE DATA

Test Mode	WCDMA B5	**Channel**	CH 4233



Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	65.2065	-93.40	-67.13	-13.00	54.13	26.27	188
2	603.6844	-92.12	-61.68	-13.00	48.68	30.44	127
3	1691.7784	-62.12	-47.01	-13.00	34.01	15.11	218
4	3136.3036	-67.28	-42.11	-13.00	29.11	25.17	327
5	6618.2718	-70.20	-52.48	-13.00	39.48	17.72	157
6	17440.6841	-78.70	-45.82	-13.00	32.82	32.88	360

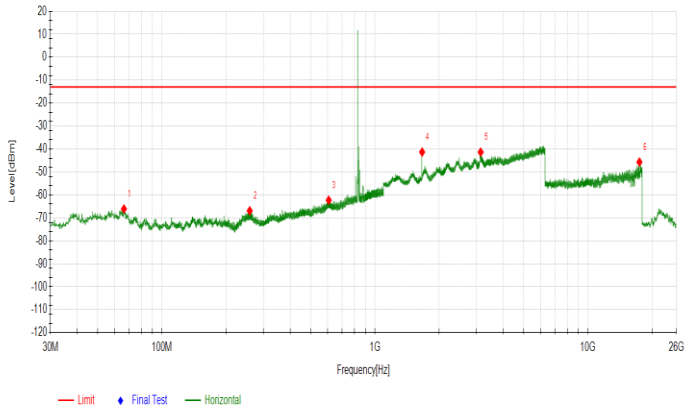


Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	50.6531	-93.50	-66.17	-13.00	53.17	27.33	297
2	159.3759	-93.14	-68.18	-13.00	55.18	24.96	26
3	608.7139	-93.40	-63.31	-13.00	50.31	30.09	177
4	2325.7451	-63.22	-44.36	-13.00	31.36	18.86	177
5	7694.7795	-71.30	-52.89	-13.00	39.89	18.41	233
6	17659.4960	-78.94	-47.34	-13.00	34.34	31.60	327

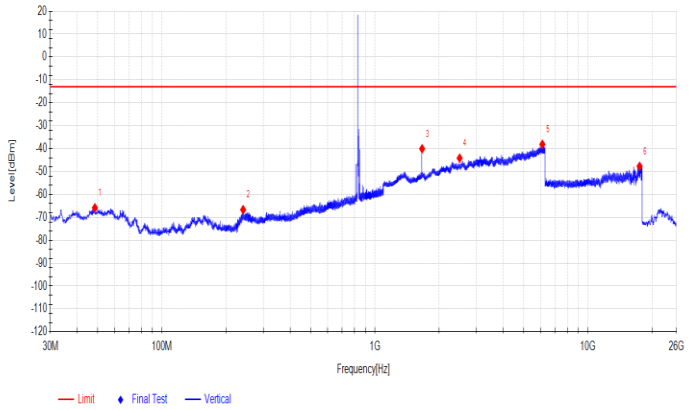
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBm) = Reading (dBm) + Factor (dB).
3. Margin(dB) = Limit[dBm] – Level [dBm]

Test Mode	LTE B5-QPSK-5MHz	**Channel**	CH 20525



Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	66.2766	-92.08	-66.11	-13.00	53.11	25.97	224
2	258.1468	-89.96	-66.91	-13.00	53.91	23.05	224
3	606.3596	-92.85	-62.30	-13.00	49.30	30.55	130
4	1664.0328	-54.57	-41.32	-13.00	28.32	13.25	224
5	3133.9934	-66.64	-41.34	-13.00	28.34	25.30	357
6	17434.8335	-77.90	-45.67	-13.00	32.67	32.23	192

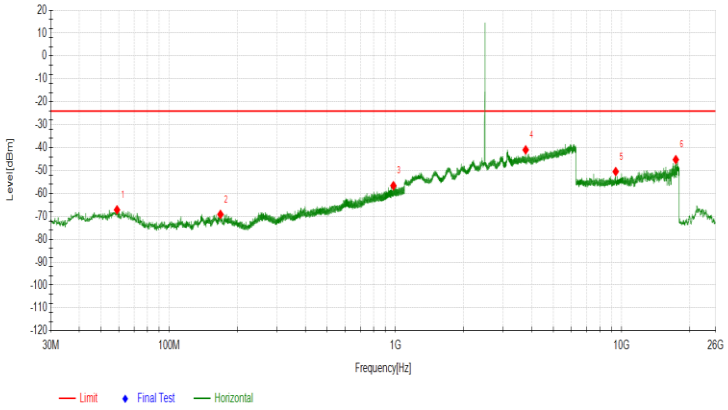


Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	48.4058	-93.64	-65.83	-13.00	52.83	27.81	326
2	240.3830	-89.12	-66.66	-13.00	53.66	22.46	201
3	1664.0328	-53.91	-40.05	-13.00	27.05	13.86	139
4	2496.3993	-61.85	-44.14	-13.00	31.14	17.71	232
5	6105.2805	-66.21	-38.10	-13.00	25.10	28.11	308
6	17467.5968	-78.94	-47.70	-13.00	34.70	31.24	22

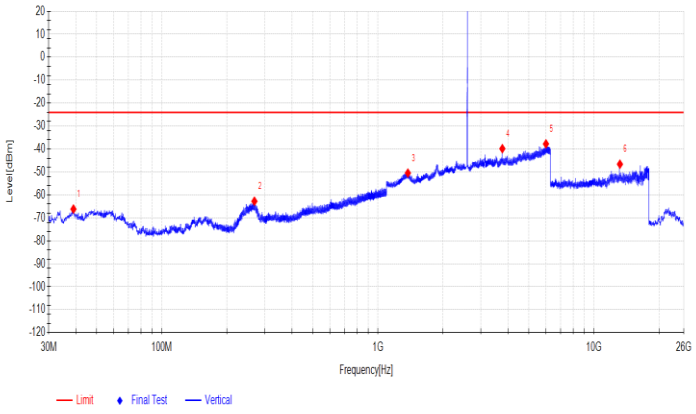
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBm) = Reading (dBm) + Factor (dB).
3. Margin(dB) = Limit[dBm] – Level [dBm]

Test Mode	LTE B7-QPSK-5MHz	**Channel**	CH 21100



Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	58.7859	-94.00	-67.16	-25.00	42.16	26.84	65
2	168.4718	-93.23	-69.15	-25.00	44.15	24.08	127
3	979.5060	-90.90	-56.60	-25.00	31.60	34.30	219
4	3763.6964	-64.31	-40.97	-25.00	15.97	23.34	114
5	9410.1710	-69.28	-50.46	-25.00	25.46	18.82	185
6	17349.4149	-78.50	-45.23	-25.00	20.23	33.27	124

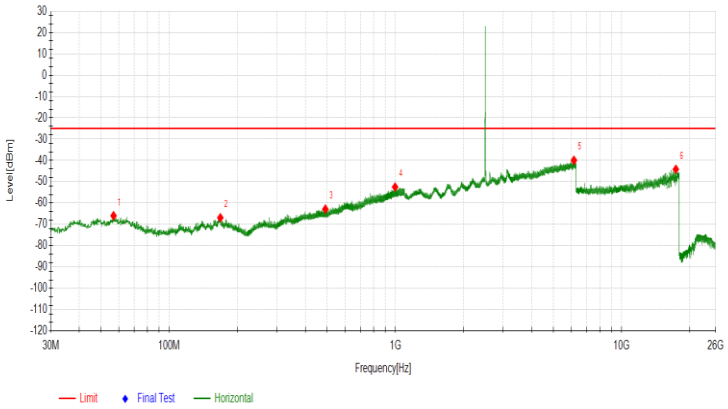


Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	38.9889	-92.88	-66.16	-25.00	41.16	26.72	263
2	268.0988	-86.10	-62.74	-25.00	37.74	23.36	233
3	1375.5551	-64.32	-50.46	-25.00	25.46	13.86	43
4	3764.0264	-63.88	-39.84	-25.00	14.84	24.04	189
5	5990.4290	-65.73	-37.76	-25.00	12.76	27.97	157
6	13174.4374	-71.20	-46.61	-25.00	21.61	24.59	175

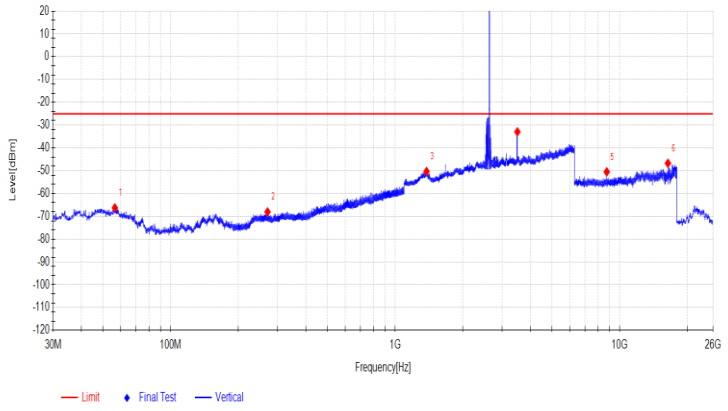
Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBm) = Reading (dBm) + Factor (dB).
3. Margin(dB) = Limit[dBm] – Level [dBm]

Test Mode	LTE B38-QPSK-5MHz	**Channel**	CH 37775



Horizontal

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	58.5719	-93.53	-66.63	-25.00	41.63	26.90	159
2	258.4678	-89.62	-66.55	-25.00	41.55	23.07	253
3	1297.6395	-63.98	-50.76	-25.00	25.76	13.22	314
4	3500.3300	-62.83	-40.94	-25.00	15.94	21.89	204
5	6191.4191	-66.70	-38.38	-25.00	13.38	28.32	83
6	17364.6265	-78.28	-45.58	-25.00	20.58	32.70	34



Vertical

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Angle [°]
1	56.4316	-93.61	-66.30	-25.00	41.30	27.31	199
2	270.0250	-91.72	-68.06	-25.00	43.06	23.66	199
3	1379.3559	-64.20	-50.34	-25.00	25.34	13.86	16
4	3500.6601	-55.29	-32.96	-25.00	7.96	22.33	250
5	8751.3951	-68.64	-50.50	-25.00	25.50	18.14	234
6	16391.0891	-77.27	-46.74	-25.00	21.74	30.53	0

Remark: 1. The emission levels of other frequencies were greater than 20dB margin.
2. Level (dBm) = Reading (dBm) + Factor (dB).
3. Margin(dB) = Limit[dBm] – Level [dBm]

3.2 Out power Measurement

3.2.1 TEST PROCEDURES

Subclause 5.6 of Per KDB 971168 D01 Power Meas License Digital Systems v03r01 or subclause 5.2.5.5 of ANSI C63.26-2015, the relevant equation for determing the ERP or EIRP from the conducted RF output power measured using the guidance provided above is:

EIRP = PT + GT – LC, ERP= EIRP – 2.15dBi, where

PT = transmitter output power dBm;

GT = gain of the transmitting antenna dBi;

LC = signal attenuation in the connecting cable between the transmitter and antenna, in dB.

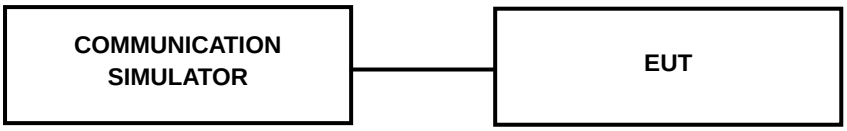
Conducted Power Measurement:

The EUT was set up for the maximum power with LTE link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.

3.2.2 TEST SETUP

EIRP / ERP Measurement:

CONDUCTED POWER MEASUREMENT:



3.2.3 TEST RESULTS- EXTERNAL ANTENNA

ERP Power(*Unit: Watts)	
Band	**WCDMA Band 5**
GT(dBi)	**-2.24**
LC(dB)	**0.5**
Channel	**4233**
Conducted Power(dBm)	23.71
Conducted Power(Watts)	0.235
ERP (dBm)	18.82
ERP (Watts)	0.076

Note: 1.The verification power result is passed.

2.Only display the maximum value.

ERP Power(*Unit: Watts)	
Band	**LTE Band 5**
GT(dBi)	**-2.24**
LC(dB)	**0.5**
BW(MHz)	**10**
RB	**1#25**
Mod	**QPSK**
Channel	**Hig**
Conducted Power(dBm)	23.05
Conducted Power(Watts)	0.202
ERP (dBm)	18.16
ERP (Watts)	0.065

Note: 1.The verification power result is passed.

2.Only display the maximum value.

EIRP Power(*Unit: Watts)	
Band	**LTE Band 7**
GT(dBi)	**1.72**
LC(dB)	**0.5**
BW(MHz)	**20**
RB	**1#49**
Mod	**QPSK**
Channel	**Low**
Conducted Power(dBm)	23.24
Conducted Power(Watts)	0.211
EIRP (dBm)	24.46
EIRP (Watts)	0.279

Note: 1.The verification power result is passed.

2.Only display the maximum value.

EIRP Power(*Unit: Watts)	
Band	**LTE Band 38**
GT(dBi)	**1.72**
LC(dB)	**0.5**
BW(MHz)	**20**
RB	**1#49**
Mod	**QPSK**
Channel	**Mid**
Conducted Power(dBm)	22.75
Conducted Power(Watts)	0.188
EIRP (dBm)	23.97
EIRP (Watts)	0.249

Note: 1.The verification power result is passed.

2.Only display the maximum value.

3.2.4 TEST RESULTS- INTERNAL ANTENNA

ERP Power(*Unit: Watts)	
Band	**WCDMA Band 5**
GT(dBi)	**-0.839**
LC(dB)	**0.5**
Channel	**4233**
Conducted Power(dBm)	23.71
Conducted Power(Watts)	0.235
ERP (dBm)	20.221
ERP (Watts)	0.105

Note: 1.The verification power result is passed.

2.Only display the maximum value.

ERP Power(*Unit: Watts)	
Band	**LTE Band 5**
GT(dBi)	**-0.839**
LC(dB)	**0.5**
BW(MHz)	**10**
RB	**1#25**
Mod	**QPSK**
Channel	**Hig**
Conducted Power(dBm)	23.05
Conducted Power(Watts)	0.202
ERP (dBm)	19.561
ERP (Watts)	0.090

Note: 1.The verification power result is passed.

2.Only display the maximum value.

EIRP Power(*Unit: Watts)	
Band	**LTE Band 7**
GT(dBi)	**5.556**
LC(dB)	**0.5**
BW(MHz)	**20**
RB	**1#49**
Mod	**QPSK**
Channel	**Low**
Conducted Power(dBm)	23.24
Conducted Power(Watts)	0.211
EIRP (dBm)	28.296
EIRP (Watts)	0.675

Note: 1.The verification power result is passed.

2.Only display the maximum value.

EIRP Power(*Unit: Watts)	
Band	**LTE Band 38**
GT(dBi)	**3.747**
LC(dB)	**0.5**
BW(MHz)	**20**
RB	**1#49**
Mod	**QPSK**
Channel	**Mid**
Conducted Power(dBm)	22.75
Conducted Power(Watts)	0.188
EIRP (dBm)	25.997
EIRP (Watts)	0.398

Note: 1.The verification power result is passed.

2.Only display the maximum value.

4 PHOTOGRAPHS OF TEST SETUP

Please refer to the attached file (Test Setup Photo).

------ End of the Report ------

Important

1. The test report is invalid without the official stamp of CVC;
2. Any part photocopies of the test report are forbidden without the written permission from CVC;
3. The test report is invalid without the signatures of Author and Reviewer;
4. The test report is invalid if altered;
5. Objections to the test report must be submitted to CVC within 15 days;
6. Generally, commission test is responsible for the tested samples only;
7. As for the test result, "—" or " N/A" means "not applicable", " / "means "not testing", "P" means "pass" and "F" means "fail".

The test data and test results given in this test report should only be used for purposes of scientific research, teaching and internal quality control when the CMA symbol is not presented.

Address: No.3,Tiantaiyi Road, Kaitai Avenue, Science City, Guangzhou, China (Test location)

Post Code：510663 Tel：020-32293888

FAX：020 32293889 E-mail：office@cvc.org.cn