

Test Report No.: RF180315W004-4



FCC TEST REPORT (PART 24)

Applicant:	Corporativo Lanix S.A. de C.V.			
Address:	Carretera Internacional Hermosillo-Nogales Km 8.5, Hermosillo Sonora, Mexico			
Manufacturer or Supplier:	Corporativo Lanix S.A. de C.V.			
Address:	Carretera Internacional Hermosillo	o-Nogales Km 8.5, Hermosillo Sonora, Mexico		
Product:	smart phone			
Brand Name:	LANIX			
Model Name:	X120C			
FCC ID:	ZC4X120C			
Date of tests:	May 25, 2018 ~ Jun. 15, 2018			
The tests have been carried out according to the requirements of the following standard:				
	 ✓ FCC PART 24, Subpart E ✓ ANSI C63.26-2015 ✓ ANSI/TIA/EIA-603-D ✓ ANSI/TIA/EIA-603-E 			
CONCLUSION: Th	CONCLUSION: The submitted sample was found to <u>COMPLY</u> with the test requirement			
	Prepared by Roger Li Engineer / Mobile Department Approved by Sam Tung Manager / Mobile Department			
	Roger			
	Date: Jun. 18, 2018 Date: Jun. 18, 2018			
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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF180524W003-3	Original release	Jun. 18, 2018

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1 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

	APPLIED STANDARD: FCC Part 24 & Part 2			
STANDARD SECTION	TEST TYPE	RESULT	REMARK	
2.1046 24.232	Equivalent Isotropic Radiated Power	PASS	Meet the requirement of limit.	
2.1055 24.235	Frequency Stability	PASS	Meet the requirement of limit.	
2.1049 24.238(b)	Occupied Bandwidth	PASS	Meet the requirement of limit.	
24.232(d)	Peak to average ratio	PASS	Meet the requirement of limit.	
24.238(b)	Band Edge Measurements	PASS	Meet the requirement of limit.	
2.1051 24.238	Conducted Spurious Emissions	PASS	Meet the requirement of limit.	
2.1053 24.238	Radiated Spurious Emissions		Meet the requirement of limit. Minimum passing margin is -22.98dB at 5640.000MHz.	

1.1 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:

MEASUREMENT	FREQUENCY	UNCERTAINTY
Conducted emissions	9kHz~30MHz	2.66dB
	9KHz ~ 30MHz	2.68dB
Radiated emissions	30MHz ~ 1GHz	3.26dB
Radiated emissions	1GHz ~ 18GHz	4.48dB
	18GHz ~ 40GHz	4.12dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

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1.2 TEST SITE AND INSTRUMENTS

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
MXE EMI Receiver	KEYSIGHT	N9038A-544	MY54450026	Mar. 16,18	Mar. 15,19
EXA Signal Analyzer	KEYSIGHT	N9010A-526	MY54510322	Jun. 28,17	Jun. 27,18
Bilog Antenna 1	ETS-LINDGREN	3143B	00161964	Nov. 26,16	Nov. 25,18
Bilog Antenna 2	ETS-LINDGREN	3143B	00161965	Nov. 26,16	Nov. 25,18
Horn Antenna 1	ETS-LINDGREN	3117	00168728	Nov. 26,16	Nov. 25,18
Horn Antenna 2	ETS-LINDGREN	3117	00168692	Nov. 26,16	Nov. 25,18
Loop antenna	Daze	ZN30900A	0708	Nov. 20,17	Nov. 19,18
Horn Antenna (18GHz-40GHz)	N/A	QWH-SL-18-40 -K-SG/QMS-00 361		Dec. 16,16	Dec. 15,18
Radio Communication Analyzer	ANRITSU	MT8820C	6201465426	Mar. 02,18	Mar. 01,19
Signal Pre-Amplifier	EMSI	EMC 9135	980249	Jul. 24,17	Jul. 23,18
Signal Pre-Amplifier	EMSI	EMC 012645B	980257	Jul. 24,17	Jul. 23,18
Signal Pre-Amplifier	EMSI	EMC 184045B	980259	Jul. 24,17	Jul. 23,18
3m Semi-anechoic Chamber	ETS-LINDGREN	9m*6m*6m	Euroshieldpn- CT0001143-1216	Apr. 21,18	Apr. 20,19
Test Software	E3	V 9.160323	N/A	N/A	N/A
Test Software	ADT	ADT_Radiated _V7.6.15.9.2	N/A	N/A	N/A
10dB Attenuator	JFW/USA	50HF-010-SM A	1505	Jul. 24,17	Jul. 23,18
Power Meter	Anritsu	ML2495A	1506002	Mar. 02,18	Mar. 01,19
Power Sensor	Anritsu	MA2411B	1339352	Mar. 16,18	Mar. 15,19
Humid & Temp Programmable Tester	Juyi	ITH-120-45-CP -AR	IAA1504-001	Jul. 18,17	Jul. 17,18
MXG Analog Microvave Signal Generator	KEYSIGHT	N5183A	MY50143024	Mar. 13,18	Mar. 12,19

NOTE: 1. The calibration interval of the above test instruments is 12 months or 24 months and the calibrations are traceable to CEPREI/CHINA, GRGT/CHINA and NIM/CHINA.

- 2. The test was performed in 3m Semi-anechoic Chamber and RF Oven Room.
- The horn antenna is used only for the measurement of emission frequency above 1GHz if tested.
- 4. The FCC Site Registration No. is 525120.

2 GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

PRODUCT	smart phone	
BRAND NAME	LANIX	
MODEL NAME	X120C	
POWER SUPPLY	5Vdc (adapter or host equipmer 4.2Vdc (Li-ion, battery)	nt)
MODULATION TYPE	GSM, GPRS: GMSK WCDMA: BPSK	
FREQUENCY RANGE	GSM, GPRS	1850.2MHz ~ 1909.8MHz
PREQUENCY RANGE	WCDMA	1852.4MHz ~ 1907.6MHz
	GSM	1148mW
MAX. EIRP POWER	GPRS	721mW
	WCDMA	481mW
	GSM	247KGXW
EMISSION DESIGNATOR	GPRS	244KG7W
	WCDMA	4M17F9W
ANTENNA TYPE	Fixed Internal antenna with 0.8c	lBi gain
HW VERSION	1.0	
SW VERSION	X120C_ATT_SW_01	
I/O PORTS	Refer to user's manual	
CABLE SUPPLIED	USB cable: non-shielded, detachable, 0.6meter Earphone cable: non-shielded, detachable, 1.0meter	

NOTE:

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

2. The EUT was powered by the following adapter:

ADAPTER	
BRAND:	LANIX
MODEL:	X120C-C
INPUT:	AC 100-240V, 150mA
OUTPUT:	DC 5V, 500mA

3. The EUT matched the following USB cable and Earphone:

USB CABLE	
BRAND:	LANIX
MODEL:	X120C
SIGNAL LINE:	0.6 METER



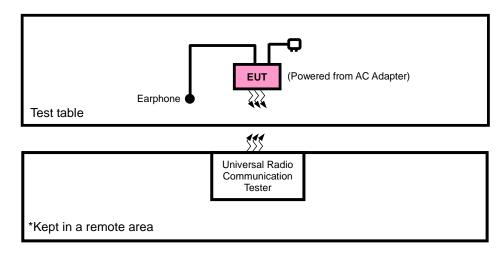
EARPHONE	
BRAND:	LANIX
MODEL:	X120C
SIGNAL LINE:	1.0 METER

4. For the test results, the EUT had been tested with all conditions. But only the worst case was shown in test report.

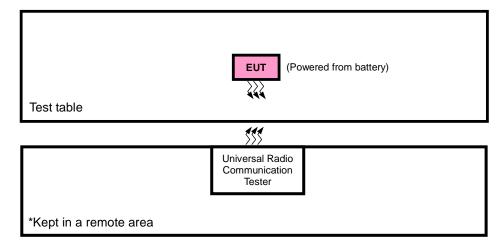


2.2 CONFIGURATION OF SYSTEM UNDER TEST

FOR RADIATION EMISSION TEST



FOR CONDUCTED & E.I.R.P. TEST





2.3 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.

ľ	NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
	1	DC source	LONG WEI	PS-6403D	010934269	N/A
ſ	2	PC	HP	A6608CN	3CR83825X3	N/A

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS					
1	DC Line: Unshielded, Detachable 1.0m					
2	AC Line: Unshielded, Detachable 1.5m					

NOTE:

2.4 TEST ITEM AND TEST CONFIGURATION

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

The worst case in EIRP and radiated emission was found when positioned on X-plane for GSM/GPRS/WCDMA. Following channel(s) was (were) selected for the final test as listed below:

EUT CONFIGURE MODE	DESCRIPTION
Α	EUT + Adapter + USB Cable+ Earphone with GSM or WCDMA link
В	EUT + Battery with GSM or WCDMA link

GSM MODE

EUT CONFIGURE MODE	TEST ITEM AVAILABLE CHANNEI		TESTED CHANNEL	MODE
В	EIRP	512 to 810	512, 661, 810	GSM, GPRS
В	FREQUENCY STABILITY	512 to 810	512, 810	GSM, GPRS
В	OCCUPIED BANDWIDTH	512 to 810	512, 661, 810	GSM, GPRS
В	PEAK TO AVERAGE RATIO	512 to 810	512, 661, 810	GSM, GPRS
В	BAND EDGE	512 to 810	512, 810	GSM, GPRS
В	CONDCUDETED EMISSION	512 to 810	512, 661, 810	GSM, GPRS
А	RADIATED EMISSION	512 to 810	512, 661, 810	GSM, GPRS

^{1.} All power cords of the above support units are non shielded (1.8m).



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WCDMA MODE

EUT CONFIGURE MODE	TEST ITEM AVAILABLE CHANNEL		TESTED CHANNEL	MODE
В	EIRP	9262 to 9538	9262, 9400, 9538	WCDMA
В	FREQUENCY STABILITY	9262 to 9538	9262, 9538	WCDMA
В	OCCUPIED BANDWIDTH	9262 to 9538	9262, 9400, 9538	WCDMA
В	PEAK TO AVERAGE RATIO	9262 to 9538	9262, 9400, 9538	WCDMA
В	BAND EDGE	9262 to 9538	9262, 9538	WCDMA
В	CONDCUDETED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA
А	RADIATED EMISSION	9262 to 9538	9262, 9400, 9538	WCDMA

TEST CONDITION:

TEST ITEM	ENVIRONMENTAL CONDITIONS	INPUT POWER	TESTED BY
EIRP	25deg. C, 57%RH	4.2Vdc from Battery	Vincent Chen
FREQUENCY STABILITY	23deg. C, 61%RH	DC 3.4V/4.2V/5V	Wenliang Wu
OCCUPIED BANDWIDTH	23deg. C, 61%RH	4.2Vdc from Battery	Wenliang Wu
PEAK TO AVERAGE RATIO	23deg. C, 61%RH	4.2Vdc from Battery	Wenliang Wu
BAND EDGE	23deg. C, 61%RH	4.2Vdc from Battery	Wenliang Wu
CONDCUDETED EMISSION	23deg. C, 61%RH	4.2Vdc from Battery	Wenliang Wu
RADIATED EMISSION	23deg. C, 70%RH	5Vdc from adapter	Vincent Chen

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2.5 EUT OPERATING CONDITIONS

The EUT makes a call to the communication simulator. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency

2.6 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2
FCC 47 CFR Part 24
KDB 971168 D01 Power Meas License Digital Systems v03r01
ANSI/TIA/EIA-603-D
ANSI/TIA/EIA-603-E
ANSI C63.26-2015

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

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3 TEST TYPES AND RESULTS

3.1 OUTPUT POWER MEASUREMENT

3.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

Mobile and portable stations are limited to 2 watts EIRP.

3.1.2 TEST PROCEDURES

EIRP MEASUREMENT:

- a. All measurements were done at low, middle and high operational frequency range. RBW and VBW is 1MHz for GSM & GPRS and 5MHz for WCDMA mode.
- b. 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.
- c. 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 b. Record the power level of S.G
- d. EIRP = Output power level of S.G TX cable loss + Antenna gain of substitution horn.

CONDUCTED POWER MEASUREMENT:

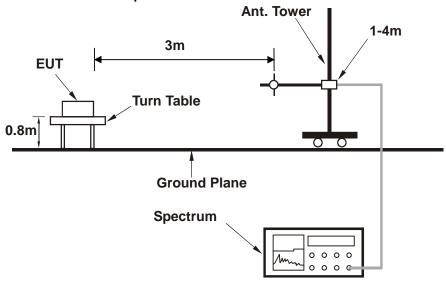
The EUT was set up for the maximum power with GSM, GPRS, WCDMA link data modulation and link up with simulator. Set the EUT to transmit under low, middle and high channel and record the power level shown on simulator.



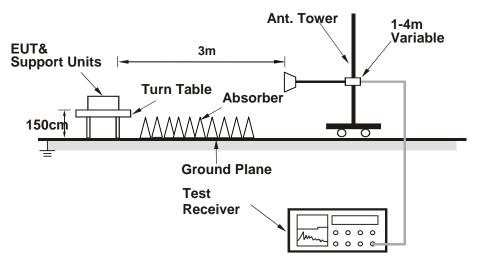
3.1.3 TEST SETUP

EIRP / ERP Measurement:

<Radiated Emission below or equal 1 GHz>



<Radiated Emission above 1 GHz>



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

CONDUCTED POWER MEASUREMENT:



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3.1.4 TEST RESULTS

CONDUCTED OUTPUT POWER (dBm)

Band	GSM1900			
Channel	512	661	810	
Frequency (MHz)	1850.2	1880.0	1909.8	
GSM	30.14	30.25	30.21	
GPRS 8	30.12	30.23	30.19	
GPRS 10	28.20	28.31	28.27	
GPRS 11	26.83	26.94	26.90	
GPRS 12	25.13	25.24	25.20	

Band		WCDMA II	
Channel	9262	9400	9538
Frequency (MHz)	1852.4	1880.0	1907.6
RMC 12.2K	21.60	21.57	21.74
	HSPA		
HSDPA Subtest-1	21.44	21.41	21.58
HSDPA Subtest-2	21.31	21.28	21.45
HSDPA Subtest-3	21.25	21.22	21.39
HSDPA Subtest-4	21.22	21.19	21.36
HSUPA Subtest-1	21.25	21.22	21.39
HSUPA Subtest-2	21.19	21.16	21.33
HSUPA Subtest-3	21.06	21.03	21.20
HSUPA Subtest-4	20.44	20.41	20.58
HSUPA Subtest-5	21.32	21.29	21.46

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EIRP POWER (dBm)

GSM

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
512	1850.2	-13.23	43.83	30.60	1148.15	Н
661	1880.0	-13.54	43.57	30.03	1006.93	Н
810	1909.8	-15.42	44.57	29.15	822.24	Н
512	1850.2	-22.46	46.39	23.93	247.17	V
661	1880.0	-22.57	47.10	24.53	283.66	V
810	1909.8	-24.18	45.98	21.80	151.22	V

REMARKS: 1. EIRP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB).

2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

GPRS

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
512	1850.2	-15.25	43.83	28.58	721.11	Н
661	1880.0	-15.03	43.57	28.54	714.50	Н
810	1909.8	-16.77	44.57	27.80	602.56	Н
512	1850.2	-25.42	46.39	20.97	125.03	V
661	1880.0	-25.96	47.10	21.14	129.96	V
810	1909.8	-24.75	45.98	21.23	132.62	V

REMARKS: 1. EIRP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB).

2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

WCDMA

Channel	Frequency (MHz)	SPA LVL (dBm)	Correction Factor(dB)	EIRP(dBm)	EIRP(mW)	Polarization (H/V)
9262	1852.4	-17.01	43.83	26.82	480.84	Н
9400	1880.0	-17.58	43.57	25.99	397.19	Н
9538	1907.6	-18.63	44.57	25.94	392.64	Н
9262	1852.4	-26.03	46.39	20.36	108.64	V
9400	1880.0	-26.52	47.10	20.58	114.24	V
9538	1907.6	-27.81	45.98	18.17	65.55	V

REMARKS: 1. EIRP Output Power (dBm) = SPA LVL (dBm) + Correction Factor (dB).

2. Correction factor (dB) = Free Space Loss + Antenna Factor + Cable Loss

3.2 FREQUENCY STABILITY MEASUREMENT

3.2.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

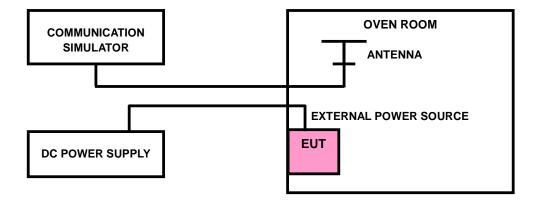
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

3.2.2 TEST PROCEDURE

- a. Device is placed at the oven room. The oven room could control the temperatures and humidity. Power warm up is at least 15 min and power applied should perform before recording frequency error.
- b. EUT is connected the external power supply to control the DC input power. The test voltage range is from minimum to maximum working voltage. Each step shall be record the frequency error rate.
- c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the $\pm 0.5^{\circ}$ C during the measurement testing. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

NOTE: The frequency error was recorded frequency error from the communication simulator.

3.2.3 TEST SETUP





3.2.4 TEST RESULTS

GSM1900

FREQUENCY ERROR VS. VOLTAGE

VOLTACE (Volta)	FREQUENCY E	LIMIT (nom)		
VOLTAGE (Volts)	Low Channel High Channel		LIMIT (ppm)	
4.2	0.0009	0.0011	2.5	
3.4	-0.0012	-0.0012	2.5	
5	0.0009	0.0011	2.5	

NOTE: The applicant defined the normal working voltage of the battery is from 3.4Vdc to 5Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	FREQUENCY E	LIMIT (nom)	
TEMP. (C)	Low Channel	High Channel	LIMIT (ppm)
-30	-0.0056	-0.0053	2.5
-20	-0.0049	-0.0047	2.5
-10	-0.0043	-0.0041	2.5
0	-0.0035	-0.0033	2.5
10	-0.0029	-0.0027	2.5
20	-0.0023	-0.0021	2.5
30	-0.0016	-0.0014	2.5
40	-0.0011	-0.0009	2.5
50	-0.0005	-0.0003	2.5

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GPRS 1900

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Value)	FREQUENCY	LIBALT (commo)		
VOLTAGE (Volts)	Low Channel High Channel		LIMIT (ppm)	
4.2	0.0012	0.0011	2.5	
3.4	-0.0013	-0.0012	2.5	
5	0.0010	0.0009	2.5	

NOTE: The applicant defined the normal working voltage of the battery is from 3.4Vdc to 5Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	FREQUENCY	ERROR (ppm)	LIMIT (nom)	
TEMP. (C)	Low Channel	High Channel	LIMIT (ppm)	
-30	-0.0051	-0.0048	2.5	
-20	-0.0044	-0.0042	2.5	
-10	-0.0039	-0.0036	2.5	
0	-0.0033	-0.0031	2.5	
10	-0.0027	-0.0025	2.5	
20	-0.0020	-0.0019	2.5	
30	-0.0014	-0.0013	2.5	
40	-0.0009	-0.0008	2.5	
50	-0.0004	-0.0003	2.5	



WCDMA BAND II

FREQUENCY ERROR VS. VOLTAGE

VOLTAGE (Value)	FREQUENCY	LIBALT (commo)	
VOLTAGE (Volts)	Low Channel	High Channel	LIMIT (ppm)
4.2	0.0009	0.0009	2.5
3.4	-0.0010	-0.0011	2.5
5	0.0009	0.0010	2.5

NOTE: The applicant defined the normal working voltage of the battery is from 3.4Vdc to 5Vdc.

FREQUENCY ERROR vs. TEMPERATURE.

TEMP. (°C)	FREQUENCY	LIMIT (ppm)		
TEIMP: (C)	Low Channel	High Channel	Liwii (ppiii)	
-30	-0.0049	-0.0046	2.5	
-20	-0.0041	-0.0039	2.5	
-10	-0.0035	-0.0033	2.5	
0	-0.0029	-0.0028	2.5	
10	-0.0023	-0.0022	2.5	
20	-0.0017	-0.0016	2.5	
30	-0.0011	-0.0010	2.5	
40	-0.0005	-0.0005	2.5	
50	0.0000	0.0000	2.5	

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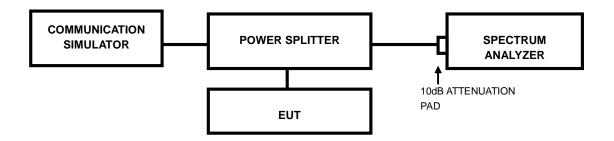


3.3 OCCUPIED BANDWIDTH MEASUREMENT

3.3.1 TEST PROCEDURES

The EUT makes a call to the communication simulator. All measurements were done at low, middle and high operational frequency range. The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth.

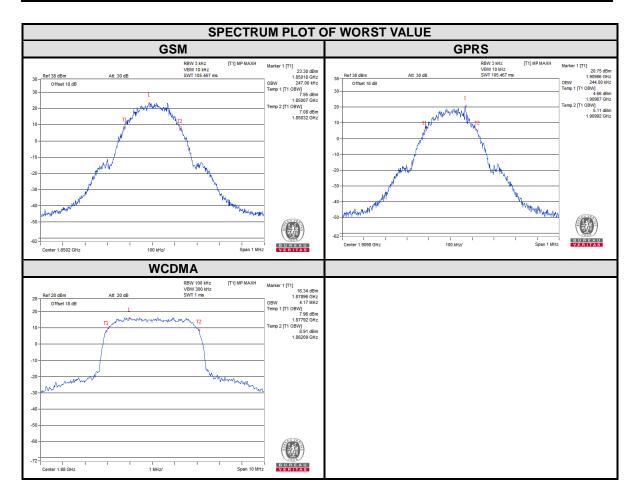
3.3.2 TEST SETUP



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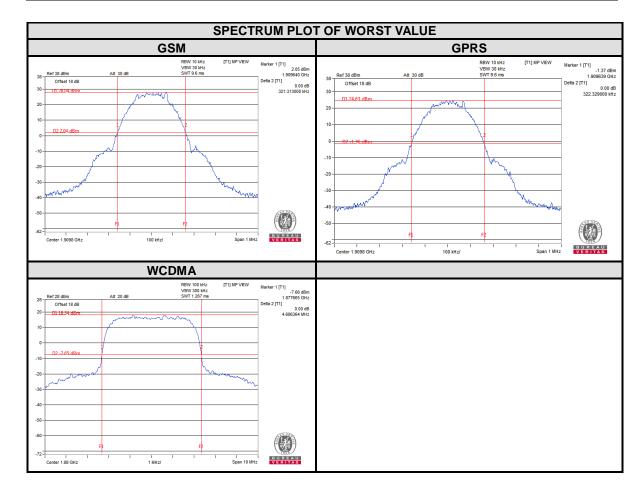
3.3.3 TEST RESULTS

Channel	Frequency (MHz)	99% Occupied bandwidth (kHz)		Channel	Frequency (MHz)	99% Occupied bandwidth (MHz)
	(IVIT12)	GSM	GPRS		(IVIT12)	WCDMA
512	1850.2	247.00	242.00	9262	1852.4	4.15
661	1880.0	244.00	243.00	9400	1880.0	4.17
810	1909.8	246.00	244.00	9538	1907.6	4.14





Channel	Frequency		26dB bandwidth (kHz)		FREQUENCY	26dB bandwidth (MHz)
	(MHz)	GSM	GPRS		(MHz)	WCDMA
512	1850.2	319.52	314.89	9262	1852.4	4.67
661	1880.0	320.75	318.71	9400	1880.0	4.69
810	1909.8	321.31	322.33	9538	1907.6	4.68

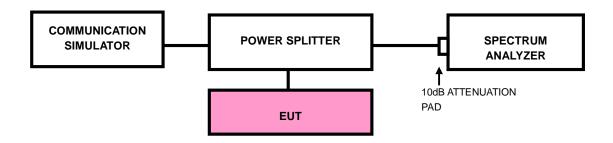


3.4 BAND EDGE MEASUREMENT

3.4.1 LIMITS OF BAND EDGE MEASUREMENT

Power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

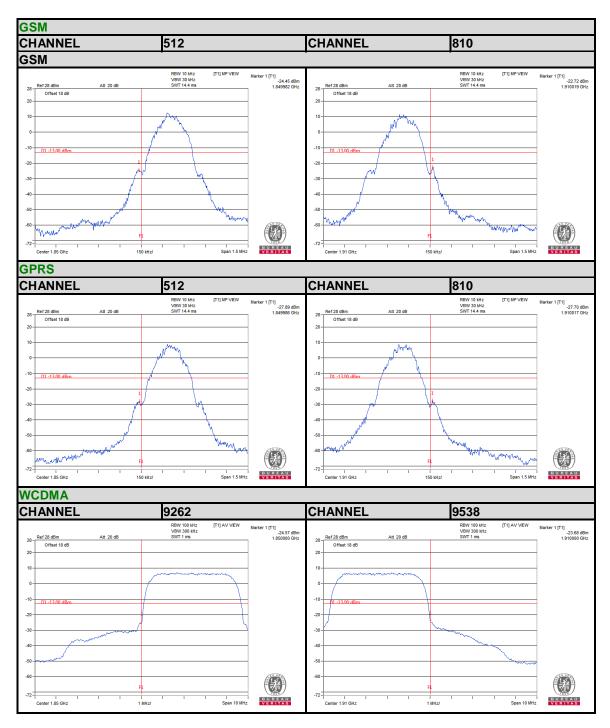
3.4.2 TEST SETUP



3.4.3 TEST PROCEDURES

- a. All measurements were done at low and high operational frequency range.
- The center frequency of spectrum is the band edge frequency and span is 1.5 MHz. RBW of the spectrum is 10kHz and VBW of the spectrum is 30kHz (GSM/GPRS).
- c. The center frequency of spectrum is the band edge frequency and span is 10MHz. RBW of the spectrum is 100kHz and VBW of the spectrum is 300kHz (WCDMA).
- d. Record the max trace plot into the test report.

3.4.4. TEST RESULTS



3.5 CONDUCTED SPURIOUS EMISSIONS

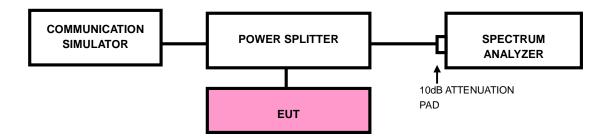
3.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

3.5.2 TEST PROCEDURE

- a. The EUT makes a phone call to the communication simulator. All measurements were done at low, middle and high operational frequency range.
- Measuring frequency range is from 9 kHz to 19.1GHz. 10dB attenuation pad is connected with spectrum. RBW=1MHz and VBW=3MHz is used for conducted emission measurement.

3.5.3 TEST SETUP

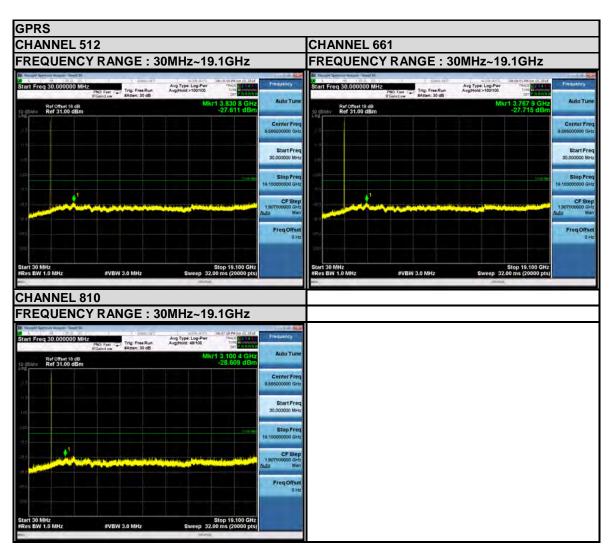




3.5.4 TEST RESULTS











3.6 RADIATED EMISSION MEASUREMENT

3.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. The emission limit equal to -13dBm.

3.6.2 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 = Output power level of S.G TX cable loss + Antenna gain of substitution horn.

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

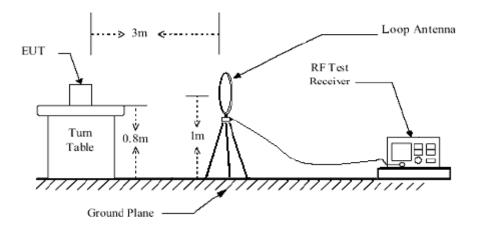
3.6.3 DEVIATION FROM TEST STANDARD

No deviation

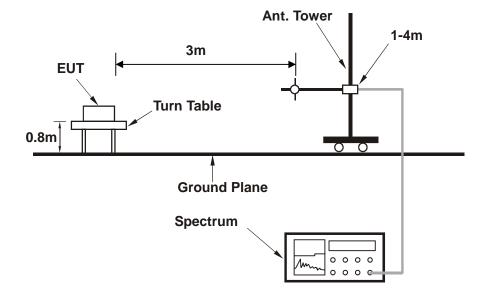


3.6.4 TEST SETUP

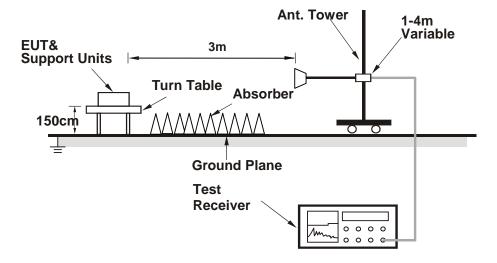
<Below 30MHz>



< Frequency Range 30MHz~1GHz >



< Frequency Range above 1GHz >



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

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3.6.5 TEST RESULTS

BELOW 1GHz WORST-CASE DATA

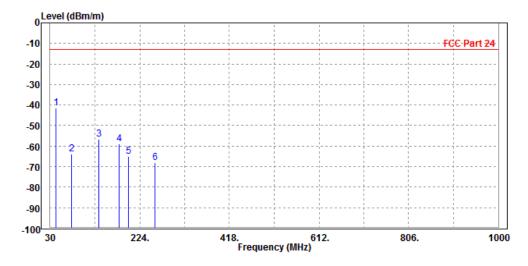
9 KHz – 30 MHz data: the amplitude of spurious emissions attenuated more than 20 dB below the permissible value is not required in the report.

30 MHz - 1GHz data:

WCDMA Band II:

MODE	TX channel 9400	FREQUENCY RANGE	Below 1000MHz			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter			
TESTED BY	Vincent Chen					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						

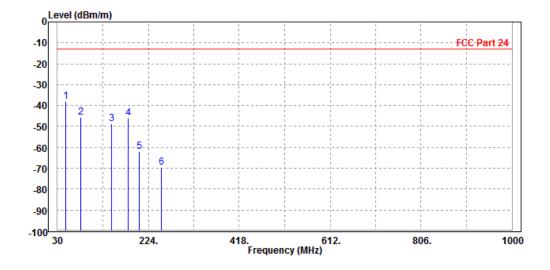
	Freq	Level		Limit Line		Factor	Remark	Pol/Phase
_	MHz	dBm/m	dBm	dBm/m	——dB	dB/m		
1 PP	42.610	-41.26	-51.04	-13.00	-28.26	9.78	Peak	Horizontal
2	76.560	-63.70	-54.44	-13.00	-50.70	-9.26	Peak	Horizontal
3	135.730	-56.48	-38.50	-13.00	-43.48	-17.98	Peak	Horizontal
4	179.380	-58.80	-41.02	-13.00	-45.80	-17.78	Peak	Horizontal
5	199.750	-64.86	-47.62	-13.00	-51.86	-17.24	Peak	Horizontal
6	256.980	-68.13	-52.20	-13.00	-55.13	-15.93	Peak	Horizontal





MODE	TX channel 9400	FREQUENCY RANGE	Below 1000MHz		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter		
TESTED BY	Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M					

			Read	Limit	0ver			
	Freq	Level	Level	Line	Limit	Factor	Remark	Pol/Phase
_								
	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1 PP	47.690	-37.88	-33.87	-13.00	-24.88	-4.01	Peak	Vertical
2	80.360	-45.67	-35.41	-13.00	-32.67	-10.26	Peak	Vertical
3	145.560	-48.52	-32.55	-13.00	-35.52	-15.97	Peak	Vertical
4	180.320	-46.04	-32.91	-13.00	-33.04	-13.13	Peak	Vertical
5	205.380	-62.05	-51.32	-13.00	-49.05	-10.73	Peak	Vertical
6	251.790	-69.64	-58.13	-13.00	-56.64	-11.51	Peak	Vertical





ABOVE 1GHz DATA

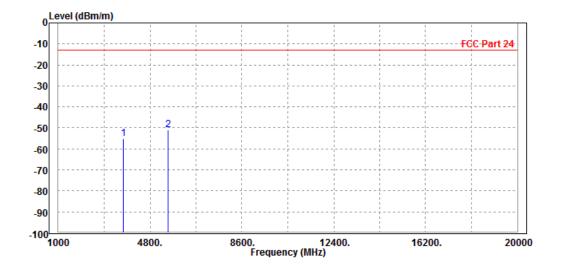
Note: For higher frequency, the emission is too low to be detected.

PCS 1900:

CH 512

MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter			
TESTED BY	Vincent Chen					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						

Pol/Phase
Horizontal
Horizontal

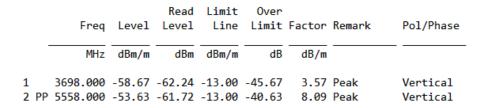


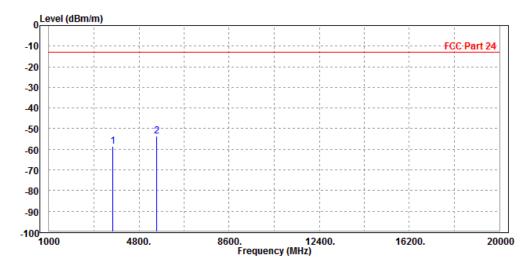
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 $\pmb{\mathsf{Email} \colon \underline{\mathsf{customerservice.dg@cn.bureauveritas.com}}}$



MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter
TESTED BY	Vincent Chen		
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M			



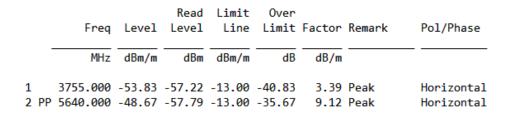


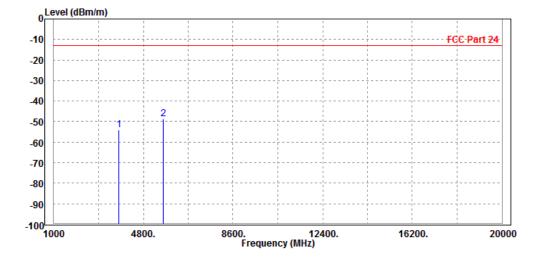
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CH 661

MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter		
TESTED BY Vincent Chen					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M					

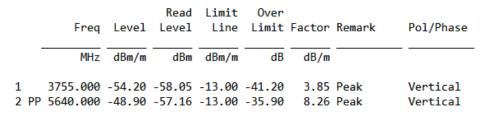


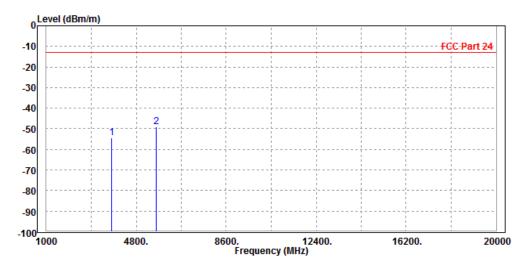


Tel: +86 755 8869 6566



MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter		
TESTED BY Vincent Chen					
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M					

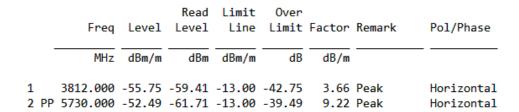


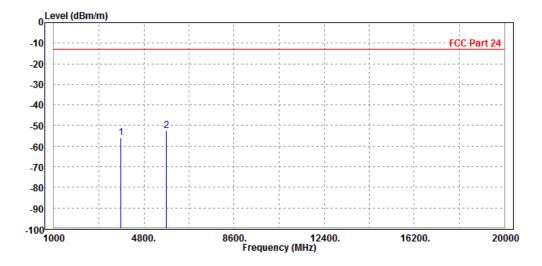




CH 810

MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter			
TESTED BY	Vincent Chen					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						



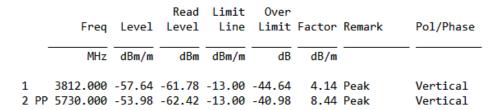


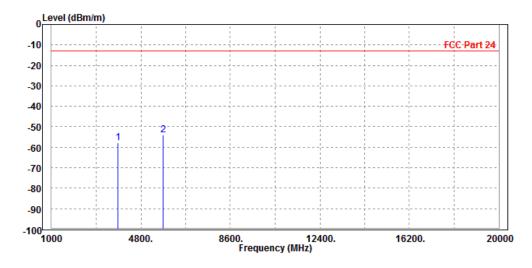
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Email: <u>customerservice.dg@cn.bureauveritas.com</u>



MODE	TX channel 810	FREQUENCY RANGE			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter		
TESTED BY	Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M					



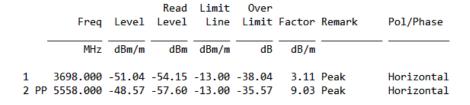


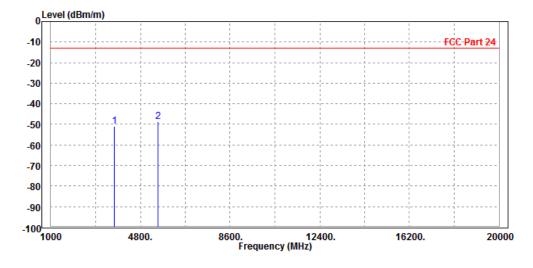


GPRS 1900:

CH 512

MODE	TX channel 512	FREQUENCY RANGE	Above 1000MHz			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter			
TESTED BY	Vincent Chen					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						





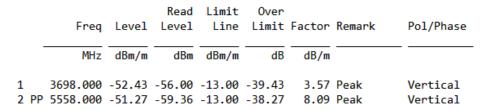
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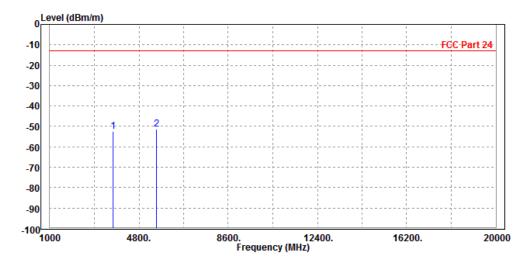
BV 7Layers Communications Technology (Shenzhen) Co. Ltd

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MODE	TX channel 512	2 FREQUENCY RANGE			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter		
TESTED BY	Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M					

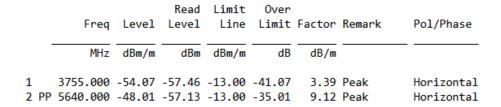


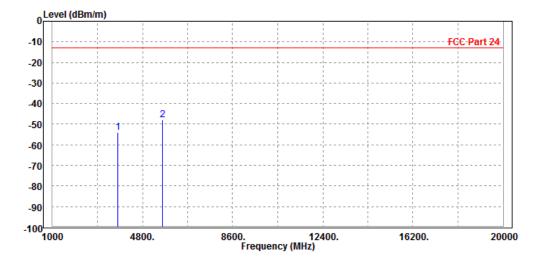




CH 661

MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter		
TESTED BY Vincent Chen					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M					

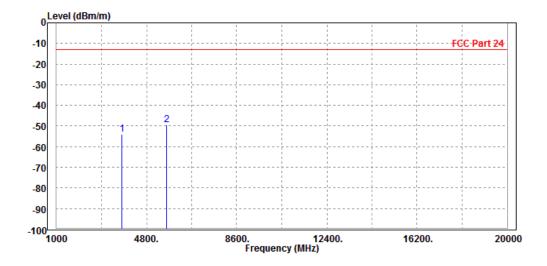






MODE	TX channel 661	FREQUENCY RANGE	Above 1000MHz		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter		
TESTED BY Vincent Chen					
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M					

	Freq	Level		Limit Line		Factor	Remark	Pol/Phase
-	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
	3755.000 5640.000							Vertical Vertical

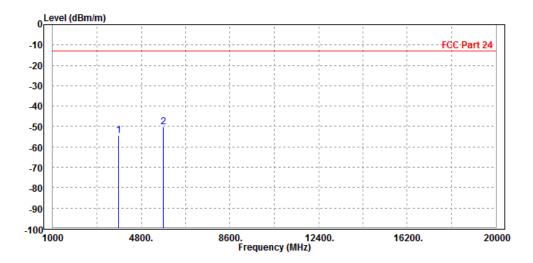




CH 810

MODE	TX channel 810	FREQUENCY RANGE	Above 1000MHz		
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter		
TESTED BY Vincent Chen					
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M					

			Limit				
F	req Lev	/el Level	. Line	Limit	Factor	Remark	Pol/Phase
	MHz dBn	n/m dBm	ı dBm/m	dB	dB/m		
1 3812.	000 -54.	.35 -58.01	-13.00	-41.35	3.66	Peak	Horizontal
2 PP 5730.	000 -50.	.21 -59.43	-13.00	-37.21	9.22	Peak	Horizontal

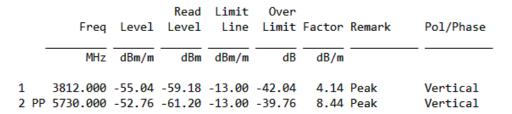


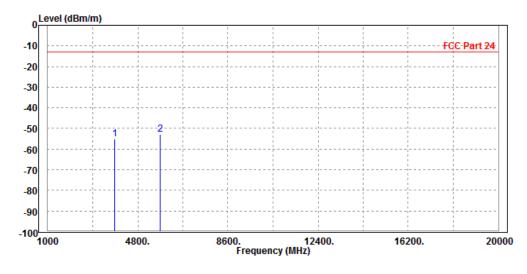
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 $\textbf{Email:} \ \underline{\texttt{customerservice.dg@cn.bureauveritas.com}}$



MODE	TX channel 810	FREQUENCY RANGE			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter		
TESTED BY	Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M					





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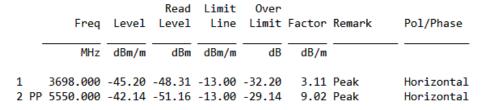
Email: customerservice.dg@cn.bureauveritas.com

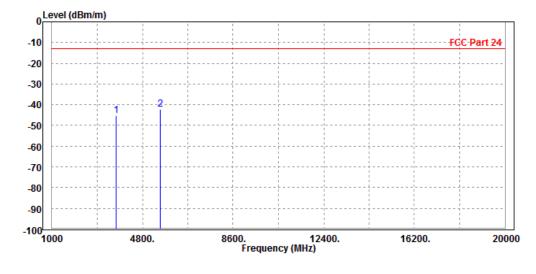


WCDMA Band II

CH 9262

MODE	TX channel 9262 FREQUENCY RANGE		Above 1000MHz	
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH	INPUT POWER	DC 5V from adapter	
TESTED BY Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M				





District, Shenzhen, Guangdong, China

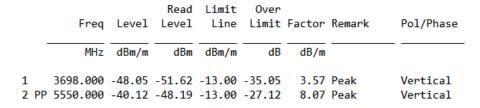
Tel: +86 755 8869 6566 Fax: +86 755 8869 6577

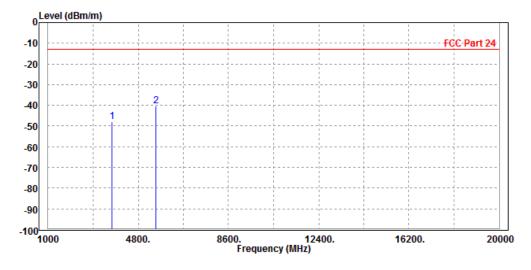
BV 7Layers Communications Technology

(Shenzhen) Co. Ltd



MODE	TX channel 9262	X channel 9262 FREQUENCY RANGE Above 100			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH INPUT POWER DC 5V fro adapter		DC 5V from adapter		
TESTED BY	STED BY Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M					



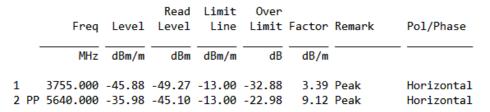


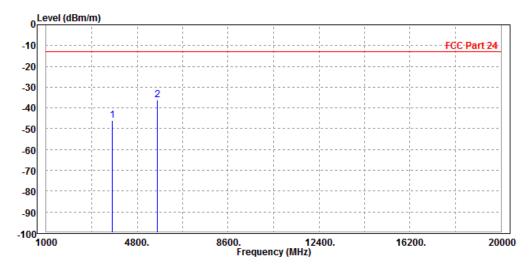
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CH 9400

MODE	TX channel 9400 FREQUENCY RANGE Above 10		Above 1000MHz	
ENVIRONMENTAL CONDITIONS	23ded C 70%RH IINPLIT POWER I		DC 5V from adapter	
TESTED BY Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M				



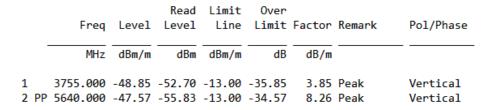


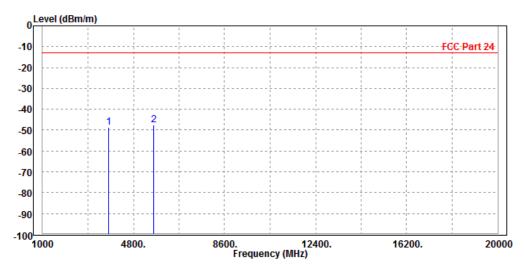
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Email: customerservice.dg@cn.bureauveritas.com



MODE	TX channel 9400 FREQUENCY RANGE Above 1000			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH INPUT POWER DC 5V from adapter		DC 5V from adapter	
TESTED BY Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M				

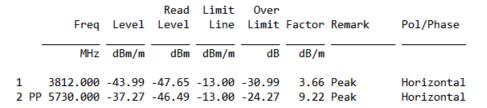


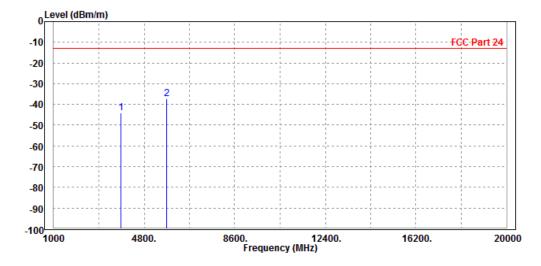




CH 9538

MODE	TX channel 9538 FREQUENCY RANGE Above 100			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH INPUT POWER DC 5V f adapter		DC 5V from adapter	
TESTED BY Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M				





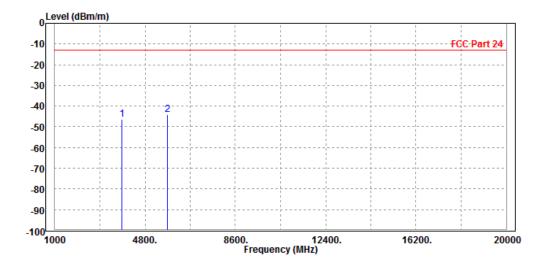
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Email: <u>customerservice.dg@cn.bureauveritas.com</u>



MODE	TX channel 9538 FREQUENCY RANGE Above 1000N			
ENVIRONMENTAL CONDITIONS	23deg. C, 70%RH INPUT POWER DC 5V from adapter		DC 5V from adapter	
TESTED BY Vincent Chen				
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M				

		Freq	Level		Limit Line		Factor	Remark	Pol/Phase
	-	MHz	dBm/m	dBm	dBm/m	dB	dB/m		
1		3812.000 5730.000							Vertical Vertical



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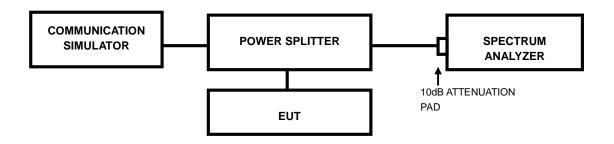
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3.7 PEAK TO AVERAGE RATIO

3.7.1 LIMITS OF peak to average ratio MEASUREMENT

In measuring transmissions in this band using an average power technique, the peak to-average ratio (PAR) of the transmission may not exceed 13 dB

3.7.2 TEST SETUP



3.7.3 TEST PROCEDURES

- 1. Set resolution/measurement bandwidth ≥ signal's occupied bandwidth;
- 2. Set the number of counts to a value that stabilizes the measured CCDF curve;
- 3. Record the maximum PAPR level associated with a probability of 0.1%.

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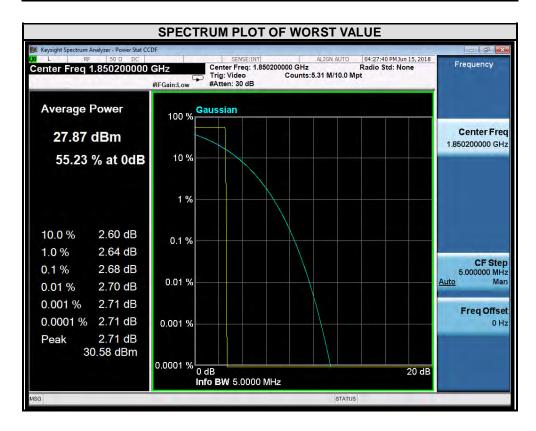
Tel: +86 755 8869 6566



3.7.4 TEST RESULTS

GSM

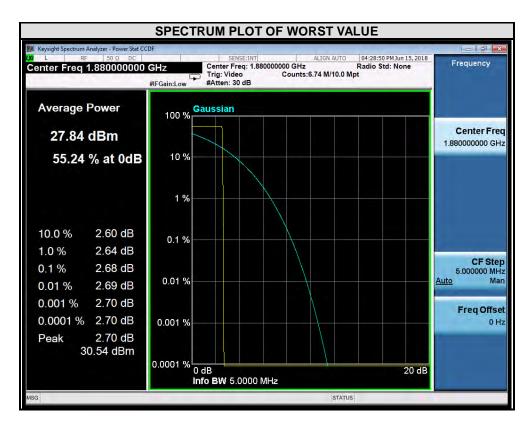
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
512	1850.2	2.68



Tel: +86 755 8869 6566



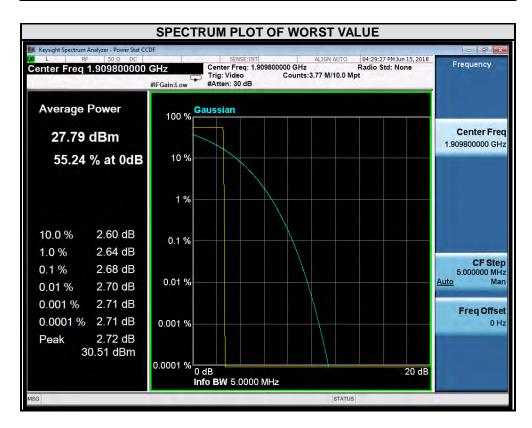
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
661	1880	2.68



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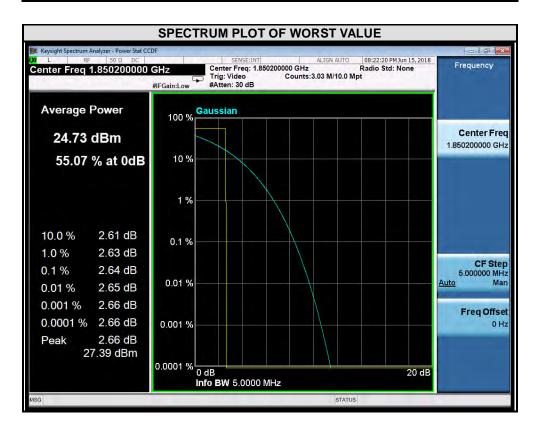
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
810	1909.8	2.68





GPRS

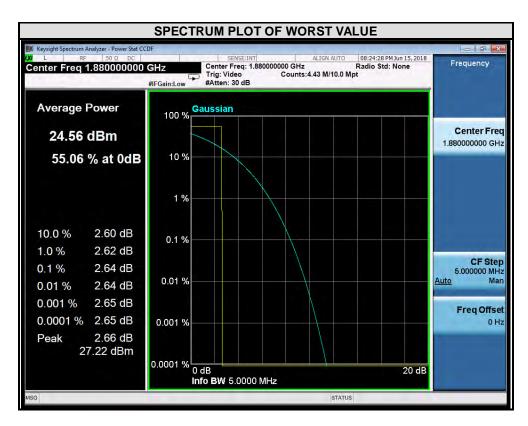
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
512	1850.2	2.64



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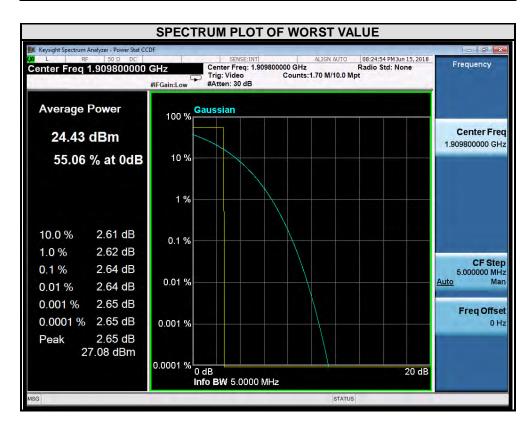
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
661	1880	2.64



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CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
810	1909.8	2.64

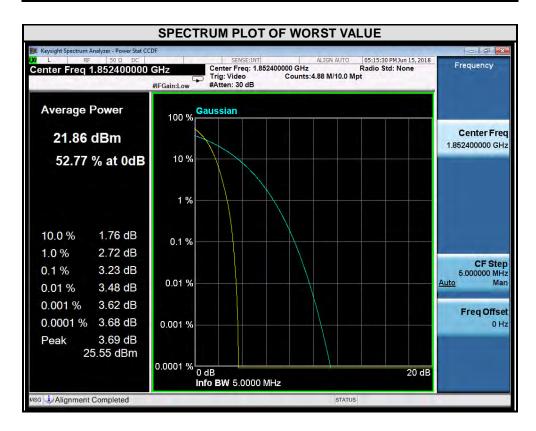


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WCDMA

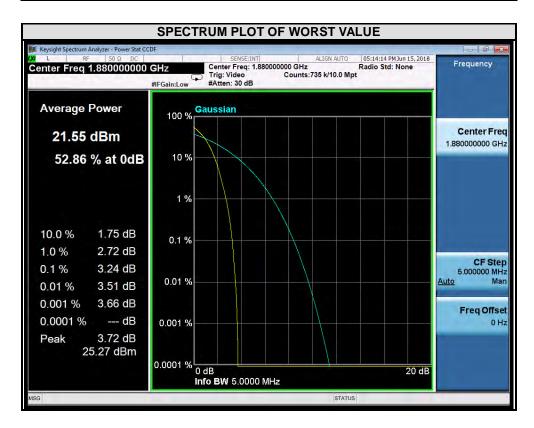
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
9262	1852.4	3.23



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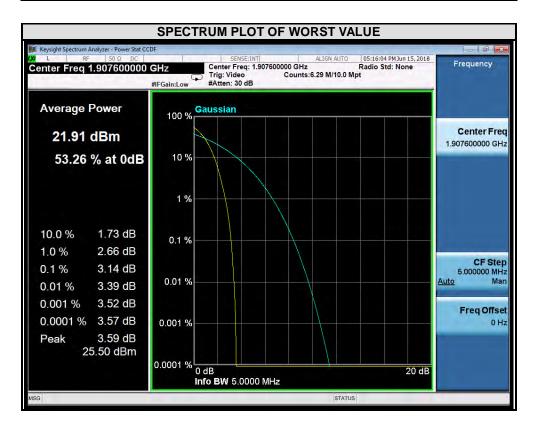
CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
9400	1880.0	3.24



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CHANNEL	FREQUENCY (MHz)	PEAK TO AVERAGE RATIO (dB)
9538	1907.6	3.14



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INFORMATION ON THE TESTING LABORATORIES

We, BV 7LAYERS COMMUNICATIONS TECHNOLOGY (SHENZHEN) CO. LTD., were founded in 2015 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025.

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The address and road map of all our labs can be found in our web site also.

(Shenzhen) Co. Ltd

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APPENDIX A – MODIFICATIONS RECORDERS FOR **ENGINEERING CHANGES TO THE EUT BY THE LAB**

No any modifications are made to the EUT by the lab during the test.

---END---