



RF TEST REPORT

Report No.: SET2020-01414

FCC ID:	SRQ-ZTEA52020J
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Model No. : ZTE Blade A5 2020

Marketing Name: ZTE Blade A5 2020, Blade A5 2020, ZTE BLADE A5 2020, BLADE

A5 2020

Applicant: ZTE Corporation.

Address: ZTE Plaza, Keji Road South, Shenzhen, China.

- Dates of Testing: 02/10/2020 -03/06/2020
 - **Issued by:** CCIC Southern Testing Co., Ltd.
 - Lab Location: Electronic Testing Building, No. 43 Shahe Road, Xili Street, Nanshan District, Shenzhen, Guangdong, China.

Tel: 86 755 26627338 Fax: 86 755 26627238

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Test Report

Product:	LTE/WCDMA/GSM(GPRS)Multi-Mode Digital Mobile Phone			
Brand Name:	ZTE			
Trade Name:	ZTE			
Applicant:	ZTE Corporation.			
Applicant Address:	ZTE Plaza, Keji Road Sout	h, Shenzhen, China.		
Manufacturer:	ZTE Corporation.			
Manufacturer Address:	ZTE Plaza, Keji Road South, Shenzhen, China.			
Test Standards	47 CFR FCC Part 2/22/24/27			
Test Result:	PASS			
Tested by	Vincent			
	11/00/0	2020.03.06		
	Vincent, Test Engineer	2020.03.06		
Reviewed by:		2020.03.06		
Reviewed by:	Vincent, Test Engineer	2020.03.06		
Reviewed by:	Vincent, Test Engineer	2020.03.06		
-	Vincent, Test Engineer Chris You, Senior Engineer	2020.03.06		
-	Vincent, Test Engineer Chris Jon Chris You, Senior Engineer Shuangwan Thomay	2020.03.06		
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Change History			
Issue	Date	Reason for change	
1.0	2020.03.06	First edition	



1. GENERAL INFORMATION

1.1 EUT Description

EUT Type	LTE/WCDMA/GSM(GPRS) Multi-Mode Digital Mobile Phone
EUT supports Radios application	GSM850/900/1800/1900
EOT supports Radios application	WCDMA Band 2/5
Multi Slot Class	GPRS: Multi slot Class12, EGPRS: Multi slot Class12
	GSM 850MHz:
	Tx: 824.2 - 848.8MHz (at intervals of 200kHz);
	Rx: 869.2 - 893.8MHz (at intervals of 200kHz)
	GSM 1900MHz:
	Tx: 1850.2 - 1909.8MHz (at intervals of 200kHz);
Erecuency Dence	Rx: 1930.2 - 1989.8MHz (at intervals of 200kHz)
Frequency Range	WCDMA 850MHz
	Tx: 826.4 - 846.6MHz (at intervals of 200kHz);
	Rx: 871.4 - 891.6MHz (at intervals of 200kHz)
	WCDMA 1900MHz
	Tx: 1852.4 - 1907.6MHz (at intervals of 200kHz);
	Rx: 1932.4 - 1987.6MHz (at intervals of 200kHz)
	GSM 850: 32.10dBm
	GSM 1900: 28.90dBm
Maximum Output Power to	EDGE 850: 26.20dBm
Antenna	EDGE 1900: 25.80dBm
	WCDMA 850: 22.93dBm
	WCDMA 1900: 22.96dBm
	GSM / GPRS:GMSK
	EDGE:GMSK / 8PSK
Type of Modulation	WCDMA: QPSK(Uplink)
	HSDPA:QPSK(Uplink)
	HSUPA:QPSK(Uplink)
Antenna Type	Internal Antenna



1.2	2 Maximum Designator	ERP/EIRP	Power, Freq	quency Tolerance	e, and Emission
	System	Type of Modulation	Emission Designator	Frequency Tolerance (ppm)	Maximum ERP/EIRP(W)
	GSM 850	GMSK	245KGXW	0.082	1.371
	GSM 1900	GMSK	246KGXW	0.066	0.542
	EDGE 850	8PSK	245KG7W	0.060	0.365
	EDGE 1900	8PSK	245KG7W	0.074	0.405
	WCDMA 850 RMC 12.2Kbps	QPSK	4M16F9W	0.0073	0.193
	WCDMA 1900 RMC 12.2Kbps	QPSK	4M16F9W	0.0059	0.194





1.3 Test Standards and Results

1. 47 CFR Part 2, 22(H), 24(E), 27(L)

2. ANSI C63.26:2015

3. FCC KDB 971168 D01 Power Meas. License Digital Systems v03r01

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.

2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description Limit		Result
INO.	FCC	Description	Liiiit	Kesuit
1	2.1046	Conducted Output Power	Reporting Only	PASS
2	24.232(d)	Description Limit Conducted Output Power Reporting Only Peak to Average Radio <13dBm		PASS
	27.50(d)		(15 GD III	11100
	2.1049			
3	22.917(b)	Occupied Bandwidth	Reporting Only	PASS
5	24.238(b)	Occupied Baildwidth	Reporting Only	IASS
	27.53(g)			
	2.1055			
4	22.355	Eraguanay Stability	$\leq \pm 2.5$ ppm	PASS
4	24.235	Frequency Stability		
	27.54			
	2.1051			
5	22.917	Conducted Out of Band	< 43+10log10	PASS
5	24.238	Emissions	(P[Watts])	PASS
	27.53			
	2.1051			
C	22.917	Dand Edan	< 43+10log10	PASS
6	24.238	Band Edge	(P[Watts])	PASS
	27.53			
	22.913	Effective Radiated Power	<7Watts	PASS
7	24.232	Equivalent Isotropic Radiated Power	<2Watts	PASS
	27.50(d)	Effective Radiated Power	<1Watts	PASS





	2.1053			
0	22.917	Radiated Spurious	< 43+10log10	PASS
0	24.238	Emissions	(P[Watts])	FASS
	27.53			

1.4 Test Configuration of Equipment under Test

Antenna port conducted and radiated test items were performed according to KDB 971168

D01 Power Meas. License Digital Systems v03r01 with maximum output power.

Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.

Radiated emissions were investigated as following frequency range:

1. 30 MHz to 9000 MHz for GSM850 and WCDMA Band V.

2. 30 MHz to 20000 MHz for GSM1900 and WCDMA Band II.

All modes and data rates and positions were investigated.

Test modes are chosen to be reported as the worst case configuration below:

Test Modes				
Band	Band Radiated TCs Conducted TCs			
CSM 850	GPRS Link	GPRS Link		
GSM 850	GPRS Link	GPRS Link		
	GPRS Link	GPRS Link		
GSM 1900	GPRS Link	GPRS Link		
WCDMA Band V	RMC 12.2Kbps Link	RMC 12.2Kbps Link		
WCDMA Band II	RMC 12.2Kbps Link	RMC 12.2Kbps Link		

Note: The maximum power levels are chosen to test as the worst case configuration as follows: GPRS mode for GMSK modulation,

EDGE multi-slot class 8 mode for 8PSK modulation,

RMC 12.2Kbps mode for WCDMA band V,

RMC 12.2Kbps mode for WCDMA band II, only these modes were used for all tests.





1.5 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 6B and 10dB attenuator.

Example:

Offset (dB) = RF cable loss(dB) + attenuator factor(dB).

= 7.5 + 10 = 17.5(dB)

1.6 Facilities and Accreditations

1.6.1 Test Facilities

NVLAP Lab Code: 201008-0

CCIC-SET is a third party testing organization accredited by NVLAP according to ISO/IEC 17025. The accreditation certificate number is 201008-0.

FCC- Designation Number: CN5031

CCIC-SET. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Designation Number: CN5031, valid time is until December 31, 2020.

ISED Registration: 11185A

CAB identifier: CN0064

CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd. EMC Laboratory has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 11185A-1 on Aug. 04, 2016, valid time is until Dec. 31, 2020

1.6.2 Test Environment Conditions

During the measurement, the environmental conditions were within the listed ranges:

Temperature (°C):	15°C-35°C
Relative Humidity (%):	30% -60%
Atmospheric Pressure (kPa):	86KPa-106KPa





2. 47 CFR PART 2, PART 22H & 24E 27L REQUIREMENTS

2.1 Conducted RF Output Power

2.1.1 Definition

A system simulator was used to establish communication with the EUT. Its parameters were set to enforce EUT transmitting at the maximum power. The measured power in the radio frequency on the transmitter output terminals shall be reported.

2.1.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.1.3 Test Procedures

- 1. The transmitter output port was connected to the system simulator.
- 2. Set EUT at maximum power through system simulator.
- 3. Select lowest, middle, and highest channels for each band and different modulation.
- 4. Measure and record the power level from the system simulator.

2.1.4 Test Setup







2.1.5 Test Results of Conducted Output Power

1. Test Verdict:

Band	Channel	Frequency (MHz)	Measured Output Power dBm	Verdict
GSM	128	824.2	32.0	PASS
850MHz	190	836.6	32.1	PASS
83014112	251	848.8	32.1	PASS
CSM	512	1850.2	28.6	PASS
GSM 1900MHz	661	1880.0	28.7	PASS
1900/01/12	810	1909.8	28.9	PASS
CDDS	128	824.2	32.0	PASS
GPRS 850MU	190	836.6	32.1	PASS
850MHz	251	848.8	32.1	PASS
CDDG	512	1850.2	28.6	PASS
GPRS	661	1880.0	28.8	PASS
1900MHz	810	1909.8	28.7	PASS
EDCE	128	824.2	26.1	PASS
EDGE	190	836.6	26.2	PASS
850MHz	251	848.8	26.1	PASS
EDCE	512	1850.2	25.8	PASS
EDGE	661	1880.0	25.6	PASS
1900MHz	810	1909.8	25.7	PASS

Note 1: For the GPRS model, all the slots were tested and just the worst data was record in this report.



2. WCDMA Model Test Verdict:

UMTS1900		Av	erage Power (d	Bm)
(В	(Band II)		9400CH	9538cH
WCDMA	12.2kbps RMC	22.77	22.85	22.96
	Subtest 1	22.09	22.17	22.28
HSDPA	Subtest 2	21.68	21.76	21.87
ISDFA	Subtest 3	21.29	21.37	21.48
	Subtest 4	21.08	21.16	21.27
	Subtest 1	22.59	22.67	22.51
	Subtest 2	22.14	22.22	22.06
HSUPA	Subtest 3	21.75	21.83	21.67
	Subtest 4	21.47	21.55	21.39
	Subtest 5	21.28	21.36	21.2
UN	1TS850	Average Power (dBm)		
(B	and V)	4132CH	4183CH	4233CH
WCDMA	12.2kbps RMC	22.93	22.58	22.89
	Subtest 1	22.25	21.9	22.21
HSDPA	Subtest 2	21.84	21.49	21.8
HODI A	Subtest 3	21.45	21.1	21.41
	Subtest 4	21.24	20.89	21.2
	Subtest 1	22.81	22.47	22.81
	Subtest 2	22.01	22.35	22.74
HSUPA	Subtest 3	21.62	21.96	22.35
	Subtest 4	21.34	21.68	22.07
	Subtest 5	21.15	21.49	21.88



2.2 Peak to Average Radio

2.2.1 Definition

Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth. 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.

2.2.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.2.3 Test Procedures

1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.7.1.

2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.

3. For GSM/EGPRS operating modes:

a. Set EUT in maximum power output.

b. Set the RBW = 1MHz, VBW = 3MHz, Peak detector on spectrum analyzer for first trace.

c. Set the RBW = 1MHz, VBW = 3MHz, RMS detector on spectrum analyzer for second

trace.

d. The wanted burst signal is triggered by spectrum analyzer, and measured respectively the peak level and Mean level without burst-off time, after system simulator has synchronized with the spectrum analyzer.

4. For UMTS operating modes:

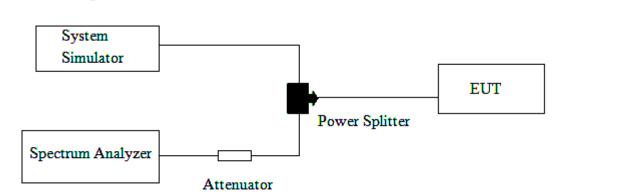
a. Set the CCDF (Complementary Cumulative Distribution Function) option on the spectrum analyzer.

b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

5. Record the deviation as Peak to Average Ratio.



2.2.4 Test Setup



2.2.5 Test Results of Peak-to-Average Ratio

Band	Channel	Frequency	Peak to Average radio	Limit	Verdict	
Dallu	Channel	(MHz)	dB	dB	vertici	
CSM	512	1850.2	0.1		PASS	
GSM 1900MHz	661	1880.0	0.2	13	PASS	
19001/11/2	810	1909.8	0.4		PASS	
EDCE	512	1850.2	2.6		PASS	
EDGE 1900MHz	661	1880.0	3.1	13	PASS	
1900/01/12	810	1909.8	3.1		PASS	
WCDMA	9262	1852.4	2.77		PASS	
WCDMA 1900MHz	9400	1880.0	2.89	13	PASS	
1900101112	9538	1907.6	2.90		PASS	



2.3 99% Occupied Bandwidth and 26dB Bandwidth Measurement

2.3.1 Definition

The 99% occupied bandwidth is the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5% of the total mean transmitted power.

The emission bandwidth is defined as the width of the signal between two points, located at

the 2 sides of the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

2.3.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.3.3 Test Procedures

1. The testing follows FCC KDB 971168 D01 v03r01 Section 4.2.

2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.

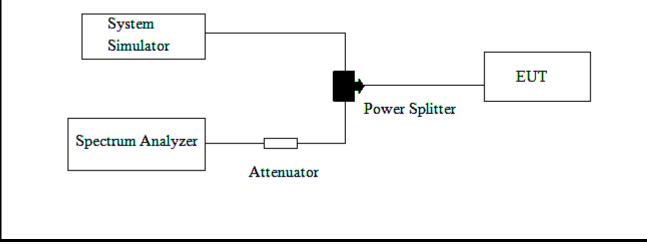
3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator.

The path loss was compensated to the results for each measurement.

4. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold.

5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.

2.3.4 Test Setup





Band	Channel	Frequency (MHz)	26dB bandwidth (KHz)	99% Occupied Bandwidth (KHz)	Refer to Plot
	128	824.2	311.6	244.71	Plot A1
GSM 850MHz	190	836.6	311.1	242.93	Plot A2
	251	848.8	306.8	244.87	Plot A3
	512	1850.2	318.8	244.68	Plot B1
GSM 1900MHz	661	1880.0	310.1	244.35	Plot B2
	810	1909.8	308.3	246.07	Plot B3
	128	824.2	313.0	239.70	Plot C1
EDGE 850MHz	190	836.6	307.4	242.05	Plot C2
	251	848.8	310.5	244.89	Plot C3
	512	1850.2	316.7	242.47	Plot D1
EDGE 1900MHz	661	1880.0	309.3	242.31	Plot D2
	810	1909.8	309.7	244.98	Plot D3
	4132	826.4	4638	4154.1	Plot E1
WCDMA 850MHz	4183	836.6	4665	4150.2	Plot E2
	4233	846.6	4663	4155.9	Plot E3
	9262	1852.4	4696	4157.3	Plot F1
WCDMA 1900MHz	9400	1880	4664	4162.4	Plot F2
	9538	1907.6	4679	4156.4	Plot F3

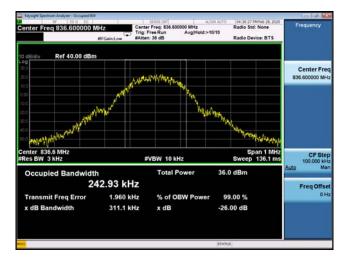
2.3.5 Test Results of 99% Occupied Bandwidth and 26dB Bandwidth

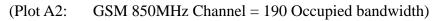


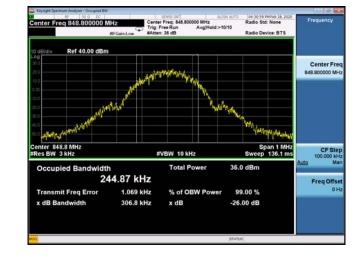
2.3.6 Test Results (Plots) of 99% Occupied Bandwidth and 26dB Bandwidth



(Plot A1: GSM 850MHz Channel = 128 Occupied bandwidth)

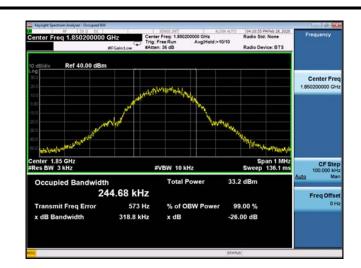


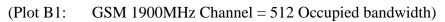




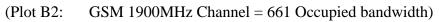
(Plot A3: GSM 850MHz Channel = 251 Occupied bandwidth)

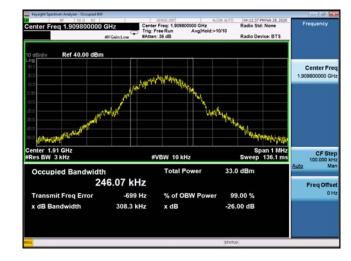








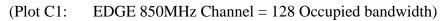


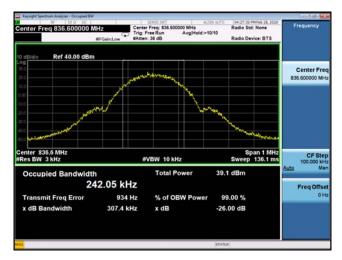


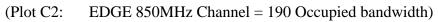
(Plot B3: GSM 1900MHz Channel = 810 Occupied bandwidth)

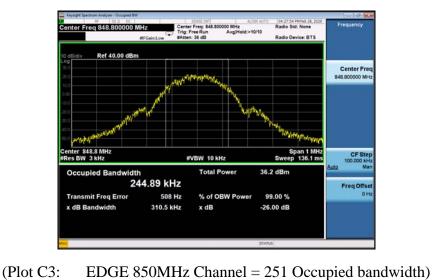






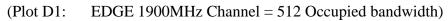


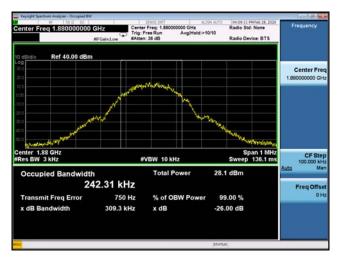


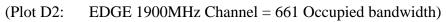


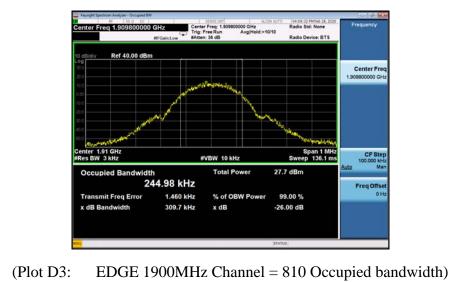










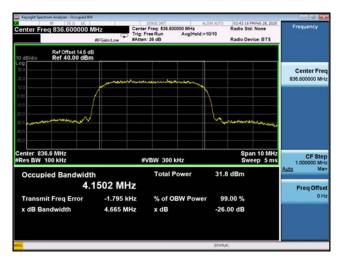




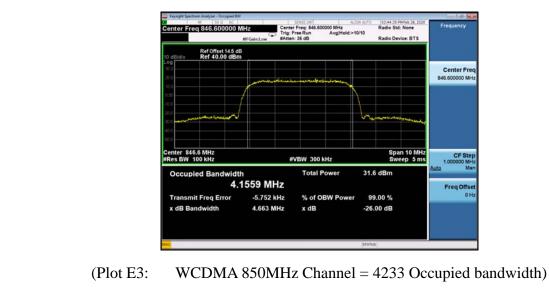
4 Transmit Freq Error x dB Bandwidth	.1541 MHz 10.209 kHz 4.683 MHz	% of OBW Power x dB	99.00 % -26.00 dB	Freq Offse			
Occupied Bandwic		Total Power	32.9 dBm	<u>Auto</u> Ma			
Center 826.4 MHz #Res BW 100 kHz	â	Span 10 MHz #VBW 300 kHz Sweep 5 ms					
60.0							
400							
200	J		hourse	-			
0.00							
20.0	for a second second			825.400000 MH			
30.0 30.0				Center Fre			
10 dB/dlv Ref 40.00 dE	dB m						
	Trig:	Free Run Avg Hold:>10 n: 36 dB	0/10 Radio Device: B	TS			
Center Freq 826.400000	MH2 Cente	SENSE INT ALIX rr Freq: 826.400000 MHz	Radio Std: None				



WCDMA 850MHz Channel = 4132 Occupied bandwidth)



WCDMA 850MHz Channel = 4183 Occupied bandwidth) (Plot E2:



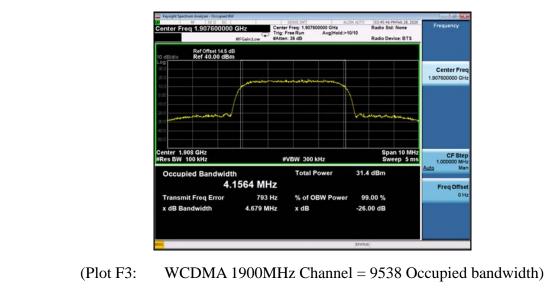


Keysight Spectr	We Stop DC		SENSE INT 4	ISN 4010 163-45-13 PMF	46 28 2020
Center Fre	q 1.852400000	GHz Cente	rr Freq: 1.852400000 GHz Free Run Avg Hold:>1 n: 36 dB	Radio Std: N	Ione Frequency
10 dB/div	Ref Offset 14.5 dB Ref 40.00 dBm	A			
30.0			and and the date of the second states		Center Fre 1.852400000 GH
10.0					
-10.0					
300 marian	and a start and a start and a start and a start			(and a second for the	and a start of the
60.0					
Center 1.8 #Res BW 1			VBW 300 kHz		10 MHz CF Step p 5 ms 1.000000 MH
Occupi	ed Bandwidth		Total Power	31.6 dBm	Auto Ma
		573 MHz			FreqOffse
x dB Ba	it Freq Error ndwidth	5.401 kHz 4.696 MHz	% of OBW Power x dB	99.00 % -26.00 dB	•



Keysight Spectrum Analyzer - Occupied By	*	SENSE INT	4.00 AUTO 034525	PM Feb 28, 2020	0-0-0-00
Center Freq 1.88000000	Trig:	r Freq: 1.880000000 GHz Free Run Avg Hold n: 36 dB		td: None evice: BTS	Frequency
Ref Offset 14.5 d 10 dB/div Ref 40.00 dBr	B n				
30.0 20.0	ماران السام معادم الماري. ماران السام معادم الماري الماري الماري الماري الماري الماري الماري الماري الماري الم	and the second second			Center Freq 1.88000000 GHz
0.00					
200 300 400			Lucium	to the second second	
Center 1.88 GHz #Res BW 100 kHz		VBW 300 kHz	Sp Sv	an 10 MHz veep 5 ms	CF Step 1.000000 MHz
Occupied Bandwid 4.	^h 1624 MHz	Total Power	31.1 dBm		Auto Mar Freg Offset
Transmit Freq Error x dB Bandwidth	12.825 kHz 4.664 MHz	% of OBW Pow x dB	er 99.00 % -26.00 dB		0 Hz
10			STATUS		

(Plot F2: WCDMA 1900MHz Channel = 9400 Occupied bandwidth)





2.4 Frequency Stability

2.4.1 Requirement

The frequency stability shall be measured by variation of ambient temperature and variation of primary supply voltage to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency.

2.4.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.4.3 Test Procedures for Temperature Variation

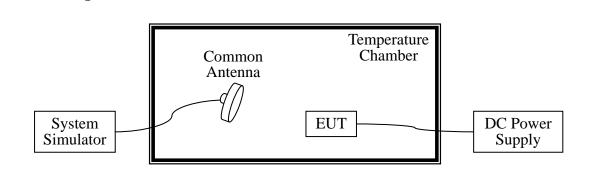
- 1. The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.
- 2. The EUT was set up in the thermal chamber and connected with the system simulator.
- 3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute.
- 4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute.

2.4.4 Test Procedures for Voltage Variation

- 1. The testing follows FCC KDB 971168 D01 v03r01 Section 9.0.
- 2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator.
- 3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
- 4. The variation in frequency was measured for the worst case.



2.4.5 Test Setup



2.4.6 Test Results of Frequency Stability

GSM 850MHz Band

Band:		GS	M 850	Channel:	190		
Limit(ppm):		2.5		Frequency:	836.6MHz		
D	Terreto		GSM	EDGE			
Power (VDC)	Temperatu	ire	Deviation	Deviation	Result		
(VDC)	(°C)		(ppm)	(ppm)			
	-30		0.044	0.052			
	-20		0.043	0.060			
	-10		0.082	0.055			
	0		0.035	0.048	-		
3.85	+10		0.046	0.044			
	+20		0.057	0.039	PASS		
	+30		0.044	0.052			
	+40		0.032	0.038			
	+50		0.024	0.022			
4.4	+25		0.047	0.042			
3.5	+25		0.029	0.038			



GSM 1900MHz Band

Band:		GS	M 1900	Channel:	661
Limit(ppm):		2.5		Frequency:	1880.0MHz
Dowon	Tommomot	GSM		EDGE	
Power (VDC)	Temperatu (°C)	ire	Deviation	Deviation	Result
(VDC)			(ppm)	(ppm)	
	-30		0.047	0.036	
	-20		0.066	0.029	
	-10		0.065	0.048	
	0		0.044	0.036	
3.85	+10		0.056	0.037	
	+20		0.046	0.057	PASS
	+30		0.048	0.062	
	+40		0.059	0.074	
	+50		0.057	0.038	
4.4	4.4 +25		0.046	0.042	
3.5	+25		0.042	0.041	

WCDMA 850MHz Band

Band:		WCDMA Bar	nd V	Channel:	4183
Limit(ppm)):	2.5		Frequency:	836.6MHz
Power (VDC)			ज्ञ	RMC 12.2Kbps Deviation (ppm)	Result
		-30 -20 -10		0.0034 0.0044 0.0038	
3.85		0 +10		0.0034 0.0057	
		+20 +30		0.0052 0.0073	PASS
4.4		+40 +50 +25	0.0058 0.0038 0.0029		
3.5		+25		0.0019	



Band:		WCDMA	Band II	Channel:	9400
Limit(ppm):		2.5		Frequency:	1880.0MHz
			ŀ	RMC 12.2Kbps	
Power	-	perature		Deviation	Result
(VDC)	((°C)		(ppm)	
		-30		0.0058	
		-20		0.0057	
		-10		0.0042	
		0		0.0047	
3.85	-	+10		0.0053	
	-	+20		0.0059	PASS
	-	+30		0.0047	
	-	+40		0.0039	
	-	+50		0.0017	
4.4	-	+25		0.0035	
3.5 +25			0.0039		



2.5 Conducted Out of Band Emissions

2.5.1 Requirement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P) dB$.

It is measured by means of a calibrated spectrum analyzer and scanned from 30 MHz up to a frequency including its 10th harmonic.

2.5.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

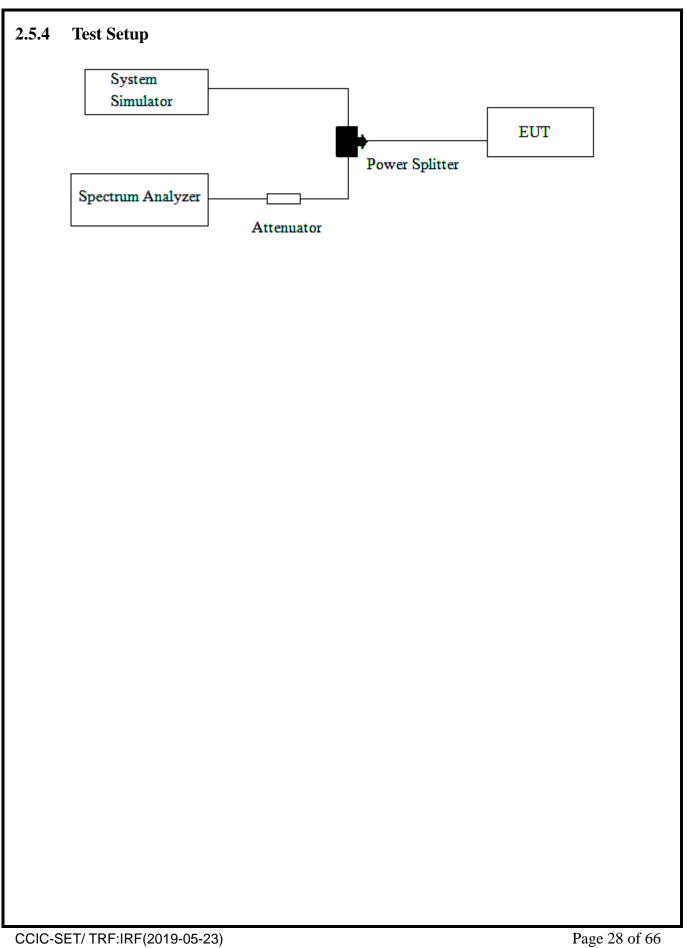
2.5.3 Test Procedures

- 1. The testing follows FCC KDB 971168 D01 v03r01 Section 6.0.
- 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
- 3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 4. The middle channel for the highest RF power within the transmitting frequency was measured.
- 5. The conducted spurious emission for the whole frequency range was taken.
- 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 7. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)

= P(W) - [43 + 10log(P)] (dB)

- $= [30 + 10\log(P)] (dBm) [43 + 10\log(P)] (dB)$
- = -13dBm.
- 8. For 9KHz to 30MHz: the amplitude of spurious emissions are attenuated by more than 20dB below the permissible value has no need to be reported.

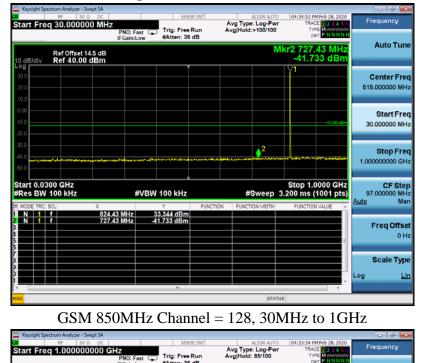


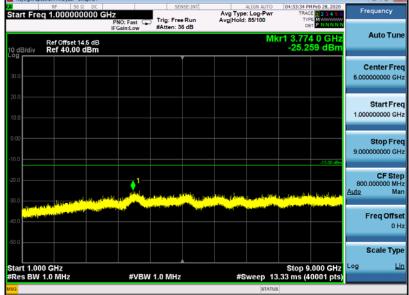


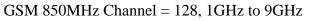


2.5.5 Test Result (Plots) of Conducted Spurious Emission

Note: For 9 KHz to 30MHz: the amplitude of spurious emissions is attenuated by more than 20dB below the permissible value, so we not provide the test result here.









Keysight Spe	RF 50 Q DC		- envi	E:INT	ALIGN AUT	0 0000000	PM Feb 28, 2020	
Start Fre	q 30.000000 MH	Z PNO: Fast IFGain:Low	Trig: Free	Run A	vg Hold:>100/100	TRA	ACE 1 2 3 4 5 6 VPE NWWWWWWW DET P NNNNN	Frequency
10 dB/div	Ref Offset 14.5 dB Ref 40.00 dBm	IT Gain.com				Auto Tu		
- og 30.0 20.0 10.0						\\ \1 		Center Fr 515.000000 M
0.00 10.0 20.0							-10:00 dDm	Start Fr 30.000000 M
30.0 -40.0 -50.0	an ala mara ana ang ang ang ang ang ang ang ang an	Ard Horas Starting and			2 mut date	wine of the states	rielverten anter	Stop Fr 1.000000000 G
Start 0.03 Res BW	100 kHz	#VI	BW 100 kHz	FUNCTION	#Sweep	3.200 ms	.0000 GHz (1001 pts)	CF St 97.000000 M Auto M
N 1 N 1		.04 MHz).04 MHz	33.160 dBm -42.295 dBm					Freq Off 0
								Scale Ty
							, -	Log
_						TUS		

GSM 850MHz Channel = 190, 30MHz to 1GHz



GSM 850MHz Channel = 190, 1GHz to 9GHz



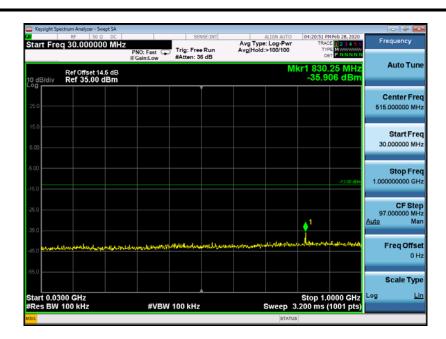
Frequency	4 Feb 28, 2020 E 1 2 3 4 5 6 E M	TRAC	/r	e: Log-Pw 1:>100/100	Avg Ty Avg Ho		Trig: Free I #Atten: 36	PNO: Fast	0 R DC DOO MHZ	^{RF} q 30.00	art Fre
Auto Tu	68 MHz 30 dBm	-42.48	Mkr						14.5 dB 0 dBm		dB/div
Center Fr 515.000000 M		Υ 1									99 0.0 0.0
Start Fr 30.000000 M	-10:00 dDm										.00 0.0
Stop Fr 1.000000000 G	nan e da cindajan		~~~~	2		anger Maran	/~1 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	alarata gang fitu karara	مرد البرين خواولون	lanari a lara i dag-	
CF St 97.000000 M Auto M	000 GHz 1001 pts)	top 1.0 0 ms (1 FUNCTION	3.2	Sweep		FUNCT	100 kHz Y		X	00 GHz 100 kH	
Freq Off 0							3.341 dBm 2.480 dBm				N 1 N 1
Scale Ty											

GSM 850MHz Channel = 251, 30MHz to 1GHz

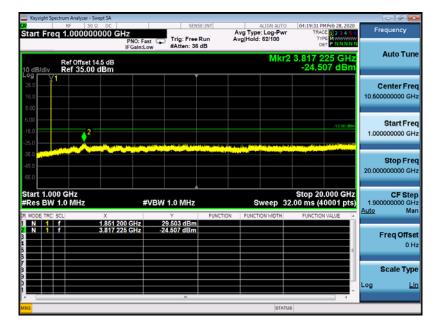


GSM 850MHz Channel = 251, 1GHz to 9GHz



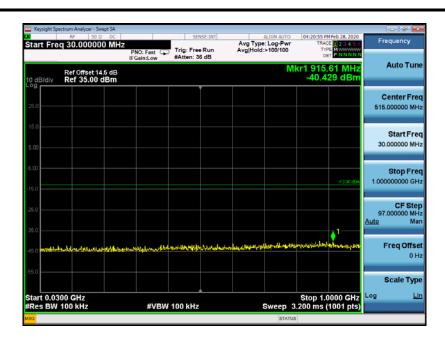


GSM 1900MHz Channel = 512, 30MHz to 1GHz

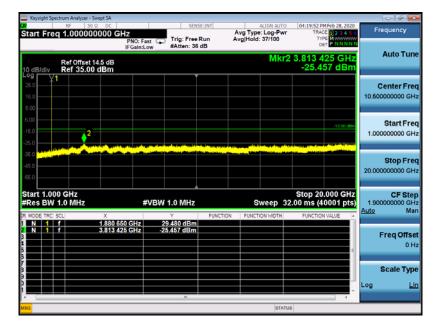


GSM 1900MHz Channel = 512, 1GHz to 20GHz



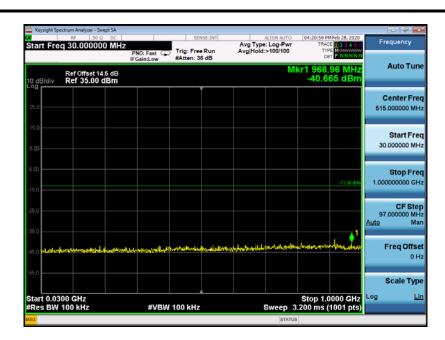


GSM 1900MHz Channel = 661, 30MHz to 1GHz



GSM 1900MHz Channel = 661, 1GHz to 20GHz





GSM 1900MHz Channel = 810, 30MHz to 1GHz



GSM 1900MHz Channel = 810, 1GHz to 20GHz



x Start Fre	RF 50	PI	IO: Fast 🕞		Run A	ALIGN AUTO vg Type: Log-Pw vg[Hold:>100/100	r TRACI	Feb 28, 2020	Frequency
10 dB/div	Ref Offset Ref 40.0					Ν	Akr2 727.4 -43.27	43 MHz '9 dBm	Auto Tu
20.0									Center Fr 515.000000 M
-10.0									Start Fr 30.000000 M
-30.0 -40.0 -50.0	and and the relation	tradjute the second	dyl de antone from		and and a street	an when a start of the start of	1	مريحرك ومعاقده	Stop Fr 1.000000000 G
Start 0.03 #Res BW	100 kHz	X	#VBW	/ 100 kHz	FUNCTION		Stop 1.0 32.00 ms (1	001 pts)	CF St 97.000000 M <u>Auto</u> M
1 N 1 2 N 1 3 4 5 5	1	824,43 N 727,43 N		33.311 dBm 13.279 dBm	FUNCTION	FUNCTION WDTH	FUNCTION	VALUE .	Freq Off 0
5 7 3 9									Scale Ty
								-	Log

EDGE 850MHz Channel = 128, 30MHz to 1GHz



EDGE 850MHz Channel = 128, 1GHz to 9GHz



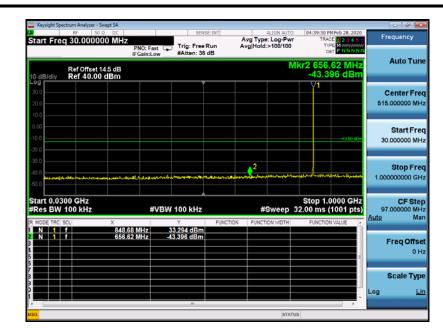
Frequency	04:39:14 PM Feb 28, 2020 TRACE 2 3 4 5 6 TYPE MULTINE DET P NNNN		Aug Type: Log-Pwr Avg Hold:>100/100		un	Trig: Free I #Atten: 36	PNO: Fast 😱 FGain:Low	50 Q DC 0000 MHz	eq 30.0	tart Fr
Auto Tu	Ref Offset 14.5 dB Mkr2 643.04 MHz 0 dB/dlv Ref 40.00 dBm -45.062 dBm									
Center Fr 515.000000 M		γ 1								og 30.0 20.0
Start Fr 30.000000 M										0.00 10.0 20.0
Stop Fr 1.000000000 G	(Maharandaganat		Proceeding	2 Jacore		t. ternta dir po	والمعادية والمعادية والمعاد والمعاد	مورويية المراجع ما الروويون	***	30.0 40.0 50.0
CF St 97.000000 M Auto M	Stop 1.0000 GHz #Sweep 32.00 ms (1001 pts)			FUNCTION	100 kHz	#VBW	Res BW 100 kHz			
Freq Offs 0						.113 dBm .062 dBm		<u>837.0</u> 643.0	f	N 1 N 1
Scale Ty										

EDGE 850MHz Channel = 190, 30MHz to 1GHz



EDGE 850MHz Channel = 190, 1GHz to 9GHz





EDGE 850MHz Channel = 251, 30MHz to 1GHz

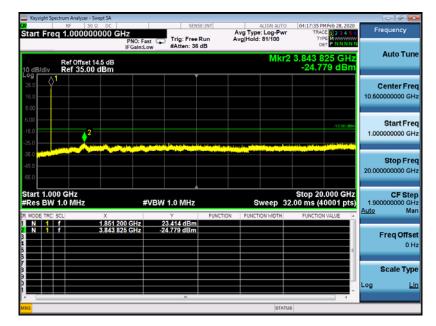


EDGE 850MHz Channel = 251, 1GHz to 9GHz



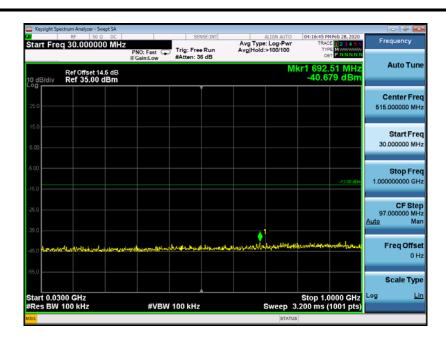


EDGE 1900MHz Channel = 512, 30MHz to 1GHz



EDGE 1900MHz Channel = 512, 1GHz to 20GHz



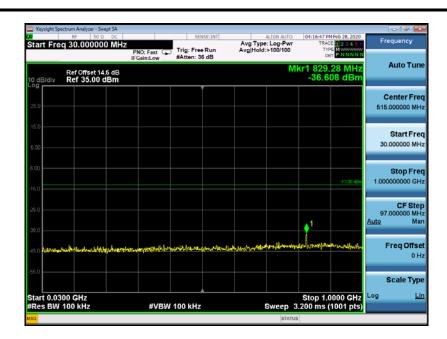


EDGE 1900MHz Channel = 661, 30MHz to 1GHz



EDGE 1900MHz Channel = 661, 1GHz to 20GHz





EDGE 1900MHz Channel = 810, 30MHz to 1GHz



EDGE 1900MHz Channel = 810, 1GHz to 20GHz



x Start Fre	re 30.000000 MHz	PNO: Fast	Trig: Free Run Atten: 36 dB	Avg Type: Log-Pwr Avg[Hold:>100/100	04:02:50 PM Feb 28, 2020 TRACE 1 2 3 4 5 6 TYPE M DET P NNNN	Frequency
10 dB/div	Ref Offset 14.5 dB Ref 40.00 dBm			Μ	kr2 925.31 MHz -41.944 dBm	Auto Tu
20.0					¢ ¹	Center Fr 515.000000 M
0.00 -10.0 -20.0					-10.00 dDn	Start Fr 30.000000 M
-30.0 -40.0 -50.0	ในกับหมูก การการการการการการการการการการการการการก	والأجو المواجع والمواجع	Annalasi	1.99700.000111141.001419.01490.014	²	Stop Fr 1.000000000 G
Start 0.03 #Res BW	100 kHz	#VBW	100 kHz	#Sweep :	Stop 1.0000 GHz 3.200 ms (1001 pts)	CF St 97.000000 M Auto M
1 N 1 2 N 1 3	1 828.		8.427 dBm 1.944 dBm			Freq Offs 0
2 7 3 9						Scale Ty
						Log

WCDMA850MHz Channel = 4132, 30MHz to 1GHz



WCDMA850MHz Channel = 4132, 1GHz to 9GHz



x Start Fre	RF 50 Q DC 2q 30.000000 MH	Z PNO: Fast	Trig: Free Run Atten: 36 dB	Avg Type: Log- Avg[Hold:>100/	Pwr TRACE 1234	Frequency
10 dB/div	Ref Offset 14.5 dB Ref 40.00 dBm				Mkr2 934.04 MH -41.269 dBr	
20.0					1	Center Fre 515.000000 Mi
0.00 -10.0					-12:00 cd	Start Fre 30.000000 Mi
-30.0 -40.0	an all have a spectra and a	appendigenerates t	****	ىرىنىيە بەر قەرىپىدىنىيە تەرىپىلەر بىرىنىيە تەرىپىدىنىيە بىرىنىيە تەرىپىدىنىيە تەرىپىدىنى بىرىنىيە تەرىپىدىنى	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Stop Fro 1.00000000 Gi
Start 0.03 #Res BW	100 kHz	#VB	W 100 kHz	#Swet	Stop 1.0000 GH ep 3.200 ms (1001 pt: oth Function value	Z CF Sto 97.000000 M Auto M
	f 837	.04 MHz 1.04 MHz	19.752 dBm -41.269 dBm			Freq Offs 0
						Scale Ty
						Log

WCDMA850MHz Channel = 4183, 30MHz to 1GHz

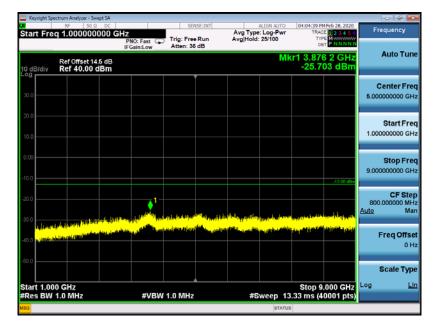


WCDMA850MHz Channel = 4183, 1GHz to 9GHz



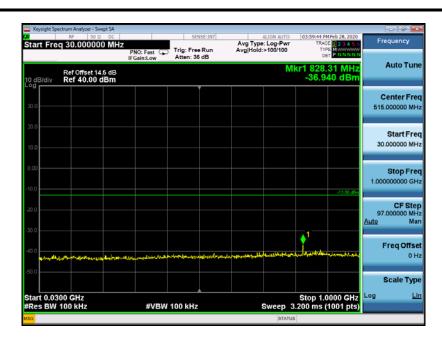
Start Freq	8F 50 9 DC 30.000000 MHz	PNO: Fast C	Trig: Free R Atten: 36 dl	un Av	ALIGN AUTO vg Type: Log-Pwr vg Hold:>100/100	TRAC	4 Feb 28, 2020 E 1 2 3 4 5 6 E M	Frequency
10 dB/div	Ref Offset 14.5 dB Ref 40.00 dBm	I Gameon			N	lkr2 944. -42.2	71 MHz 24 dBm	Auto Tu
20.0						¢1		Center Fr 515.000000 M
0.00 -10.0 -20.0							-10.00 dDm	Start Fr 30.000000 M
-30.0 -40.0 -50.0	heles against the second states of a	the feature and the second	A. 1649.000 & 100 - 140 - 240	~~*****************************		A	¢ ²	Stop Fr 1.000000000 G
Start 0.030 #Res BW	100 kHz	#VB	W 100 kHz	FUNCTION	#Sweep	Stop 1.0 3.200 ms (CF St 97.000000 M <u>Auto</u> M
1 N 1 N 1		71 MHz 71 MHz	19.417 dBm -42.224 dBm					Freq Offs 0
								Scale Ty
								Log

WCDMA850MHz Channel = 4233, 30MHz to 1GHz



WCDMA850MHz Channel = 4233, 1GHz to 9GHz



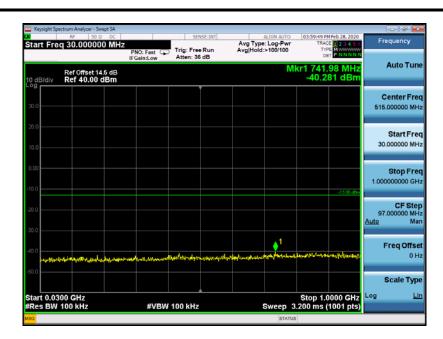


WCDMA1900MHz Channel = 9262, 30MHz to 1GHz



WCDMA1900MHz Channel = 9262, 1GHz to 20GHz



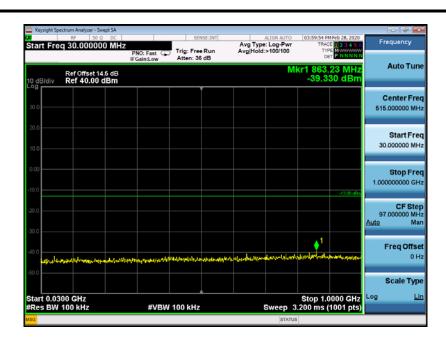


WCDMA1900MHz Channel = 9400, 30MHz to 1GHz

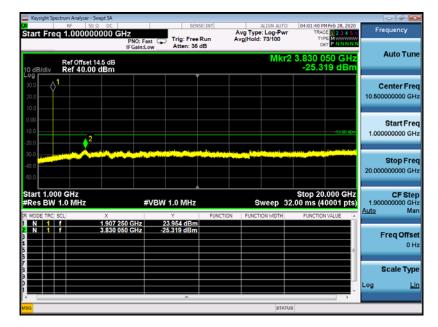


WCDMA1900MHz Channel = 9400, 1GHz to 20GHz





WCDMA1900MHz Channel = 9538, 30MHz to 1GHz



WCDMA1900MHz Channel = 9538 1GHz to 20GHz



2.6 Bandedge

2.6.1 Requirement

The power of any emission outside of the authorized operating frequency ranges must be lower than the transmitter power (P) by a factor of at least $43 + 10 \log (P) dB$.

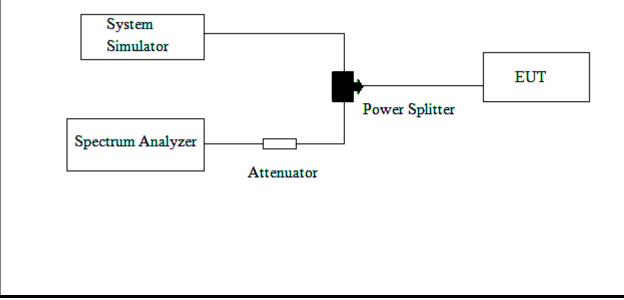
2.6.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

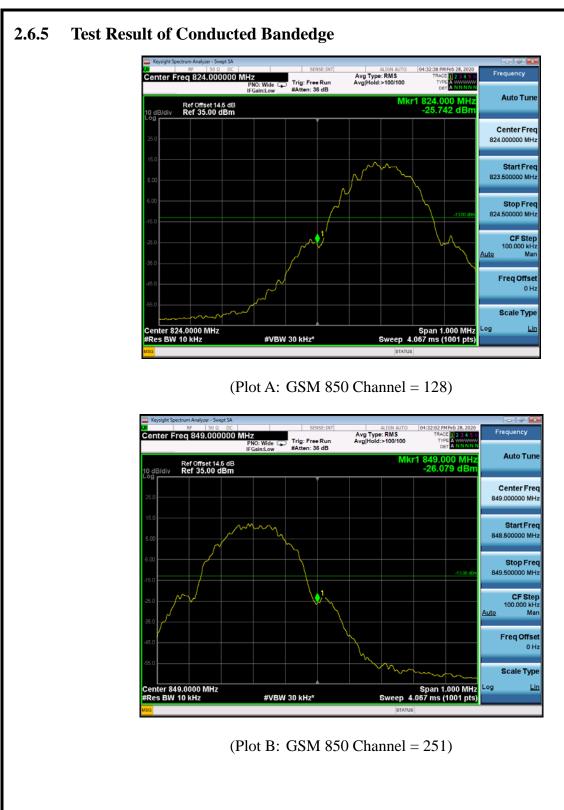
2.6.3 Test Procedures

- 1. The testing follows FCC KDB 971168 D01 v03r01 Section 6.0.
- 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider.
- 3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement.
- 4. The band GPRSs of low and high channels for the highest RF powers were measured.
- 5. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 6. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 - = P(W) [43 + 10log(P)] (dB)
 - $= [30 + 10\log(P)] (dBm) [43 + 10\log(P)] (dB)$
 - = -13dBm.

2.6.4 Test Setup











(Plot C:GSM 1900 Channel = 512)



(Plot D: GSM 1900 Channel = 810)





(Plot E: EDGE 850 Channel = 128)

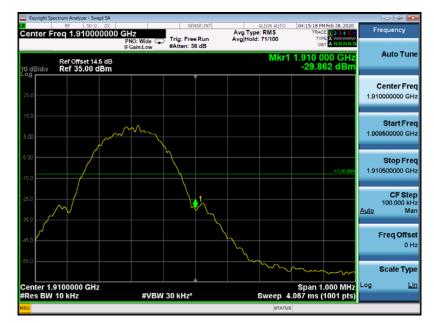


(Plot F: EDGE 850 Channel = 251)





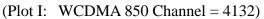
(Plot G: EDGE 1900 Channel = 512)



(Plot H: EDGE 1900 Channel = 810)









(Plot J: WCDMA 850 Channel = 4233)





(Plot K: WCDMA 1900 Channel = 9262)



(Plot L: WCDMA 1900 Channel = 9538)



2.7 Transmitter Radiated Power (EIRP/ERP)

2.7.1 Requirement

The substitution method, in ANSI C63.26:2015, was used for ERP/EIRP measurement, and the spectrum analyzer configuration follows KDB 971168 D01 Power Meas. License Digital Systems v03r01. The ERP of mobile transmitters must not exceed 7 Watts (Cellular Band) and the EIRP of mobile transmitters are limited to 2 Watts (PCS Band) and 1 Watts (AWS Band).

2.7.2 Measuring Instruments

The measuring equipment is listed in the section 3 of this test report.

2.7.3 Test Procedures

- 1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.2.1. (for CDMA/WCDMA), Section 5.2.2.2 (for GSM/GSM/GPRS) and ANSI / TIA-603-D-2010 Section 2.2.17.
- 2. The EUT was placed on a turntable 1.5 meters high in a fully anechoic chamber.
- 3. The EUT was placed 3 meters from the receiving antenna, which was mounted on the antenna tower.
- 4. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;

UMTS operating modes: Set RBW= 100 kHz, VBW= 300 kHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per KDB 971168 D01 v03r01.

- 5. The table was rotated 360 degrees to determine the position of the highest radiated power.
- 6. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
- 7. Taking the record of maximum ERP/EIRP.
- 8. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
- 9. The conducted power at the terminal of the dipole antenna is measured.



10. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.

11. ERP/EIRP = Ps + Et - Es + Gs = Ps + Rt - Rs + Gs

Ps (dBm): Input power to substitution antenna.

Gs (dBi or dBd): Substitution antenna Gain.

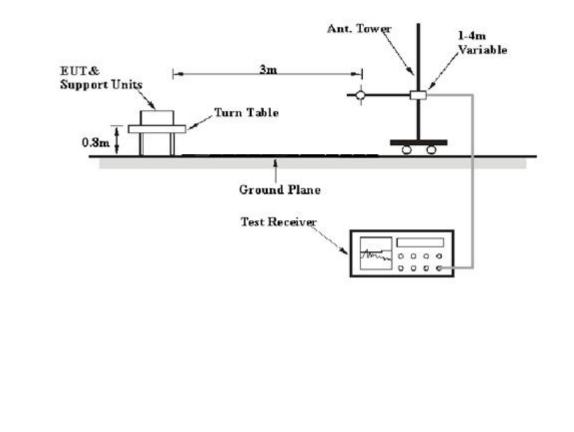
Et = Rt + AF Es = Rs + AF

AF (dB/m): Receive antenna factor

Rt: The highest received signal in spectrum analyzer for EUT.

Rs: The highest received signal in spectrum analyzer for substitution antenna.

2.7.4 Test Setup





2.7.5 Test Result of Transmitter Radiated Power

Test Notes:

1. This device employs GMSK technology with GSM capabilities. All configurations were investigated and the worst case emissions were found in GSM mode.

2. This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, HSUPA capabilities. All configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2Kbps.

3. This unit was tested with its standard battery.

4. The worst case test configuration was found in the vertical positioning where the EUT is laying on its side. The data reported in the tables below were measured in this test setup.

Band	Channel	Frequency	PCL	Antenna Pol	Measured ERP	Limit	Verdict
		(MHz)		(H/V)	dBm	dBm	
	128	824.20	5	Н	30.14		DAGG
	120	024.20		V	31.12		PASS
GSM	190	836.60	5	Н	30.23	- 38.5	PASS
850MHz				V	31.37		
	251	848.80	5	Н	31.01		PASS
				V	31.08		

Band	Channel	Frequency (MHz)	PCL	Antenna Pol (H/V)	Measured EIRP dBm	Limit dBm	Verdict
	512	1850.2	0	Н	27.12		PASS
	312			V	27.05		
GSM	661	1880.0	0	Н	27.08	22	DAGG
1900MHz				V	27.19	- 33	PASS
	810	1909.8	0	Н	27.34		PASS
				V	26.91	7	



Band	Channel	Frequency (MHz)	PCL	Antenna Pol (H/V)	Measured ERP dBm	Limit dBm	Verdict
	128	824.20	5	Н	25.31		PASS
		024.20		V	25.62		1735
EDGE	190	836.60	5	Н	25.58	20 5	PASS
850MHz				V	25.43	38.5	
	251	848.80	5	Н	25.44		PASS
	251			V	25.32		PASS

Band	Channel	Frequency (MHz)	PCL	Antenna Pol (H/V)	Measured EIRP dBm	Limit dBm	Verdict
	510	1850.2	0	Н	25.12		PASS
	512	1830.2		V	26.07	- 33	
EDGE	661	1880.0	0	Н	25.42		PASS
1900MHz				V	25.78		
	810	1909.8	0	Н	25.07		PASS
				V	26.02		

Band	Channel	Frequency (MHz)	Antenna Pol (H/V)	Measured ERP dBm	Limit dBm	Verdict
	4132	926.4	Н	22.23		PASS
		826.4	V	22.43		
WCDMA	4175	835	Н	22.33	20 5	PASS
850MHz			V	22.85	38.5	
	1000	046.6	Н	22.42		DA CC
	4233	846.6	V	22.45		PASS

Band	Channel	Frequency	Antenna Pol	Measured EIRP	Limit	Verdict
		(MHz)	(H/V)	dBm	dBm	vertuiet
	9262	1852.4	Н	22.24		PASS
		1832.4	V	22.54		TASS
WCDMA	9400	1880	Н	22.18	33	DAGG
1900MHz			V	22.74	33	PASS
	9538	1907.6	Н	22.02		DAGG
			V	22.87		PASS



2.8 Radiated Spurious Emissions

2.8.1 Requirement

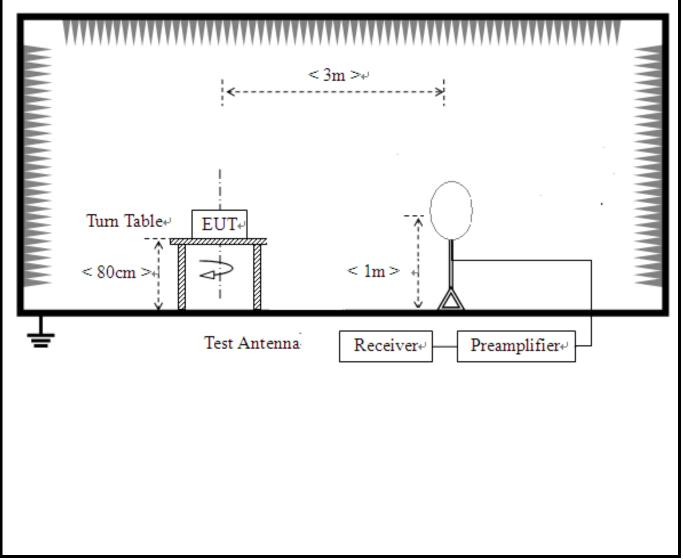
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitter power (P) by a factor of at least $43 + 10 \log (P) dB$. The spectrum is scanned from 30 MHz up to a frequency including its 10th harmonic.

2.8.2 Measuring Instruments

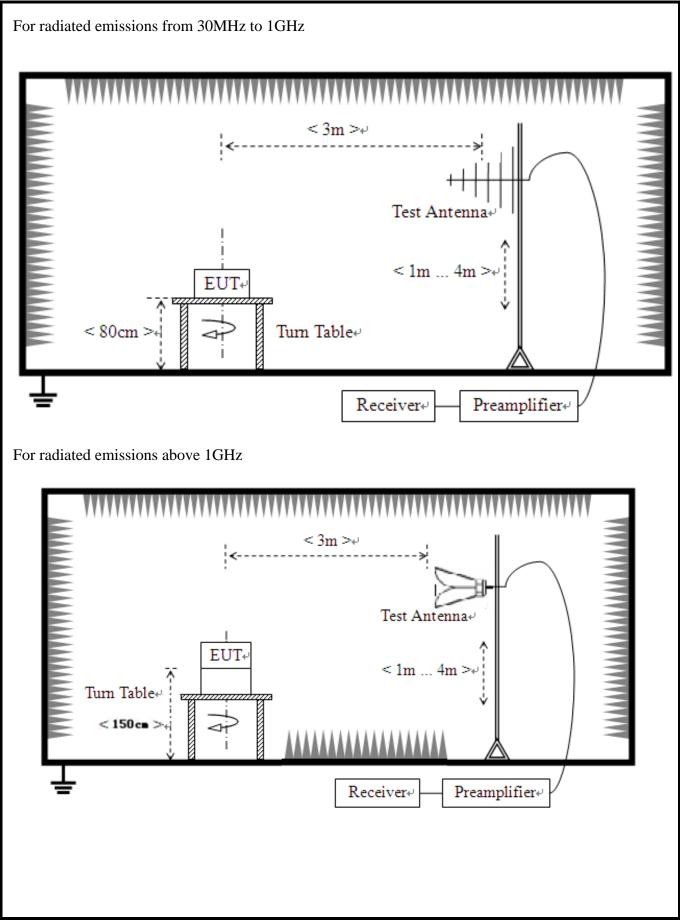
The measuring equipment is listed in the section 3 of this test report.

2.8.3 Test Setup

For radiated emissions from 9 kHz to 30MHz









2.8.4 Test Procedures

- 1. The testing follows FCC KDB 971168 D01 v03r01 Section 5.8.
- 2. The EUT was placed on a rotatable wooden table 0.8/1.5 meters above the ground.
- 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- 4. The table was rotated 360 degrees to determine the position of the highest spurious emission.
- 5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations.
- 6. Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission.
- 7. A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- 8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- 9. Taking the record of output power at antenna port.
- 10. Repeat step 7 to step 8 for another polarization.
- 11. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.
- 12. The limit line is derived from $43 + 10\log(P)$ dB below the transmitter power P(Watts)
 - = P(W) [43 + 10log(P)] (dB)
 - = [30 + 10log(P)] (dBm) [43 + 10log(P)] (dB)
 - = -13dBm.
- 13. This device employs GMSK technology with GSM and GSM capabilities. All configurations were investigated and the worst case emissions were found in GSM mode.
- 14. This device employs UMTS technology with WCDMA (AMR/RMC), HSDPA, HSUPA capabilities. All configurations were investigated and the worst case UMTS emissions were found in RMC WCDMA mode at 12.2Kbps.
- 15. This unit was tested with its standard battery.
- 16. All Spurious Emission tests were performed in X, Y, Z axis direction and low, middle, high channel. And only the worst axis test condition was recorded in this test report.
- 17. The spectrum is measured from 9 KHz to the 10th harmonic of the fundamental frequency



of the transmitter using CISPR quasi peak detector below 1GHz. The worst case emissions are reported however emissions whose levels were not within 20dB of the respective limits were not reported.

 For 9KHz to 30MHz: the amplitude of spurious emissions are attenuated by more than 20dB below the permissible value has no need to be reported.



2.8.5 Test Results of Radiated Spurious Emissions

Note: 1. (Absolute)Level=Reading Level + Factor

Worst-Case test data provide as below:

GSM850 Middle Channel

30MHz~10GHz:

Susp	ected List						
NO.	Freq.	Reading	Level	Limit	Margin	Factor	Delerity
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	Polarity
1	59.1146	-82.77	-60.99	-13.00	47.99	21.78	Horizontal
2	97.9340	-86.63	-65.19	-13.00	52.19	21.44	Horizontal
3	307.073	-90.09	-62.55	-13.00	49.55	27.54	Horizontal
4	1711.35	-55.13	-55.75	-13.00	42.75	-0.62	Horizontal
5	2880.94	-57.96	-50.38	-13.00	37.38	7.58	Horizontal
6	7157.07	-59.50	-42.71	-13.00	29.71	16.79	Horizontal
Susp	ected List						
	Freq.	Reading	Level	Limit	Margin	Factor	Delerity
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	Polarity
1	59.1146	-83.45	-61.04	-13.00	48.04	22.41	Vertical
2	115.402	-87.31	-62.01	-13.00	49.01	25.30	Vertical
3	271.165	-89.71	-63.52	-13.00	50.52	26.19	Vertical
4	2944.97	-56.21	-49.40	-13.00	36.40	6.81	Vertical
5	5086.04	-58.71	-44.56	-13.00	31.56	14.15	Vertical
6	9873.43	-61.95	-39.22	-13.00	26.22	22.73	Vertical



Worst-Case test data provide as below:

GSM1900 Middle Channel

30MHz~20GHz:

Sus	pected List						
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Factor [dB]	Polarity
1	60.5703	-82.95	-64.55	-13.00	51.55	18.40	Horizoptol
							Horizontal
2	125.592	-87.73	-68.73	-13.00	55.73	19.00	Horizontal
3	342.496	-89.88	-63.41	-13.00	50.41	26.47	Horizontal
4	2704.85	-56.55	-48.07	-13.00	35.07	8.48	Horizontal
5	5086.04	-59.18	-47.21	-13.00	34.21	11.97	Horizontal
6	7517.25	-54.65	-38.00	-13.00	25.00	16.65	Horizontal
Susp	ected List						
	Freq.	Reading	Level	Limit	Margin	Factor	Dalarit
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	Polarity
1	61.0555	-82.46	-63.21	-13.00	50.21	19.25	Vertical
2	95.0225	-85.40	-62.48	-13.00	49.48	22.92	Vertical
3	235.742	-89.62	-68.09	-13.00	55.09	21.53	Vertical
4	1972.48	-11.91	-11.23	-13.00	-1.77	0.68	Vertical
5	5633.81	-46.92	-34.29	-13.00	21.29	12.63	Vertical
6	7517.25	-53.72	-37.49	-13.00	24.49	16.23	Vertical





Worst-Case test data provide as below:

WCDMA 850 Middle Channel

30MHz~10GHz:

Suspected List									
NO.	Freq.	Reading	Level	Limit	Margin	Factor	Delerity		
	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	Polarity		
1	59.1146	-81.54	-59.76	-13.00	46.76	21.78	Horizontal		
2	129.960	-87.84	-65.42	-13.00	52.42	22.42	Horizontal		
3	213.421	-90.32	-65.64	-13.00	52.64	24.68	Horizontal		
4	1795.39	-56.91	-55.19	-13.00	42.19	1.72	Horizontal		
5	2902.95	-57.32	-49.39	-13.00	36.39	7.93	Horizontal		
6	6601.80	-59.48	-44.47	-13.00	31.47	15.01	Horizontal		
Susp	Suspected List								
	Freq.	Reading	Level	Limit	Margin	Factor	Delerity		
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	Polarity		
1	61.0555	-84.05	-61.43	-13.00	48.43	22.62	Vertical		
2	98.9045	-86.30	-59.77	-13.00	46.77	26.53	Vertical		
3	240.110	-90.33	-65.24	-13.00	52.24	25.09	Vertical		
4	2214.60	-57.12	-54.43	-13.00	41.43	2.69	Vertical		
5	5101.05	-59.38	-45.13	-13.00	32.13	14.25	Vertical		
6	9130.56	-61.35	-40.63	-13.00	27.63	20.72	Vertical		





Worst-Case test data provide as below:

WCDMA 1900 Middle Channel

30MHz~20GHz:

Suspected List									
NO.	Freq.	Reading	Level	Limit	Margin	Factor	Delerity		
	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	Polarity		
1	61.0555	-82.84	-64.44	-13.00	51.44	18.40	Horizontal		
2	95.5078	-86.52	-68.27	-13.00	55.27	18.25	Horizontal		
3	297.853	-90.03	-66.28	-13.00	53.28	23.75	Horizontal		
4	2936.96	-57.70	-49.80	-13.00	36.80	7.90	Horizontal		
5	6406.70	-59.61	-45.07	-13.00	32.07	14.54	Horizontal		
6	9708.35	-62.75	-39.58	-13.00	26.58	23.17	Horizontal		
Susp	Suspected List								
	Freq.	Reading	Level	Limit	Margin	Factor	Delerity		
NO.	[MHz]	[dBm]	[dBm]	[dBm]	[dB]	[dB]	Polarity		
1	61.0555	-81.97	-62.72	-13.00	49.72	19.25	Vertical		
2	96.4782	-86.56	-63.49	-13.00	50.49	23.07	Vertical		
3	362.876	-88.69	-64.03	-13.00	51.03	24.66	Vertical		
4	2748.87	-57.61	-50.09	-13.00	37.09	7.52	Vertical		
5	5078.53	-58.95	-44.87	-13.00	31.87	14.08	Vertical		
6	7772.38	-58.09	-41.95	-13.00	28.95	16.14	Vertical		



3. LIST OF MEASURING EQUIPMENT

Description	Manufactu rer	Model	Serial No.	Cal. Date	Due Date	Remark
EMI Test Receiver	R&S	ESIB26	A0304218	2019.05.20	2020.05.19	Radiation
Loop Antenna	Schwarz beck	HFH2-Z2	100047	2019.04.26	2022.04.25	Radiation
Broadband antenna (30MHz~1GHz)	R&S	HL562	101341	2017.07.14	2020.07.13	Radiation
Broadband antenna (30MHz~1GHz)	R&S	HL562	101339	2017.07.14	2020.07.13	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100150	2019.04.27	2022.04.26	Radiation
Double ridge horn antenna (1GHz~18GHz)	R&S	HF906	100149	2019.04.17	2022.04.16	Radiation
Horn antenna (18GHz~26.5GHz)	AR	AT4002A	305753	2017.07.12	2020.07.11	Radiation
Horn antenna (18GHz~26.5GHz)	AR	AT4003A	0329293	2018.09.17	2020.09.16	Radiation
Amplifier 1GHz-18GHz	AR	25S1G4AM1	22018	2018.09.17	2020.09.16	Radiation
Ampilier 20M~3GHz	MILMEGA	80RF1000-250	1064573	2017.10.09	2020.10.08	Radiation
Spectrum Analyzer	KEYSIGHT	N9030A	A160702554	2019.06.05	2020.06.04	Conducted
LISN	ROHDE&SC HWARZ	ESH2-Z5	A0304221	2019.04.30	2020.04.29	Conducted
Test Receiver	R&S	ESCS30	A0304260	2019.05.25	2020.05.24	Conducted
Temperature chamber	Dongguan gaoda instrument CO.LTD	GD-7005-100	130130101	2019.04.22	2020.04.21	Conducted
Wideband Radio Communication tester	R&S	CMW500	149332	2019.04.01	2020.03.31	Conducted
Power Supply	R&S	NGMO1	101037	2019.08.03	2020.08.02	Conducted

** END OF REPORT **