

RADIO TEST REPORT

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Report No: STS1607035F01

Issued for

Santok Limited

Santok House, Unit L, Braintree Industrial Estate, Braintree Road, South Ruislip, Middlesex, United Kingdom

Product Name:	Mobile Phone
Brand Name:	STK
Model Name:	R45i
Series Model:	N/A
FCC ID:	2AE7RSTKR45I
Test Standard:	FCC Part 22H and 24E

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TEST RESULT CERTIFICATION

Applicant's name:	Santok Limited
Address:	Santok House, Unit L, Braintree Industrial Estate, Braintree Road, South Ruislip, Middlesex, United Kingdom
	Shenzhen Guowei Electronics Co., LTD
Address:	6F,Black E, Qiaoan Industrial Zone, Guanlan, Baoan District, Shenz- hen, China
Product name:	Mobile Phone
Brand name:	STK
Model and/or type reference :	R45i
Standards	FCC Part 22H and 24E
Test procedure	. ANSI/TIA 603-D (2010)

This device described above has been tested by STS and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test

Date of performance of tests 06 July. 2016 ~26 July. 2016

Date of Issue 27 July. 2016

Test Result Pass

Testing Engineer :	Junter	
	(Tony Liu)	ESTING · CONSUL
Technical Manager :	Meati	
	(Vita Li)	APPROVAL 0
Authorized Signatory :	Boney Yuney	
	(Bovey Yang)	

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Revision History

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00	27 July. 2016	STS1607035F01	ALL	Initial Issue



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SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

The radiated emission testing was performed according to the procedures of ANSI/TIA-603-D:

2010,KDB 971168 D01 v02r02 and KDB 648474 D03 v01r04

FCC Rules	Test Description	Test Limit	Test Result	Reference
2.1049	Conducted OutputPower	Reporting Only	PASS	
2.0146 24.232	Peak-to-AverageRatio	< 13 dB	PASS	
2.1046 22.913 24.232	Effective Radiated Pow- er/Equivalent Isotropic Radiated Power	< 7 Watts max. ERP(Part 22) < 2 Watts max. EIRP(Part 24)	PASS	
2.1049 22.917 24.238	Occupied Bandwidth	Reporting Only	PASS	
2.1055 22.355 24.235	Frequency Stability	< 2.5 ppm (Part 22) Emission must remain in band (Part 24)	PASS	
2.1051 22.917 24.238	Spurious Emission at Antenna Terminals	< 43+10log10(P[Watts])	PASS	
2.1053 22.917 24.238	Field Strength of Spurious Radiation	< 43+10log10(P[Watts])	PASS	
2.1051 22.917 24.238	Band Edge	< 43+10log10(P[Watts])	PASS	



1 INTRODUCTION 1.1 TEST FACTORY Shenzhen STS Test Services Co., Ltd. Add. : 1/F., Building B, Zhuoke Science Park, No.190,Chongqing Road, Fuyong Street, Bao'an District, Shenzhen, Guangdong,China CNAS Registration No.: L7649; FCC Registration No.: 842334; IC Registration No.: 12108A-1

1.2 MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.4-2014. All measurement uncertainty values are shown with a coverage factor of k = 2 to indicate a 95% level of confidence. The measurement data shown herein meets or exceeds the UCISPR measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

No.	Item	Uncertainty
1	RF power, conducted	±0.70dB
2	Spurious emissions, conducted	±1.19dB
5	All emissions,radiated(<1G) 30MHz-200MHz	±2.83dB
6	All emissions,radiated(<1G) 200MHz-1000MHz	±2.94dB
7	All emissions,radiated(>1G)	±3.03dB
8	Temperature	±0.5°C
9	Humidity	±2%



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2 PRODUCT INFORMATION

Product Designation:	Mobile Phone		
Hardware version:	V0.1B		
Software version:	N/A		
FCC ID:	2AE7RSTKR45I		
	GSM/GPRS:		
Tx Frequency:	850: 824.2 MHz ~ 848.8 MHz		
	1900: 1850.2 MHz ~ 1909.8MHz		
	GSM/GPRS:		
Rx Frequency	850: 869.2 MHz ~ 893.8 MHz		
	1900: 1930.2 MHz ~ 1989.8 MHz		
Max RF Output Power:	GSM850:25.12dBm,PCS1900:23.32dBm GPRS850:25.03dBm,GPRS1900:22.84dBm		
Type of Emission:	GSM(850):318XW: GSM(1900):319KGXW GPRS(850):317XW: GPRS(1900):321KGXW		
SIM Card	SIM 1 and SIM 2 is a chipset unit and tested as single chipset,SIM 1 is used to tested		
Antenna:	PIFA Antenna		
Antenna gain:	GSM 850:-1.2dBi ,PCS 1900:-1.2dBi		
Power Supply:	DC 3.7V by battery		
Battery parameter:	Capacity:600mAh, Rated Voltage: 3.7V		
GPRS Class	Multi-Class12		
Extreme Vol. Limits:	DC3.5 V to 4.2 V (Nominal DC3.7V)		
Extreme Temp. Tolerance	-20℃ to +45℃		
** Note: The High Voltage 4.2 V and Low Voltage 3.5 V was declared by manufacturer, The			
EUT couldn't be operate no	ormally with higher or lower voltage.		



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3 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 v02r02 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 10th harmonic for GSM850
- 2. 30 MHz to 10th harmonic for GSM1900
- 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	RADIATED TCS	CONDUCTED TCS	
GSM 850	GSM LINK GPRS CLASS 12 LINK	GSM LINK GPRS CLASS 12 LINK	
GSM 1900	GSM LINK GPRS CLASS 12 LINK	GSM LINK GPRS CLASS 12 LINK	



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4 MEASUREMENT INSTRUMENTS

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Spectrum Analyzer	Agilent	E4407B	MY50140340	2015.10.25	2016.10.24
Signal Analyzer	Agilent	N9020A	MY49100060	2015.11.18	2016.11.17
Test Receiver	R&S	ESCI	101427	2015.10.25	2016.10.24
Communication Tester	Agilent	8960	MY48360751	2015.11.20	2016.11.19
Communication Tester	R&S	CMU200	112012	2015.10.25	2016.10.24
Test Receiver	R&S	ESCI	102086	2015.10.25	2016.10.24
Bilog Antenna	TESEQ	CBL6111D	34678	2015.11.25	2016.11.24
Bilog Antenna (Calibration antenna)	TESEQ	CBL6111D	34678	2015.11.25	2016.11.24
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1343	2016.03.06	2017.03.05
Horn Antenna (Calibration antenna)	Schwarzbeck	BBHA 9120D	9120D-1344	2016.03.06	2017.03.05
MXA SIGNAL Analyzer	Agilent	N9020A	MY49100060	2015.10.25	2016.10.24
Double Ridge Horn An- tenna	COM-POWER CORPORATION	AH-840	AHA-840	2016.03.06	2017.03.05
Low frequency cable	N/A	R01	N/A	N/A	N/A
High frequency cable	SCHWARZBECK	AK9515H	SN-96286/96287	N/A	N/A
Vector signal generator	Agilent	E8257D-521	MY45141029	2015.10.16	2016.10.14
Power amplifier	DESAY	ZHL-42W	9638	2015.10.24	2016.10.23

Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.



5 TEST ITEMS 5.1 CONDUCTED OUTPUT POWER

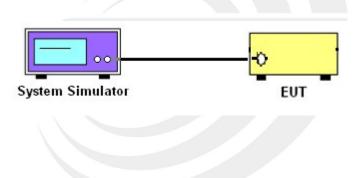
Test overview

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.

Test procedures

- 1. The transmitter output port was connected to the system simulator.
- 2. Set eut at maximum power through the 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.

Test setup



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5.2 PEAK TO AVERAGE RATIO

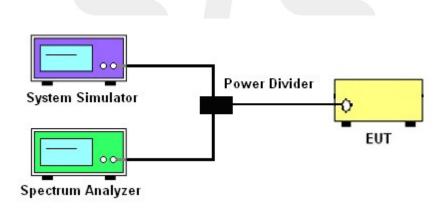
TEST OVERVIEW

According to §24.232(d), power measurements for transmissions by stations authorized under this section may be made either in accordance with a commission-approved average power technique or in compliance with paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the provisions of §24.51. 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.

TEST PROCEDURES

- 1. The testing follows fcckdb 971168 v02r02 section
- 2. The eut was connected to the and peak and av system simulator& spectrum analysis reads
- 3. Select lowest, middle, and highest channels for each band and different modulation.
- 4. Set the test probe and measure average power of the spectrum analysis

TEST SETUP



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5.3 TRANSMITTER RADIATED POWER (EIRP/ERP) TEST OVERVIEW

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

TEST PROCEDURE

1. The testing follows FCC KDB 971168 D01

Section 5.2.2 (for GSM/GPRS/EDGE) and ANSI / TIA-603-D-2010 Section 2.2.17.

2. The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

3. The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

4. The frequency range up to tenth harmonic of the fundamental frequency was investigated.

5. Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a nonradiating cable. The absolute levels of the spurious emissions were measured by the substitution.

6. Effective Isotropic Radiated Power (EIRP) was measured by substitution method according to TIA/EIA-603-D. The EUT was replaced by the substitution antenna at same location, and then a known power from S.G. was applied into the dipole antenna through a Tx cable, and then recorded the maximum Analyzer reading through raised and lowered the test antenna. The correction factor (in dB) = S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading. Then the EUT's EIRP/ERP was calculated with the correction factor,

ERP/EIRP = P.SG + GT - LC

ERP/EIRP = effective or equivalent radiated power, respectively (expressed in the same units as PMe as, typically dBW or dBm);

PMeas(PK) = measured transmitter output power or PSD, in dBm or dBW;

GT = gain of the transmitting antenna, in dBd (ERP) or dBi (EIRP);

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



5.4 OCCUPIED BANDWIDTH

TEST OVERVIEW

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured.

The 26 dB emission bandwidth is defined as the frequency range between two points, one above and one below the carrier frequency, at which the spectral density of the emission is attenuated 26 dB below the maximum in-band spectral density of the modulated signal. Spectral density (power per unit bandwidth) is to be measured with a detector of resolution bandwidth equal to approximately 1.0% of the emission bandwidth.

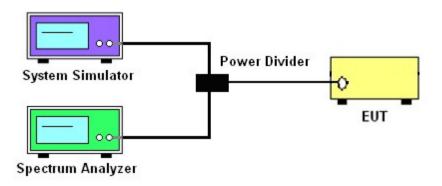
All modes of operation were investigated and the worst case configuration results are reported in this section.

TEST PROCEDURE

1. The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.

- 2. RBW = 1 5% of the expected OBW
- 3. VBW ≥ 3 x RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. The trace was allowed to stabilize
- 8. If necessary, steps 2 7 were repeated after changing the RBW such that it would be within
- 1-5% of the 99% occupied bandwidth observed in Step 7

TEST SETUP





5.5 FREQUENCY STABILITY Test Overview

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-D-2010. The frequency stability of the transmitter is measured by:

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a.) Temperature: The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) Primary Supply Voltage: The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24 the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure

Temperature Variation

1. The testing follows fcckdb 971168 D01 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.

Voltage Variation

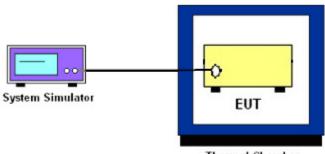
1. The testing follows FCC KDB 971168 D01 Section 9.0.

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 85% to 115% of the nominal value measured at the input to the EUT.

4. The variation in frequency was measured for the worst case.

TEST SETUP



Thermal Chamber





5.6 SPURIOUS EMISSIONS AT ANTENNA TERMINALS <u>Test Overview</u>

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.

Test procedure

1. The testing follows FCC KDB 971168 D01 v02r02 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.

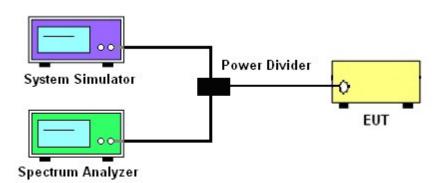
7. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

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

= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

= -13dBm.

Test Setup



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5.7 BAND EDGE

OVERVIEW

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is 43 + log10(P[Watts]), where P is the transmitter power in Watts.

TEST PROCEDURE

1. Start and stop frequency were set such that the band edge would be placed in the center of the Plot.

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 edges 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.

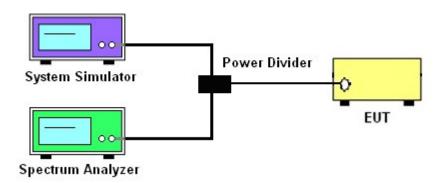
6.The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts)

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

= [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB)

= -13dBm.

TEST SETUP







5.8 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT Test overview

Radiated spurious emissions measurements are performed using the substitution method described inANSI/TIA-603-D-2010 with the EUT transmitting into an integral antenna. Measurements on signalsoperating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized horn antennas. All measurements are performed as peak measurements while the EUT isoperating at maximum power and at the appropriate frequencies.

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

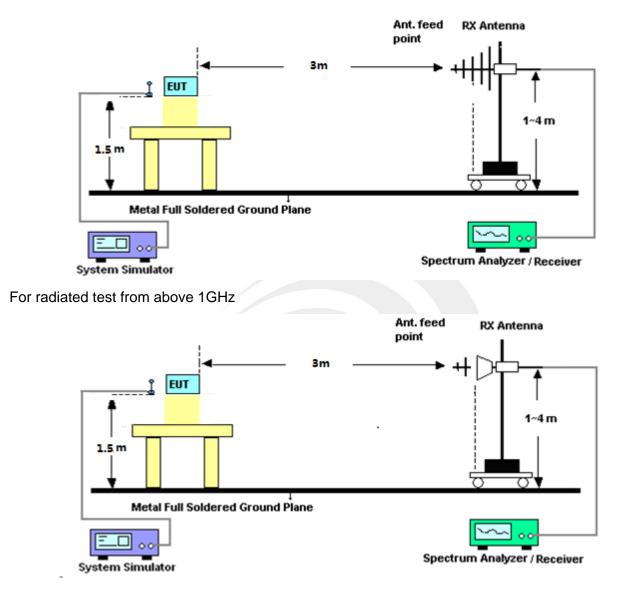
Test procedure

1. The testing follows FCC KDB 971168 D01 Section 5.8 and ANSI/TIA-603-D-2010 – Section 2.2.12

- 2. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 3. VBW \ge 3 x RBW
- 4. Span = 1.5 times the OBW
- 5.No. of sweep points > 2 x span/RBW
- 6. Detector = Peak
- 7. Trace mode = max hold
- 8. The trace was allowed to stabilize



For radiated test from 30MHz to 1GHz



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APPENDIX ATESTRESULT A1CONDUCTED OUTPUT POWER

GSM 850:

Mode	Frequency (MHz)	AVG Power
GSM850	824.2	24.56
	836.6	24.71
	848.8	25.12
GPRS850	824.2	24.52
	836.6	24.66
	848.8	25.03

PCS 1900:

Mode	Frequency (MHz)	AVG Power
GSM1900	1850.2	22.71
	1880	22.80
	1909.8	23.32
	1850.2	22.68
GPRS1900	1880	22.21
	1909.8	22.84

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A2 PEAK-TO-AVERAGE RADIO

PCS 1900:

Mode	Frequency (MHz)	PEAK Power	AVG Power	PAR
	1850.2	22.71	2211	0.6
PCS1900	1880	22.80	22.09	0.71
	1909.8	23.32	22.84	0.48
	1850.2	22.68	22.05	0.63
GPRS1900	1880	22.21	21.83	0.38
	1909.8	22.84	22.58	0.26

A3 TRANSMITTER RADIATED POWER (EIRP/ERP)

Radiated Power (ERP) for GSM 850 MHZ								
				Re	esult			
Mode	Frequency	S G.Level (dBm)	loss (ID)		PMeas E.R.P(dBm)	Polarization Of Max. ERP	Conclusion	
	824.2	13.8	0.44	6.5	19.86	Horizontal	Pass	
	824.2	15.91	0.44	6.5	21.97	Vertical	Pass	
0014050	836.6	13.65	0.45	6.5	19.70	Horizontal	Pass	
GSM850	836.6	15.04	0.45	6.5	21.09	Vertical	Pass	
	848.8	12.9	0.46	6.5	18.94	Horizontal	Pass	
	848.8	15.28	0.46	6.5	21.32	Vertical	Pass	
	824.2	13.37	0.44	6.5	19.43	Horizontal	Pass	
	824.2	14.97	0.44	6.5	21.03	Vertical	Pass	
GPRS850	836.6	13.75	0.45	6.5	19.80	Horizontal	Pass	
	836.6	16.25	0.45	6.5	22.30	Vertical	Pass	
	848.8	13.91	0.46	6.5	19.95	Horizontal	Pass	
	848.8	16.03	0.46	6.5	22.07	Vertical	Pass	



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	Radiated Power (EIRP) for PCS 1900 MHZ								
				R	esult				
Mode	Frequency	S G.Level	Cable	Gain	PMeas	Polarization	Conclusion		
		(dBm)	loss	(dBi)	E.I.R.P.(dBm)	Of Max.EIRP.			
	1850.2	11.31	2.41	10.35	19.25	Horizontal	Pass		
	1850.2	13.47	2.41	10.35	21.41	Vertical	Pass		
PCS1900	1880.0	11.69	2.42	10.35	19.62	Horizontal	Pass		
PC31900	1880.0	13.92	2.42	10.35	21.85	Vertical	Pass		
	1909.8	12.22	2.43	10.35	20.14	Horizontal	Pass		
	1909.8	14.47	2.43	10.35	22.39	Vertical	Pass		
	1850.2	11.58	2.41	10.35	19.52	Horizontal	Pass		
	1850.2	13.21	2.41	10.35	21.15	Vertical	Pass		
GPRS1900	1880.0	11.54	2.42	10.35	19.47	Horizontal	Pass		
	1880.0	13.15	2.42	10.35	21.08	Vertical	Pass		
	1909.8	11.03	2.43	10.35	18.95	Horizontal	Pass		
	1909.8	12.94	2.43	10.35	20.86	Vertical	Pass		



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A4 OCCUPIED BANDWIDTH(99% OCCUPIED BANDWIDTH/26DB BANDWIDTH)

Occupied Bandwidth for GSM 850 band							
Mode	Frequency(MHz)	Occupied Bandwidth	Emission Bandwidth				
Mode	Frequency(IVIFIZ)	(99%)(kHz)	(-26dBc)(kHz)				
Low Channel	824.2	245.51	308.4				
Middle Channel	836.6	244.18	316.3				
High Channel	848.8	244.17	317.9				
Occupied Bandwidth for GPRS 850 band							
Mode		Occupied Bandwidth	Emission Bandwidth				
wode	Frequency(MHz)	(99%)(kHz)	(-26dBc)(kHz)				
Low Channel	824.2	243.37	309.1				
Middle Channel	836.6	245.67	314.8				
High Channel	848.8	246.55	317.3				



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Occupied Bandwidth for GSM1900 band							
Mode	Frequency(MHz)	Occupied Bandwidth	Emission Bandwidth				
Mode	Frequency(MHZ)	(99%)(kHz)	(-26dBc)(kHz)				
Low Channel	1850.2	243.78	312.1				
Middle Channel	1880.0	247.91	318.9				
High Channel	1909.8	247.61	318.0				
Occupied Bandwidth for GPRS 1900 band							
Mode	Fraguanay (MHz)	Occupied Bandwidth	Emission Bandwidth				
Mode	Frequency(MHz)	(99%)(kHz)	(-26dBc)(kHz)				
Low Channel	1850.2	244.99	309.7				
Middle Channel	1880.0	244.55	308.2				
High Channel	1909.8	245.86	321.3				



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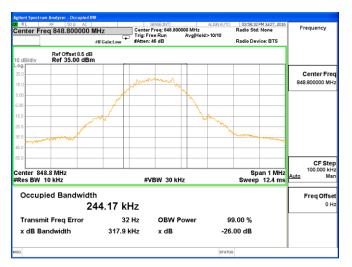
Report No.: STS1607035F01

GSM 850 CH 128



GSM 850 CH 190





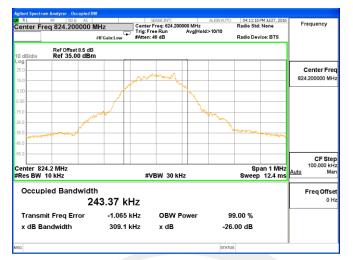
GSM 850 CH 251

Shenzhen STS Test Services Co., Ltd.



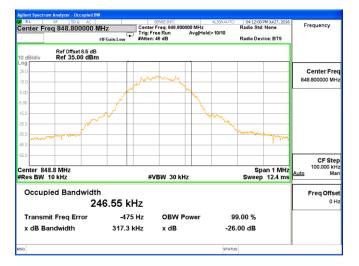
Report No.: STS1607035F01

GPRS 850 CH 128



GPRS 850 CH 190





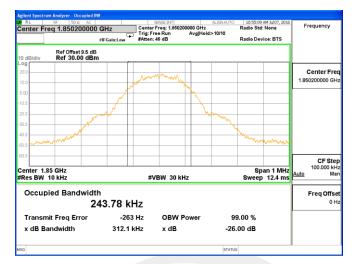
GPRS 850 CH 251

Shenzhen STS Test Services Co., Ltd.

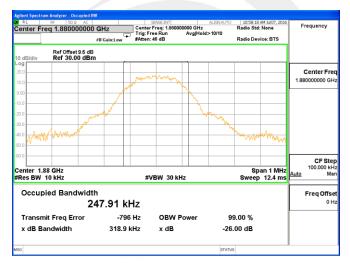


Report No.: STS1607035F01

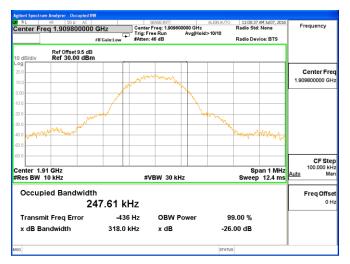
PCS 1900 CH 512



PCS 1900 CH 661



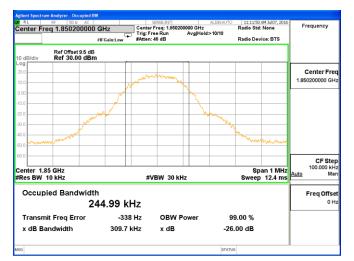
PCS 1900 CH 810



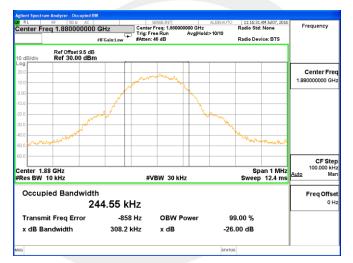
Shenzhen STS Test Services Co., Ltd.



GPRS 1900 CH 512



GPRS 1900 CH 661



GPRS 1900 CH 810





Report No.: STS1607035F01

A5 FREQUENCY STABILITY

Normal Voltage = 3.7V. ; Battery End Point (BEP) = 3.5 V.; Maximum Voltage = 4.2 V

	GSM 850Middle Channel									
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result					
50		13.529	0.016							
40		26.462	0.032							
30		23.609	0.028		PASS					
20		27.942	0.033	2.5ppm						
10	Normal Voltage	18.191	0.022							
0		13.493	0.016							
-10		17.376	0.021							
-20	/	15.948	0.019							
-30		16.221	0.019							
25	Maximum Voltage	19.847	0.024							
25	BEP	11.642	0.014							

	GPRS 850Middle Channel									
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result					
50		13.568	0.016							
40		26.505	0.032							
30		23.681	0.028							
20		27.946	0.033							
10	Normal Voltage	18.278	0.022							
0		13.508	0.016	2.5ppm	PASS					
-10		17.390	0.021							
-20		15.949	0.019							
-30		16.267	0.019							
25	Maximum Voltage	19.855	0.024							
25	BEP	11.640	0.014							



Report No.: STS1607035F01

	GSM 1900Middle Channel									
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result					
50		19.090	0.010							
40		11.199	0.006							
30		10.282	0.005							
20		22.292	0.012	Within Au- thorized Band	PASS					
10	Normal Voltage	14.041	0.007							
0		10.050	0.005							
-10		15.462	0.008							
-20		20.660	0.011							
-30		24.107	0.013							
25	Maximum Voltage	12.474	0.007							
25	BEP	12.477	0.007							

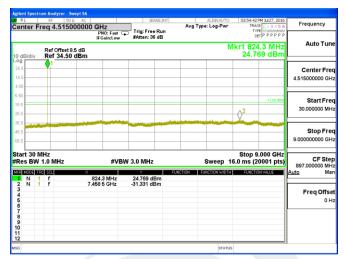
	GPRS 1900Middle Channel									
Temperature (°C)	Voltage (Volt)	Freq. Dev. (Hz)	Freq. Dev. (ppm)	Limit	Result					
50		19.066	0.010							
40		11.178	0.006							
30		10.239	0.005							
20		22.274	0.012	Within Au-						
10	Normal Voltage	14.111	0.008							
0		10.030	0.005	thorized	PASS					
-10		15.427	0.008	Band						
-20		20.720	0.011							
-30		24.099	0.013							
25	Maximum Voltage	12.486	0.007							
25	BEP	12.432	0.007							



A6 SPURIOUS EMISSIONS AT ANTENNA TERMINALS

GSM 850 BAND

Lowest Channel



Middle Channel

Center Pred, 4.3 1300000 Grid, and Character Trig: Free Run Bréakter: 36 dB Trig: Free Run Mkr1 836.9 MHz 10 dBidly Ref 34.50 dBm 25.080 dBm 245 1 1 450 1 1 </th <th></th>	
If Gain Low #Atten: 36 dB Oct [P P P P P 10 dBiddy Ref Offset 8.5 dB Mkrl 836.9 MHz 25.080 dBm 10 dBiddy Ref 34.50 dBm 25.080 dBm 25.080 dBm 145 1 1 1 1 155 1 1 1 1 30.060 25 1 1 1 1 30.060 30.060 35 1 1 1 1 1 30.060 30.060 365 1	quency
Ref Offset 85 dB INKT 930.9 MIZ 0.0 glidin 25.080 dBm 0.0 glidin 0.0 glidin	Auto Tu
24.6 C 4.515 4.0	Hulo Tu
14.5	
400 400 400 400 400 400 400 400	enter Fr 000000 G
10000 10000 10000 3000 10000 10000 10000 10000 9000 10000 10000 10000 10000 9000 10000 10000 10000 10000 9000 10000 10000 10000 10000 9000 10000 10000 10000 10000 10000 10000 10000 10000 100000 100000 100000 10000 10000 10000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 100000 1000000 1000000 1000000 1000000 10000000 1000000000 10000000000000000 100000000000000000000000000 1000000000000000000000000000000000000	0000000
50 50 50 50 50 50 50 50 50 50	
55	Start Fr
1 1 f 25.00 30.00 F0x4100 F0x4100 807 1 1 f 636.9 MHz 25.000 60m 400 807 400 8000 807 400 800	000000
Image: Start Start Auto Auto Auto Auto Auto Auto Auto Auto Auto Figure Start Start Start Auto Auto Auto Auto Auto Figure Start Figure Start	
tart 30 MHz Res BW 1.0 MHz #VBW 3.0 MHz Sweep 16.0 ms (20001 pts) Res BW 1.0 MHz X Sweep 16.0 ms (20001 pts) Reg 897. Adoc N 1 f 893.9 MHz 25.080 dBm 3 4 6 6 7	Stop Fr
Res BW 1.0 MHz #VBW 3.0 MHz Sweep 16.0 ms (20001 pts) 897 Res BW 1.0 MHz * 885.9 MHz 25.000 dBm F00-000	000000 G
MR MODE Transmission PRINCEON	CF St
BIN 1 f 6356 9 MHz 25.080 dBm 3 1 f 7.379 2 GHz -31.730 dBm 4	000000 N
2 N 1 f 7.379 2 GHz -31.730 dBm 4 5 6 7	N
4 7 5 6 7	
6	req Offs
7	0
9	
12 STATUS	

Highest Channel

RL	RE 5	IO Q AC	SENSE:INT	ALIGNAUTO	04:00:20 PM 3:427, 2016	
enter		5000000 GHz PNO: Fast IFGain:Low	Trig: Free Run #Atten: 36 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MUMMUMU DET P P P P P P	Frequency
0 dB/div	Ref Offset Ref 34.5			N	lkr1 849.0 MHz 25.023 dBm	Auto Tur
14.5	♦1					Center Fr 4.515000000 G
.50				¢2	-13.00 dBn	Start Fr 30.000000 M
6.5 5.5 6.5						Stop Fr 9.000000000 G
	W 1.0 MHz	#VE	3W 3.0 MHz		Stop 9.000 GHz 6.0 ms (20001 pts)	CF St 897.000000 M
KR MODE 1 N 2 N	TRC SCL 1 f 1 f	× 849.0 MHz 7.026 6 GHz	25.023 dBm -31.264 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> M
3 4 5 6 7 8 9						Freq Offs 0
0						

Shenzhen STS Test Services Co., Ltd.



GPRS 850 BAND

Lowest Channel

	rum Analyzer - Swept SA							
Constan E	RF 50 Ω AC	0.042	SENSE: INT	Avg Type:	ALIGNAUTO	04:57:11 F	M Jul 27, 2016	Frequency
Center P	req 4.51500000	PN0: Fast IFGain:Low	Trig: Free Run #Atten: 36 dB	ing type.	Logi W	TVP	T P P P P P P	
10 dB/div	Ref Offset 8.5 dB Ref 34.50 dBm				M	1 kr1 824 25.07	.3 MHz 75 dBm	Auto Tune
24.5 14.5								Center Fre 4.515000000 GH
-5.50 -15.5 -25.5				¢²			-13.00 dBn	Start Free 30.000000 MH
-45.5 -55.5								Stop Free 9.000000000 GH
Start 30 #Res BW	1.0 MHz	#VBW	3.0 MHz		weep 1	6.0 ms (2	.000 GHz 0001 pts)	CF Step 897.000000 MH Auto Ma
1 N 1 2 N 3 4 5 6 7 8 9 10	1 1	824.3 MHz 5.567 6 GHz	25.075 dBm -31.793 dBm					Freq Offse 0 H
10 11 12 MSG					STATUS			

Middle Channel

Agilent Spectrum Analyzer					
Center Freq 4.51	50 Ω AC 5000000 GHz	SENSE:INT	ALIGNAUTO Avg Type: Log-Pwr	04:59:29 PM 3ul 27, 2016 TRACE 1 2 3 4 5 6 TYPE M WARMAN	Frequency
Ref Offse 10 dB/div Ref 34.	PNO: Fast C IFGain:Low et 8.5 dB 50 dBm	#Atten: 36 dB	N	Ikr1 836.9 MHz 25.070 dBm	Auto Tune
24.5 14.5 4.5					Center Fre 4.515000000 GH
-5.50				-13.00 dBm	Start Fre 30.000000 MH
-35.5					Stop Fre 9.000000000 GH
Start 30 MHz #Res BW 1.0 MHz 2005 1161 S00 1 N 1 f	#VB × 836.9 MHz	W 3.0 MHz	Sweep 1	Stop 9.000 GHz 6.0 ms (20001 pts) FUNCTION VALUE	CF Ste 897.000000 MH <u>Auto</u> Ma
2 N 1 f 3 4 5 6 7	6.957 5 GHz	-31.408 dBm			Freq Offse 0 H
8 9 10 11 12					

Highest Channel

RL	RF 50 Ω AC		SENSE: INT	ALIGNAUTO	05:01:35 PM Jul 27, 2016	
enter Fre	eq 4.51500000	PNO: Fast	Trig: Free Run #Atten: 36 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MUMANANA DET P P P P P P	Frequency
) dB/div	Ref Offset 8.5 dB Ref 34.50 dBm			N	lkr1 849.0 MHz 24.708 dBm	Auto Tur
4.5 4.5 50						Center Fre 4.515000000 GF
50 1.5 1.5					-13.00 dBm	Start Fro 30.000000 M
.5						Stop Fr 9.000000000 G
art 30 M tes BW 1	.0 MHz	#VBW	3.0 MHz		Stop 9.000 GHz 6.0 ms (20001 pts)	CF Sto 897.000000 M
REMODE TRO 1 N 1 2 N 1 3 4	f	849.0 MHz 396 6 GHz	24.708 dBm -31.887 dBm	FUNCTION FUNCTION WIDTH	FUNCTION VALUE	Auto M Freq Offs 0
2 N 1 3 4 5 5 7 7 3 3 9 9 0						
2				STATUS		

Shenzhen STS Test Services Co., Ltd.



GSM1900 BAND(30M-12G)

Lowest Channel

								pt SA	ilyzer - Swe	trum An	Agilent Spec
Frequency	AM Jul07, 2016 E 1 2 3 4 5 6	TRAC	ALIGNAUTO E: Log-Pwr	Avg Typ	ISE:INT	S≊ Trig: Free		0000 GI	50 Ω 5.01500	RF Freq (Center
Auto Tune	0 4 GHz 04 dBm	r1 1.850	Mk		dB	#Atten: 36	NO: Fast 🕞 Gain:Low	dB	Offset 9.5 35.50 d		10 dB/div
Center Fred 6.015000000 GHz									•1		25.5 15.5 5.50
Start Free 30.000000 MH:	-13.00 dBm			¢ ²							-4.50 -14.5 -24.5
Stop Free 12.000000000 GH											-44.5
CF Step 1.197000000 GH: <u>Auto</u> Mar	.000 GHz 5001 pts)	0.0 ms (2	Sweep 2			3.0 MHz 28.004 di	#VBW	× 1.850		/ 1.0	Start 30 #Res BV
Freq Offse 0 H:					3m	-30.311 di	4 GHz			i f	2 N 3 4 5 6 7 8 9 10
			STATUS								9 10 11 12

Middle Channel

							er - Swept SA		pectru		
Frequency	11:46:33 AM Jul07, 2016 TRACE 1 2 3 4 5 6 TYPE Mutanatativ	ALIGNAUTO : Log-Pwr	Avg T	ISE:INT		0 GHz	50 Q AC	RF 9 q 6.	r Fre		Cer
Auto Tun	1 1.880 1 GHz 27.424 dBm	Mk			#Atten: 36	PNO: Fast C IFGain:Low	fset 9.5 dB 3.70 dBm				10 d
Center Fre 6.015000000 GH							1		IV		23.7 13.7
Start Fre 30.000000 MH	-13.00 dBn										6.30 16.3 26.3
Stop Fr 12.00000000 G										F	36.3 46.3 56.3
CF Sto 1.197000000 G <u>Auto</u> M	Stop 12.000 GHz 0 ms (25001 pts) EUNETON VALUE	Sweep 20	TION		W 3.0 MHz 27.424 de	#VB	×	.0 MI	10 Mi 3W 1 10 Miles	s B	Re
Freq Offs 0 F				lm	-30.754 dE	5.926 2 GHz		ł	1	Ň	2345678
		STATUS									8 9 10 11 12

Highest Channel

Frequency	M Jul07, 2016		ALIGNAUTO		INSE: INT	SE		AC	50 Q	RF						
Frequency	E 1 2 3 4 5 6	TVE	: Log-Pwr	Avg T	e Run	Trig: Fre	Hz PNO: Fast C	0000 G	01500	eq 6.	Fre	er				
	PPPPP	DE				#Atten: 3	FGain:Low	IF								
Auto Ti		Mkr1 1.910 2 GHz 26.982 dBm							Ref Offset 9.5 dl							
Center F									1							
6.015000000 (_						
						-	-			-						
Start F	-13.00 dBm									-						
30.000000					A2											
					Ŷ	and the		and the second								
Stop F												é.				
12.00000000										_						
	.000 GHz	Stop 12								-iz	D MH	3				
CF S 1.197000000	5001 pts)).0 ms (2	Sweep 20			V 3.0 MHz	#VB		lz	.0 Mł	W 1	B				
Auto I	N VALUE	FUNCTIO	ICTION WIDTH	NCTION		26,982 d	0 2 GHz	×		SCL	TRC	IODE N				
						-30.056 d	5 1 GHz			f	1	N				
Freq Of																
			STATUS													

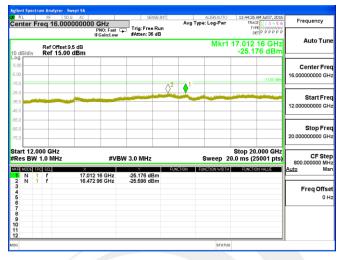
Shenzhen STS Test Services Co., Ltd.



Report No.: STS1607035F01

GSM1900 BAND(12G-20G)

Lowest Channel



Middle Channel

RF 50 Ω AC		SENSE:1		ALIGNAUTO	11:47:05 AM Jul07, 3	
16.00000000				Type: Log-Pwr	TYPE MULANA	PP
ef Offset 9.5 dB ef 33.70 dBm				Mkr1		
						Center Fr 16.000000000 G
			\bigcirc^2 \blacklozenge^1		-13.00	Start Fr 12.000000000 G
						Stop Fr 20.000000000 G
MHz	#VB	W 3.0 MHz			0.0 ms (25001 p	ts) CF St 800.000000 N
f 17.0		-25.287 dBm -25.757 dBm	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	Auto N
						Freq Off 0
	ef Offset 9.5 dB ef 33.70 dBm GHz MHz C X2 F X2 F X2 F X2 F X2 F X2 F X2 F X2 F	IFGain:Low ef Offset 9.5 dB ef 33.70 dBm ef 34.70 dBm ef	PRO: Far Trg: Free Ru #rGaint.ew #Atten: 36 dB ef 07mst 9.5 dB ef 33.70 dBm GHz MHz #VBW 3.0 MHz 1064 T2 GHz 52.27 dBm	Pi0: Every Pi0: Fail IFGainLow Fail From From Fail Atten: 36 dB ef 07set 9.6 dB ef 07set 9.6 dB ef 03.70 dBm of 07set 9.6 dB ef 03.70 dBm of 07set 9.6 dB ef 07set 9.6 dB of 07set 9.6 dB ef 07set 9.6 dB of 07set 9.6 dB	PRIC Far Irig: Free Run IFGanit.tw Antan: 36 dB ef Offset 9.5 dB ef 33.70 dBm ef 33.70 dBm GHz GHz MHz 27.64 T2 GHz 17.65 T2 GHz 25.87 dBm FORMUL	International State Internation Internaternation Internation Internat

Highest Channel

RL RF 50.Ω	AC	SENSE: INT	ALIGNAUTO	11:48:38 AM 3ul07, 2016	
nter Freq 16.00000			Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MUMANAN DET P P P P P P	Frequency
Ref Offset 9.5 d dB/div Ref 35.50 dB			Mkr1	16.329 60 GHz -25.088 dBm	Auto Tur
5 5 0					Center Fr 16.000000000 G
5		● \5 [*]			Start Fr 12.00000000 G
5					Stop Fr 20.000000000 G
art 12.000 GHz es BW 1.0 MHz	#VBW	3.0 MHz	Sweep 2	Stop 20.000 GHz 0.0 ms (25001 pts)	CF Ste 800.000000 M
N 1 f	× 16.329 60 GHz 16.550 08 GHz	-25.088 dBm -25.169 dBm	FUNCTION WIDTH	FUNCTION VALUE	Auto M
					Freq Offs 01
			STATUS		

Shenzhen STS Test Services Co., Ltd.



GPRS1900 BAND(30M-12G)

Lowest Channel

Center Freq 6.015000000 GHz Frain Frequency Avg Type: Log-Pwr trig: Frequency Trig: Frequency Avg Type: Log-Pwr trig: Type: Log-Pwr Trig: Type: Log-Pwr Trig	Agilent Spectrum Analyzer - Swept SA			
Inclusion Matter: 36 dB Mkr1 1.850 4.GHz Auto Tun 10 dBdd/v Ref Offset 9.6 dB 28.023 dBm Center Free 10 dBdd/v Ref 3.5.0 dBm 28.023 dBm Center Free 10 dBdd/v Ref 3.5.0 dBm 28.023 dBm Start Free 10 dBdd/v Ref 3.5.0 dBm Start Free Start Free 145 Image: Start Start Free Stort Start Free Stort Free 145 Image: Stort Start Free Stort Stort Free Stort Free 145 Image: Stort Stort Stort Free Stort Stort Free Stort Free 145 Image: Stort Stort Free Stort Stort Free Stort Free 145 Image: Stort Stort Free Stort Stort Free Stort Stort Free 120000000 GH Stort Stort Free Stort Stort Free Stort Stort Stort Free 12000000 GH Image: Stort Stort Free Stort Stort Free Stort Stort Free 1200000 GH Image: Stort Free Stort Free Stort Stort Free 1200000 GH Image: Stort Free Stort Free Stort Stort Free 1200000 GH		GHz SENSE:INT	Avg Type: Log-Pwr 1	RACE 1 2 3 4 5 6 Frequency
Log 500 500 500 500 500 500 500 50			Mkr1 1.8	50 4 GHz Auto Tune
145 300 Start Free 3000000 MH 345 300 Start Start Free 3000000 MH 345 Start Star	25.6 15.5			Center Free 6.015000000 GH
445 Stop Free 300 MHz Stop Free 1200000000 GH Start 30 MHz #VBW 3.0 MHz Stop 12.000 GHz 1200000000 GH Start 30 MHz #VBW 3.0 MHz Sweep 20.0 ms (500 Hz) 11700000 GH N f 11800 4 GHz 20.023 dBm 40000000 GH 40000000 GH N f 11800 4 GHz 20.023 dBm F0000000 GH 40000000 GH N f 11800 4 GHz 20.033 dBm F0000000 GH 40000000 GH N f 11800 6 GHz 30.438 dBm GHz Max Max S f 119000 6 GHz 30.438 dBm GHz Max Max G g g g GHz GHz </td <td>-14.5</td> <td></td> <td></td> <td>-1300 dbm 30.000000 MH;</td>	-14.5			-1300 dbm 30.000000 MH;
#Res BW 1.0 MHz #VBW 3.0 MHz Sweep 20.0 ms (25001 pts) CF Stells 100 1000 (000 KK Stells 2 X 1 1 1.1900000 GH Auto Mathematical Mathmaterial Mathmaterial Mathematical Mathematical Mathematical Math	-44.5			Stop Free 12.000000000 GH:
2 N 1 f 11:006 6 GHz .30.438 dBm 5 G 0 HZ .00 HZ .	#Res BW 1.0 MHz	Y FL	Sweep 20.0 ms	(25001 pts) CF Step 1.197000000 GH:
11 12				Freq Offse 0 H
MSG STATUS	11			

Middle Channel

ngilent Spect RL Center F	RF	50 Q	AC 000 GHz PN0: Fast			Avg	ALIGNAUTO 'ype: Log-Pwr	TRA	AM 3ul07, 2016 DE 1 2 3 4 5 6 PE P P P P P P	Frequency
10 dB/div	Ref Offset 9.5 dB Mkr1 1.880 1 GHz dB/div Ref 35.50 dBm 27.468 dBm									
25.5 15.6 5.50		♥ 1 ─								Center Fre 6.015000000 GF
4.50					2				-13.00 dBm	Start Fre 30.000000 Mi
34.5 44.5 54.5										Stop Fr 12.000000000 G
tart 30 F Res BW	1.0 MH	z	#VE	3.0 MHz		UNCTION	Sweep 2	0.0 ms (2	2.000 GHz 25001 pts)	CF St 1.197000000 G Auto M
2 N 3 4 5 6 7	ł		6.108 8 GHz	-31.050 dB						Freq Offs
7 8 9 10 11										
12 sa							STATUS	5		

Highest Channel

6	01 AM 3ul07, 2016	11:56:0	ALIGNAUTO		NSE:INT	SE		AC AC		um Anal RF		
Frequences	RACE 1 2 3 4 5 6	TR	: Log-Pwr	Avg Ty				00000 0		req 6.	r F	ļ
	DETPPPPP					#Atten: 3	PNO: Fast ⊂ IFGain:Low					
	09 8 GHz 035 dBm		Mk						ffset 9. 35.50		iv	d
Center									(1			
6.01500000				_			_		_	_		_
Start	-13.00 dBm											
30.00000				2								
				IY.,	-	-						
Stop												
12.00000000												_
	12.000 GHz									ЛНz		
1.19700000	(25001 pts)					/ 3.0 MHz	#VB		Hz	1.0 M		-
Auto	CTION VALUE	FUNC	NCTION WIDTH	INCTION		27.035 d	09 8 GHz	× 1.90		RC SCL	ET	N
-					Bm	-29.406 d	03 0 GHz	7.40		f	1	N
FreqC												
		s	STATUS									

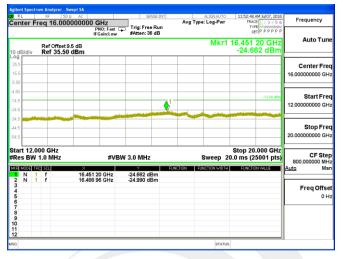
Shenzhen STS Test Services Co., Ltd.



Report No.: STS1607035F01

GPRS1900 BAND(12G-20G)

Lowest Channel



Middle Channel

RL RF	50 Ω AC		SENSE:INT		ALIGNAUTO	11:55:06 AM		Frequency
enter Freq 16		PNO: Fast C IFGain:Low	Trig: Free Run #Atten: 36 dB	Avg Typ	e: Log-Pwr	TYPE	1 2 3 4 5 6 P P P P P P	Trequency
0 dB/div Ref 3	ffset 9.5 dB 35.50 dBm	II-Gain:Low	AALEN. 30 GB		Mkr1	17.017 2	8 GHz I dBm	Auto Tu
og 25.5 15.5 5.50								Center Fr 16.00000000 G
4.50 14.5 24.5				•1			-13.00 dBm	Start Fr 12.00000000 G
4.5								Stop Fr 20.000000000 0
tart 12.000 GH Res BW 1.0 MI		#VB	W 3.0 MHz		Sweep 2	Stop 20.0 0.0 ms (250	001 pts)	CF St 800.000000 N
KE MODE TEO SCU 1 N 1 f 2 N 1 f	× 17.01 17.01	7 28 GHz 7 28 GHz	-24.911 dBm -24.911 dBm	FUNCTION	JNCTION WIDTH	FUNCTION	VALUE	Auto M
3 4 5 6 7 8 9								Freq Off 0
9 0 1								

Highest Channel

RL	RF 50	I AC		SENS	E:INT		ALIGNAUTO	11:56:33	M Jul07, 2016	
enter Fi		0000000 G	HZ NO: Fast 🖵 Gain:Low		Run	Avg Typ	e: Log-Pwr	TRAC	T P P P P P P	Frequency
dB/div	Ref Offset						Mkr1	16.608 -24.5	64 GHz 54 dBm	Auto Tur
9 i.5										Center Fre
50										16.00000000 G
50										Start Fre
.5					•				-13.00 dBm	12.000000000 GF
.5			and the second second						in the second	
.5										Stop Fr 20.000000000 G
.5										20.000000000 G
art 12.0 tes BW	00 GHz 1.0 MHz		#VBW	3.0 MHz			Sweep 2		.000 GHz 5001 pts)	CF Ste 800.000000 Mi
R MODE TR	ic sci f	× 16.608 64		-24.554 dBi	m	ICTION FI	INCTION WIDTH	FUNCTIO	N VALUE	<u>Auto</u> M
N 1	r	16.608 64	4 GHz	-24.554 dB	m					Freq Offs
5										
3										

Shenzhen STS Test Services Co., Ltd.



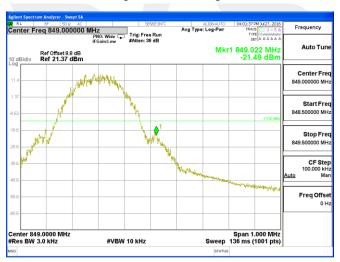
A7 BAND EDGE

GSM 850

Lowest Band Edge



Note:Offset=Cable loss(8.5)+10log(3.2/3)=8.5+0.3=8.8 dB



Highest Band Edge

Note:Offset=Cable loss(8.5)+10log(3.2/3)=8.5+0.3=8.8 dB



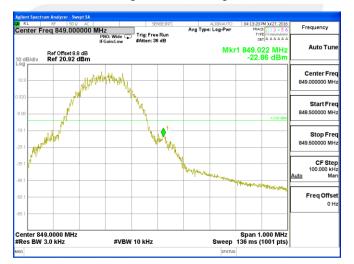
GPRS 850

Lowest Band Edge



Note:Offset=Cable loss(8.5)+10log(3.2/3)=8.5+0.3=8.8 dB

Highest Band Edge



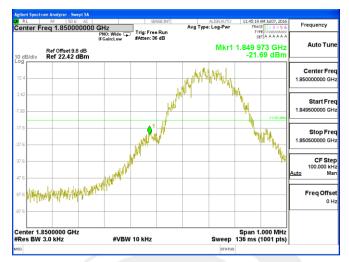
Note:Offset=Cable loss(8.5)+10log(3.2/3)=8.5+0.3=8.8 dB

Shenzhen STS Test Services Co., Ltd.



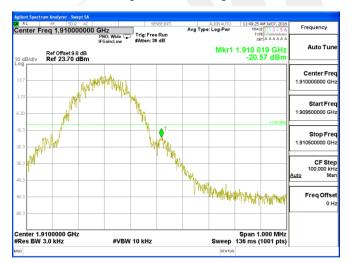
GSM 1900

Lowest Band Edge



Note:Offset=Cable loss(9.5)+10log(3.2/3)=9.5+0.3=9.8 dB

Highest Band Edge



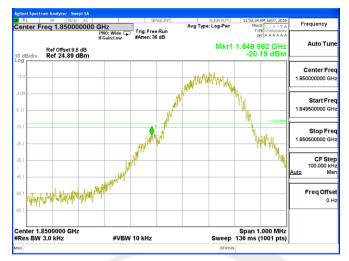
Note:Offset=Cable loss(9.5)+10log(3.2/3)=9.5+0.3=9.8 dB

Shenzhen STS Test Services Co., Ltd.



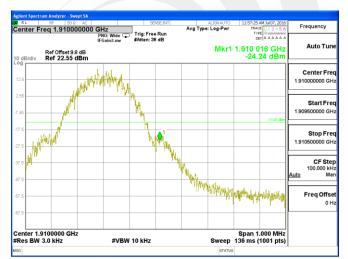
GPRS 1900

Lowest Band Edge



Note:Offset=Cable loss(9.5)+10log(3.2/3)=9.5+0.3=9.8 dB

Highest Band Edge



Note:Offset=Cable loss(9.5)+10log(3.2/3)=9.5+0.3=9.8 dB

Shenzhen STS Test Services Co., Ltd.



A8 FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

GSM 850: (30-9000)MHz

GSM 850: (30-9000)MHz								
The Worst Test Results Channel 128/824.2 MHz								
Frequency(MHz)	S G.Lev	Ant(dBi)	Cable	PMea	Limit	Margin	Polarity	
	(dBm)		Loss	(dBm)	(dBm)	(dBm)		
1648.29	-40.21	9.4	4.75	-35.56	-13	-22.56	н	
2472.65	-39.36	10.6	8.39	-37.15	-13	-24.15	н	
3296.46	-31.99	12	11.79	-31.78	-13	-18.78	Н	
1648.4	-43.66	9.4	4.75	-39.01	-13	-26.01	V	
2472.31	-45.12	10.6	8.39	-42.91	-13	-29.91	V	
3296.91	-43.55	12	11.79	-43.34	-13	-30.34	V	
	The Worst Test Results Channel 190/836.6 MHz							
	S G.Lev	Ant(dBi)	Cable	PMea	Limit	Margin	Delority	
Frequency(MHz)	(dBm)		Loss	(dBm)	(dBm)	(dBm)	Polarity	
1673.04	-41.57	9.5	4.76	-36.83	-13	-23.83	н	
2509.61	-39.22	10.7	8.4	-36.92	-13	-23.92	н	
3346.31	-31.49	12.2	11.8	-31.09	-13	-18.09	Н	
1673.06	-44.11	9.4	4.75	-39.46	-13	-26.46	V	
2509.45	-45.17	10.6	8.39	-42.96	-13	-29.96	V	
3346.18	-43.22	12.2	11.82	-42.84	-13	-29.84	V	
	The W	orst Test R	esults Ch	annel 251/	848.8 MHz			
	S G.Lev		Cable	PMea	Limit	Margin	Delority	
Frequency(MHz)	(dBm)	Ant(dBi)	Loss	(dBm)	(dBm)	(dBm)	Polarity	
1697.58	-41.14	9.6	4.77	-36.31	-13	-23.31	Н	
2546.32	-40.18	10.8	8.5	-37.88	-13	-24.88	Н	
3394.88	-31.92	12.5	11.9	-31.32	-13	-18.32	Н	
1697.3	-43.56	9.6	4.77	-38.73	-13	-25.73	V	
2546.33	-44.89	10.8	8.5	-42.59	-13	-29.59	V	
3395.13	-43.94	12.5	11.9	-43.34	-13	-30.34	V	

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 3.5GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.



Report No.: STS1607035F01

GPRS 850: (30-9000)MHz

GPRS 850: (30-9000)MHz							
The Worst Test Results Channel 128/824.2 MHz							
Frequency(MHz)	S G.Lev	Ant(dBi)	Cable	PMea	Limit	Margin	Polarity
	(dBm)	Ant(dBi)	Loss	(dBm)	(dBm)	(dBm)	
1648.48	-40.79	9.4	4.75	-36.14	-13	-23.14	н
2472.39	-39.74	10.6	8.39	-37.53	-13	-24.53	н
3296.68	-30.93	12	11.79	-30.72	-13	-17.72	Н
1648.11	-43.24	9.4	4.75	-38.59	-13	-25.59	V
2472.69	-45.26	10.6	8.39	-43.05	-13	-30.05	V
3296.92	-43.41	12	11.79	-43.2	-13	-30.2	V
The Worst Test Results Channel 190/836.6 MHz							
	S G.Lev	Ant(dBi)	Cable	PMea	Limit	Margin	Bolarity
Frequency(MHz)	(dBm)		Loss	(dBm)	(dBm)	(dBm)	Polarity
1673.23	-40.91	9.5	4.76	-36.17	-13	-23.17	Н
2509.7	-40.18	10.7	8.4	-37.88	-13	-24.88	Н
3346.02	-31.43	12.2	11.8	-31.03	-13	-18.03	н
1672.94	-43.51	9.4	4.75	-38.86	-13	-25.86	V
2509.7	-44.46	10.6	8.39	-42.25	-13	-29.25	V
3345.96	-42.71	12.2	11.82	-42.33	-13	-29.33	V
The Worst Test Results Channel 251/848.8 MHz							
	S G.Lev	Apt(dBi)	Cable	PMea	Limit	Margin	Delority
Frequency(MHz)	(dBm)	Ant(dBi)	Loss	(dBm)	(dBm)	(dBm)	Polarity
1697.34	-41.58	9.6	4.77	-36.75	-13	-23.75	Н
2546.47	-39.94	10.8	8.5	-37.64	-13	-24.64	Н
3395.03	-31.13	12.5	11.9	-30.53	-13	-17.53	Н
1697.31	-43.51	9.6	4.77	-38.68	-13	-25.68	V
2546.31	-44.13	10.8	8.5	-41.83	-13	-28.83	V
3395.25	-43.86	12.5	11.9	-43.26	-13	-30.26	V

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 3.5GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.



Report No.: STS1607035F01

PCS 1900: (30-20000)MHz

DCS 1900: (30-20000)MHz									
The Worst Test Results for Channel 512/1850.2MHz									
Frequency(MHz)	S G.Lev	Anot(dDi)	Cable	PMea	Limit	Margin	Polarity		
	(dBm)	Ant(dBi)	Loss	(dBm)	(dBm)	(dBm)			
3700.05	-34.48	12.6	12.93	-34.81	-13	-21.81	Н		
5550.55	-34.38	13.1	17.11	-38.39	-13	-25.39	Н		
7400.59	-32.22	11.5	22.2	-42.92	-13	-29.92	Н		
3700.51	-34.74	12.6	12.93	-35.07	-13	-22.07	V		
5550.47	-34.01	13.1	17.11	-38.02	-13	-25.02	V		
7400.58	-32.59	11.5	22.2	-43.29	-13	-30.29	V		
	The Worst Test Results for Channel 661/1880.0MHz								
	S G.Lev	Ant(dBi)	Cable	PMea	Limit	Margin	Delority		
Frequency(MHz)	(dBm)		Loss	(dBm)	(dBm)	(dBm)	Polarity		
3760.21	-34.52	12.6	12.93	-34.85	-13	-21.85	Н		
5640.19	-34.65	13.1	17.11	-38.66	-13	-25.66	Н		
7519.97	-33.01	11.5	22.2	-43.71	-13	-30.71	Н		
3760.19	-35.32	12.6	12.93	-35.65	-13	-22.65	V		
5639.98	-33.87	13.1	17.11	-37.88	-13	-24.88	V		
7520.23	-32.25	11.5	22.2	-42.95	-13	-29.95	V		
	The Wor	st Test Res	sults for C	hannel 810)/1909.8MH	Z	-		
	S G.Lev	Apt(dDi)	Cable	PMea	Limit	Margin	Delority		
Frequency(MHz)	(dBm)	Ant(dBi)	Loss	(dBm)	(dBm)	(dBm)	Polarity		
3819.67	-34.51	12.6	12.93	-34.84	-13	-21.84	н		
5729.5	-34.31	13.1	17.11	-38.32	-13	-25.32	Н		
7639.21	-32.71	11.5	22.2	-43.41	-13	-30.41	Н		
3819.42	-35.08	12.6	12.93	-35.41	-13	-22.41	V		
5729.27	-35.14	13.1	17.11	-39.15	-13	-26.15	V		
7639.07	-32.97	11.5	22.2	-43.67	-13	-30.67	V		

Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 8GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.



Report No.: STS1607035F01

GPRS 1900: (30-20000)MHz

GPRS1900: (30-20000)MHz							
The Worst Test Results for Channel 512/1850.2MHz							
Frequency(MHz)	S G.Lev	Ant(dBi)	Cable	PMea	Limit	Margin	Delority
	(dBm)		Loss	(dBm)	(dBm)	(dBm)	Polarity
3700.33	-34.88	12.6	12.93	-35.21	-13	-22.21	Н
5550.57	-34.22	13.1	17.11	-38.23	-13	-25.23	Н
7400.53	-33.37	11.5	22.2	-44.07	-13	-31.07	Н
3700.51	-35.17	12.6	12.93	-35.5	-13	-22.50	V
5550.29	-34.02	13.1	17.11	-38.03	-13	-25.03	V
7400.59	-32.67	11.5	22.2	-43.37	-13	-30.37	V
	The Wor	st Test Res	sults for C	hannel 661	/1880.0MH	z	
	S G.Lev	Ant(dDi)	Cable	PMea	Limit	Margin	Delerity
Frequency(MHz)	(dBm)	Ant(dBi)	Loss	(dBm)	(dBm)	(dBm)	Polarity
3760.13	-34.64	12.6	12.93	-34.97	-13	-21.97	Н
5639.86	-34.09	13.1	17.11	-38.1	-13	-25.10	н
7519.86	-32.52	11.5	22.2	-43.22	-13	-30.22	н
3760.25	-34.82	12.6	12.93	-35.15	-13	-22.15	V
5640.01	-35.13	13.1	17.11	-39.14	-13	-26.14	V
7519.98	-32.31	11.5	22.2	-43.01	-13	-30.01	V
	The Wor	st Test Res	sults for C	hannel 810)/1909.8MH	Z	
Frequency(MHz)	S	Ant(dBi)	Cable	PMea	Limit	Margin	
	G.Level				(dBm)	(dBm)	Polarity
	(dBm)		Loss				
3819.58	-34.11	12.6	12.93	-34.44	-13	-21.44	н
5729.03	-34.36	13.1	17.11	-38.37	-13	-25.37	Н
7638.94	-33.1	11.5	22.2	-43.8	-13	-30.80	Н
3819.71	-34.84	12.6	12.93	-35.17	-13	-22.17	V
5729.44	-34.97	13.1	17.11	-38.98	-13	-25.98	V
7639.02	-31.77	11.5	22.2	-42.47	-13	-29.47	V

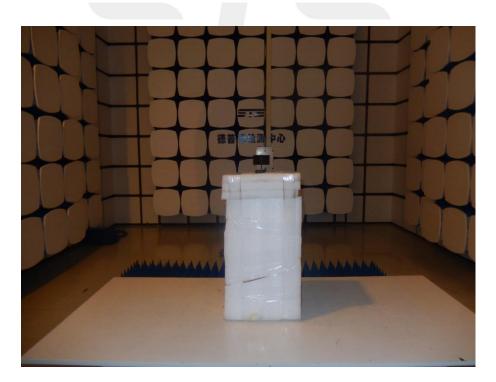
Note: (1)Below 30MHz no Spurious found is the worst condition.

(2)Above 8GHz amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has.



APPENDIX BPHOTOS OF TEST SETUP

RADIATED SPURIOUS EMISSION



Shenzhen STS Test Services Co., Ltd.