

# **RADIO TEST REPORT**

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## Report No: STS1512058F01

Issued for

Shenzhen KVD Communications Equipment Limited

Room 13C,Block C,Electronics Science and Technology Building,Shennan Road Middle,Shenzhen City,Guangdong Province,China

Product Name:	GSM/WCDMA Smartphone
Brand Name:	DOOGEE
Model No.:	Х3
Series Model:	X3 Pro,X3 C,X3 Plus
FCC ID:	2AFPY-X3
Test Standard:	FCC Part 22H and 24E



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Report No.: STS1512058F01

## **TEST RESULT CERTIFICATION**

Applicant's name	Shenzhen KVD Communications Equipment Limited
Address:	Room 13C,Block C,Electronics Science and Technology Building, Shennan Road Middle,Shenzhen City,Guangdong Province,China
Manufacture's Name	Shenzhen KVD Communications Equipment Limited
Address:	The second floor in A2 building, Silicon valley power new material industrial park,Zongyi Road,Dafu industrial park,Guanlan Guanguang Road,Baoan district,Shenzhen City,China
Product name:	GSM/WCDMA Smartphone
Brand name:	DOOGEE
Model and/or type reference:	X3
Standards	FCC Part 22H and 24E
Test procedure	TIA 603 C

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 ...... 08 Dec. 2015 ~15 Dec. 2015

Date of Issue ...... 16 Dec. 2015

Test Result..... Pass

Testing Engineer :	Finning
Technical Manager :	(Jin Ming) (Jin Ming) (Vita Li) (Vita Li)
Authorized Signatory :	(Bovey Yang)
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Shenzhen STS Test

hen, Guangdong, China



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## **Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	16 Dec. 2015	STS1512058F01	ALL	Initial Issue



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## 1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

The radiated emission testing was performed according to the procedures of ansi C63.10: 2009; TIA 603 C and fcc cfr 47 rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057

Item Number		Item Description	FCC Rules	
1	Output	Conducted output power	22.012(a) / 24.222(b)	
1	Power	Radiated output power	22.913(a) / 24.232 (b)	
2	Spurious Emission	Conducted spurious emission Radiated spurious emission	2.1051 / 22.917 / 24.238	
3	Frequency Stability		2.1055 /24.235	
4	Occupied Bandwidth		2.1049 (h)(i)	
5	Emission Bandwidth		22.917(b) / 24.238 (b)	
6	Band Edge		22.917(b) / 24.238 (b)	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

## 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 reported uncertainty of measurement  $y \pm U$ , where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	Conducted Emission (9KHz-150KHz)	±2.88dB
2	Conducted Emission (150KHz-30MHz)	±2.67dB
3	RF power,conducted	±0.70dB
4	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. GENERAL INFORMATION

## 2.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	GSM/WCDMA Smartphone			
Hardware version:				
Software version:				
FCC ID:	2AFPY-X3			
	☐GSM 850 ☐PCS 1900 (U.S. Bands)			
	GSM 900 DCS 1800 (Non-U.S. Bands)			
Frequency Bands:	UMTS FDD Band II UMTS FDD Band V			
	UMTS FDD Band IV			
	Non-U.S. Bands:			
	UMTS FDD Band I UMTS FDD Band VIII			
Max RF Output Power:	GSM850:32.18dBm,GSM1900:27.12dBm WCDMA Band V:26.29dBm,WCDMA Band II:25.54dBm			
Type of Emission:	GSM(850):315KGXW: GSM(1900):319KGXW GPRS(850):318KGXW; GPRS(1900):321KGXW EDGE(850):319KG7W: EDGE(1900):317KG7W WCDMA850:4M69F9W WCDMA1900:4M69F9W			
SIM Card	Support dual-SIM, dual standby, the multiple SIM card with two lines can not transmitting at the same time			
Antenna:	PIFA Antenna			
Antonno goini	GSM 850/ WCDMA Band V :-1 dBi			
Antenna gain:	GSM1900/ WCDMA Band II:-0.8 dBi			
Power Supply:	DC 3.7V by battery			
Adapter	Input: AC100-240V, 150mA, 50/60 Hz Output: DC 5V, 1000mA			
Battery parameter:	Capacitance: 1800mAh, Rated Voltage: 3.7V			
GPRS/EDGE Class	Multi-Class12			



## 2.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for FCC ID: 2AFPY-X3 filing to comply with the fcc part 22H&24E.

## 2.3 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with eut intended for fcc grant together.

## 2.4 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

## 2.5 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

## 2.6 CONFIGURATION OF EUT SYSTEM

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.



## Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	GSM/WCDMA Smartphone	X3	FCC ID: 2AFPY-X3	EUT

Note: All the accessories have been used during the test. the following "EUT" in setup diagram means EUT system.



## 2.7 MEASUREMENT INSTRUMENTS

The radiated emission testing was performed according to the procedures of ansi C 63.10: 2009; TIA 603C and fcc cfr 47 rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last Calibration	Calibrated Until
Spectrum Analyzer	Agilent	E4407B	MY50140340	2015.10.25	2016.10.24
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 (measurement)	TESEQ	CBL6111D (30MHz-1GHz)	34678	2015.11.25	2016.11.24
Horn Antenna (measurement)	Schwarzbeck	BBHA 9120D(1201) (1GHz-18GHz)	9120D-1343	2015.03.06	2016.03.05
STS-E048	MXA SIGNAL Analyzer	Agilent	N9020A	2015.10.25	2016.10.24
Logarithm -Antenna(substituted)	Schwarzbeck	VUSLP 9111 (200MHz-4GHz)	9111-512	2015.09.03	2016.09.02
Horn-Antenna(substituted)	Schwarzbeck	BBHA9120D (1GHz-18GHz)	D:266	2015.03.06	2016.03.05



## 3. DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200) to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on both GPRS850 and GPRS1900 frequency band.

Note: GSM/GPRS/EDGES850, GSM/GPRS/EDGE1900, HSDPA band V, HSUPA band V And HSDPA band II, HSUPA band II modes have been tested during the test.

the worst condition (GPRS/EDGE 850) be recorded in the test report if no other modes test data.



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## 4. OUTPUT POWER

4.1 CONDUCTED OUTPUT POWER

## 4.1.1 MEASUREMENT METHOD

The EUT was setup for the max output power with pseudo random data modulation. Power was measured with Spectrum Analyzer. The measurements were performed on all modes(GSM/GPRS /EDGE850, GSM/GPRS/EDGE1900, HSDPA /HSUPA band V, HSDPA /HSUPA band II) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

#### 4.1.2 MEASUREMENT RESULT

#### GSM 850:

Mode	Frequency (MHz)	Peak Power	AVG Power
	824.2	32.06	31.87
GSM850	836.6	31.99	31.83
	848.8	32.18	31.97
	824.2	31.98	31.87
GPRS850	836.6	31.93	31.77
(1 Slot)	848.8	32.16	31.90
	824.2	31.06	31.03
GPRS850	836.6	31.08	30.87
(2 Slot)	848.8	31.21	31.02
0000050	824.2	29.84	29.64
GPRS850	836.6	29.69	29.56
(3 Slot)	848.8	29.93	29.72
0000050	824.2	29.31	29.05
GPRS850	836.6	29.17	29.00
(4 Slot)	848.8	29.37	29.09
5005050	824.2	31.91	31.87
EDGE850	836.6	31.92	31.71
(1 Slot)	848.8	32.12	31.87
	824.2	31.16	30.96
EDGE850	836.6	31.02	30.79
(2 Slot)	848.8	31.19	30.94
FDOFOS	824.2	29.89	29.57
EDGE850	836.6	29.76	29.43
(3 Slot)	848.8	29.96	29.55
	824.2	29.33	29.01
EDGE850	836.6	29.23	28.87
(4 Slot)	848.8	29.30	28.92

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PCS 1900:

Mode	Frequency (MHz)	Peak Power	AVG Power
	1850.2	26.94	26.84
GSM1900	1880	27.08	27.95
	1909.8	27.12	27.01
00004000	1850.2	26.85	26.82
GPRS1900 (1 Slot)	1880	27.06	27.94
(1 5101)	1909.8	27.08	26.99
00004000	1850.2	26.01	25.90
GPRS1900 (2 Slot)	1880	26.19	27.08
(2 0101)	1909.8	26.13	26.21
00004000	1850.2	24.79	24.67
GPRS1900 (3 Slot)	1880	24.86	25.75
(3 3101)	1909.8	24.83	24.87
00004000	1850.2	24.17	24.10
GPRS1900 (4 Slot)	1880	24.19	25.08
(4 3101)	1909.8	24.19	24.36
	1850.2	26.82	26.77
EDGE1900 (1 Slot)	1880	26.98	27.91
(1 300)	1909.8	27.01	26.94
	1850.2	25.87	25.93
EDGE1900 (2 Slot)	1880	26.19	27.04
	1909.8	26.18	25.99
	1850.2	24.47	24.72
EDGE1900 (3 Slot)	1880	24.89	25.74
(5 5)0()	1909.8	24.85	24.73
	1850.2	23.90	24.06
EDGE1900 (4 Slot)	1880	24.27	25.17
(4 0101)	1909.8	24.27	24.17

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UMTS BAND V

Mode	Frequency(MHz)	Peak Power	AVG Power
	826.4	26.08	22.70
WCDMA 850 RMC	836.6	26.29	22.95
RIVIC	846.6	25.99	22.71
	826.4	25.65	22.27
HSDPA Subtest 1	836.6	25.86	22.54
Sublest	846.6	25.52	22.23
	826.4	25.22	21.71
HSDPA Subtest 2	836.6	25.48	22.05
Sublest 2	846.6	25.09	21.89
	826.4	24.76	21.22
HSDPA Subtest 3	836.6	25.01	21.58
Sublest 3	846.6	24.64	21.45
	826.4	24.12	20.69
HSDPA Subtest 4	836.6	24.47	20.97
Sublest 4	846.6	24.06	20.94
	826.4	25.19	21.84
HSUPA Subtest 1	836.6	25.39	22.13
Sublest	846.6	25.11	21.82
	826.4	24.83	21.37
HSUPA Subtest 2	836.6	24.99	21.57
Sublest 2	846.6	24.53	21.28
	826.4	24.33	20.87
HSUPA Subtest 3	836.6	24.56	21.12
	846.6	24.07	20.82
	826.4	23.72	20.27
HSUPA Subtest 4	836.6	24.01	20.51
JUDIESI 4	846.6	23.42	20.29
	826.4	23.15	19.68
HSUPA	836.6	23.34	19.83
Subtest 5	846.6	22.88	19.73

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UMTS BAND II

Mode	Frequency(MHz)	Peak Power	AVG Power
	1852.4	25.54	22.34
WCDMA 1900 RMC	1880	24.91	22.34
KWC	1907.6	24.80	22.39
	1852.4	25.11	21.86
HSDPA Subtest 1	1880	24.50	21.90
Sublest	1907.6	24.36	21.97
	1852.4	24.73	21.44
HSDPA Subtest 2	1880	24.10	21.44
Sublesi 2	1907.6	23.80	21.52
	1852.4	24.25	20.96
HSDPA Subtest 3	1880	23.70	20.98
Sublesi 3	1907.6	23.32	21.12
	1852.4	23.65	20.38
HSDPA	1880	23.16	20.45
Subtest 4	1907.6	22.65	20.45
	1852.4	24.67	21.36
HSUPA	1880	24.09	21.49
Subtest 1	1907.6	23.87	21.55
	1852.4	24.26	21.00
HSUPA Subtest 2	1880	23.65	21.04
Sublest 2	1907.6	23.48	21.16
	1852.4	23.78	20.56
HSUPA Subtest 3	1880	23.18	20.61
SUDIESI 3	1907.6	23.04	20.75
	1852.4	23.20	20.01
HSUPA	1880	22.66	19.97
Subtest 4	1907.6	22.53	20.09
	1852.4	22.67	19.32
HSUPA	1880	22.15	19.41
Subtest 5	1907.6	21.88	19.52



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According to 3GPP 25.101 sub-clause 6.2.2, the maximum output power is allowed to be reduced by following the table.

Table 6.1aA: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM(db)	MPR(db)	
For all combinations of ,DPDCH,DPCCH	0≤ CM≤3.5		
HS-DPDCH, E-DPDCH and E-DPCCH	0≤ CIVI≤3.5	MAX(CM-1,0)	
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Note: CM=1 for  $\beta_{c}/\beta_{d}=12/15$ ,  $\beta_{hs}/\beta_{c}=24/15$ .For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the GSM/GPRS/EDGE,HSDPA/HSUPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSUPA mode since the device also provides a compensate for the power back-off by increasing the gain of TX\_AGC in the transceiver (PA) device.

The end effect is that the DUT output power is identical to the case where there is no MPR in the device.

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## 4.2 PEAK-TO-AVERAGE RADIO (PAR) OF TRANSMITTER

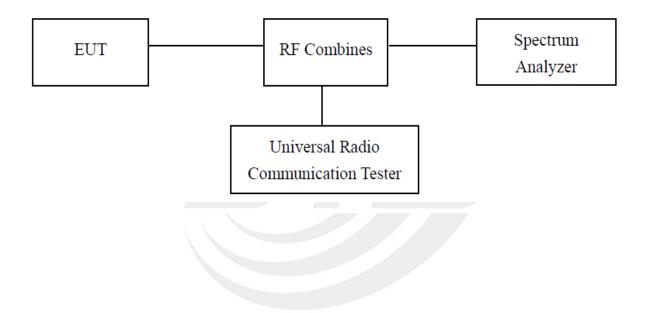
#### 4.2.1 STANDARD APPLICABLE

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.

#### 4.2.2 TEST PROCEDURE

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 30kHz and the peak-to-average ratio (PAR) of the transmission was recorded.

Test Configuration for the emission bandwidth testing:





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## 4.2.3 SUMMARY OF TEST RESULTS

GSM	850
COIVI	000.

Mode	Frequency (MHz)	Peak Power	AVG Power	PAR	Limit
	824.20	32.06	31.87	0.19	13.00
GSM850	836.60	31.99	31.83	0.16	13.00
	848.80	32.18	31.97	0.21	13.00
	824.20	31.98	31.87	0.11	13.00
GPRS850 (1 Slot)	836.60	31.93	31.77	0.16	13.00
	848.80	32.16	31.90	0.26	13.00
	824.20	31.06	31.03	0.03	13.00
GPRS850 (2 Slot)	836.60	31.08	30.87	0.21	13.00
(2 000)	848.80	31.21	31.02	0.19	13.00
0000000	824.20	29.84	29.64	0.20	13.00
GPRS850 (3 Slot)	836.60	29.69	29.56	0.13	13.00
(3 5101)	848.80	29.93	29.72	0.21	13.00
0000000	824.20	29.31	29.05	0.26	13.00
GPRS850 (4 Slot)	836.60	29.17	29.00	0.17	13.00
(4 300)	848.80	29.37	29.09	0.28	13.00
	824.20	31.91	31.87	0.04	13.00
EDGE850 (1 Slot)	836.60	31.92	31.71	0.21	13.00
(1 300)	848.80	32.12	31.87	0.25	13.00
	824.20	31.16	30.96	0.20	13.00
EDGE850	836.60	31.02	30.79	0.23	13.00
(2 Slot)	848.80	31.19	30.94	0.25	13.00
	824.20	29.89	29.57	0.32	13.00
EDGE850 (3 Slot)	836.60	29.76	29.43	0.33	13.00
	848.80	29.96	29.55	0.41	13.00
	824.20	29.33	29.01	0.32	13.00
EDGE850	836.60	29.23	28.87	0.36	13.00
(4 Slot)	848.80	29.30	28.92	0.38	13.00



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PCS 1900:

Mode	Frequency (MHz)	Peak Power	AVG Power	PAR	Limit
	1850.20	26.94	26.84	0.10	13.00
GSM1900	1880.00	27.08	27.95	-0.87	13.00
	1909.80	27.12	27.01	0.11	13.00
00004000	1850.20	26.85	26.82	0.03	13.00
GPRS1900 (1 Slot)	1880.00	27.06	27.94	-0.88	13.00
(1 000)	1909.80	27.08	26.99	0.09	13.00
00004000	1850.20	26.01	25.90	0.11	13.00
GPRS1900 (2 Slot)	1880.00	26.19	27.08	-0.89	13.00
(2 000)	1909.80	26.13	26.21	-0.08	13.00
00004000	1850.20	24.79	24.67	0.12	13.00
GPRS1900 (3 Slot)	1880.00	24.86	25.75	-0.89	13.00
(3 8101)	1909.80	24.83	24.87	-0.04	13.00
00004000	1850.20	24.17	24.10	0.07	13.00
GPRS1900 (4 Slot)	1880.00	24.19	25.08	-0.89	13.00
(4 0101)	1909.80	24.19	24.36	-0.17	13.00
	1850.20	26.82	26.77	0.05	13.00
EDGE1900 (1 Slot)	1880.00	26.98	27.91	-0.93	13.00
(1 300)	1909.80	27.01	26.94	0.07	13.00
	1850.20	25.87	25.93	-0.06	13.00
EDGE1900 (2 Slot)	1880.00	26.19	27.04	-0.85	13.00
(2 0101)	1909.80	26.18	25.99	0.19	13.00
	1850.20	24.47	24.72	-0.25	13.00
EDGE1900 (3 Slot)	1880.00	24.89	25.74	-0.85	13.00
	1909.80	24.85	24.73	0.12	13.00
	1850.20	23.90	24.06	-0.16	13.00
EDGE1900 (4 Slot)	1880.00	24.27	25.17	-0.90	13.00
(4 3101)	1909.80	24.27	24.17	0.10	13.00



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UMTS BAND V

Mode	Frequency (MHz)	Peak Power	AVG Power	PAR	Limit
	826.40	26.08	22.70	3.38	13.00
WCDMA 850 RMC	836.60	26.29	22.95	3.34	13.00
RIVIC	846.60	25.99	22.71	3.28	13.00
	826.40	25.65	22.27	3.38	13.00
HSDPA Subtest 1	836.60	25.86	22.54	3.32	13.00
Sublest	846.60	25.52	22.23	3.29	13.00
	826.40	25.22	21.71	3.51	13.00
HSDPA Subtest 2	836.60	25.48	22.05	3.43	13.00
Sublest 2	846.60	25.09	21.89	3.20	13.00
	826.40	24.76	21.22	3.54	13.00
HSDPA Subtest 3	836.60	25.01	21.58	3.43	13.00
Sublest 3	846.60	24.64	21.45	3.19	13.00
	826.40	24.12	20.69	3.43	13.00
HSDPA Subtest 4	836.60	24.47	20.97	3.50	13.00
Sublest 4	846.60	24.06	20.94	3.12	13.00
	826.40	25.19	21.84	3.35	13.00
HSUPA Subtest 1	836.60	25.39	22.13	3.26	13.00
Sublesi	846.60	25.11	21.82	3.29	13.00
	826.40	24.83	21.37	3.46	13.00
HSUPA Subtest 2	836.60	24.99	21.57	3.42	13.00
Sublest 2	846.60	24.53	21.28	3.25	13.00
	826.40	24.33	20.87	3.46	13.00
HSUPA	836.60	24.56	21.12	3.44	13.00
Subtest 3	846.60	24.07	20.82	3.25	13.00
	826.40	23.72	20.27	3.45	13.00
HSUPA	836.60	24.01	20.51	3.50	13.00
Subtest 4	846.60	23.42	20.29	3.13	13.00
	826.40	23.15	19.68	3.47	13.00
HSUPA	836.60	23.34	19.83	3.51	13.00
Subtest 5	846.60	22.88	19.73	3.15	13.00



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UMTS BAND II

Mode	Frequency (MHz)	Peak Power	AVG Power	PAR	Limit
	1852.40	25.54	22.34	3.20	13.00
WCDMA 1900 RMC	1880.00	24.91	22.34	2.57	13.00
	1907.60	24.80	22.39	2.41	13.00
	1852.40	25.11	21.86	3.25	13.00
HSDPA Subtest 1	1880.00	24.50	21.90	2.60	13.00
Sublest	1907.60	24.36	21.97	2.39	13.00
	1852.40	24.73	21.44	3.29	13.00
HSDPA	1880.00	24.10	21.44	2.66	13.00
Subtest 2	1907.60	23.80	21.52	2.28	13.00
	1852.40	24.25	20.96	3.29	13.00
HSDPA	1880.00	23.70	20.98	2.72	13.00
Subtest 3	1907.60	23.32	21.12	2.20	13.00
	1852.40	23.65	20.38	3.27	13.00
HSDPA	1880.00	23.16	20.45	2.71	13.00
Subtest 4	1907.60	22.65	20.45	2.20	13.00
	1852.40	24.67	21.36	3.31	13.00
HSUPA	1880.00	24.09	21.49	2.60	13.00
Subtest 1	1907.60	23.87	21.55	2.32	13.00
	1852.40	24.26	21.00	3.26	13.00
HSUPA Subtest 2	1880.00	23.65	21.04	2.61	13.00
Sublest 2	1907.60	23.48	21.16	2.32	13.00
	1852.40	23.78	20.56	3.22	13.00
HSUPA	1880.00	23.18	20.61	2.57	13.00
Subtest 3	1907.60	23.04	20.75	2.29	13.00
	1852.40	23.20	20.01	3.19	13.00
HSUPA	1880.00	22.66	19.97	2.69	13.00
Subtest 4	1907.60	22.53	20.09	2.44	13.00
	1852.40	22.67	19.32	3.35	13.00
HSUPA	1880.00	22.15	19.41	2.74	13.00
Subtest 5	1907.60	21.88	19.52	2.36	13.00

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## 4.3 RADIATED OUTPUT POWER

## 4.3.1 MEASUREMENT METHOD

The EUT was setup for the max output power with pseudo random data modulation. Power was measured with Spectrum Analyzer. The measurements were performed on all mod-es(GSM/GPRS/EDGE850, GSM/GPRS/EDGE1900, HSDPA/HSUPA band V, HSDPA/HSUPA band II) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

The measurements procedures specified in TIA-603C-2009 were applied.

- 1.In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (Pin) is applied to the input of the dipole, and the power received (Pr) at the chamber's probe antenna is recorded.
- 2. The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established as ARpI=Pin + 2.15 Pr. The ARpI is the attenuation of "reference path loss", and including the gain of receive antenna, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpI
- 3. The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.
- 4. From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.
- 5. The EUT is then put into continuously transmitting mode at its maximum power level.
- 6.Power mode measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 24.232 (b) and (c). The "reference path loss" from Step1 is added to this result.
- 7.This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (Pin).
- 8.ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi..
  9.Both Horizontal And Vertical Antenna Polarities Were Tested And Performed Pretest To Three Orthogonal Axis. The Worst Case Emissions Were Reported

4.3.2 PROVISIONS APPLICABLE

This is the test for the maximum radiated power from the EUT. Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage." Rule Part 22.913(a) specifies "Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

Mode	Nominal Peak Power
GSM 850	<=38.45 dBm (7W)
PCS 1900	<=33 dBm (2W)
UMTS BAND V	<=38.45 dBm (7W)
UMTS BAND II	<=33 dBm (2W)



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## 4.3.3 MEASUREMENT RESULT

Radiated Power (ERP) for GSM 850 MHZ						
		Result				
Mode	Frequency	Frequency Max. Peak ERP		Conclusion		
		(dBm)	Of Max. ERP			
	824.2	26.82	Horizontal	Pass		
	824.2	28.91	Vertical	Pass		
GSM850	836.6	27.10	Horizontal	Pass		
6310000	836.6	28.98	Vertical	Pass		
	848.8	26.81	Horizontal	Pass		
	848.8	28.81	Vertical	Pass		

Radiated Power (ERP) for GPRS 850 MHZ						
		Result				
Mode	Frequency Max. Peak ERP		Polarization	Conclusion		
		(dBm)	Of Max. ERP			
	824.2	26.81	Horizontal	Pass		
	824.2	29.01	Vertical	Pass		
GPRS850	836.6	26.86	Horizontal	Pass		
GF 13030	836.6	28.85	Vertical	Pass		
	848.8	26.98	Horizontal	Pass		
	848.8	28.93	Vertical	Pass		

Radiated Power (ERP) for EDGE 850 MHZ							
		Re					
Mode	Frequency	Frequency Max. Peak ERP		Conclusion			
		(dBm)	Of Max. ERP				
	824.2	26.91	Horizontal	Pass			
	824.2	28.82	Vertical	Pass			
EDGE850	836.6	26.88	Horizontal	Pass			
EDGE050	836.6	28.90	Vertical	Pass			
	848.8	26.92	Horizontal	Pass			
	848.8	28.82	Vertical	Pass			



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Radiated Power (EIRP) for PCS 1900 MHZ							
		Re					
Mode	Frequency	Frequency Max. Peak		Conclusion			
		E.I.R.P.(dBm)	Of Max. E.I.R.P.				
	1850.2	21.82	Horizontal	Pass			
	1850.2	23.88	Vertical	Pass			
PCS1900	1880.0	21.84	Horizontal	Pass			
PC31900	1880.0	23.92	Vertical	Pass			
	1909.8	21.94	Horizontal	Pass			
	1909.8	23.86	Vertical	Pass			

Radiated Power (EIRP) for GPRS 1900 MHZ							
		Re					
Mode	Frequency	Frequency Max. Peak		Conclusion			
		E.I.R.P.(dBm)	Of Max. E.I.R.P.				
	1850.2	21.99	Horizontal	Pass			
	1850.2	24.00	Vertical	Pass			
GPRS 1900 -	1880.0	21.91	Horizontal	Pass			
GFK3 1900	1880.0	24.01	Vertical	Pass			
	1909.8	21.88	Horizontal	Pass			
	1909.8	24.02	Vertical	Pass			

Radiated Power (EIRP) for EDGE 1900 MHZ							
		Re					
Mode	Frequency	Frequency Max. Peak		Conclusion			
		E.I.R.P.(dBm)	Of Max. E.I.R.P.				
	1850.2	21.81	Horizontal	Pass			
	1850.2	23.84	Vertical	Pass			
EDGE 1900	1880.0	21.96	Horizontal	Pass			
EDGE 1900	1880.0	24.01	Vertical	Pass			
	1909.8	21.87	Horizontal	Pass			
	1909.8	23.92	Vertical	Pass			

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Radiated Power (ERP) for UMTS band $\vee$							
		Re					
Mode	Frequency	Frequency Max. Peak		Conclusion			
		E.I.R.P.(dBm)	Of Max. E.I.R.P.				
	826.4	21.89	Horizontal	Pass			
	826.4	22.91	Vertical	Pass			
RMC	836.6	21.87	Horizontal	Pass			
12.2kbps	836.6	22.95	Vertical	Pass			
-	846.6	21.87	Horizontal	Pass			
-	846.6	22.72	Vertical	Pass			

Radiated Power (EIRP) for UMTS band II							
		Re					
Mode	Frequency	Max. Peak	Polarization	Conclusion			
		E.I.R.P.(dBm)	Of Max. E.I.R.P.				
	1852.4	21.01	Horizontal	Pass			
	1852.4	21.86	Vertical	Pass			
RMC	1880	20.83	Horizontal	Pass			
12.2kbps	1880	21.94	Vertical	Pass			
-	1907.6	21.02	Horizontal	Pass			
	1907.6	21.93	Vertical	Pass			

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#### 5. SPURIOUS EMISSION

## 5.1 SPURIOUS EMISSION

#### **5.1.1 MEASUREMENT METHOD**

The following steps outline the procedure used to measure the conducted emissions from the EUT. 1.Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment of PCS1900 band, this equates to a frequency range of 30 MHz to 20 GHz, For the equipment of band II, data taken from 30 MHz to 20 GHz. For GSM850, data taken from 30 MHz to 9 GHz.

2. Determine EUT transmit frequencies: the following typical channels were chosen to conducted emissions testing.

Typical Channels for testing of GSM/GPRS/EDGE 850 MHz					
Channel Frequency (MHz)					
128	824.2				
190	836.6				
251	848.8				

Typical Channels for testing of PCS/ GPRS/EDGE 1900 MHz						
Channel Frequency (MHz)						
512	1850.2					
661	1880.0					
810	1909.8					

Typical Channels for testing of UMTS band V					
Channel	Frequency (MHz)				
4132	826.4				
4183	836.6				
4233	846.6				

Typical Channels for testing of UMTS band II					
Channel	Frequency (MHz)				
9262	1852.4				
9400	1880.0				
9538	1907.6				



## 5.1.2 PROVISIONS APPLICABLE

On any frequency outside frequency band of the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

## 5.1.3 MEASUREMENT RESULT

PLEASE REFER TO : APPENDIX I TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION

Note: 1. Below 30MHZ no Spurious found and The GSM modes is the worst condition.

2. As no emission found in standby or receive mode, no recording in this report.



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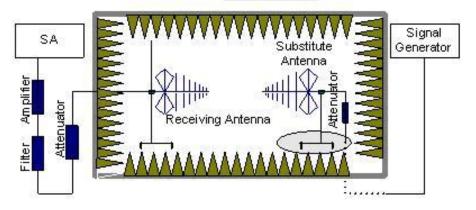
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## 5.2 RADIATED SPURIOUS EMISSION 5.2.1 MEASUREMENT METHOD

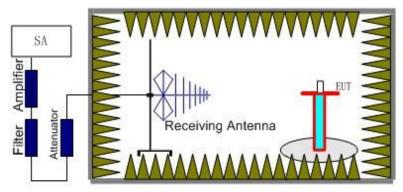
The measurements procedures specified in TIA-603C-2009 were used for testing. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set 1MHz as outlined in Part 24.238. The measurements were performed on all modes(GSM/GPRS/EDGE850, GSM/GPRS/EDGE1900, HSDPA/HSUPA band V, HSDPA/HSUPA band II) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

The procedure of radiated spurious emissions is as follows:

a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx (dBuV) +CL (dB) +SA (dB) +Gain (dBi) -107 (dBuV to dBm) The SA is calibrated using following setup.



b) EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.





Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the PCS 1900 band (1850.2 MHz, 1880 MHz and 1909.8 MHz) ,GSM850 band (824.2MHz, 836.6MHz, 848.8MHz), UMTS band V (4132 (826.4MHz), 4183(836.6MHz) and 4233 (846.6MHz) and UMTS band II (9262 (1852.4.6MHz), 9400(1880MHz) and 9538 (1907.6MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.

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The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: Power=P<sub>Mea</sub>+A<sub>Rpl</sub>

## 5.2.2 PROVISIONS APPLICABLE

(a) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out. Note: only result the worst condition of each test mode.



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## 5.2.3 MEASUREMENT RESULT

GSM 850:

	The	Worst Test R	esults Channe	el 128/824.2 MHz	2	
Frequency(MHz)	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
1648.467	-35.45	-4.65	-40.1	-13	-27.1	Horizontal
2472.682	-36.72	-2.21	-38.93	-13	-25.93	Horizontal
3296.834	-31.68	0.21	-31.47	-13	-18.47	Horizontal
1648.451	-38.32	-4.65	-42.97	-13	-29.97	Vertical
2472.652	-41.57	-2.21	-43.78	-13	-30.78	Vertical
3296.865	-42.67	0.21	-42.88	-13	-29.88	Vertical
	The	Worst Test R	esults Channe	el 190/836.6 MHz		
Frequency(MHz)	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
1673.265	-36.58	-4.65	-41.23	-13	-28.23	Horizontal
2509.843	-42.29	-2.21	-44.5	-13	-31.5	Horizontal
3346.421	-38.83	0.21	-38.62	-13	-25.62	Horizontal
1673.254	-37.34	-4.65	-41.99	-13	-28.99	Vertical
2509.853	-31.37	-2.21	-33.58	-13	-20.58	Vertical
3346.452	-36.26	0.21	-36.05	-13	-23.05	Vertical
	The	Worst Test R	esults Channe	el 251/848.8 MHz	:	
Frequency(MHz)	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
1697.645	-35.38	-4.65	-40.03	-13	-27.03	Horizontal
2546.462	-43.73	-2.21	-45.94	-13	-32.94	Horizontal
3395.272	-42.49	0.21	-42.28	-13	-29.28	Horizontal
1697.632	-35.83	-4.65	-40.48	-13	-27.48	Vertical
2546.452	-41.95	-2.21	-44.16	-13	-31.16	Vertical
3395.217	-37.62	0.21	-37.41	-13	-24.41	Vertical

Note: Below 30MHZ no Spurious found and The GSM modes is the worst condition.



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PCS 1900:

	The W	orst Test Re	sults for Chanr	nel 512/1850.2M	Hz	
Frequency(MHz)	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
3700.424	-33.35	0.33	-33.02	-13	-20.02	Horizontal
5550.672	-35.52	4.01	-31.51	-13	-18.51	Horizontal
7400.897	-42.31	10.7	-31.61	-13	-18.61	Horizontal
3700.432	-34.38	0.33	-34.05	-13	-21.05	Vertical
5550.653	-35.47	4.01	-31.46	-13	-18.46	Vertical
7400.842	-41.32	10.7	-30.62	-13	-17.62	Vertical
	The W	orst Test Re	sults for Chanr	nel 661/1880.0M	Hz	
Frequency(MHz)	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
3760.167	-36.33	0.33	-36	-13	-23	Horizontal
5640.245	-32.22	4.01	-28.21	-13	-15.21	Horizontal
7520.223	-42.38	10.7	-31.68	-13	-18.68	Horizontal
3760.175	-31.35	0.33	-31.02	-13	-18.02	Vertical
5640.242	-36.57	4.01	-32.56	-13	-19.56	Vertical
7520.243	-37.51	10.7	-26.81	-13	-13.81	Vertical
	The W	orst Test Re	sults for Chanr	nel 810/1909.8M	Hz	
Frequency(MHz)	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
3819.632	-32.5	0.33	-32.17	-13	-19.17	Horizontal
5729.443	-35.62	4.01	-31.61	-13	-18.61	Horizontal
7639.275	-37.78	10.7	-27.08	-13	-14.08	Horizontal
3819.641	-32.62	0.33	-32.29	-13	-19.29	Vertical
5729.484	-41.76	4.01	-37.75	-13	-24.75	Vertical
7639.232	-38.63	10.7	-27.93	-13	-14.93	Vertical

Note: Below 30MHZ no Spurious found and The GSM modes is the worst condition.



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## UMTS band V

Channel 4358/871.6MHz						
Frequency(MH	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
1745.785	-34.32	-4.65	-38.97	-13	-25.97	Horizontal
2613.223	-35.25	-2.21	-37.46	-13	-24.46	Horizontal
1745.766	-32.42	-4.65	-37.07	-13	-24.07	Vertical
2613.221	-31.52	-2.21	-33.73	-13	-20.73	Vertical
		Char	nnel 4400/880N	lHz		
Frequency(MH	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
1762.186	-31.45	-4.65	-36.1	-13	-23.1	Horizontal
2643.768	-35.78	-2.21	-37.99	-13	-24.99	Horizontal
1762.172	-27.43	-4.65	-32.08	-13	-19.08	Vertical
2643.754	-35.76	-2.21	-37.97	-13	-24.97	Vertical
	Channel 4457/891.4MHz					
Frequency(MH	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
1784.808	-36.73	-4.65	-41.38	-13	-28.38	Horizontal
2675.800	-38.57	-2.21	-40.78	-13	-27.78	Horizontal
1784.175	-26.71	-4.65	-31.36	-13	-18.36	Vertical
2675.761	-35.26	-2.21	-37.47	-13	-24.47	Vertical

Note: Below 30MHZ no Spurious found and The RMC modes is the worst condition.

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## UMTS band II

Channel 9663/1932.6MHz						
Frequency(MHz)	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
3866.724	-34.71	0.33	-34.38	-13	-21.38	Horizontal
5998.219	-35.25	4.01	-31.24	-13	-18.24	Horizontal
3866.793	-34.72	0.33	-34.39	-13	-21.39	Vertical
5998.180	-31.48	4.01	-27.47	-13	-14.47	Vertical
		Cha	annel 9800/196	60MHz		
Frequency(MHz)	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
3921.042	-31.42	0.33	-31.09	-13	-18.09	Horizontal
5883.166	-35.66	4.01	-31.65	-13	-18.65	Horizontal
3921.053	-27.22	0.33	-26.89	-13	-13.89	Vertical
5883.144	-35.71	4.01	-31.7	-13	-18.7	Vertical
	Channel 9937/1987.4MHz					
Frequency(MHz)	Power(dBm)	ARpl	Р <sub>меа</sub> (dBm)	Limit (dBm)	Margin(dBm)	Polarity
3975.158	-36.38	0.33	-36.05	-13	-23.05	Horizontal
5961.740	-38.42	4.01	-34.41	-13	-21.41	Horizontal
3975.197	-27.41	0.33	-27.08	-13	-14.08	Vertical
5961.783	-35.67	4.01	-31.66	-13	-18.66	Vertical

Note: Below 30MHZ no Spurious found and The RMC modes is the worst condition.

Shenzhen STS Test Services Co., Ltd.



#### 6. FREQUENCY STABILITY

## 6.1 MEASUREMENT METHOD

(a) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Note: only result the worst condition of each test mode.

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMU200 DIG-ITAL RADIO COMMUNICATION TESTER.

1. Measure the carrier frequency at room temperature.

2. Subject the EUT to overnight soak at -30°C.

3. With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on channel 661 for PCS 1900 band , channel 190 for GSM 850 band and channel 4183 for UMTS band V measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

4. Repeat the above measurements at  $10^{\circ}$  increments from  $-20^{\circ}$  to  $+50^{\circ}$ . Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.

6. Subject the EUT to overnight soak at +50 °C.

7. With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.

8. Repeat the above measurements at  $10^{\circ}$  increments from  $+50^{\circ}$  to  $-30^{\circ}$ . Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

.At all temperature levels hold the temperature to +/-  $0.5^{\circ}$ C during the measurement procedure.





#### 6.2 PROVISIONS APPLICABLE

## 6.2.1 FOR HAND CARRIED BATTERY POWERED EQUIPMENT

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.3VDC and 4.2VDC, with a nominal voltage of 3.7V DC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -10 % and +12.5 %. For the purposes of measuring frequency stability these voltage limits are to be used.

## 6.2.2 FOR EQUIPMENT POWERED BY PRIMARY SUPPLY VOLTAGE

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment, the normal environment temperature is 20°C.



## 6.3 MEASUREMENT RESULT

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment, the normal environment temperature is  $20^{\circ}$ C.

Frequency Error Against Voltage for GSM 850 band			
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)	
3.4	24	0.029	
3.7	18	0.022	
4.2	22	0.026	

Frequency Error Against Temperature for GSM 850 band			
temperature(°C)		Frequency error(Hz)	Frequency error(ppm)
-30		17	0.020
-20		-15	-0.018
-10		22	0.026
0		23	0.028
10	1	-16	-0.019
20	1	13	0.016
30	1	-20	-0.024
40		30	0.036
50		21	0.025

Frequency Error Against Voltage for GPRS850 band			
Voltage(V)	e(V) Frequency error(Hz) Frequency error		
3.4	-14	-0.017	
3.7	22	0.026	
4.2	28	0.033	



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Frequency Error Against Temperature for GPRS850 band			
temperature(°C)	Frequency error(Hz)	Frequency error(ppm)	
-30	-16	-0.019	
-20	30	0.036	
-10	-18	-0.022	
0	26	0.031	
10	-24	-0.029	
20	-16	-0.019	
30	-27	-0.032	
40	22	0.026	
50	18	0.022	

Frequency Error Against Voltage for EDGE 850 band			
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)	
3.4	21	0.025	
3.7	27	0.032	
4.2	32	0.038	

Frequency Error Against Temperature for EDGE 850 band			
temperature(°C)	Frequency error(Hz)	Frequency error(ppm)	
-30	23	0.028	
-20	25	0.030	
-10	19	0.023	
0	30	0.036	
10	-22	-0.026	
20	-17	-0.020	
30	24	0.029	
40	22	0.026	
50	18	0.022	

Note: The EUT doesn't work below -30  $^\circ\!\mathrm{C}$ 



Frequency Error Against Voltage for GSM1900 band		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	23	0.012
3.7	21	0.011
4.2	17	0.009

Frequency Error Against Temperature for GSM1900 band		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-30	-14	-0.007
-20	22	0.012
-10	15	0.008
0	22	0.012
10	27	0.014
20	26	0.014
30	30	0.016
40	-18	-0.010
50	-23	-0.012

Frequency Error Against Voltage for GPRS1900 band		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	18	0.010
3.7	-13	-0.007
4.2	22	0.012

Frequency Error Against Temperature for GPRS1900 band		
temperature(°℃)	Frequency error(Hz)	Frequency error(ppm)
-30	-16	-0.009
-20	23	0.012
-10	-16	-0.009
0	24	0.013
10	26	0.014
20	22	0.012
30	15	0.008
40	23	0.012
50	25	0.013

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Frequency Error Against Voltage for EDGE 1900 band		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	24	0.013
3.7	12	0.006
4.2	-16	-0.009

Frequency Error Against Temperature for EDGE 1900 band		
temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-30	15	0.008
-20	22	0.012
-10	18	0.010
0	23	0.012
10	22	0.012
20	23	0.012
30	-21	-0.011
40	15	0.008
50	-12	-0.006

Note: The EUT doesn't work below -30°C

Frequency Error Against Voltage for UMTS band V		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	18	0.022
3.7	14	0.017
4.2	-15	-0.018

Frequency Error Against Temperature for UMTS band V		
temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-30	25	0.030
-20	-12	-0.014
-10	22	0.026
0	-18	-0.022
10	13	0.016
20	13	0.016
30	12	0.014
40	28	0.034
50	26	0.031

Note: The EUT doesn't work below -30  $^\circ\!\mathrm{C}$ 



Frequency Error Against Voltage for UMTS band II		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	21	0.011
3.7	26	0.014
4.2	-17	-0.009

Frequency Error Against Temperature for UMTS band II		
temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-30	26	0.031
-20	23	0.028
-10	26	0.031
0	-17	-0.020
10	23	0.028
20	23	0.028
30	26	0.031
40	-22	-0.026
50	24	0.029

Note: The EUT doesn't work below -30  $^\circ\!\mathrm{C}$ 

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### 7. OCCUPIED BANDWIDTH

### 7.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

### 7.2 PROVISIONS APPLICABLE

Limits applicated report test result only.

#### 7.3 MEASUREMENT RESULT

Occupied Bandwidth (99%) for GSM 850 band			
Mode	Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
Low Channel	824.2	246.42	
Middle Channel	836.6	245.75	
High Channel	848.8	246.11	
Oc	cupied Bandwidth (99%) for	r GPRS 850 band	
Mode	Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
Low Channel	824.2	246.20	
Middle Channel	836.6	247.30	
High Channel	848.8	246.30	
Oc	Occupied Bandwidth (99%) for EDGE 850 band		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
Low Channel	824.2	248.06	
Middle Channel	836.6	249.20	
High Channel	848.8	242.36	



Occupied Bandwidth (99%) for GSM1900 band			
Mode	Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
Low Channel	1850.2	245.58	
Middle Channel	1880.0	247.78	
High Channel	1909.8	246.57	
Oco	Occupied Bandwidth (99%) for GPRS1900 band		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
Low Channel	1850.2	244.13	
Middle Channel	1880.0	248.32	
High Channel	1909.8	244.52	
Occ	Occupied Bandwidth (99%) for EDGE 1900 band		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)( kHz)	
Low Channel	1850.2	244.99	
Middle Channel	1880.0	245.75	
High Channel	1909.8	244.25	

0	Occupied Bandwidth (99%) for UMTS band V										
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)									
Low Channel	826.4	4.151									
Middle Channel	836.6	4.147									
High Channel	846.6	4.140									
Occu	pied Bandwidth (99%) for U	IMTS HSDPA band V									
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)									
Low Channel	826.4	4.159									
Middle Channel	836.6	4.147									
High Channel	846.6	4.152									
Occu	pied Bandwidth (99%) for U	IMTS HSUPA band V									
Mode	Frequency(MHz)	Occupied Bandwidth (99%)( MHz)									
Low Channel	826.4	4.157									
Middle Channel	836.6	4.156									
High Channel	846.6	4.157									

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0	ccupied Bandwidth (99%) fo	or UMTS band II								
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)								
Low Channel	1852.4	4.157								
Middle Channel	1880	4.160								
High Channel	1907.6	4.154								
Occuj	Occupied Bandwidth (99%) for UMTS HSDPA band II									
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)								
Low Channel	1852.4	4.156								
Middle Channel	1880	4.160								
High Channel	1907.6	4.158								
Occuj	oied Bandwidth (99%) for U	MTS HSUPA band II								
Mode	Frequency(MHz)	Occupied Bandwidth (99%)( MHz)								
Low Channel	1852.4	4.153								
Middle Channel	1880	4.156								
High Channel	1907.6	4.161								



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#### 8. EMISSION BANDWIDTH

#### 8.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

#### 8.2 PROVISIONS APPLICABLE

The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power

#### 8.3 MEASUREMENT RESULT

Em	Emission Bandwidth (-26dBc) for GSM850 band										
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)( kHz)									
Low Channel	824.2	311.7									
Middle Channel	836.6	310.3									
High Channel	848.8	315.4									
Emi	ssion Bandwidth (-26dBc) f	or GPRS850 band									
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)( kHz)									
Low Channel	824.2	315.1									
Middle Channel	836.6	313.8									
High Channel	848.8	317.6									
Emi	ssion Bandwidth (-26dBc) f	or EDGE 850 band									
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)( kHz)									
Low Channel	824.2	317.6									
Middle Channel	836.6	318.6									
High Channel	848.8	313.3									



Emi	ssion Bandwidth (-26dBc) f	or GSM1900 band									
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)( kHz)									
Low Channel	1850.2	316.6									
Middle Channel	1880.0	311.3									
High Channel	1909.8	319.3									
Emis	Emission Bandwidth (-26dBc) for GPRS1900 band										
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)( kHz)									
Low Channel	1850.2	320.6									
Middle Channel	1880.0	316.0									
High Channel	1909.8	319.5									
Emis	sion Bandwidth (-26dBc) fo	r EDGE 1900 band									
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)( kHz)									
Low Channel	1850.2	312.9									
Middle Channel	1880.0	316.2									
High Channel	1909.8	316.8									

Em	Emission Bandwidth (-26dBc) for UMTS band V										
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)									
Low Channel	826.4	4.674									
Middle Channel	836.6	4.675									
High Channel	846.6	4.678									
Emissi	on Bandwidth (-26dBc) for I	JMTS HSDPA band V									
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)( MHz)									
Low Channel	826.4	4.659									
Middle Channel	836.6	4.675									
High Channel	846.6	4.666									
Emissi	on Bandwidth (-26dBc) for I	JMTS HSUPA band V									
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)									
Low Channel	826.4	4.662									
Middle Channel	836.6	4.687									
High Channel	846.6	4.665									



Em	ission Bandwidth (-26dBc)	for UMTS band II								
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)( MHz)								
Low Channel	1852.4	4.684								
Middle Channel	1880	4.685								
High Channel	1907.6	4.692								
Emissi	Emission Bandwidth (-26dBc) for UMTS HSDPA band II									
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)								
Low Channel	1852.4	4.665								
Middle Channel	1880	4.685								
High Channel	1907.6	4.670								
Emissi	on Bandwidth (-26dBc) for I	JMTS HSUPA band II								
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)								
Low Channel	1852.4	4.681								
Middle Channel	1880	4.678								
High Channel	1907.6	4.686								





### 9. BAND EDGE

### 9.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

### 9.2 PROVISIONS APPLICABLE

as Specified in FCC rules of 22.917(b) and 24.238(b)

### 9.3 MEASUREMENT RESULT

Please refers to Appendix III for compliance test plots for band edges



Shenzhen STS Test Services Co., Ltd.



## **APPENDIX I**

# **TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION**

CONDUCTED EMISSION IN GSM 850 BAND

Conducted Emission Transmitting Mode CH 128 30MHz - 9GHz

				SENSE:IN		ALIGN AUTO	12:45:24 AM Dec 12,	
ter Fi	req 4.515	000000	PNO: Fast G	Trig: Free Run #Atten: 36 dB	Avg Typ	e: Log-Pwr	TRACE 1 2 3 4 TYPE M WWW DET P P P	UALAL .
IB/div	Ref Offset Ref 35.5					M	kr1 825.0 M 31.437 dE	
5	X1							<b>Center F</b> 4.515000000 C
							-13.00	Start Fi 30.000000 N
								Stop Fr 9.000000000 c
	1.0 MHz		#VBI	N 3.0 MHz		Sweep 7	Stop 9.000 G 15.5 ms (8001 p	ots) CF St 897.000000 M
NODE TR N 1 N 1	f		825.0 MHz 944 6 GHz	31.437 dBm -31.110 dBm	FUNCTION FL	INCTION WIDTH	FUNCTION VALUE	Freq Off
								C

Conducted Emission Transmitting Mode CH 190 30MHz - 9GHz

Agilent Spect	rum Analy	zer - Swept SA								
LXI RL	RF	50 Ω AC		SENSI	EINT		ALIGN AUTO		M Dec 12, 2015	-
Center F	reg 4.	515000000 G	Hz			Avg Ty	oe: Log-Pwr		E 1 2 3 4 5 6	Frequency
			PNO: Fast G	🖵 Trig: Free R				TYP	TPPPPP	
		I	FGain:Low	#Atten: 36 d	В			De		
							M	lkr1 837	'.3 MHz	Auto Tune
40 10/10		fset 9.5 dB 1 <b>5.50 dBm</b>							47 dBm	
10 dB/div Log	Kei J	э.э0 авт				1		01.0		
25.5	11 I									
										Center Freq
15.5										4.515000000 GHz
5.50										
-4.50										Start Freq
-14.5			_						-13.00 dBm	
-24.5								A2		30.000000 MHz
-24.0								$\mathbf{\nabla}$		
-34.5		and the state of the	<u>ah yu ja na ka y</u>	No. of Concession, Name	international de la constante		a phillippe and the sec		No. of Concession, Name	
-44.5										Stop Freq
										9.000000000 GHz
-54.5										9.00000000 GHz
Start 30 I									.000 GHz	05.04++
#Res BW	1.0 MH	lz	#VB\	N 3.0 MHz			Sweep	15.5 ms (	8001 pts)	CF Step
						CTION P	UNCTION WIDTH	FUNCTIO		897.000000 MHz Auto Man
MKR MODE T		×	7.3 MHz	31.547 dBr			UNCTION WIDTH	FUNCTIO	IN VALUE	<u>Auto</u> Man
	1 f 1 f		47 GHz	-30.716 dBr						
3	• •	7.40	47 0112	-00.710 0.01						<b>F</b>
4										Freq Offset
5										0 Hz
5 6 7										
- (										
8										
10										
11										
12										
MSG							STATUS			1
							STATUS			



### Report No.: STS1512058F01

	RF 50 \$	Ω AC		SENSE:INT		ALIGN AUTO		M Dec 12, 2015	Farmers
enter F	Freq 4.5150			ig: Free Run tten: 36 dB	Avg Type	: Log-Pwr	TY	CE 1 2 3 4 5 6 PE MWWWWW ET P P P P P P	Frequency
) dB/div	Ref Offset 9 Ref 35.50					М		8.5 MHz 43 dBm	Auto Tun
og 25.5	1								Center Fre
5.5									4.515000000 GH
i.50									
.50								-13.00 dBm	Start Fre
4.5								-10.00 GDM	30.000000 MH
4.5			destantes e				<sup>2</sup>		
4.5	internal international second	a desire de la désire de la dé	and the second second	No. of Concession, Name			and the second secon	a a suite a su	Oton Era
4.5									Stop Fre 9.000000000 GH
i4.5									5.0000000000
	MHz						Stop 9	0.000 GHz	
tart 30   Res BW	1.0 MHz		#VBW 3.0	MHz		Sweep 1	15.5 ms	(8001 pts)	CF Ste 897.000000 MH
Res BW KRIMODE T 1 N	V 1.0 MHz TRC SCL	× 848.5 M	IHz 31	Y 1	UNCTION FUI	Sweep 1		(8001 pts)	
Res BW 1 N 2 N 3 4 5	V 1.0 MHz	×	IHz 31	Y F	UNCTION FUI	· · ·		(8001 pts)	897.000000 MH <u>Auto</u> Ma <b>Freq Offs</b> a
Res BW 1 N 2 N 3 4 5 6 7 8	V 1.0 MHz TRC SCL	× 848.5 M	IHz 31	Y 1	UNCTION FU	· · ·		(8001 pts)	897.000000 MH
Res BW 1 N 2 N 3 4	V 1.0 MHz TRC SCL	× 848.5 M	IHz 31	Y 1	UNCTION FUR	· · ·		(8001 pts)	897.000000 MH <u>Auto</u> Ma <b>Freq Offs</b> a

### Conducted Emission Transmitting Mode CH 251 30MHz – 9GHz

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Shenzhen STS Test Services Co., Ltd.





#### CONDUCTED EMISSION IN GPRS 850 BAND

#### Conducted Emission Transmitting Mode CH 128 30MHz - 9GHz



### Conducted Emission Transmitting Mode CH 190 30MHz - 9GHz

							gilent Spectrum A
Frequency	57:36 AM Dec 12, 2015 TRACE 1 2 3 4 5 6	ALIGN AUTO e: Log-Pwr	Ava T	SENSE:INT	CH-7	50 Ω AC	RL F
	DET P P P P P			Trig: Free Run #Atten: 36 dB	PNO: Fast G	.515000000	enter Freq
Auto Tun	837.3 MHz 31.539 dBm	М				Offset 9.5 dB 35.50 dBm	0 dB/div R
Center Fre 4.515000000 GH							<b>°g</b> 25.5 15.5 5.50
Start Fre 30.000000 M⊦	-13.00 dBm						4.50 14.5 24.5
<b>Stop Fre</b> 9.000000000 GH							34.5 44.5 54.5
CF Ste 897.000000 M	top 9.000 GHz ms (8001 pts)	-		3.0 MHz	#VBV		tart 30 MHz Res BW 1.0
Auto Ma FreqOffs 0H	FUNCTION VALUE	INCTION WIDTH	UNCTION	31.539 dBm -31.041 dBm	337.3 MHz 376 4 GHz		14 N 1 F 2 N 1 F 3 4 5 6
							6 7 8 9 10 11
1		STATUS					5G



### Report No.: STS1512058F01

RL	RF 5	50Ω AC		SEN	VSE:INT		ALIGN AUTO	01:04:23 A	4 Dec 12, 2015	-
enter F	req 4.51	5000000	PNO: Fast	Trig: Free #Atten: 36		Avg Type	: Log-Pwr	TYP	E 1 2 3 4 5 6 E M WWWWWW T P P P P P P	Frequency
	Ref Offset 9.5 dB				dB		M	kr1 848	.5 MHz 79 dBm	Auto Tun
) dB/div pg	Ref 35.5	50 dBm						30.1	эаын	
5.5										Center Fre
5.5										4.515000000 GH
i.50										
.50									-13.00 dBm	Start Fre
4.5						^2				30.000000 MH
4.5			and the state of the				and an and a	والمعارين والمقاولان		
4.5 <b>Without</b>										Stop Fre
4.5										9.00000000 GH
4.5										
tart 30			<i>in 1</i>				-		.000 GHz	CF Ste
	/ 1.0 MHz		#VE	W 3.0 MHz			· ·		8001 pts)	897.000000 MH
KR MODE	TRC SCL	×	848.5 MHz	30.179 dE		NCTION FUI	ICTION WIDTH	FUNCTIO	IN VALUE	<u>Auto</u> Ma
2 N	i f	6	.104 9 GHz	-30.271 dE						
3 4										Freq Offs
5 6										0 H
7										
8 9										
0										
2										

### Conducted Emission Transmitting Mode CH 251 30MHz – 9GHz



Shenzhen STS Test Services Co., Ltd.



### CONDUCTED EMISSION IN EDGE 850 BAND

#### Conducted Emission Transmitting Mode CH 128 30MHz - 9GHz

:21 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 12:5: Avg Type: Log-Pwr Frequency Center Freq 4.515000000 GHz PNO: Fast Trig: Free Run IFGain:Low #Atten: 36 dB DET P P P P P Auto Tune Mkr1 823.8 MHz 31.445 dBm Ref Offset 9.5 dB Ref 35.50 dBm 10 dB/div Log **Center Freq** 4.515000000 GHz 5.5 4.50 Start Freq 147 30.000000 MHz  $\langle \rangle^2$ 24. 34. Stop Freq 44 ! 9.000000000 GHz Start 30 MHz #Res BW 1.0 MHz Stop 9.000 GHz CF Step 897.000000 MHz #VBW 3.0 MHz Sweep 15.5 ms (8001 pts) MKR MODE TRC SCL FUNCTION FUNCTION WIDTH Auto Mar 31.445 dBm -30.334 dBm N 1 f N 1 f 823.8 MHz 7.491 9 GHz 1 2 3 4 5 6 7 8 9 10 11 12 Freq Offset 0 Hz STATUS

### Conducted Emission Transmitting Mode CH 190 30MHz - 9GHz

Agilent Spectrum Analyzer - Swept SA						
UXIRL RF 50Ω AC		SENSE:INT		ALIGN AUTO	12:59:16 AM Dec 12, 2015	Frequency
Center Freq 4.51500000	PNO: Fast IFGain:Low	Trig: Free Run #Atten: 36 dB	Avg Typ	e: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE M WWWWWW DET P P P P P P	
Ref Offset 9.5 dB 10 dB/div Ref 35.50 dBm				М	kr1 836.2 MHz 31.555 dBm	Auto Tune
25.6 15.5 5.60						Center Free 4.515000000 GH:
-4.50					-13.00 dBm	Start Free 30.000000 MH
.34.5 						<b>Stop Fre</b> 9.000000000 G⊢
Start 30 MHz Res BW 1.0 MHz	#VBW	3.0 MHz			Stop 9.000 GHz I5.5 ms (8001 pts)	CF Ste 897.000000 MH
	836.2 MHz 501 7 GHz	31.555 dBm -30.423 dBm	FUNCTION F	UNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Ma
4 5 6 7						Freq Offse 0 ⊢
6 7 8 9 10 11						
12 ISG				STATUS		



### Report No.: STS1512058F01

	RF	50 Ω AC		SENSI		ALIGN AUTO		
enter	Freq 4.	51500000	0 GHz PNO: Fast IFGain:Low	Trig: Free R #Atten: 36 d	lun	g Type: Log-Pwr	TRACE 1 2 TYPE MWA DET P P I	PPPP
0 dB/div		fset 9.5 dB 5.50 dBm					Mkr1 848.5 M 30.177 d	
og 25.5	<b>V</b> 1							Center Fre
5.5								4.515000000 GI
.50								
4.5							-13	.00 dBm Start Fre
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4.5 <b>Hal</b> k			and the second second	and the second second second	Alexandra Street, and the Alexandre	And the second second second	- A CONTRACTOR OF STREET, SALES	
4.5								
								Stop Fre
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tart 30	MHz N 1.0 MH	Iz	#VE	BW 3.0 MHz		Sweep	Stop 9.000 15.5 ms (8001	GHz CF Ste
tart 30 Res B\		iz ×		30.177 dBr	FUNCTION	Sweep	15.5 ms (8001	9.00000000 G GHz pts) CF Ste 897.000000 M
tart 30 Res Bl Res Bl R MODE 1 N 2 N	N 1.0 MH	X		Y	n	· · ·	15.5 ms (8001	9.00000000 GI GHz pts) CF Ste 897.00000 MI Auto Mi
tart 30 Res Bi 8 1009 1 N 2 N 3 4 5	W 1.0 MH	X	848.5 MHz	Y 30.177 dBr	n	· · ·	15.5 ms (8001	9.00000000 G GHz pts) CF Stc 897.000000 M Auto M Freq Offs
tart 30 Res Bi 8 1003 1 N 2 N 3 4 5 6	W 1.0 MH	X	848.5 MHz	Y 30.177 dBr	n	· · ·	15.5 ms (8001	9.00000000 GI GHz pts) CF Ste 897.00000 MI Auto Mi Freq Offs
KR MODE	W 1.0 MH	X	848.5 MHz	Y 30.177 dBr	n	· · ·	15.5 ms (8001	9.00000000 GI GHz pts) CF Ste 897.000000 MI
tart 30 Res Bl 1 N 2 N 3 4 5 5 6 6 7 8	W 1.0 MH	X	848.5 MHz	Y 30.177 dBr	n	· · ·	15.5 ms (8001	9.00000000 GI GHz pts) CF Ste 897.00000 MI Auto Mi Freq Offs

### Conducted Emission Transmitting Mode CH 251 30MHz - 9GHz

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#### CONDUCTED EMISSION IN GSM1900 BAND

#### Conducted Emission Transmitting Mode CH 512 30MHz - 20GHz

Allenander RE RF 50 Ω AC | Center Freq 6.015000000 GHz PN0: Fast → IFGain:Low #Atten: 36 dB 01:12:00 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 Frequency Avg Type: Log-Pwr DET P P P P P Auto Tune Mkr1 1.850 9 GHz 23.957 dBm Ref Offset 9.8 dB Ref 35.80 dBm 10 dB/div Log 1۵ 25.1 **Center Freq** 6.015000000 GHz 5.80 -4.20 Start Freq 14.1 30.000000 MHz 24.3 -34.0 Stop Freq -44 0 12.000000000 GHz 54.3 Start 30 MHz #Res BW 1.0 MHz Stop 12.000 GHz Sweep 20.3 ms (8001 pts) **CF Step** 1.197000000 GHz <u>uto</u>Man #VBW 3.0 MHz 
 Mrcs
 JW 1.0 fr.
 Scut

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 FUNCTION FUNCTION WIDTH FUNCTIO Auto 1.850 9 GHz 11.926 7 GHz 23.957 dBm -30.922 dBm Freq Offset 0 Hz STATUS SG

lent Spectr R L	r <mark>um Analyzer</mark> - RF Si	Swept SA D Ω AC		SENS	E:INT		ALIGN AUTO		M Dec 12, 2015	Frequency
enter F	req 16.00		<b>GHz</b> PNO: Fast 😱 FGain:Low	Trig: Free F #Atten: 36 d		Avg Typ	e: Log-Pwr	TYP	E 1 2 3 4 5 6 E M WWWWWW T P P P P P P T	
dB/div	Ref Offset Ref 35.8						MI	(r1 16.4 -24.3	94 GHz 15 dBm	Auto Tu
5.8										Center Fr
8 30										16.000000000
20									-13.00 dBm	Start F
.2					12					12.000000000
2	and a second state	ines <sup>Manad</sup> iana Matao				and the second se	And the state of t			Oton F
.2										Stop F 20.000000000 0
	000 GHz 1.0 MHz		#VBW	3.0 MHz			Sweep :		.000 GHz 8001 pts)	CF St 800.000000 M
N 1	f		94 GHz	Y -24.345 dBr	n	CTION FL	INCTION WIDTH	FUNCTIO	IN VALUE	Auto N
N 1	f	16.5	93 GHz	-25.130 dBr	n					Freq Off 0
2							STATUS	1		



-	23:57 AM Dec 12, 2015	ALIGN AUTO		VSE:INT	SEM		AC AC	nalyzer - Sw F   50 Ω		RL
Frequency	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P	: Log-Pwr	Avg Ty		Trig: Free #Atten: 36	Hz PNO: Fast 🕞 Gain:Low		6.0150	Fred	nter
Auto Tu	1.880 9 GHz 25.038 dBm	Mkr						f Offset 9. ef 35.80		dB/di
Center Fr								<b>1</b>		
6.015000000 G										
Start Fr	-13.00 dBm									
30.000000 M										2
Stop Fr		and the second		a constraint of the second		No. of Concession, Name	a and a second secon	in state of the second se	أحدار لغيبيه	2
12.000000000 G										2
<b>CF St</b> 1.197000000 G	op 12.000 GHz ms (8001 pts)		.1		3.0 MHz	#VBW		MHz	0 MHz W 1.0	
<u>Auto</u> M	FUNCTION VALUE	ICTION WIDTH	CTION	3m	25.038 dE -30.250 dE	9 GHz 7 GHz		L	TRC S	MODE N N
Freq Offs 0				5111	-50.250 de		7.000			

### Conducted Emission Transmitting Mode CH 661 30MHz - 20GHz

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Agilent Spect	rum Anal	yzer - Swept SA								
LXI RL	RF	50 Ω AC		SEN	SE:INT		ALIGN AUTO		M Dec 12, 2015	Frequency
Center F	req 1	6.0000000	00 GHz PNO: Fast	Trig: Free	Run	Avg Ty	pe: Log-Pwr	TYP	E 1 2 3 4 5 6 E M +++++++++++++++++++++++++++++++++++	riequency
			IFGain:Low	#Atten: 36				DE	PPPPP	
	D.44						M	(r1 16.5	01 GHz	Auto Tune
10 dB/div		ffset 9.8 dB 35.80 dBm						-25.0	65 dBm	
Log										
25.8										Center Freq
15.8										16.00000000 GHz
5.80										
-4.20										
-14.2									-13.00 dBm	Start Freq
-24.2					<b>♦'</b>					12.000000000 GHz
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-34.2										Oton Enor
-44.2										Stop Freq
-54.2										20.00000000 GHz
Start 12.0		17						Stop 20	.000 GHz	
#Res BW			#VE	SW 3.0 MHz			Sweep		8001 pts)	CF Step
					61 D I	TION	•	FUNCTIO		800.000000 MHz Auto Man
MKR MODE T	BU SUL	×	16.501 GHz	-25.065 dB		TIUN	FUNCTION WIDTH	FUNCTIO	IN VALUE	<u>Auto</u> Man
2 N 1			16.501 GHz	-25.065 dB						
3										Freq Offset
5										0 Hz
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MSG							STATUS			



_	01:30:58 AM Dec 12, 2015	ALIGN AUTO		INSE:INT	SE		2 AC	= 50 G	ctrum A	RL
Frequency	TRACE 1 2 3 4 5 6 TYPE MWWWW DET P P P P P P	e: Log-Pwr	Avg 1		Trig: Free #Atten: 36	iHz PNO: Fast C FGain:Low		6.0150	Freq	nter
Auto Tu	1 1.910 8 GHz 25.576 dBm	Mkı						f Offset 9. f <b>35.80</b>		dB/di
Center Fr								<b>1</b>		
6.015000000 G										8
Start Fr	-13.00 dBm					_				
30.000000 M			2							2
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Stop Fr										2
12.00000000 G										2
<b>CF St</b> 1.197000000 G	Stop 12.000 GHz 0.3 ms (8001 pts)	Sweep 2		:	V 3.0 MHz	#VB		MHz	) MHz N 1.0	
Auto M	FUNCTION VALUE	JNCTION WIDTH	UNCTION	Bm	Y 25.576 di	0 8 GHz		1	TRC SI	Ν
Freq Offs				Bm	-30.561 di	2 2 GHz	7.312		1 f	Ν
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### Conducted Emission Transmitting Mode CH 810 30MHz - 20GHz

Agilent Spect			pt SA								
XIRL	RF	50 Ω	AC		SE	NSE:INT	0	ALIGN AUTO		M Dec 12, 2015	Frequency
Center F	req	6.0000		GHZ PNO: Fast C	Trig: Free	Run	Avg	i ype. Log-Pwr	TYP	F M LALABALALAL	
				Gain:Low	#Atten: 3	6 dB			DE	PPPPP	
	Dof	Offset 9.8	aD					M	kr1 16.4	49 GHz	Auto Tune
10 dB/div		35.80 d							-25.0	76 dBm	
Log											
25.8											Center Freq
15.8											16.00000000 GHz
5.80											
-4.20											
-14.2										-13.00 dBm	Start Freq
-24.2									$\langle \rangle^2$		12.00000000 GHz
-34.2		المروية الأستان	-	and a second designed		and the state of the	No. of Concession, Name		and the state of the		
											Stop Freq
-44.2											20.000000000 GHz
-54.2											20.00000000 GH2
Start 12.0	000 G	Hz				1			Stop 20	.000 GHz	
#Res BW				#VB	W 3.0 MHz			Sweep		8001 pts)	CF Step
MKR MODE T	Del en		×		v	E D	ICTION	FUNCTION WIDTH	FUNCTO	IN VALUE	800.000000 MHz Auto Man
	1 f			49 GHz	-25.076 d		RETION	FONCTION WIDTH	FONCTIO	JN VALUE	Auto Mari
2 N 3	1 f		18.8	28 GHz	-25.282 d	Зm					
4											Freq Offset
5											0 Hz
5 6 7 8 9											
8											
9 10											
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12											
MSG								STATUS			



### CONDUCTED EMISSION IN GPRS1900 BAND

#### Conducted Emission Transmitting Mode CH 512 30MHz - 20GHz

Allenander RE RF 50 Ω AC | Center Freq 6.015000000 GHz PN0: Fast → IFGain:Low #Atten: 36 dB 01:15:14 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 Frequency Avg Type: Log-Pwr DET P P P P P Auto Tune Mkr1 1.850 9 GHz 23.946 dBm Ref Offset 9.8 dB Ref 35.80 dBm 10 dB/div Log 1۵ 25.1 **Center Freq** 6.015000000 GHz 5.80 -4.20 Start Freq -13.00 dE 14.1 30.000000 MHz 24.3 ð 34.0 Stop Freq -44 0 12.000000000 GHz 54. Start 30 MHz #Res BW 1.0 MHz Stop 12.000 GHz Sweep 20.3 ms (8001 pts) **CF Step** 1.197000000 GHz <u>uto</u> Man #VBW 3.0 MHz 
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 FUNCTION FUNCTION WIDTH FUNCTIO Auto 23.946 dBm -29.803 dBm 1.850 9 GHz 11.796 5 GHz Freq Offset 0 Hz STATUS SG

RL		50 Ω AC		SENS	E:INT		ALIGN AUTO		M Dec 12, 2015	Frequency
enter F	req 16.00		GHz PNO: Fast 🕞 Gain:Low	Trig: Free I #Atten: 36		Avg Type	e: Log-Pwr	TYP	E 1 2 3 4 5 6 E M WWWWWW T P P P P P P	
dB/div	Ref Offse Ref 35.8						MI		19 GHz 87 dBm	Auto Tur
5.8										Center Fre
5.8 <b></b>										16.00000000 G
20									-13.00 dBm	Start Fr
.2					12				-13.00 dbm	12.000000000 G
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.2										<b>Stop Fr</b> 20.000000000 G
	000 GHz 1.0 MHz		#VBW	/ 3.0 MHz			Sweep		.000 GHz 8001 pts)	CF St
R MODE T	RC SCL	× 16.5	19 GHz	-25.687 dB	FUNC	TION FU	NCTION WIDTH			800.000000 M <u>Auto</u> M
N 1	f		35 GHz	-25.729 dB						Freq Offs
i										0
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	RF 50 Ω AC		SENSE:INT	ALIGN AUTO	01:26:23 AM Dec 12, 2015	Frequency
enter F	Freq 6.01500000	0 GHZ PNO: Fast G IFGain:Low	Trig: Free Run #Atten: 36 dB	Avg Type: Log-Pwr	TRACE 1 2 3 4 5 6 TYPE MWWWWW DET P P P P P	
dB/div	Ref Offset 9.8 dB Ref 35.80 dBm			Mk	r1 1.880 9 GHz 25.038 dBm	Auto Tu
5.8	↓ 1					Contor E
.8						Center Fr 6.015000000 G
80						
20					-13.00 dBm	Start Fi
.2					2,	30.000000 N
.2		and and			3	
.2						Stop Fr
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art 30					Stop 12.000 GHz	
ait Jui		#\/B\/	V 3.0 MHz	Sweep 2	20.3 ms (8001 pts)	CF St
les BW	V 1.0 MHz	7101				
R MODE 1	TRC SCL X		Y FU	NCTION FUNCTION WIDTH	FUNCTION VALUE	
R MODE I N N	trc scl X 1 f			-	FUNCTION VALUE	
R MODE I N N	trc scl X 1 f	1.880 9 GHz	Y FU 25.038 dBm	-	FUNCTION VALUE	Auto M Freq Off
R MODE I N N	trc scl X 1 f	1.880 9 GHz	Y FU 25.038 dBm	-	FUNCTION VALUE	Auto M Freq Off
R MODE N N S S	trc scl X 1 f	1.880 9 GHz	Y FU 25.038 dBm	-	FUNCTION VALUE	Auto M Freq Off
R MODE N N 2 N 3 4 5 5 5 5 7 7 8	trc scl X 1 f	1.880 9 GHz	Y FU 25.038 dBm	-	FUNCTION VALUE	Auto M Freq Off
R MODE 1	trc scl X 1 f	1.880 9 GHz	Y FU 25.038 dBm	-	FUNCTION VALUE	

### Conducted Emission Transmitting Mode CH 661 30MHz - 20GHz

Frequency	01:26:51 AM Dec 12, 2015 TRACE 1 2 3 4 5 6	ALIGN AUTO De: Log-Pwr	Avg T		SENSE		0000000	req 16.00	nter Fr
	DET PPPPP				Trig: Free Ru #Atten: 36 dB	PNO: Fast G Gain:Low		•	
Auto T	1 16.483 GHz -24.589 dBm	Mk						Ref Offset: Ref 35.80	lB/div
Center F									
16.000000000									
Start F	-13.00 dBm								
12.000000000	10.00 0.00			1=					2
	-	و معالم و المحالم	-		No. of Concession, Name		distants of the state of		2
Stop F									2 Hardination
20.000000000									2
20.000000000									2
CF S 800.000000	Stop 20.000 GHz ).3 ms (8001 pts)	Sweep 2			3.0 MHz	#VB۱		00 GHz 1.0 MHz	
Auto	FUNCTION VALUE	UNCTION WIDTH	TION	FUN	-24,589 dBm	83 GHz	×		MODE TR
					-24.589 dBm -24.589 dBm	83 GHZ 83 GHZ		f	N 1 N 1
Freq Of									
Freq Off									
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	01:34:58 AM Dec 12, 2015	ALIGN AUTO		SENSE:IN		RF 50Ω /
Frequency	TRACE 1 2 3 4 5 6 TYPE MWWWW DET P P P P P P	ype: Log-Pwr	Avg	► Trig: Free Run #Atten: 36 dB	1000 GHz PNO: Fast IFGain:Low	req 6.015000
Auto Tu	r1 1.909 3 GHz 25.585 dBm	Mki				Ref Offset 9.8 di Ref 35.80 dB
Contor Fr						<b>1</b>
Center Fr 6.015000000 G						
Start Fr	-13.00 dBm					
30.000000 M						
	A DESCRIPTION OF THE OWNER OF THE		See See		And the second second	
Stop Fr						
12.000000000 G						
						AU 1_
CF St	Stop 12.000 GHz 20.3 ms (8001 pts)	Sweep 2	ż	W 3.0 MHz	#VB	/Hz 1.0 MHz
1.197000000 G	20.3 ms (8001 pts)	Sweep 2	FUNCTION	W 3.0 MHz 25.585 dBm	#VB	
1.197000000 G <u>Auto</u> M	20.3 ms (8001 pts)		FUNCTION	Y	X	1.0 MHz
1.197000000 G <u>Auto</u> M Freq Offs	20.3 ms (8001 pts)		FUNCTION	Y 25.585 dBm	× 1.909 3 GHz	1.0 MHz
1.197000000 G	20.3 ms (8001 pts)		FUNCTION	Y 25.585 dBm	× 1.909 3 GHz	1.0 MHz
1.197000000 G <u>Auto</u> M Freq Offs	20.3 ms (8001 pts)		FUNCTION	Y 25.585 dBm	× 1.909 3 GHz	1.0 MHz
1.197000000 G <u>Auto</u> M Freq Offs	20.3 ms (8001 pts)		Function	Y 25.585 dBm	× 1.909 3 GHz	1.0 MHz

### Conducted Emission Transmitting Mode CH 810 30MHz - 20GHz

gilent Spectr	um Anal	urgen Surg	unt CA									-	
RL Center F	RF	50 Ω	AC			SENS		Avg T	ALIGN AU Type: Log-Pv		:26 AM Dec 12, TRACE 1 2 3 4	56	Frequency
0 dB/div		)ffset 9.8 35.80 c	3 dB	PNO: Fast IFGain:Lov	w #A	ig: Free R atten: 36 d	lun B				6.483 G	P P Hz	Auto Tun
25.8	Kei	33.80 L											Center Fre 16.00000000 GH
.80 .20 4.2							<b>●</b> <sup>1</sup>				-13.00	dBm	<b>Start Fre</b> 12.00000000 GF
4.2 4.2 4.2									المعجمل المعجم والمعتمل				<b>Stop Fr</b> 20.000000000 G
art 12.0 Res BW				#V	/BW 3.0	MHz			Swee		20.000 G ns (8001 p		CF Sto 800.000000 M
KR MODE TI 1 N 1 2 N 1 3	f			483 GHz 066 GHz		Y .977 dBn .542 dBn	n	CTION	FUNCTION WI	DTH FU	NCTION VALUE		Auto M Freg Offs
4 5 6 7 8													0
9 D 1 2													
G									ST/	ATUS			1



### CONDUCTED EMISSION IN EDGE 1900 BAND

#### Conducted Emission Transmitting Mode CH 512 30MHz – 20GHz

APLENT RF 50Ω AC APLENT RF 50Ω AC PNO: Fast IFGain:Low #Atten: 36 dB 01:19:37 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 Frequency Avg Type: Log-Pwr DET P P P P P Auto Tune Mkr1 1.850 9 GHz 23.956 dBm Ref Offset 9.8 dB Ref 35.80 dBm 10 dB/div Log 1۵ 25.1 **Center Freq** 6.015000000 GHz 5.80 -4.20 Start Freq -13.00 dE 14.1 30.000000 MHz 24.3 ð -34.0 Stop Freq -44 0 12.000000000 GHz 54.3 Start 30 MHz #Res BW 1.0 MHz Stop 12.000 GHz Sweep 20.3 ms (8001 pts) **CF Step** 1.197000000 GHz <u>uto</u> Man #VBW 3.0 MHz 
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 FUNCTION FUNCTION WIDTH FUNCTIO Auto 1.850 9 GHz 11.793 5 GHz 23.956 dBm -30.157 dBm Freq Offset 0 Hz STATUS SG

RL		Ω AC		SENS	E:INT		ALIGN AUTO		M Dec 12, 2015	Frequency
enter F	req 16.00	F	GHZ NO: Fast 🕞 Gain:Low	Trig: Free F #Atten: 36 d		Avg Typ	e: Log-Pwr	TYP	E 1 2 3 4 5 6 E M WWWWWW T P P P P P P	
dB/div	Ref Offset Ref 35.8						М		00 GHz 77 dBm	Auto Tu
<b>g</b> 5.8										Center Fr
1.8										16.00000000 G
									-13.00 dBm	Start Fr
2					<b></b>					12.000000000 G
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2										Stop Fr 20.00000000 G
	000 GHz / 1.0 MHz		#VBW	3.0 MHz			Sween		.000 GHz 8001 pts)	CF St
R MODE T		× 16.5(	0 GHz	-24,777 dBr		CTION FL	INCTION WIDTH	EUNCTIC		800.000000 M <u>Auto</u> M
N	i i		73 GHz	-25.036 dBr						Freq Offs
										0
5 7 3 9										



<b>F</b>	:46 AM Dec 12, 2015				ENSE:IN	SI		AC	50 Ω	RF	
Frequency	TYPE MWWWW DET P P P P P	g-Pwr	g Type: L	A		Trig: Fre #Atten: 3	<b>IZ</b> 10: Fast 👍 Gain:Low		1500	eq 6.0	ter Fr
Auto Tu	880 9 GHz 6.011 dBm	Mkr1							set 9.8 5.80 d		3/div
Center Fr									<b>≬</b> 1		
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Stop Fi	_										
12.000000000											
CF St	12.000 GHz is (8001 pts)		s		z	3.0 MHz	#VBW		z	Hz 1.0 MH	t 30 IV 5 BW
1.197000000 0 <u>Auto</u> M	NCTION VALUE	N WIDTH	FUNC	FUNCTION		Y		х			IODE TR
						25.011 c -29.763 c		1.880 11.769		f f	N 1 N 1
Freq Off											
0											

### Conducted Emission Transmitting Mode CH 661 30MHz - 20GHz

gilent Spect	rum Anal		pt SA								
enter F	RF Treq 1	50 Ω 6.0000	AC 00000	GHz		ISE:INT	Avg T	ALIGN AUTO ype: Log-Pwr	TRAC	M Dec 12, 2015 E 1 2 3 4 5 6	Frequency
			l If	PNO: Fast ⊂ ⊑Gain:Low	Trig: Free #Atten: 36				DE		
0 dB/div		) ffset 9.8 35.80 d						MI		13 GHz 54 dBm	Auto Tur
og 🔽	Kei	33.00 0	UIII								
5.8											Center Fre
5.8											16.00000000 GI
.80											
20										-13.00 dBm	Start Fr
4.2						1=				-13.00 dBm	12.000000000 G
1.2			a			-YY			and a state of second state	المرابي والطالعين	12.000000000000
1.2 <b>(1.2</b>	interes also	and a surger		ed a la parte de la parte							
1.2											Stop Fr
1.2											20.00000000 G
art 12.0		1-							Stan 20	.000 GHz	
Res BW				#VB	N 3.0 MHz			Sweep		.000 GH2 8001 pts)	CF Sto 800.000000 M
R MODE T			×		Y		TION	FUNCTION WIDTH	FUNCTIO	ON VALUE	<u>Auto</u> M
1 N 2 N	1 f 1 f			13 GHz 08 GHz	-24.454 dE -25.050 dE						
3											Freq Offs
4 5											0
5											
3											
9 D											
1											
3								STATUS			
×								STATUS			



	rum Analyzer								L.
enter F		ος ac   5000000 G		SENS	A	ALIGN AUTO	TRAC	Dec 12, 2015	Frequency
		I	PNO: Fast  Ģ FGain:Low	Trig: Free F #Atten: 36 d			DE		Auto Tun
0 dB/div	Ref Offse Ref 35.8					M	(r1 1.910 25.61	) 8 GHz I1 dBm	Auto Tun
<b>og</b> 25.8		1							Center Fre
15.8									6.015000000 GH
5.80									
1.20								-13.00 dBm	Start Fre
24.2								2	30.000000 MH
34.2 <b>Jackson</b>		Linger A. Augustubelle	and the second se			With the second s			
i4.2									Stop Fre 12.00000000 GH
tart 30 I Res BW	VIHZ 1.0 MHZ		#VB۱	N 3.0 MHz		Sweep	20.3 ms (	.000 GHz 3001 pts)	CF Ste
KR MODE T	RC SCL	× 1 91	0 8 GHz	25.611 dBr	FUNCTION	FUNCTION WIDTH	H FUNCTIO	N VALUE	<u>Auto</u> Ma
	f		3 1 GHz	-29.700 dBr					
4 5									Freq Offso 0 H
6 7									
8 9									
10   1									
2									

### Conducted Emission Transmitting Mode CH 810 30MHz - 20GHz

Agilent Spect										
(XIRL Compton F	RF	50Ω AC	<u></u>	SENS	E:INT		ALIGN AUTO e: Log-Pwr		M Dec 12, 2015 E 1 2 3 4 5 6	Frequency
Center F	req 16.0		GHZ PNO: Fast G IFGain:Low	Trig: Free F #Atten: 36 d		~va . M	e. Lug-r wi	TYP	TPPPPP	
10 dB/div		et 9.8 dB .80 dBm					M	kr1 16.5 -25.1	11 GHz 21 dBm	Auto Tune
Log										
25.8										Center Fred
15.8										16.00000000 GH
5.80										
-4.20										
-14.2					1				-13.00 dBm	Start Free
-24.2					<b>♦</b> '					12.00000000 GH
-34.2		and the state of the	and the second second			فلينتهذ والمعلقي	and the second secon	- and the state of		
-44.2										Stop Free
-54.2										20.000000000 GH
-04.2										
Start 12.0 #Res BW		!	#VB\	W 3.0 MHz			Sweep	Stop 20 20.3 ms (	.000 GHz 8001 pts)	CF Step 800.000000 MH
MKR MODE T	RC SCL	X		Y	FUNC	TION F	UNCTION WIDTH	FUNCTIO	IN VALUE	Auto Mar
1 N 1 2 N 1			511 GHz	-25.121 dBr -25.121 dBr						
2 N 1 3	Г	16.0	511 GHz	-25.121 dBi	n					Freq Offse
4 5										0 H
6										0 1
7 8										
9										
10 11										
12										
ISG							STATUS			
								1		



### CONDUCTED EMISSION IN UMTS band V

#### Conducted Emission Transmitting Mode 4132 30MHz - 9GHz

:42 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 Frequency Center Freq 4.515000000 GHz Avg Type: Log-Pwr PNO: Fast IFGain:Low Trig: Free Run #Atten: 36 dB DET P P P P P Auto Tune Mkr1 826.1 MHz 24.475 dBm Ref Offset 9.5 dB Ref 35.50 dBm 10 dB/div Log Center Freq 4.515000000 GHz 5.5 4.50 Start Freq 147 30.000000 MHz  $\langle \rangle^2$ 24. 34. Stop Freq 44 9.000000000 GHz Start 30 MHz #Res BW 1.0 MHz Stop 9.000 GHz CF Step 897.000000 MHz #VBW 3.0 MHz Sweep 15.5 ms (8001 pts) MKR MODE TRC SCL FUNCTION FUNCTION WIDTH Ma 826.1 MHz 7.396 6 GHz 24.475 dBm -30.581 dBm N 1 f N 1 f 2 3 4 5 6 7 8 9 10 11 12 Freq Offset 0 Hz STATUS

### Conducted Emission Transmitting Mode CH 4183 30MHz - 9GHz

Agilent Spectrum Analyzer - Swept SA					
LX/ RL RF 50Ω AC	SE	INSE:INT	ALIGN AUTO	02:54:08 AM Dec 12, 20	
Center Freq 4.515000000 GI	NO: Fast 🕞 Trig: Fre	e Run 👘	Type: Log-Pwr	TRACE 1 2 3 4 1 TYPE MWWW DET P P P P I	ALAL
IF	Gain:Low #Atten: 3	6 dB		,	Auto Tuno
Ref Offset 9.5 dB 10 dB/div Ref 35.50 dBm			IVI	kr1 833.9 MF 24.435 dB	IZ
25.5					Center Freq
15.5					4.515000000 GHz
5.50					
-4.50				-13.00 d	Start Freq
-14.5					30.000000 MHz
-24.5	ki kura ki shi ki kura				
-34.5	Support House				Stop Freq
-54.5					9.00000000 GHz
Start 30 MHz				Stop 9.000 GH	47
#Res BW 1.0 MHz	#VBW 3.0 MHz	:	Sweep 1	15.5 ms (8001 pt	
MKR MODE TRC SCL X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE	Auto Man
2 N 1 f 7.994	.9 MHz 24.435 d 2 GHz -30.716 d				
3 4					Freq Offset
5					0 Hz
6 7 8 9					
10					
11 12					
MSG			STATUS		



### Report No.: STS1512058F01

RL	RF 50	Ω AC		SEN	ISE:INT		ALIGN AUTO	02:51:42 AM	1 Dec 12, 2015	-
enter l	req 4.5150		: Fast 🖵 in:Low	Trig: Free #Atten: 36		Avg Ty	pe: Log-Pwr	TYPE	123456 MWWWWW PPPPPP	Frequency
0 dB/div	Ref Offset 9 Ref 35.50						М	kr1 845 24.31	.1 MHz 0 dBm	Auto Tun
og 25.5	<b>1</b>									Center Fre
5.5										4.515000000 GH
.50										4.01000000 01
.50									-13.00 dBm	Start Fre
4.5									-10.00 ubin	30.000000 MH
4.5							$\wedge^2$			
4.5	Name of Concession, or other	and the second			ter belge på skilet og	-	and the state of the second	and the second second	Name and Address of the Owner, which the	
4.5										Stop Fre
4.5										9.000000000 GH
tart 30 Res BM	MHZ / 1.0 MHZ		#VBW	3.0 MHz			Sweep 1	Stop 9.  5.5 ms (8	000 GHz 8001 pts)	CF Ste 897.000000 MH
KR MODE		×		Y		NCTION	FUNCTION WIDTH	FUNCTION	N VALUE	<u>Auto</u> Ma
1 N 2 N	1 f 1 f	845.1 7.009 8		24.310 dE -31.017 dE						
3 4										Freq Offse
5										0 H
6 7										
8										
9										
ō										

## Conducted Emission Transmitting Mode CH 4233 30MHz – 9GHz

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Shenzhen STS Test Services Co., Ltd.



### CONDUCTED EMISSION IN UMTS HSDPA band V

#### Conducted Emission Transmitting Mode CH 4132 30MHz - 9GHz

:08 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 Avg Type: Log-Pwr Frequency Center Freq 4.515000000 GHz PNO: Fast Trig: Free Run IFGain:Low #Atten: 36 dB DET P P P P P Auto Tune Mkr1 826.1 MHz 23.663 dBm Ref Offset 9.5 dB Ref 35.50 dBm 10 dB/div Log **Center Freq** 4.515000000 GHz 5.5 4.50 Start Freq 147 30.000000 MHz  $\Diamond^2$ 24. 34. Stop Freq 44 ! 9.000000000 GHz Start 30 MHz #Res BW 1.0 MHz Stop 9.000 GHz CF Step 897.000000 MHz #VBW 3.0 MHz Sweep 15.5 ms (8001 pts) MKR MODE TRC SCL FUNCTION FUNCTION WIDTH Ma 826.1 MHz 5.972 6 GHz 23.663 dBm -31.092 dBm N 1 f N 1 f 2 3 4 5 6 7 8 9 10 11 12 Freq Offset 0 Hz STATUS

### Conducted Emission Transmitting Mode CH 4132 30MHz - 9GHz

Agilent Spectrum Analyzer - Swept SA					
LXIRL RF 50Ω AC		SENSE:INT	ALIGN AUTO Avg Type: Log-Pwr	02:37:06 AM Dec 12, 2015 TRACE 1 2 3 4 5 6	Frequency
Center Freq 4.51500000	PNO: Fast IFGain:Low	Trig: Free Run #Atten: 36 dB	Avg Type: Log-Pwr	TYPE MWWWWW DET P P P P P P	
Ref Offset 9.5 dB 10 dB/div Ref 35.50 dBm			Μ	kr1 833.9 MHz 23.778 dBm	Auto Tune
25.5					Center Freq
5.50					4.515000000 GHz
-4.50				-13.00 dBm	Start Freq
-24.5	و معادلة و المحمد و المحمد الم			2 <sup>2</sup>	30.000000 MHz
-44.5					Stop Fred
-54.5					9.000000000 GHz
Start 30 MHz #Res BW 1.0 MHz	#VBW	3.0 MHz	Sweep '	Stop 9.000 GHz 15.5 ms (8001 pts)	CF Step 897.000000 MHz
	833.9 MHz 943 8 GHz	23.778 dBm -30.348 dBm	UNCTION FUNCTION WIDTH	FUNCTION VALUE	<u>Auto</u> Mar
3 4	343 8 912	-50.548 uBm			Freq Offset
5 6 7 8 9					0 Hz
8 9 10					
11 12					
MSG			STATUS		



Frequency	02:46:07 AM Dec 12, 2015	ALIGN AUTO		SENSE:IN		50Ω AC	RF	RL
	TRACE 1 2 3 4 5 6 TYPE M WWWWWW DET P P P P P P	Type: Log-Pwr		Trig: Free Run #Atten: 36 dB	GHz PNO: Fast ( IFGain:Low	5000000	req 4.5	enter
Auto Tui	kr1 845.1 MHz 23.284 dBm	М				et 9.5 dB 50 dBm	Ref Offs Ref 35	dB/div
Center Fre								g .5
4.515000000 GI								50
Start Fro	-13.00 dBm						_	50
30.000000 MI	-10.00 0.011	2	$\rightarrow$					.5
Stop Fr	and the second data in t	and the second secon			يحتاذ الدي حابي			
9.000000000 GI								.5
CF Ste 897.000000 M	Stop 9.000 GHz 5.5 ms (8001 pts)	Sweep 1		3.0 MHz	#VB		MHz / 1.0 MHz	art 30 tes BV
Auto M	FUNCTION VALUE	FUNCTION WIDTH	FUNCTION	23.284 dBm	345.1 MHz		1 f	NODE
Freq Offs				-29.643 dBm	779 8 GHz	5.7	1 f	N
0								i i ·
								1

### Conducted Emission Transmitting Mode CH 4233 30MHz - 9GHz



Shenzhen STS Test Services Co., Ltd.



### CONDUCTED EMISSION IN UMTS HSUPA band V

#### Conducted Emission Transmitting Mode CH 4132 30MHz - 9GHz

:49 AM Dec 12, 2015 TRACE 1 2 3 4 5 4 Avg Type: Log-Pwr Frequency Center Freq 4.515000000 GHz PNO: Fast Trig: Free Run IFGain:Low #Atten: 36 dB DET P P P P P Auto Tune Mkr1 826.1 MHz 25.765 dBm Ref Offset 9.5 dB Ref 35.50 dBm 10 dB/div Log **Center Freq** 4.515000000 GHz 5.5 -4.50 Start Freq 147 30.000000 MHz  $\langle \rangle^2$ 24.4 34.6 Stop Freq 44 ! 9.000000000 GHz Start 30 MHz Res BW 3.0 MHz Stop 9.000 GHz CF Step 897.000000 MHz #VBW 3.0 MHz Sweep 15.5 ms (8001 pts) MKR MODE TRC SCL FUNCTION FUNCTION WIDTH Ma 25.765 dBm -26.160 dBm N 1 f N 1 f 826.1 MHz 6.944 7 GHz 2 3 4 5 6 7 8 9 10 11 12 Freq Offset 0 Hz STATUS

### Conducted Emission Transmitting Mode CH 4183 30MHz - 9GHz

								Swept SA	Analyzer - S	ectrum	
Frequency	AM Dec 12, 2015		ALIGN AUTO		NSE:INT	SE		DΩ AC			RL
	ACE 1 2 3 4 5 6 TYPE M MAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	TY	: Log-Pwr	Avg Typ	e Run 6 dB	Trig: Free #Atten: 30	GHZ PNO: Fast 😱 IFGain:Low	000000	q 4.5150	Fre	nter
Auto Tur	33.9 MHz 125 dBm		Μ						Ref Offset 9 Ref 35.50		dB/di
Center Fre 4.515000000 GH									1		9 .5 .5
Start Fre 30.000000 MH	-13.00 dBm										0
<b>Stop Fre</b> 9.000000000 GH											5 5 5
CF Ste 897.000000 M	9.000 GHz (8001 pts)	15.5 ms (			1	3.0 MHz	#VBW		0 MHz		es B
<u>Auto</u> M	TION VALUE	FUNCTI	NCTION WIDTH	ICTION FL	Bm	24.125 d -30.868 d	33.9 MHz 10 7 GHz		SGL f	TRC 1 1	NODI N N
Freq Offs 0											
			STATUS								



### Report No.: STS1512058F01

K/ RL	RF 50	DΩ AC	SE	INSE:INT	ALIGN AU	ITO 02:42:44 AM	Dec 12, 2015	-
Center	Freq 4.515	000000 GHz PNO: F IFGain:L		e Run	Avg Type: Log-P	TYPE	123456 MWWWWW PPPPPP	Frequency
I0 dB/div	Ref Offset Ref 35.5					Mkr1 845 23.35	.1 MHz 5 dBm	Auto Tun
. <b>og</b> 25.5	<b>≬</b> 1							Center Fre
15.5								4.515000000 GH
5.50								
.50 —							-13.00 dBm	Start Fre
4.5							-13.00 dbm	30.000000 MH
24.5							L	00.000000 111
4.5			and the second division of the second divisio	and here the state of the state	territ internet and a sector second		-	
44.5								Stop Fre
54.5								9.00000000 GH
tart 30 Res B\	MHz N 1.0 MHz	#	VBW 3.0 MHz		Swee	Stop 9. p 15.5 ms (8	000 GHz 001 pts)	CF Ste 897.000000 M⊦
KR MODE	TRC SCL	× 845.1 MH	z 23,355 c	FUNCTIO	DN FUNCTION W	IDTH FUNCTION		<u>Auto</u> Ma
2 N 3	1 f	5.834 7 GH	lz -30.987 d	Bm				
4								Freq Offse 0 ⊢
5 6 7								UF
7 8								
8 9								
8								

## Conducted Emission Transmitting Mode CH 4233 30MHz – 9GHz

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Shenzhen STS Test Services Co., Ltd.



### CONDUCTED EMISSION IN UMTS band II

#### Conducted Emission Transmitting Mode 9262 30MHz – 20GHz

Applent Spectrum version of the state of the spectrum version o :59 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 01:46 Frequency Avg Type: Log-Pwr DET P P P P P Auto Tune Mkr1 1.850 9 GHz 19.721 dBm Ref Offset 9.8 dB Ref 35.80 dBm 10 dB/div Log ∆1 **Center Freq** 6.015000000 GHz 5.80 -4.20 Start Freq 14.1 30.000000 MHz 24.3  $\Diamond$ 34. Stop Freq -44 0 12.000000000 GHz 54. Start 30 MHz #Res BW 1.0 MHz Stop 12.000 GHz Sweep 20.3 ms (8001 pts) **CF Step** 1.197000000 GHz <u>uto</u> Man #VBW 3.0 MHz 
 Mrcs
 JW 1.0 fr.
 Scut

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 FUNCTION FUNCTION WIDTH FUNCTION Auto 1.850 9 GHz 7.053 4 GHz 19.721 dBm -30.041 dBm Freq Offset 0 Hz STATUS SG

Frequency	01:47:28 AM Dec 12, 2015 TRACE 1 2 3 4 5 6	ALIGNAUTO e: Log-Pwr	Ava	VSE:INT	SE	CHE	50Ω AC		L F
	TYPE MWWWWW DET P P P P P P	e. Loga wi	Alg.		Trig: Free #Atten: 36	PNO: Fast C IFGain:Low		req 10.00	пегг
Auto Ti	r1 16.363 GHz -24.593 dBm	Mk						Ref Offse Ref 35.8	B/div
Center F									
16.000000000									
04									
Start F 12.000000000	-13.00 dBm			↓1			_		
			-				and a strength of the second	1815	-
Stop F									
20.000000000									
CF S 800.000000 1	Stop 20.000 GHz 20.3 ms (8001 pts)	Sweep 2			V 3.0 MHz	#VB		00 GHz 1.0 MHz	
	FUNCTION VALUE	UNCTION WIDTH	NCTION	3m	-24.593 di	363 GHz		f	MODE T
Auto I				3m	-24.593 di	363 GHz	16.	f	N 1
Freq Off									
Freq Off									
Auto r Freq Off									



#### Applent Spear unter the SO Q AC C Center Freq 6.015000000 GHz PN0: Fast IFGain:Low #Atten: 36 dB 22 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 Frequency Avg Type: Log-Pwr DET P P P P F Auto Tune Mkr1 1.879 4 GHz 20.887 dBm Ref Offset 9.8 dB Ref 35.80 dBm 10 dB/div Log 1 ۸ 25.1 **Center Freq** 6.015000000 GHz 5.80 -4.20 Start Freq 14.3 30.000000 MHz ()<sup>2</sup> 24.2 -34.3 Stop Freq -44 3 12.000000000 GHz -54.3 Start 30 MHz #Res BW 1.0 MHz Stop 12.000 GHz Sweep 20.3 ms (8001 pts) CF Step 1.19700000 GHz #VBW 3.0 MHz MKR MODE TRC SCL FUNCTION FUNCTION WIDTH Auto Mar 1.879 4 GHz 7.448 4 GHz 20.887 dBm -30.088 dBm N N 1 f 1 f 2 3 4 5 6 7 8 9 10 11 12 Freq Offset 0 Hz STATUS

#### Conducted Emission Transmitting Mode CH 9400 30MHz - 20GHz

Frequency	2:50 AM Dec 12, 2015 TRACE 1 2 3 4 5 6		ALIGN AUTO	0	JSE:INT	SEN		Ω AC	nalyzer - Sv F 50	
	TYPE MWWWW DET P P P P P P		e. Log-Fwr	Avg		Trig: Free #Atten: 36	Gain:Low	000000	16.000	er Frec
Auto T	6.246 GHz 4.882 dBm		MI						ef Offset 9 ef 35.80	
Center F										
16.000000000										
Start F										
12.000000000	-13.00 dBm									
	a sector of the sector of the	لا الا أو الأوليان ال	-		and and all a	unio de la companya	and the second second	an <sup>ali</sup> slandson aller	a substances	and the second
Stop F 20.000000000										
050	o 20.000 GHz									12.000
CF S 800.000000	ns (8001 pts)		Sweep 2			3.0 MHz	#VBW		MHz	BW 1.0
Auto	INCTION VALUE	FUNC	UNCTION WIDTH	UNCTION	3m	-24.882 dE -24.882 dE	46 GHz 46 GHz			IDE TRC 9 N 1 1
Freq Of					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	-24.002 UL	40 GHZ	10.		• •



### Conducted Emission Transmitting Mode CH 9538 30MHz - 20GHz

	rum Analyzer -									
Center F		0Ω AC	7		VSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	TRAC	M Dec 12, 2015	Frequency
10 dB/div	Ref Offset Ref 35.8	Ph IFG :9.8 dB	IO: Fast ⊂⊾ ain:Low	Trig: Free #Atten: 36			Mk	₀ r1 1.906	3 GHz	Auto Tune
25.8 15.8 5.80		1								Center Freq 6.015000000 GHz
-4.20 -14.2 -24.2									-13.00 dBm	Start Freq 30.000000 MHz
-34.2 -44.2 -54.2										<b>Stop Freq</b> 12.00000000 GHz
Start 30 I #Res BW	1.0 MHz	×		/ 3.0 MHz		CTION FU	Sweep	20.3 ms (8	. /	<b>CF Step</b> 1.197000000 GHz <u>Auto</u> Man
	1 f 1 f	1.906 ( 11.799 (		21.348 dl -30.334 dl						Freq Offset 0 Hz
9 10 11 12 <sup>MSG</sup>							STATUS			

	rum Analyzer	Swept SA								
XIRL		οΩ AC		SENSE			ALIGNAUTO : Log-Pwr		Dec 12, 2015	Frequency
	-req 16.00		GHZ PNO: Fast G FGain:Low	Trig: Free Ru #Atten: 36 dB	ın	Avg type	. Log-F wi	TYP	PPPPP PPPPP	
I0 dB/div	Ref Offse Ref 35.8						MI	(r1 16.3) -25.06	54 GHz 58 dBm	Auto Tune
.og 25.8										Center Fre
15.8										16.000000000 GH
5.80										
4.20									-13.00 dBm	Start Fre
24.2										12.000000000 GH
4.2 <b>Here</b>	-	and the second designation of the second designation of the second designation of the second designation of the				a little and the second distance	نىرىدەۋە «ئەللەرلىرىدە»		and the state of the	
44.2										Stop Fre
54.2										20.00000000 GH
	000 GHz / 1.0 MHz		#VBV	V 3.0 MHz			Sweep 2	Stop 20. 20.3 ms (8	000 GHz 3001 pts)	CF Ste 800.000000 MH
	1 f		354 GHz	Y -25.068 dBm		ON FUI	NCTION WIDTH	FUNCTIO	N VALUE	<u>Auto</u> Ma
3	1 f	16.3	354 GHz	-25.068 dBm						Freq Offs
4										0+
5										
5 6 7										
5 6 7 8 9										
5 6 7 8 9 0										



### CONDUCTED EMISSION IN UMTS HSDPA band II

#### Conducted Emission Transmitting Mode CH 9262 30MHz - 20GHz

RL RF 50 Q AC Center Freq 6.015000000 GHz PN0: Fast IFGain:Low #Atten: 36 dB 02:18:00 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 Frequency Avg Type: Log-Pwr DET P P P P P Auto Tune Mkr1 1.852 4 GHz 18.799 dBm Ref Offset 9.8 dB Ref 35.80 dBm 10 dB/div Log \_\_1 **Center Freq** 6.015000000 GHz 5.80 -4.20 Start Freq 14.1 30.000000 MHz 24.3 34.0 Stop Freq -44 0 12.000000000 GHz 54. Start 30 MHz #Res BW 1.0 MHz Stop 12.000 GHz Sweep 20.3 ms (8001 pts) **CF Step** 1.197000000 GHz <u>uto</u> Man #VBW 3.0 MHz 
 Mrcs
 JW 1.0 fr.
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 FUNCTION FUNCTION WIDTH Auto 1.852 4 GHz 11.968 6 GHz 18.799 dBm -30.088 dBm Freq Offset 0 Hz STATUS SG

RL	RF	50Ω AC		SEN	SE:INT	Aug Typ	ALIGNAUTO e: Log-Pwr		M Dec 12, 2015 E 1 2 3 4 5 6	Frequency
enter F	req 16.U	00000000	PNO: Fast C IFGain:Low	Trig: Free #Atten: 36		AVG TVP	e. Log-r wi	TYP	TPPPPP	
dB/div		et 9.8 dB .80 dBm					M		83 GHz 30 dBm	Auto Tu
5.8										Center Fr
.8										16.00000000 G
20										Start E
.2					1				-13.00 dBm	Start Fr 12.000000000 G
.2	-	and the local data and the local data			a provinsi si s	and the second secon	وحداباللاط ومرادعه			
2										Stop Fi 20.00000000 0
art 12.0	00 GHz							Stop 20	.000 GHz	
	1.0 MHz		#VB	W 3.0 MHz			Sweep		8001 pts)	CF St 800.000000 M
NODE TR	f		.583 GHz	-25.130 dB		TION FU	INCTION WIDTH	FUNCTIO	IN VALUE	<u>Auto</u> N
N 1	f	16	.583 GHz	-25.130 dB	m					Freq Off
										0
• 										
1										
2										



#### Report No.: STS1512058F01

	02:09:05 AM Dec 12, 2015	ALIGN AUTO	SENSE:INT	50 Ω AC	RF	
Frequency	TRACE 1 2 3 4 5 6 TYPE M WARAANN DET P P P P P P	vg Type: Log-Pwr	Trig: Free Run #Atten: 36 dB	.015000000 GHz PNO: Fast IFGain:Low	Freq 6.015000000	
Auto Tu	r1 1.879 4 GHz 19.889 dBm	Mkı		0ffset 9.8 dB 35.80 dBm		
Center Fr				1		
6.015000000 G						
04						
Start Fr 30.000000 M	-13.00 dBm 2/					
		and the second state	and the second			
Stop Fr						
12.00000000 G						
	Stop 12.000 GHz				0 MHz	
CF St 1.197000000 G	20.3 ms (8001 pts)	-	3.0 MHz		W 1.0 M	
CF St 1.197000000 G	20.3 ms (8001 pts)	-	Y FU 19.889 dBm	× 1.879 4 GHz	W 1.0 M	
CF St 1.197000000 G <u>Auto</u> N Freq Offs	20.3 ms (8001 pts)	-	Y FUI	×	W 1.0 MI	
CF St 1.197000000 G <u>Auto</u> M Freq Off	20.3 ms (8001 pts)	-	Y FU 19.889 dBm	× 1.879 4 GHz	W 1.0 M	
CF St 1.197000000 G <u>Auto</u> N Freq Offs	20.3 ms (8001 pts)	-	Y FU 19.889 dBm	× 1.879 4 GHz	W 1.0 M	
<b>CF St</b> 1.197000000 G	20.3 ms (8001 pts)	-	Y FU 19.889 dBm	× 1.879 4 GHz	W 1.0 M	

### Conducted Emission Transmitting Mode CH 9400 30MHz – 20GHz

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Agilent Spect	rum Analyzer - Sv	vept SA								
LXI RL		2 AC		SENS	E:INT		ALIGN AUTO		M Dec 12, 2015	Frequency
Center F	req 16.000			Trig: Free I	Run	Avg T	/pe: Log-Pwr	TYP	E 1 2 3 4 5 6	Trequency
		IFG	10: Fast 🖵 Jain:Low	#Atten: 36				DE	PPPPP	
							MI	(r1 16 4	07 GHz	Auto Tune
10 dB/div	Ref Offset 9 Ref 35.80								78 dBm	
Log	Kei JJ.00	ubiii								
25.8										Center Freq
15.8										16.00000000 GHz
5.80										
-4.20									-13.00 dBm	Start Freq
-14.2					1 =					12.000000000 GHz
-24.2				والمقامعة واستأسرت	and and address of		المعاملاتين والتقرير	يبغيا وسيليمي	n Literil	
-34.2	and the second	an <sup>an a</sup> the second	-							
-44.2										Stop Freq
-54.2										20.00000000 GHz
*34.2										
Start 12.0	000 GHz							Stop 20	.000 GHz	
#Res BW	1.0 MHz		#VBW	3.0 MHz			Sweep 3		8001 pts)	CF Step
MKR MODE T	pel sei l	×		V	L CLIN	TION	FUNCTION WIDTH	FUNCTIO	MAALLE	800.000000 MHz Auto Man
1 N 1		16.40	7 GHz	-24.578 dB		JIION	TONCHON WIDTH	rokene		
2 N 1	1 f	16.40	7 GHz	-24.578 dB	n					
3										Freq Offset
										0 Hz
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10 11										
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MSG							STATUS			



RL	RF 50 9			SEN	VSE:INT		ALIGN AUTO	02:00:22 AM		Frequency
nter F	req 6.0150	PNC	East 🕟	Trig: Free #Atten: 36		Avg Typ	e: Log-Pwr	TYPE	123456 MWWWWW PPPPPP	
dB/div	Ref Offset 9 Ref 35.80						Mk	r1 1.906 20.46	3 GHz 2 dBm	Auto Tu
.8	<b>↓</b> 1									Center Fr
8										6.015000000 G
0										
0									-13.00 dBm	Start Fr
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urt 30 I	MHz 1.0 MHz		#VBW 3				Swoon (	Stop 12.0 20.3 ms (8		CF St
I MODEL T		×	#VBVV.		611	ICTION F		EU.J IIIS (8	. /	1.197000000 G Auto N
N	1 f	1.906 3		20.462 dE	3m	NCTION TH	UNCTION WIDTH	FUNCTION	VALUE	<u>Auto</u> w
N	1 f	11.944 6	GHZ -	30.444 dE	sm					Freq Offs
										0

# Conducted Emission Transmitting Mode CH 9538 30MHz - 20GHz

	4 Dec 12, 2015	02:00:50 AM	ALIGNAUTO		ISE:INT	951			2er - Swe 50 Ω	um Analyz RF	L
Frequency	E 1 2 3 4 5 6 E M WWWWW T P P P P P P	TRACI	: Log-Pwr	Avg	Run	Trig: Free #Atten: 36	GHZ NO: Fast G Gain:Low	00000 <b>(</b>		1.0	
Auto Ti	37 GHz 18 dBm	(r1 16.6 -25.04	Mk						fset 9.8 5.80 d		B/div
Center F											
16.000000000											
Start F	-13.00 dBm										
12.000000000	-13.00 dbm				•						
	and the state of the	an a	Name of Street, or other	-	an a	والمعادي والالأنبوال	• • • • • • • • • • • • • • • • • • •	and design of the local division of the loca			
Stop F											
20.00000000											
CF S 800.000000	.000 GHz 3001 pts)		Sweep 2			3.0 MHz	#VBW			00 GH2 1.0 MH	
<u>Auto</u>	N VALUE	FUNCTIO	ICTION WIDTH	CTION	3m	Y -25.048 di	7 GHz			f	MODE T
Freq Of					Im	-25.048 di	7 GHz	16.63		f	N
.111			STATUS								



# CONDUCTED EMISSION IN UMTS HSUPA band II

#### Conducted Emission Transmitting Mode CH 9262 30MHz – 20GHz

Center Freq 6.01500000 GHz PN0: Fast IFGain:Low #Atten: 36 dB 33 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 02:14 Frequency Avg Type: Log-Pwr DET P P P P P Auto Tune Mkr1 1.852 4 GHz 19.026 dBm Ref Offset 9.8 dB Ref 35.80 dBm 10 dB/div Log <mark>∕</mark>1 25.1 **Center Freq** 6.015000000 GHz 5.80 -4.20 Start Freq -13.00 dE 14.1 30.000000 MHz 24.3 -34.0 Stop Freq -44 0 12.000000000 GHz 54.3 Start 30 MHz #Res BW 1.0 MHz Stop 12.000 GHz Sweep 20.3 ms (8001 pts) **CF Step** 1.197000000 GHz <u>uto</u> Man #VBW 3.0 MHz 
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 FUNCTION FUNCTION WIDTH FUNCTIO Auto 1.852 4 GHz 11.853 4 GHz 19.026 dBm -29.943 dBm Freq Offset 0 Hz STATUS SG

-	02:15:02 AM Dec 12, 2015	ALIGN AUTO		SE:INT	SEN		- Swept SA 50 Ω AC	rum Analyzer RF	ent Spect RL
Frequency	TRACE 1 2 3 4 5 6 TYPE M WAAWAA DET P P P P P P	: Log-Pwr	Avg Ty		Trig: Free #Atten: 36	) GHz PNO: Fast ⊂ IFGain:Low	0000000	req 16.0	nter F
Auto Tu	(r1 16.531 GHz -24.063 dBm	Mk						Ref Offs Ref 35.	dB/div
Center F									8
16.000000000									
Start F	-13.00 dBm					_			
12.000000000	a tradicional faliato de la constitución de			1					2
Oton F		and the second	and the second designment of the second design		an a	des discontraction of the second s		alasi selahin	2
Stop F 20.000000000									2
CF St 800.000000 M	Stop 20.000 GHz 20.3 ms (8001 pts)	Sweep 2			3.0 MHz	#VBV		00 GHz 1.0 MHz	
Auto N	FUNCTION VALUE	NCTION WIDTH	CTION	m	-24.063 dE	.531 GHz		f	
Freq Off				5m	-24.063 dE	.531 GHz	16	f	N
		STATUS							



# Conducted Emission Transmitting Mode CH 9400 30MHz - 20GHz

	um Analyzer - S									
Center F		000000 GH	z		NSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	TRAC	M Dec 12, 2015 E 1 2 3 4 5 6	Frequency
		PI	iO: Fast 🕞	Trig: Free #Atten: 30				TYI Di		
	Ref Offset	0.0 48					Mk	r1 1.87	9 4 GHz	Auto Tune
10 dB/div	Ref 35.8							19.8	69 dBm	
25.8	1									Center Freq
15.8										6.015000000 GHz
5.80										
-4.20										Start Freq
-14.2									-13.00 dBm	30.000000 MHz
-24.2		ورساطا فيروا والمغرب		- and the second discussion						
-34.2			State of the second	الإنتقادين والموتدين			and the second			Stop Frog
-44.2										Stop Freq 12.00000000 GHz
Start 30 N #Res BW			#1/D14	/ 3.0 MHz			Guian		.000 GHz 8001 pts)	CF Step
			#VDV				· ·		• •	1.197000000 GHz
MKR MODE TH	f	× 1.879 -		19.869 d	Bm	ICTION FU	NCTION WIDTH	FUNCTI	ON VALUE	<u>Auto</u> Man
2 N 1 3	f	11.985	0 GHz	-30.347 di	Bm					<b>F</b> == = 0 <b>f</b> ==+
4										Freq Offset 0 Hz
2 N 1 3 4 5 6 7 8 9										
8										
10										
11 12										
MSG							STATUS	;		1
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	rum Analyzer -									
enter F	RF 5	0Ω AC 00000000			E:INT	Avg Typ	ALIGN AUTO e: Log-Pwr	TRAC	M Dec 12, 2015 E 1 2 3 4 5 6	Frequency
			PNO: Fast G IFGain:Low	Trig: Free F #Atten: 36				DE	TPPPPP	Auto Tun
0 dB/div	Ref Offsei Ref 35.8						M		58 GHz 29 dBm	
og 25.8										Center Fre
5.8										16.00000000 GH
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4.2					- 21				-13.00 dBm	Start Fre
24.2						وأحاد وأوالي والمتحادث		Jal contraction in the	de Rinne de la	12.00000000 GH
4.2	al han the second second second									Stop Fre
4.2										20.000000000 GH
tart 12 (	000 GHz							Stop 20	.000 GHz	
	1.0 MHz		#VBV	V 3.0 MHz			Sweep 🔅		8001 pts)	CF Ste 800.000000 MH
KR MODE T	RC SCL	× 16.	558 GHz	-24,529 dBi	FUNC	TION F	UNCTION WIDTH	FUNCTIO	IN VALUE	<u>Auto</u> Ma
2 N 3	1 f	16	410 GHz	-25.065 dB	m					Freq Offs
4 5										0 H
5 6 7 8 9										
8 9 0										
1										
-										



# Conducted Emission Transmitting Mode CH 9538 30MHz - 20GHz

	rum Analyzer - Sv									
Center F	RF 50		lz		JSE:INT	Avg Type	ALIGNAUTO : Log-Pwr	TRACE	Dec 12, 2015	Frequency
			10: Fast 🕞 Jain:Low	Trig: Free #Atten: 36				DE'		
10 dB/div	Ref Offset 9 Ref 35.80						Mk	r1 1.906 20.10	3 GHz 9 dBm	Auto Tune
25.8 15.8 5.80	∳ <sup>1</sup>									Center Freq 6.015000000 GHz
-4.20 -14.2 -24.2									-13.00 dBm	Start Freq 30.000000 MHz
-34.2 -44.2 -54.2					ilazar filikin jarihin					<b>Stop Freq</b> 12.000000000 GHz
Start 30 M #Res BW	1.0 MHz		#VBW	/ 3.0 MHz			· · ·	20.3 ms (8	. /	CF Step 1.197000000 GHz
MKR         MODE         T1           1         N         1           2         N         1           3         4         5           5         6         7           8         9         10           10         11         1		× 1.906 ; 7.949 <sup>-</sup>		Y 20.109 dE -29.823 dE	3m	NCTION FU	NCTION WIDTH	FUNCTIO	N VALUE	Auto Man Freq Offset 0 Hz
11 12 <sup>MSG</sup>							STATUS	8		

Agilent Spect	trum Ann	herer Sur	ant SA										
N/ RL	RF	50 Ω	AC			SEN	ISE:INT	Ava		IGN AUTO		M Dec 12, 2015	Frequency
enter i	-req 1	6.0000		GHZ PNO: Fast -Gain:Low		ig: Free tten: 36			Type. L	.0g-r wi	TV	PE M WARANAN ET P P P P P P	
0 dB/div		Offset 9.8 35.80 (								М		502 GHz 72 dBm	Auto Tun
og 25.8													Center Fre
5.8								_					16.00000000 GH
.80													
.20												-13.00 dBm	Start Fre
4.2							<b>\</b> `						12.00000000 GH
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4.2													Stop Fre
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tart 12. Res BM				#V	BW 3.0	MHz			s	weep		.000 GHz 8001 pts)	CF Ste
KR MODE	TRC SCL		×			Y		NCTION		TION WIDTH		ON VALUE	800.000000 Mi Auto Ma
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3 4													Freq Offs
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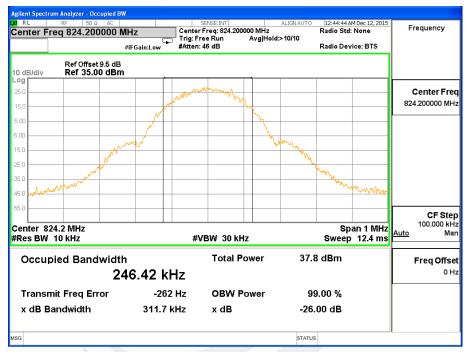


# **APPENDIX II**

# **TEST PLOTS FOR OCCUPIED BANDWIDTH (99%)**

# **EMISSION BANDWIDTH (-26dBC)**

Occupied Bandwidth (99%) GSM 850 BAND CH 128



# Occupied Bandwidth (99%) GSM 850 BAND CH 190





# Occupied Bandwidth (99%) GSM 850 BAND CH 251

SENSE:INT ALIGN AL Center Freq: 848.800000 MHz Trig: Free Run Avg|Hold>10/10 #Atten: 46 dB ₩ RL RF 50Ω AC Center Freq 848.800000 MHz 01:00:00 AM Dec 12, 2019 Radio Std: None Frequency Ģ #IFGain:Low Radio Device: BTS Ref Offset 9.5 dB Ref 35.00 dBm 10 dB/div Log **Center Freq** 848.800000 MHz 15 5.00 -5.00 25 35. 45. **CF Step** 100.000 kHz Man Span 1 MHz Sweep 12.4 ms Center 848.8 MHz #Res BW 10 kHz <u>Auto</u> #VBW 30 kHz Total Power 37.8 dBm **Occupied Bandwidth** Freq Offset 0 Hz 246.11 kHz -527 Hz Transmit Freq Error **OBW Power** 99.00 % x dB Bandwidth 315.4 kHz x dB -26.00 dB STATUS



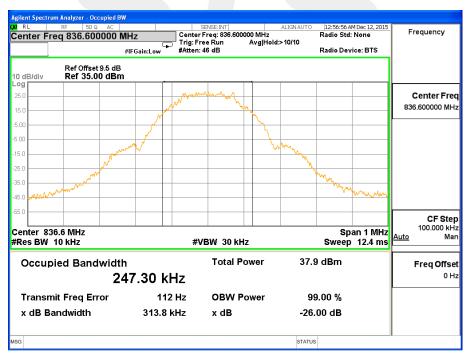
Shenzhen STS Test Services Co., Ltd.



#### Occupied Bandwidth (99%) GPRS 850 BAND CH 128

SENSE:INT Center Freq: 824.200000 MHz Trig: Free Run Avg|Hol #Atten: 46 dB 12:46:56 AM Dec 12, 201 Radio Std: None Frequency Center Freq 824.200000 MHz Avg|Hold:>10/10 Ģ Radio Device: BTS #IFGain:Low Ref Offset 9.5 dB Ref 35.00 dBm 10 dB/div Log **Center Freq** 824.200000 MHz 5.00 25 45. CF Step 100.000 kHz Span 1 MHz Center 824.2 MHz Auto Ma #Res BW 10 kHz #VBW 30 kHz Sweep 12.4 ms **Occupied Bandwidth Total Power** 37.9 dBm Freq Offset 0 Hz 246.20 kHz 350 Hz 99.00 % **Transmit Freq Error OBW Power** x dB Bandwidth 315.1 kHz x dB -26.00 dB STATUS

# Occupied Bandwidth (99%) GPRS 850 BAND CH 190





# Occupied Bandwidth (99%) GRPS 850 BAND CH 251

SENSE:INT ALIGN AL Center Freq: 848.800000 MHz Trig: Free Run Avg|Hold>10/10 #Atten: 46 dB ₩ RL RF 50Ω AC Center Freq 848.800000 MHz 01:03:42 AM Dec 12, 2019 Radio Std: None Frequency Ģ #IFGain:Low Radio Device: BTS Ref Offset 9.5 dB Ref 35.00 dBm 10 dB/div Log **Center Freq** 75 848.800000 MHz 15 5.00 -5.00 25.0 35. mary 45.0 55 **CF Step** 100.000 kHz Man Center 848.8 MHz #Res BW 10 kHz Span 1 MHz Sweep 12.4 ms <u>Auto</u> #VBW 30 kHz Total Power 36.4 dBm **Occupied Bandwidth** Freq Offset 0 Hz 246.30 kHz 694 Hz Transmit Freq Error **OBW Power** 99.00 % x dB Bandwidth 317.6 kHz x dB -26.00 dB STATUS



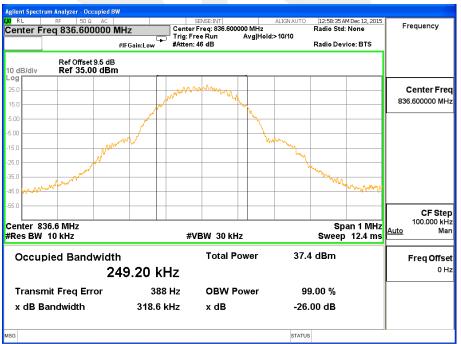
Shenzhen STS Test Services Co., Ltd.



## Occupied Bandwidth (99%) EDGE 850 BAND CH 128

12:50:41 AM Dec 12, 2019 Radio Std: None SENSE:INT Center Freq: 824.200000 MHz Trig: Free Run Avg|Hol #Atten: 46 dB Frequency Center Freq 824.200000 MHz Avg|Hold:>10/10 Ģ Radio Device: BTS #IFGain:Low Ref Offset 9.5 dB Ref 35.00 dBm 10 dB/div Log **Center Freq** 824.200000 MHz 5.00 25 45. CF Step 100.000 kHz Span 1 MHz Center 824.2 MHz Auto Ma #Res BW 10 kHz #VBW 30 kHz Sweep 12.4 ms **Occupied Bandwidth Total Power** 37.6 dBm Freq Offset 0 Hz 248.06 kHz 35 Hz 99.00 % **Transmit Freq Error OBW Power** x dB Bandwidth 317.6 kHz x dB -26.00 dB STATUS

# Occupied Bandwidth (99%) EDGE 850 BAND CH 190





# Occupied Bandwidth (99%) EDGE 850 BAND CH 251

SENSE:INT ALIGN AL Center Freq: 848.800000 MHz Trig: Free Run Avg|Hold>10/10 #Atten: 46 dB ₩ RL RF 50Ω AC Center Freq 848.800000 MHz 01:06:23 AM Dec 12, 2019 Radio Std: None Frequency Ģ #IFGain:Low Radio Device: BTS Ref Offset 9.5 dB Ref 35.00 dBm 10 dB/div Log **Center Freq** 848.800000 MHz 15 5.00 25 35. mar 45. **CF Step** 100.000 kHz Man Center 848.8 MHz #Res BW 10 kHz Span 1 MHz Sweep 12.4 ms <u>Auto</u> #VBW 30 kHz Total Power 36.7 dBm **Occupied Bandwidth** Freq Offset 0 Hz 242.36 kHz 503 Hz Transmit Freq Error **OBW Power** 99.00 % x dB Bandwidth 313.3 kHz x dB -26.00 dB STATUS



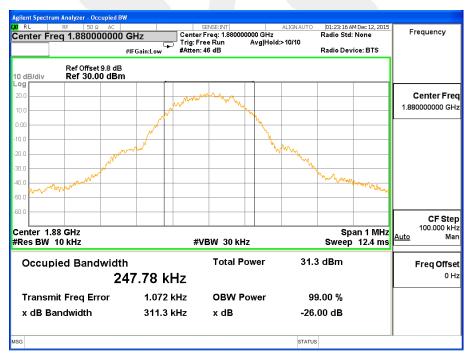
Shenzhen STS Test Services Co., Ltd.



#### Occupied Bandwidth (99%) PCS 1900 BAND CH 512

01:10:36 AM Dec 12, 2019 Radio Std: None Frequency Center Freq: 1.850200000 GHz Trig: Free Run Avg|Hold #Atten: 46 dB Center Freq 1.850200000 GHz Avg|Hold:>10/10 Ģ #IFGain:Low Radio Device: BTS Ref Offset 9.8 dB Ref 30.00 dBm 10 dB/div Log **Center Freq** 1.850200000 GHz 20 30. MM/L CF Step 100.000 kHz Center 1.85 GHz #Res BW 10 kHz Span 1 MHz Sweep 12.4 ms Auto Ma #VBW 30 kHz **Occupied Bandwidth Total Power** 30.3 dBm Freq Offset 0 Hz 245.58 kHz -806 Hz 99.00 % **Transmit Freq Error OBW Power** x dB Bandwidth 316.6 kHz x dB -26.00 dB STATUS

## Occupied Bandwidth (99%) PCS 1900 BAND CH 661





# Occupied Bandwidth (99%) PCS 1900 BAND CH 810

274 RL RF 50Ω AC Center Freq 1.909800000 GHz 01:30:09 AM Dec 12, 2019 Radio Std: None Center Freq: 1.909800000 GHz Trig: Free Run Avg|Hold #Atten: 46 dB Frequency Avg|Hold>10/10 Ģ #IFGain:Low Radio Device: BTS Ref Offset 9.8 dB Ref 30.00 dBm 10 dB/div Log **Center Freq** 1.909800000 GHz -30. 60 **CF Step** 100.000 kHz Man Center 1.91 GHz #Res BW 10 kHz Span 1 MHz Sweep 12.4 ms <u>Auto</u> #VBW 30 kHz Total Power 31.7 dBm **Occupied Bandwidth** Freq Offset 0 Hz 246.57 kHz -669 Hz Transmit Freq Error **OBW Power** 99.00 % x dB Bandwidth 319.3 kHz x dB -26.00 dB STATUS



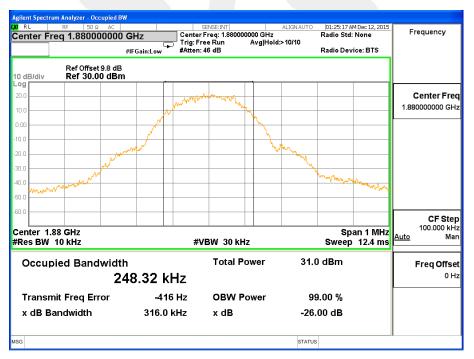
Shenzhen STS Test Services Co., Ltd.



#### Occupied Bandwidth (99%) GPRS 1900 BAND CH 512

01:14:34 AM Dec 12, 201 Radio Std: None Frequency Center Freq: 1.850200000 GHz Trig: Free Run Avg|Hold #Atten: 46 dB Center Freq 1.850200000 GHz Avg|Hold:>10/10 Ģ #IFGain:Low Radio Device: BTS Ref Offset 9.8 dB Ref 30.00 dBm 10 dB/div Log **Center Freq** 1.850200000 GHz 20 30. CF Step 100.000 kHz Center 1.85 GHz #Res BW 10 kHz Span 1 MHz Sweep 12.4 ms Auto Ma #VBW 30 kHz **Occupied Bandwidth Total Power** 30.3 dBm Freq Offset 0 Hz 244.13 kHz -1.937 kHz 99.00 % **Transmit Freq Error OBW Power** x dB Bandwidth 320.6 kHz x dB -26.00 dB STATUS

## Occupied Bandwidth (99%) GPRS 1900 BAND CH 661





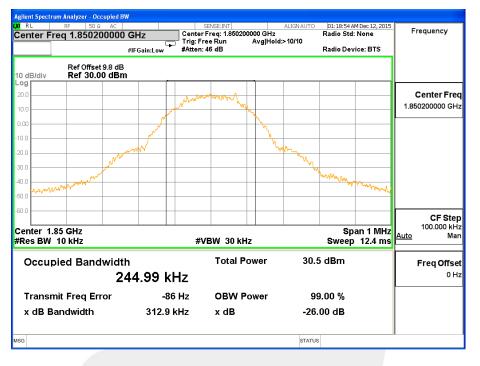
Agilent Spectrum Analyzer						- 17
Center Freq 1.90	50 Ω AC 9800000 GHz #IFGain:Low	Center Freq: Trig: Free Ru #Atten: 46 dE	1.909800000 GHz in Avg Ho	ALIGN AUTO	01:32:56 AM Dec 12, 20 Radio Std: None Radio Device: BTS	<sup>15</sup> Frequency
	set 9.8 dB 0.00 dBm					
20.0		Mar Marina Marina	am hun			Center Freq 1.909800000 GHz
-10.0			- M			-
-20.0	ad boom with the			WM Month		_
-30.0 -40.0	arman and a second s			~{	Mary Mary Mary Mary Mary Mary Mary Mary	~
-50.0						CF Step
Center 1.91 GHz #Res BW 10 kHz		#VBW	30 kHz		Span 1 MH Sweep 12.4 m	100.000 kHz
Occupied Ba	ndwidth 244.52 k	-	otal Power	31.9	) dBm	<b>Freq Offset</b> 0 Hz
Transmit Freq			BW Power		9.00 %	
x dB Bandwidtl	n 319.5	kHz x	dB	-26.	00 dB	
MSG				STATUS		

# Occupied Bandwidth (99%) GPRS 1900 BAND CH 810



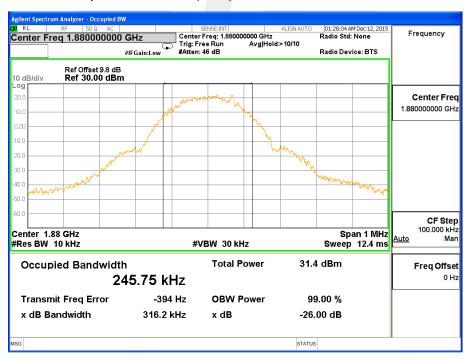


#### Report No.: STS1512058F01



# Occupied Bandwidth (99%) EDGE 1900 BAND CH 512

## Occupied Bandwidth (99%) EDGE 1900 BAND CH 661





ilent Spectrum Analyzer - Occupied BW RL RF 50 Ω AC		SENSE:INT	ALIGN AUTO	01:37:15 AM Dec 12, 2015	_
enter Freq 1.909800000	Trig: F	Trig: Free Run Avg Hold>10/10			Frequency
Ref Offset 9.8 dB dB/div Ref 30.00 dBm					
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enter 1.91 GHz				Span 1 MHz	CF Ste 100.000 kH
Res BW 10 kHz	#1	/BW 30 kHz		Sweep 12.4 ms	<u>Auto</u> Ma
Occupied Bandwidth		Total Power	32.0 d	IBm	Freq Offse
24	4.25 kHz				0+
Transmit Freq Error	398 Hz	OBW Power	99.0	0 %	
x dB Bandwidth	316.8 kHz	x dB	-26.00	dB	
à			STATUS		1

# Occupied Bandwidth (99%) EDGE 1900 BAND CH 810







10 dB/div .00

> 30 4N

Center 826.6 MHz #Res BW 100 kHz

**Occupied Bandwidth** 

Transmit Freg Error

x dB Bandwidth

4.1508 MHz

-1.161 kHz

4.674 MHz

# SENSE:INT ALIGN M Center Freq: 826.600000 MHz Trig: Free Run Avg|Hold>10/10 02:55:00 AM Dec 12, 2015 Radio Std: None Center Freq 826.600000 MHz Frequency #IFGain:Low <sup>J</sup> Trig: Free Run #Atten: 46 dB Radio Device: BTS Mkr1 827.302 MHz 18.904 dBm Ref Offset 9.5 dB Ref 30.00 dBm Center Fred 826.600000 MHz

# Occupied Bandwidth (99%) UMTS BAND V CH 4132

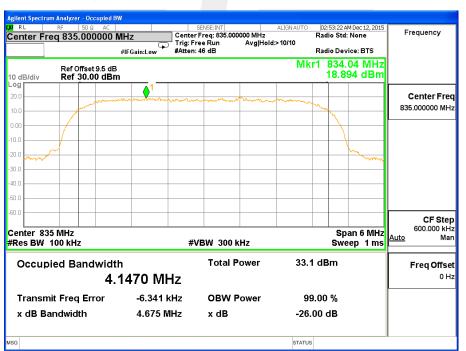
# Occupied Bandwidth (99%) UMTS BAND V CH 4183

#VBW 300 kHz

x dB

**Total Power** 

**OBW Power** 



1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road, Fuyong Street, Bao'an District, Shenzhen, Guangdong, China Tel: 0755-36886288 Fax: 0755-36886277 Http://www.stsapp.com E-mail: sts@stsapp.com

CF Step 600.000 kHz Man

Freq Offset

0 Hz

Span 6 MHz

Sweep 1 ms

33.0 dBm

99.00 %

-26.00 dB

STATUS

Auto



	n Analyzer - Occupied B	W						
Center Fre	RF 50Ω AC P <b>q 846.400000 I</b>		SENSE:INT Center Freq: 846.40 Trig: Free Run #Atten: 46 dB		ALIGN AUTO	Radio St	7 AM Dec 12, 2015 cd: None evice: BTS	Frequency
10 dB/div	Ref Offset 9.5 dB Ref 30.00 dBm	1			Mk		6.07 MHz 688 dBm	
20.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1 market	and the second s	m			Center Freq 846.400000 MHz
0.00						- V	λ	
20.0							hann	
40.0								
50.0								05.0402
Center 846 Res BW 1			#VBW 300	kHz		S Sv	pan 6 MHz /eep 1 ms	CF Step 600.000 kH <u>Auto</u> Mar
Occupi	ied Bandwidt 4.	<sup>h</sup> 1398 MH	Total I Z	Power	32.7	7 dBm		Freq Offse 0 H;
	it Freq Error	-11.077 kH	Iz OBW	Power	99	9.00 %		
x dB Ba	ndwidth	4.678 MH	lz xdB		-26.	00 dB		
SG					STATUS			I

# Occupied Bandwidth (99%) UMTS BAND V CH 4233





RL RF 50Ω AC nter Freq 826.600000 M	Trig: F	SENSE:INT         ALIGN AUTO           Center Freq: 826.600000 MHz         Trig: Freq: 826.600000 MHz           Trig: Freq: Run         Avg Hold>10/10           #Atten: 46 dB         Avg Hold>10/10			Dec 12, 2015 Ione e: BTS	Frequency				
Ref Offset 9.5 dB dB/div Ref 30.00 dBm										
	man	1 minumente	n	www		Center Fre 826.600000 MH				
				\.	m					
nter 826.6 MHz es BW 100 kHz	#	/BW 300 kHz			n 6 MHz p 1 ms	CF Ste 600.000 kH uto Ma				
Dccupied Bandwidth 4.1	590 MHz	Total Power	31.9	dBm		Freq Offs 0 H				
Fransmit Freq Error dB Bandwidth	434 Hz 4.659 MHz	OBW Power x dB		0.00 % 00 dB						
			STATUS							

# Occupied Bandwidth (99%) UMTS HSDPA BAND V CH 4132

# Occupied Bandwidth (99%) UMTS HSDPA BAND V CH 4183

RL Center Fre	RF 50 Ω AC eq 835.000000 I	Tri	SENSE:INT nter Freq: 835.000000 MHz g: Free Run Avg Ho tten: 46 dB	old:>10/10	02:35:15 AM Dec 12, 2015 Radio Std: None Radio Device: BTS	Frequency
10 dB/div	Ref Offset 9.5 dB Ref 30.00 dBm	an ounicon	aten: 40 db	Mkr1	835.744 MHz 17.887 dBm	
00         20.0           10.0						Center Free 835.00000 MH
Center 83: #Res BW			#VBW 300 kHz		Span 6 MHz Sweep 1 ms	CF Step 600.000 kH <u>Auto</u> Mar
Occup	ied Bandwidt 4.	<sup>h</sup> 1468 MHz	Total Power	32.0	dBm	Freq Offse 0 H
	iit Freq Error andwidth	-5.239 kHz 4.675 MHz	OBW Power x dB	99. -26.0	00 % 0 dB	
ISG				STATUS		



			r - Occupied I	3W							
Cei		RF rea 846	50Ω AC	MHz		ENSE:INT req: 846.40	0000 MHz	ALIGN AUTO		5:26 AM Dec 12, 2015 Std: None	Frequency
			1100000	#IEGain:Low	Trig: Fre		Avg Hold	>10/10	Radio	Device: BTS	
				#IFGaln:LOW	Pricen			Mk		46.97 MHz	
10 0	dB/div		)ffset 9.5 dE 30.00 dBr					IVIN		7.414 dBm	
Log							1				
20.0			m	mannon		mm	man	mm			Center Freq 846.400000 MHz
10.0		/	- mar						- March	<b>X</b>	846.400000 MHz
0.00										×	
-10.0		_/								<u> </u>	
-20.0	) marine (	w								mon	
-30.0											
-40.0											
-50.0											
-60.0											CF Step
Cei	nter 84	16.4 MH	Z	1		1				Span 6 MHz	600.000 kHz Auto Man
#Re	es BW	100 kH	z		#V	BW 300 I	KHZ			Sweep 1 ms	Auto Mari
	Decur	bied Ba	andwidt	h		Total F	ower	31.0	6 dBr	n	Freq Offset
				1520 N	1H7						0 Hz
1	Fransr	nit Frec	Error	-9.127	′ kHz	OBW F	Power	99	9.00 9	%	
)	dB B	andwid	th	4.666	MHz	x dB		-26	.00 d	в	
MSG								STATUS	5		

# Occupied Bandwidth (99%) UMTS HSDPA BAND V CH 4233







nter Fr	RF eq 826	50 Ω 5.600	000 MH	Z Gain:Low	Center	EENSE:INT Freq: 826.60 ee Run 46 dB	0000 MHz Avg Hol	ALIGN AUTO d:>10/10	Radio	4:07 AM Dec 12, 2015 Std: None Device: BTS	Frequency
dB/div			9.5 dB ) dBm					Mkr		7.152 MHz 7.307 dBm	
			Jan Martin	man	mm	······	1		hora		Center Fre 826.600000 MH
)	~~									hunne	
) )											
	26.6 MH									Span 6 MHz	CF Ste 600.000 kH Auto Ma
	100 kH ied B		width		#V	/BW 300 Total I		31 5	3 dBr	sweep 1 ms	Freq Offsel
Jecur		anu		567 M	Ηz	, otari	0.00	011			
Fransn	nit Fred	q Err	or	-724	Hz	OBW	Power	99	9.00 9	%	
(dBB	andwic	ith		4.662 M	AHz	x dB		-26.	00 d	В	
								STATUS	;		

# Occupied Bandwidth (99%) UMTS HSUPA BAND V CH 4132

# Occupied Bandwidth (99%) UMTS HSUPA BAND V CH 4183

RL enter Fr	<sup>RF</sup> eq 835	50 Ω AC .000000 MH	lz		NSE:INT req: 835.00000 e Run /		IGN AUTO	02:38:08 Radio St	AM Dec 12, 2015 d: None	Frequenc	;y
		#I	FGain:Low 🕇	#Atten: 4				Radio De	evice: BTS		
dB/div		ffset 9.5 dB 30.00 dBm					Mkr1		224 MHz 997 dBm		
9 1.0						<sup>1</sup>				Center	Fre
		monorman	www.www.wheekel	harm	mm	mm	man	m		835.000000	
	1							1			
10	1								1		
.0											
.0	sur .								mm		
.0											
.0										CF	Ste
enter 83	E DALL-									600.00	
tes BW		z		#VE	300 kH	z			pan 6 MHz /eep 1 ms	Auto Ma FreqOffse 0 H	
Occur	ied Ba	andwidth			Total Pov	wer	32.0	dBm			
-		4.1	559 MI	Hz							
Transn	nit Freq	Error	-6.084	kHz	OBW Por	wer	99	.00 %			
x dB B	andwid	th	4.687 N	ЛНz	x dB		-26.0	00 dB			
										1	



	ım Analyzer - Occupied BV	1						
	RF 50 Ω AC eq 846.400000 N		SENSE:INT Center Freg: 846.400	0000 MHz	ALIGN AUTO	02:40:51/ Radio Std	M Dec 12, 2015	Frequency
		#IFGain:Low	Trig: Free Run #Atten: 46 dB	Avg Hold:	> 10/10	Radio Dev		
10 dB/div	Ref Offset 9.5 dB Ref 30.00 dBm				Mkr		i42 MHz 04 dBm	
20.0			in the second second	www.	mon	La		Center Freq 846.400000 MHz
0.00								
-20.0	~						mon	
-30.0								
-50.0								CF Step
Center 84 #Res BW			#VBW 300	kHz		Sp Swe	an 6 MHz eep 1 ms	600.000 kHz <u>Auto</u> Man
Occup	ied Bandwidth 4.	, 1569 M⊦	Total P Z	ower	31.7	′ dBm		Freq Offset 0 Hz
Transm	nit Freq Error	-12.628 k	Hz OBW F	Power	99	9.00 %		
x dB B	andwidth	4.665 M	Hz xdB		-26.	00 dB		
MSG					STATUS			

# Occupied Bandwidth (99%) UMTS HSUPA BAND V CH 4233





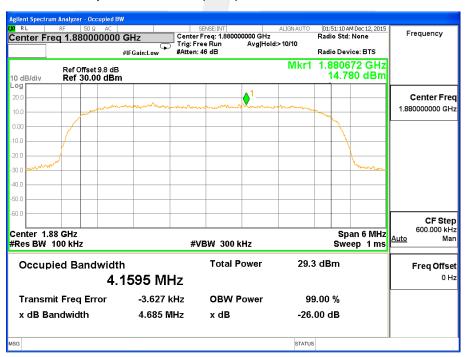


#### SENSE:INT ALIGN A Center Freq: 1.852600000 GHz Trig: Free Run Avg|Hold>10/10 01:46:17 AM Dec 12, 2015 Radio Std: None Center Freq 1.852600000 GHz Frequency #IFGain:Low <sup>J</sup> Trig: Free Run #Atten: 46 dB Radio Device: BTS Mkr1 1.851652 GHz Ref Offset 9.8 dB Ref 30.00 dBm 14.042 dBm 10 dB/div Log Center Fred ♦' 1.852600000 GHz зn 4N CF Step 600.000 kHz Man Center 1.853 GHz #Res BW 100 kHz Span 6 MHz Auto #VBW 300 kHz Sweep 1 ms **Occupied Bandwidth Total Power** 28.4 dBm Freq Offset 4.1571 MHz 0 Hz Transmit Freg Error -3.094 kHz **OBW Power** 99.00 % x dB Bandwidth 4.684 MHz -26.00 dB x dB STATUS

# Occupied Bandwidth (99%) UMTS BAND II CH 9262

95 of 113

# Occupied Bandwidth (99%) UMTS BAND II CH 9400



# Shenzhen STS Test Services Co., Ltd.



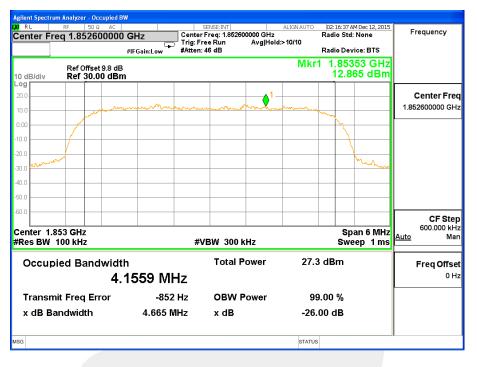
	Analyzer - Occupied BW RF 50 Ω AC		SENSE:INT	811	IGN AUTO	01:53:59/	M Dec 12, 2015	
	q 1.907400000 C		Center Freq: 1.90740 Trig: Free Run Atten: 46 dB			Radio Std	: None	Frequency
10 dB/div	Ref Offset 9.8 dB Ref 30.00 dBm				Mkr1		548 GHz 86 dBm	
20.0 10.0		1	- marine and	mann				Center Freq 1.907400000 GHz
-10.0								
-30.0							www.en	
-60.0							an 6 MHz	CF Step 600.000 kHz Auto Man
#Res BW 10			#VBW 300 k				eep 1 ms	
Occupie	ed Bandwidth 4.1	538 MHz	Total Po 2	ower	29.9	dBm		Freq Offset 0 Hz
Transmit x dB Ban	Freq Error	-9.465 kH 4.692 MH		ower		0.00 % 00 dB		
MSG					STATUS			

# Occupied Bandwidth (99%) UMTS BAND II CH 9538









# Occupied Bandwidth (99%) UMTS HSDPA BAND II CH 9262

# Occupied Bandwidth (99%) UMTS HSDPA BAND II CH 9400

RL		50 Ω AC   D000000 G	Hz	Center Free Trig: Free F	1.880000000		02:08:19/ Radio Std	M Dec 12, 2015 : None	Frequency
		#1	FGain:Low 두	#Atten: 46 d		Hold:>10/10	Radio Dev	vice: BTS	
dB/div		set 9.8 dB 0.00 dBm				Mkr1		576 GHz 64 dBm	
<b>g</b>					1				Center Fr
		mm	mmmm	m	mm	m			1.880000000 G
10	- J.						month .		
	5								
.0							1		
0	and the							5	
0 marine								- Andrew -	
0									
.0									
.0									
									CF St 600.000 k
enter 1.8 les BW				#VBV	/ 300 kHz			eep 1 ms	Auto Mai Freq Offse 0 H
Occup	ied Ba	ndwidth		-	fotal Powe	r 28.2	2 dBm		
-			596 MI	Ηz					
Transm	it Freq	Error	-4.591	kHz (	DBW Powe	er 99	9.00 %		
x dB Ba	ndwidtl	า	4.685 N	/IHz >	dB	-26.	00 dB		



	ım Analyzer - Occupied B	3W				
W RL	RF 50 Ω AC eq 1.907400000		SENSE:INT enter Freq: 1.9074000	ALIGN AUTO	01:59:19 AM Dec 12, 2015 Radio Std: None	Frequency
	eq 1.30740000		rig: Free Run /	Avg Hold:>10/10		
		#IFGain:Low #/	aπen: 46 dB		Radio Device: BTS	
	Ref Offset 9.8 dB			Mkr1	1.908036 GHz 14.710 dBm	
10 dB/div Log	Ref 30.00 dBr	<u>n</u>			14.7 TO UBIII	
20.0			A`	1		Center Freq
10.0	mm	monorman	man	mann		1.907400000 GHz
					man fr	
0.00						
-10.0						
-20.0						
-30.0	~~~				mon	
-40.0						
-50.0						
-60.0						
						CF Step 600.000 kHz
Center 1.9 #Res BW			#VBW 300 kH	z	Span 6 MHz Sweep 1 ms	Auto Man
Occup	ied Bandwidt	:h	Total Pov	ver 28.	7 dBm	Freq Offset
	4.	1579 MHz				0 Hz
Transm	nit Freq Error	-6.939 kHz	OBW Por	wer 99	9.00 %	
x dB Ba	andwidth	4.670 MHz	x dB	-26	.00 dB	
MSG				STATUS	3	

# Occupied Bandwidth (99%) UMTS HSDPA BAND II CH 9538







10 dB/div Log

4N

Center 1.853 GHz #Res BW 100 kHz

**Occupied Bandwidth** 

Transmit Freg Error

x dB Bandwidth

4.1531 MHz

285 Hz

4.681 MHz

#### SENSE:INT ALIGN A Center Freq: 1.852600000 GHz Trig: Free Run Avg|Hold>10/10 02:13:26 AM Dec 12, 2015 Radio Std: None Center Freq 1.852600000 GHz Frequency #IFGain:Low <sup>J</sup> Trig: Free Run #Atten: 46 dB Radio Device: BTS Mkr1 1.851718 GHz Ref Offset 9.8 dB Ref 30.00 dBm 14.328 dBm Center Fred ♦ 1.852600000 GHz

Report No.: STS1512058F01

CF Step 600.000 kHz Man

Freq Offset

0 Hz

Span 6 MHz

Sweep 1 ms

27.2 dBm

99.00 %

-26.00 dB

STATUS

Auto

# Occupied Bandwidth (99%) UMTS HSUPA BAND II CH 9262

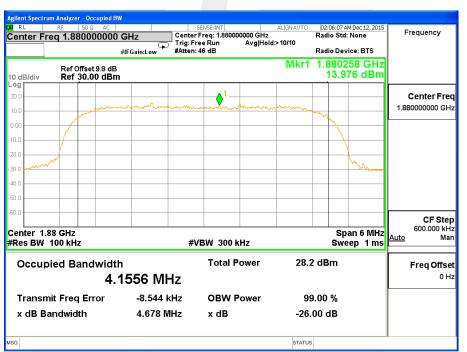
# Occupied Bandwidth (99%) UMTS HSUPA BAND II CH 9400

#VBW 300 kHz

x dB

**Total Power** 

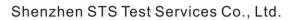
**OBW Power** 





				iHz		Center F	req: 1.9074						Frequency
					⊸∽	Trig: Fre #Atten: 4	e Run 6 dB	Avg Hol	d:>10/10	Rad	lio De	vice: BTS	
	Ref Of	fset 9.8	dB						Mkr1				
											14.4	02 dBm	
			<mark>∆</mark> 1—										Center Freq
		warne	Jane	-	amh	v1-v		min	-	~~~			1.907400000 GHz
	1			_									
man												mann	
													CF Step 600.000 kHz
						#VE	300 W	kHz					Auto Man
ccupie	d Ba	ndwi	idth				Total I	ower	28.0	6 dB	ßm		Freq Offset
			4.16	609	MH	z							0 Hz
ansmit	Freq	Error		-10.3	54 ki	Hz	OBW	Power	99	9.00	%		
dB Bane	dwidt	h		4.6	86 MI	Hz	x dB		-26.	.00 d	dB		
									STATUS	3			
	er 1.907 BW 10 ccupie	er 1.907 GHz BW 100 KHz ccupied Ba	Ref 0ffset 9.6 /div Ref 30.00 c /div Ref 30.00 c ref 1.907 GHz BW 100 kHz Ccupied Bandw	er 1.907 GHz BW 100 KHz Ccupied Bandwidth 4.10 Ansmit Freq Error	RF         50 g Ac           Ier Freq 1.907400000 GHz         #/FGain:Lo           //div         Ref Offset 9.8 dB           Ref 30.00 dBm         1           /div         Ref 30.00 dBm           er 1.907 GHz         1           EW 100 KHz         4.1609           ansmit Freq Error         -10.3	Ref Offset 9.8 dB Ref 30.00 dBm /div Ref 0ffset 9.8 dB ref 0ffset 9.8 dB ref 0ffset 9.8 dB ref 1.907 dBz seW 100 kHz ccupied Bandwidth 4.1609 MH ansmit Freq Error -10.354 k	RF Freq 1.907400000 GHz WFGain:Low Ref Offset 9.8 dB Ref 30.00 dBm Ref 30.00 dBm ref 1.907 GHz EBW 100 KHz Ccupied Bandwidth 4.1609 MHz ansmit Freq Error -10.354 kHz	Ref         S0.0         AC         SEMELINT           ter         Freq         1.907400000         GHz         Center Freq: 1.9074           //div         Ref 0ffset 9.8 dB         Ref 30.00 dBm         Trig: Freq Run         #Atten: 46 dB           /div         Ref 30.00 dBm         1         1         1         1	RF 50.2 AC SENSE.INT Center Freq 1.907400000 GHz WIFGain:Low WIFGain:Low Ref Offset 9.8 dB Ref 30.00 dBm Ref 30.00 dBm	RF         S0.2         AC         SENSE:INT         ALIGNAUTO           ter Freq 1.907400000 GHz         Center Freq 1.907400000 GHz         Avg Hold>10/10         Avg Hold>10/10           #IFGain:Low         #IFGain:Low         #Atten: 46 dB         Mkr1           /div         Ref Offset 9.8 dB         Mkr1           ref 30.00 dBm         Mkr1         Mkr1	RF         S0.2         AC         SENSE INT         ALIGNAUTO         B2           ter Freq 1.907400000 GHz         Trig: Free Run         Avg Hold>10/10         Rad           /// WFGain:Low         #Atten: 46 dB         Mkr1         1.9           //div         Ref Offset 9.8 dB         Mkr1         1.9           //div         Ref 30.00 dBm         Mkr1         1.9	RF         S0.0         AC         SENSE:INT         ALIGNAUTO         D2:02:44/.           Ler Freq 1.907400000 GHz         Center Freq: 1.907400000 GHz         Trig: Free Run         Avg Hold>10/10         Radio Sto           /// WEGain:Low         #// FGain:Low         #// Free Run         Avg Hold>10/10         Radio De           // div         Ref Offset 9.8 dB         Mkr1         1.9058         14.4           // div         Ref 30.00 dBm         14.4         14.4         14.4           // div         Ref 30.00 dBm         14.4         14.4           // div         Ref 30.00 dBm         14.4         14.4           // div         Ref 30.00 dBm         14.5           // div <td>RF     SD &amp; AC     SENSE:NT     ALIGNAUTO     D2:02:44 MIDe: 12, 2015       ter Freq 1.907400000 GHz     Trig: Free Run     Avg Hold:&gt;10/10     Radio Std: None       #IFGain:Low     #IFGain:Low     #Xten: 46 dB     Avg Hold:&gt;10/10       Ref Offset 9.8 dB     Mkr1     1.905816 GHz       Idiv     Ref 30.00 dBm     14.402 dBm       Idiv     Ref 30.00 dBm</td>	RF     SD & AC     SENSE:NT     ALIGNAUTO     D2:02:44 MIDe: 12, 2015       ter Freq 1.907400000 GHz     Trig: Free Run     Avg Hold:>10/10     Radio Std: None       #IFGain:Low     #IFGain:Low     #Xten: 46 dB     Avg Hold:>10/10       Ref Offset 9.8 dB     Mkr1     1.905816 GHz       Idiv     Ref 30.00 dBm     14.402 dBm       Idiv     Ref 30.00 dBm

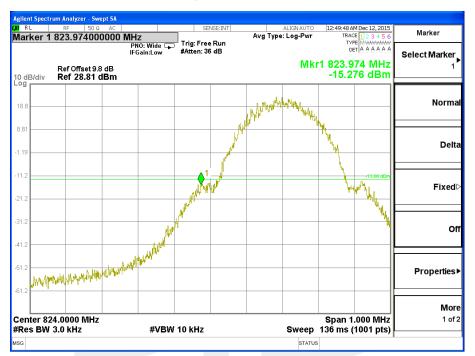
# Occupied Bandwidth (99%) UMTS HSUPA BAND II CH 9538





# **APPENDIX III**

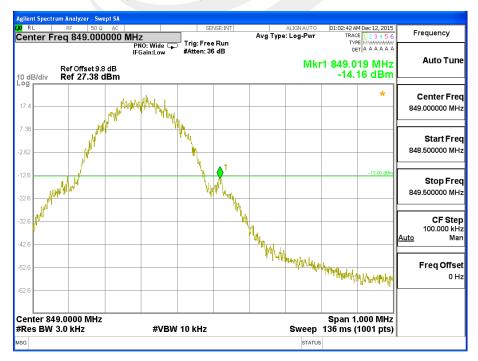
# **TEST PLOTS FOR BAND EDGES**



Low Band Edge GSM 850 BAND CH 128

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

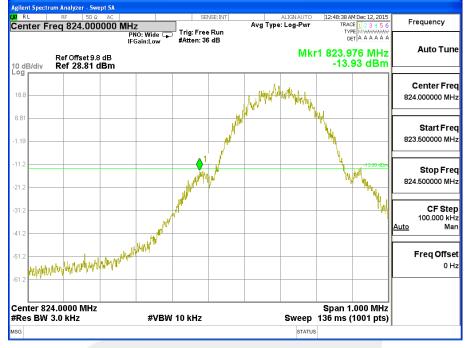
# High Band Edge GSM 850 BAND CH 251



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

Shenzhen STS Test Services Co., Ltd.

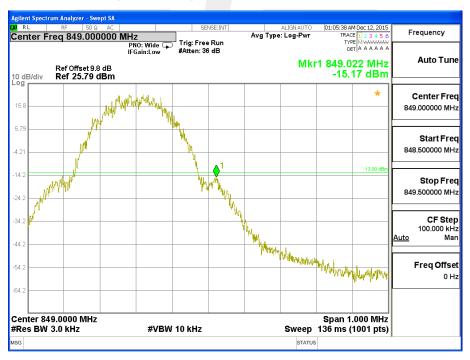




#### Low Band Edge GPRS 850 BAND CH 128

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

# High Band Edge GPRS 850 BAND CH 251



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

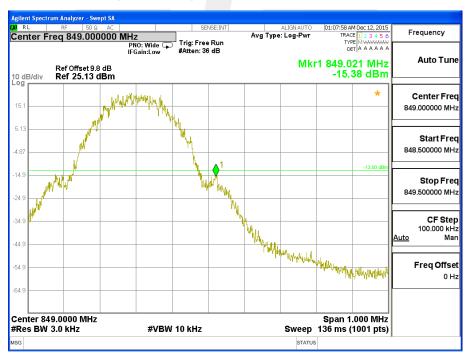




#### Low Band Edge EDGE 850 BAND CH 128

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

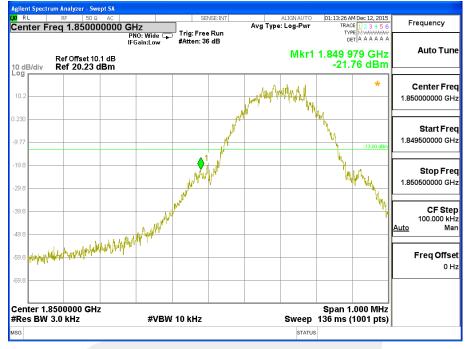
# High Band Edge EDGE 850 BAND CH 251



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



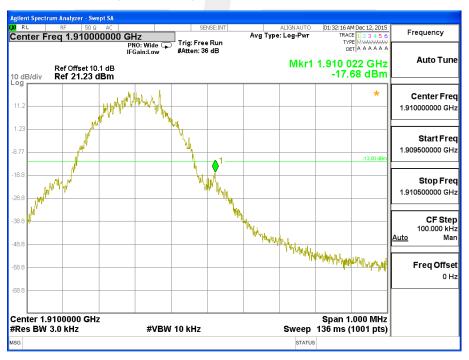




#### Low Band Edge PCS 1900 BAND CH 512

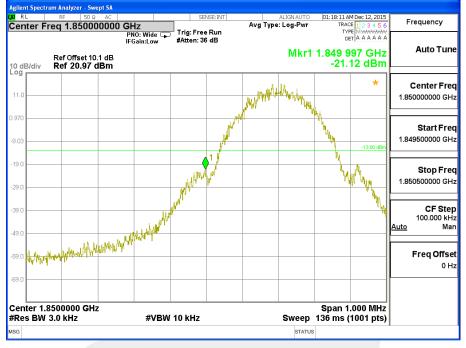
Note:Offset=Cable loss(9.8)+10log(3.2/3)=9.8+0.3=10.1 dB

# High Band Edge PCS 1900 BAND CH 810



Note:Offset=Cable loss(9.8)+10log(3.2/3)=9.8+0.3=10.1 dB





# Low Band Edge GPRS 1900 BAND CH 512

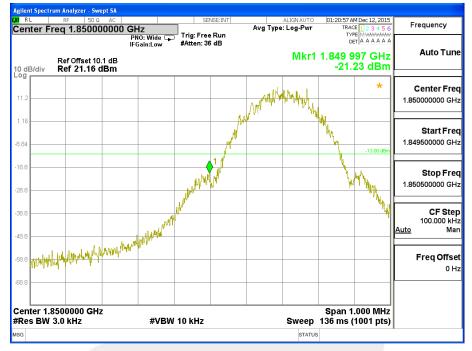
Note:Offset=Cable loss(9.8)+10log(3.2/3)=9.8+0.3=10.1 dB

# High Band Edge GPRS 1900 BAND CH 810



Note:Offset=Cable loss(9.8)+10log(3.2/3)=9.8+0.3=10.1 dB





#### Low Band Edge EDGE 1900 BAND CH 512

Note:Offset=Cable loss(9.8)+10log(3.2/3)=9.8+0.3=10.1 dB

#### High Band Edge EDGE 1900 BAND CH 810



Note:Offset=Cable loss(9.8)+10log(3.2/3)=9.8+0.3=10.1 dB





#### Low Band Edge UMTS BAND V CH 4132

#### High Band Edge UMTS BAND V CH 4233





# Ð

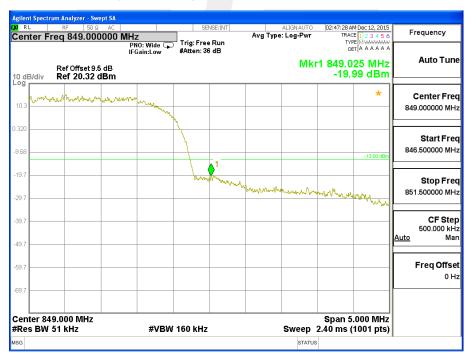
#### Aglient Spectrotrans So Ω AC Center Freq 824.0000000 MHz PNO: Wide IFGain:Low #Atten: 36 dB ALIGN AUTO D2:23:14 AM Dec 12, 2015 Avg Type: Log-Pwr TRACE 1 2 3 4 5 6 Frequency TYPE M WWWWWWW Mkr1 823.925 MHz -19.87 dBm Auto Tune Ref Offset 9.5 dB Ref 21.36 dBm 10 dB/div Log \* Center Fred 824.000000 MHz Start Freq 821.500000 MHz -13.00 dB 18. Stop Freq NOL V 826.500000 MHz 28 CF Step 500.000 kHz Man 38 Auto 48 Freq Offset 0 Hz Center 824.000 MHz #Res BW 51 kHz Span 5.000 MHz Sweep 2.40 ms (1001 pts) #VBW 160 kHz STATUS SG

## Low Band Edge HSDPA BAND V CH 4132

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Report No.: STS1512058F01

# High Band Edge HSDPA BAND V CH 4233





								um Analyzer - Swept SA	
Frequency	52 AM Dec 12, 2015 TRACE 1 2 3 4 5 6 TYPE M WARAWAY	TF	ALIGNAUTO Log-Pwr	Avg Type	NSE:INT	SE Trig: Free		RF 50 Ω AC req 824.000000 I	Center F
Auto Tun	012 5 MHz 20.65 dBm	823.9	Mkr1			#Atten: 36	PNO: Wide 🖵 IFGain:Low	Ref Offset 9.5 dB Ref 20.61 dBm	I0 dB/div
Center Fre 824.000000 MH	mart normality	᠕ᡐᡗᢦᠰᢑᠾ	᠕ᡰᠬᢧᠬᡁᠺ <sup>ᢔᠬᡁ</sup> ᡁ	All and a second					10.6
Start Fre 821.500000 MH	-13.00 dBm								9.39
Stop Fre 826.500000 MH						_uhuh	mm	way and a starter and the	19.4
CF Ste 500.000 kH <u>Auto</u> Ma									49.4
Freq Offse 0 H									59.4
									69.4
	n 5.000 MHz ms (401 pts)		Sweep			160 kHz	#VBW	4.000 MHz 51 kHz	Center 82 #Res BW
1			STATUS						ISG

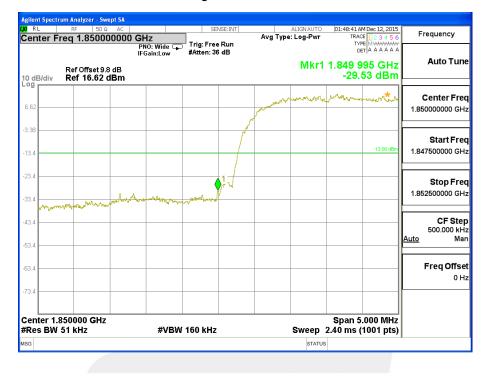
#### Low Band Edge HSUPA BAND V CH 4132

# High Band Edge HSUPA BAND V CH 4233



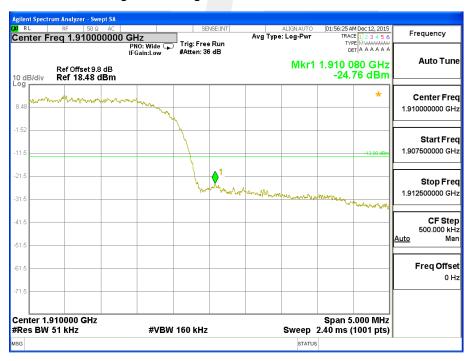


#### Report No.: STS1512058F01



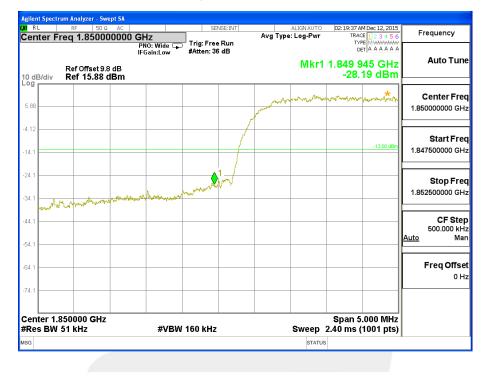
#### Low Band Edge UMTS BAND II CH 9262

#### High Band Edge UMTS BAND II CH 9538









#### Low Band Edge HSDPA BAND II CH 9262

## Low Band Edge HSDPA BAND II CH 9538









#### Low Band Edge HSUPA BAND II CH 9262

#### High Band Edge HSUPA BAND II CH 9538





# **APPENDIX IV**

# PHOTOS OF TEST SETUP

RADIATED SPURIOUS EMISSION





\* \* \* \* \* END OF THE REPORT \* \* \* \*

Shenzhen STS Test Services Co., Ltd.