TCT 通测检测 TESTING CENTRE TECHNOLOGY

TEST REPORT

FCC ID: 2ADINN5001TL

Product: LTE mobile phone

Model No.: N5001L

Additional Model No.: N5001TL, A4L, A3L

Trade Mark: NUU

Report No.: TCT171020E001

Issued Date: Oct. 20, 2017

Issued for:

Sun Cupid Technology (HK) Ltd.

16/F, CEO Tower, 77 Wing Hong St, Cheung Sha Wan, Kowloon, Hong Kong.

Issued By:

Shenzhen Tongce Testing Lab.

1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

FAX: +86-755-27673332

Note: *This report shall not be reproduced except in full, without the written approval of Shenzhen Tongce Testing Lab. This document may be altered or revised by Shenzhen Tongce Testing Lab. personnel only, and shall be noted in the revision section of the document. The test results in the report only apply to the tested sample.*

TABLE OF CONTENTS

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

1. Test Certification

Product:	LTE mobile phone
Model No.:	N5001L
Additional Model:	N5001TL, A4L, A3L
Trade Mark:	**NUU**
Applicant:	Sun Cupid Technology (HK) Ltd.
Address:	16/F, CEO Tower, 77 Wing Hong St, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacturer:	SUNCUPID (ShenZhen) Electronic Ltd
Address:	Baolong Industrial City, Longgang District, Shenzhen Hi-Tech Road, Building 1, A 7, China.
Date of Test:	Apr. 24, 2017 – Jun. 14, 2017
Applicable Standards:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part22 FCC CFR Title 47 Part24 FCC CFR Title 47 Part27

The above equipment has been tested by Shenzhen Tongce Testing Lab. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Tested By:	Garen	***Date:***	***Jun. 14, 2017***
Reviewed By:		***Date:***	***Oct. 20, 2017***
Approved By:	Tomsin	***Date:***	***Oct. 20, 2017***

SHENZHEN TONGCE TESTING LAB TCT

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

2. Test Result Summary

Requirement	CFR 47 Section	Result
Conducted Output Power	§22.913; §2.1046 §24.232; §27.50(d)	PASS
Peak-to-Average Ratio	§2.1046; §24.232(d) §27.50(d)	PASS
Effective Radiated Power	§2.1046; §22.913(a) §24.232; §27.50(d)	PASS
Equivalent Isotropic Radiated Power	§2.1046; §22.913(a) §24.232; §27.50(d)	PASS
Occupied Bandwidth	§2.1049	PASS
Band Edge	§2.1051 §22.917(a) §24.238(a) §27.53(g)	PASS
Conducted Spurious Emission	§2.1051; §22.917 §24.238; §27.53(h)	PASS
Field Strength of Spurious Radiation	§2.1053; §22.917(a) §24.238; §27.53(g)	PASS
Frequency Stability for Temperature & Voltage	§2.1055;§22.355 §24.235;§27.54	PASS

Note:

1. PASS: Test item meets the requirement.

2. Fail: Test item does not meet the requirement.

3. N/A: Test case does not apply to the test object.

4. The test result judgment is decided by the limit of test standard.

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

3. EUT Description

Product:	LTE mobile phone
Model No.:	N5001L
Additional Model:	N5001TL, A4L, A3L
Trade Mark:	**NUU**
Hardware version:	110SFM788P0A2V0
Software version:	N5001L-AM-01
3G Version:	WCDMA:R99 HSDPA: Release 5 HSUPA: Release 6
Tx Frequency:	GSM/GPRS/EGPRS 850: 824.2 MHz ~ 848.8 MHz GSM/GPRS/EGPRS 1900: 1850.2 MHz ~ 1909.8MHz WCDMA Band V: 826.4 MHz ~ 846.6 MHz WCDMA Band IV: 1712.4 MHz ~ 1752.6 MHz WCDMA Band II: 1852.4 MHz ~ 1907.6 MHz
Rx Frequency:	GSM/GPRS/EGPRS 850: 869.2 MHz ~ 893.8 MHz GSM/GPRS/EGPRS 1900: 1930.2 MHz ~ 1989.8 MHz WCDMA Band V: 871.4 MHz ~ 891.6 MHz WCDMA Band IV: 2112.4 MHz ~ 2152.6 MHz WCDMA Band II: 1932.4 MHz ~ 1987.6 MHz
Maximum Output Power to Antenna:	GSM850: 32.92dBm GSM1900: 30.21dBm GPRS 850: 32.21dBm GPRS 1900: 29.66dBm EGPRS850: 29.05dBm EGPRS1900: 27.98dBm WCDMA Band V: 21.58dBm WCDMA Band IV: 22.16dBm WCDMA Band II: 22.42dBm
99% Occupied Bandwidth:	GSM850: 248KGXM GSM1900: 248KGXM GPRS850 Class 8: 245KGXW GPRS1900 Class 8: 245KGXW EGPRS850 Class 8: 244KG7W EGPRS1900 Class 8: 250KG7W WCDMA Band V RMC 12.2Kbps: 4M22F9W WCDMA Band IV RMC 12.2Kbps: 4M25F9W WCDMA Band II RMC 12.2Kbps: 4M26F9W

Type of Modulation:	GSM/GPRS: GMSK EGPRS: GMSK/8PSK WCDMA/HSDPA/HSUPA: QPSK
Antenna Type:	Internal Antenna
Antenna Gain:	GSM/GPRS/EGPRS 850: -0.52dBi GSM/GPRS/EGPRS 1900: 0.46dBi WCDMA Band II : 0.46dBi WCDMA Band IV: 0.45dBi WCDMA Band V : -0.52dBi
Power Supply:	Rechargeable Li-ion Battery DC3.8V/2000mAh
Adapter:	Adapter: HJ-0501000E1-US Input: AC 100-240V 50/60Hz 0.2A Output: DC 5.0V⎓1000mA
Remark:	All models above are identical in interior structure, electrical circuits and components, and just model names and color are different for the marketing requirement.

Note: All the test data for this report follows the 2ADINN5001L report

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

4. Genera Information

4.1. Test environment and mode

Operating Environment:	
Temperature:	25.0 °C
Humidity:	56 % RH
Atmospheric Pressure:	1010 mbar
Test Mode:	
Operation mode:	Keep the EUT in communication with CMU200 and select channel with modulation
Remark: This product has a built-in rechargeable battery, so in an independent test, the EUT battery was fully-charged.	
The sample was placed (0.8m below 1GHz, 0.8m above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.	

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Description Operation Frequency

GSM 850		PCS1900	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
128	824.20	512	1850.20
129	824.40	513	1850.40
….	….	….	….
189	836.40	660	1879.80
190	836.60	661	1880.00
191	836.80	662	1880.20
…	…	…	…
250	848.60	809	1909.60
251	848.80	810	1909.80

WCDMA Band IV		WCDMA Band V		WCDMA Band II	
Channel:	Frequency (MHz)	Channel:	Frequency (MHz)	Channel:	Frequency (MHz)
1312	1712.4	4132	826.40	9262	1852.40
….	….	4133	826.60	9263	1852.60
….	….	….	….	….	….
….	….	4182	836.40	9399	1879.80
1413	1732.6	4183	836.60	9400	1880.00
….	….	4184	836.80	9401	1880.20
….	….	…	…	…	…
1513	1752.6	4233	846.60	9538	1907.60

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

4.2. Test Mode

Antenna port conducted and radiated test items were performed according to KDB 971168 D01 Power Meas. License Digital Systems v02r02 with maximum output power. Radiated measurements were performed with rotating EUT in different three orthogonal test planes to find the maximum emission.
Radiated emissions were investigated as following frequency range:

1. 30 MHz to 10000 MHz for GSM850 and WCDMA Band V.
2. 30 MHz to 20000 MHz for PCS1900, WCDMA Band II and WCDMA Band IV.

All modes and data rates and positions were investigated.
Test modes are chosen to be reported as the worst case configuration below:

Test Mode		
Band	**Radiated TCs**	**Conducted TCs**
GSM 850	GSM Link GPRS class 12 Link EGPRS class 12 Link	GSM Link GPRS class 12 Link EGPRS class 12 Link
PCS 1900	GSM Link GPRS class 12 Link EGPRS class 12 Link	GSM Link GPRS class 12 Link EGPRS class 12 Link
WCDMA Band V	RMC 12.2Kbps Link	RMC 12.2Kbps Link
WCDMA Band IV	RMC 12.2Kbps Link	RMC 12.2Kbps Link
WCDM Band II	RMC 12.2Kbps Link	RMC 12.2Kbps Link

Note: *The maximum power levels are chosen to test as the worst case configuration as follows: GPRS multi-slot class 8 mode for GMSK modulation, EDGE multi-slot class 8 mode for 8PSK modulation. RMC 12.2Kbps mode for WCDMA band V and WCDMA band II, only these modes were used for all tests. In addition to above worst-case test, below investigating on all data rates and all modes are compliance with each FCC test case which has specific test limits. For spurious emissions at antenna port, the EUT was investigated the band edges on low and high channels, and the unwanted spurious emissions on middle channel for all modes, the results are PASS, then only the worst-results were reported in the test report. The Radiated Spurious emissions for GPRS and EDGE modes were investigated on the middle channel and the PASS results were not worst than those data tested from the highest power channels.*

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

4.3. Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Equipment	Model No.	Serial No.	FCC ID	Trade Name
/	/	/	/	/

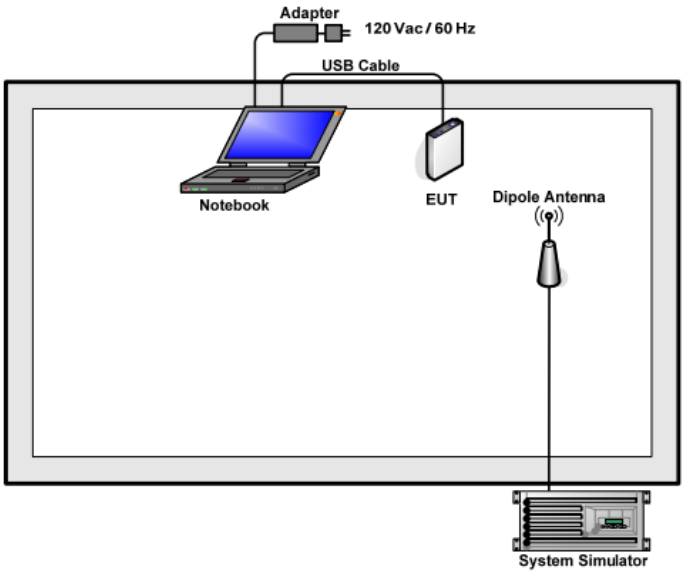
Note:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.

2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

4.4. Configuration of Tested System



4.5. Measurement Results Explanation Example

For all conducted test items:

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

Offset = RF cable loss + attenuator factor.

The following shows an offset computation example with RF cable loss 3 dB and a 5dB attenuator.

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

= 8(dB)

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

5. Facilities and Accreditations

5.1. Facilities

The test facility is recognized, certified, or accredited by the following organizations:

- FCC - Registration No.: 645098

  Shenzhen Tongce Testing Lab

  The 3m Semi-anechoic chamber has been registered and fully described in a report with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files.

- IC - Registration No.: 10668A-1

  The 3m Semi-anechoic chamber of Shenzhen TCT Testing Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing

5.2. Location

Shenzhen Tongce Testing Lab

Address: 1B/F., Building 1, Yibaolai Industrial Park, Qiaotou, Fuyong, Baoan District, Shenzhen, Guangdong, China

TEL: +86-755-27673339

5.3. Measurement Uncertainty

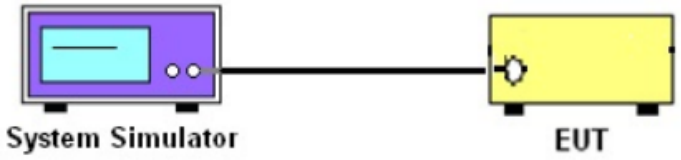
The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	MU
1	Conducted Emission	±2.56dB
2	RF power, conducted	±0.12dB
3	Spurious emissions, conducted	±0.11dB
4	All emissions, radiated(<1G)	±3.92dB
5	All emissions, radiated(>1G)	±4.28dB
6	Temperature	±0.1°C
7	Humidity	±1.0%

6. Test Results and Measurement Data

6.1. Conducted Output Power Measurement

6.1.1. Test Specification

Test Requirement:	FCC part 22.913(a) and FCC part 24.232(b) FCC part 27.50(d);
Test Method:	FCC part 2.1046
Operation mode:	Refer to item 4.1
Limits:	GSM 850 7W PCS 1900 2W WCDMA Band V:7W WCDMA Band II: 2W WCDMA Band IV:1W
Test Setup:	
Test Procedure:	1. The transmitter output port was connected to the system simulator. 2. Set EUT at maximum power through system simulator. 3. Select lowest, middle, and highest channels for each band and different modulation. 4. Measure the maximum burst average power for GSM and maximum average power for other modulation signal.
Test Result:	PASS

6.1.2. Test Instruments

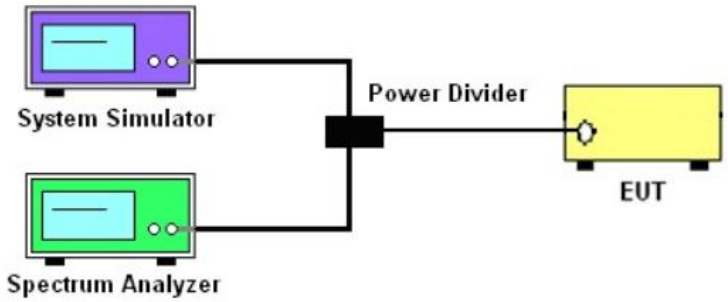
Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-02	N/A	Sep. 27, 2018

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

6.2. Peak to Average Ratio

6.2.1. Test Specification

Test Requirement:	FCC part 24.232(d) ; FCC part 22.913; FCC part 27.50(d);
Test Method:	FCC KDB 971168 v02r02 Section 5.7.1
Operation mode:	Refer to item 4.1
Limit:	The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.
Test Setup:	
Test Procedure:	1. The testing follows FCC KDB 971168 v02r02 Section 5.7.1. 2. The EUT was connected to spectrum analyzer and system simulator via a power divider. 3. Set EUT to transmit at maximum output power. 4. For GSM/EGPRS operating modes, signal gating is implemented on the spectrum analyzer by triggering from the system simulator. 5. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. Record the maximum PAPR level associated with a probability of 0.1%.
Test Result:	PASS

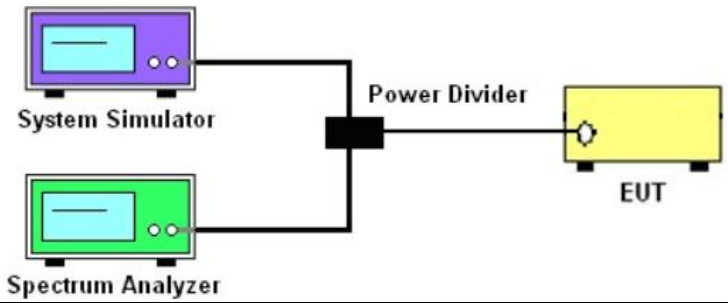
6.2.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-02	N/A	Sep. 27, 2018

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.3. 99% Occupied Bandwidth and 26dB Bandwidth Measurement

6.3.1. Test Specification

Test Requirement:	FCC part 2.1049
Test Method:	FCC part 2.1049
Operation mode:	Refer to item 4.1
Limit:	N/A
Test Setup:	
Test Procedure:	1. The testing follows FCC KDB 971168 v02r02 Section 4.2. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of the EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The 99% occupied bandwidth were measured, set RBW= 1% of span, VBW= 3*RBW, sample detector, trace maximum hold. 5. The 26dB bandwidth were measured, set RBW= 1% of EBW, VBW= 3*RBW, peak detector, trace maximum hold.
Test Result:	PASS

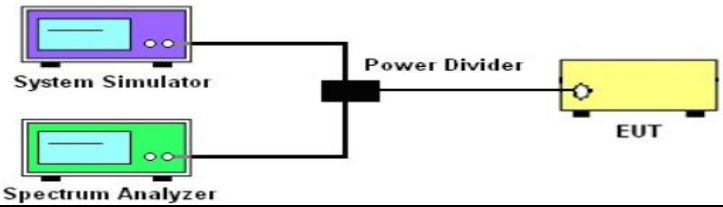
6.3.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-02	N/A	Sep. 27, 2018

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.4. Band Edge and Conducted Spurious Emission Measurement

6.4.1. Test Specification

Test Requirement:	FCC part22.917(a) and FCC part24.238(a) FCC part27.53(g)
Test Method:	FCC part2.1051
Operation mode:	Refer to item 4.1
Limit:	-13dBm
Test Setup:	
Test Procedure:	1. The testing follows FCC KDB 971168 v02r02 Section 6. 2. The EUT was connected to the spectrum analyzer and system simulator via a power divider. 3. The RF output of EUT was connected to the spectrum analyzer by an RF cable and attenuator. The path loss was compensated to the results for each measurement. 4. The band edges of low and high channels for the highest RF powers were measured. 5. The conducted spurious emission for the whole frequency range was taken. 6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. 7. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts) = P(W) - [43 + 10log(P)] (dB) = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
Test Result:	PASS

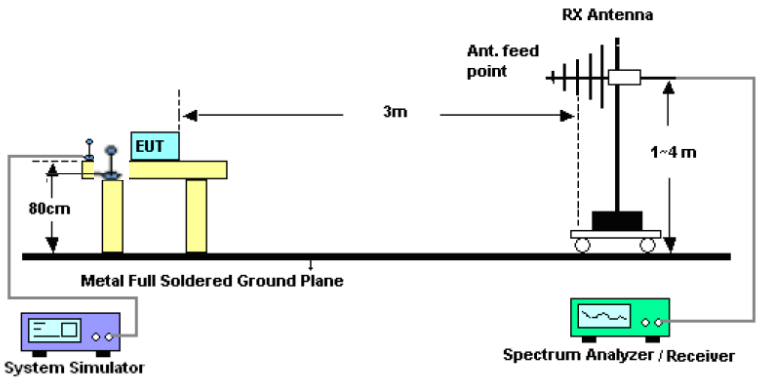
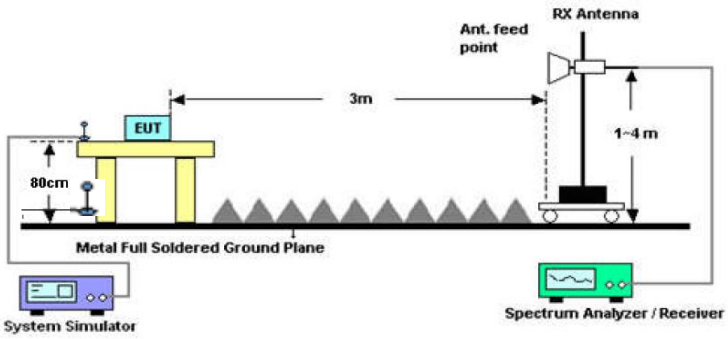
6.4.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Spectrum Analyzer	Agilent	N9020A	MY49100060	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-05	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-02	N/A	Sep. 27, 2018

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

6.5. Effective Radiated Power and Effective Isotropic Radiated Power Measurement

6.5.1. Test Specification

Test Requirement:	FCC part 22.913(a) and FCC part 24.232(b) FCC part 27.50(d)
Test Method:	FCC part 2.1046
Receiver Setup:	
Limit:	GSM850 7W ERP PCS1900 2W EIRP WCDMA Band V: 7W ERP WCDMA Band II: 2W EIRP WCDMA Band IV: 1W EIRP
Test Setup:	From 30MHz to 1GHz  Above 1GHz 

	GSM/GPRS/EDGE	WCDMA/HSPA
SPAN	500kHz	10MHz
RBW	10kHz	100kHz
VBW	30kHz	300kHz
Detector	RMS	RMS
Trace	Average	Average
Average Type	Power	Power
Sweep Count	100	100

Test Procedure:	1. The testing follows FCC KDB 971168 v02r02 Section 5.8. and ANSI / TIA-603-D-2010 Section 2.2.17. 2. The EUT was placed on a non-conductive rotating platform 0.8 meters high in a semi-anechoic chamber. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and a spectrum analyzer with RMS detector per section 5. of KDB 971168 D01. 3. Key the transmitter, then rotate the EUT 360^{o} azimuthally and record spectrum analyzer power level (LVL) measurements at angular increments that are sufficiently small to permit resolution of all peaks. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading at each angular increment. 4. Replace the transmitter under test with a substitution antenna. The center of the antenna should be at the same location as the center of the antenna under test. 5. Connect the antenna to a signal generator with a known output power and record the path loss (in dB) as LOSS. If a standard radiation test site is used, raise and lower the test antenna to obtain a maximum reading. LOSS = Generator Output Power (dBm) – Analyzer reading (dBm) 6. Determine the effective radiated output power at each angular position from the readings in steps 3) and 5) using the following equation: ERP (dBm) = LVL (dBm) + LOSS (dB) 7. The maximum ERP is the maximum value determined in the preceding step. 8. Calculating ERP: ERP (dBm) = Output Power (dBm) - Losses (dB) + Antenna Gain (dBd) Antenna Gain (dBd) = Antenna Gain (dBi) - 2.15 EIRP = ERP – 2.15
Test results:	PASS

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

6.5.2. Test Instruments

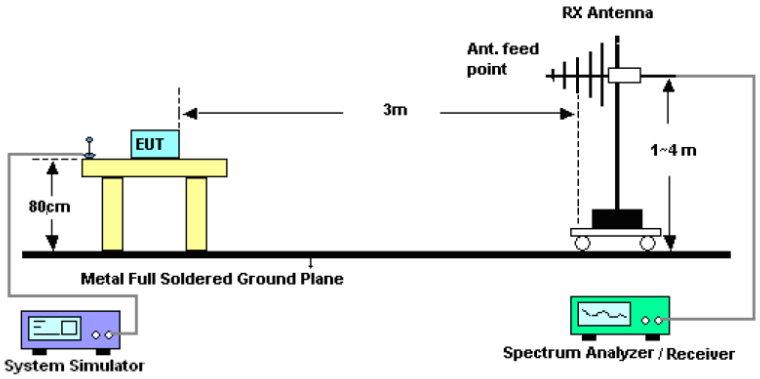
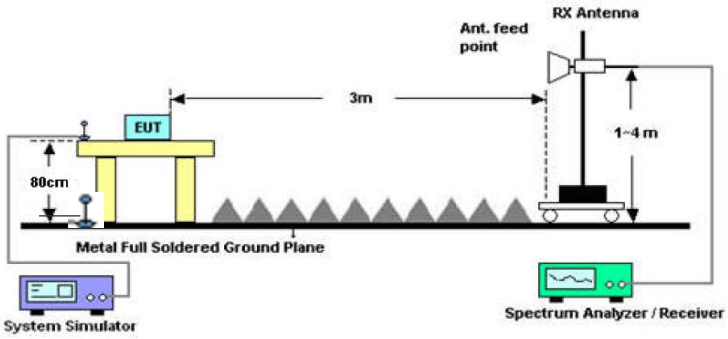
Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Spectrum Analyzer	ROHDE&SCHWARZ	R&S	FSQ	Sep. 27, 2018
Signal Generator	HP	83623B	3614A00396	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	412	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Mar. 05, 2018
Dipole Antenna	TCT	TCT-RF	N/A	Sep. 27, 2018
Coax cable (9kHz-1GHz)	TCT	RE-low-01	N/A	Sep. 27, 2018
Coax cable (9kHz-40GHz)	TCT	RE-high-02	N/A	Sep. 27, 2018
Coax cable (9kHz-1GHz)	TCT	RE-low-03	N/A	Sep. 27, 2018
Coax cable (9kHz-40GHz)	TCT	RE-High-04	N/A	Sep. 27, 2018
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

6.6. Field Strength of Spurious Radiation Measurement

6.6.1. Test Specification

Test Requirement:	FCC part 22.917(a) and FCC part 24.238(a) FCC part 27.53(g)
Test Method:	FCC part 2.1053
Operation mode:	Refer to item 4.1
Limit:	-13dBm
Test setup:	For 30MHz~1GHz  Above 1GHz 
Test Procedure:	1. The testing follows FCC KDB 971168 v02r02 Section 5.8 and ANSI / TIA-603-D-2010 Section 2.2.12. 2. The EUT was placed on a rotatable wooden table 0.8 meters above the ground. 3. The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower. 4. The table was rotated 360 degrees to determine the position of the highest spurious emission. 5. The height of the receiving antenna is varied between one meter and four meters to search for the maximum spurious emission for both horizontal and vertical polarizations. 6. Make the measurement with the spectrum analyzer's

	RBW = 1MHz, VBW = 3MHz, taking record of maximum spurious emission. 7. A horn antenna was substituted in place of the EUT and was driven by a signal generator. 8. Tune the output power of signal generator to the same emission level with EUT maximum spurious emission. 9. Taking the record of output power at antenna port. 10. Repeat step 7 to step 8 for another polarization. 11. EIRP (dBm) = S.G. Power – Tx Cable Loss + Tx Antenna Gain 12. ERP (dBm) = EIRP - 2.15 13. The RF fundamental frequency should be excluded against the limit line in the operating frequency band. 14. The limit line is derived from 43 + 10log(P) dB below the transmitter power P(Watts) = P(W) - [43 + 10log(P)] (dB) = [30 + 10log(P)] (dBm) - [43 + 10log(P)] (dB) = -13dBm.
Test results:	PASS
Remark:	All modulations have been tested, but only the worst modulation show in this test item.

6.6.2. Test Instruments

Radiated Emission Test Site (966)				
Name of Equipment	**Manufacturer**	**Model**	**Serial Number**	**Calibration Due**
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Spectrum Analyzer	ROHDE&SCHWARZ	R&S	FSQ	Sep. 27, 2018
Signal Generator	HP	83623B	3614A00396	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	340	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	631	Sep. 27, 2018
Broadband Antenna	Schwarzbeck	VULB9163	412	Sep. 27, 2018
Horn Antenna	Schwarzbeck	BBHA 9120D	1201	Mar. 05, 2018
Horn Antenna	Schwarzbeck	BBH 9170	582	Jun. 07, 2018
Dipole Antenna	TCT	TCT-RF	N/A	Sep. 27, 2018
Coax cable (9kHz-1GHz)	TCT	RE-low-01	N/A	Sep. 27, 2018
Coax cable (9kHz-40GHz)	TCT	RE-high-02	N/A	Sep. 27, 2018
Coax cable (9kHz-1GHz)	TCT	RE-low-03	N/A	Sep. 27, 2018
Coax cable (9kHz-40GHz)	TCT	RE-High-04	N/A	Sep. 27, 2018
Antenna Mast	Keleto	CC-A-4M	N/A	N/A
EMI Test Software	Shurple Technology	EZ-EMC	N/A	N/A

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

6.6.3. Test Data

Frequency Range (9 kHz-30MHz)

Frequency (MHz)	Level@3m (dBμV/m)	Limit@3m (dBμV/m)
--	--	--
--	--	--
--	--	--
--	--	--

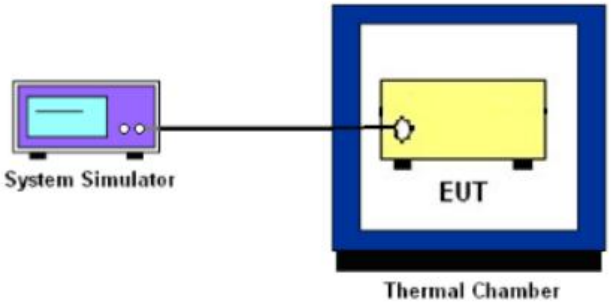
Note: *1. Emission Level=Reading+ Cable loss-Antenna factor-Amp factor*

2. The emission levels are 20 dB below the limit value, which are not reported. It is deemed to comply with the requirement

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

6.7. Frequency Stability Measurement

6.7.1. Test Specification

Test Requirement:	FCC Part 2.1055 ; FCC Part 22.355 ; FCC Part 24.235 FCC Part 27.54
Test Method:	FCC Part 2.1055(a)(1)(b)
Operation mode:	Refer to item 4.1
Limit:	±2.5 ppm
Test Setup:	
Test Procedure:	**Test Procedures for Temperature Variation** 1. The testing follows FCC KDB 971168 v02r02 Section 9.0. 2. The EUT was set up in the thermal chamber and connected with the system simulator. 3. With power OFF, the temperature was decreased to -30°C and the EUT was stabilized before testing. Power was applied and the maximum change in frequency was recorded within one minute. 4. With power OFF, the temperature was raised in 10°C steps up to 50°C. The EUT was stabilized at each step for at least half an hour. Power was applied and the maximum frequency change was recorded within one minute. **Test Procedures for Voltage Variation** 1. The testing follows FCC KDB 971168 v02r02 Section 9.0. 2. The EUT was placed in a temperature chamber at 25±5° C and connected with the system simulator. 3. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT. 4. The variation in frequency was measured for the worst case.
Test Result:	PASS
Remark:	All three channels of all modulations have been tested, but only the worst channel and the worst modulation show in this test item.

6.7.2. Test Instruments

Equipment	Manufacturer	Model	Serial Number	Calibration Due
System simulator	R&S	CMU200	111382	Sep. 27, 2018
Programable tempratuce and humidity chamber	JQ	JQ-2000	N/A	Sep. 27, 2018
DC power supply	Kingrang	KR3005K 30V/5A	N/A	Sep. 27, 2018
RF cable (9kHz-40GHz)	TCT	RE-04	N/A	Sep. 27, 2018
Antenna Connector	TCT	RFC-03	N/A	Sep. 27, 2018

Note: *The calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).*

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Appendix A: Test Data

A.1 Conducted Output Power and Peak to Average Ratio

GSM850 BAND:

Mode		Frequency (MHz)	Peak Power(dBm)	Avg.Burst Power(dBm)	PAP	Duty cycle Factor(dB)	Frame Power(dBm)
GSM850		824.2	**33.18**	**32.92**	0.26	-9	23.92
		836.6	33.12	32.88	0.24	-9	23.88
		848.8	33.10	32.86	0.24	-9	23.86
GPRS 850	1 Tx Slots	824.2	33.10	32.21	0.89	-9.03	23.18
		836.6	32.89	32.13	0.76	-9.03	23.10
		848.8	33.11	32.15	0.96	-9.03	23.12
	2 Tx Slots	824.2	32.28	31.57	0.71	-6.02	25.55
		836.6	32.23	31.59	0.64	-6.02	25.57
		848.8	32.44	31.58	0.86	-6.02	25.56
	3 Tx Slots	824.2	31.18	30.38	0.80	-4.26	26.12
		836.6	31.16	30.36	0.80	-4.26	26.10
		848.8	31.12	30.35	0.77	-4.26	26.09
	4 Tx Slots	824.2	30.18	29.89	0.29	-3.01	26.88
		836.6	30.24	29.86	0.38	-3.01	26.85
		848.8	30.29	29.88	0.41	-3.01	26.87
EPRS 850	1 Tx Slots	824.2	29.62	29.05	0.57	-9.03	20.02
		836.6	29.55	29.02	0.53	-9.03	19.99
		848.8	29.30	29.03	0.27	-9.03	20.00
	2 Tx Slots	824.2	28.61	28.33	0.28	-6.02	22.31
		836.6	28.82	28.36	0.46	-6.02	22.34
		848.8	28.88	28.31	0.57	-6.02	22.29
	3 Tx Slots	824.2	27.73	27.26	0.47	-4.26	23.00
		836.6	27.82	27.22	0.60	-4.26	22.96
		848.8	27.95	27.23	0.72	-4.26	22.97
	4 Tx Slots	824.2	27.11	26.68	0.43	-3.01	23.67
		836.6	27.16	26.53	0.63	-3.01	23.52
		848.8	27.24	26.55	0.69	-3.01	23.54

Duty cycle Factor = 1 Tx Slots, 10*log(1/8)= -9.03dB, 2 Tx Slots, 10*log(2/8)= -6.02dB,
3Tx Slots, 10*log(3/8)= -4.26dB, 4 Tx Slots, 10*log(4/8)= -3.01dB

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

PCS1900 BAND:

Mode		Frequency (MHz)	Peak Power(dBm)	Avg.Burst Power(dBm)	PAP	Duty cycle Factor(dB)	Frame Power(dBm)
GSM1900		1850.2	30.38	30.15	0.23	-9	21.15
		1880	**30.52**	**30.21**	0.31	-9	21.21
		1909.8	30.42	30.13	0.29	-9	21.13
GPRS 1900	1 Tx Slots	1850.2	30.16	29.65	0.51	-9.03	20.62
		1880	30.10	29.62	0.48	-9.03	20.59
		1909.8	30.18	29.66	0.52	-9.03	20.63
	2 Tx Slots	1850.2	29.16	27.86	1.30	-6.02	21.84
		1880	29.22	28.92	0.30	-6.02	22.90
		1909.8	29.18	28.88	0.30	-6.02	22.86
	3 Tx Slots	1850.2	28.12	27.28	0.84	-4.26	23.02
		1880	28.11	27.36	0.75	-4.26	23.10
		1909.8	28.14	27.32	0.82	-4.26	23.06
	4 Tx Slots	1850.2	27.13	26.88	0.25	-3.01	23.87
		1880	27.18	26.96	0.22	-3.01	23.95
		1909.8	27.16	26.93	0.23	-3.01	23.92
EGPRS 1900	1 Tx Slots	1850.2	28.27	27.95	0.32	-9.03	18.92
		1880	28.32	27.98	0.34	-9.03	18.95
		1909.8	28.09	27.96	0.13	-9.03	18.93
	2 Tx Slots	1850.2	27.12	27.05	0.07	-6.02	21.03
		1880	27.22	27.08	0.14	-6.02	21.06
		1909.8	27.21	27.07	0.14	-6.02	21.05
	3 Tx Slots	1850.2	26.22	26.10	0.12	-4.26	21.84
		1880	26.17	26.12	0.05	-4.26	21.86
		1909.8	26.12	26.11	0.01	-4.26	21.85
	4 Tx Slots	1850.2	26.08	25.35	0.73	-3.01	22.34
		1880	26.21	25.32	0.89	-3.01	22.31
		1909.8	26.07	25.33	0.74	-3.01	22.32

Duty cycle Factor = 1 Tx Slots, 10*log(1/8)= -9.03dB, 2 Tx Slots, 10*log(2/8)= -6.02dB,
3Tx Slots, 10*log(3/8)= -4.26dB, 4 Tx Slots, 10*log(4/8)= -3.01dB

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

UTRA BANDS:

BAND 2：

Mode		Frequency (MHz)	Peak Power(dBm)	Avg.Burst Power(dBm)	PAPR (dB)
RMC 12.2K		1852.4	22.23	**21.58**	0.65
		1880	**22.24**	21.52	0.72
		1907.6	22.12	21.56	0.56
HSDPA	1 Tx Slots	1852.4	22.12	21.21	0.91
		1880	22.21	21.41	0.80
		1907.6	22.28	21.30	0.98
	2 Tx Slots	1852.4	22.19	21.19	1.00
		1880	21.14	20.52	0.62
		1907.6	21.21	20.62	0.59
	3 Tx Slots	1852.4	21.88	21.10	0.78
		1880	21.84	20.25	1.59
		1907.6	21.79	20.11	1.68
	4 Tx Slots	1852.4	21.46	20.02	1.44
		1880	21.38	20.02	1.36
		1907.6	21.51	20.32	1.19
HSUPA	1 Tx Slots	1852.4	21.94	21.32	0.62
		1880	21.74	20.75	0.99
		1907.6	21.54	20.42	1.12
	2 Tx Slots	1852.4	21.87	21.02	0.85
		1880	21.68	20.45	1.23
		1907.6	21.74	20.10	1.64
	3 Tx Slots	1852.4	21.59	21.15	0.44
		1880	21.41	20.23	1.18
		1907.6	21.28	20.20	1.08
	4 Tx Slots	1852.4	21.11	20.52	0.59
		1880	21.13	20.15	0.98
		1907.6	21.26	20.11	1.15
	5 Tx Slots	1852.4	21.22	20.95	0.27
		1880	21.37	20.15	1.22
		1907.6	21.66	20.11	1.55

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

BAND 4:

Mode		Frequency (MHz)	Peak Power(dBm)	Avg.Burst Power(dBm)	PAPR (dB)
RMC 12.2K		1712.4	23.12	22.02	1.10
		1732.6	**23.15**	22.12	1.03
		1752.6	23.13	**22.16**	0.97
HSDPA	1 Tx Slots	1712.4	22.21	21.51	0.70
		1732.6	22.17	21.52	0.65
		1752.6	22.20	21.55	0.65
	2 Tx Slots	1712.4	22.23	21.82	0.41
		1732.6	22.22	21.71	0.51
		1752.6	22.31	21.43	0.88
	3 Tx Slots	1712.4	22.50	21.72	0.78
		1732.6	22.46	21.51	0.95
		1752.6	22.51	21.43	1.08
	4 Tx Slots	1712.4	22.05	21.61	0.44
		1732.6	22.06	21.72	0.34
		1752.6	22.14	21.58	0.56
HSUPA	1 Tx Slots	1712.4	22.26	21.46	0.80
		1732.6	22.44	21.38	1.06
		1752.6	22.38	21.31	1.07
	2 Tx Slots	1712.4	22.15	21.51	0.64
		1732.6	22.14	21.61	0.53
		1752.6	22.16	21.42	0.74
	3 Tx Slots	1712.4	22.39	21.48	0.91
		1732.6	22.21	21.32	0.89
		1752.6	22.34	21.33	1.01
	4 Tx Slots	1712.4	22.21	21.32	0.89
		1732.6	22.18	21.44	0.74
		1752.6	22.42	22.38	0.04
	5 Tx Slots	1712.4	22.21	21.36	0.85
		1732.6	22.12	21.43	0.69
		1752.6	22.03	21.31	0.72

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

BAND 5:

Mode		Frequency (MHz)	Peak Power(dBm)	Avg.Burst Power(dBm)	PAPR (dB)
RMC 12.2K		826.4	**23.38**	22.40	0.98
		836.4	23.26	**22.42**	0.84
		846.6	23.15	22.35	0.80
HSDPA	1 Tx Slots	826.4	23.12	22.12	1.00
		836.4	23.01	22.23	0.78
		846.6	23.21	22.28	0.93
	2 Tx Slots	826.4	22.28	21.52	0.76
		836.4	22.28	21.51	0.77
		846.6	22.22	21.32	0.90
	3 Tx Slots	826.4	22.23	21.32	0.91
		836.4	22.34	21.35	0.99
		846.6	22.22	21.48	0.74
	4 Tx Slots	826.4	21.24	20.54	0.70
		836.4	21.42	20.55	0.87
		846.6	21.15	20.62	0.53
HSUPA	1 Tx Slots	826.4	21.83	20.72	1.11
		836.4	21.66	20.60	1.06
		846.6	21.41	20.83	0.58
	2 Tx Slots	826.4	22.63	21.58	1.05
		836.4	22.45	21.82	0.63
		846.6	22.42	21.32	1.10
	3 Tx Slots	826.4	22.24	21.31	0.93
		836.4	22.18	21.33	0.85
		846.6	22.42	21.22	1.20
	4 Tx Slots	826.4	22.23	21.53	0.70
		836.4	22.24	21.26	0.98
		846.6	22.35	21.82	0.53
	5 Tx Slots	826.4	22.14	21.28	0.86
		836.4	22.18	21.16	1.02
		846.6	22.38	21.28	1.10

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

A.2 99% Occupied Bandwidth and 26dB Bandwidth Measurement

GSM850:

Frequency	OBW(99%)	26dB BW
824.2	248.40KHz	314.10KHz
836.6	245.19KHz	312.50KHz
848.8	245.19KHz	315.71KHz

PCS1900:

Frequency	OBW(99%)	26dB BW
1850.2	245.19KHz	310.90KHz
1880	243.59KHz	318.91KHz
1909.8	245.19KHz	309.29KHz

GPRS850:

Frequency	OBW(99%)	26dB BW
824.2	243.59KHz	318.18KHz
836.6	245.19KHz	315.71KHz
848.8	242.00KHz	317.31KHz

GPRS 1900:

Frequency	OBW(99%)	26dB BW
1850.2	245.19KHz	315.71KHz
1880	245.19KHz	315.71KHz
1909.8	245.19KHz	317.31KHz

EGPRS 850:

Frequency	OBW(99%)	26dB BW
824.2	242.00KHz	282.05KHz
836.6	243.59KHz	280.45KHz
848.8	225.96KHz	250.00KHz

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

EGPRS 1900:

Frequency	OBW(99%)	26dB BW
1850.2	250.00KHz	301.28KHz
1880	248.40KHz	304.49KHz
1909.8	245.19KHz	318.91KHz

UTRA BANDS
BAND 2:

Frequency	OBW(99%)	26dB BW
1852.4	4.215MHz	4.888MHz
1880	4.215MHz	4.872MHz
1907.6	4.215MHz	4.872MHz

BAND 4:

Frequency	OBW(99%)	26dB BW
1712.4	4.215MHz	4.892MHz
1732.6	4.231MHz	4.920MHz
1752.6	4.247MHz	4.872MHz

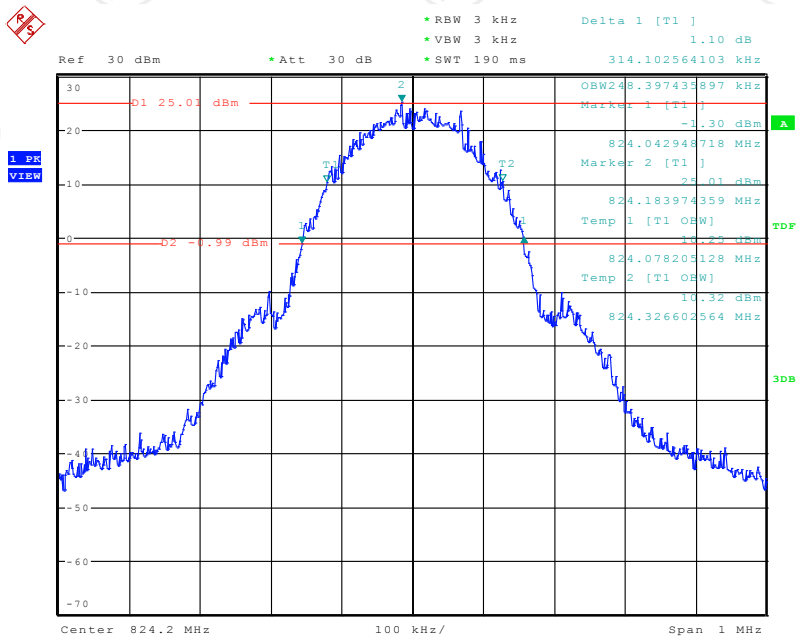
BAND 5:

Frequency	OBW(99%)	26dB BW
826.4	4.231MHz	4.904MHz
836.4	4.247MHz	4.888MHz
846.6	4.263MHz	4.920MHz

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

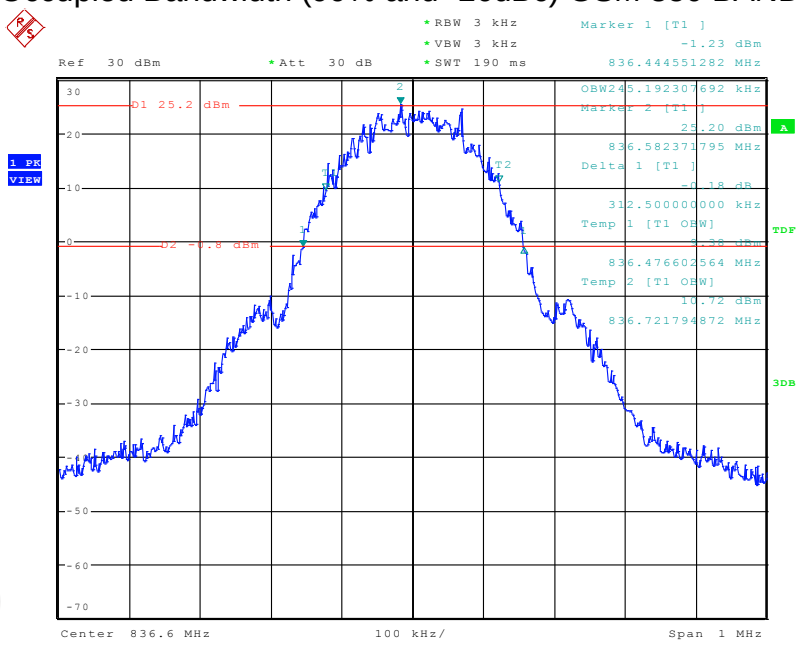
Test Plot(s)

Occupied Bandwidth (99% and -26dBc) GSM 850 BAND CH 128



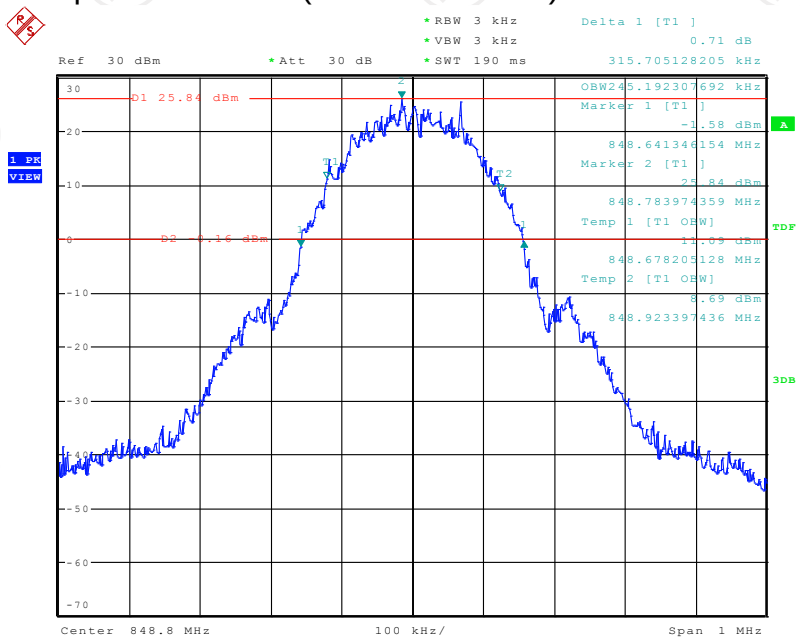
Date: 16.MAY.2017 16:15:32

Occupied Bandwidth (99% and -26dBc) GSM 850 BAND CH 190



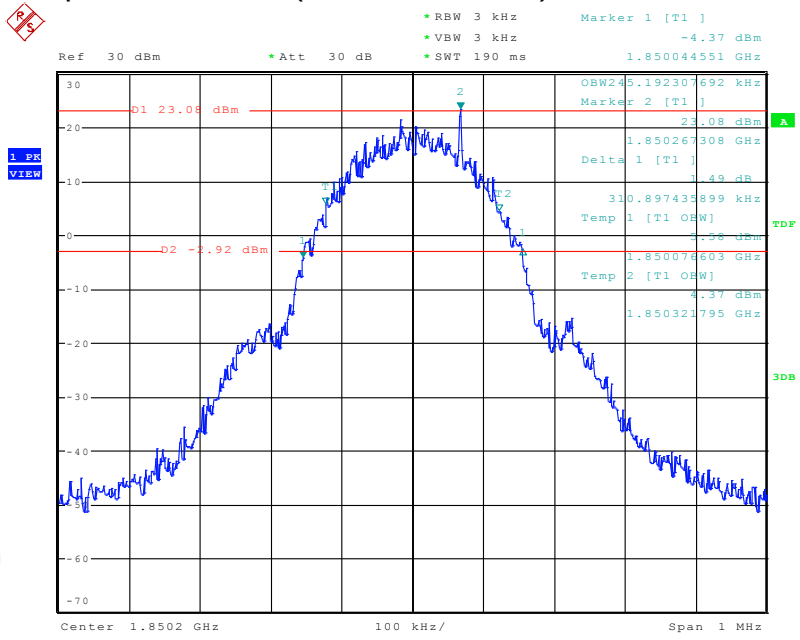
Date: 16.MAY.2017 16:18:24

Occupied Bandwidth (99% and -26dBc) GSM 850 BAND CH 251



Date: 16.MAY.2017 16:20:25

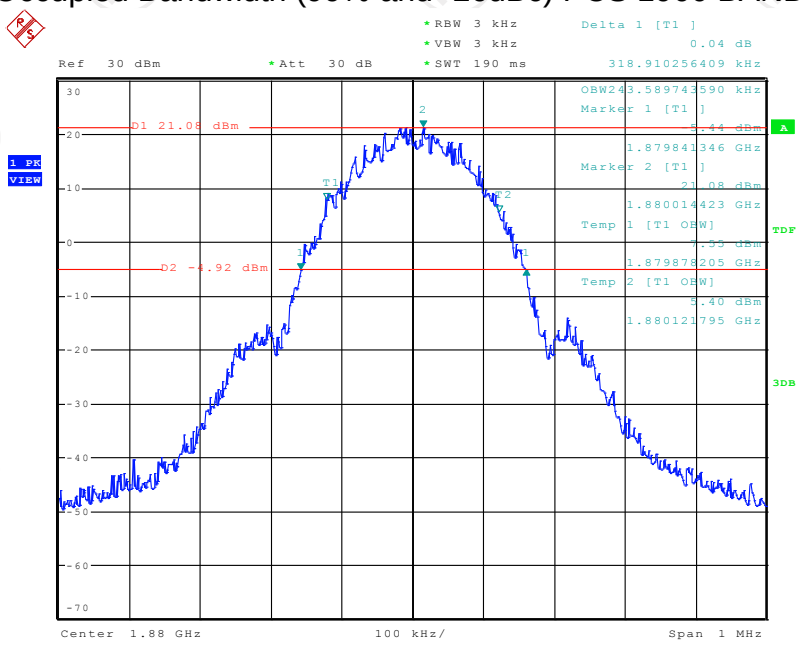
Occupied Bandwidth (99% and -26dBc) GSM 1900 BAND CH 512



Date: 16.MAY.2017 16:25:38

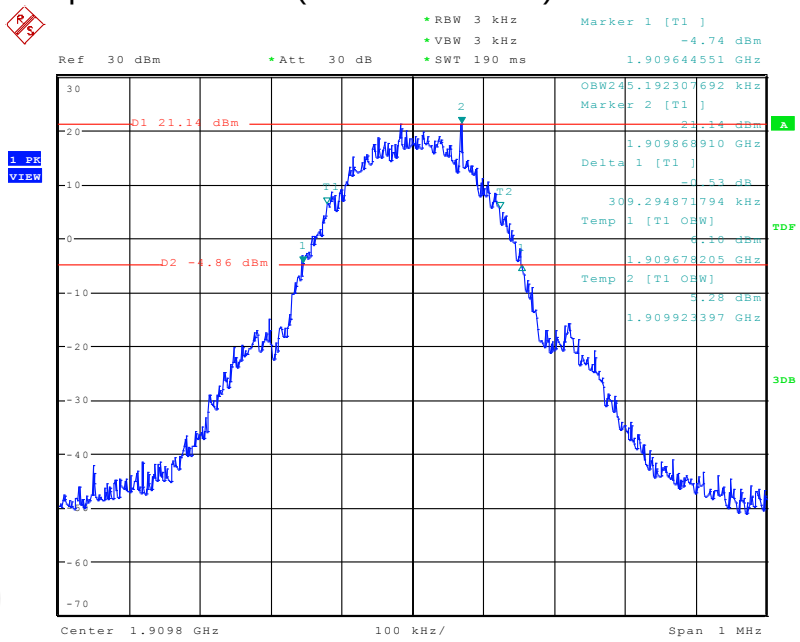
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Occupied Bandwidth (99% and -26dBc) PCS 1900 BAND CH 661



Date: 16.MAY.2017 16:27:24

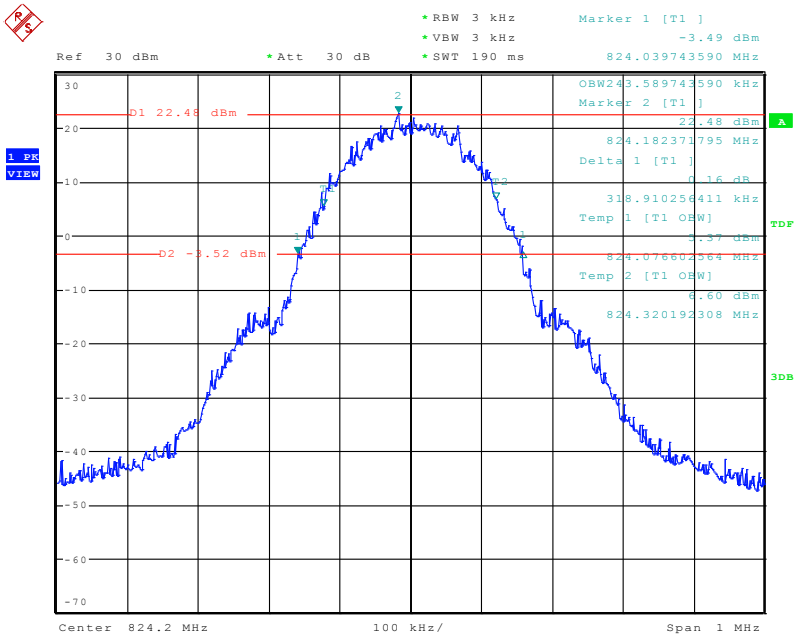
Occupied Bandwidth (99% and -26dBc) PCS 1900 BAND CH 810



Date: 16.MAY.2017 16:28:55

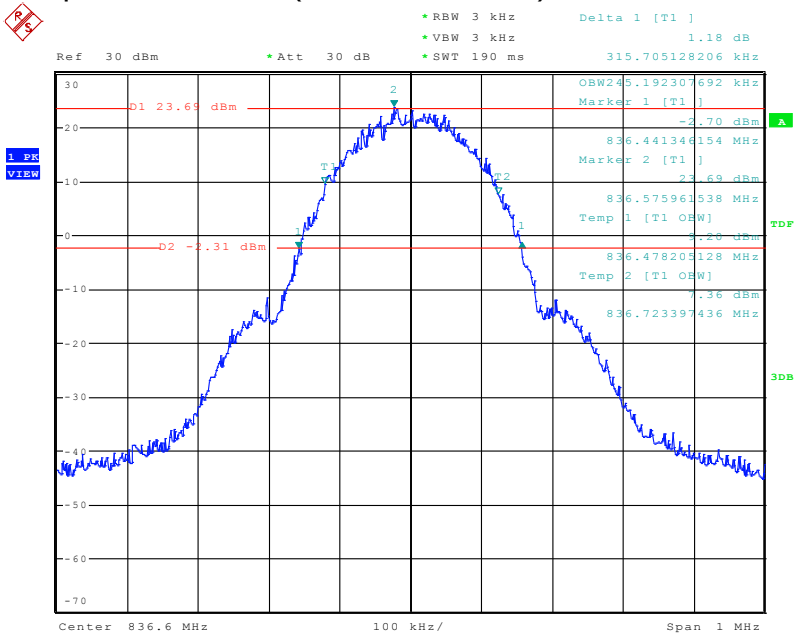
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Occupied Bandwidth (99% and -26dBc) GPRS 850 BAND CH 128



Date: 16.MAY.2017 16:40:19

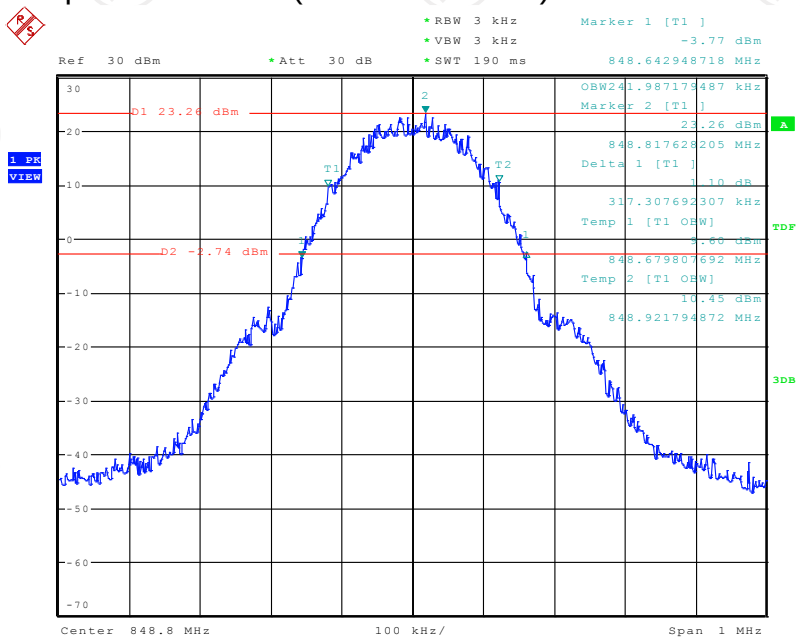
Occupied Bandwidth (99% and -26dBc) GPRS 850 BAND CH 190



Date: 16.MAY.2017 16:42:23

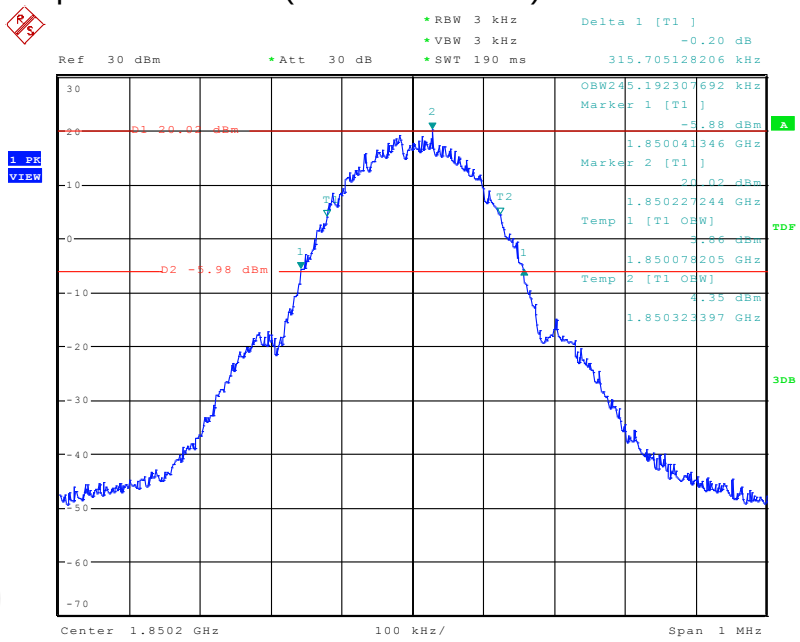
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Occupied Bandwidth (99% and -26dBc) GPRS 850 BAND CH 251



Date: 16.MAY.2017 16:43:42

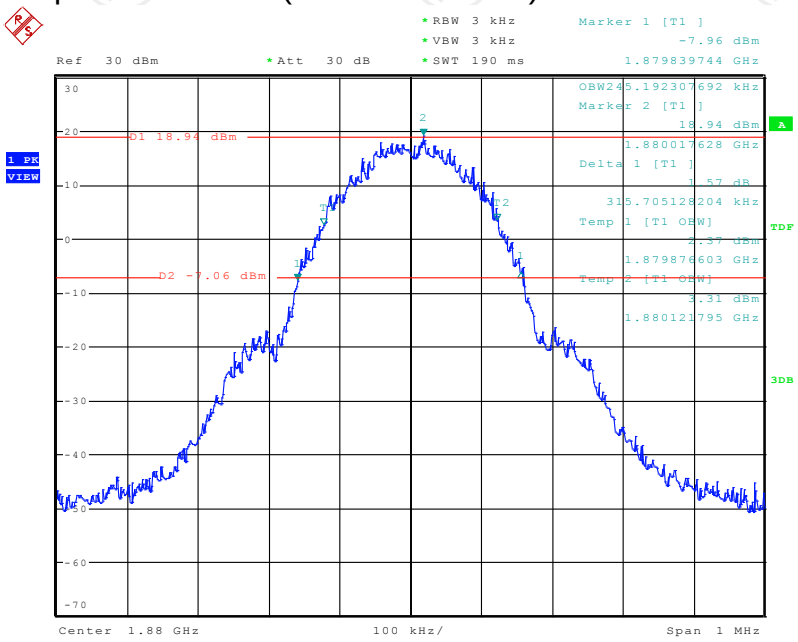
Occupied Bandwidth (99% and -26dBc) GPRS 1900 BAND CH 512



Date: 16.MAY.2017 16:32:36

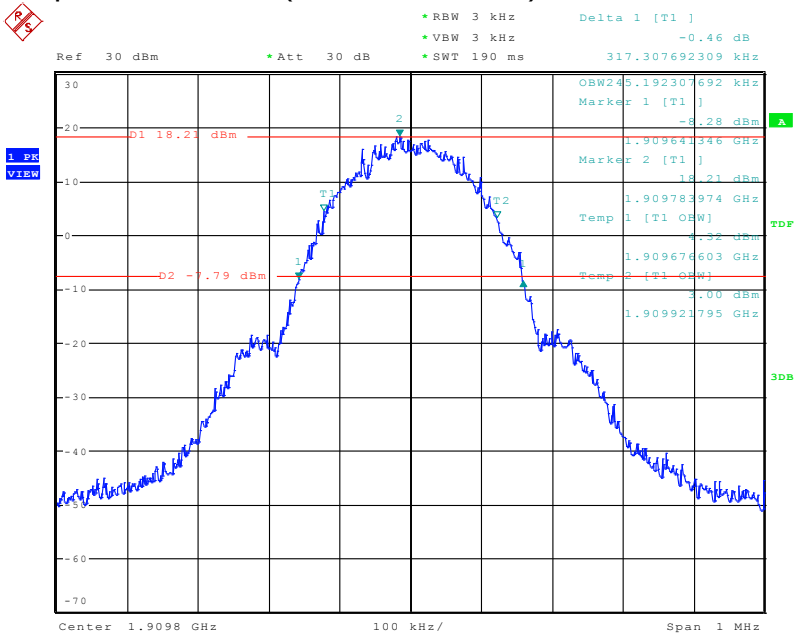
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Occupied Bandwidth (99% and -26dBc) GPRS 1900 BAND CH 661



Date: 16.MAY.2017 16:34:29

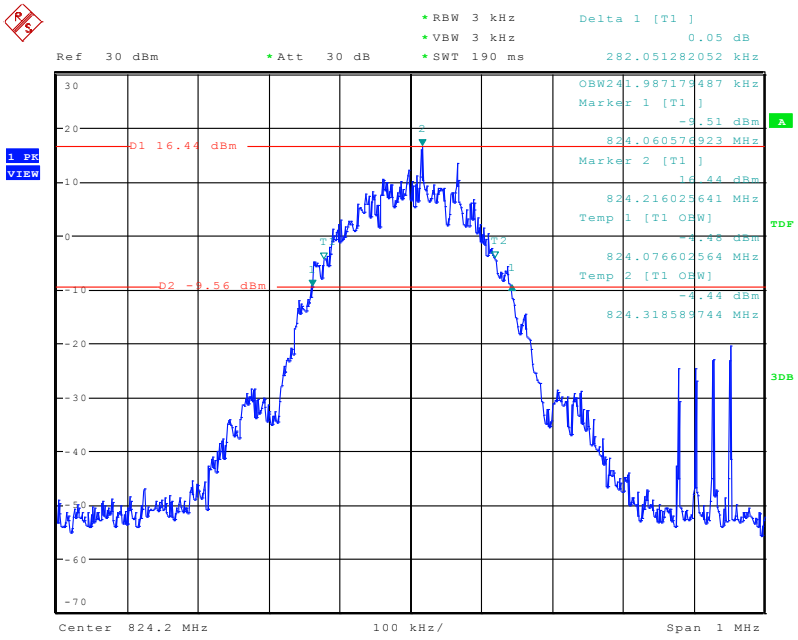
Occupied Bandwidth (99% and -26dBc) GPRS 1900 BAND CH 810



Date: 16.MAY.2017 16:36:02

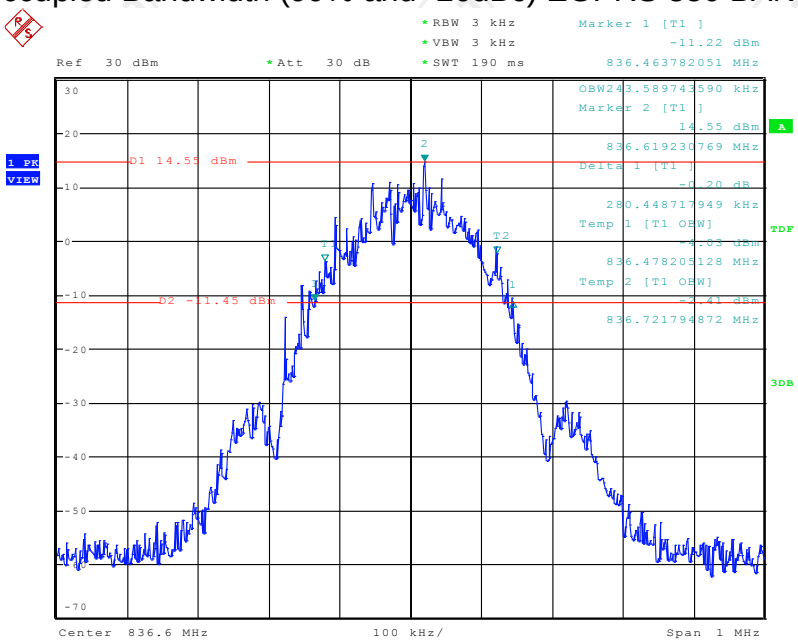
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Occupied Bandwidth (99% and -26dBc) EGPRS 850 BAND CH 128



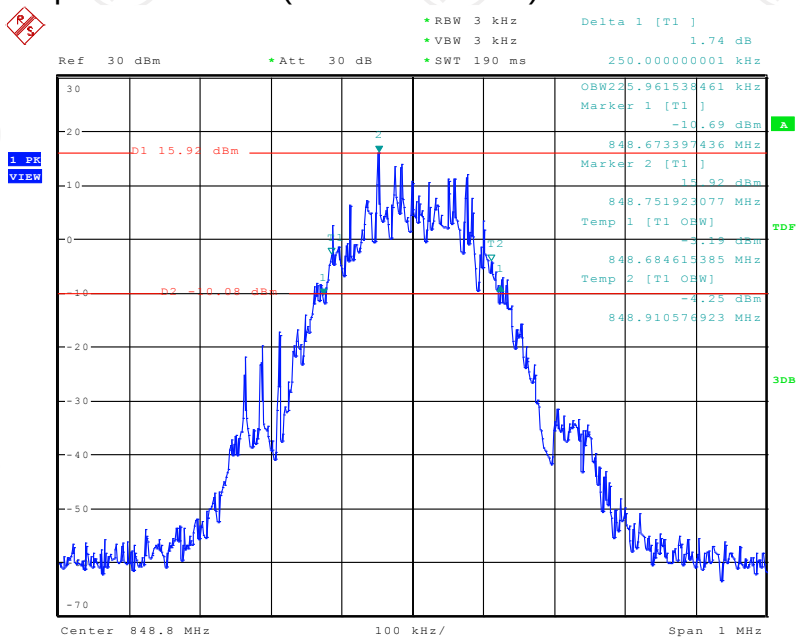
Date: 16.MAY.2017 17:03:22

Occupied Bandwidth (99% and -26dBc) EGPRS 850 BAND CH 190



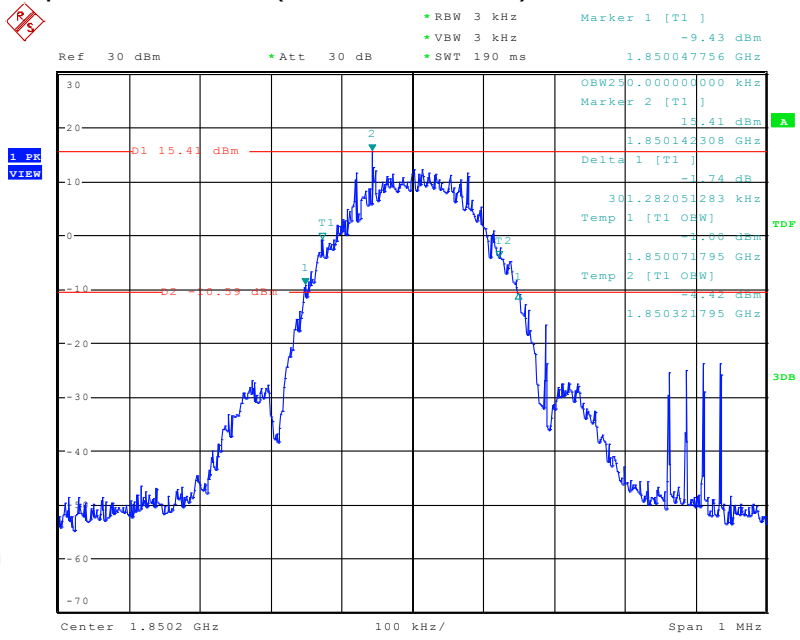
Date: 16.MAY.2017 18:58:03

Occupied Bandwidth (99% and -26dBc) EGPRS 850 BAND CH 251



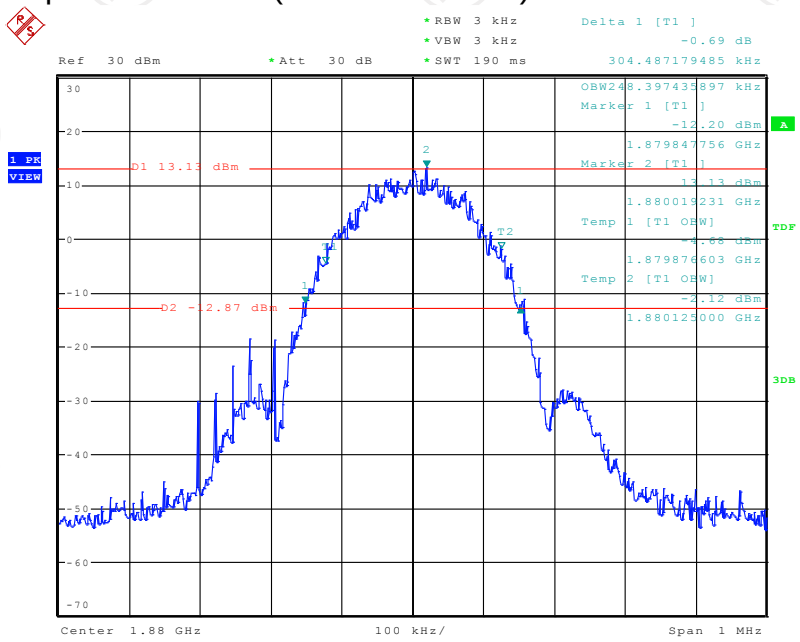
Date: 16.MAY.2017 19:01:14

Occupied Bandwidth (99% and -26dBc) EGPRS 1900 BAND CH 512



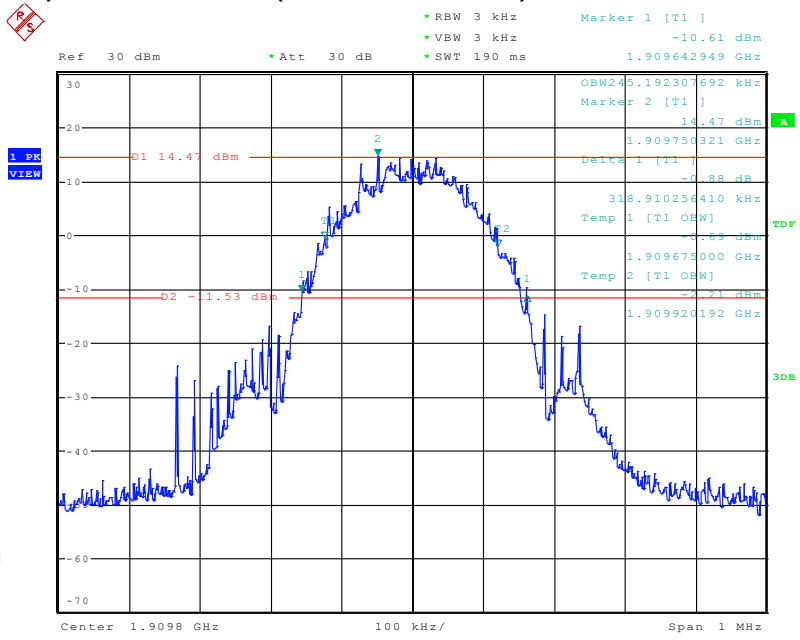
Date: 16.MAY.2017 19:08:04

Occupied Bandwidth (99% and -26dBc) EGPRS 1900 BAND CH 661



Date: 16.MAY.2017 19:09:40

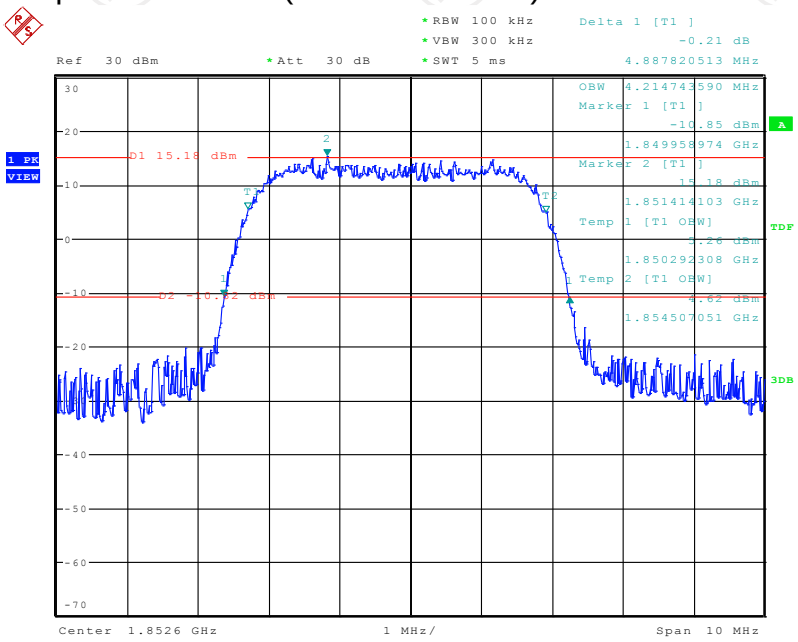
Occupied Bandwidth (99% and -26dBc) EGPRS 1900 BAND CH 810



Date: 16.MAY.2017 19:12:05

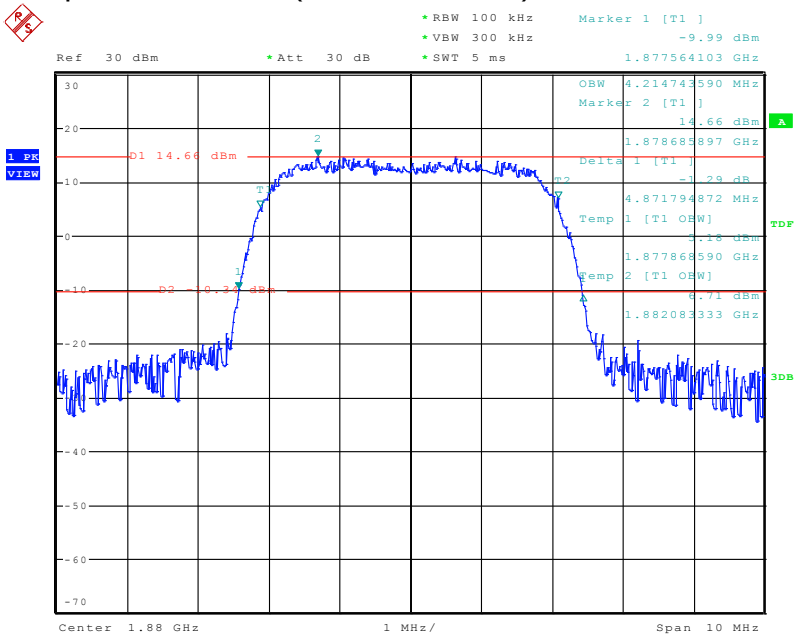
UTRA BANDS

Occupied Bandwidth (99% and -26dBc) WCDMA BAND II CH 9262



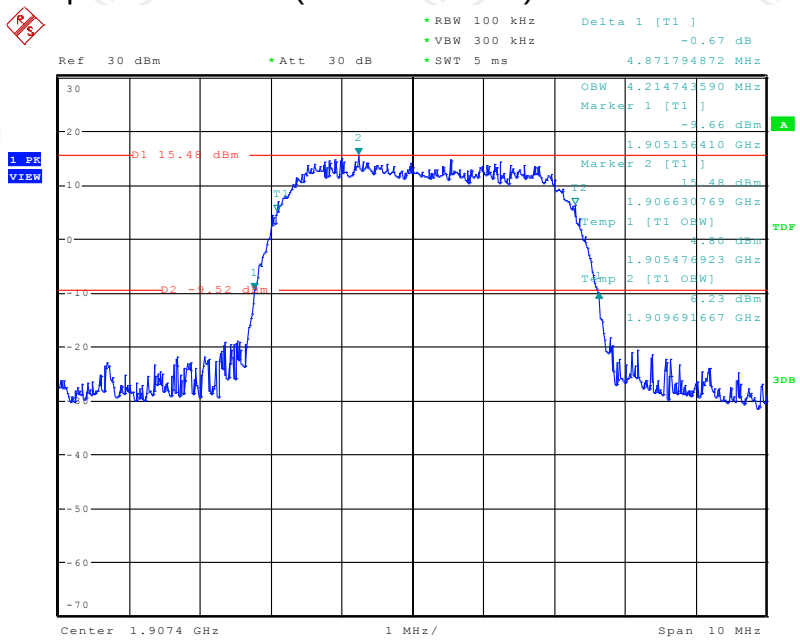
Date: 16.MAY.2017 19:17:28

Occupied Bandwidth (99%and-26dBc) WCDMA BAND II CH 9400



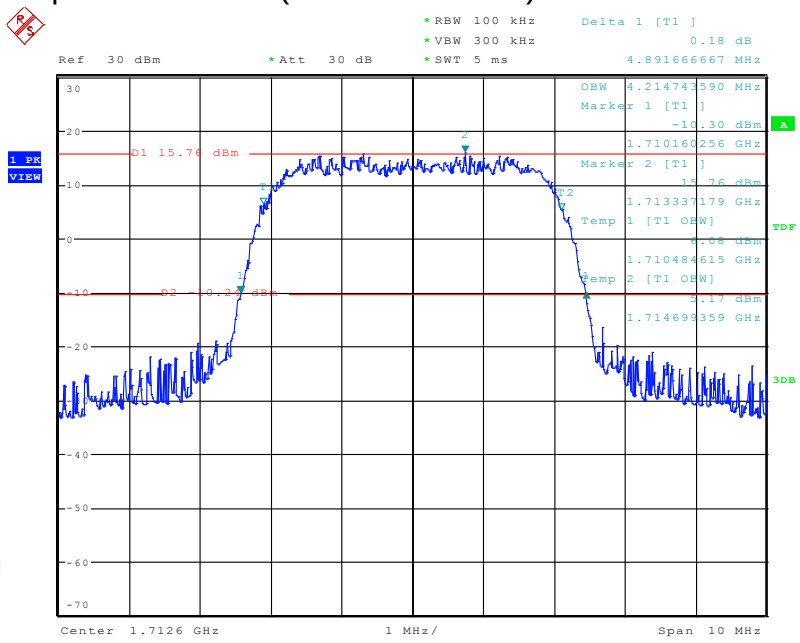
Date: 16.MAY.2017 19:18:38

Occupied Bandwidth (99%and-26dBc) WCDMA BAND II CH 9538



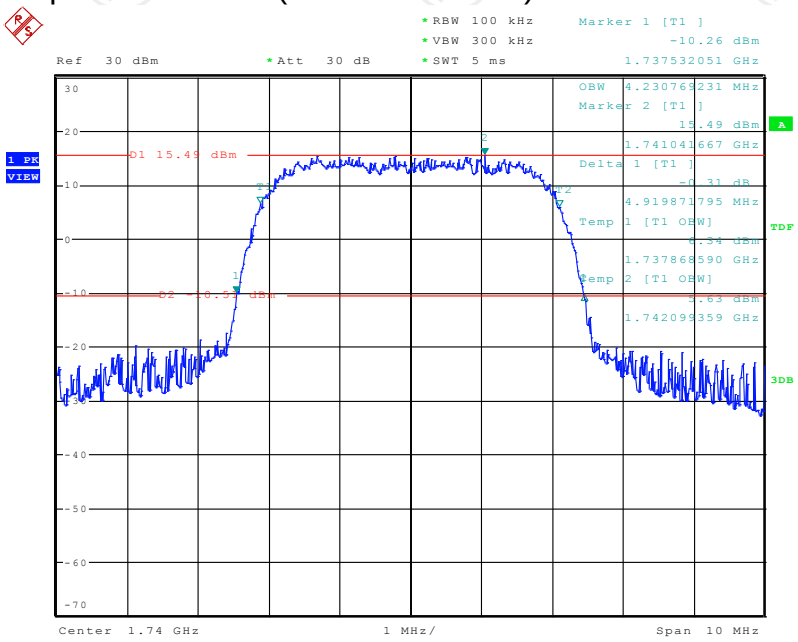
Date: 16.MAY.2017 19:19:48

Occupied Bandwidth (99% and -26dBc) WCDMA BAND IV CH 1312



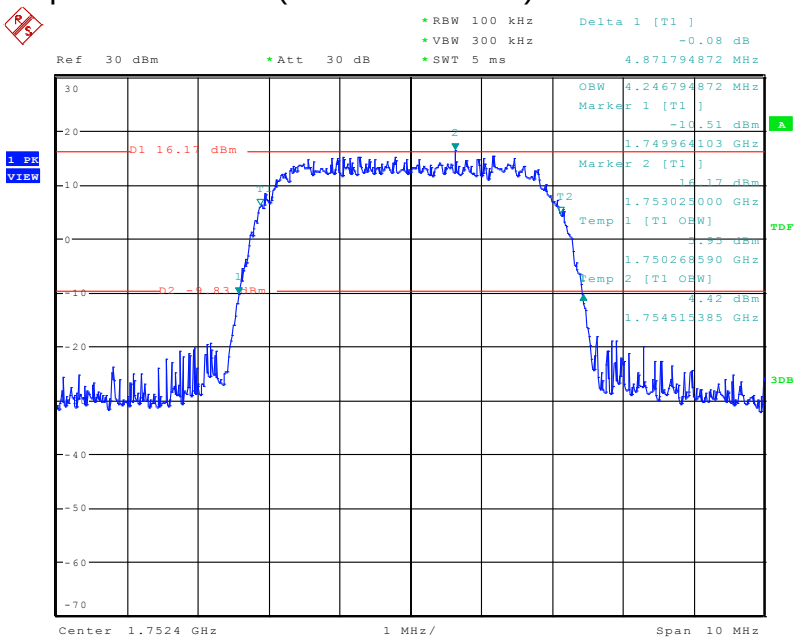
Date: 16.MAY.2017 20:19:13

Occupied Bandwidth (99% and -26dBc) WCDMA BAND IV CH 1413



Date: 16.MAY.2017 20:20:28

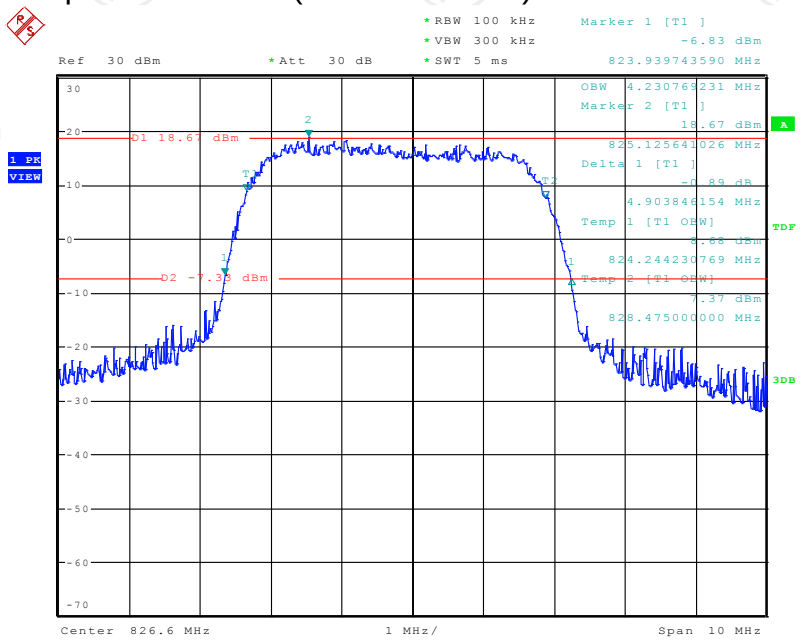
Occupied Bandwidth (99% and -26dBc) WCDMA BAND IV CH 1513



Date: 16.MAY.2017 20:21:45

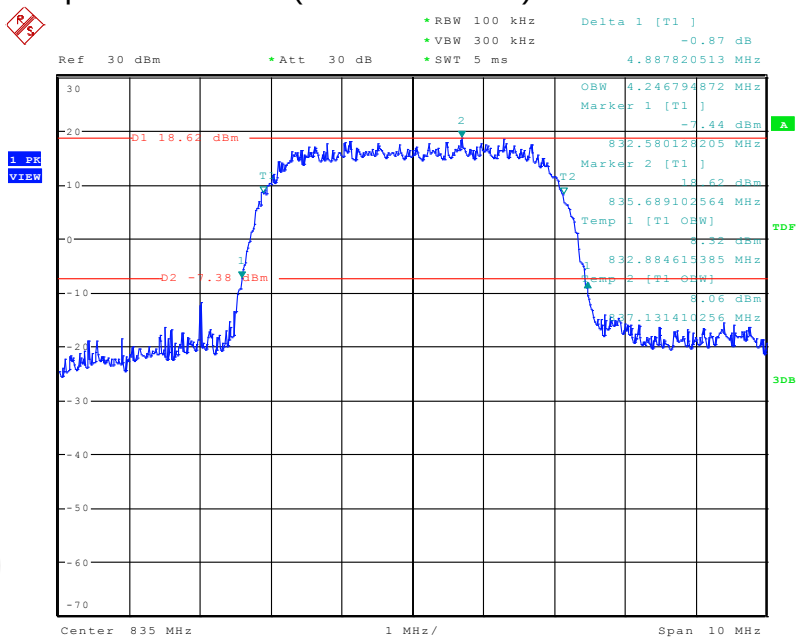
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Occupied Bandwidth (99%and-26dBc) WCDMA BAND V CH 4132



Date: 16.MAY.2017 19:22:01

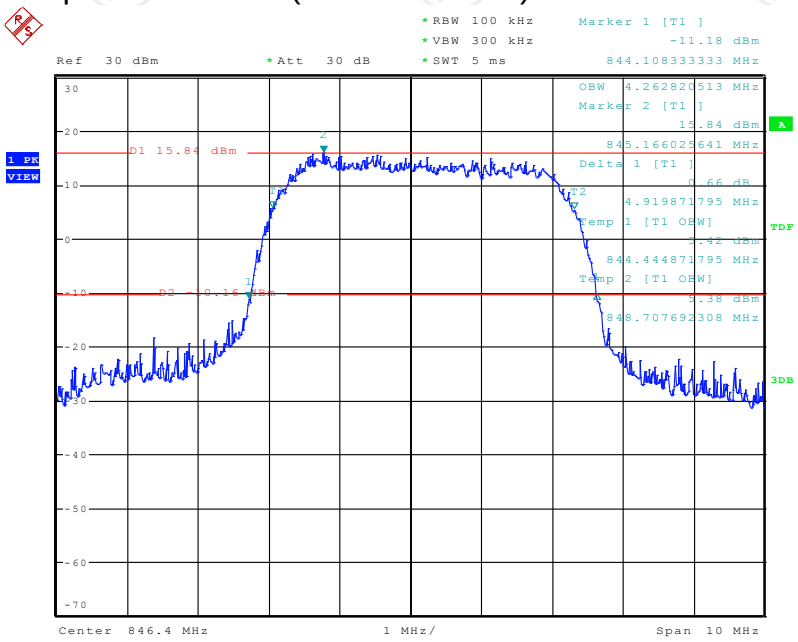
Occupied Bandwidth (99%and-26dBc) WCDMA BAND V CH 4182



Date: 16.MAY.2017 19:26:21

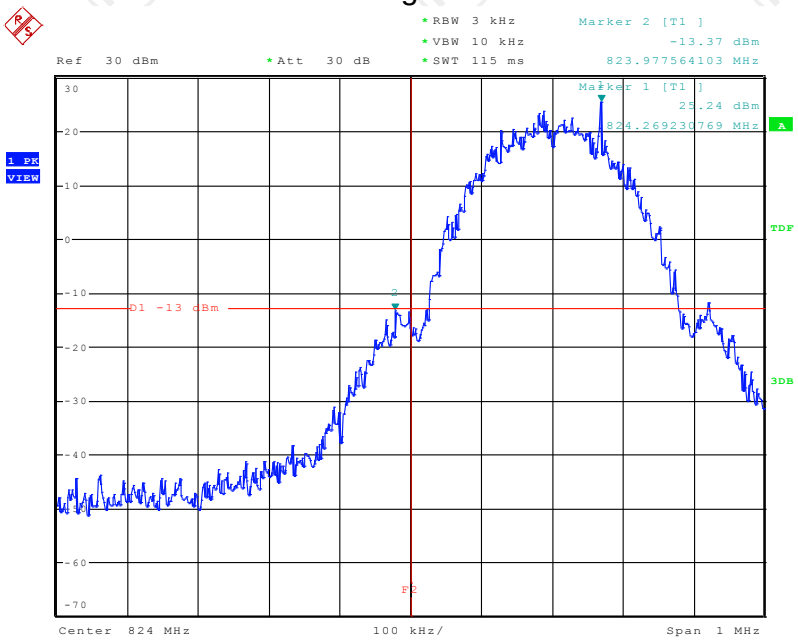
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Occupied Bandwidth (99%and-26dBc) WCDMA BAND V CH 4233



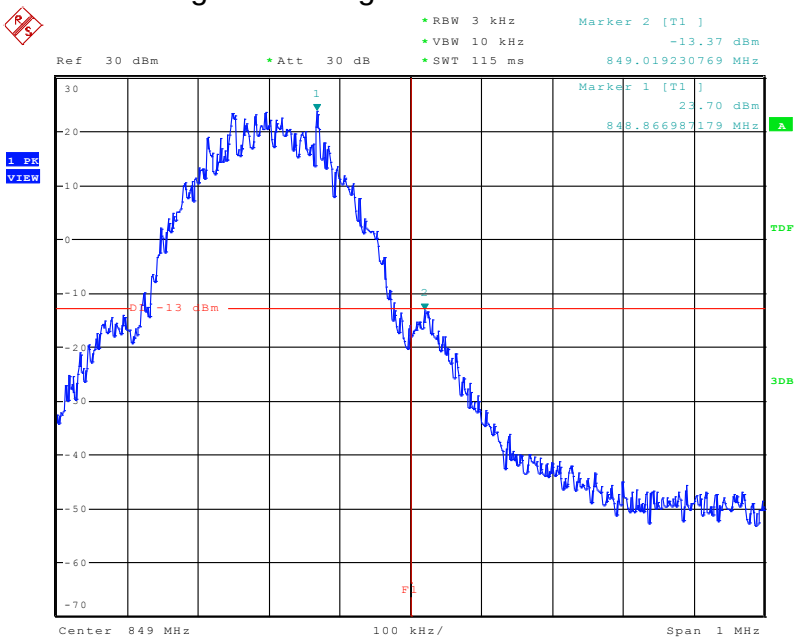
A.3 Band Edge and Conducted Spurious Emission Measurement Test Plot(s)

Low Band Edge GSM 850 BAND CH 128



Date: 16.MAY.2017 20:29:58

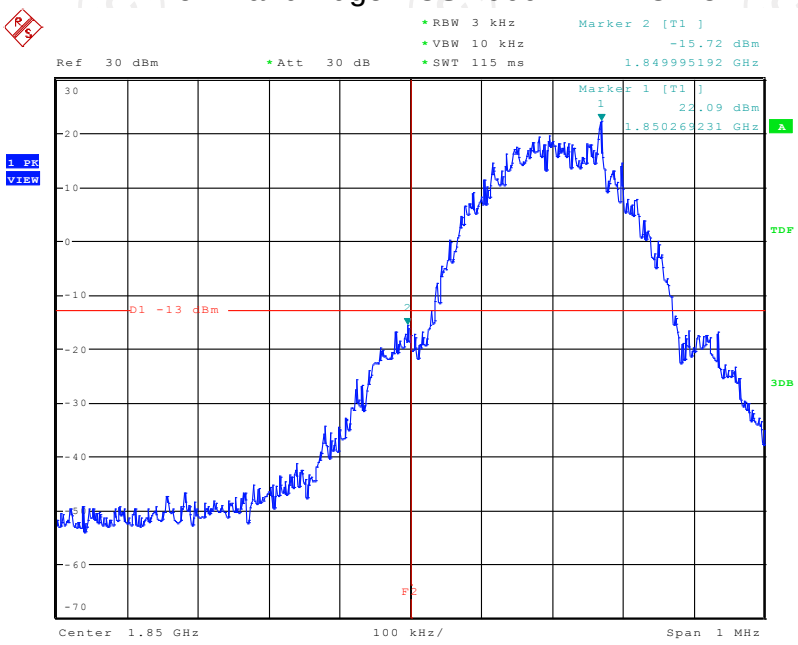
High Band Edge GSM 850 BAND CH 251



Date: 16.MAY.2017 20:32:32

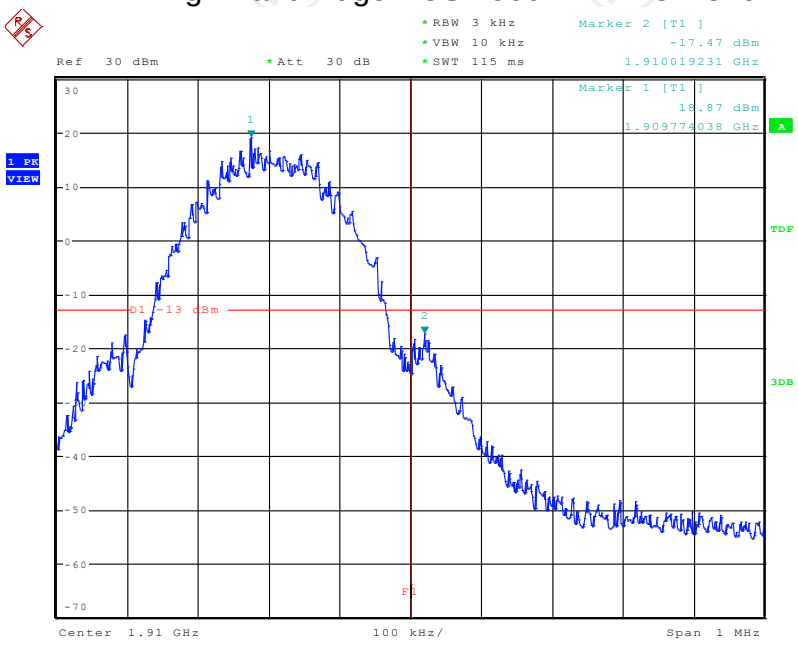
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Low Band Edge PCS 1900 BAND CH 512



Date: 16.MAY.2017 20:34:37

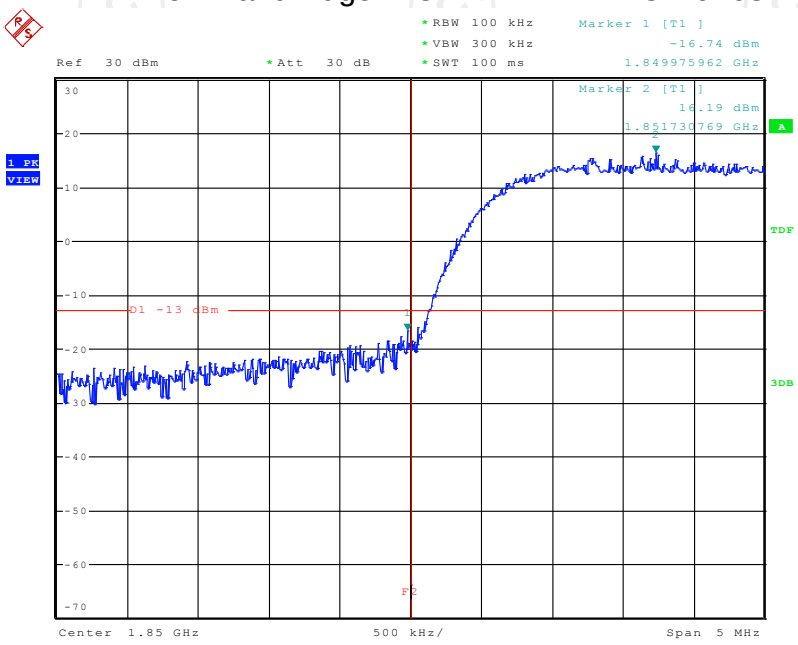
High Band Edge PCS 1900 BAND CH 810



Date: 16.MAY.2017 20:36:18

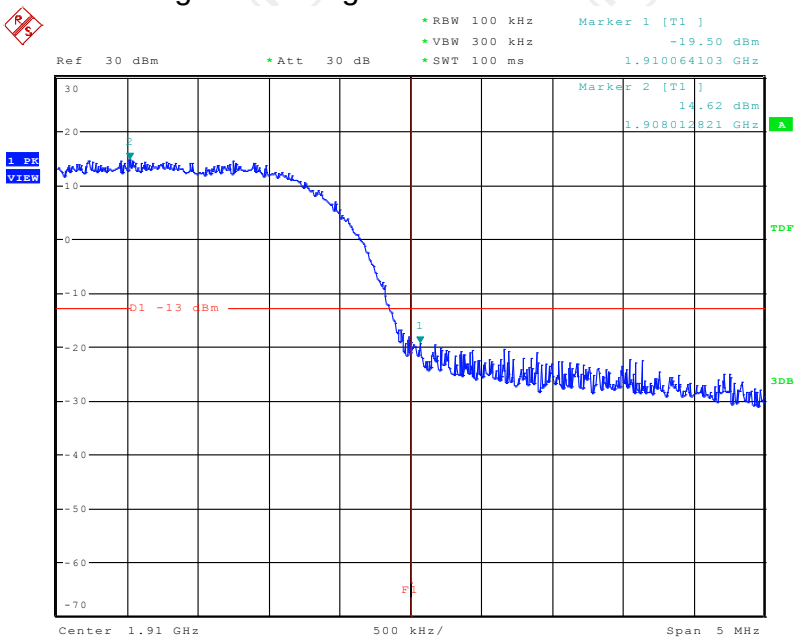
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Low Band Edge WCDMA BAND II CH 9263



Date: 16.MAY.2017 20:10:08

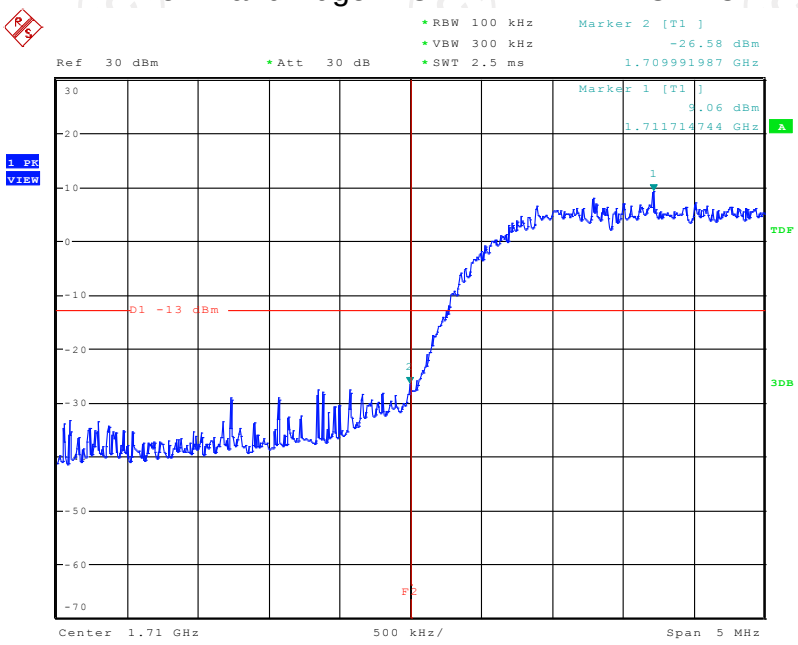
High Band Edge WCDMA BAND II CH 9537



Date: 16.MAY.2017 20:11:37

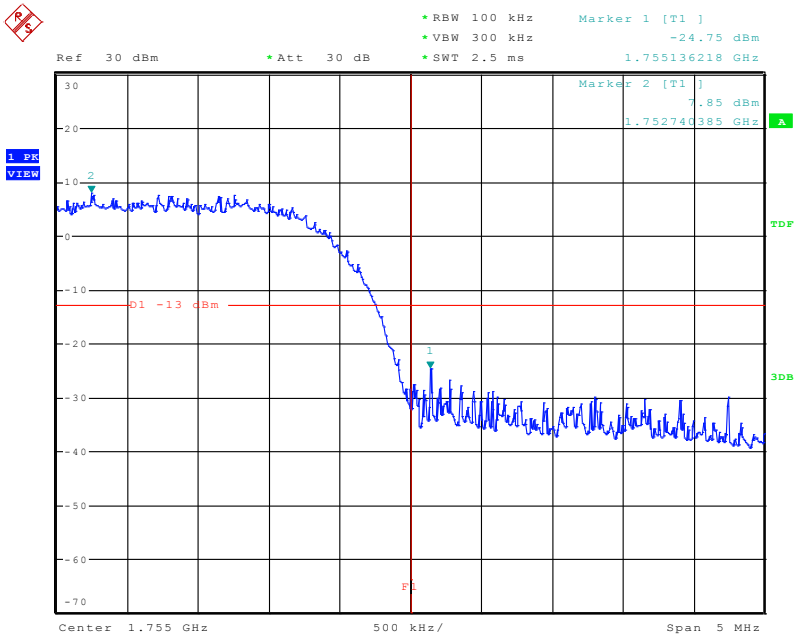
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Low Band Edge WCDMA BAND IV CH 1312



Date: 16.MAY.2017 20:16:24

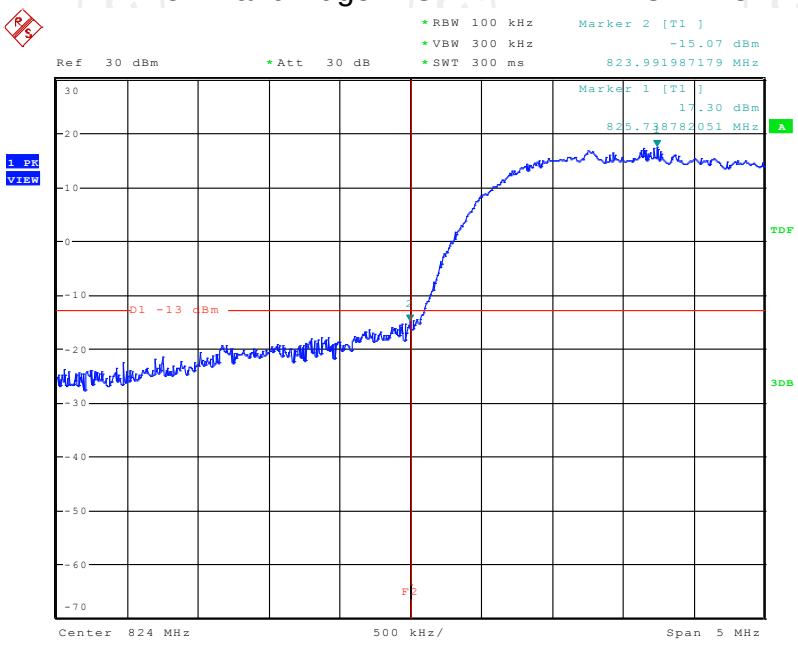
Low Band Edge WCDMA BAND IV CH 1513



Dat

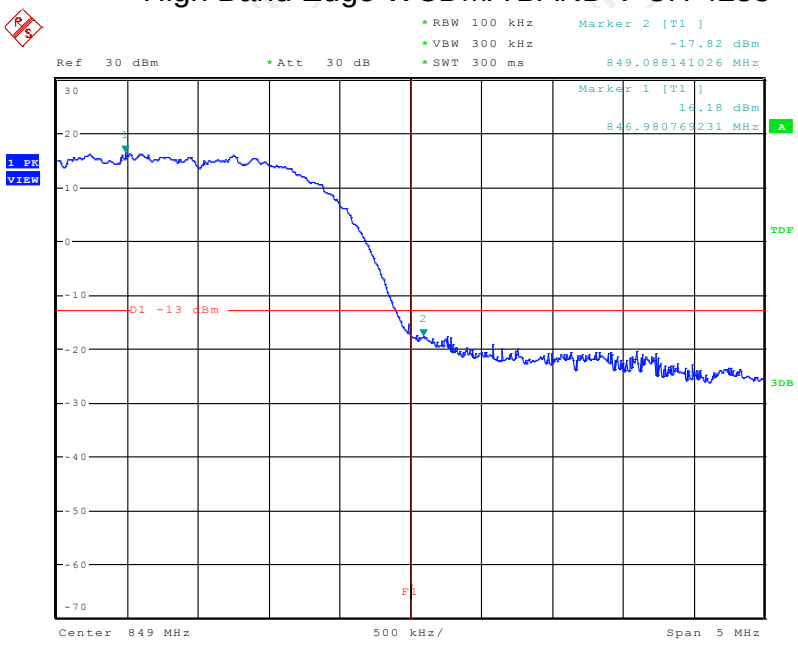
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Low Band Edge WCDMA BAND V CH 4132



Date: 16.MAY.2017 19:42:07

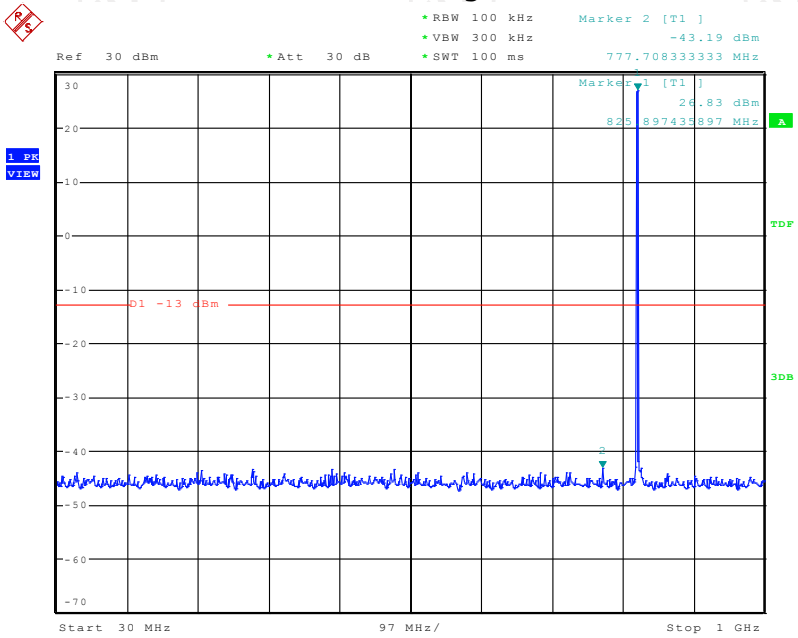
High Band Edge WCDMA BAND V CH 4233



Date: 16.MAY.2017 19:39:44

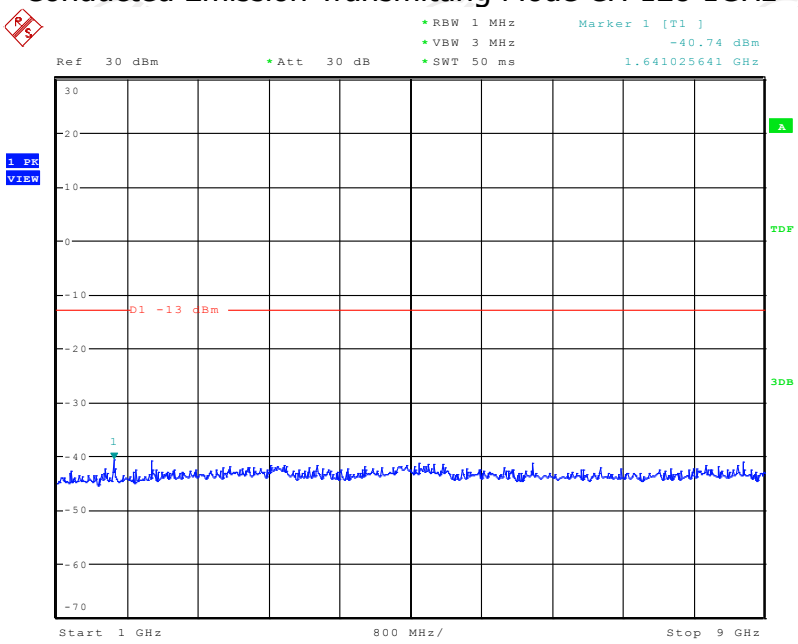
CONDUCTED EMISSION IN GSM850 BAND

Conducted Emission Transmitting Mode CH 128 30MHz – 1GHz



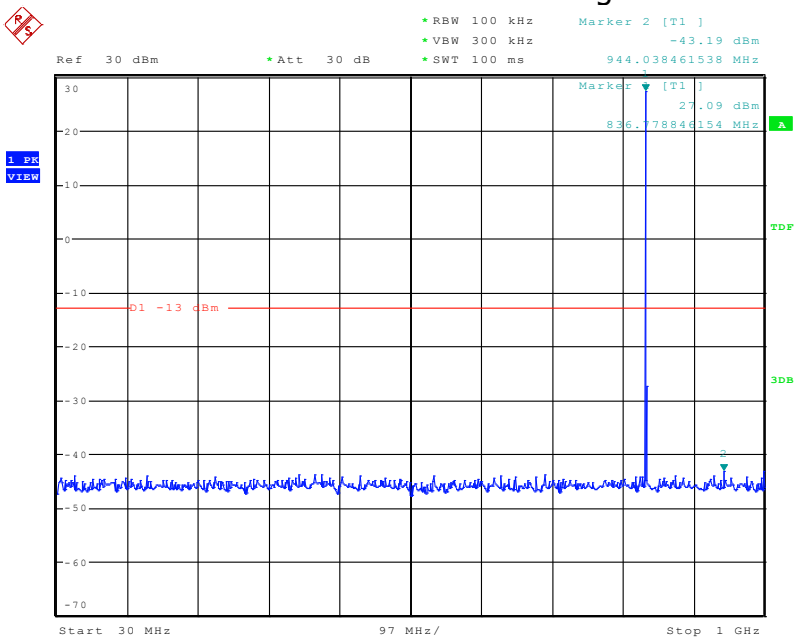
Date: 15.JUN.2017 18:34:17

Conducted Emission Transmitting Mode CH 128 1GHz – 9GHz



Date: 16.MAY.2017 14:40:28

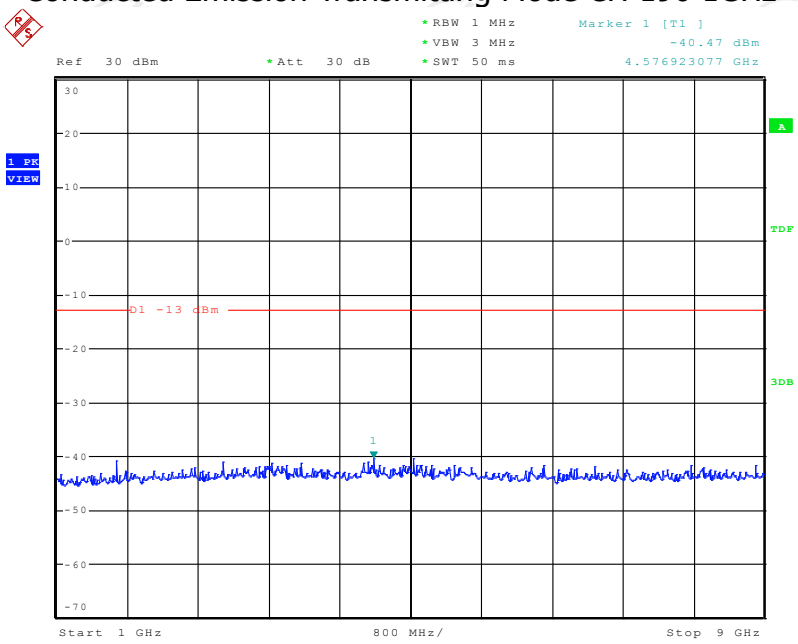
Conducted Emission Transmitting Mode CH 190 30MHz – 1GHz



Date: 15.JUN.2017 18:36:04

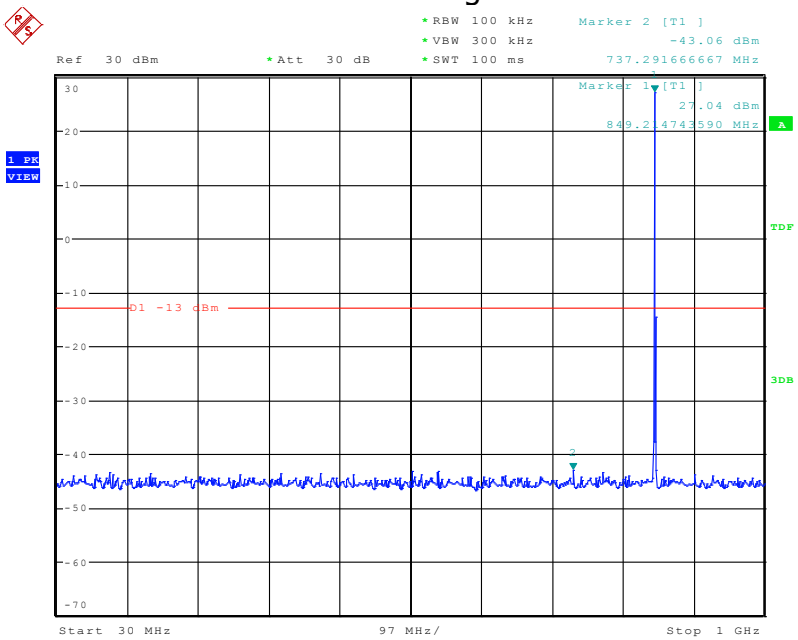
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Conducted Emission Transmitting Mode CH 190 1GHz – 9GHz



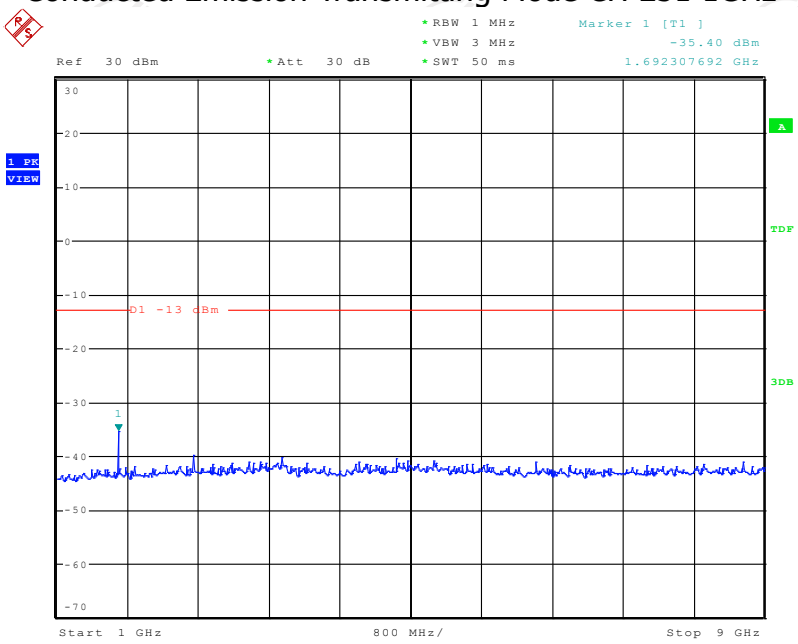
Date: 16.MAY.2017 14:41:33

Conducted Emission Transmitting Mode CH 251 30MHz – 1GHz



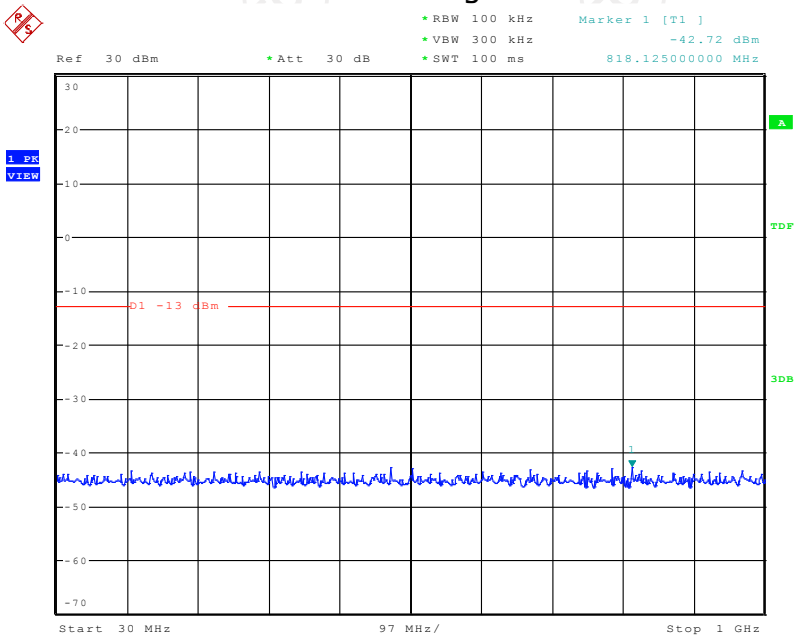
Date: 15.JUN.2017 18:37:00

Conducted Emission Transmitting Mode CH 251 1GHz – 9GHz



Date: 15.JUN.2017 18:40:15

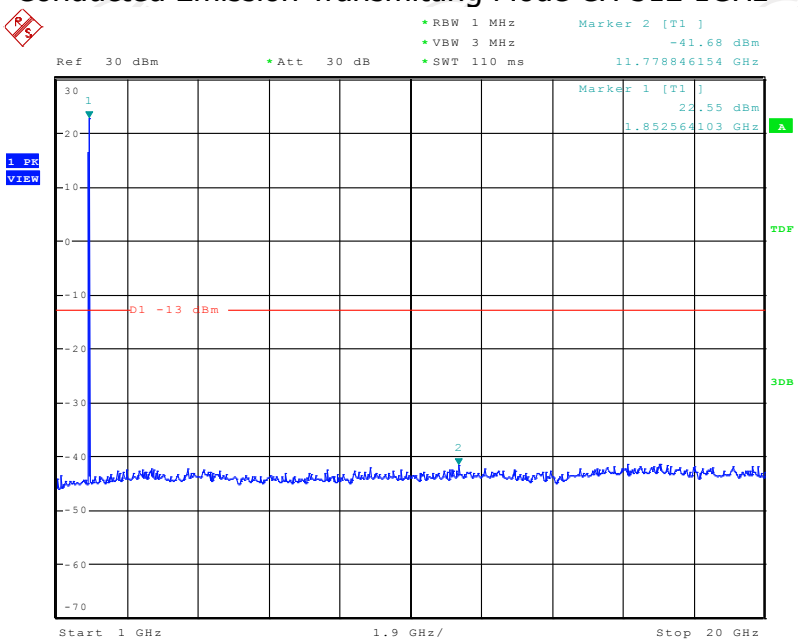
CONDUCTED EMISSION IN PCS1900 BAND
Conducted Emission Transmitting Mode CH 512 30MHz – 1GHz



Date: 15.JUN.2017 18:42:00

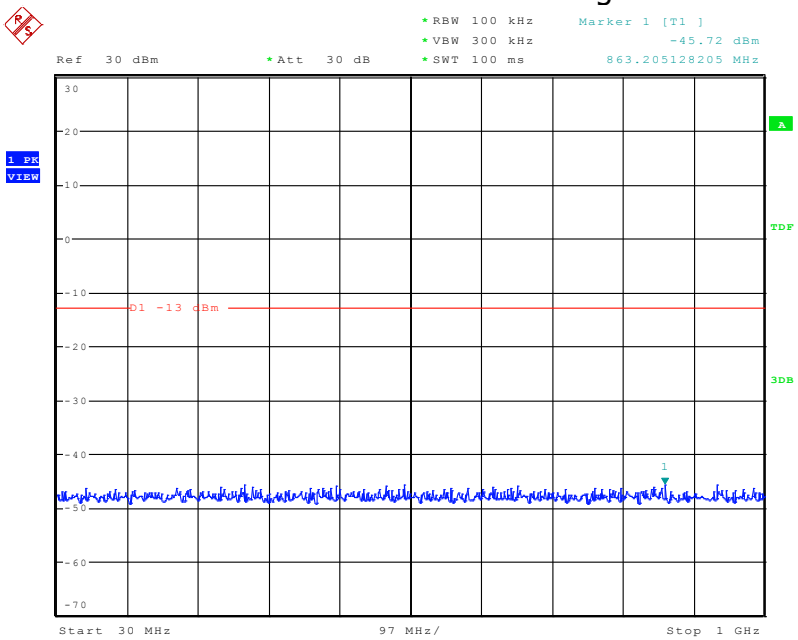
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Conducted Emission Transmitting Mode CH 512 1GHz – 20GHz



Date: 15.JUN.2017 18:44:54

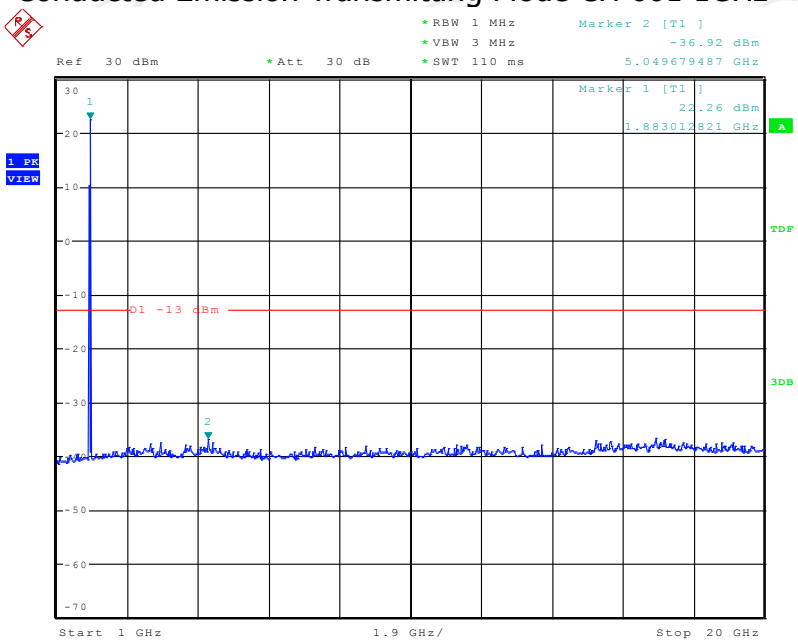
Conducted Emission Transmitting Mode CH 661 30MHz – 1GHz



Date: 15.JUN.2017 18:48:41

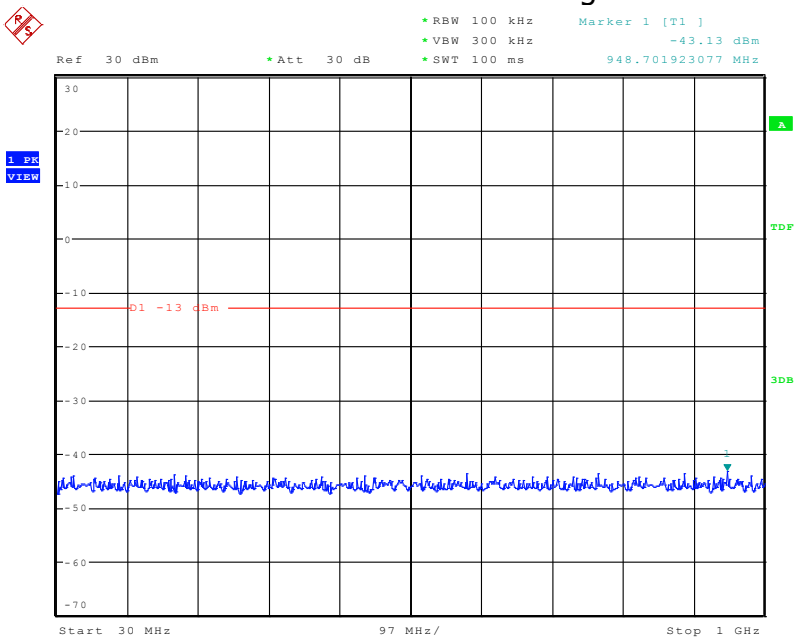
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Conducted Emission Transmitting Mode CH 661 1GHz – 20GHz



Date: 16.MAY.2017 14:53:53

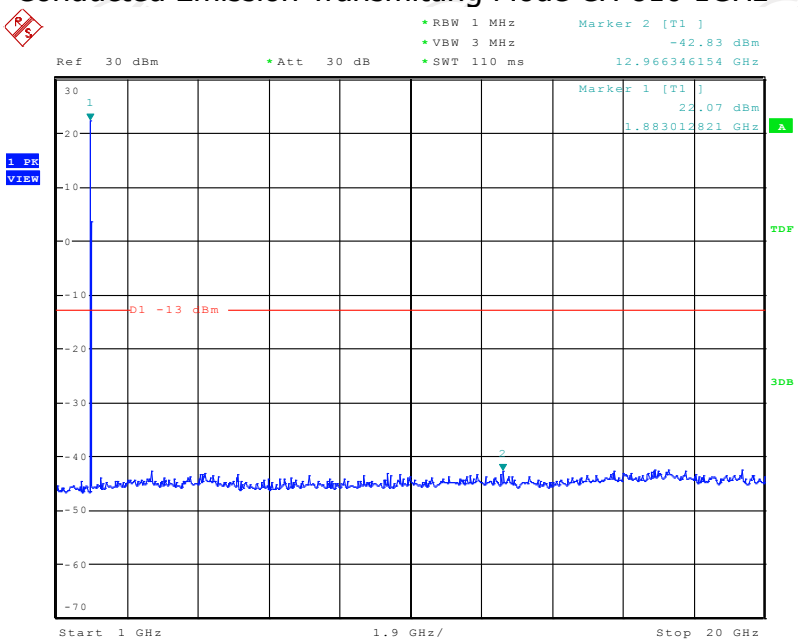
Conducted Emission Transmitting Mode CH 810 30MHz – 1GHz



Date: 16.MAY.2017 14:48:10

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

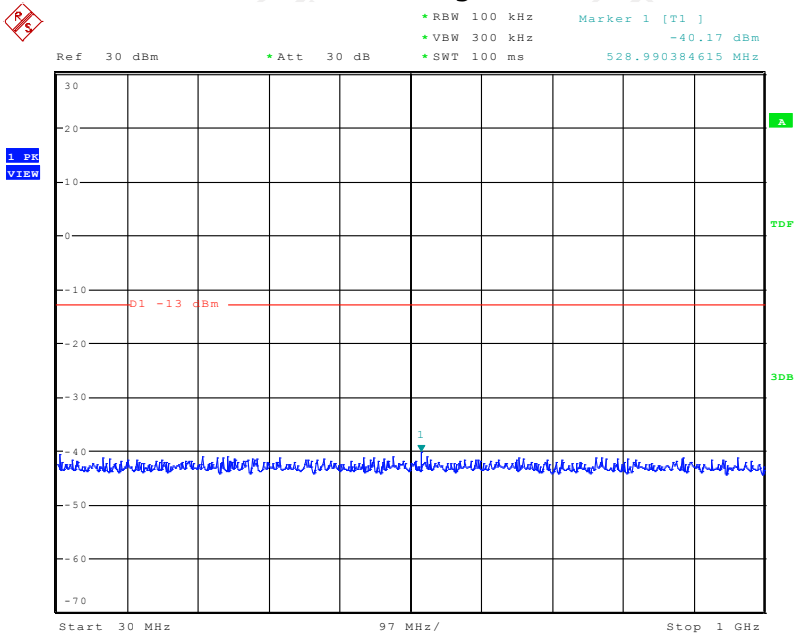
Conducted Emission Transmitting Mode CH 810 1GHz – 20GHz



Date: 15.JUN.2017 18:46:23

CONDUCTED EMISSION IN WCDMA Band II

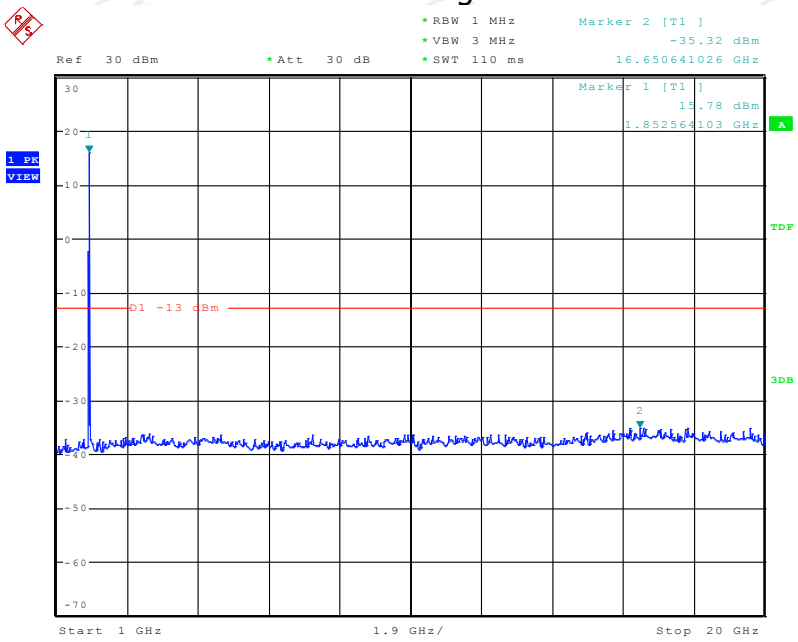
Conducted Emission Transmitting Mode CH 9262 30MHz – 1GHz



Date: 16.MAY.2017 15:17:12

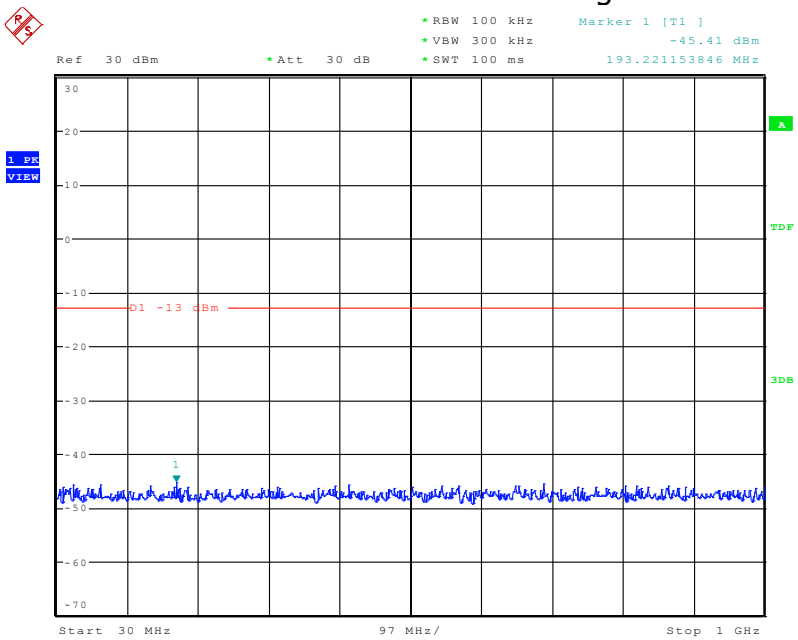
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Conducted Emission Transmitting Mode CH 9262 1GHz – 20GHz



Date: 16.MAY.2017 15:19:51

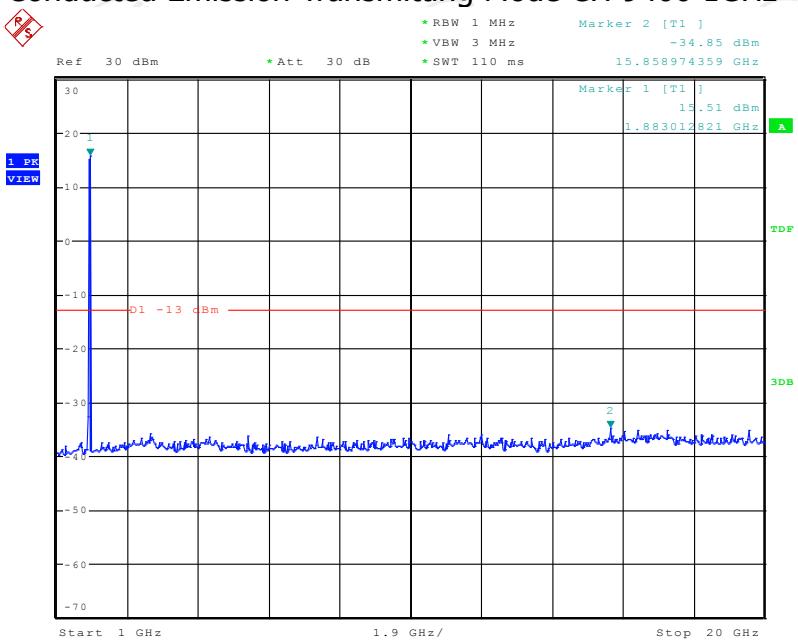
Conducted Emission Transmitting Mode CH 9400 30MHz – 1GHz



Date: 15.JUN.2017 18:51:25

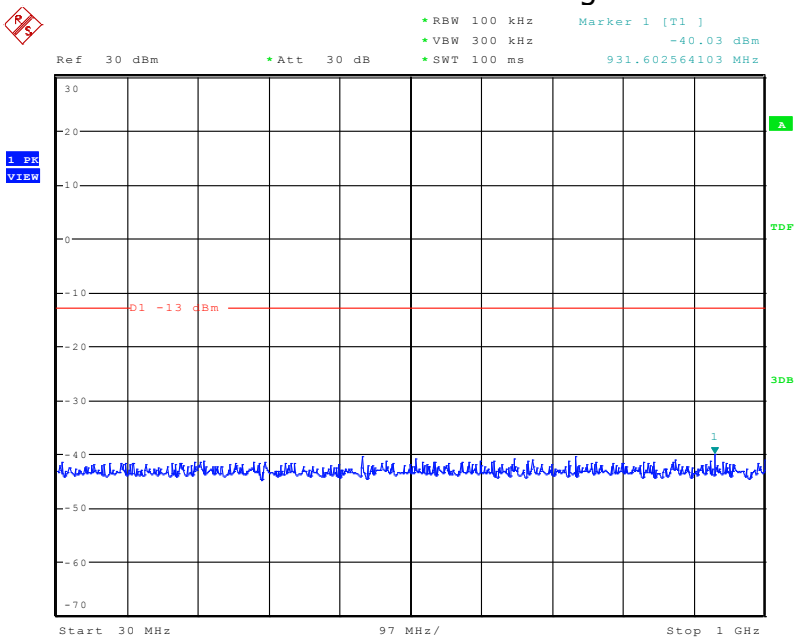
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Conducted Emission Transmitting Mode CH 9400 1GHz – 20GHz



Date: 16.MAY.2017 15:21:03

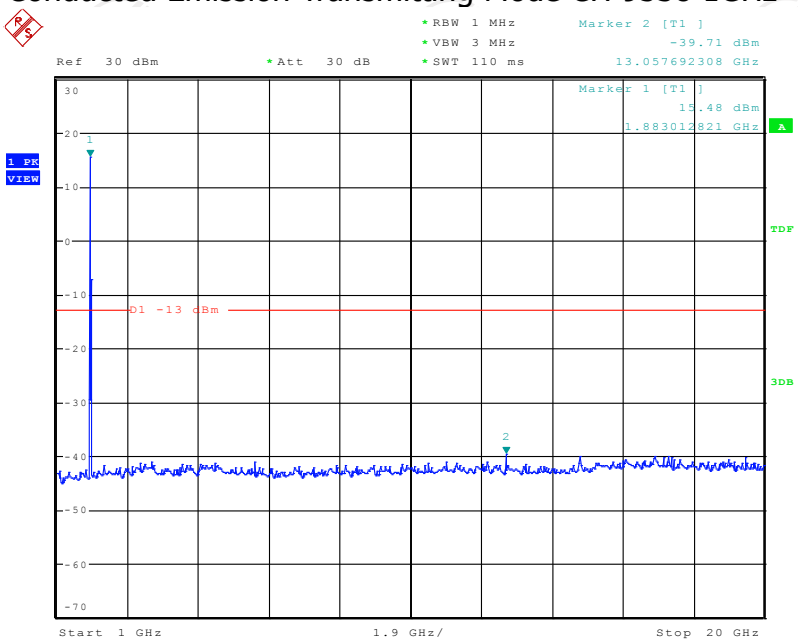
Conducted Emission Transmitting Mode CH 9538 30MHz – 1GHz



Date: 16.MAY.2017 15:18:15

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

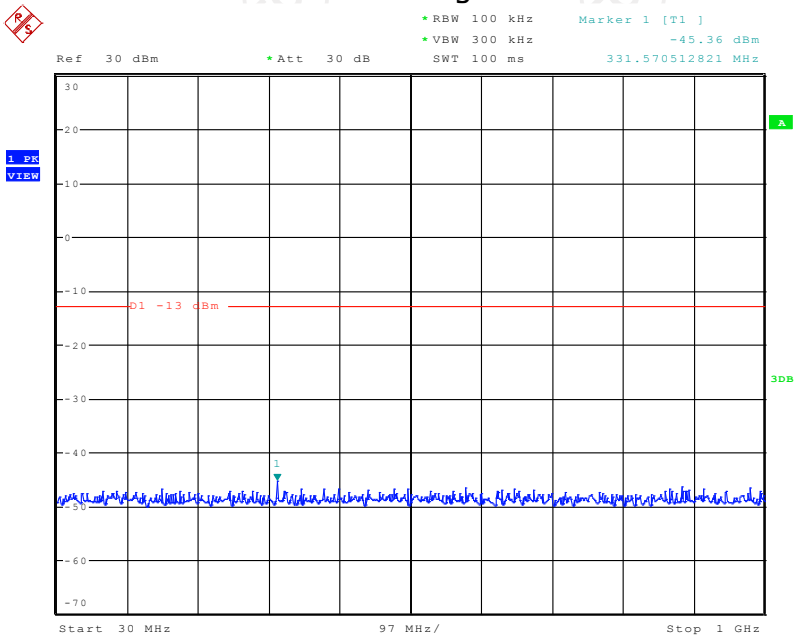
Conducted Emission Transmitting Mode CH 9538 1GHz – 20GHz



Date: 15.JUN.2017 18:54:41

CONDUCTED EMISSION IN WCDMA Band IV

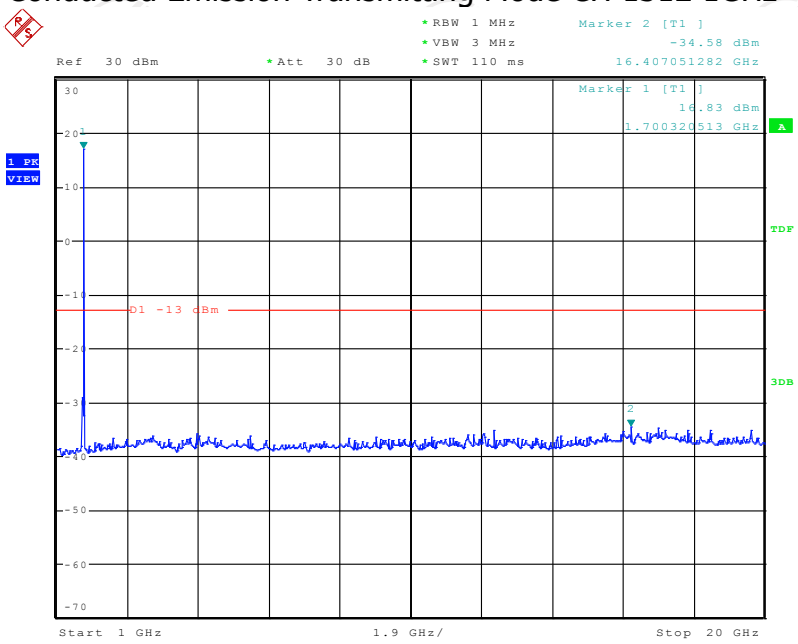
Conducted Emission Transmitting Mode CH 1312 30MHz – 1GHz



Date: 31.MAR.2017 09:19:45

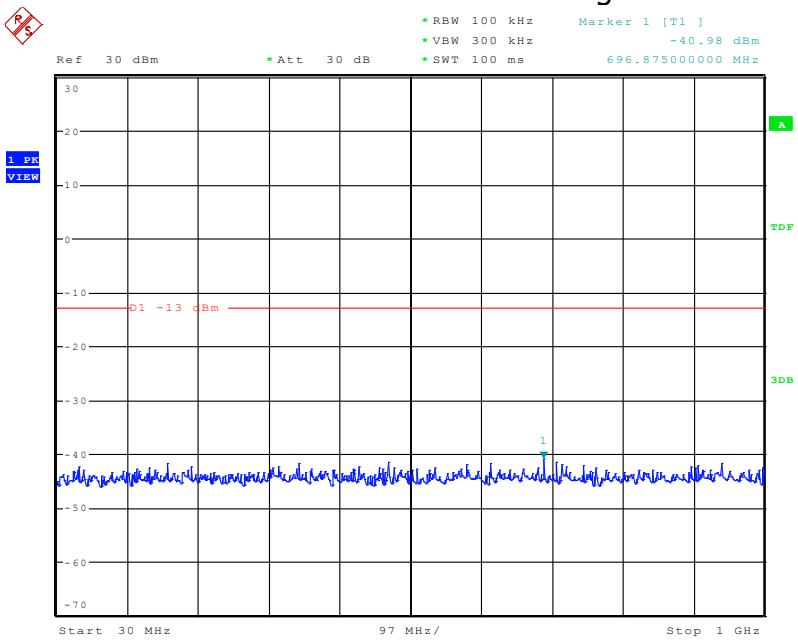
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Conducted Emission Transmitting Mode CH 1312 1GHz – 20GHz



Date: 16.MAY.2017 20:44:37

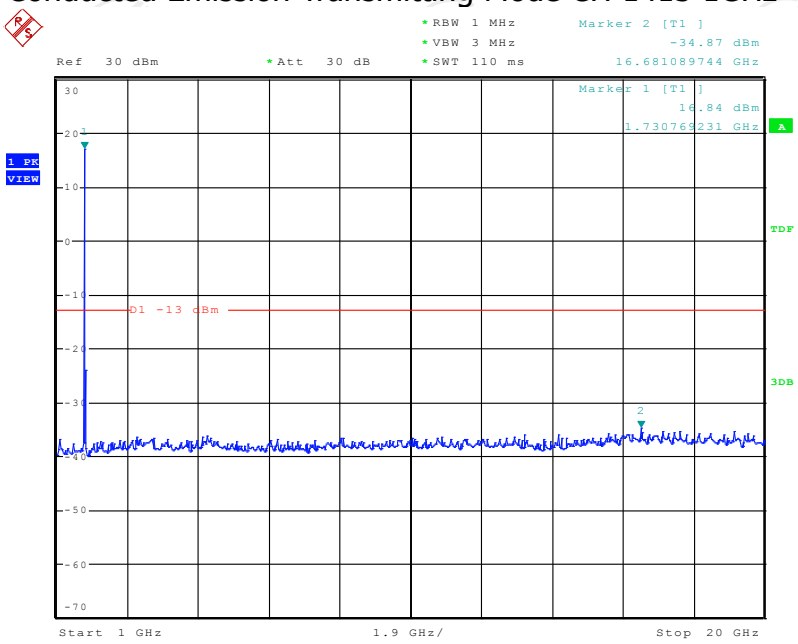
Conducted Emission Transmitting Mode CH 1413 30MHz – 1GHz



Date: 16.MAY.2017 20:41:57

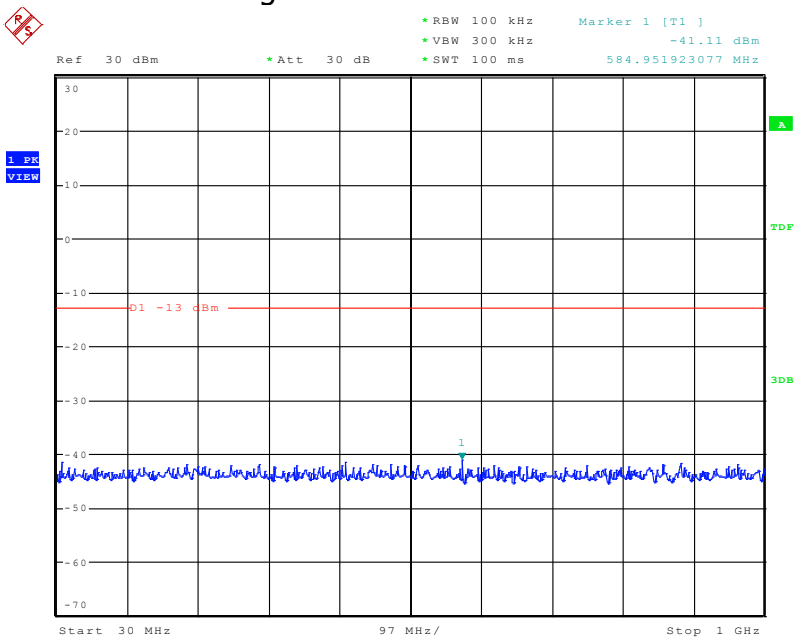
Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Conducted Emission Transmitting Mode CH 1413 1GHz – 20GHz



Date: 15.JUN.2017 18:57:19

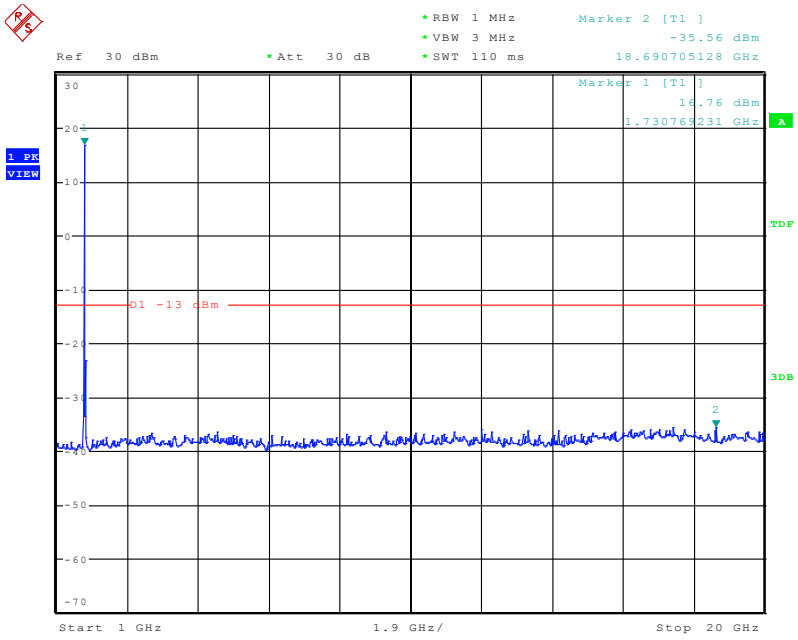
Conducted Emission Transmitting Mode CH 1513 30MHz – 1GHz



Date: 16.MAY.2017 20:42:29

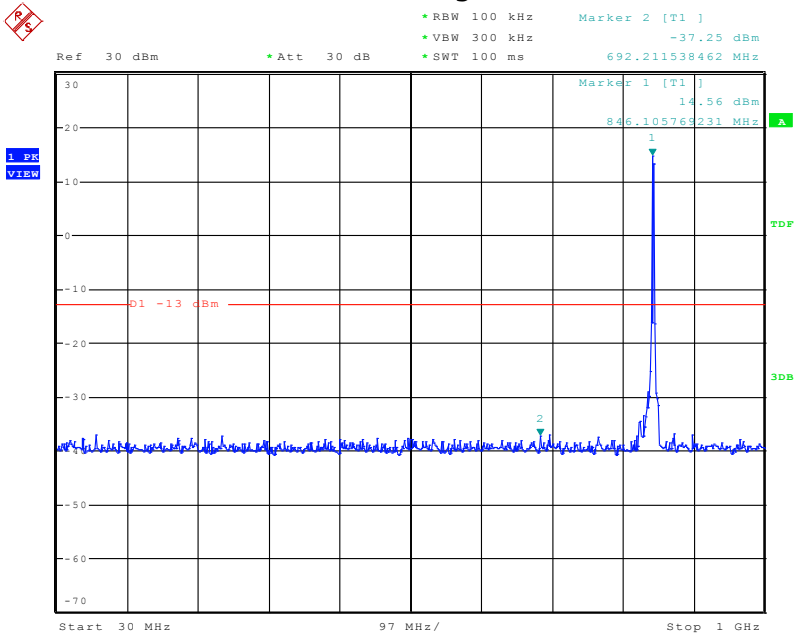
Conducted Emission Transmitting Mode CH 1513 1GHz – 20GHz

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

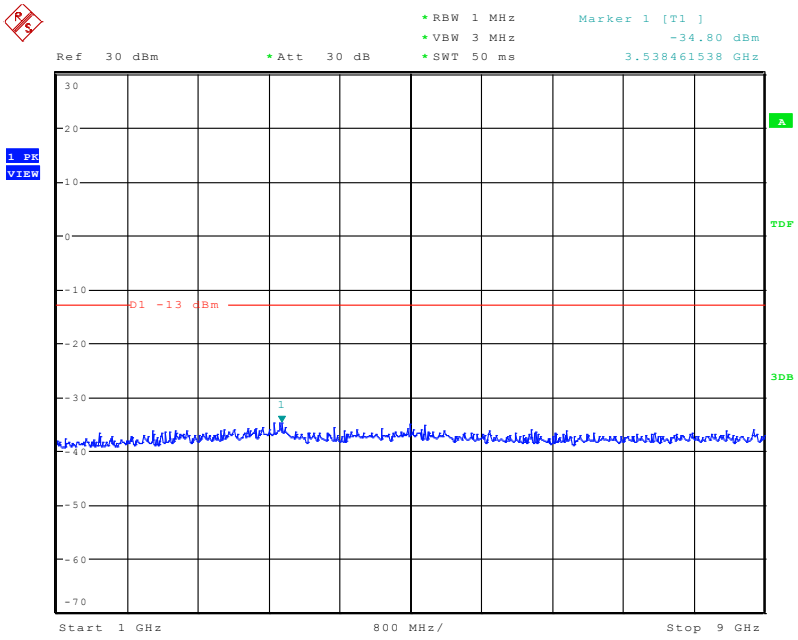


CONDUCTED EMISSION IN WCDMA Band V

Conducted Emission Transmitting Mode CH 4132 30MHz – 1GHz

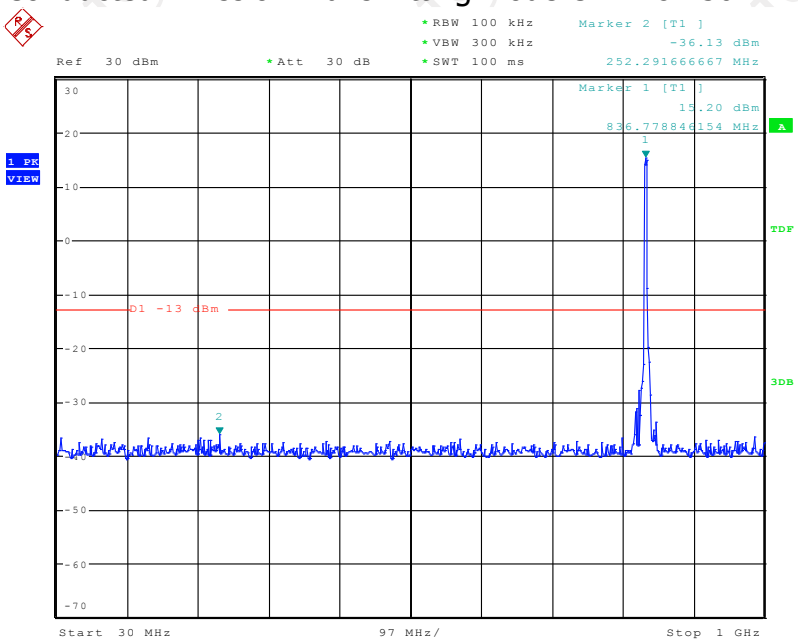


Conducted Emission Transmitting Mode CH 4132 1GHz – 9GHz



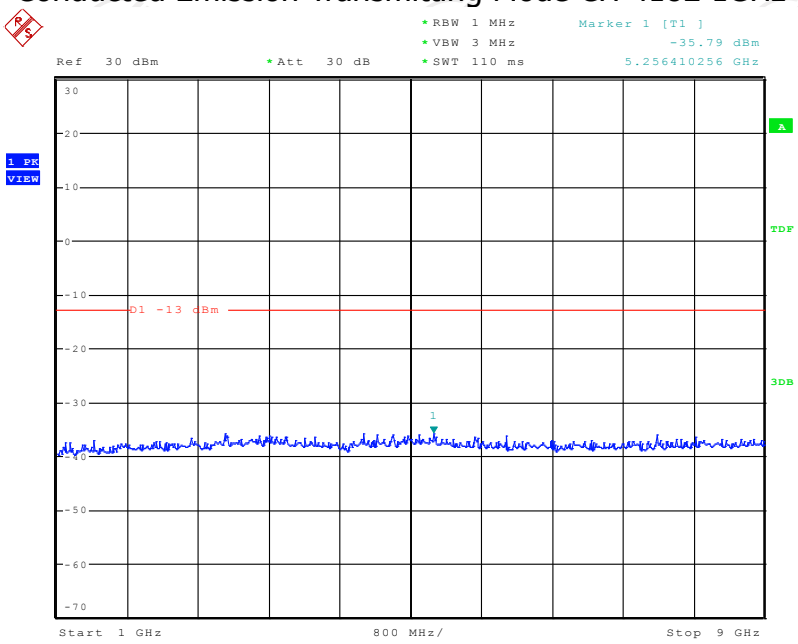
Date: 16.MAY.2017 15:44:12

Conducted Emission Transmitting Mode CH 4182 30MHz – 1GHz



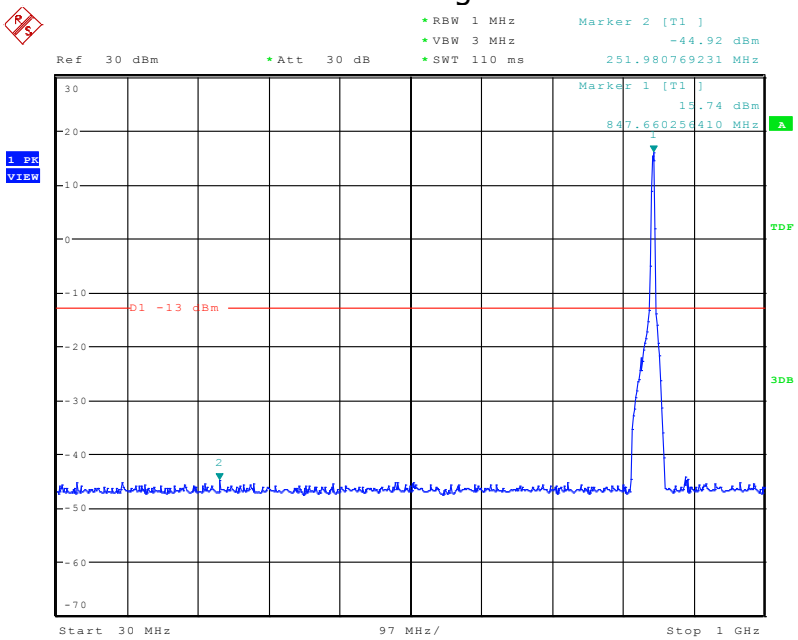
Date: 16.MAY.2017 15:40:19

Conducted Emission Transmitting Mode CH 4182 1GHz – 9GHz



Date: 15.JUN.2017 18:59:39

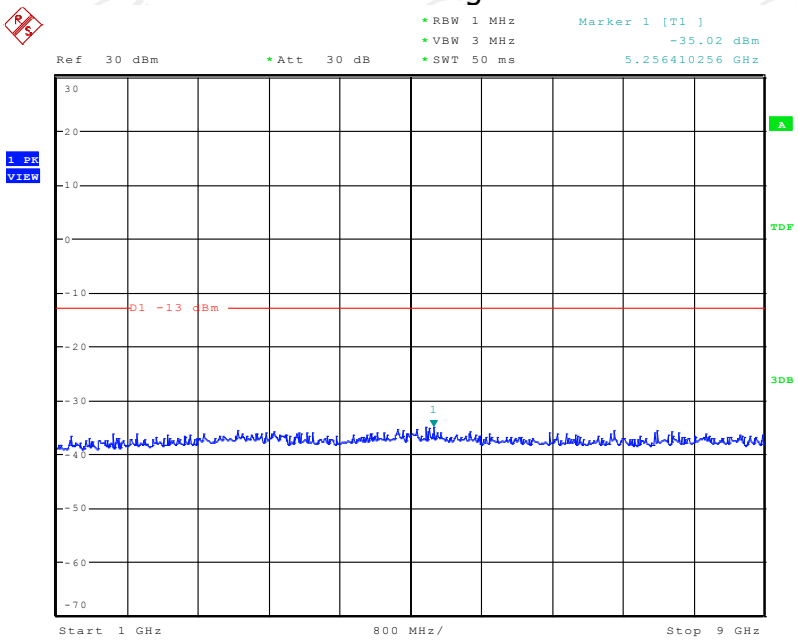
Conducted Emission Transmitting Mode CH 4233 30MHz – 1GHz



Date: 15.JUN.2017 19:01:23

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Conducted Emission Transmitting Mode CH 4233 1GHz – 9GHz



Date: 16.MAY.2017 15:46:45

A.4 Effective Radiated Power and Effective Isotropic Radiated Power Measurement

Radiated Power (ERP) for GSM 850 MHZ

Mode	Frequency (MHz)	P_{Mea} (dBm)	Amplifier Gain (dBi)	Path Loss	Antenna Gain	Correction (dB)	ERP (Peak) (dBm)	Polarization
GSM850	824.2	4.80	31.23	1.02	-0.52	2.15	32.34	H
	836.6	5.30	31.23	1.02	-0.52	2.15	32.84	H
	848.8	4.91	31.23	1.02	-0.52	2.15	32.45	H

Radiated Power (ERP) for EGPRS850 MHZ

Mode	Frequency (MHz)	P_{Mea} (dBm)	Amplifier Gain (dBi)	Path Loss	Antenna Gain	Correction (dB)	ERP (Peak) (dBm)	Polarization
EGPRS 850	824.2	0.26	31.23	1.02	-0.52	2.15	27.80	H
	836.6	0.33	31.23	1.02	-0.52	2.15	27.87	H
	848.8	-0.52	31.23	1.02	-0.52	2.15	27.02	H

Radiated Power (E.I.R.P) for PCS 1900 MHZ

Mode	Frequency (MHz)	P_{Mea} (dBm)	Amplifier Gain (dBi)	Path Loss (dB)	Antenna Gain (dB)	Correction (dB)	E.I.R.P. (Peak) (dBm)	Polarization
GSM 1900	1850.2	-2.11	31.23	1.02	0.49	0.00	28.59	H
	1880.0	-1.82	31.23	1.02	0.49	0.00	28.88	H
	1909.8	-1.74	31.23	1.02	0.49	0.00	28.96	H

Radiated Power (E.I.R.P) for EGPRS 1900 MHZ

Mode	Frequency (MHz)	P_{Mea} (dBm)	Amplifier Gain (dBi)	Path Loss (dB)	Antenna Gain (dB)	Correction (dB)	E.I.R.P. (Peak) (dBm)	Polarization
EGPRS 1900	1850.2	-5.28	31.23	1.02	0.49	0.00	25.42	H
	1880.0	-5.34	31.23	1.02	0.49	0.00	25.36	H
	1909.8	-5.37	31.23	1.02	0.49	0.00	25.33	H

ERP or E.I.R.P = PMea + Amplifier Gain – Path Loss + Antenna Gain –Correction Factor

Note: Each channel is scanned 10 times, and the peak value of each channel is recorded.

Radiated Power (E.I.R.P) for UTRA Band 2

Mode	Frequency (MHz)	P_{Mea} (dBm)	Amplifier Gain (dBi)	Path Loss (dB)	Antenna Gain (dB)	Correction (dB)	E.I.R.P. (Peak) (dBm)	Polarization
UTRA Band 2	1852.4	-8.20	31.23	1.02	0.46	0.00	22.47	H
	1880	-8.22	31.23	1.02	0.46	0.00	22.45	H
	1907.6	-8.28	31.23	1.02	0.46	0.00	22.39	H

Radiated Power (E.I.R.P) for UTRA Band 4

Mode	Frequency (MHz)	P_{Mea} (dBm)	Amplifier Gain (dBi)	Path Loss (dB)	Antenna Gain (dB)	Correction (dB)	E.I.R.P. (Peak) (dBm)	Polarization
UTRA Band 4	1712.4	-8.22	31.23	1.02	0.45	0.00	22.44	H
	1732.6	-8.10	31.23	1.02	0.45	0.00	22.56	H
	1752.6	-8.02	31.23	1.02	0.45	0.00	22.64	H

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Radiated Power (ERP) for UTRA Band 5

Mode	Frequency (MHz)	P_{Mea} (dBm)	Amplifier Gain (dBi)	Path Loss	Antenna Gain	Correction (dB)	ERP (Peak) (dBm)	Polarization
UTRA Band 5	826.4	-4.81	31.23	1.02	-0.52	2.15	22.73	H
	836.4	-5.05	31.23	1.02	-0.52	2.15	22.49	H
	846.6	-5.16	31.23	1.02	-0.52	2.15	22.38	H

ERP or E.I.R.P = PMea + Amplifier Gain – Path Loss + Antenna Gain –Correction Factor

Note: Each channel is scanned 10 times, and the peak value of each channel is recorded.

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

A.5 Field Strength of Spurious Radiation Measurement

GSM850:

Mode 1					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
1648.4	-34.94	0.50	-35.44	-13	Horizontal
1648.4	-35.20	0.50	-35.70	-13	Vertical
2472.6	-28.39	0.50	-28.89	-13	Horizontal
2472.6	-29.08	0.50	-29.58	-13	Vertical

Mode 2					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
1673.2	-30.24	0.50	-30.74	-13	Horizontal
1673.2	-28.31	0.50	-28.81	-13	Vertical
2509.8	-37.27	0.50	-37.77	-13	Horizontal
2509.8	-30.27	0.50	-30.77	-13	Vertical

Mode 3					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
1697.6	-30.79	0.50	-31.29	-13	Horizontal
1697.6	-36.57	0.50	-37.07	-13	Vertical
2546.4	-32.84	0.50	-33.34	-13	Horizontal
2546.4	-32.49	0.50	-32.99	-13	Vertical

PCS1900:

Mode 1					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
3700.4	-30.40	1.48	-31.88	-13	Horizontal
3700.4	-33.05	1.48	-34.53	-13	Vertical
5550.6	-35.27	1.48	-36.75	-13	Horizontal
5550.6	-30.45	1.48	-31.93	-13	Vertical

Mode 2					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
3760	-31.40	1.48	-32.88	-13	Horizontal
3760	-32.60	1.48	-34.08	-13	Vertical
5640	-37.20	1.48	-38.68	-13	Horizontal
5640	-32.06	1.48	-33.54	-13	Vertical

Mode 3					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
3819.6	-28.43	1.48	-29.91	-13	Horizontal
3819.6	-33.78	1.48	-35.26	-13	Vertical
5729.4	-31.09	1.48	-32.57	-13	Horizontal
5729.4	-36.80	1.48	-38.28	-13	Vertical

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

UTRA BANDS

BAND 2:

Mode 1					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
3704.8	-62.36	1.48	-60.88	-13	Horizontal
3704.8	-63.43	1.48	-61.95	-13	Vertical
5557.2	-64.08	1.48	-62.60	-13	Horizontal
5557.2	-64.95	1.48	-63.47	-13	Vertical

Mode 2					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
3760	-62.36	1.48	-60.88	-13	Horizontal
3760	-63.04	1.48	-61.56	-13	Vertical
5640	-64.12	1.48	-62.64	-13	Horizontal
5640	-65.17	1.48	-63.69	-13	Vertical

Mode 3					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
3815.2	-62.46	1.48	-60.98	-13	Horizontal
3815.2	-63.12	1.48	-61.64	-13	Vertical
5722.8	-63.65	1.48	-62.17	-13	Horizontal
5722.8	-65.39	1.48	-63.91	-13	Vertical

BAND 4:

Mode 1					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
3424.8	-62.67	1.47	-61.20	-13	Horizontal
3424.8	-63.20	1.47	-61.73	-13	Vertical
5137.2	-63.98	1.47	-62.51	-13	Horizontal
5137.2	-65.14	1.47	-63.67	-13	Vertical

Mode 2					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
3465.2	-62.66	1.47	-61.19	-13	Horizontal
3465.2	-62.88	1.47	-61.41	-13	Vertical
5197.8	-63.52	1.47	-62.05	-13	Horizontal
5197.8	-64.80	1.47	-63.33	-13	Vertical

Mode 3					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
3505.2	-62.49	1.47	-61.02	-13	Horizontal
3505.2	-63.11	1.47	-61.64	-13	Vertical
5257.8	-64.39	1.47	-62.92	-13	Horizontal
5257.8	-65.40	1.47	-63.93	-13	Vertical

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

BAND 5:

Mode 1					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
1652.8	-62.64	0.50	-62.14	-13	Horizontal
1652.8	-62.61	0.50	-62.11	-13	Vertical
2479.2	-64.25	0.50	-63.75	-13	Horizontal
2479.2	-64.94	0.50	-64.44	-13	Vertical

Mode 2					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
1672.8	-63.10	0.50	-62.60	-13	Horizontal
1672.8	-63.23	0.50	-62.73	-13	Vertical
2509.2	-64.34	0.50	-63.84	-13	Horizontal
2509.2	-65.34	0.50	-64.84	-13	Vertical

Mode 3					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
1693.2	-62.90	0.50	-62.40	-13	Horizontal
1693.2	-63.18	0.50	-62.68	-13	Vertical
2539.8	-63.90	0.50	-63.40	-13	Horizontal
2539.8	-64.88	0.50	-64.38	-13	Vertical

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

A.6 Frequency Stability Measurement

Frequency Error against Voltage for GSM 850 band (836.6MHz)

Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	28	0.034
3.8	35	0.042
4.35	32	0.038

Frequency Error against Temperature for GSM 850 band (836.6MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	28	0.034
0	39	0.047
10	29	0.035
20	39	0.047
30	37	0.044
40	36	0.043
50	31	0.037

Frequency Error against Voltage for PCS 1900 band (1880MHz)

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.45	32	0.017
3.8	30	0.016
4.35	31	0.016

Frequency Error against Temperature for PCS 1900 band (1880MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	29	0.015
0	38	0.020
10	30	0.016
20	34	0.018
30	31	0.017
40	30	0.016
50	31	0.017

Frequency Error against Voltage for GPRS 850 band (836.6MHz)

Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	38	0.045
3.8	33	0.039
4.35	30	0.035

Frequency Error against Temperature for GPRS 850 band (836.6MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	29	0.035
0	37	0.045

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

10	30	0.036
20	40	0.048
30	40	0.048
40	35	0.042
50	29	0.035

Frequency Error against Voltage for GPRS 1900 band (1880MHz)

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.45	31	0.016
3.8	30	0.016
4.35	37	0.020

Frequency Error against Temperature for GPRS 1900 band (1880MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	28	0.015
0	33	0.017
10	39	0.021
20	41	0.022
30	38	0.020
40	37	0.020
50	38	0.020

Frequency Error against Voltage for EGPRS 850 band (836.6MHz)

Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	29	0.035
3.8	29	0.035
4.35	38	0.045

Frequency Error against Temperature for EGPRS 850 band (836.6MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	32	0.038
0	41	0.048
10	31	0.037
20	41	0.049
30	39	0.046
40	37	0.045
50	34	0.040

Frequency Error against Voltage for EGPRS 1900 band (1880MHz)

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.45	28	0.015
3.8	38	0.020
4.35	31	0.016

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Frequency Error against Temperature for EGPRS 1900 band (1880MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	38	0.020
0	37	0.019
10	32	0.017
20	35	0.018
30	30	0.016
40	41	0.022
50	37	0.020

UTRA BANDS

Frequency Error against Voltage for WCDMA BAND 2 (1880MHz)

Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	34	0.018
3.8	33	0.018
4.35	31	0.016

Frequency Error against Temperature for WCDMA BAND 2 (1880MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	30	0.016
0	30	0.016
10	29	0.015
20	40	0.021
30	40	0.022
40	30	0.016
50	31	0.017

Frequency Error against Voltage for WCDMA BAND 4 (1732.6MHz)

Voltage(V)	Frequency error(Hz)	Frequency error (ppm)
3.45	35	0.020
3.8	34	0.020
4.35	38	0.022

Frequency Error against Temperature for WCDMA BAND 4 (1732.6MHz)

Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	29	0.017
0	41	0.024
10	35	0.020
20	39	0.022
30	36	0.021
40	38	0.022
50	31	0.018

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Frequency Error against Voltage for WCDMA BAND 5 (836.4MHz)

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.45	35	0.041
3.8	41	0.049
4.35	40	0.048

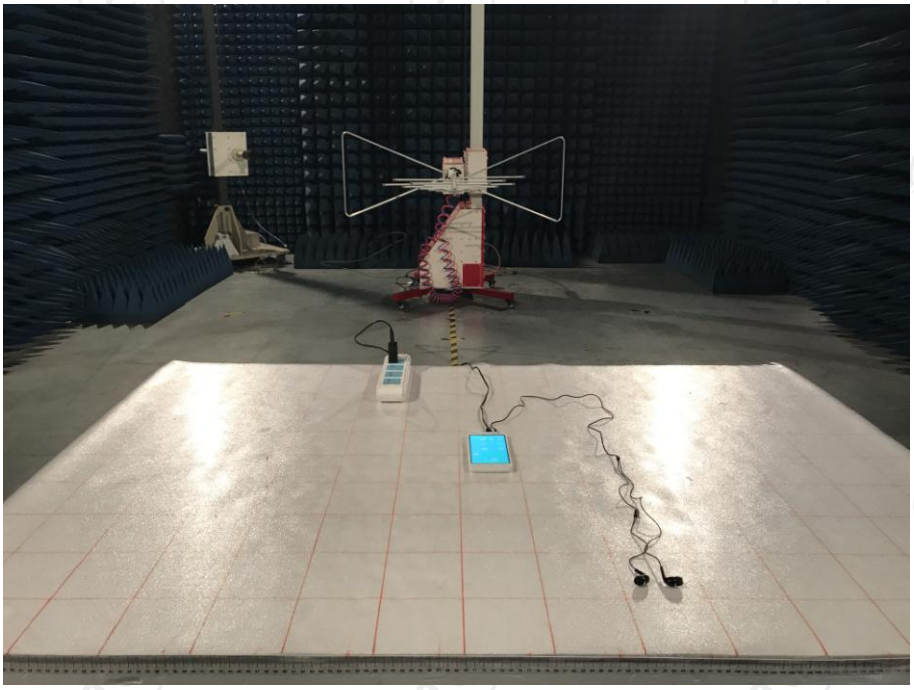
Frequency Error against Temperature for WCDMA BAND 5 (836.4MHz)

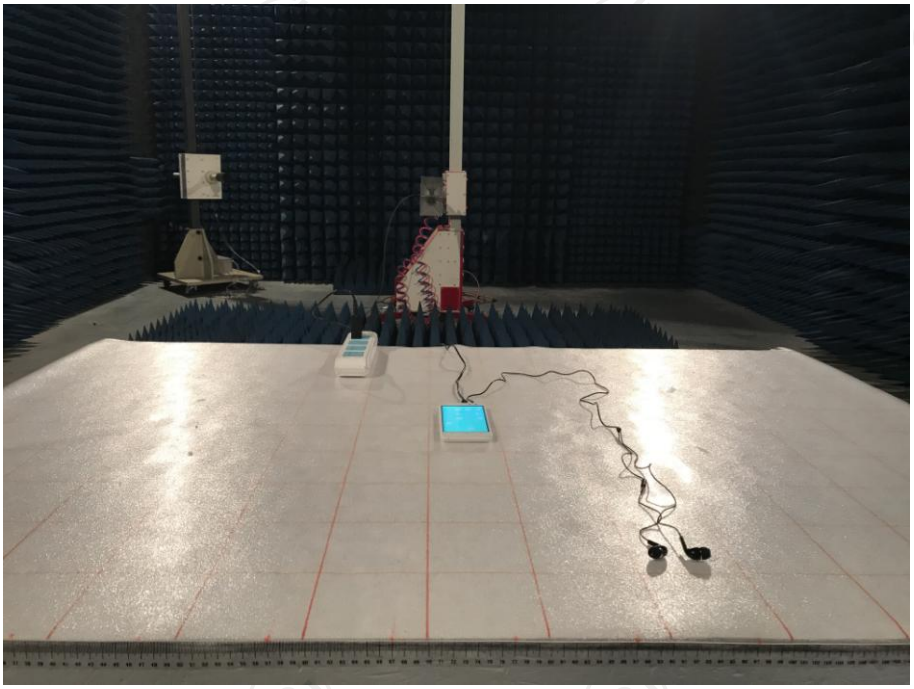
Temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-10	36	0.043
0	39	0.047
10	30	0.036
20	34	0.040
30	34	0.041
40	39	0.047
50	31	0.037

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Appendix B: Photographs of Test Setup

Radiated Emission





Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com

Appendix C: Photographs of EUT

Refer to test report TCT171020E013

*****END OF REPORT*****

Hotline: 400-6611-140 Tel: 86-755-27673339 Fax: 86-755-27673332 http://www.tct-lab.com