



TEST REPORT

No. 2013TAR174

for

Sony Mobile Communications (China) Co. Ltd

GSM/UMTS/LTE mobile phone

Type: PM-0350-BV

FCC ID: PY7PM-0350

with

Hardware Version: A

Software Version: 12.0.A.1.18

Issued Date: Apr. 27th, 2013

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

DAkks accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-114/01-02

FCC 2.948 Listed: No.733176

IC O.A.T.S listed: No.6629B-1

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1. Test Laboratory

1.1. Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
Address: No 52, Huayuan Bei Road, Haidian District, Beijing, P.R.China
Postal Code: 100191
Telephone: +86-10-62304633-2561
Fax: +86-10-62304633-2504

1.2. Testing Environment

Normal Temperature: 15-35°C
Relative Humidity: 20-75%
Air pressure 980 - 1040 hPa

The climatic requirements above are general exclude the special requirements for dedicated test environments listed in section 5 and some specific test cases in other parts of this report.

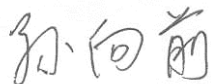
1.3. Project data

Receipt of Sample Jan 24th, 2013
Testing Start Date: Feb 19th, 2013
Testing End Date: Feb 23rd, 2013


1.4. Signature



Qu Pengfei
(Prepared this test report)



Sun Xiangqian
(Reviewed this test report)



Song Chongwen
(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name: Sony Mobile Communications (China) Co. Ltd
Address /Post: Sony Mobile R&D Center, No. 16, Guangshun South Street,
Chaoyang District
City: Beijing
Postal Code: 100102
Country: China
Contact Person: Ma, Gang
Telephone: +86-10-58656312
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2.2. Manufacturer Information

Company Name: Sony Mobile Communications (China) Co. Ltd
Address /Post: Sony Mobile R&D Center, No. 16, Guangshun South Street,
Chaoyang District
City: Beijing
Postal Code: 100102
Country: China
Contact Person: Ma, Gang
Telephone: +86-10-58656312
Fax: +86-10-58659049

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	GSM 850/900/1800/1900, GPRS, EDGE, WCDMA FDD Band 1/5/8, HSDPA, HSUPA, LTE FDD Band 1/3/5/7/8/20, Bluetooth EDR & BLE, WLAN (802.11 a/b/g/n), FM, NFC, GPS receiver mobile phone
Type	PM-0350-BV
FCC ID	PY7PM-0350
Frequency range (Tx)	GSM 850: 824.2 MHz - 848.8 MHz PCS 1900: 1850.2 MHz -1909.8 MHz WCDMA 850:824 MHz - 849 MHz LTE Band 5: 824MHz-869MHz
Antenna	Internal
Power supply	Battery, which is charged by the charger (travel adaptor / vehicle adaptor) attached to the phone
Output power	24.27 dBm maximum ERP measured for LTE Band 5
Extreme vol. Limits	3.5VDC to 4.1VDC (nominal: 3.7VDC)
Extreme temp. Tolerance	-30°C to +50°C

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN	IMEI	HW Version	SW Version
#23588	CB5123BN1T	004402450616523	A	12.0.A.1.18
#23591	CB5123BN37	004402450616598	A	12.0.A.1.18

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN	Revision
#22972	Travel Charger	8512W19100199	1
#22533	USB Cable	121607D20003CD2	SP1

#22972

Commercial name	EP880
Type	AC-0400-EU
Manufacturer	Salcomp

#22533

Commercial name	EC801
Type	AI-0401

Manufacturer Sony Mobile
Length of cable 96.5cm

*AE ID: is used to identify the test sample in the lab internally.

3.4. General Description

The Equipment Under Test (EUT) is a model of GSM/UMTS/LTE mobile phone with integrated antenna and inbuilt Li-Polymer battery.

The EUT supports GSM 850/900/1800/1900MHz bands, WCDMA FDD bands 1/5/8 and LTE FDD bands 1/3/5/7/8/20. It also supports GPRS service with multi-slots class 33 and EGPRS service with multi-slots class 33 too. The HSDPA and HSUPA features are also supported.

It has MP3, camera, FM radio, USB memory, GPS receiver, NFC, Mobile High-Definition Link (MHL), Bluetooth (EDR and Bluetooth 4.0), WLAN (802.11 a/b/g/n) and Wi-Fi hotspot functions.

It consists of normal option: battery and travel charger.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

3.5. EUT set-ups

EUT Set-up No.	Combination of EUT and AE	Remarks
Set. 1	#23588 + #22972+ #22533	Tests with travel charger
Set. 2	#23588	Radiated tests
Set. 3	#23591	Conducted RF tests

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 22	PUBLIC MOBILE SERVICES	10-1-12 Edition
ANSI/TIA-603-C	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2004
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2003

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber SAC-2 (10 meters×6.7meters×6.1meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 1Ω
Normalised site attenuation (NSA)	< ±3.5 dB, 3m distance, from 30 to 1000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 3000 MHz

Fully-anechoic chamber FAC-3 (9 meters×6.5 meters×4 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 35 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 1 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80 to 4000 MHz
Site voltage standing-wave ratio (S_{VSWR})	Between 0 and 6 dB, from 1GHz to 18GHz

Control room/ conducted chamber did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. =20 %, Max. = 80 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 2 MΩ
Ground system resistance	< 0.5 Ω

6. SUMMARY OF TEST RESULTS

6.1. Summary of test results

Abbreviations used in this clause:

P	Pass
NA	Not applicable
F	Fail

LTE Band V

Items	Test Name	Clause in FCC rules	Section in this report	Verdict
1	Output Power	22.913(a)	A.1	P
2	Emission Limit	22.917, 2.1051	A.2	P
3	Conducted Emission	15.107/207	A.3	P
4	Frequency Stability	22.355, 2.1055	A.4	P
5	Occupied Bandwidth	2.1049(h)(i)	A.5	P
6	Emission Bandwidth	22.917(b)	A.6	P
7	Band Edge Compliance	22.917(b)	A.7	P
8	Conducted Spurious Emission	22.917, 2.1057	A.8	P

6.2. Statements

The test cases listed in section 6.1 of this report for the EUT specified in section 3 were performed by TMC according to the standards or reference documents in section 4.1

The EUT met all applicable requirements of the standards or reference documents in section 4.1.

This report only deals with the LTE function among the features described in section 3.

7. Test Equipments Utilized

NO.	Description	TYPE	SERIES NUMBER	MANUFACTURE	CAL DUE DATE
1	Test Receiver	ESCI	100344	R&S	2013-03-28
3	Test Receiver	ESU26	100376	R&S	2013-11-07
4	EMI Antenna	VULB 9163	514	Schwarzbeck	2014-11-10
5	EMI Antenna	3117	00139065	ETS-Lindgren	2014-07-31
6	LISN	ESH2-Z5	829991/012	R&S	2013-04-16
7	Universal Radio Communication Tester	E5515C	MY48361083	Agilent	2013-03-16
8	Spectrum Analyzer	E4440A	MY48250642	Agilent	2014-03-04
9	EMI Antenna	9117	177	Schwarzbeck	2014-06-29
10	EMI Antenna	VULB 9163	482	Schwarzbeck	2014-02-17
11	EMI Antenna	3117	00119024	ETS-Lindgren	2014-02-02
12	EMI Antenna	3117	00058889	ETS-Lindgren	2014-02-02
13	Signal Generator	N5183A	MY49060052	Agilent	2013-03-19
14	Climatic chamber	PL-2G	343074	ESPEC	2013-05-12
15	Universal Radio Communication Tester	CMW500	116588	R&S	2013-11-06

ANNEX A: MEASUREMENT RESULTS

A.1 OUTPUT POWER

Reference

FCC: CFR Part 22.913(a).

A.1.1 Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMW500) to ensure max power transmission and proper modulation.

This result contains peak output power and ERP measurements for the EUT.

In all cases, output power is within the specified limits.

A.1.2 Conducted

A.1.2.1 Method of Measurements

The EUT was set up for the max output power with pseudo random data modulation.

The power was measured with spectrum analyzer's peak detector.

These measurements were done at 3 frequencies (bottom, middle and top of operational frequency range) for each bandwidth.

LTE Band 5

Measurement result

Bandwidth	RB Size	Channel	Power (dBm)	
	RB offset		QPSK	16QAM
1.4MHz	1 RB high	848.3	23.34	22.04
		836.5	23.51	22.39
		824.7	23.52	22.66
	1 RB low	848.3	23.53	22.79
		836.5	23.52	22.79
		824.7	23.68	22.96
	50% RB mid	848.3	23.48	22.52
		836.5	23.58	22.84
		824.7	23.51	22.50
	100% RB	848.3	22.64	21.40
		836.5	22.69	21.61
		824.7	22.56	21.21
3MHz	1 RB high	847.5	23.54	22.74
		836.5	23.73	22.24
		825.5	23.55	22.38
	1 RB low	847.5	23.54	22.78
		836.5	23.74	22.88

	50% RB mid	825.5	23.58	22.69	
		847.5	22.54	21.72	
		836.5	22.56	21.64	
	100% RB	825.5	22.48	21.50	
		847.5	22.56	21.62	
		836.5	22.57	21.64	
5MHz	1 RB high	825.5	22.41	21.67	
		846.5	23.37	22.98	
		836.5	23.62	22.57	
	1 RB low	826.5	23.62	22.57	
		846.5	23.35	22.98	
		836.5	23.45	22.46	
	50% RB mid	826.5	23.51	22.39	
		846.5	22.54	21.49	
		836.5	22.53	21.56	
	100% RB	826.5	22.48	21.50	
		846.5	22.43	21.41	
		836.5	22.51	21.67	
	10MHz	1 RB high	826.5	22.43	21.36
			844	23.19	21.94
			836.5	23.66	22.67
		1 RB low	829	23.60	22.07
			844	23.37	21.95
			836.5	23.57	22.69
50% RB mid		829	23.32	22.10	
		844	22.39	21.51	
		836.5	22.38	21.41	
100% RB		829	22.42	21.51	
		844	22.32	21.17	
		836.5	22.37	21.32	
		829	22.42	21.43	

Note: Expanded measurement uncertainty is $U=0.83\text{dB}$, $k=2$.

A.1.3 Radiated

A.1.3.1 Description

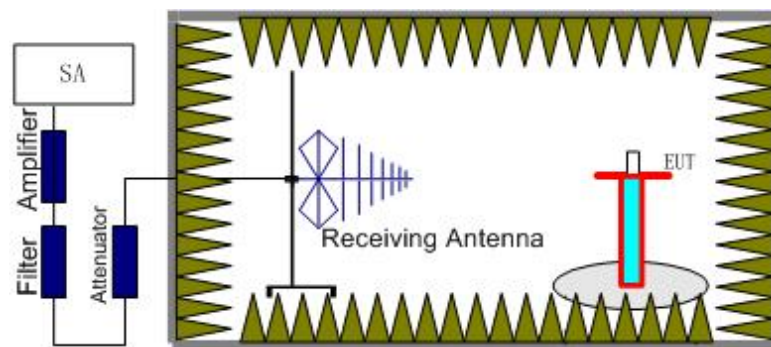
This is the test for the maximum radiated power from the EUT.

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."

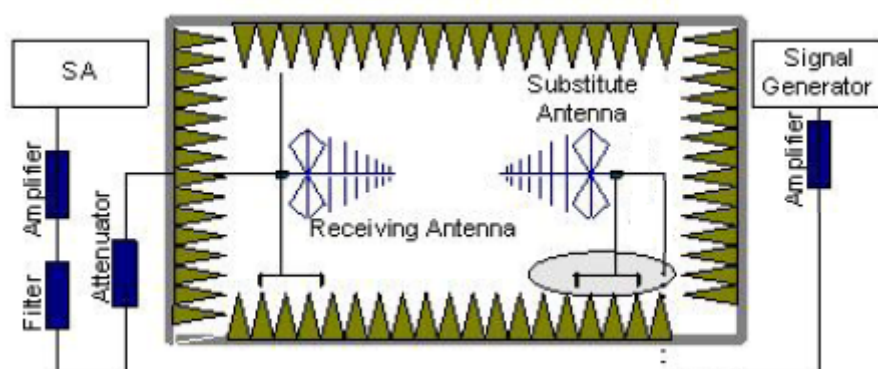
A.1.3.2 Method of Measurement

The measurements procedures in TIA-603C-2004 are used.

1. EUT was placed on a 1.5 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 EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (P_r).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, a substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the

substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

- An amplifier should be connected to the Signal Source output port. And the cable should be connected between the amplifier and the substitution antenna.
The cable loss (P_{cl}), the substitution antenna Gain (G_a) and the amplifier Gain (P_{Ag}) should be recorded after test.

The measurement results are obtained as described below:

$$\text{Power (EIRP)} = P_{Mea} - P_{Ag} - P_{cl} - G_a$$

- This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
- ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15$.

For test layout photo, please refer to Pic.1 in Annex B.

LTE Band V- ERP 22.913(a)

Limits: $\leq 38.45\text{dBm}$ (7W)

Measurement result

LTE Band V_1.4MHz

Frequency (MHz)	Pmea (dBm)	Cable Loss(dB)	Pag (dB)	Correction (dB)	Antenna Gain(dBi)	RMS ERP(dBm)	Polarization
824.70	-20.66	2.07	-50.00	2.15	0.84	24.27	Horizontal
836.50	-21.92	2.08	-50.00	2.15	0.90	22.95	Vertical
848.30	-22.06	2.09	-50.00	2.15	0.95	22.74	Horizontal

LTE Band V_3MHz

Frequency (MHz)	Pmea (dBm)	Cable Loss(dB)	Pag (dB)	Correction (dB)	Antenna Gain(dBi)	RMS ERP(dBm)	Polarization
825.50	-22.36	2.07	-50.00	2.15	0.85	22.57	Vertical
836.50	-22.95	2.08	-50.00	2.15	0.90	21.92	Vertical
847.50	-23.70	2.09	-50.00	2.15	0.94	21.11	Horizontal

LTE Band V_5MHz

Frequency (MHz)	Pmea (dBm)	Cable Loss(dB)	Pag (dB)	Correction (dB)	Antenna Gain(dBi)	RMS ERP(dBm)	Polarization
826.50	-22.08	2.07	-50.00	2.15	0.85	22.84	Horizontal
836.50	-23.06	2.08	-50.00	2.15	0.90	21.81	Vertical
846.50	-22.48	2.09	-50.00	2.15	0.94	22.34	Horizontal

LTE Band V_10MHz

Frequency (MHz)	Pmea (dBm)	Cable Loss(dB)	Pag (dB)	Correction (dB)	Antenna Gain(dBi)	RMS ERP(dBm)	Polarization
829.00	-22.64	2.08	-50.00	2.15	0.86	22.27	Horizontal
836.50	-23.40	2.08	-50.00	2.15	0.90	21.47	Vertical
844.00	-23.76	2.09	-50.00	2.15	0.93	21.07	Vertical

Sample calculation: LTE Band V, 1.4MHz 824.70 MHz

$$\begin{aligned}\text{Peak ERP(dBm)} &= P_{\text{Mea}}(-20.60 \text{ dBm}) - G_a(0.84 \text{ dBi}) - P_{\text{Ag}}(-50.00 \text{ dB}) - P_{\text{cl}}(2.07 \text{ dB}) - 2.15 \text{ dB} \\ &= 24.34 \text{ dBm}\end{aligned}$$

ANALYZER SETTINGS: RBW = VBW = 3MHz

Note: Expanded measurement uncertainty for LTE Band 5 is $U = 0.96\text{dB}$, $k=2$.

A.2 EMISSION LIMIT

Reference

FCC: CFR 2.1051, Part 22.917(a).

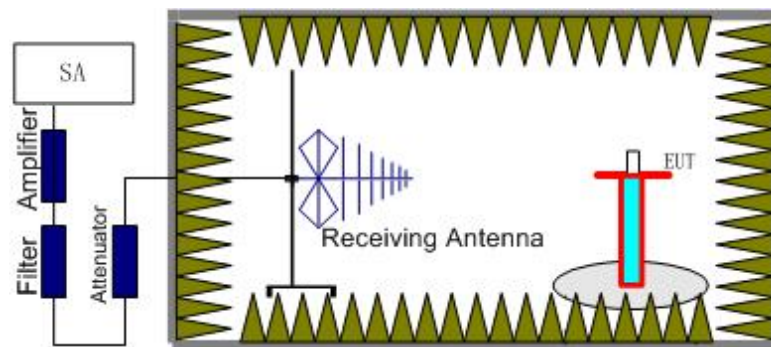
A.2.1 Measurement Method

The measurements procedures in TIA-603C-2004 are used. This measurement is carried out in fully-anechoic chamber FAC-3.

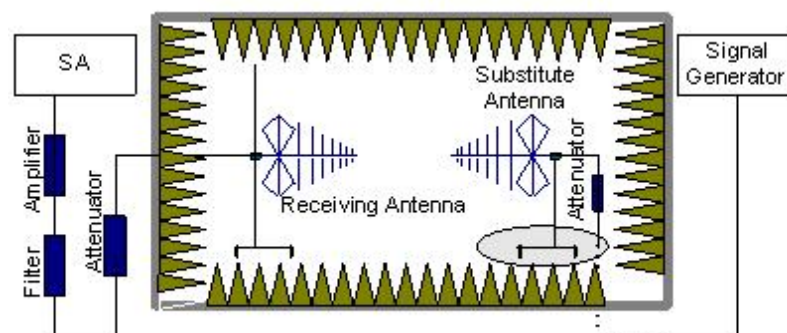
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1910 MHz. The resolution bandwidth is set 1MHz. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE Band 5.

The procedure of radiated spurious emissions is as follows:

1. EUT was placed on a 1.5 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 EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° 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.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna. Adjust the level of the signal generator output until the value of the receiver reaches the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss (P_{pl}) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain (G_a) should be recorded after test.

An amplifier should be connected in for the test.

The Path loss (P_{pl}) is the summation of the cable loss and the gain of the amplifier.

The measurement results are obtained as described below:

$$\text{Power (EIRP)} = P_{Mea} + P_{pl} + G_a$$

5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15dB$.

A.2.2 Measurement Limit

Part 22.917 specifies that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB. The 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.

A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the LTE Band 5. 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 the LTE Band 5 into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

LTE Band 5, 1.4MHz, QPSK, Channel 20407

Frequency (MHz)	P_{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP(dBm)	Limit (dBm)	Polarization
1648.49	-41.65	2.91	-5.45	2.15	-41.26	-13.00	Horizontal
2454.39	-53.58	3.55	-5.26	2.15	-54.02	-13.00	Horizontal
3588.24	-63.99	4.37	-8.01	2.15	-62.50	-13.00	Vertical
4301.62	-63.23	4.88	-8.68	2.15	-61.58	-13.00	Vertical

5603.25	-65.11	5.45	-10.04	2.15	-62.67	-13.00	Horizontal
6902.08	-63.34	6.10	-11.00	2.15	-60.59	-13.00	Horizontal

LTE Band 5, 1.4MHz, QPSK, Channel 20525

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP(dBm)	Limit (dBm)	Polarization
1672.11	-43.31	2.97	-5.34	2.15	-43.09	-13.00	Horizontal
3337.39	-63.60	4.19	-7.51	2.15	-62.43	-13.00	Horizontal
4389.95	-63.32	4.80	-8.73	2.15	-61.54	-13.00	Horizontal
5556.92	-62.62	5.44	-10.02	2.15	-60.19	-13.00	Horizontal
6784.70	-61.90	6.16	-10.88	2.15	-59.33	-13.00	Vertical
8673.58	-60.55	7.38	-12.34	2.15	-57.74	-13.00	Vertical

LTE Band 5, 1.4MHz, QPSK, Channel 20643

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP(dBm)	Limit (dBm)	Polarization
1695.65	-43.43	2.95	-5.24	2.15	-43.29	-13.00	Horizontal
2801.22	-51.40	3.84	-6.18	2.15	-51.21	-13.00	Horizontal
3385.74	-62.68	4.23	-7.63	2.15	-61.43	-13.00	Vertical
4615.63	-62.76	4.96	-9.01	2.15	-60.86	-13.00	Vertical
6093.10	-61.23	5.80	-10.27	2.15	-58.91	-13.00	Vertical
8088.10	-62.17	6.97	-11.95	2.15	-59.34	-13.00	Vertical

LTE Band 5, 1.4MHz,16- QAM, Channel 20407

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP(dBm)	Limit (dBm)	Polarization
1648.43	-43.91	2.91	-5.45	2.15	-43.52	-13.00	Vertical
2506.82	-53.58	3.59	-5.42	2.15	-53.90	-13.00	Vertical
3454.46	-64.28	4.24	-7.79	2.15	-62.88	-13.00	Horizontal
4408.01	-66.53	4.85	-8.74	2.15	-64.79	-13.00	Vertical
5666.23	-63.84	5.47	-10.07	2.15	-61.39	-13.00	Vertical
6981.39	-63.53	6.25	-11.08	2.15	-60.85	-13.00	Vertical

LTE Band 5, 1.4MHz,16- QAM, Channel 20525

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP(dBm)	Limit (dBm)	Polarization
1672.11	-45.96	2.97	-5.34	2.15	-45.74	-13.00	Vertical
2801.45	-51.60	3.84	-6.18	2.15	-51.41	-13.00	Horizontal
3412.77	-64.13	4.18	-7.69	2.15	-62.77	-13.00	Horizontal
4214.76	-63.45	4.74	-8.63	2.15	-61.71	-13.00	Vertical
5132.18	-62.62	5.25	-9.78	2.15	-60.24	-13.00	Horizontal
6877.38	-62.90	6.07	-10.98	2.15	-60.14	-13.00	Vertical

LTE Band 5, 1.4MHz,16- QAM, Channel 20643

Frequency (MHz)	P _{Mea} (dBm)	Path Loss(dB)	Antenna Gain(dBi)	Correction (dB)	Peak ERP(dBm)	Limit (dBm)	Polarization
1695.77	-45.06	2.95	-5.24	2.15	-44.92	-13.00	Vertical
2617.91	-50.73	3.68	-5.71	2.15	-50.85	-13.00	Horizontal
3333.62	-64.72	4.17	-7.50	2.15	-63.54	-13.00	Horizontal
5148.47	-63.70	5.24	-9.79	2.15	-61.30	-13.00	Horizontal
6066.08	-61.06	5.81	-10.25	2.15	-58.77	-13.00	Horizontal
7680.86	-63.15	6.57	-11.58	2.15	-60.29	-13.00	Horizontal

Note: Expanded measurement uncertainty for this test item is $U = 4.21\text{dB}$, $k=2$.

A.3 CONDUCTED EMISSION

Reference

FCC: CFR Part 15.107/207.

The measurement procedure in ANSI C63.4-2003 is used. Conducted Emission is measured with travel charger. EUT is under transmitting mode. For test layout photo, please refer to Pic.2 in Annex B.

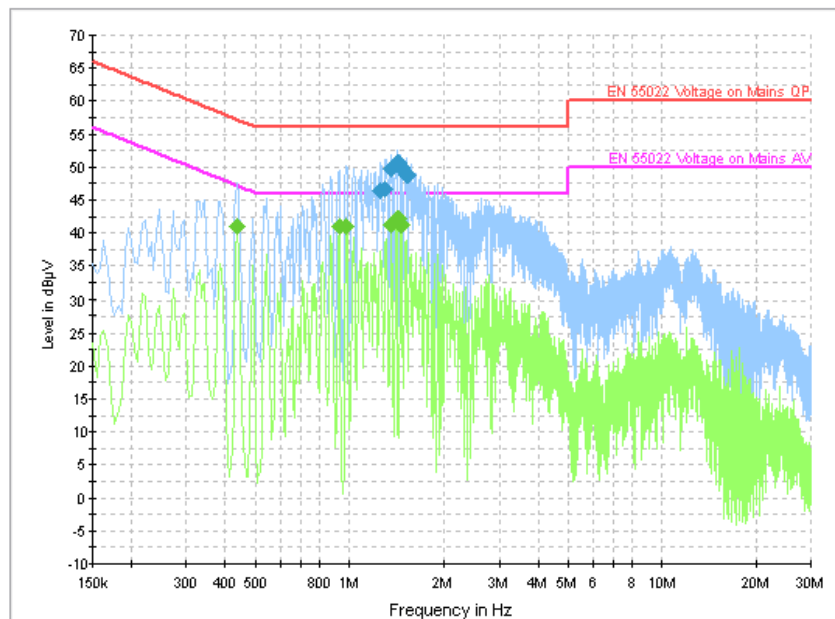
A.3.1 Limit

Frequency of Emission (MHz)	Conducted Limit (dB μ V)	
	Quasi -Peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50

* Decreases with logarithm of the frequency

A.3.2 Measurement result

LTE Band 5, 1.4MHz



IF bandwidth 9 kHz

Note: The graphic result above is the maximum of the measurements for both phase line and neutral line.

Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
1.252500	46.3	GND	L1	10.0	9.7	56.0
1.306500	46.7	GND	L1	10.0	9.3	56.0
1.365000	49.6	GND	L1	10.0	6.4	56.0
1.419000	50.8	GND	L1	10.0	5.2	56.0
1.468500	50.0	GND	L1	10.0	6.0	56.0
1.527000	48.8	GND	L1	10.0	7.2	56.0

Final Result 2

Frequency (MHz)	Average (dB μ V)	PE	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)
0.438000	41.0	GND	L1	10.0	6.1	47.1
0.928500	41.0	GND	L1	10.0	5.0	46.0
0.978000	41.1	GND	L1	10.0	4.9	46.0
1.365000	41.2	GND	L1	10.0	4.8	46.0
1.419000	42.2	GND	L1	10.0	3.8	46.0
1.468500	41.2	GND	L1	10.0	4.8	46.0

Note: Expanded measurement uncertainty for this test item is $U = 3.2\text{dB}$, $k=2$.

A.4 FREQUENCY STABILITY

Reference

FCC: CFR Part 2.1055, 22.355.

A.4.1 Method of Measurement

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 CMW500 DIGITAL 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 CMW500 and in a simulated call on channel 661 for LTE Band 5 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°C increments from -30°C to +50°C. 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 CMW500 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 °C increments from +50°C to -30°C. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

A.4.2 Measurement Limit

A.4.2.1 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 Part 22.355, 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 3.5VDC and 4.1VDC, with a nominal voltage of 3.7VDC. 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 -5.4 % and +10.8 %. For the purposes of measuring frequency stability these voltage limits are to be used.

A.4.3 Measurement results

LTE Band 5, 1.4MHz

Room Temperature: 24 °C

Frequency Error vs Voltage

Voltage(V)	Frequency error(Hz)		Frequency error(ppm)	
	QPSK	16QAM	QPSK	16QAM
3.5	5	9	0.007	0.011
3.7	-1	9	0.001	0.010
4.1	-1	4	0.002	0.005

Frequency Error vs Temperature

temperature(°C)	Frequency error(Hz)		Frequency error(ppm)	
	QPSK	16QAM	QPSK	16QAM
-30	3	9	0.003	0.010
-20	-3	5	0.003	0.006
-10	0	8	0.000	0.010
0	2	9	0.002	0.011
10	-1	6	0.001	0.007
20	0	7	0.000	0.008
30	-2	6	0.002	0.007
40	-2	6	0.002	0.007
50	-1	11	0.001	0.013

Expanded measurement uncertainty for this test item is 10 Hz, k=2

A.5 OCCUPIED BANDWIDTH

Reference

FCC: CFR Part 2.1049(h)(i).

A.5.1 Occupied Bandwidth Results

Occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the US Cellular/PCS frequency bands. The table below lists the measured -20dBc BW (99%). Spectrum analyzer plots are included on the following pages.

Measurement Parameters:

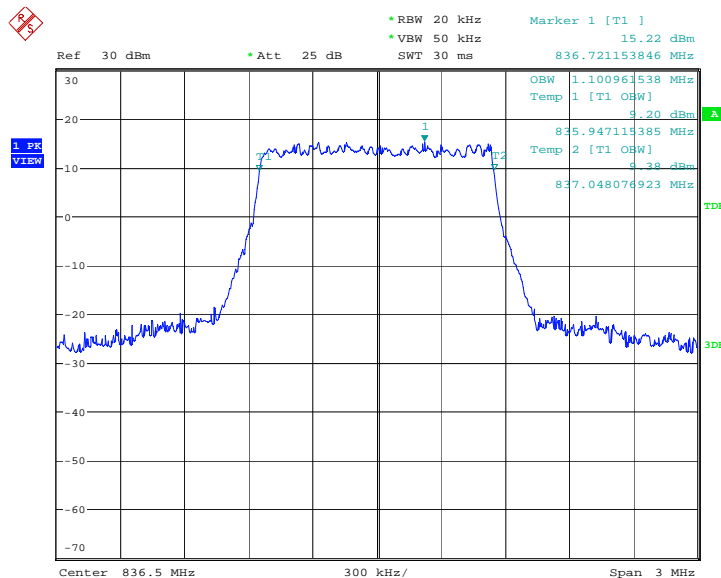
RBW = 20 kHz, VBW = 50 kHz

LTE band 5, 1.4MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	1100.962	1086.538

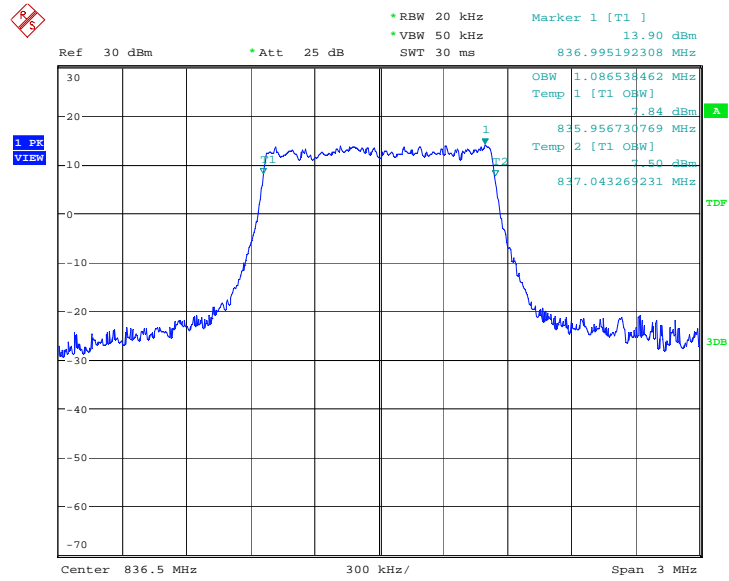
Expanded measurement uncertainty for this test item is 1.1 kHz, k=2

LTE band 5, 1.4MHz Bandwidth, QPSK (-20dBc BW)



Date: 16.FEB.2013 00:58:11

LTE band 5, 1.4MHz Bandwidth, 16QAM (-20dBc BW)



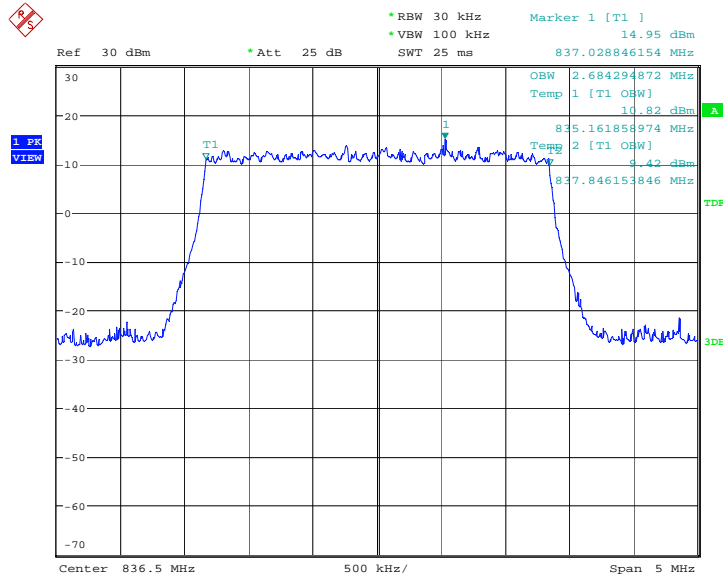
Date: 16.FEB.2013 00:59:46

LTE band 5, 3MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	2684.295	2692.308

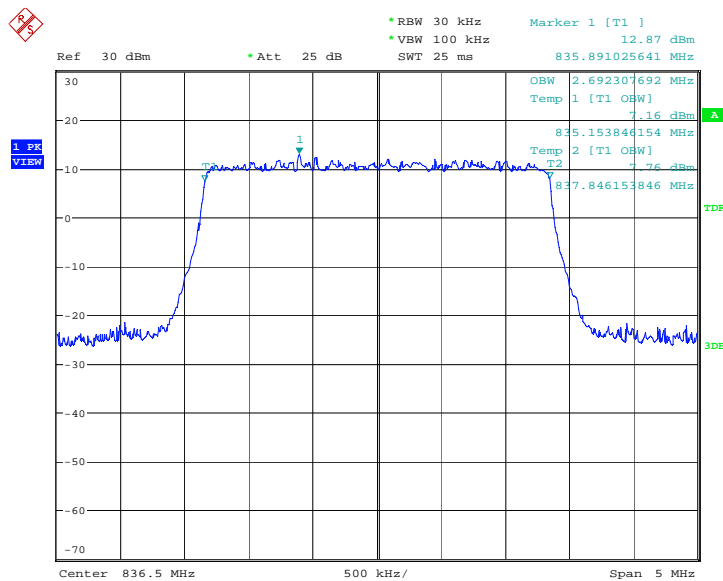
Expanded measurement uncertainty for this test item is 1.1 kHz, k=2

LTE band 5, 3MHz Bandwidth, QPSK (-20dBc BW)



Date: 16.FEB.2013 01:55:05

LTE band 5, 3MHz Bandwidth, 16QAM (-20dBc BW)



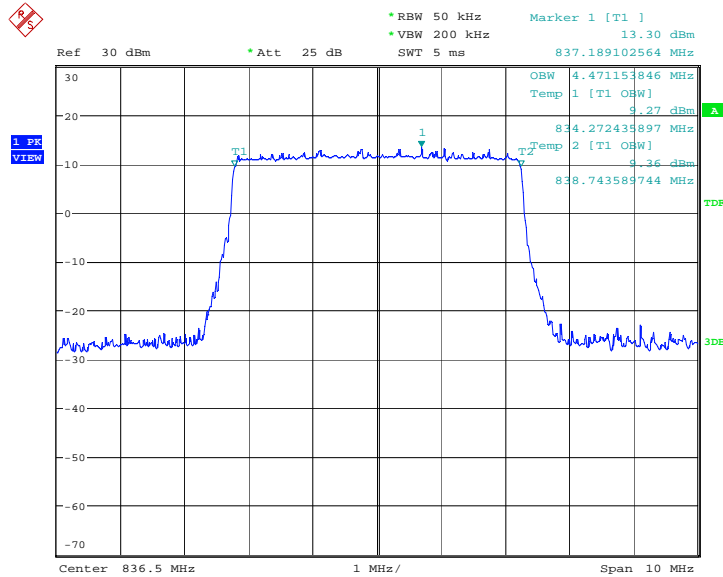
Date: 16.FEB.2013 01:56:44

LTE band 5, 5MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	4471.154	4471.154

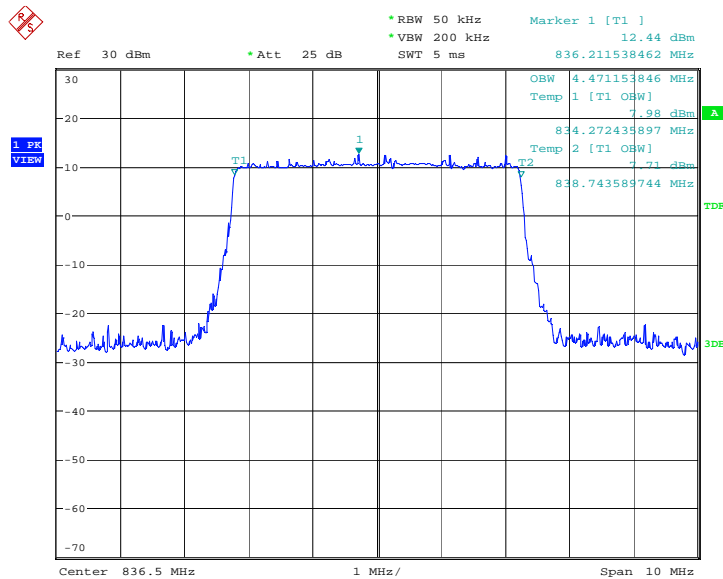
Expanded measurement uncertainty for this test item is 1.1 kHz, k=2

LTE band 5, 5MHz Bandwidth, QPSK (-20dBc BW)



Date: 16.FEB.2013 02:30:15

LTE band 5, 5MHz Bandwidth,16QAM (-20dBc BW)



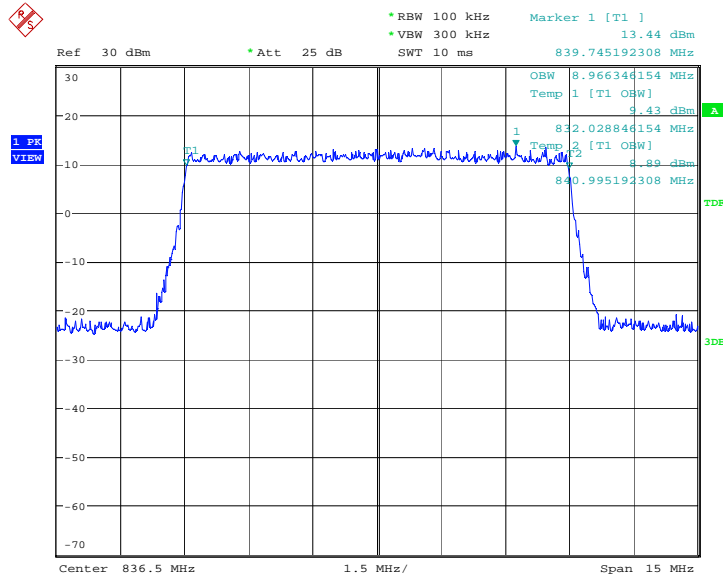
Date: 16.FEB.2013 02:31:50

LTE band 5, 10MHz (99%)

Frequency(MHz)	Occupied Bandwidth (99%)(kHz)	
836.5	QPSK	16QAM
	8966.346	8942.308

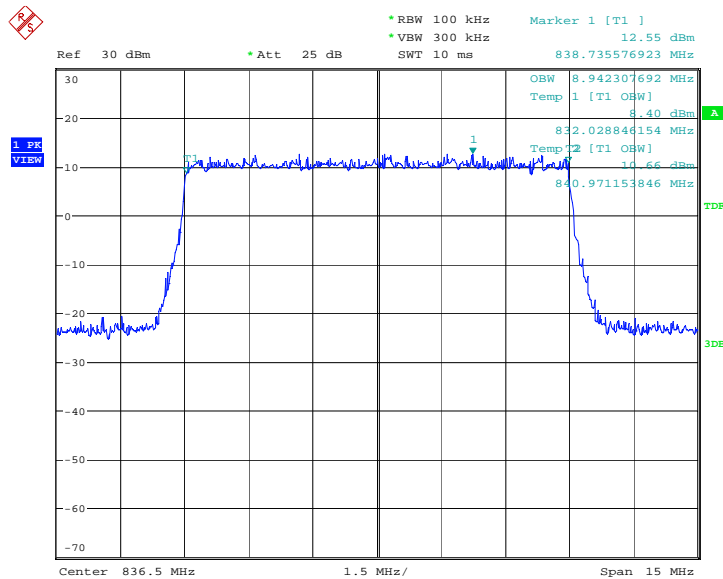
Expanded measurement uncertainty for this test item is 1.1 kHz, k=2

LTE band 5, 10MHz Bandwidth, QPSK (-20dBc BW)



Date: 16.FEB.2013 04:44:20

LTE band 5, 10MHz Bandwidth, 16QAM (-20dBc BW)



Date: 16.FEB.2013 04:45:56

A.6 EMISSION BANDWIDTH

Reference

FCC: CFR Part 22.917(b).

A.6.1 Emission Bandwidth Results

Emission bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the LTE Band 5. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.

Measurement Parameters:

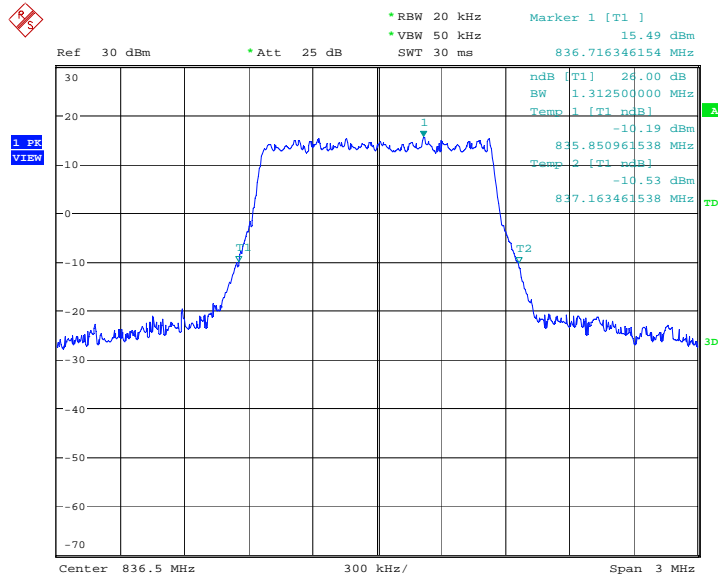
RBW = 20 kHz, VBW = 50 kHz

LTE Band 5, 1.4MHz bandwidth (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc BW)(kHz)	
	QPSK	16QAM
836.5	1312.5	1298.077

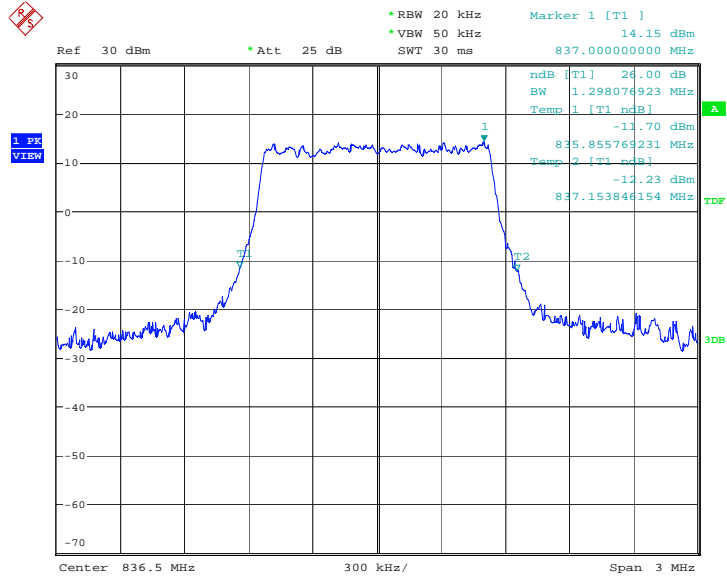
Expanded measurement uncertainty for this test item is 1.1 kHz, k=2

LTE Band 5, 1.4MHz bandwidth, QPSK



Date: 17.FEB.2013 02:25:05

LTE Band 5, 1.4MHz bandwidth, 16QAM



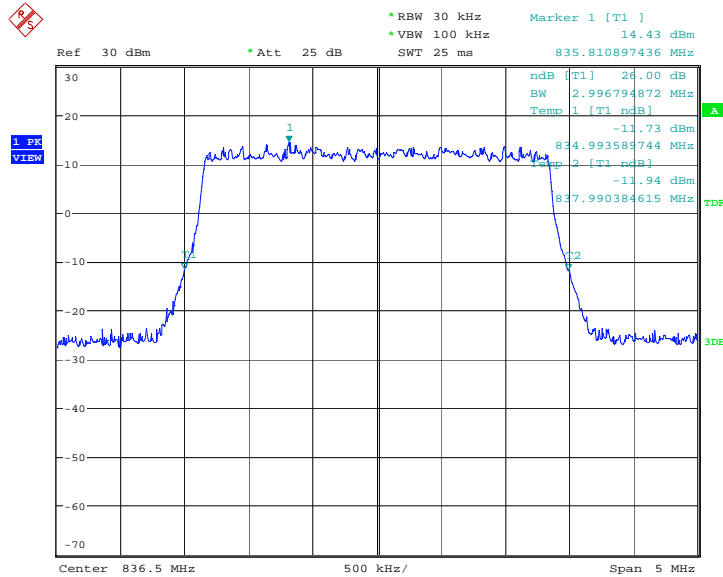
Date: 17.FEB.2013 02:29:22

LTE Band 5, 3MHz bandwidth (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc BW)(kHz)	
836.5	QPSK	16QAM
	2996.795	2996.795

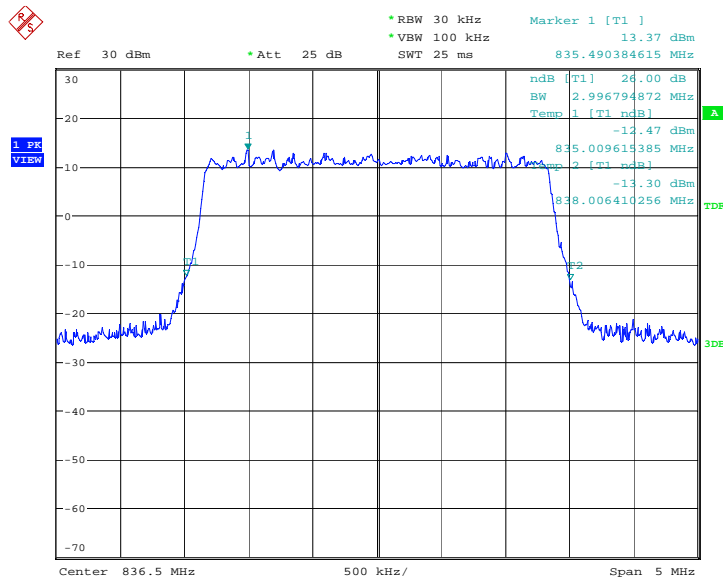
Expanded measurement uncertainty for this test item is 1.1 kHz, k=2

LTE Band 5, 3MHz bandwidth, QPSK



Date: 17.FEB.2013 04:41:17

LTE Band 5, 3MHz bandwidth, 16QAM



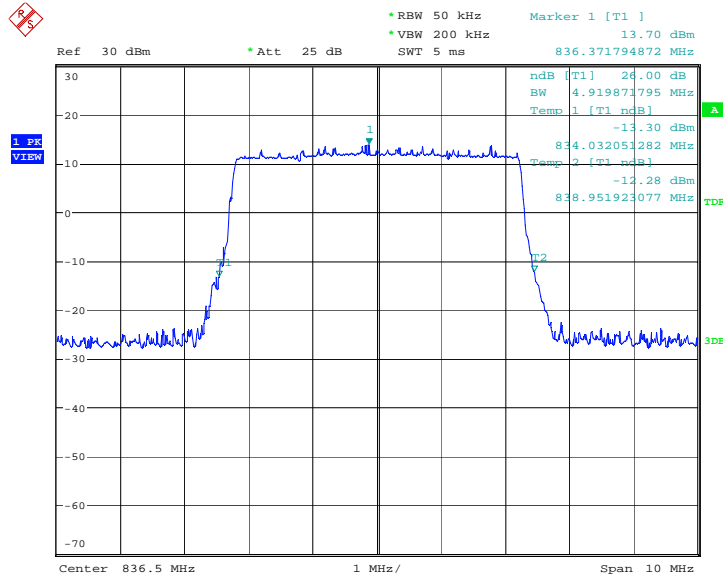
Date: 17.FEB.2013 04:45:33

LTE Band 5, 5MHz bandwidth (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc BW)(kHz)	
836.5	QPSK	16QAM
	4919.872	4983.974

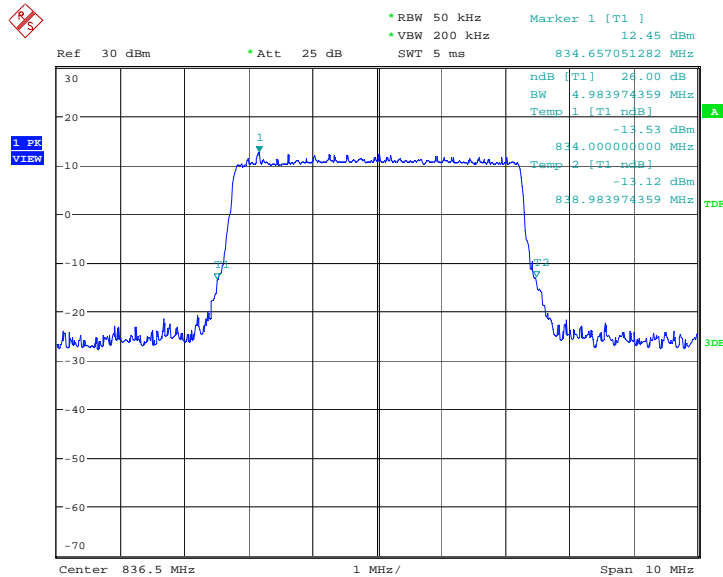
Expanded measurement uncertainty for this test item is 1.1 kHz, k=2

LTE Band 5, 5MHz bandwidth, QPSK



Date: 17.FEB.2013 00:54:59

LTE Band 5, 5MHz bandwidth, 16QAM



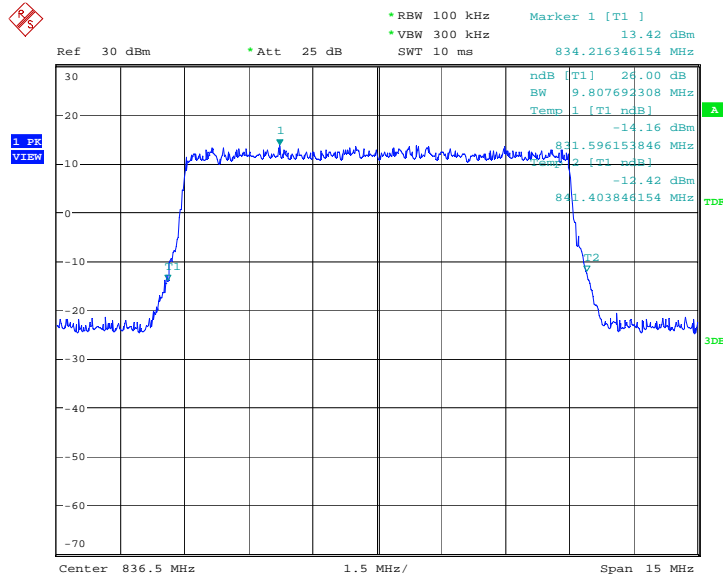
Date: 17.FEB.2013 00:56:42

LTE Band 5, 10MHz bandwidth (-26dBc)

Frequency(MHz)	Occupied Bandwidth (-26dBc BW)(kHz)	
836.5	QPSK	16QAM
	4919.872	4983.974

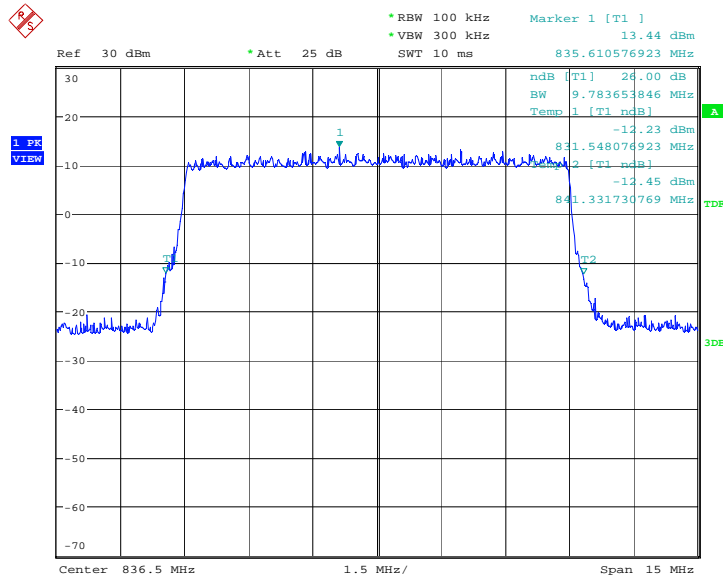
Expanded measurement uncertainty for this test item is 1.1 kHz, k=2

LTE Band 5, 10MHz bandwidth, QPSK



Date: 17.FEB.2013 05:22:17

LTE Band 5, 10MHz bandwidth, 16QAM



Date: 17.FEB.2013 05:26:34

A.7 BAND EDGE COMPLIANCE

Reference

FCC: CFR Part 22.917(b).

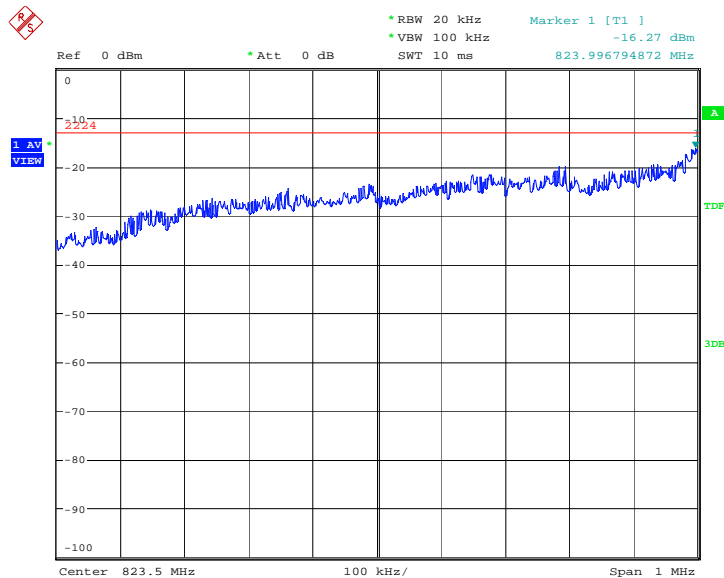
A.7.1 Measurement limit

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

A.7.2 Measurement result

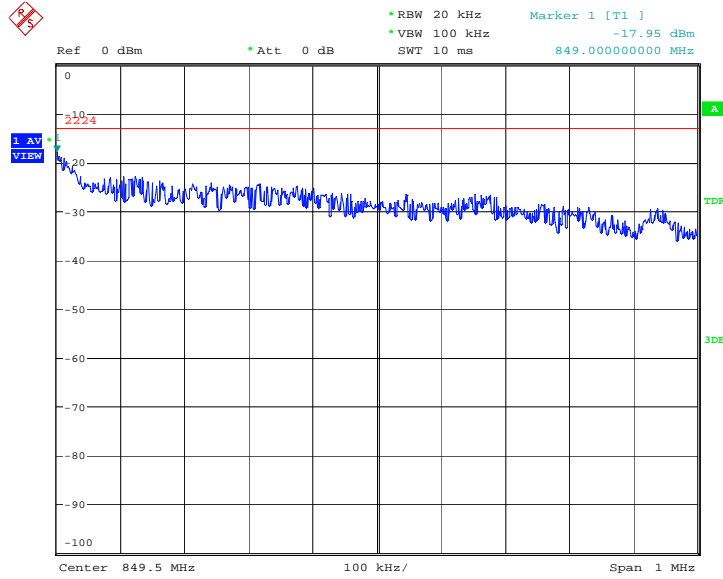
LTE Band 5, 1.4MHz

LOW BAND EDGE BLOCK-QPSK



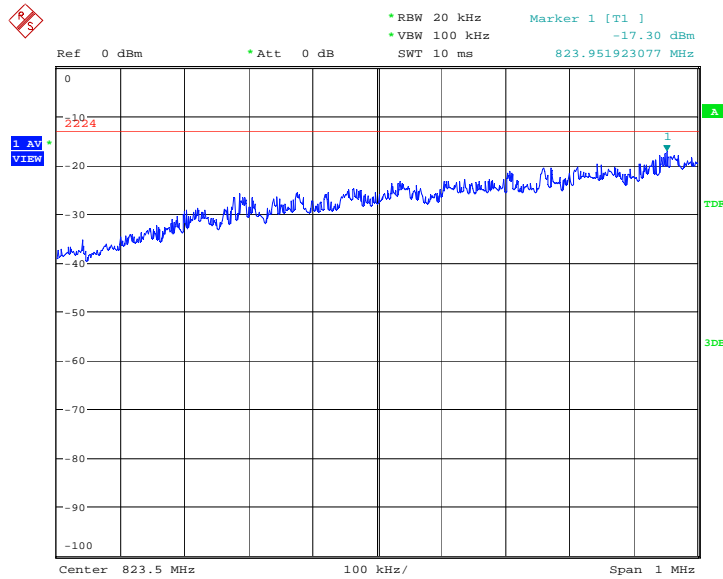
Date: 17.FEB.2013 02:17:14

HIGH BAND EDGE BLOCK-QPSK



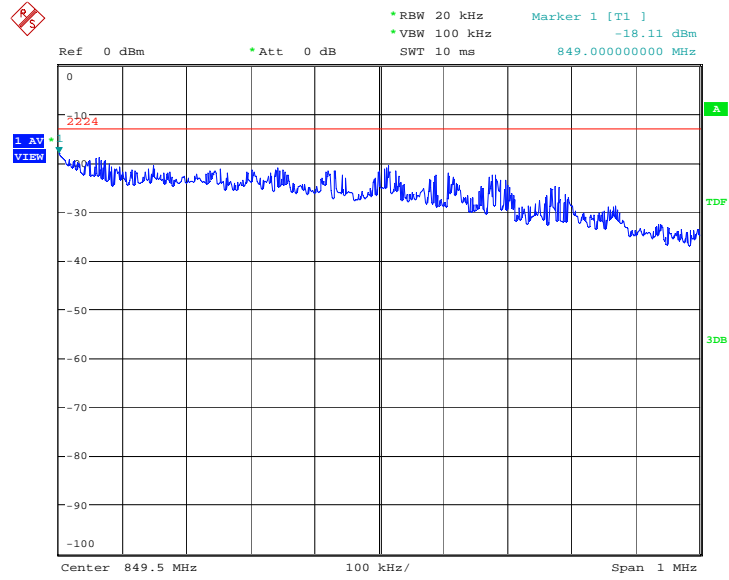
Date: 17.FEB.2013 02:47:12

LOW BAND EDGE BLOCK-16QAM



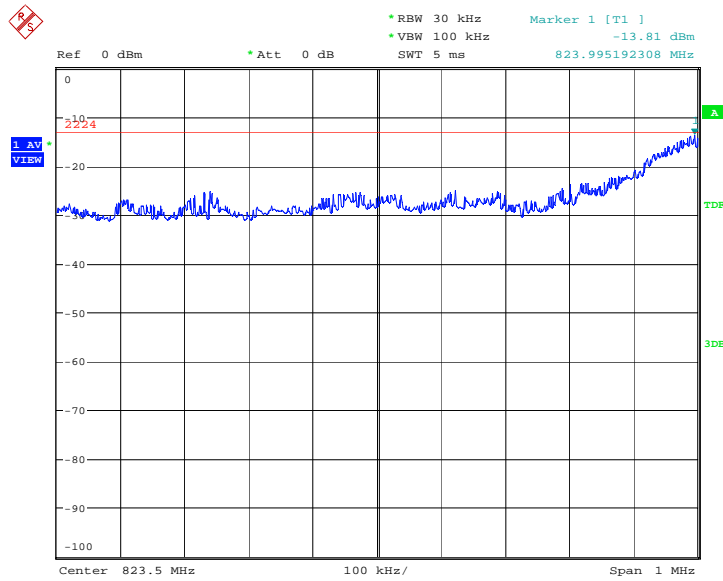
Date: 17.FEB.2013 02:20:48

HIGH BAND EDGE BLOCK-16QAM



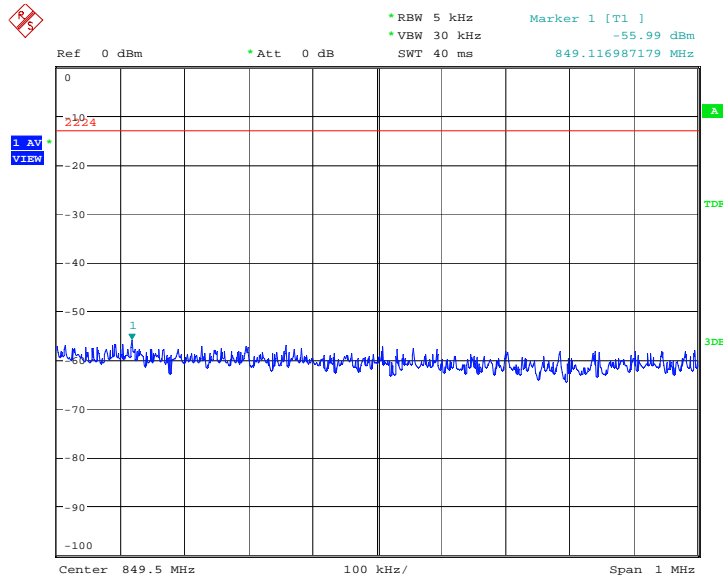
Date: 17.FEB.2013 02:52:46

**LTE Band 5, 3MHz
LOW BAND EDGE BLOCK-QPSK**



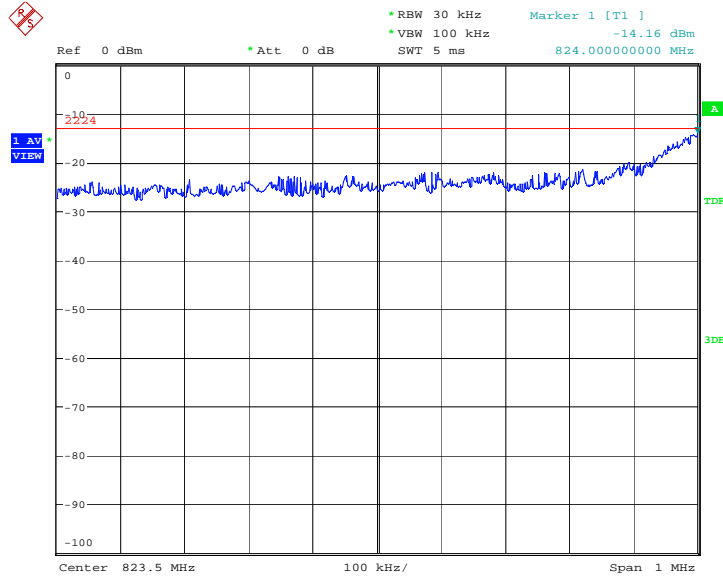
Date: 28.FEB.2013 06:32:24

HIGH BAND EDGE BLOCK-QPSK



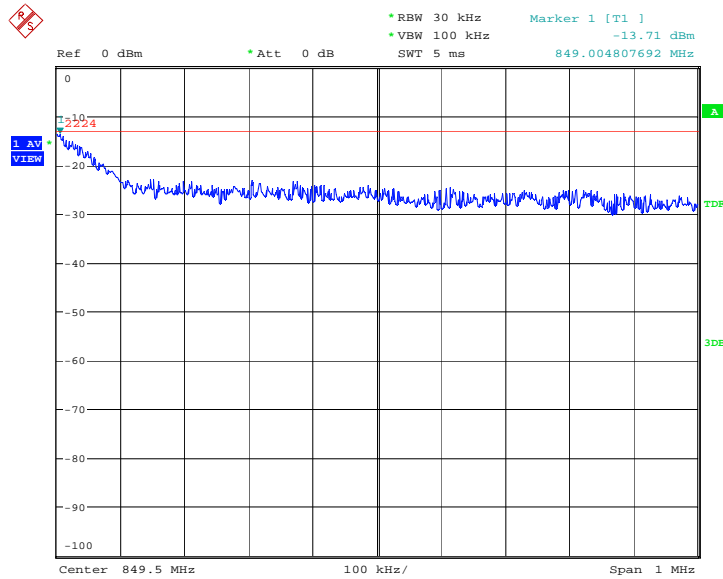
Date: 28.FEB.2013 06:18:16

LOW BAND EDGE BLOCK-16QAM



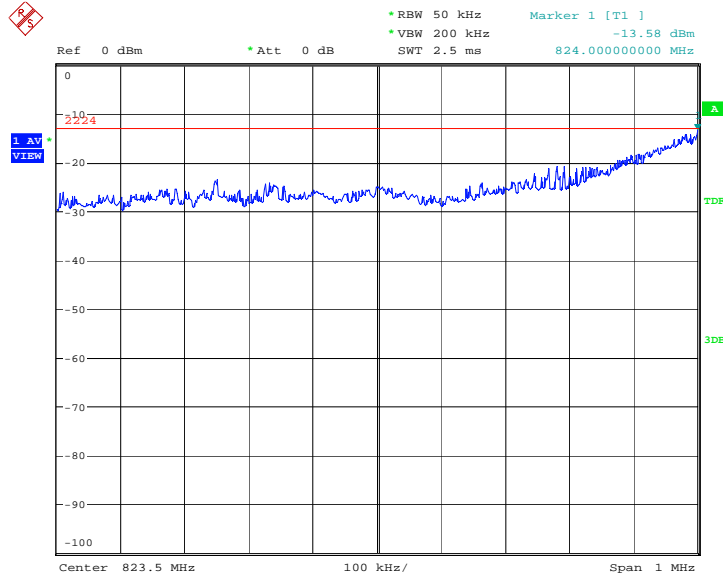
Date: 17.FEB.2013 04:34:59

HIGH BAND EDGE BLOCK-16QAM



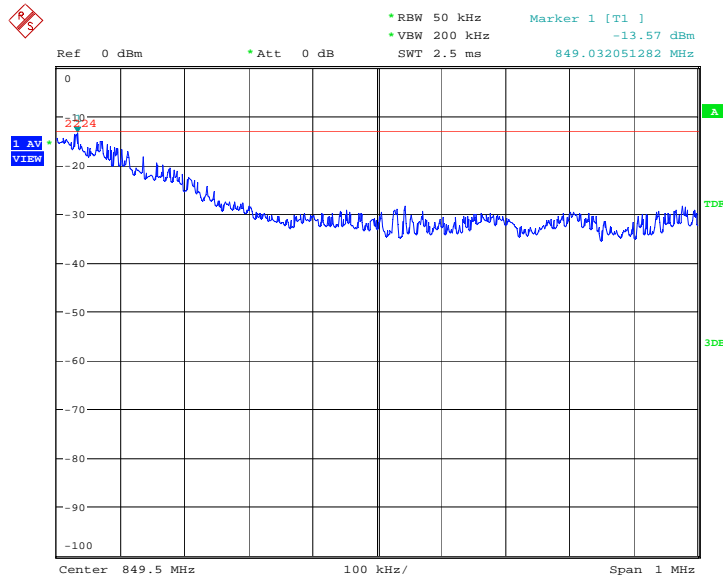
Date: 17.FEB.2013 05:01:48

LTE Band 5, 5MHz
LOW BAND EDGE BLOCK-QPSK



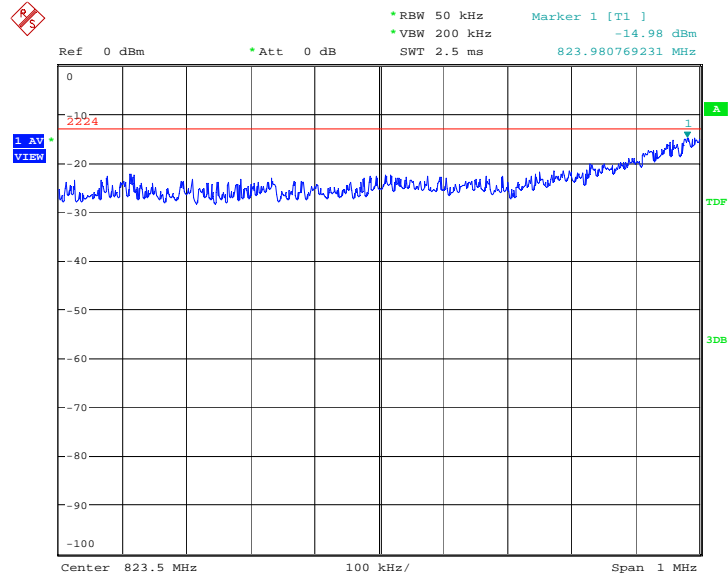
Date: 17.FEB.2013 00:51:37

HIGH BAND EDGE BLOCK-QPSK



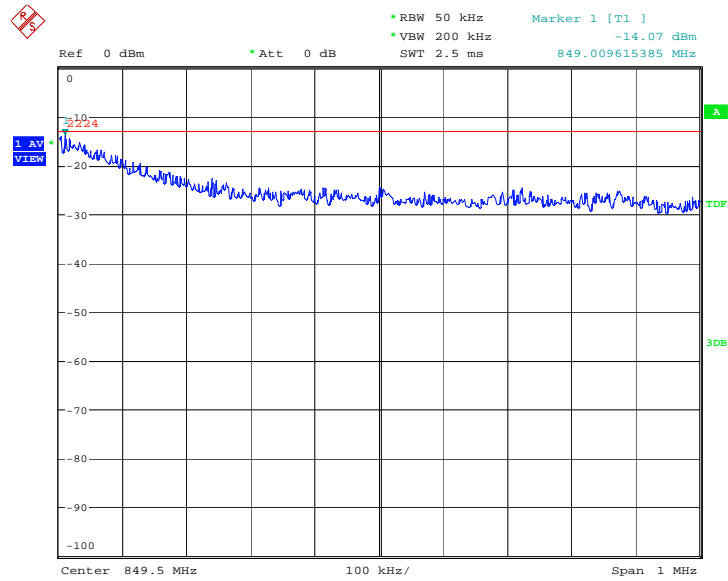
Date: 17.FEB.2013 01:02:19

LOW BAND EDGE BLOCK-16QAM



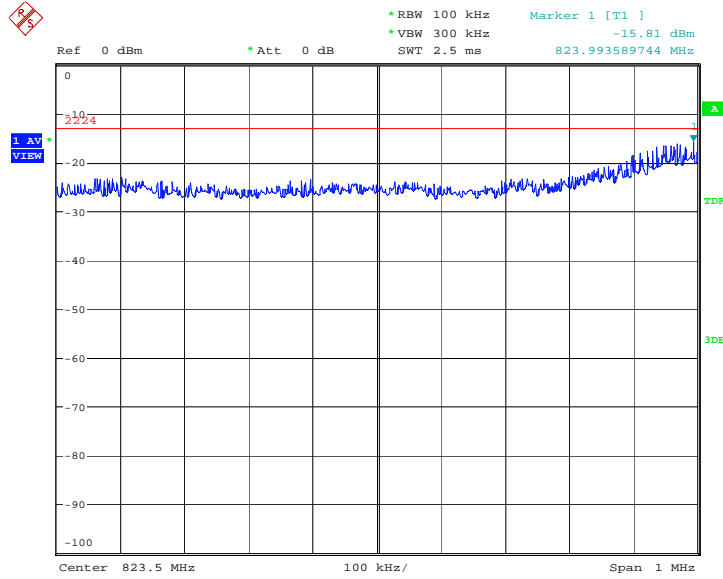
Date: 17.FEB.2013 00:52:38

HIGH BAND EDGE BLOCK-16QAM



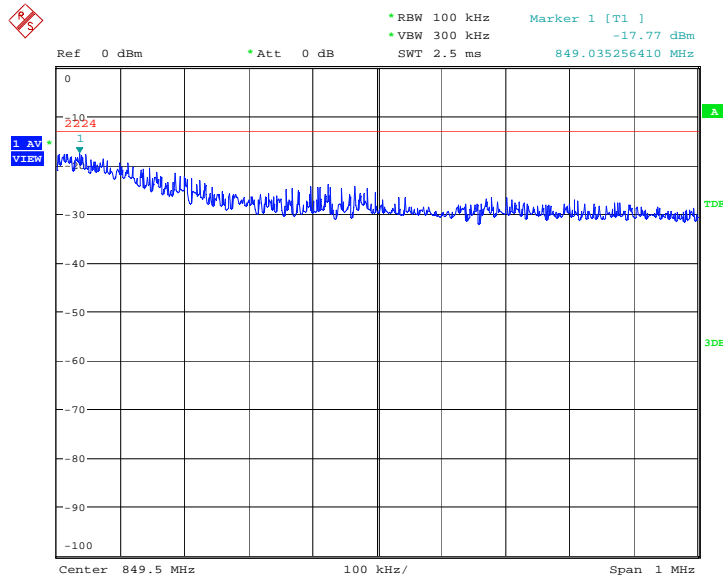
Date: 17.FEB.2013 01:03:20

**LTE Band 5, 10MHz
LOW BAND EDGE BLOCK-QPSK**



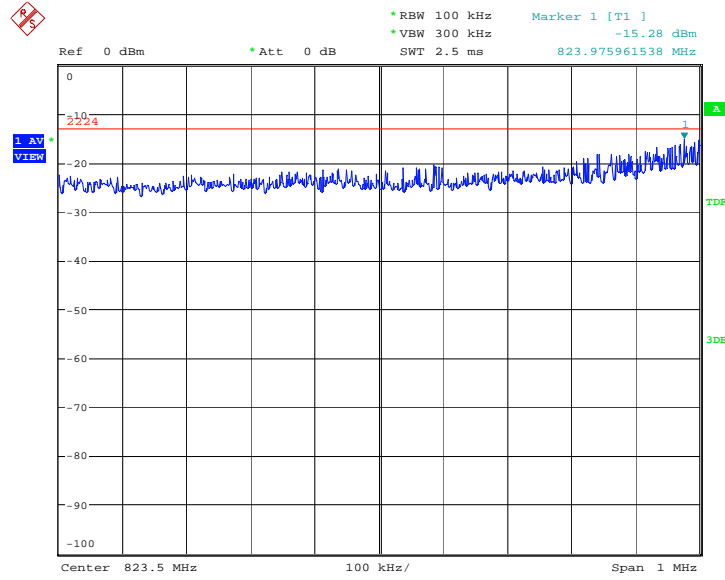
Date: 17.FEB.2013 05:14:26

HIGH BAND EDGE BLOCK-QPSK



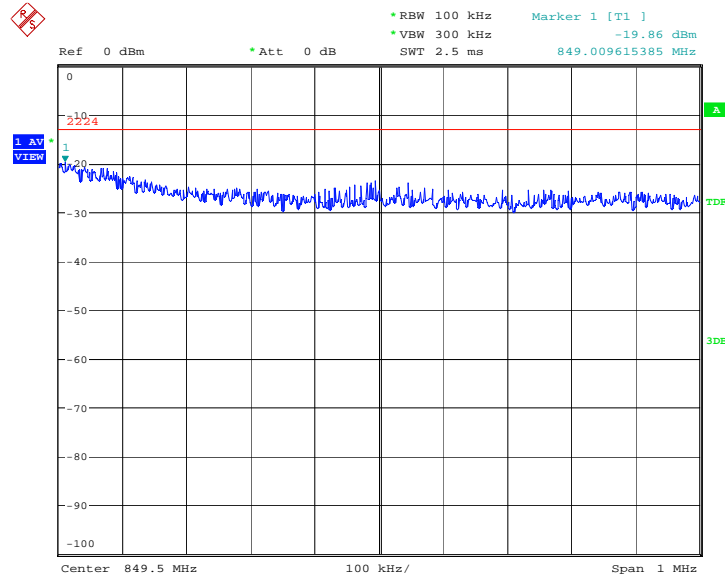
Date: 17.FEB.2013 05:45:01

LOW BAND EDGE BLOCK-16QAM



Date: 17.FEB.2013 05:17:59

HIGH BAND EDGE BLOCK-16QAM



Date: 17.FEB.2013 05:49:35

A.8 CONDUCTED SPURIOUS EMISSION

Reference

FCC: CFR Part 2.1057, 22.917.

A.8.1 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 mobile station equipment tested, this equates to a frequency range of 13 MHz to 9 GHz, data taken from 10 MHz to 25 GHz.
2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.

LTE Band 5 Transmitter

	Bandwidth	Channel	Frequency (MHz)
Low	1.4	20407	824.7
	3	20415	825.5
	5	20425	826.5
	10	20450	829
Middle	1.4/3/5/10	20525	836.5
High	1.4	20643	848.3
	3	20635	847.5
	5	20625	846.5
	10	20600	844

A. 8.2 Measurement Limit

Part 22.917 specifies that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

The 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.

A. 8.3 Measurement result

Measurement Uncertainty: 0.3dB

LTE Band 5, 1.4MHz bandwidth

QPSK

Harmonic	Lowest channel Freq (MHz)	Level (dBm)	Middle channel Freq (MHz)	Level (dBm)	Highest channel Freq (MHz)	Level (dBm)
2	1649.4	nf	1673.0	nf	1696.6	nf
3	2474.1	nf	2509.5	nf	2544,9	nf
4	3298.8	nf	3346.0	nf	3393,2	nf
5	4123.5	nf	4182.5	nf	4241,5	nf
6	4948.2	nf	5019.0	nf	5089,8	nf
7	5772.9	nf	5855.5	nf	5938,1	nf
8	6597.6	nf	6692.0	nf	6786,4	nf
9	7422.3	nf	7258.5	nf	7634,7	nf
10	8247.0	nf	8365.0	nf	8483	nf
nf: Noise floor						

16QAM

Harmonic	Lowest channel Freq (MHz)	Level (dBm)	Middle channel Freq (MHz)	Level (dBm)	Highest channel Freq (MHz)	Level (dBm)
2	1649.4	nf	1673.0	nf	1696.6	nf
3	2474.1	nf	2509.5	nf	2544,9	nf
4	3298.8	nf	3346.0	nf	3393,2	nf
5	4123.5	nf	4182.5	nf	4241,5	nf
6	4948.2	nf	5019.0	nf	5089,8	nf
7	5772.9	nf	5855.5	nf	5938,1	nf
8	6597.6	nf	6692.0	nf	6786,4	nf
9	7422.3	nf	7258.5	nf	7634,7	nf
10	8247.0	nf	8365.0	nf	8483	nf
nf: Noise floor						

**LTE Band 5, 3MHz bandwidth
QPSK**

Harmonic	Lowest channel Freq (MHz)	Level (dBm)	Middle channel Freq (MHz)	Level (dBm)	Highest channel Freq (MHz)	Level (dBm)
2	1651	nf	1673	nf	1695	nf
3	2476.5	nf	2509.5	nf	2542.5	nf
4	3302	nf	3346	nf	3390	nf
5	4127.5	nf	4182.5	nf	4237.5	nf
6	4953	nf	5019	nf	5085	nf
7	5778.5	nf	5855.5	nf	5932.5	nf
8	6604	nf	6692	nf	6780	nf
9	7429.5	nf	7528.5	nf	7627.5	nf
10	8255	nf	8365	nf	8475	nf
nf: Noise floor						

16QAM

Harmonic	Lowest channel Freq (MHz)	Level (dBm)	Middle channel Freq (MHz)	Level (dBm)	Highest channel Freq (MHz)	Level (dBm)
2	1651	nf	1673	nf	1695	nf
3	2476.5	nf	2509.5	nf	2542.5	nf
4	3302	nf	3346	nf	3390	nf
5	4127.5	nf	4182.5	nf	4237.5	nf
6	4953	nf	5019	nf	5085	nf
7	5778.5	nf	5855.5	nf	5932.5	nf
8	6604	nf	6692	nf	6780	nf
9	7429.5	nf	7528.5	nf	7627.5	nf
10	8255	nf	8365	nf	8475	nf
nf: Noise floor						

LTE Band 5, 5MHz bandwidth

QPSK

Harmonic	Lowest channel Freq (MHz)	Level (dBm)	Middle channel Freq (MHz)	Level (dBm)	Highest channel Freq (MHz)	Level (dBm)
2	1653.0	nf	1673.0	nf	1693.0	nf
3	2479.5	nf	2509.5	nf	2539.5	nf
4	3306.0	nf	3346.0	nf	3386.0	nf
5	4132.5	nf	4182.5	nf	4232.5	nf
6	4959.0	nf	5019.0	nf	5079.0	nf
7	5785.5	nf	5855.5	nf	5925.5	nf
8	6612.0	nf	6692.0	nf	6772.0	nf
9	7438.5	nf	7528.5	nf	7618.5	nf
10	8265.0	nf	8365.0	nf	8465.0	nf
nf: Noise floor						

16QAM

Harmonic	Lowest channel Freq (MHz)	Level (dBm)	Middle channel Freq (MHz)	Level (dBm)	Highest channel Freq (MHz)	Level (dBm)
2	1653.0	nf	1673.0	nf	1693.0	nf
3	2479.5	nf	2509.5	nf	2539.5	nf
4	3306.0	nf	3346.0	nf	3386.0	nf
5	4132.5	nf	4182.5	nf	4232.5	nf
6	4959.0	nf	5019.0	nf	5079.0	nf
7	5785.5	nf	5855.5	nf	5925.5	nf
8	6612.0	nf	6692.0	nf	6772.0	nf
9	7438.5	nf	7528.5	nf	7618.5	nf
10	8265.0	nf	8365.0	nf	8465.0	nf
nf: Noise floor						

LTE Band 5, 10MHz bandwidth

QPSK

Harmonic	Lowest channel Freq (MHz)	Level (dBm)	Middle channel Freq (MHz)	Level (dBm)	Highest channel Freq (MHz)	Level (dBm)
2	1658.0	nf	1673.0	nf	1688.0	nf
3	2487.0	nf	2509.5	nf	2532.0	nf
4	3316.0	nf	3346.0	nf	3376.0	nf
5	4145.0	nf	4182.5	nf	4220.0	nf
6	4974.0	nf	5019.0	nf	5064.0	nf
7	5803.0	nf	5855.5	nf	5908.0	nf
8	6632.0	nf	6692.0	nf	6752.0	nf
9	7461.0	nf	7528.5	nf	7596.0	nf
10	8290.0	nf	8365.0	nf	8440.0	nf
nf: Noise floor						

16QAM

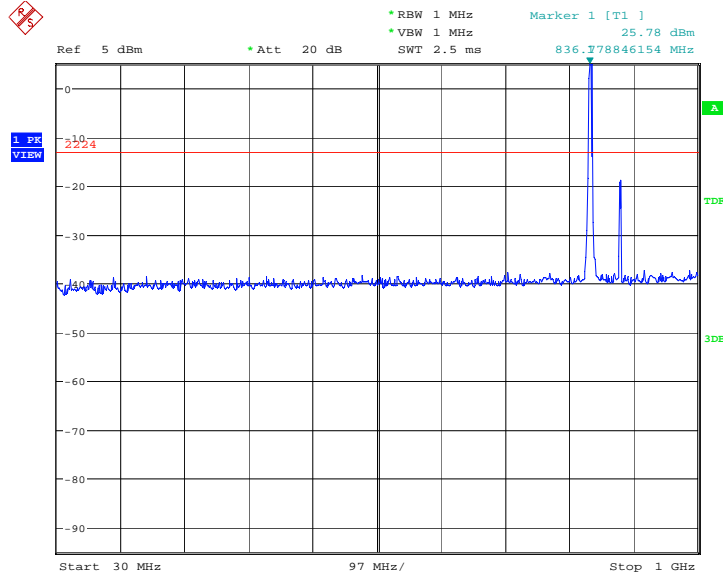
Harmonic	Lowest channel Freq (MHz)	Level (dBm)	Middle channel Freq (MHz)	Level (dBm)	Highest channel Freq (MHz)	Level (dBm)
2	1658.0	nf	1673.0	nf	1688.0	nf
3	2487.0	nf	2509.5	nf	2532.0	nf
4	3316.0	nf	3346.0	nf	3376.0	nf
5	4145.0	nf	4182.5	nf	4220.0	nf
6	4974.0	nf	5019.0	nf	5064.0	nf
7	5803.0	nf	5855.5	nf	5908.0	nf
8	6632.0	nf	6692.0	nf	6752.0	nf
9	7461.0	nf	7528.5	nf	7596.0	nf
10	8290.0	nf	8365.0	nf	8440.0	nf
nf: Noise floor						

LTE Band 5, 1.4MHz bandwidth

A.8.3.1 QPSK: 30MHz – 1GHz

Spurious emission limit –13dBm.

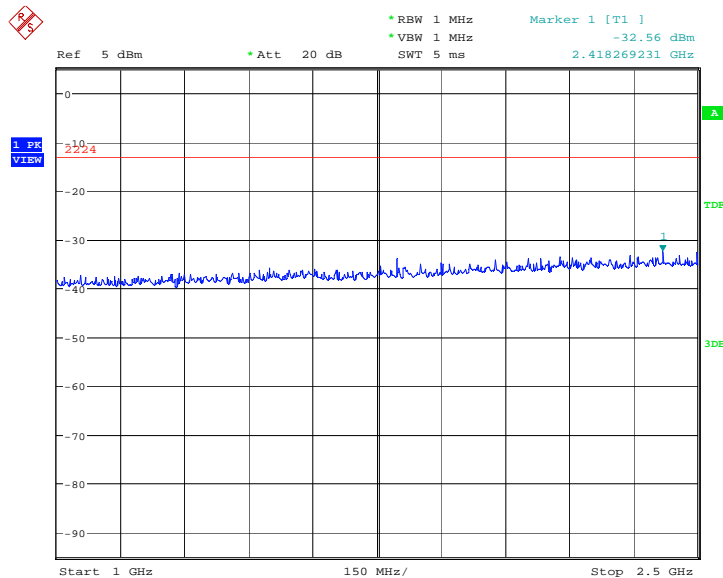
NOTE: peak above the limit line is the carrier frequency.



Date: 16.FEB.2013 07:20:39

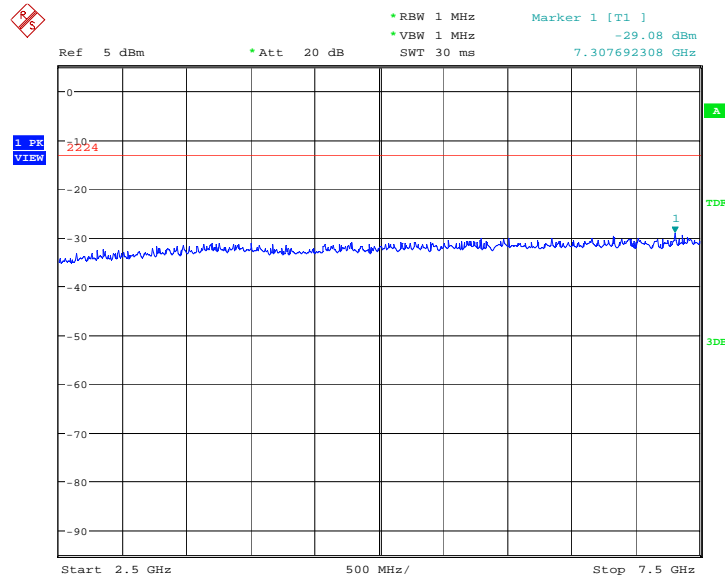
A.8.3.2 QPSK: 1GHz – 2.5GHz

Spurious emission limit –13dBm.



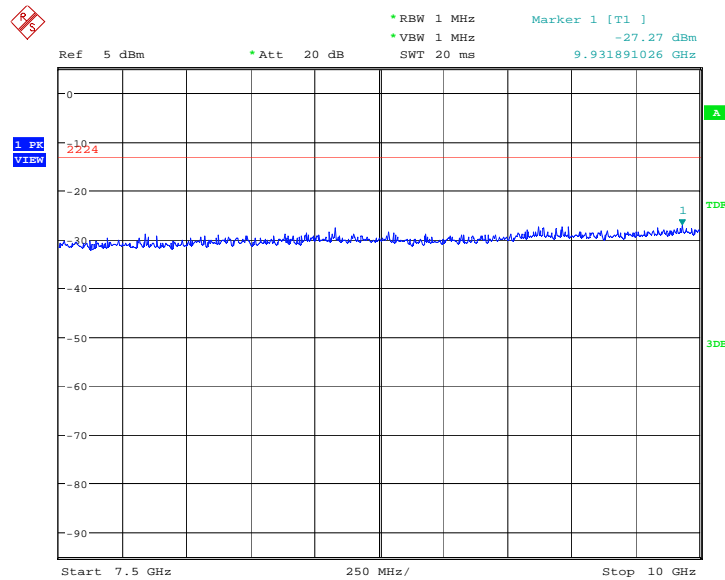
Date: 16.FEB.2013 07:20:52

A.8.3.3 Channel QPSK: 2.5GHz – 7.5GHz
Spurious emission limit –13dBm.



Date: 16.FEB.2013 07:21:05

A.8.3.4 QPSK: 7.5GHz –10GHz
Spurious emission limit –13dBm.

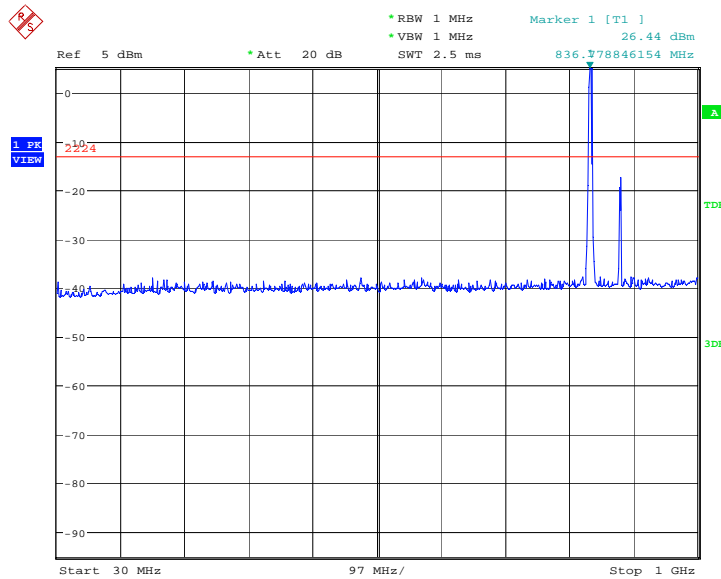


Date: 16.FEB.2013 07:21:18

A.8.3.5 16QAM: 30MHz – 1GHz

Spurious emission limit –13dBm

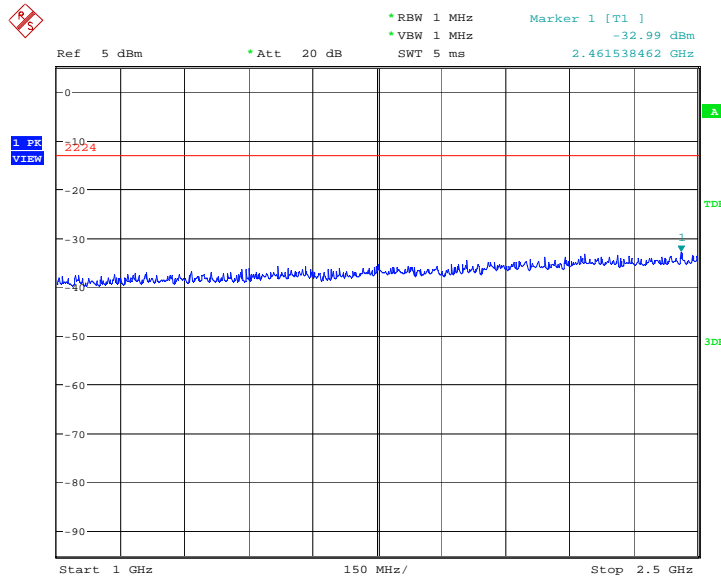
NOTE: peak above the limit line is the carrier frequency.



Date: 16.FEB.2013 07:32:14

A.8.3.6 16QAM: 1GHz –2.5GHz

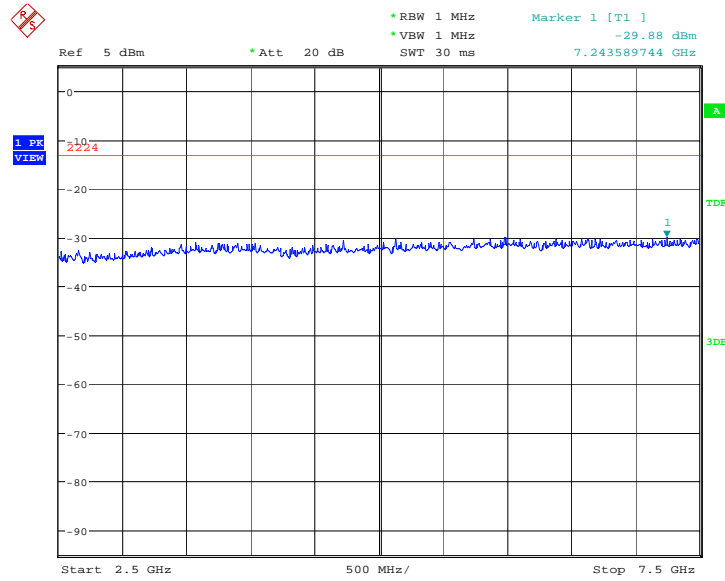
Spurious emission limit –13dBm



Date: 16.FEB.2013 07:32:26

A.8.3.7 16QAM: 2.5GHz –7.5GHz

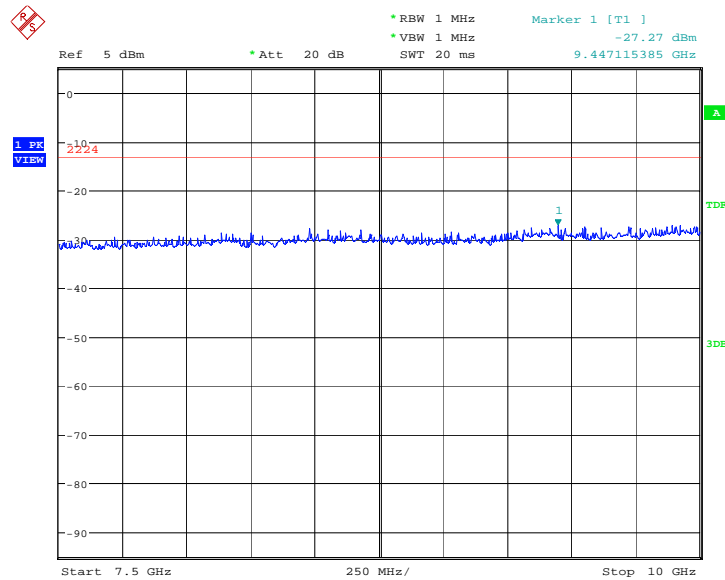
Spurious emission limit –13dBm



Date: 28.FEB.2013 06:13:17

A.8.3.8 16QAM: 7.5GHz –10GHz

Spurious emission limit –13dBm



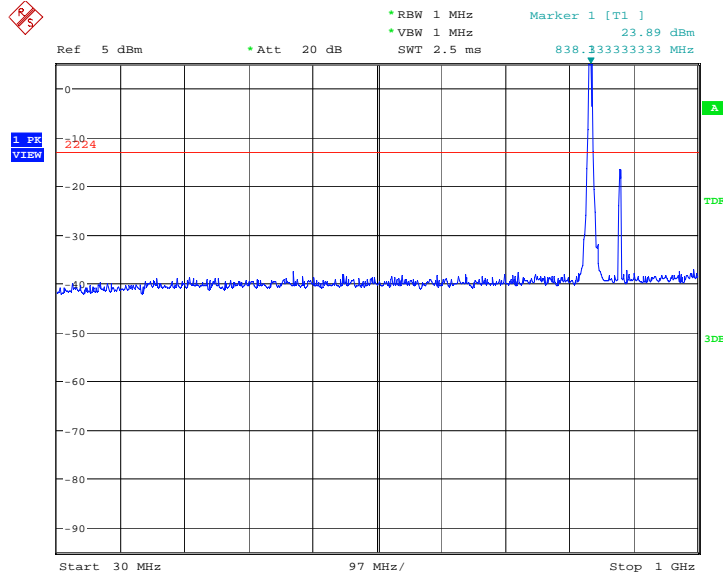
Date: 16.FEB.2013 07:32:52

LTE Band 5, 3MHz bandwidth

A.8.3.9 QPSK: 30MHz – 1GHz

Spurious emission limit –13dBm.

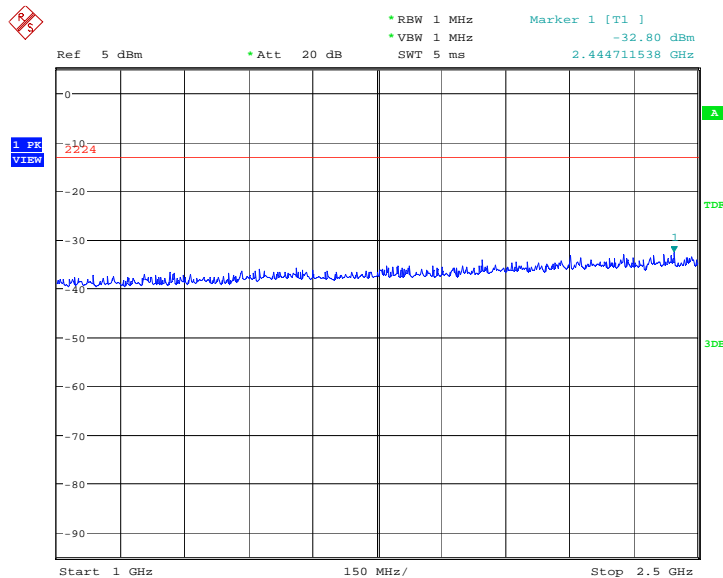
NOTE: peak above the limit line is the carrier frequency.



Date: 16.FEB.2013 08:02:10

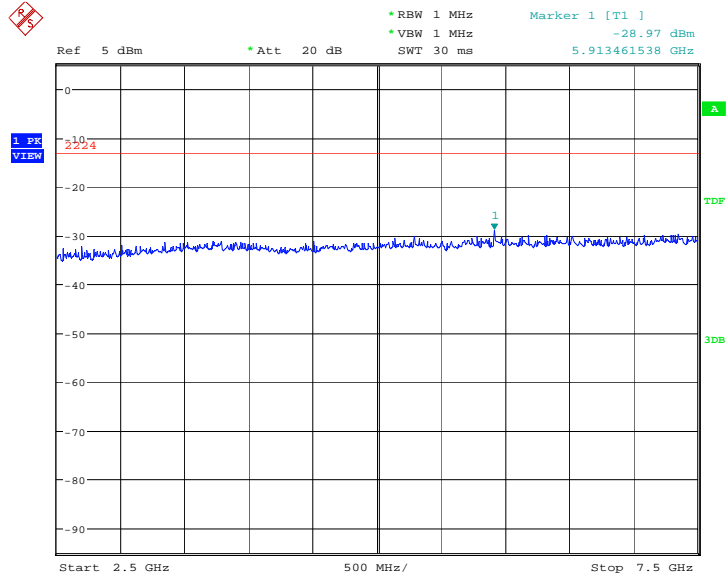
A.8.3.10 QPSK: 1GHz – 2.5GHz

Spurious emission limit –13dBm.



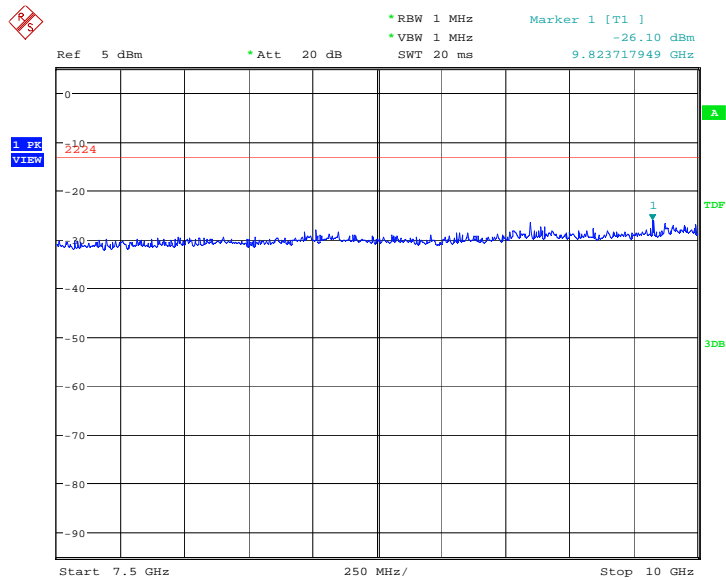
Date: 16.FEB.2013 08:02:23

A.8.3.11 QPSK:2.5GHz – 7.5GHz
Spurious emission limit –13dBm.



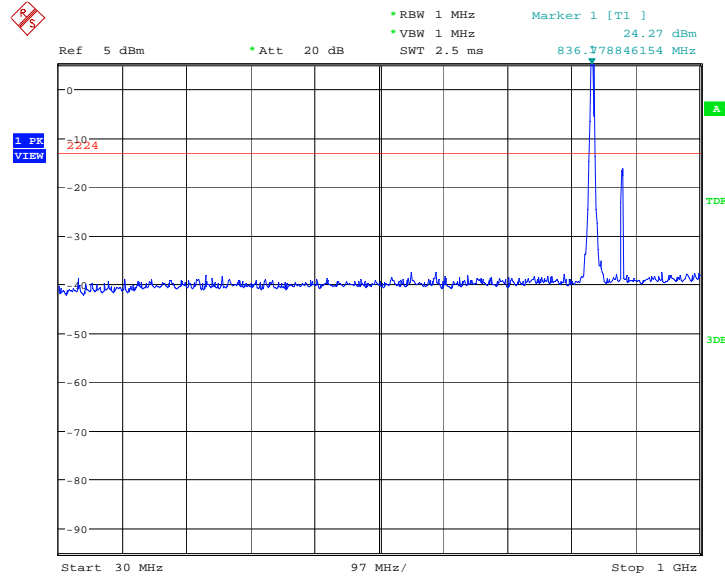
Date: 16.FEB.2013 08:02:36

A.8.3.12 QPSK: 7.5GHz – 10GHz
Spurious emission limit –13dBm.



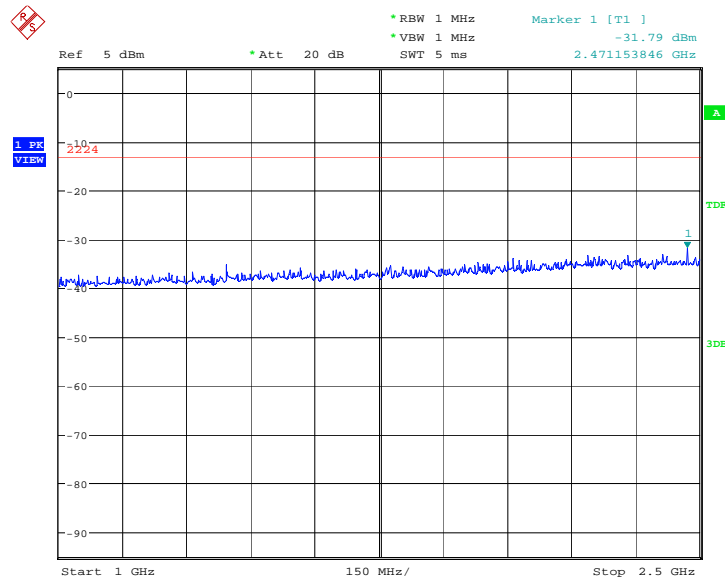
Date: 16.FEB.2013 08:02:49

A.8.3.13 16QAM: 30MHz – 1GHz
Spurious emission limit –13dBm.



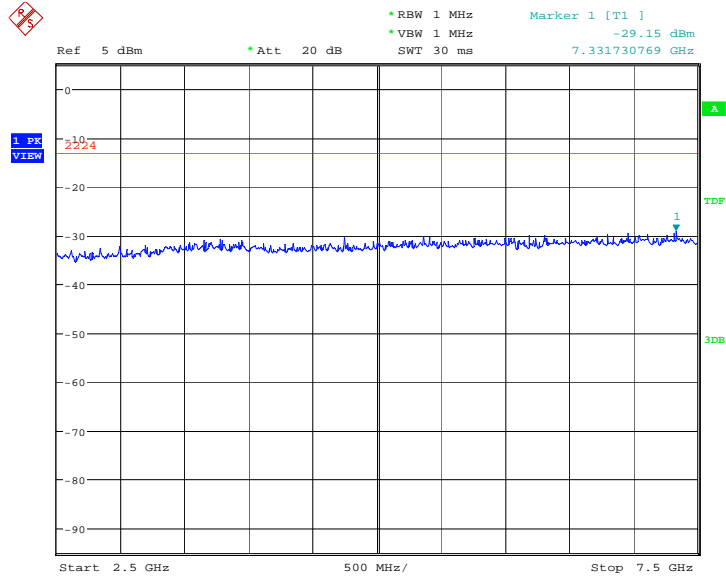
Date: 16.FEB.2013 08:08:03

A.8.3.14 16QAM: 1GHz – 2.5GHz
Spurious emission limit –13dBm.



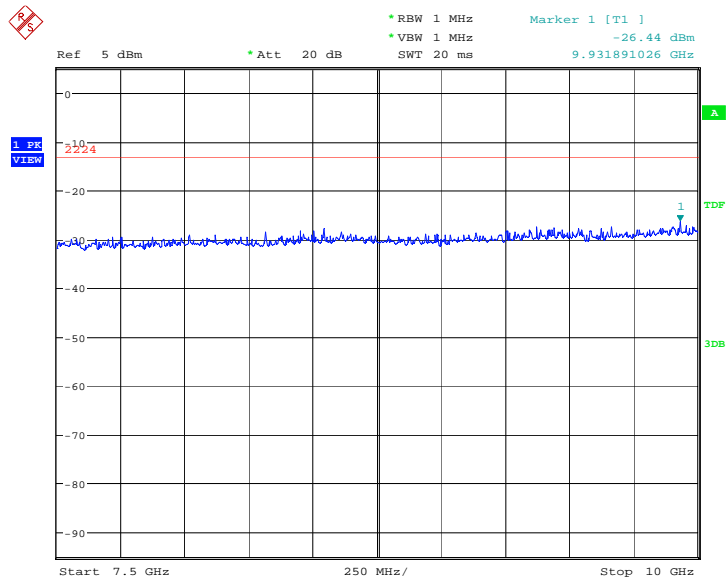
Date: 16.FEB.2013 08:08:16

A.8.3.15 16QAM: 2.5GHz – 7.5GHz
Spurious emission limit –13dBm.



Date: 16.FEB.2013 08:08:29

A.8.3.16 16QAM: 7.5GHz – 10GHz
Spurious emission limit –13dBm.



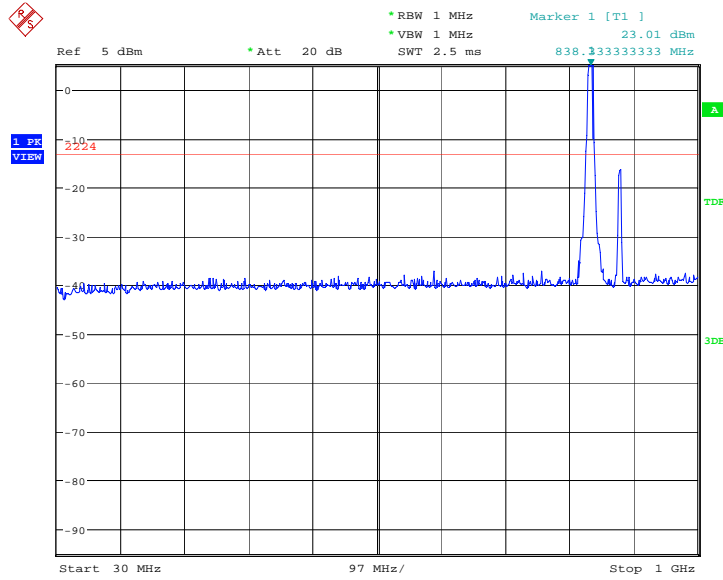
Date: 16.FEB.2013 08:08:42

LTE Band 5, 5MHz bandwidth

A.8.3.17 QPSK: 30MHz – 1GHz

Spurious emission limit –13dBm.

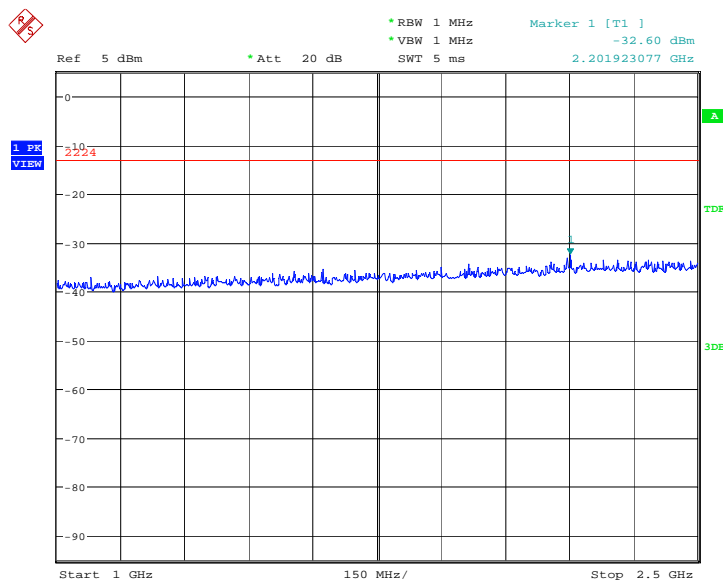
NOTE: peak above the limit line is the carrier frequency.



Date: 16.FEB.2013 23:35:58

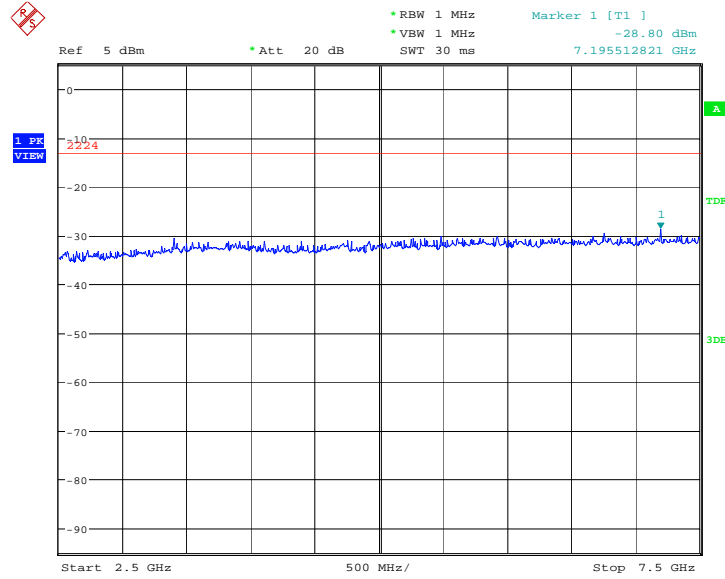
A.8.3.18 QPSK: 1GHz – 2.5GHz

Spurious emission limit –13dBm.



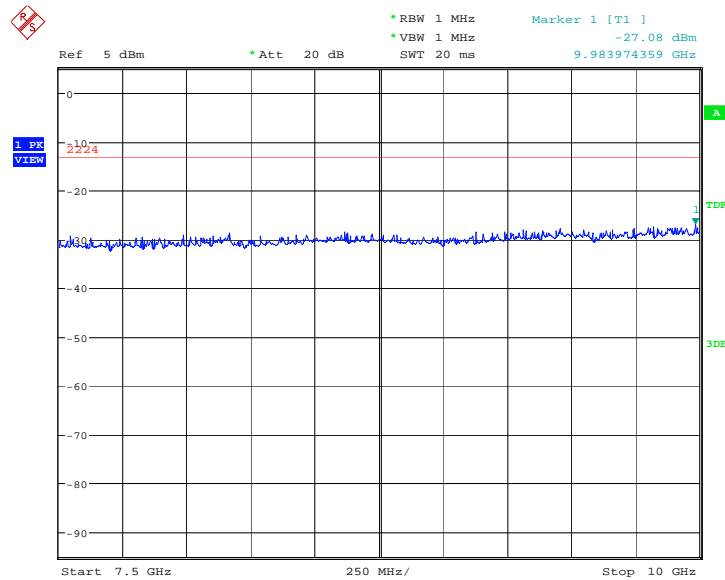
Date: 16.FEB.2013 23:36:11

A.8.3.19 QPSK: 2.5GHz – 7.5GHz
Spurious emission limit –13dBm.



Date: 16.FEB.2013 23:36:24

A.8.3.20 QPSK: 7.5GHz –10GHz
Spurious emission limit –13dBm.

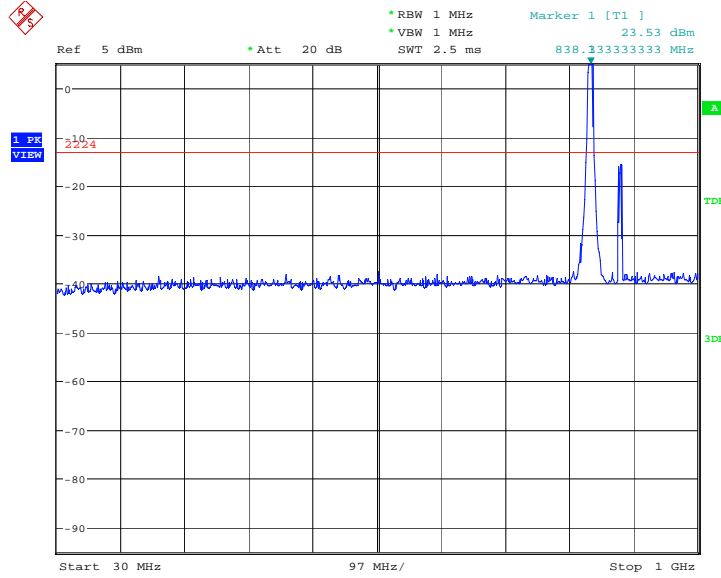


Date: 16.FEB.2013 23:36:37

A.8.3.21 16QAM: 30MHz – 1GHz

Spurious emission limit –13dBm

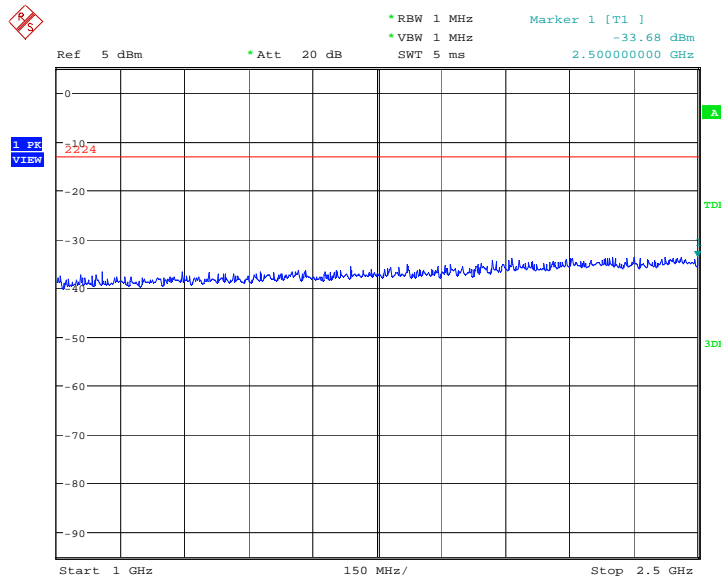
NOTE: peak above the limit line is the carrier frequency.



Date: 16.FEB.2013 23:41:51

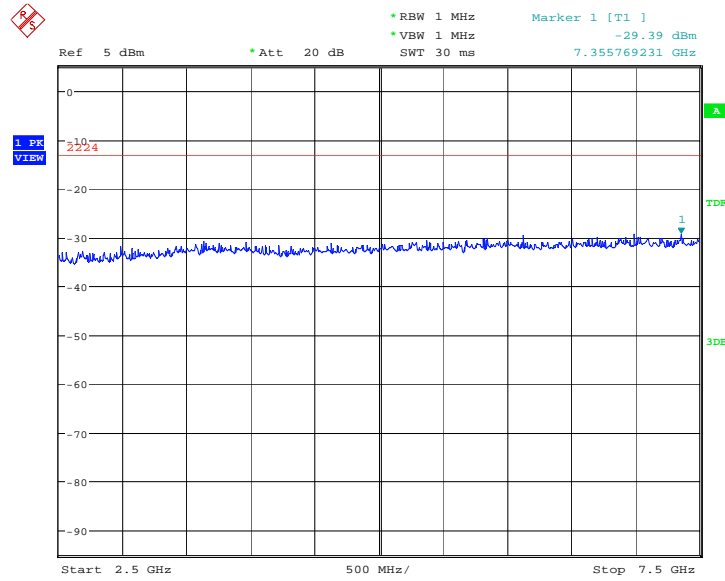
A.8.3.22 16QAM: 1GHz –2.5GHz

Spurious emission limit –13dBm



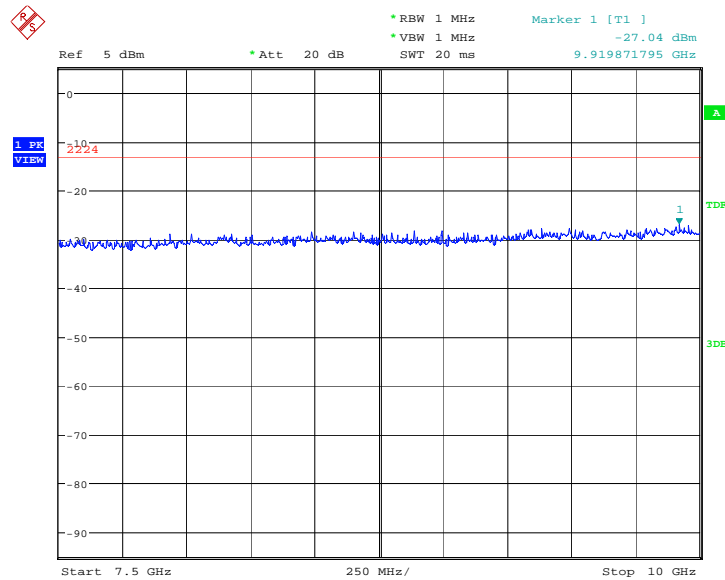
Date: 16.FEB.2013 23:42:04

A.8.3.23 16QAM: 2.5GHz –7.5GHz
Spurious emission limit –13dBm



Date: 16.FEB.2013 23:42:17

A.8.3.24 16QAM: 7.5GHz –10GHz
Spurious emission limit –13dBm



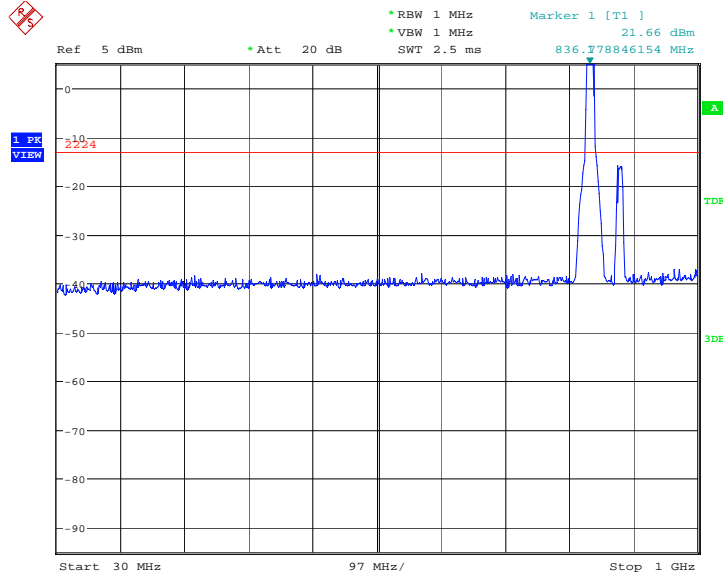
Date: 16.FEB.2013 23:42:30

LTE Band 5, 10MHz bandwidth

A.8.3.25 QPSK: 30MHz – 1GHz

Spurious emission limit –13dBm.

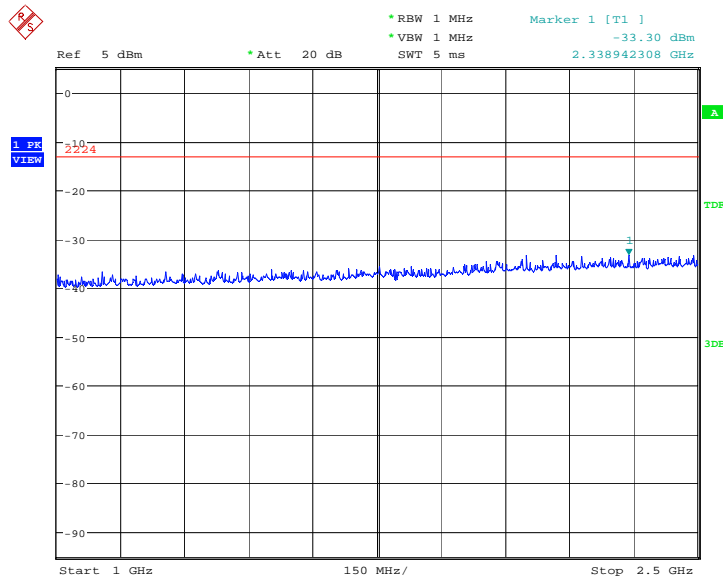
NOTE: peak above the limit line is the carrier frequency.



Date: 17.FEB.2013 00:21:00

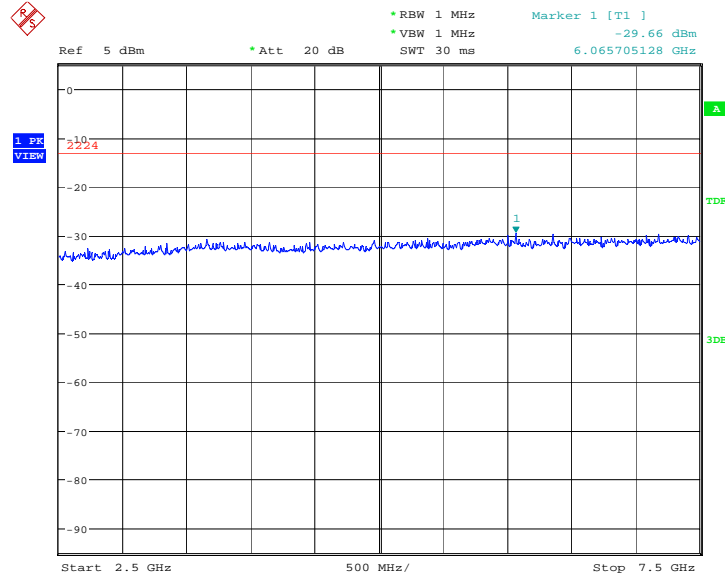
A.8.3.26 QPSK: 1GHz – 2.5GHz

Spurious emission limit –13dBm.



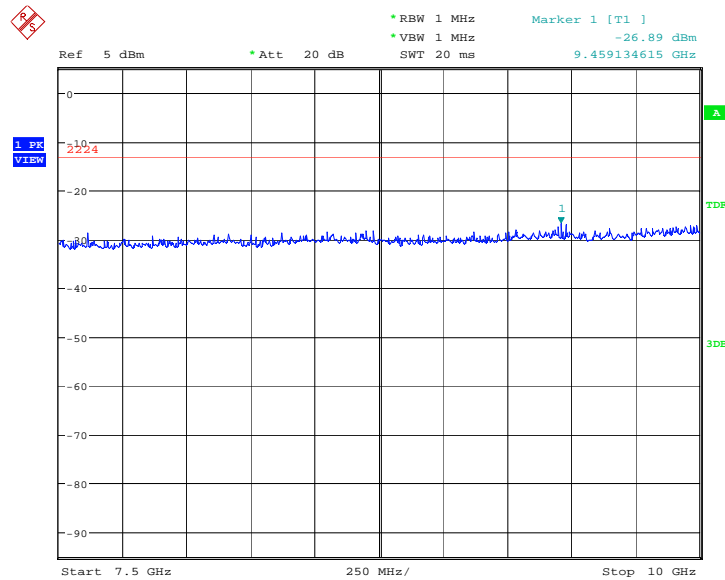
Date: 17.FEB.2013 00:21:13

A.8.3.27 QPSK:2.5GHz – 7.5GHz
Spurious emission limit –13dBm.



Date: 17.FEB.2013 00:21:26

A.8.3.28 QPSK: 7.5GHz – 10GHz
Spurious emission limit –13dBm.

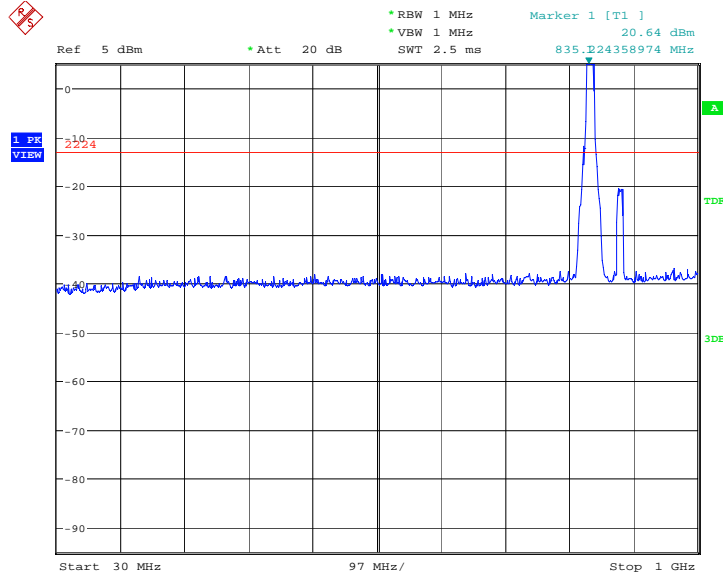


Date: 17.FEB.2013 00:21:39

A.8.3.29 16QAM: 30MHz – 1GHz

Spurious emission limit –13dBm.

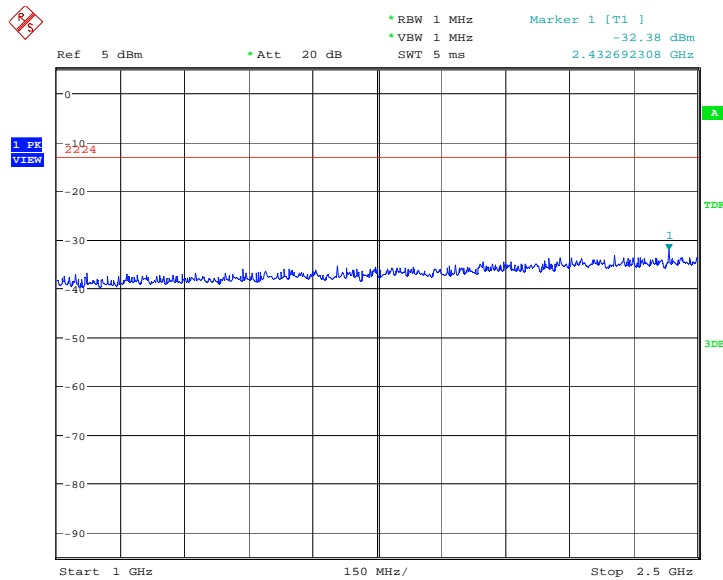
NOTE: peak above the limit line is the carrier frequency.



Date: 28.FEB.2013 06:42:38

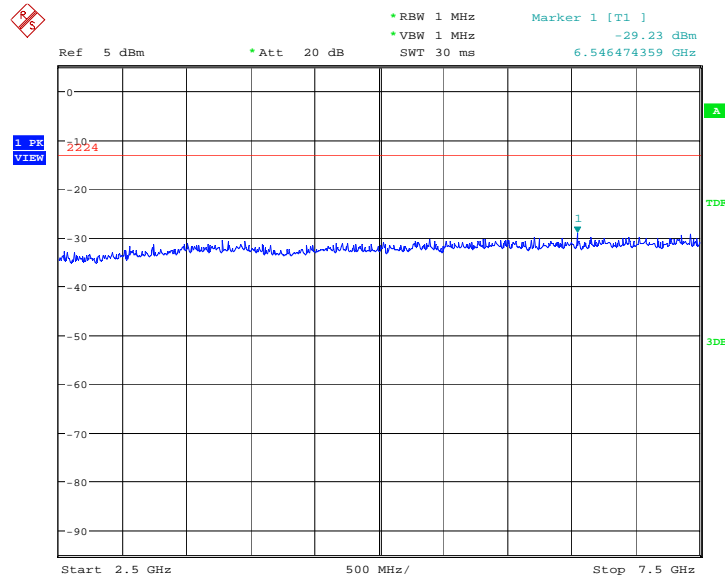
A.8.3.30 16QAM: 1GHz – 2.5GHz

Spurious emission limit –13dBm.



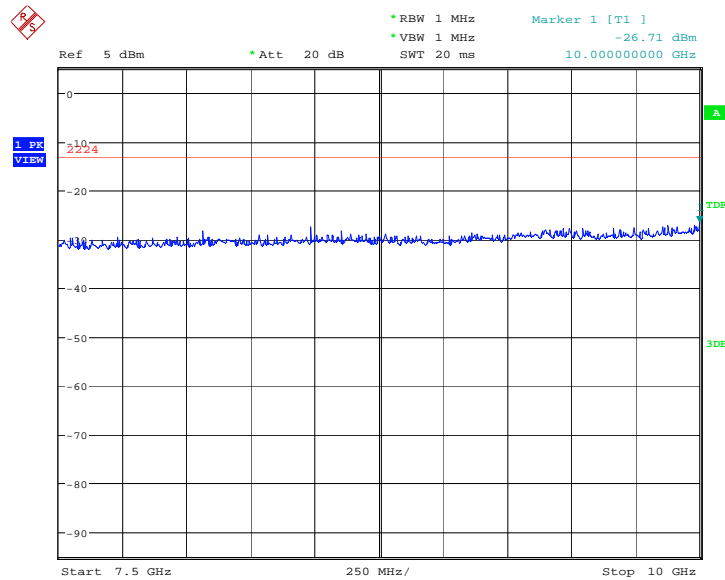
Date: 28.FEB.2013 06:42:51

A.8.3.31 16QAM: 2.5GHz – 7.5GHz
Spurious emission limit –13dBm.



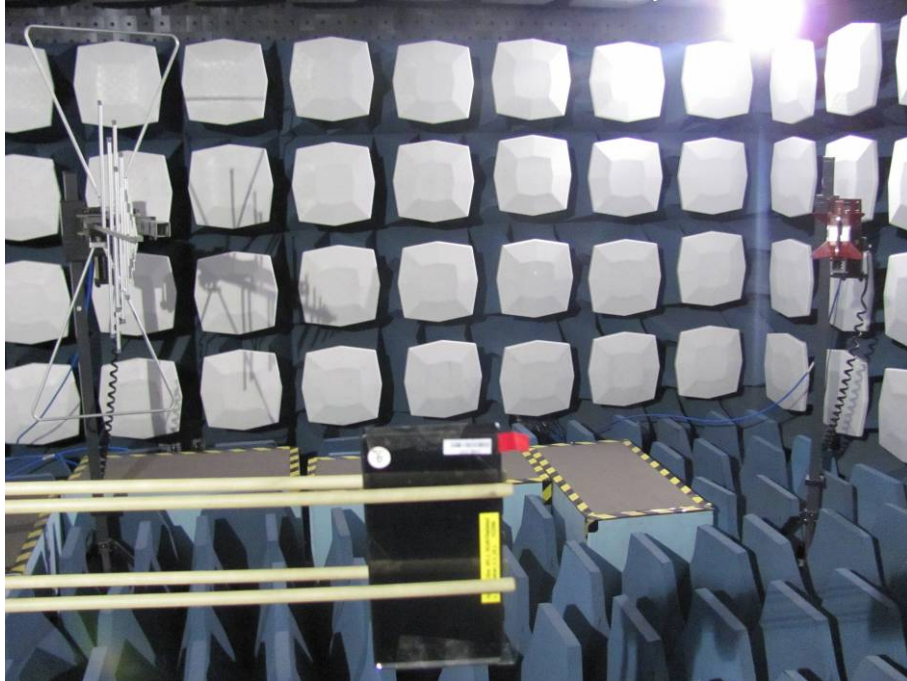
Date: 28.FEB.2013 06:43:04

A.8.3.32 16QAM: 7.5GHz – 10GHz
Spurious emission limit –13dBm.



Date: 28.FEB.2013 06:43:17

ANNEX B: TEST LAYOUT



Pic.1 Radiated spurious emission



Pic.2 Conducted emission

ANNEX C: EUT photograph



Mobile Phone



Mobile Phone



Mobile Phone



Mobile Phone



Mobile Phone



Mobile Phone



Mobile Phone



Label of Mobile Phone



Mobile Phone Disassembly



Mobile Phone Disassembly



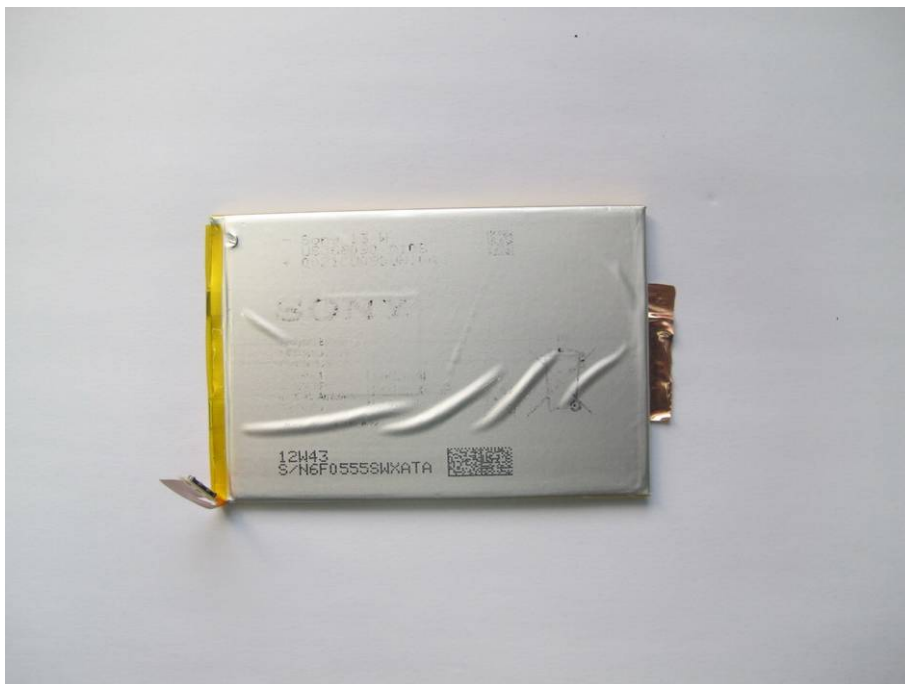
Mobile Phone Disassembly



Mobile Phone Disassembly



Mobile Phone Disassembly



Li-Polymer Battery



Travel Charger



Label of Travel Charger



USB Cable

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