

TEST REPORT

No. 2007TAR025

Test name	FCC Test
Product	CDMA MOBILE PHONE
Model	J88
Client	Cal-Comp Electronics(Suzhou) CO.,LTD.

**Telecommunication Metrology Center
of Ministry of Information Industry**

Notice

1. The test report is invalid if not marked with “exclusive stamp for the test report” or the stamp of the test center.
2. The test report is invalid if not marked with the stamps or the signatures of the persons responsible for performing, revising and approving the test report.
3. The test report is invalid if there is any evidence of erasure and/or falsification.
4. If there is any dissidence for the test report, please file objection to the test center within 15 days from the date of receiving the test report.
5. Normally, entrust test is only responsible for the samples that have undergone the test.
6. Context of the test report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of the test center.

Address: No. 52, Huayuanbei Road, Beijing, P. R. China

Post code: 100083

Cable: 04282

Telephone: +86 10 62302041

Fax: +86 10 62304793

**Telecommunication Metrology Center
of Ministry of Information Industry**

No. 2007TAR025

Page 3 of 52

Product	CDMA MOBILE PHONE	Model	J88
		Trade mark	
Client	Cal-Comp Electronics(Suzhou) CO.,LTD.		
Manufacturer	Cal-Comp Electronics(Suzhou) CO.,LTD.	Arrival Date of sample	Oct 09, 2007
Place of sampling	/	Carrier of the samples	Yan bin
Quantity of the samples	2	Date of product	/
Base of the samples	(Blank)	Items of test	8
Series number	EUT1: 01403386407 EUT2: 01403386386		
Standard(s)	FCC Part 24(10-1-06 Edition) FCC Part 22(10-1-06 Edition)		
Conclusion	<p>The testcases requested by the client in this test report have passed the test.</p> <p style="text-align: right;">(Stamp) Date of issue: Nov 20, 2007</p>		
Comment	The test result relates only to the tested samples.		

Approved by Lu Bingsong Reviewed by Sun Xiangqian Performed by Zi Xiaogang
 (Lu Bingsong) (Sun Xiangqian) (Zi Xiaogang)
 (Lu Bingsong - Deputy Director of the laboratory)

TABLE OF CONTENT

1. COMPETENCE AND WARRANTIES	5
2. TESTING LABORATORY	5
2.1 TESTING LOCATION	5
2.2 TESTING ENVIRONMENT	5
2.3 TESTING PERIOD.....	6
3. APPLICANT INFORMATION.....	6
3.1 CLIENT INFORMATION	6
3.2 MANUFACTURER INFORMATION.....	7
4. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT (AE).....	7
4.1 ABOUT EUT	7
4.2 INTERNAL IDENTIFICATION OF EUT USED DURING THE TEST	7
4.3 PHOTOGRAPHS OF EUT	7
5. SUMMARY OF TEST RESULTS	8
6. MAIN TEST INSTRUMENTS.....	8
ANNEX A MEASUREMENT RESULTS	9
ANNEX B PHOTOGRAPHS OF EUT	48
ANNEX C TEST LAYOUT.....	52

1. COMPETENCE AND WARRANTIES

Telecommunication Metrology Center of Ministry of Information Industry(hereinafter TMC) is a test laboratory accredited by DAR (DATEch) – Deutschen Akkreditierungs Rat (Deutsche Akkreditierungsstelle Technik), for the tests indicated in the Certificate No. **DAT-P-114/01-01**.

TMC is a test laboratory accredited by CNAS–China national Accreditation Service for Conformity Assessment, for the tests indicated in the Certificate No. **L0442**.

TMC is FCC listed lab. FCC listed number is **733176**.

The test site in **TMC** is registered in Industry Canada. The IC registration number is **6629**.

TMC is a testing laboratory competent to carry out the tests described in this report.

TMC guarantees the reliability of the data presented in this report, which is the result of measurements and tests performed to the item under test on the date and under the conditions stated on the report and is based on the knowledge and technical facilities available at TMC at the time of execution of the test.

TMC is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the item under test and the results of the test.

2. Testing Laboratory

2.1 Testing Location

Company Name:	Telecommunication Metrology Center of Ministry of Information Industry
Address:	No 52, Huayuan beilu, Haidian District, Beijing,P.R.China
Postal Code:	100083
Telephone:	00861062303288
Fax:	00861062304793

2.2 Testing Environment

Semi-anechoic chamber (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.2 dB, 10 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 26 to 1000 MHz

**Telecommunication Metrology Center
of Ministry of Information Industry**

No. 2007TAR025

Page 6 of 52

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

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Conducted chamber did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 26 to 1000 MHz

2.3 Testing Period

Testing Start Date:	March 10, 2007
Testing End Date:	April 23, 2007

3. Applicant Information

3.1 Client Information

Name or Company	Cal-Comp Electronics(Suzhou) CO.,LTD.
Address/Post	Manufacturer Address: No.2288,Jiangxing East Rd, Wu-jiang Economic Development Zone, Jiang-Su, China.
City	Su zhou
Postal Code	215200
Country	P.R.China
Telephone	86 021-64850963, Ext. 2218
Fax	86 021-64953995

**Telecommunication Metrology Center
of Ministry of Information Industry**

No. 2007TAR025

Page 7 of 52

3.2 Manufacturer Information

Name or Company	Cal-Comp Electronics(Suzhou) CO.,LTD.
Address/Post	Manufacturer Address: No.2288,Jiangxing East Rd, Wu-jiang Economic Development Zone, Jiang-Su, China.
City	Su zhou
Postal Code	215200
Country	P.R.China
Telephone	86 021-64850963, Ext. 2218
Fax	86 021-64953995

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

4.1 About EUT

Model	J88
FCC ID:	VR2J88
Description	CDMA MOBILE PHONE
Frequency	1851.25MHz-1908.75MHz for PCS CDMA; 824.70MHz - 848.31MHz for CDMA
Antenna	Internal
Power supply	Battery or Charger (AC Adaptor)
Output power	21.60dBm maximum EIRP measured for PCS 1900 (CDMA) 24.90dBm maximum ERP measured for CDMA
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.7 VDC)
Extreme temp. Tolerance	-30°C to +50°C

4.2 Internal Identification of EUT used during the test

EUT ID	ESN	HW Version	SW Version
EUT1	01403386407	P3.1	1.8.0.
EUT2	01403386386	P3.1	1.8.0.

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

4.3 Photographs of EUT

Photographs of Telephone Set and Charger are respectively shown in ANNEX B of this test report.

**Telecommunication Metrology Center
of Ministry of Information Industry**

No. 2007TAR025

Page 8 of 52

5. SUMMARY OF TEST RESULTS

Items	List	Clause in FCC rules	Verdict
1	Output Power	22.913(a)/24.232(b)	P
2	Emission Limit	2.1051/22.917/24.238	P
3	Conducted Emission	15.107/207	P
4	Frequency Stability	2.1055/24.235	P
5	Occupied Bandwidth	2.1049(h)(i)	P
6	Emission Bandwidth	22.917(b)/24.238(b)	P
7	Band Edge Compliance	22.917(b)/24.238(b)	P
8	Conducted Spurious Emission	2.1057/22.917/24.238	P

6. MAIN TEST INSTRUMENTS

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CAL DUE DATE
1	Test Receiver	ESS	847151/015	R&S	2008-10-30
2	Test Receiver	ESI40	831564/002	R&S	2008-2-11
3	BiLog Antenna	3142B	9908-1403	EMCO	2008-1-16
4	BiLog Antenna	3142B	9908-1405	EMCO	2009-9-19
5	Signal Generator	SMT06	831285/005	R&S	2007-12-26
6	Signal Generator	SMP04	100070	R&S	2008-4-20
7	LISN	ESH2-Z5	829991/012	R&S	2008-8
8	Spectrum Analyzer	E4440A	MY41000262	Agilent	2008-4-18
9	Universal Radio Communication Tester	CMU200	100680	R&S	2008-8-23
10	Dual-Ridge Waveguide Horn Antenna	3115	9906-5827	EMCO	2008-3
11	Dual-Ridge Waveguide Horn Antenna	3116	2663	EMCO	2008-3
12	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2008-3
13	Climatic chamber	PL-2G	343074	ESPEC	2008-5-15

ANNEX A MEASUREMENT RESULTS

A.1 OUTPUT POWER (§22.913(a)/§24.232(b))

A.1.1 Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMU-200) to ensure max power transmission and proper modulation.

This result contains peak output power and EIRP 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.

The power was measured with Agilent Spectrum Analyzer E4440A (peak)

CDMA

Measurement result

EUT1

Channel	Frequency(MHz)	Channel power(dBm)
1013	824.70	21.12
384	836.52	21.23
777	848.31	20.95

PCS CDMA

Measurement result

EUT1

Channel	Frequency(MHz)	Channel power(dBm)
25	1851.25	21.13
600	1877.50	21.12
1175	1908.75	21.34

A.1.3 Radiated

A.1.3.1 Description

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

Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

Rule Part 22.913(a) specifies "Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

A.1.3.2 Method of Measurement

1. In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (P_{in}) is applied to the input of the dipole, and the power received (P_r) at the chamber's probe antenna is recorded.
2. A "reference path loss" is established as $P_{in} + 2.15 - P_r$.
3. The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.
4. From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.
5. The EUT is then put into pulse mode at its maximum power level.
6. "Gated mode" power measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 24.232 (b) and (c). The "reference path loss" from Step1 is added to this result.
7. This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (P_{in}).
8. ERP can be calculated from EIRP by subtracting the gain of the dipole, $ERP = EIRP - 2.15dBi$.

CDMA 22.913(a)

Measurement result

Channel	Frequency(MHz)	ERP(dBm)
1013	824.70	21.1151
384	836.52	21.5951
777	848.31	21.1905

PCS CDMA 24.232(b)

Measurement result

Channel	Frequency(MHz)	EIRP(dBm)
25	1851.25	22.9052
600	1877.50	24.9031
1175	1908.75	24.6921

A.2 EMISSION LIMIT (§2.1051/§24.238)

A.2.1 Measurement Method

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

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 as outlined in Part 24.238. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the band.

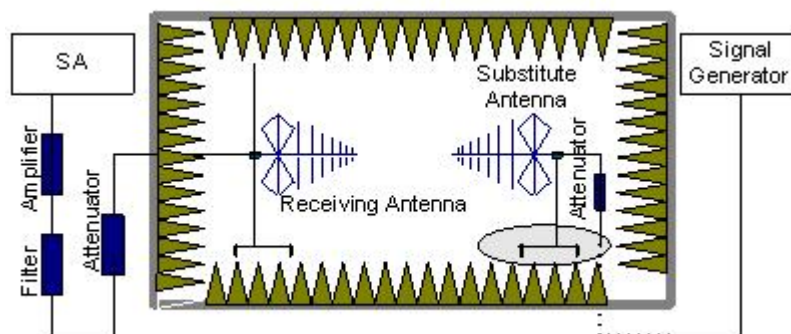
The procedure of radiated spurious emissions is as follows:

a) Pre-calibration

With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as,

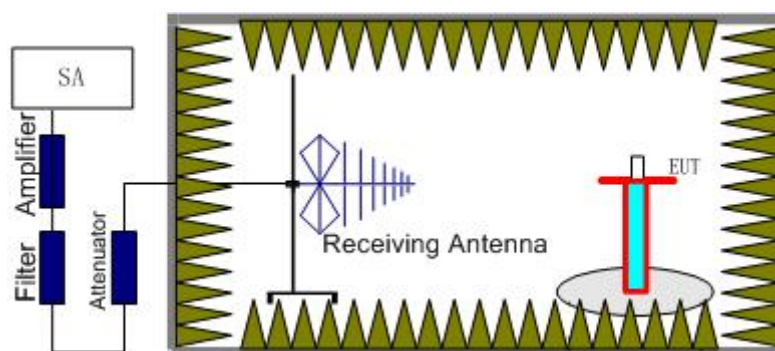
$$RSE = R_x \text{ (dBuV)} + CL \text{ (dB)} + SA \text{ (dB)} + \text{Gain (dBi)} - 107 \text{ (dBuV to dBm)}$$

The SA is calibrated using following setup.



b) EUT test

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 test item 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 test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.



A.2.2 Measurement Limit

Sec. 24.238 Emission Limits.

(a) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least $43 + 10 \log(P)$ 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 band. 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 PCS CDMA and CDMA 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.

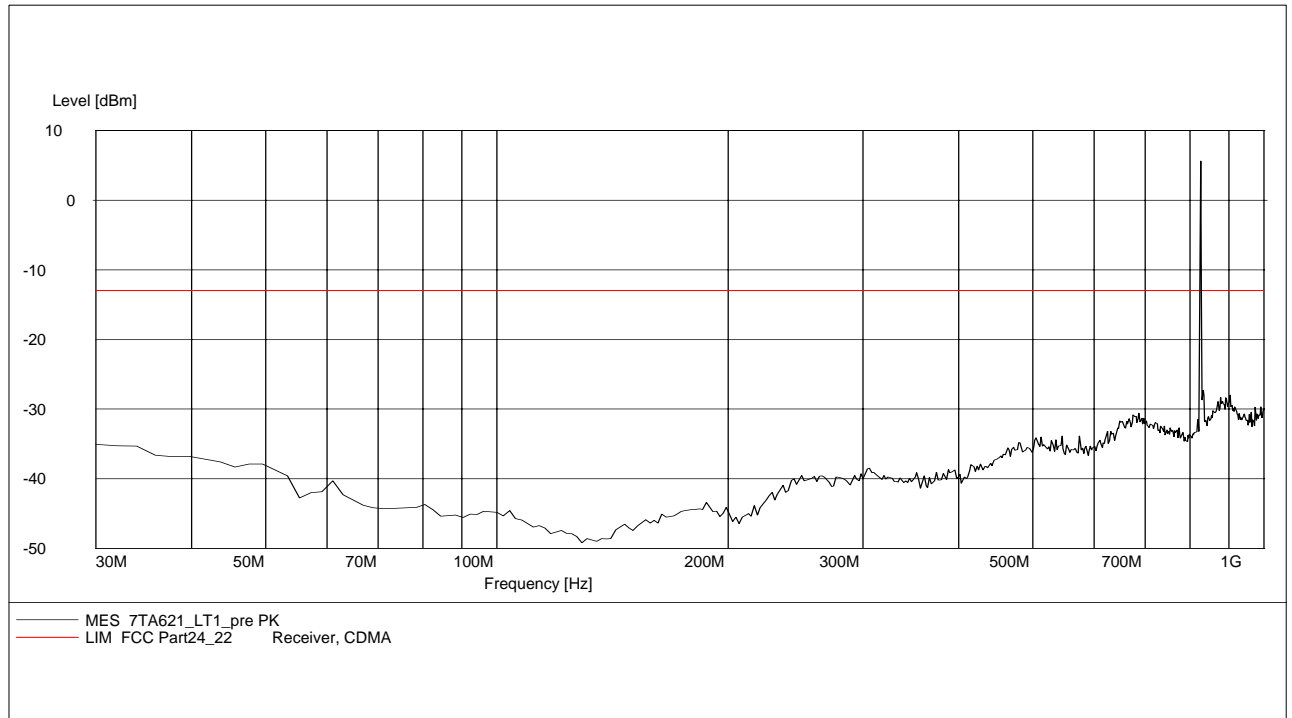
NOTE: The spurious emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels.

CDMA

A.2.3.1 RADIATED SPURIOUS EMISSIONS-Channel 1013 30MHz –1GHz

Radiated spurious emission limit :-13dBm.

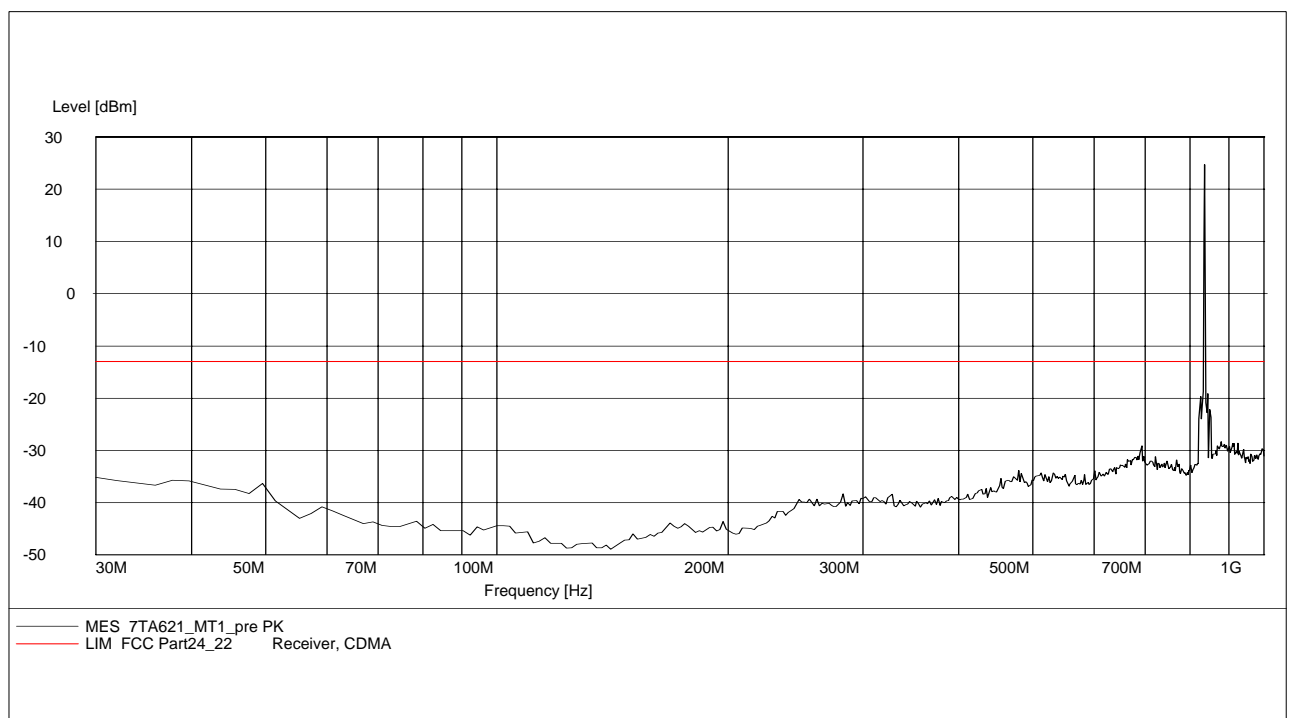
NOTE: peak above the limit line is the Carrier frequency @ ch-1013



A.2.3.2 RADIATED SPURIOUS EMISSIONS-Channel 384: 30MHz – 1GHz

Radiated spurious emission limit :-13dBm.

NOTE: peak above the limit line is the Carrier frequency @ ch-384



A.2.3.3 RADIATED SPURIOUS EMISSIONS-Channel 777: 30MHz – 1GHz

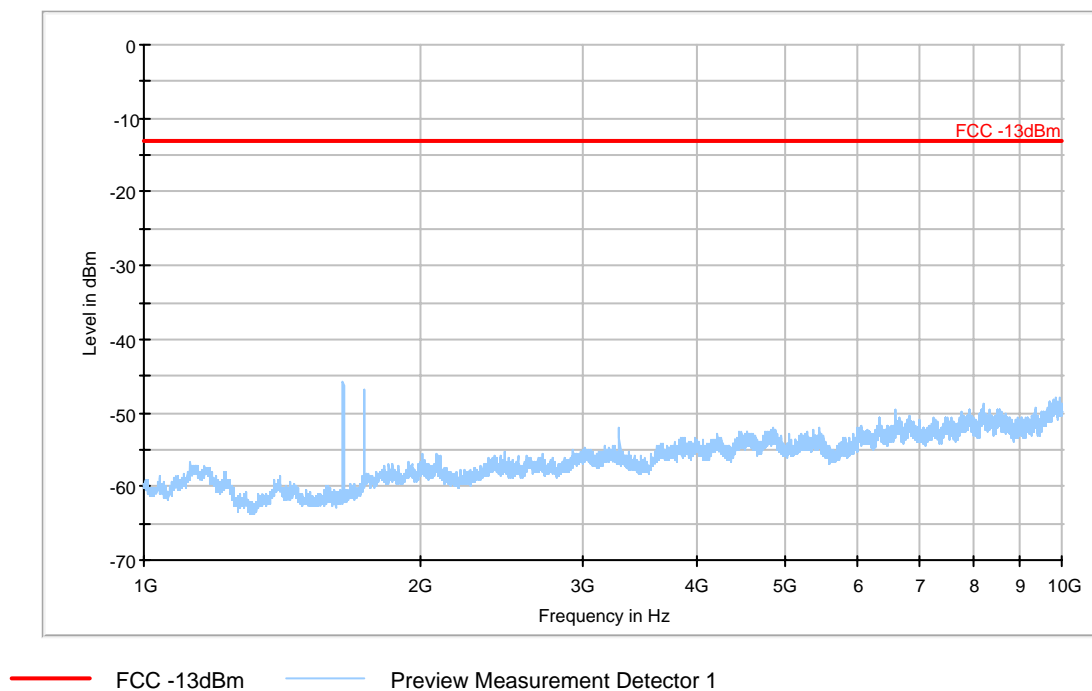
Radiated spurious emission limit :-13dBm.

NOTE: peak above the limit line is the Carrier frequency @ ch-777



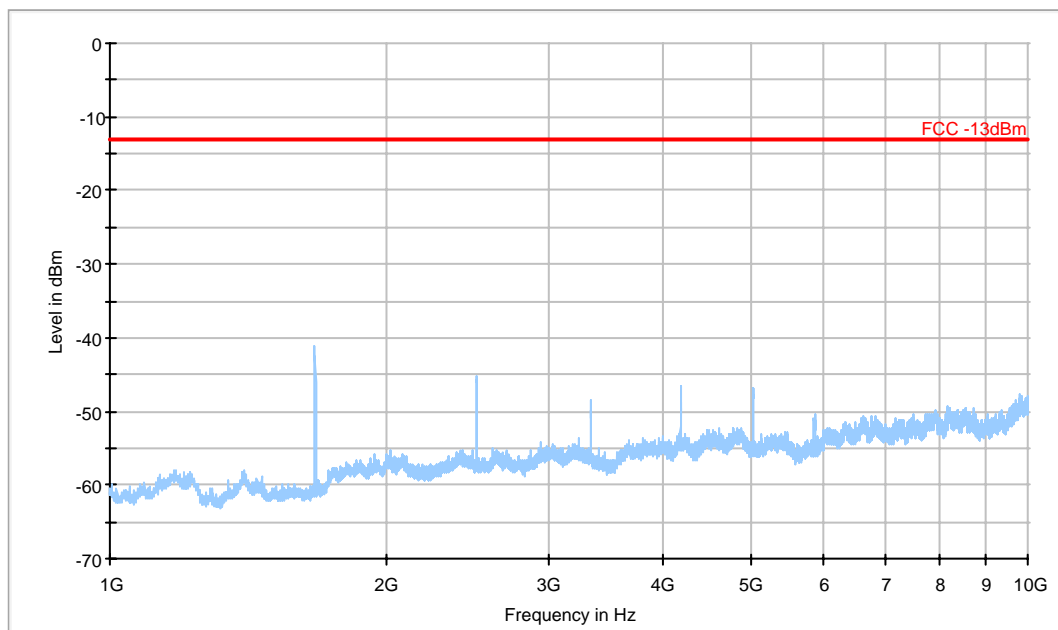
A.2.3.4 RADIATED SPURIOUS EMISSIONS-Channel 1013: 1GHz – 10GHz

Radiated spurious emission limit :-13dBm.



A.2.3.5 RADIATED SPURIOUS EMISSIONS-Channel 384: 1GHz – 10GHz

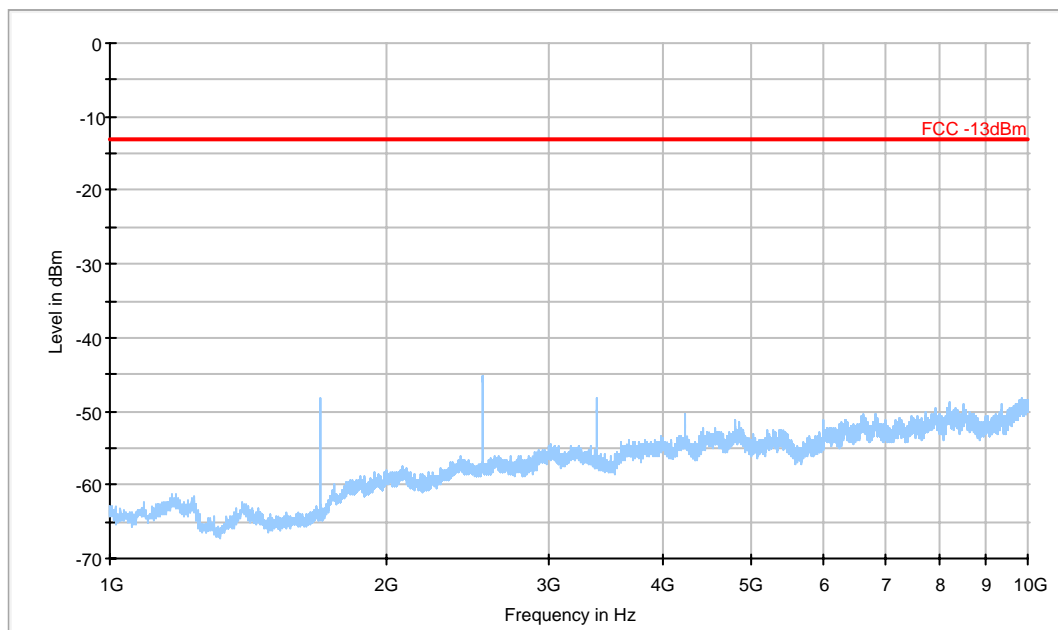
Radiated spurious emission limit :-13dBm.



— FCC -13dBm — Preview Measurement Detector 1

A.2.3.6 RADIATED SPURIOUS EMISSIONS-Channel 777: 1GHz – 10GHz

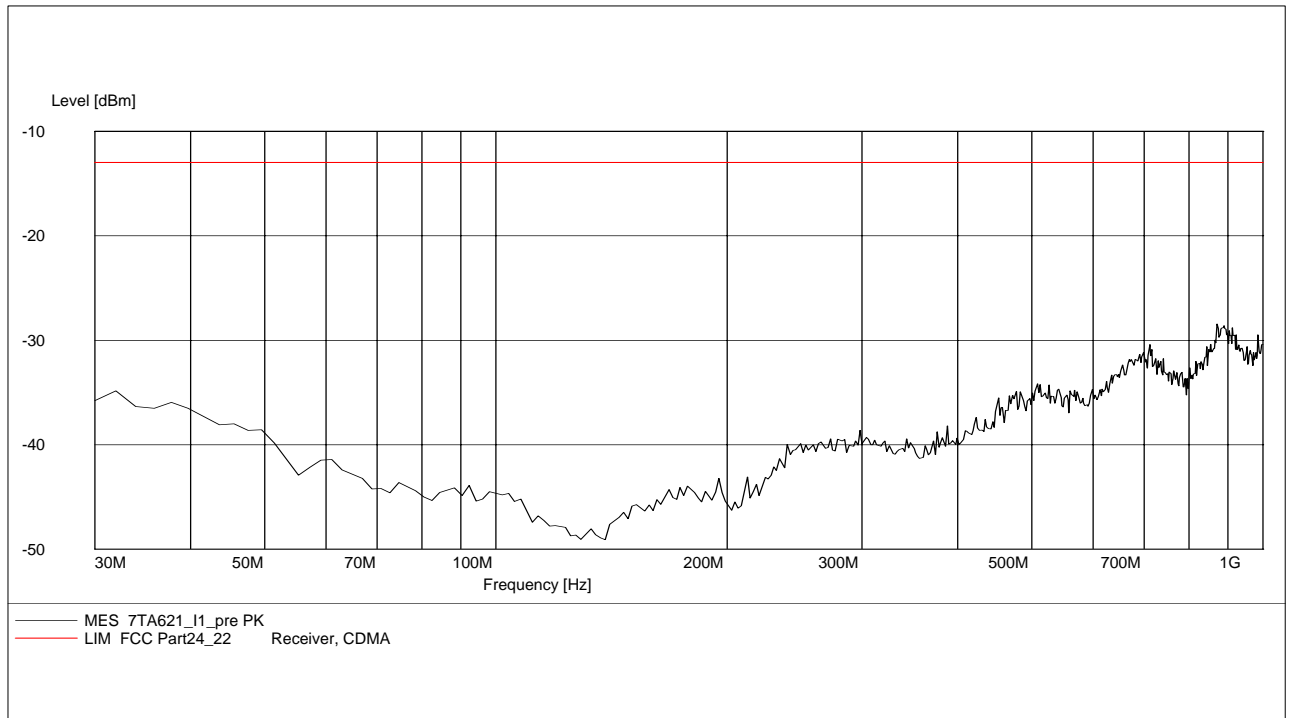
Radiated spurious emission limit :-13dBm.



— FCC -13dBm — Preview Measurement Detector 1

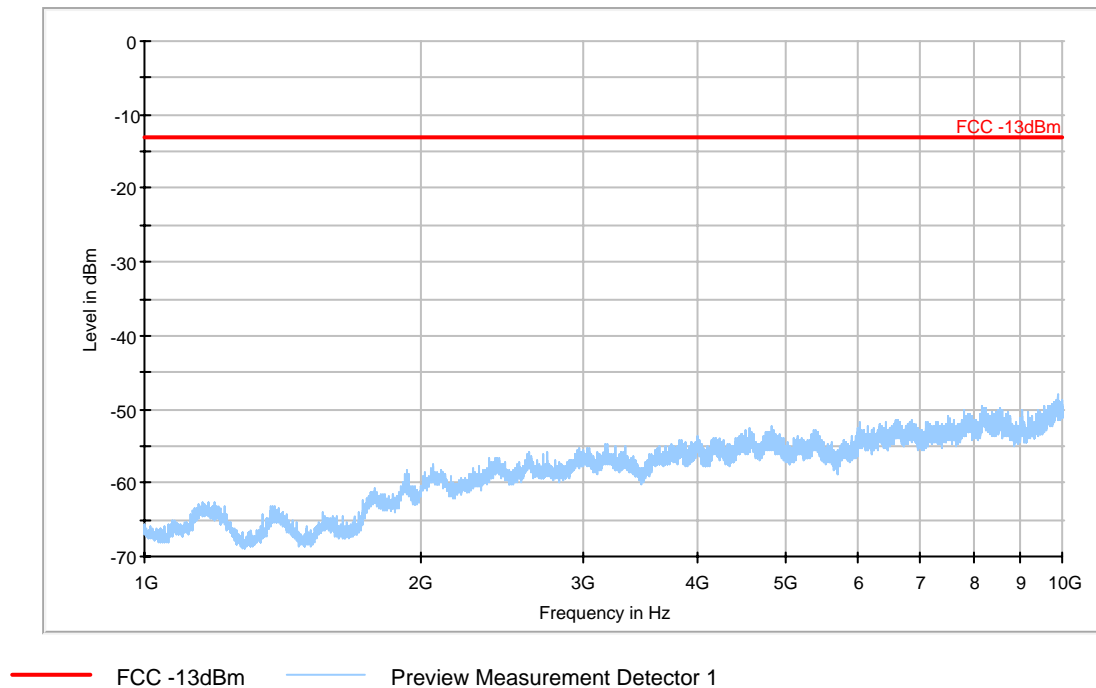
A.2.3.7 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 30MHz – 1GHz

Radiated spurious emission limit :-13dBm.



A.2.3.8 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 1GHz – 10GHz

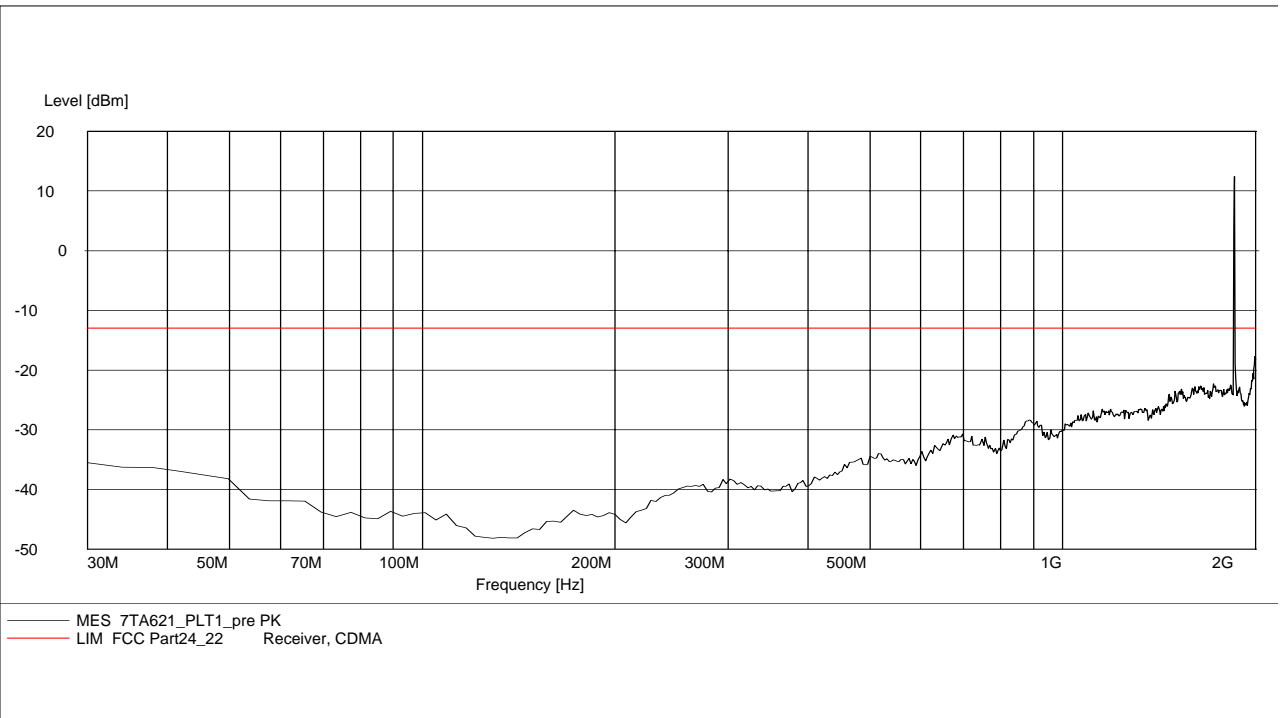
Radiated spurious emission limit :-13dBm.



PCS CDMA

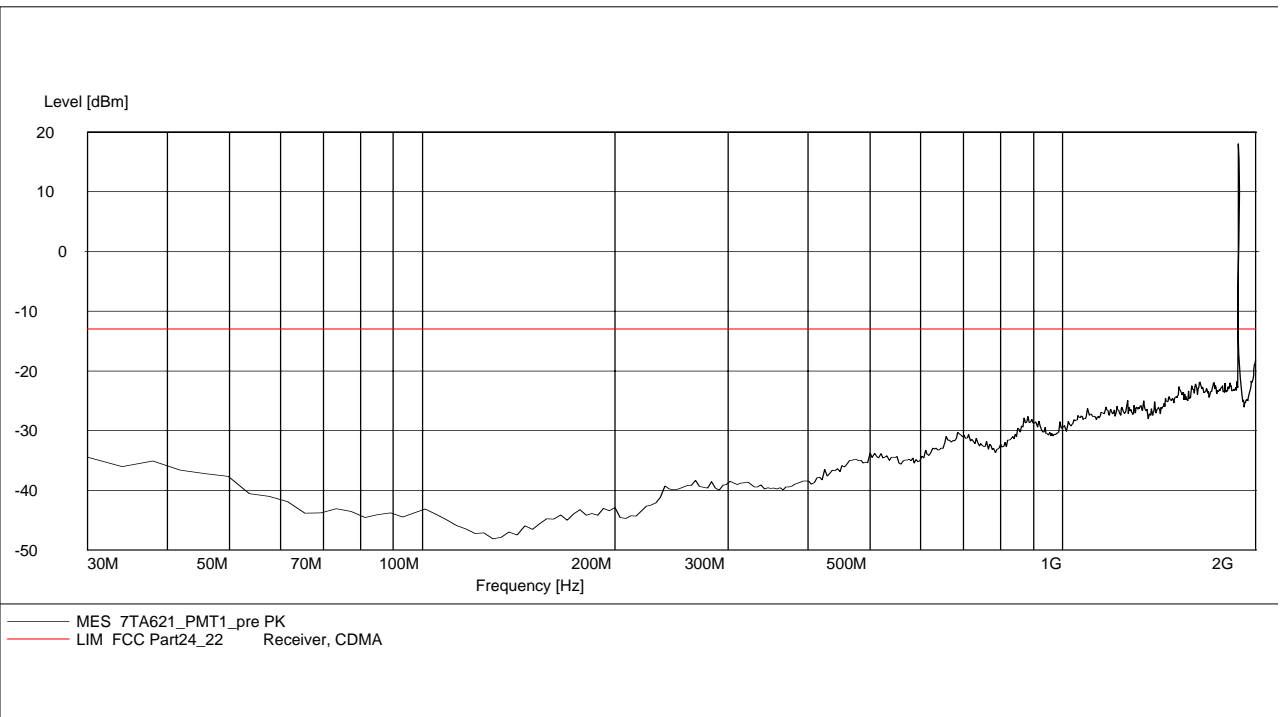
A.2.3.9 RADIATED SPURIOUS EMISSIONS-Channel 25: 30MHz – 2GHz

NOTE: peak above the limit line is the Carrier frequency @ ch-25



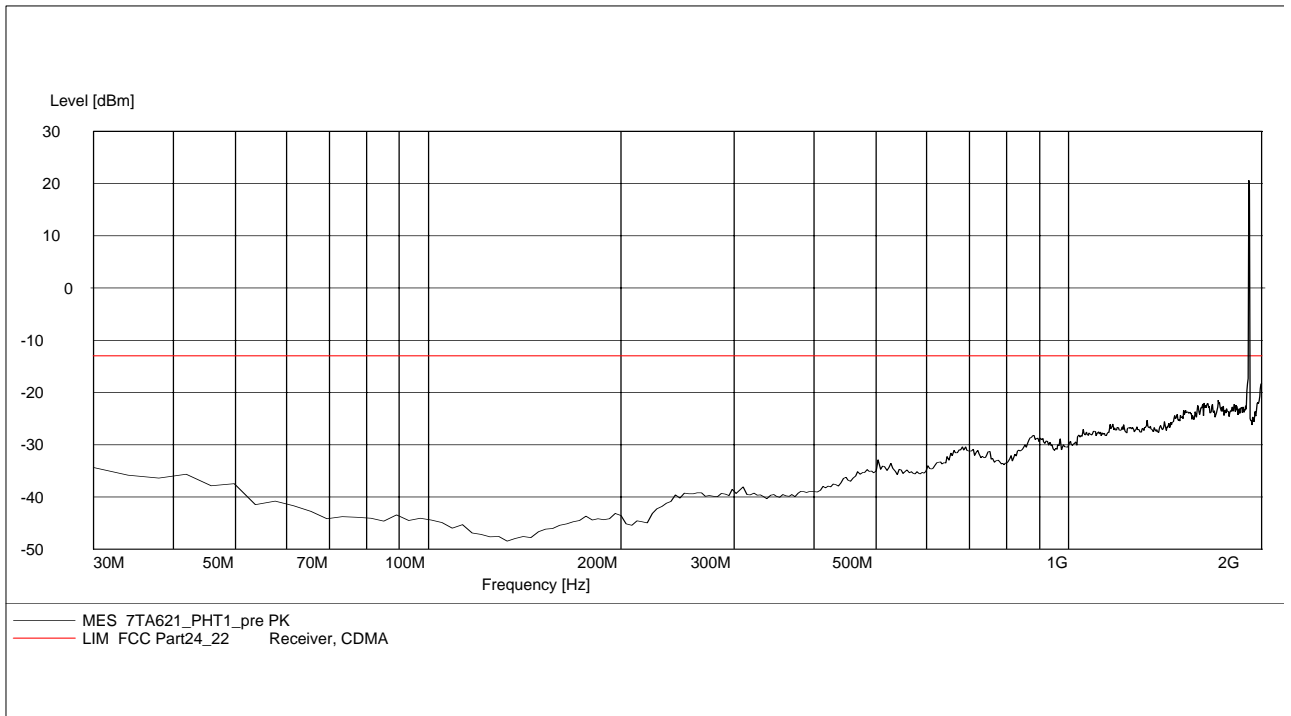
A.2.3.10 RADIATED SPURIOUS EMISSIONS-Channel 600: 30MHz – 2GHz

NOTE: peak above the limit line is the Carrier frequency @ ch-600

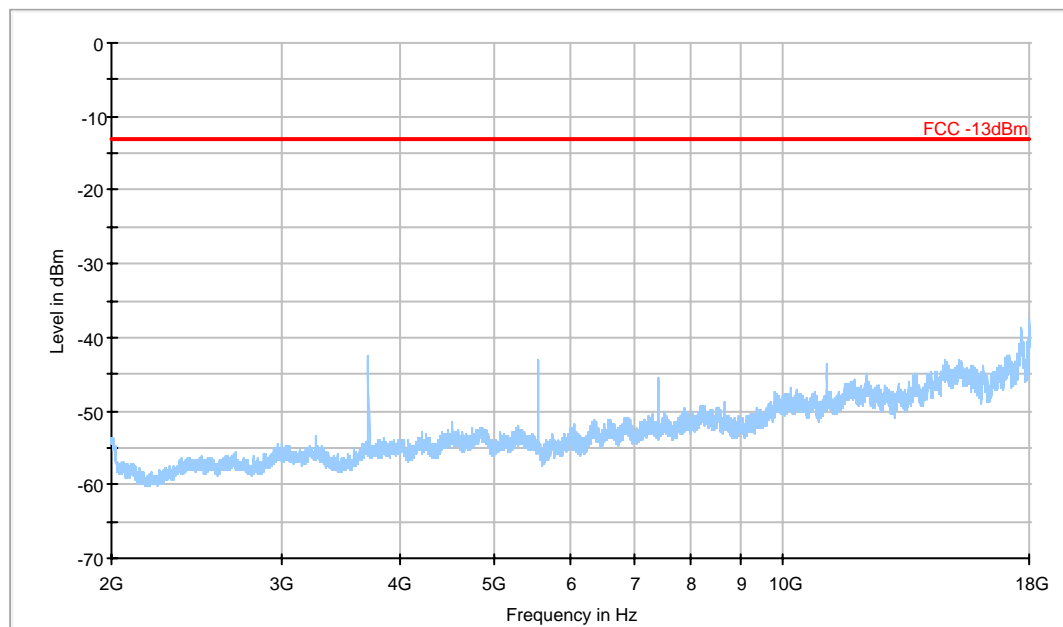


A.2.3.11 RADIATED SPURIOUS EMISSIONS-Channel 1175: 30MHz – 2GHz

NOTE: peak above the limit line is the Carrier frequency @ ch-1175

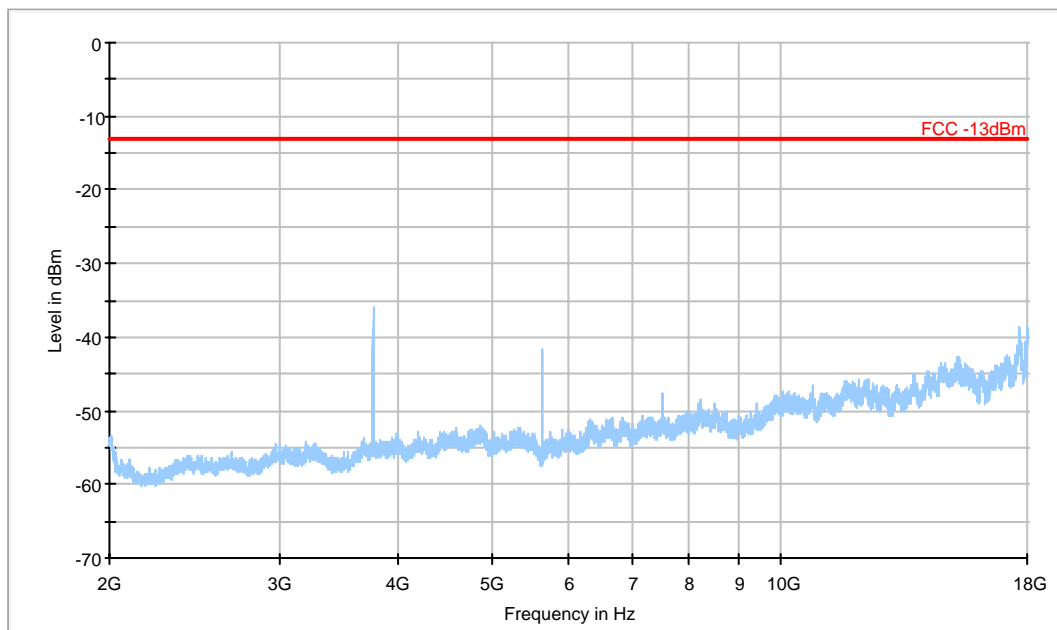


A.2.3.12 RADIATED SPURIOUS EMISSIONS-Channel 25: 2GHz – 18GHz



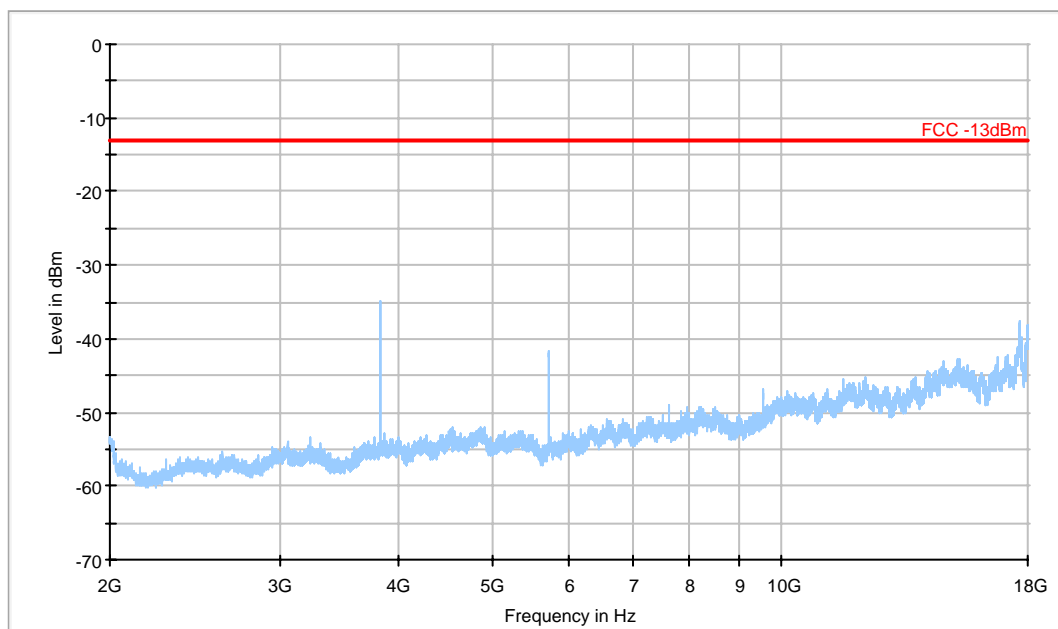
FCC -13dBm Preview Measurement Detector 1

A2.3.13 RADIATED SPURIOUS EMISSIONS-Channel 600: 2GHz – 18GHz



— FCC -13dBm — Preview Measurement Detector 1

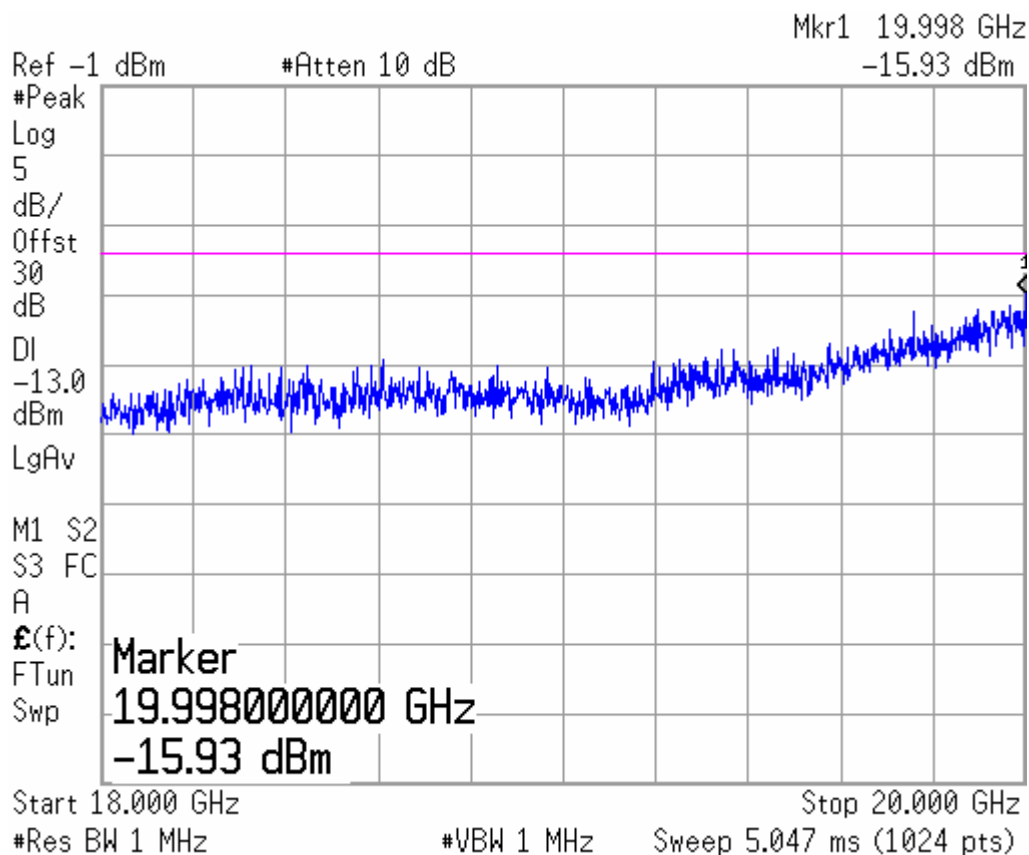
A2.3.14 RADIATED SPURIOUS EMISSIONS-Channel 1175: 2GHz – 18GHz



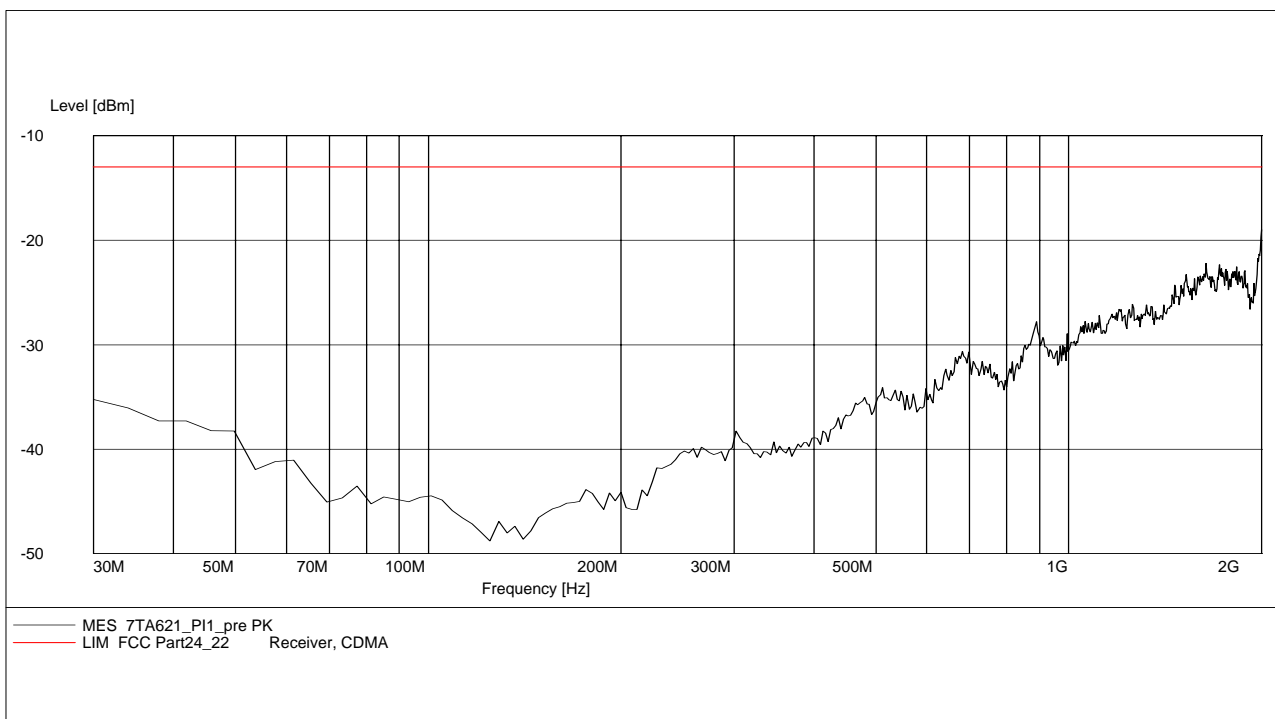
— FCC -13dBm — Preview Measurement Detector 1

A.2.3.15 Radiated spurious emission (18GHz-20GHz)

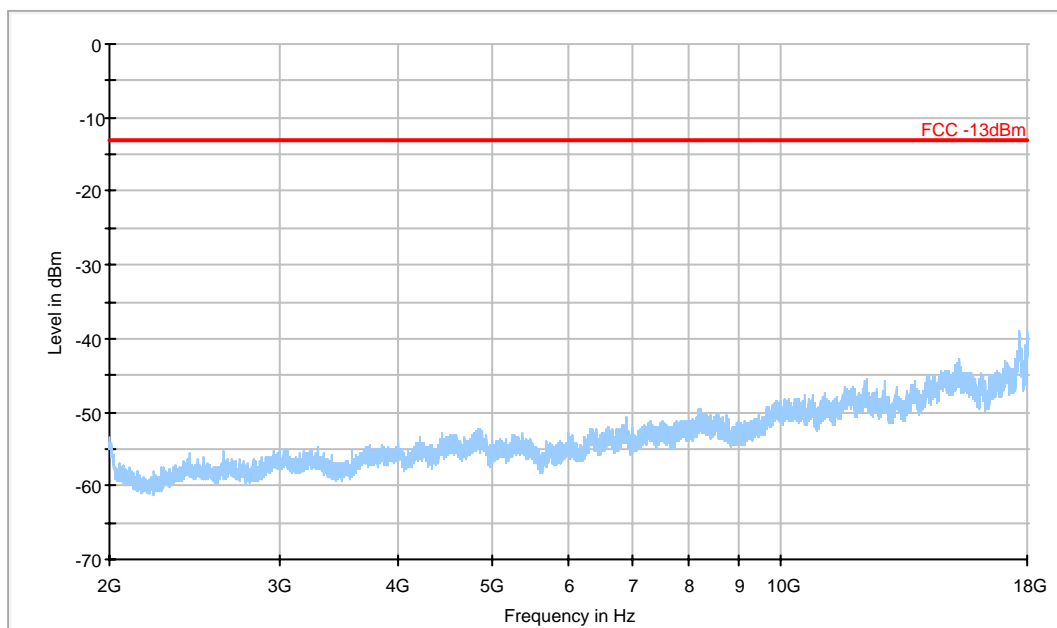
Note: This plot is valid for low, mid & high channels. It is same as the floor noise.



A.2.3.16 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 30MHz – 2GHz



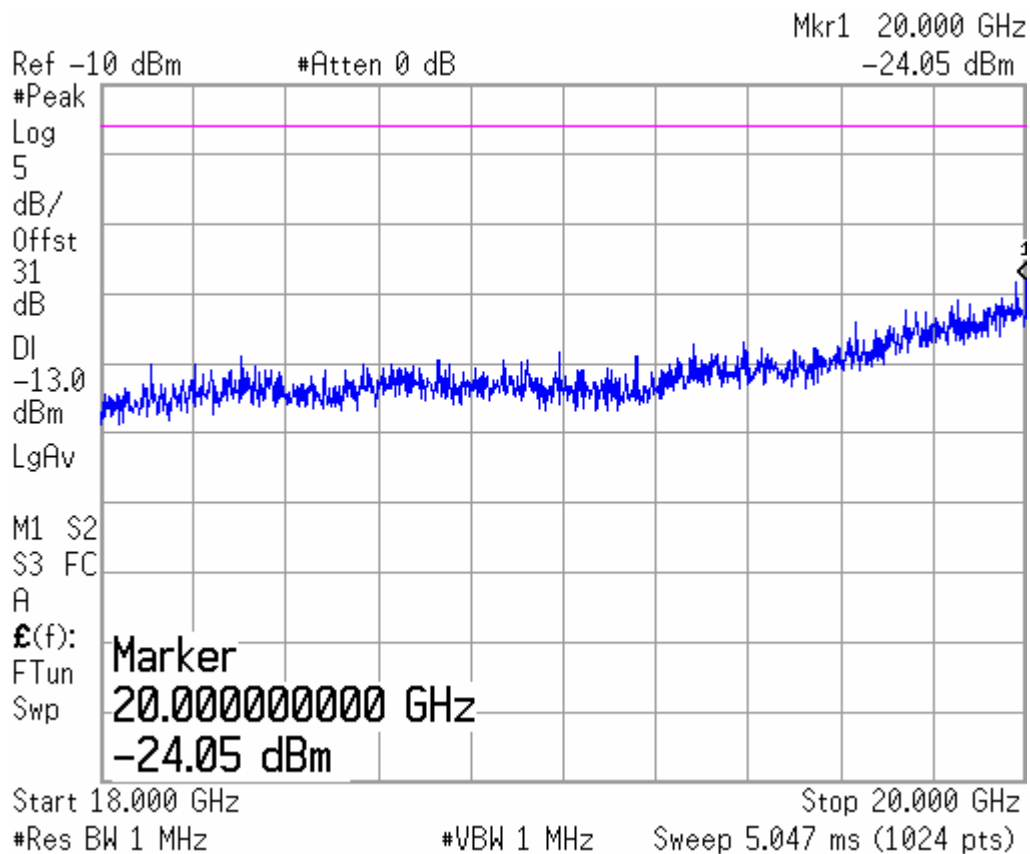
A.2.3.17 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 2GHz – 18GHz



— FCC -13dBm — Preview Measurement Detector 1

A.2.3.18 RADIATED SPURIOUS EMISSIONS-EUT in Idle Mode: 18GHz – 20GHz

Note: It is same as the floor noise.



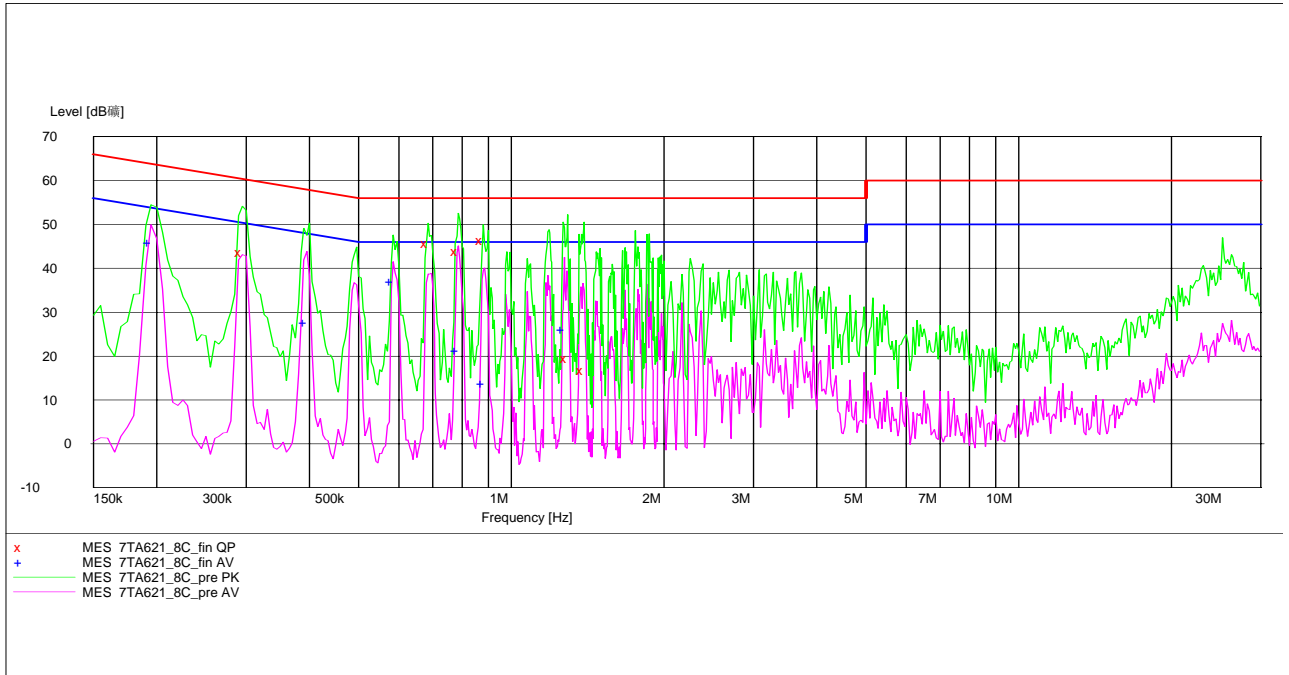
A.3 CONDUCTED EMISSION (§15.107§15.207)

The measurement procedure in ANSI C63.4-1003 is used. Conducted Emission is measured with travel charger UTC03-A.

A.3.1 Limit

Frequency of Emission (MHz)	Conducted Limit (dBμV)	
	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
CDMA**



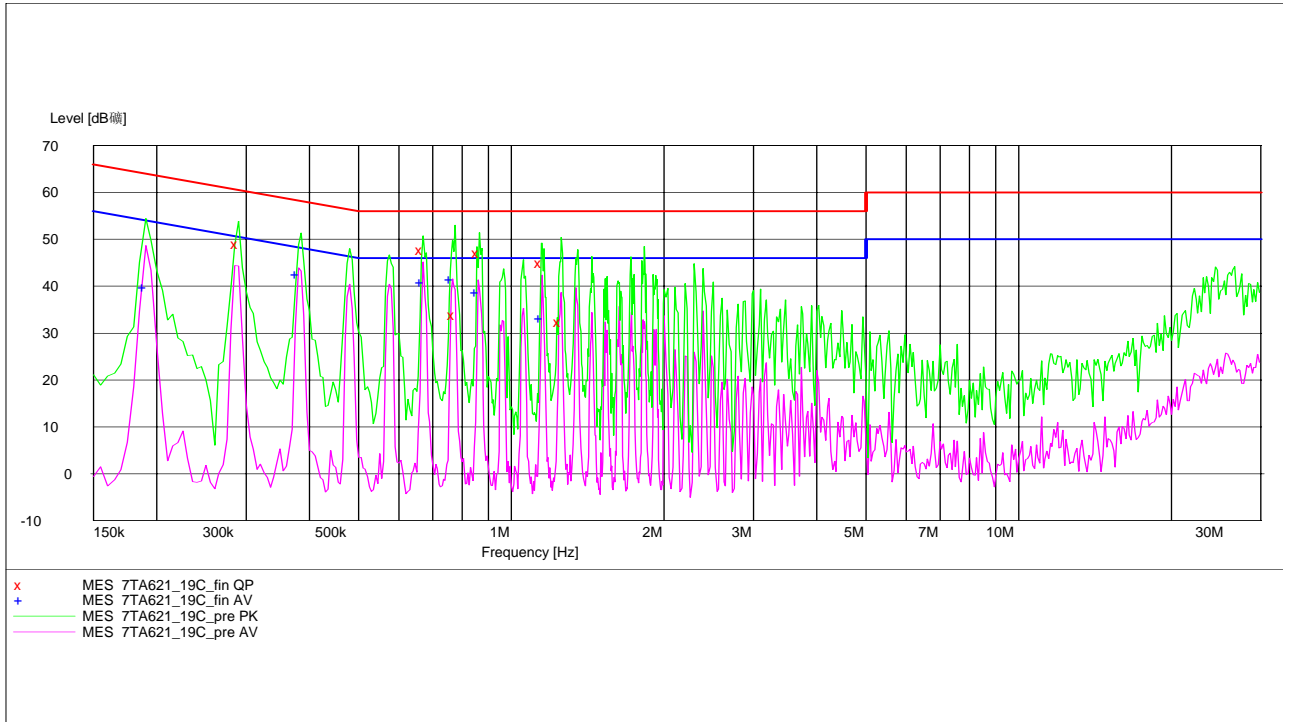
MEASUREMENT RESULT: "7TA621_8C_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV		dB	
0.295000	43.60	10.1	60	16.8	N	FLO
0.685000	45.60	10.1	56	10.4	L1	GND
0.785000	43.80	10.1	56	12.2	L1	FLO
0.880000	46.40	10.1	56	9.6	L1	GND
1.290000	19.40	10.1	56	36.6	L1	GND
1.390000	16.80	10.1	56	39.2	N	GND

MEASUREMENT RESULT: "7TA621_8C_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV		dB	
0.195000	45.90	10.1	54	7.9	L1	GND
0.395000	27.60	10.1	48	20.4	L1	GND
0.585000	37.10	10.1	46	8.9	L1	GND
0.785000	21.40	10.1	46	24.6	N	FLO
0.885000	13.70	10.1	46	32.3	L1	GND
1.270000	26.20	10.1	46	19.8	L1	GND

PCS CDMA



MEASUREMENT RESULT: "7TA621_19C_fin QP"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.290000	49.10	10.1	61	11.4	L1	FLO
0.670000	47.70	10.1	56	8.3	L1	FLO
0.775000	33.90	10.1	56	22.1	N	FLO
0.865000	47.00	10.1	56	9.0	L1	GND
1.150000	45.00	10.1	56	11.0	L1	GND
1.255000	32.40	10.1	56	23.6	L1	GND

MEASUREMENT RESULT: "7TA621_19C_fin AV"

Frequency	Level	Transd	Limit	Margin	Line	PE
MHz	dBμV	dB	dBμV	dB		
0.190000	39.90	10.1	54	14.1	N	FLO
0.380000	42.50	10.1	48	5.8	L1	FLO
0.670000	40.90	10.1	46	5.1	L1	GND
0.765000	41.40	10.1	46	4.6	L1	GND
0.860000	38.70	10.1	46	7.3	L1	GND
1.150000	33.10	10.1	46	12.9	L1	GND

A.4 FREQUENCY STABILITY (§2.1055/§24.235)

A.4.1 Method of Measurement

In order to measure the carrier frequency, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMU200 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 CMU200. CMU200 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. Remeasure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments remeasuring carrier frequency at each voltage. Pause at nominal voltage for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.

A.4.2 Measurement Limit

A.4.2.1 For Hand carried battery powered equipment

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.00025(\pm 2.5\text{ppm})$ of the center frequency.

A.4.3 Measurement results

CDMA

Frequency Error vs Voltage

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.5	11	0.013
3.7	9	0.011
4.2	10	0.012

Frequency Error vs Temperature

temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-30	15	0.018
-20	13	0.016
-10	15	0.018
0	11	0.013
10	15	0.018
20	13	0.016

**Telecommunication Metrology Center
of Ministry of Information Industry**

No. 2007TAR025

Page 26 of 52

30	14	0.017
40	13	0.016
50	13	0.016

PCS CDMA

Frequency Error vs Voltage

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.5	19	0.010
3.7	17	0.009
4.2	19	0.010

Frequency Error vs Temperature

temperature(°C)	Frequency error(Hz)	Frequency error(ppm)
-30	24	0.013
-20	20	0.011
-10	22	0.012
0	23	0.012
10	24	0.013
20	19	0.010
30	22	0.012
40	23	0.012
50	25	0.013

A.5 OCCUPIED BANDWIDTH (§2.1049(h)(i))

A.5.1 Occupied Bandwidth Results

Similar to conducted emissions; 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 USPCS frequency band. The table below lists the measured -20dBc BW (99%).

CDMA(-20dBc)

Channel	Occupied Bandwidth (-20dBc BW)(MHz)
1013	1.269
384	1.266
777	1.266

PCS 1900(-20dBc)

Channel	Occupied Bandwidth (-20dBc BW)(MHz)
25	1.272
600	1.266
1175	1.269

A.6 EMISSION BANDWIDTH (§22.917(b)/§24.238(b))

A.6.1 Emission Bandwidth Results

Similar to conducted emissions; Emission bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data.

CDMA(-26dBc)

Channel	Occupied Bandwidth (-26dBc BW)(MHz)
1013	1.349
384	1.349
777	1.359

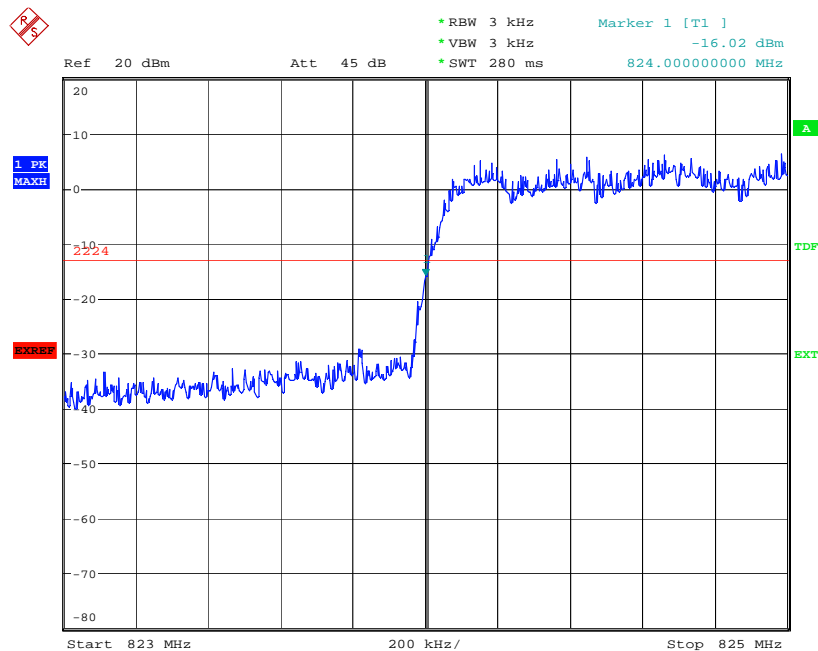
PCS 1900(-26dBc)

Channel	Occupied Bandwidth (-26dBc BW)(kHz)
25	1.381
600	1.362
1175	1.362

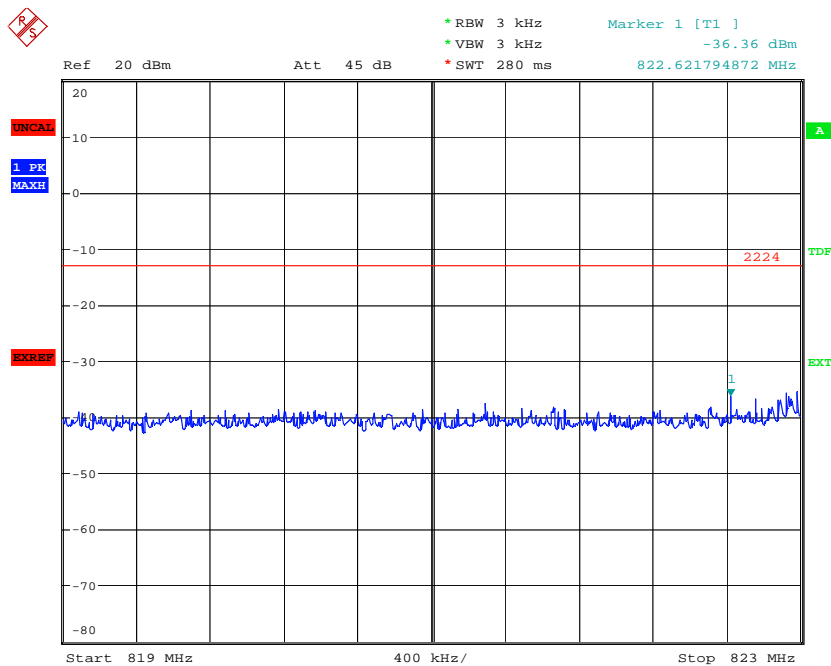
A.7 BAND EDGE COMPLIANCE (§22.917(b)/§24.238(b))

CDMA

BAND EDGE BLOCK-Channel 1013



Date: 6.NOV.2007 08:22:00



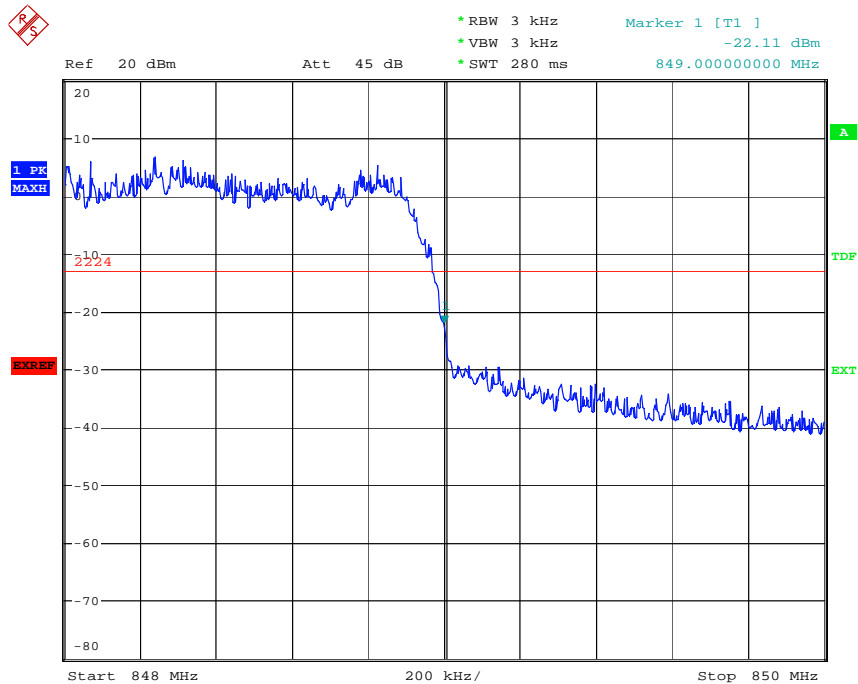
Date: 6.NOV.2007 08:22:48

Telecommunication Metrology Center of Ministry of Information Industry

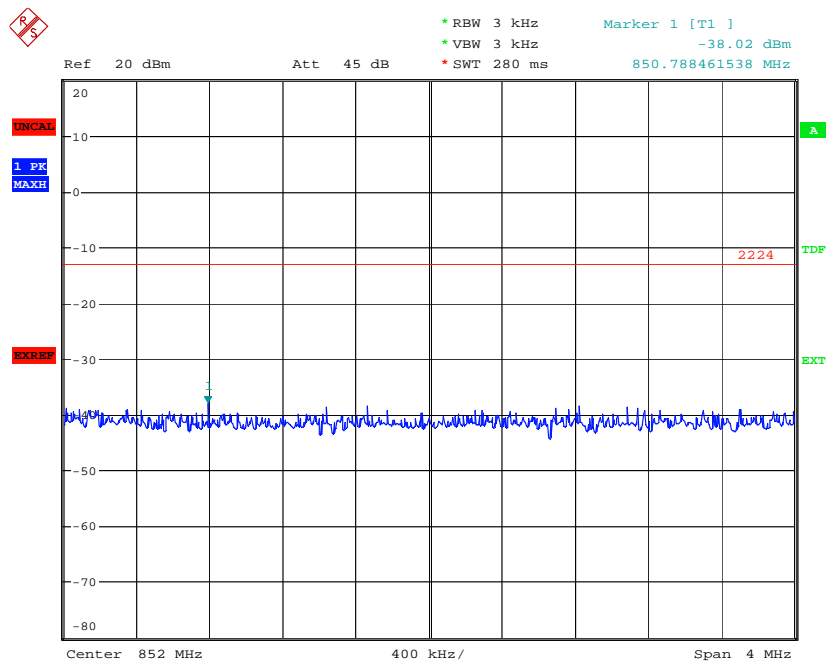
No. 2007TAR025

Page 29 of 52

BAND EDGE BLOCK-Channel 777



Date: 6.NOV.2007 08:23:38



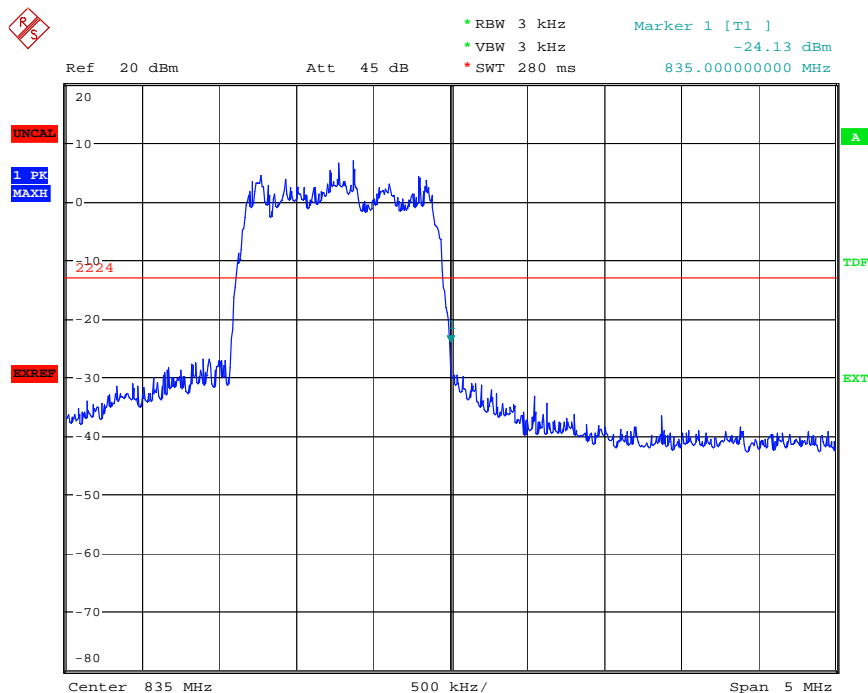
Date: 6.NOV.2007 08:24:58

Telecommunication Metrology Center of Ministry of Information Industry

No. 2007TAR025

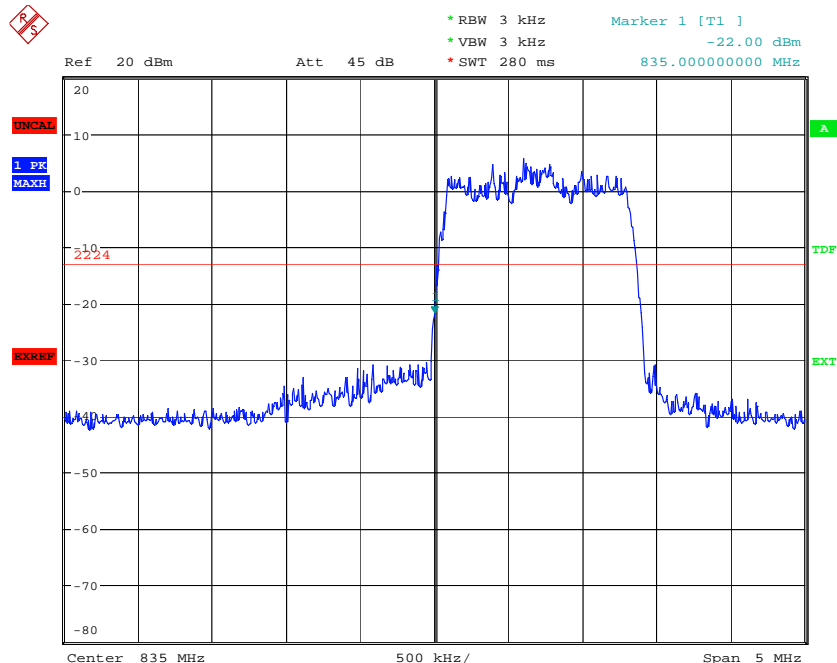
Page 30 of 52

BAND EDGE BLOCK-Channel 310



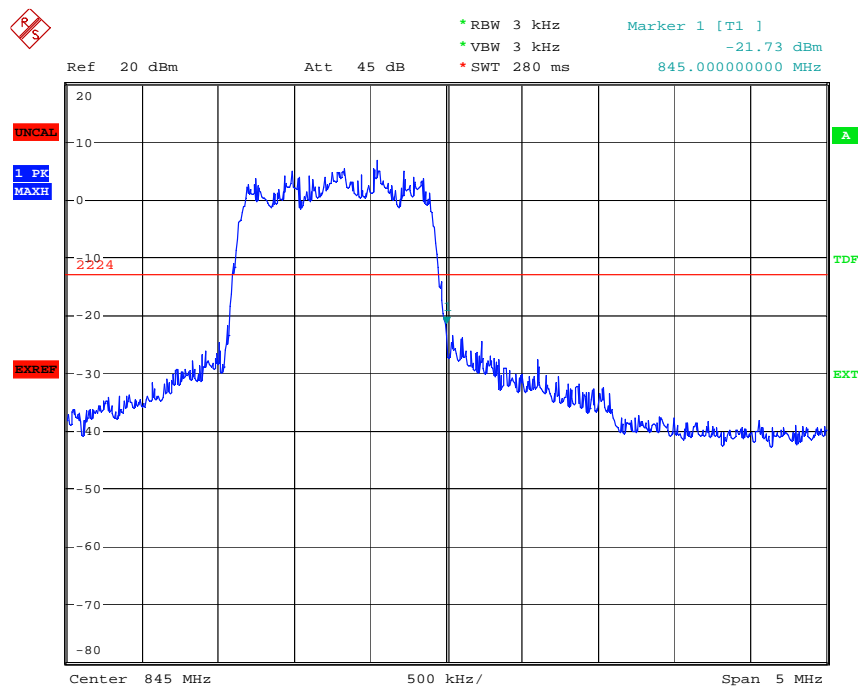
Date: 6.NOV.2007 08:25:45

BAND EDGE BLOCK-Channel 357



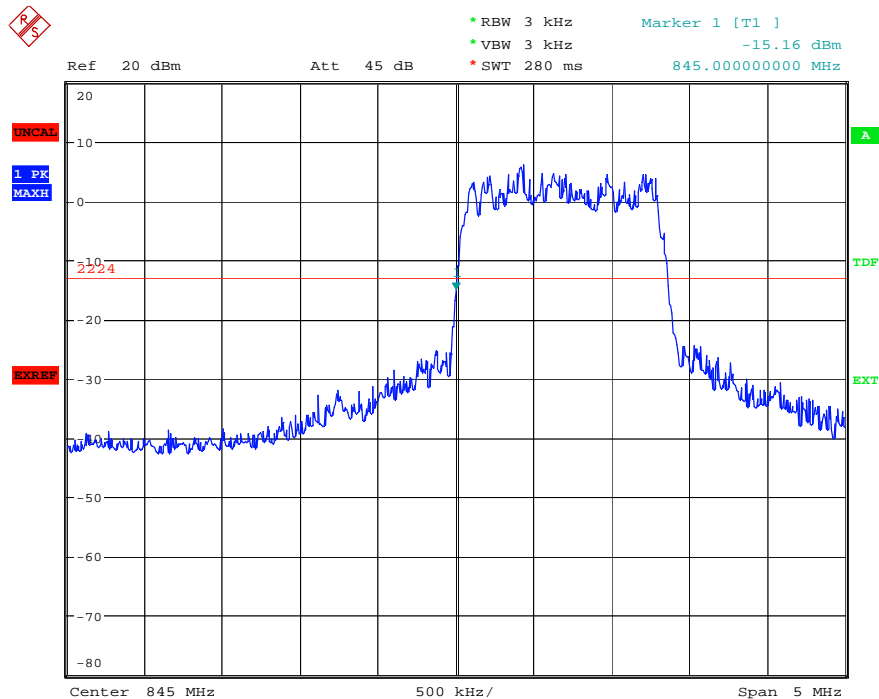
Date: 6.NOV.2007 08:26:34

BAND EDGE BLOCK-Channel 643



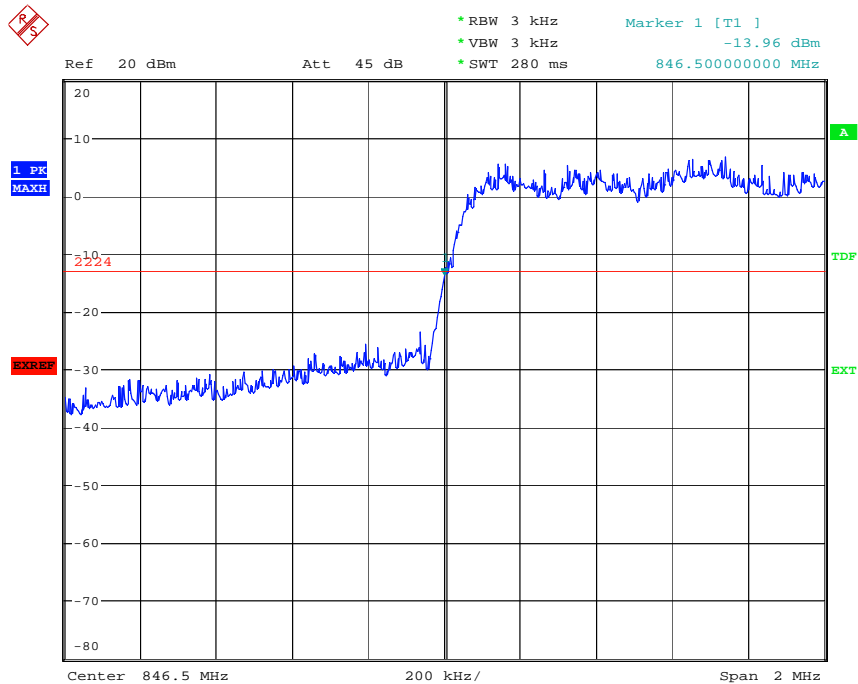
Date: 6.NOV.2007 08:27:47

BAND EDGE BLOCK-Channel 690



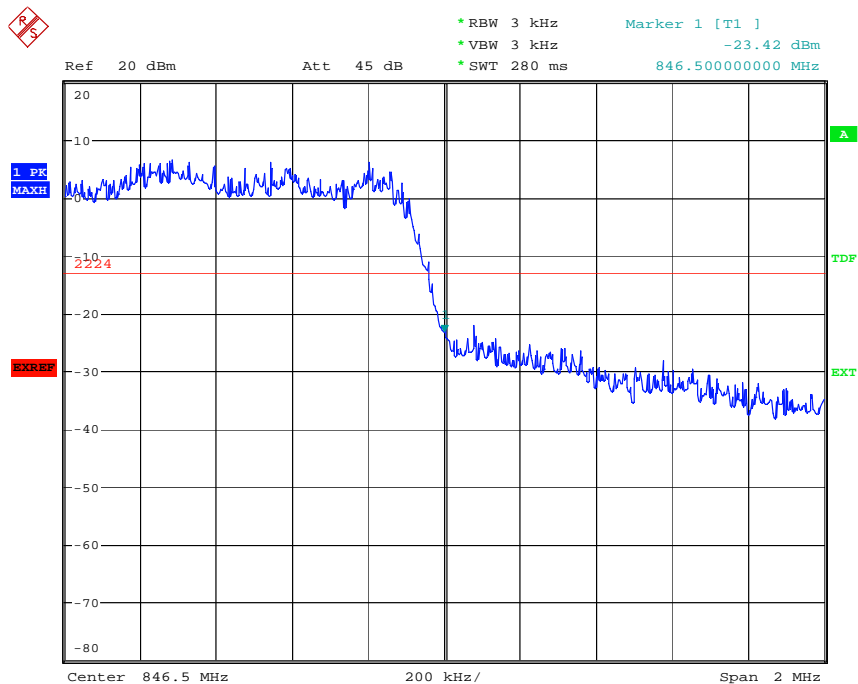
Date: 6.NOV.2007 08:28:28

BAND EDGE BLOCK-Channel 740



Date: 6.NOV.2007 08:29:37

BAND EDGE BLOCK-Channel 693



Date: 6.NOV.2007 08:30:24

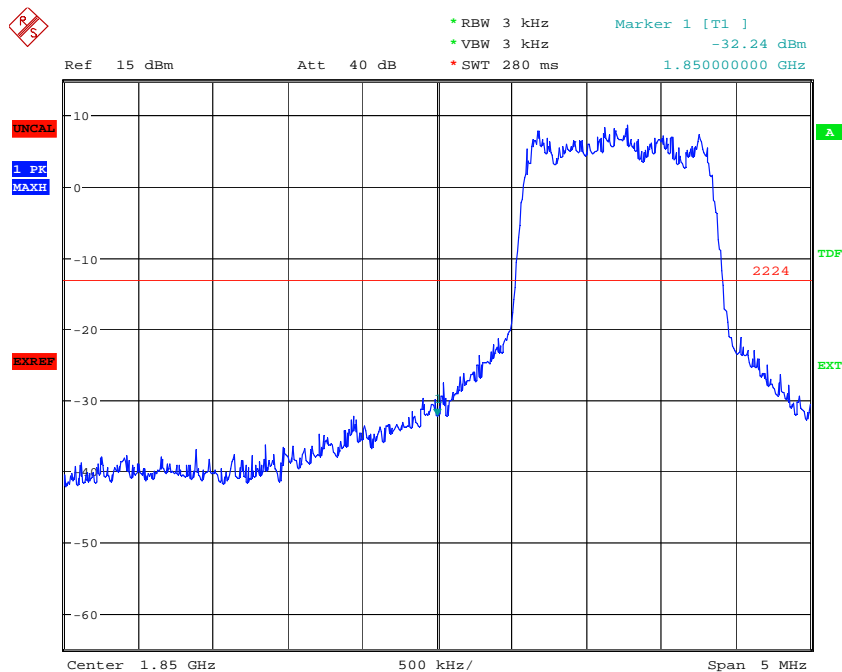
Telecommunication Metrology Center of Ministry of Information Industry

No. 2007TAR025

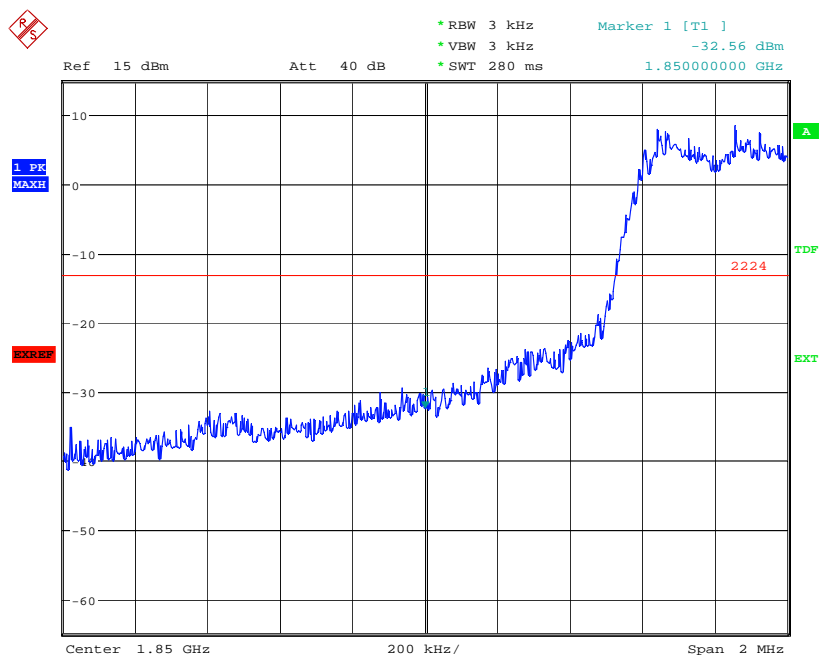
Page 33 of 52

PCS CDMA

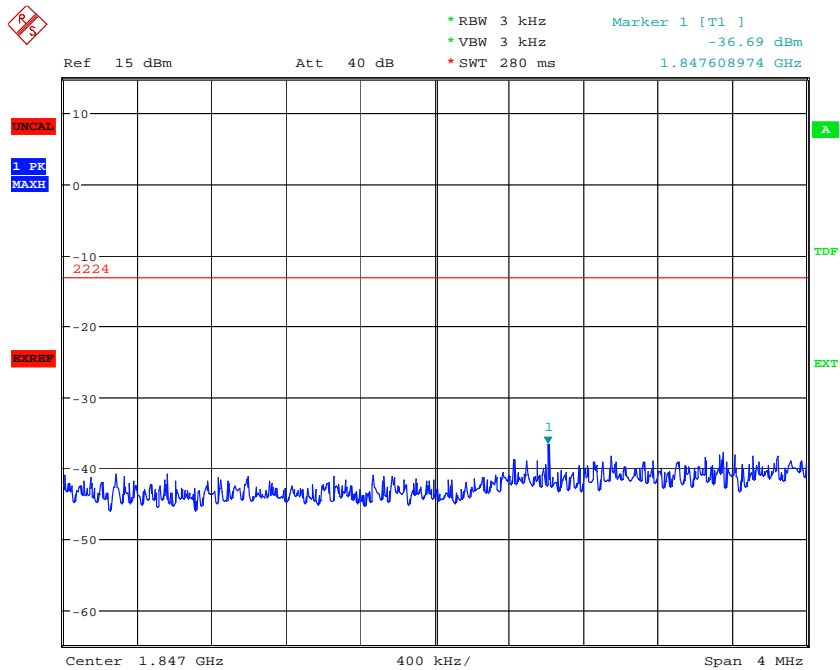
BAND EDGE BLOCK-Channel 25



Date: 7.NOV.2007 06:48:29

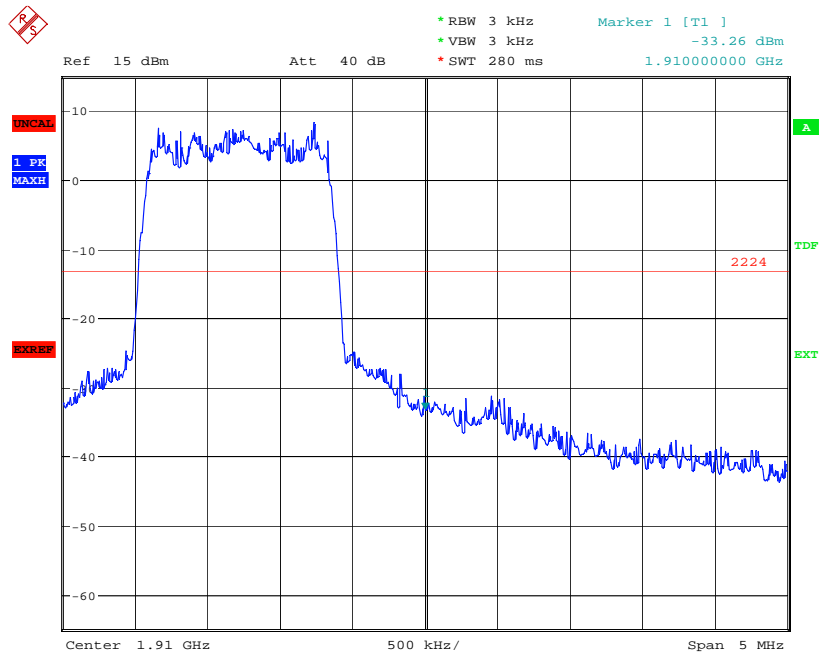


Date: 7.NOV.2007 06:49:09



Date: 7.NOV.2007 06:50:26

BAND EDGE BLOCK-Channel 1175

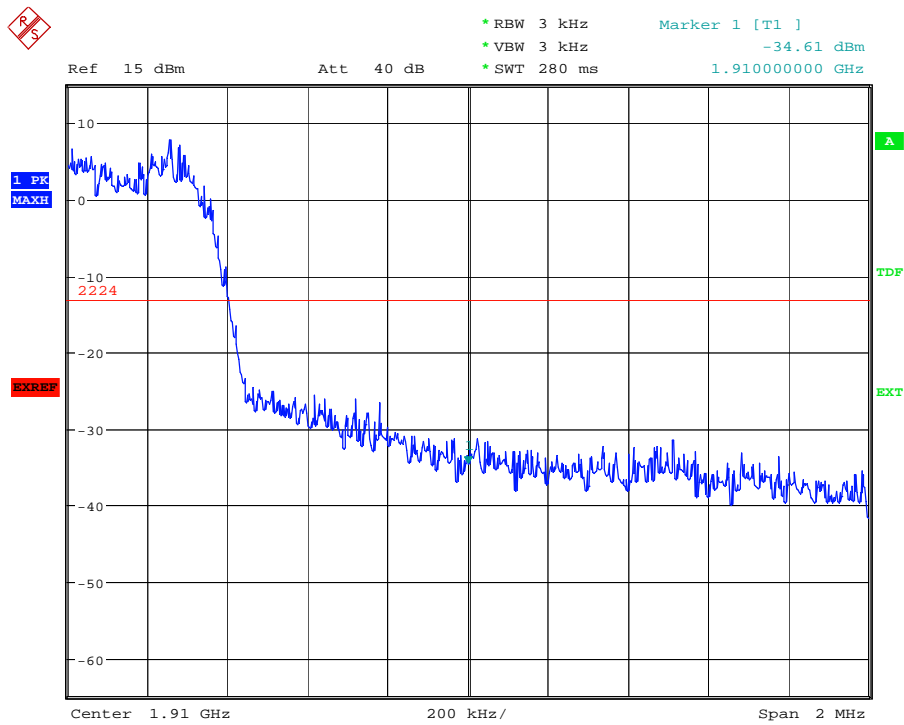


Date: 7.NOV.2007 06:51:31

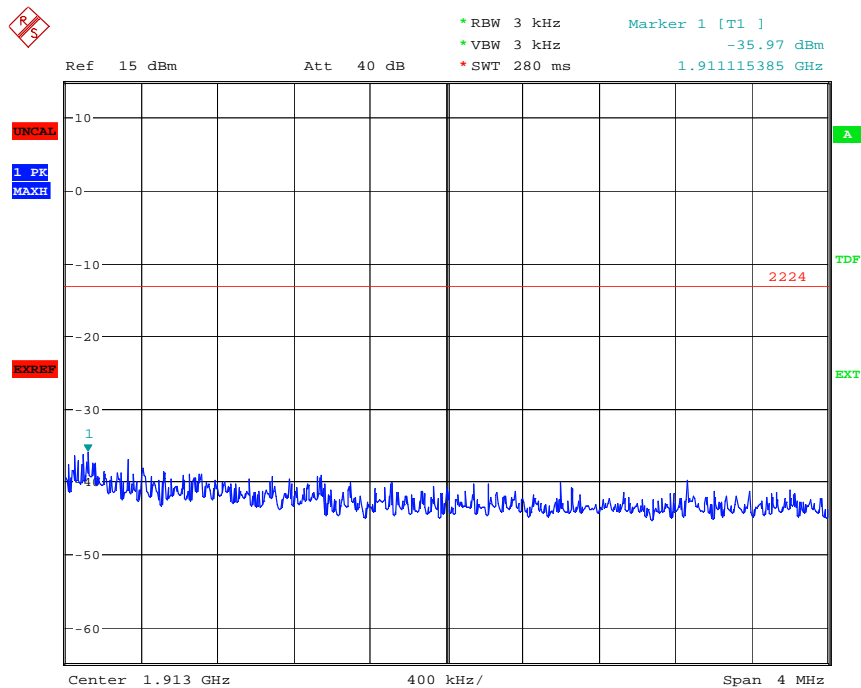
Telecommunication Metrology Center of Ministry of Information Industry

No. 2007TAR025

Page 35 of 52

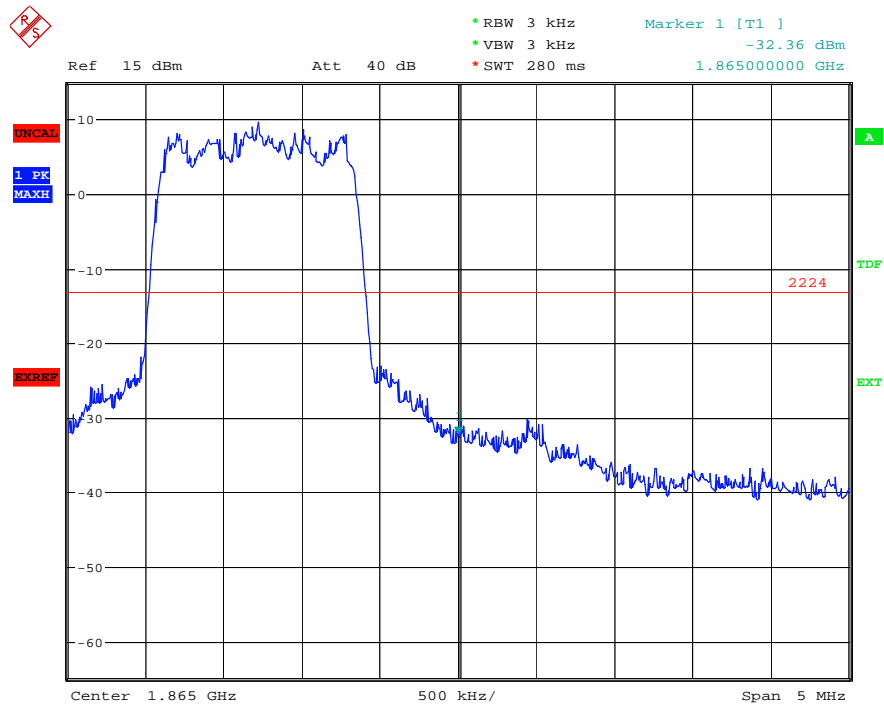


Date: 7.NOV.2007 06:51:57



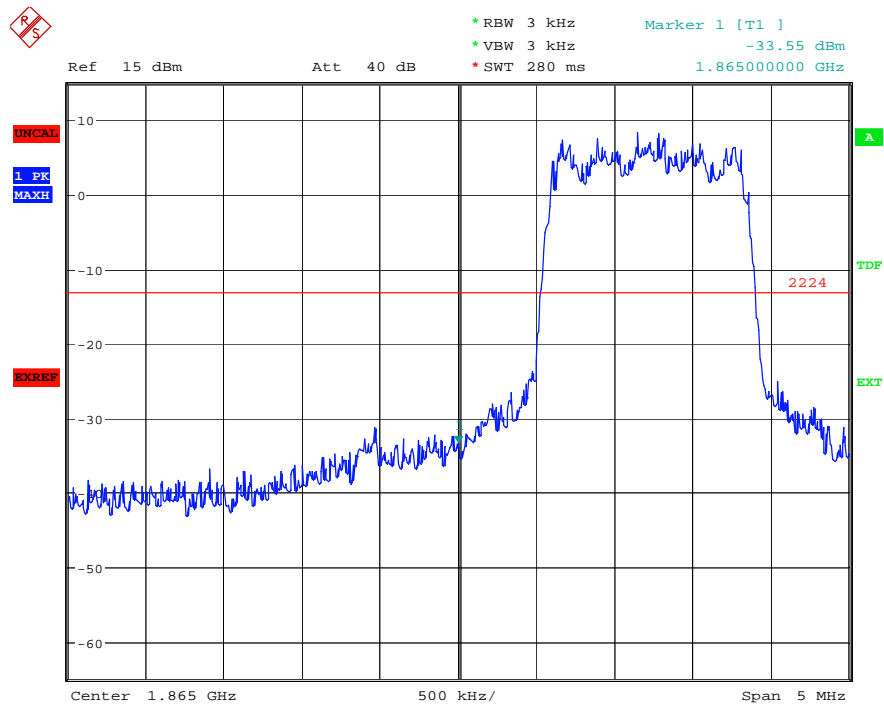
Date: 7.NOV.2007 06:52:44

BAND EDGE BLOCK-Channel 275



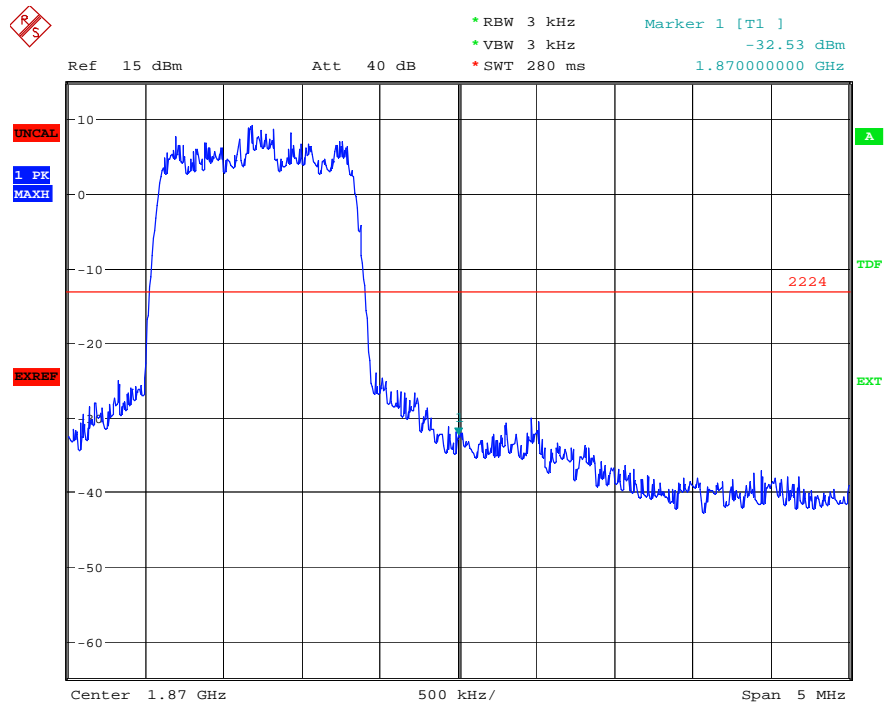
Date: 7.NOV.2007 06:54:20

BAND EDGE BLOCK-Channel 325



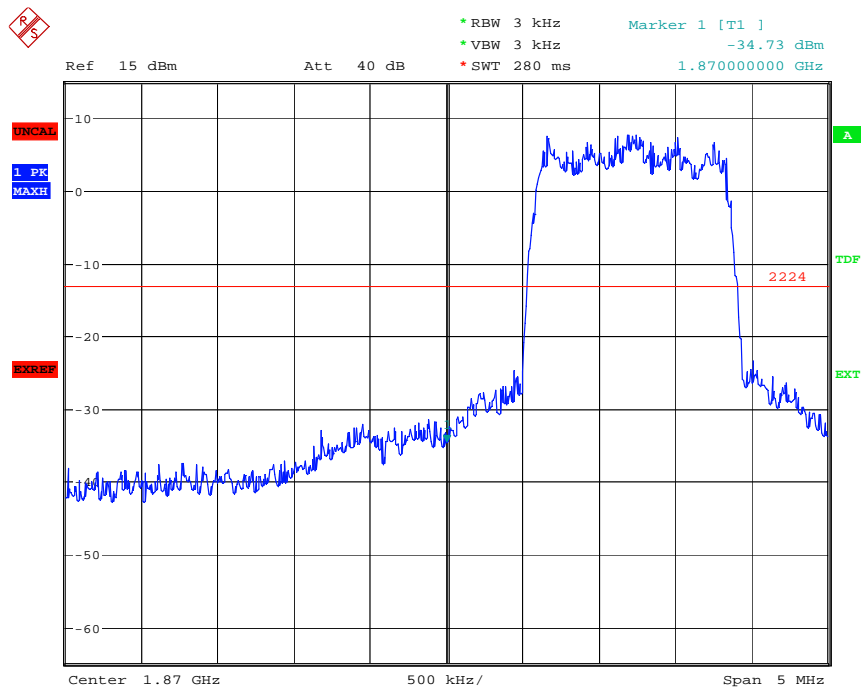
Date: 7.NOV.2007 06:55:01

BAND EDGE BLOCK-Channel 375



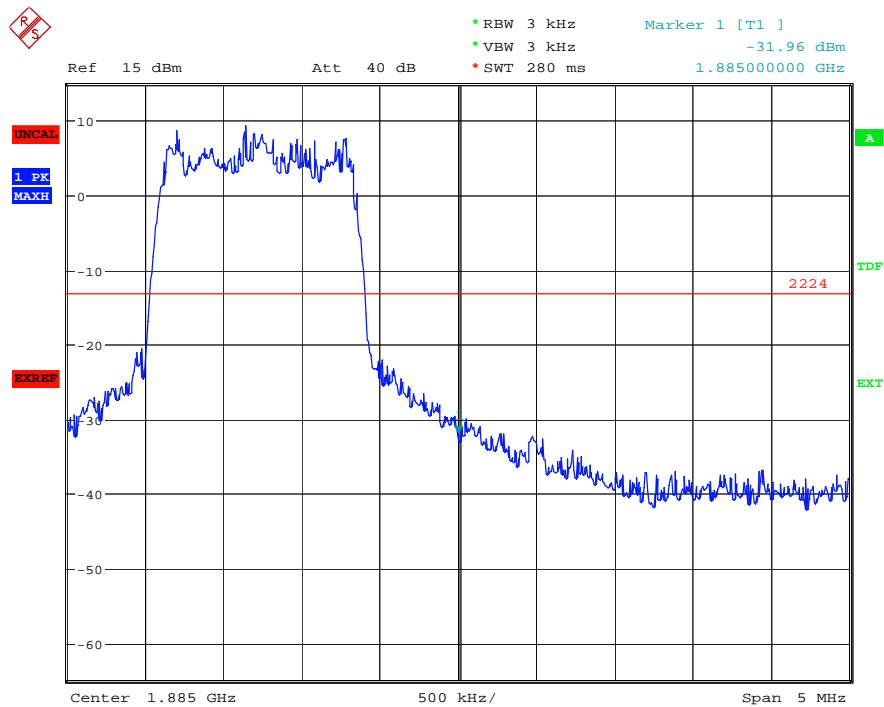
Date: 7.NOV.2007 06:55:46

BAND EDGE BLOCK-Channel 425



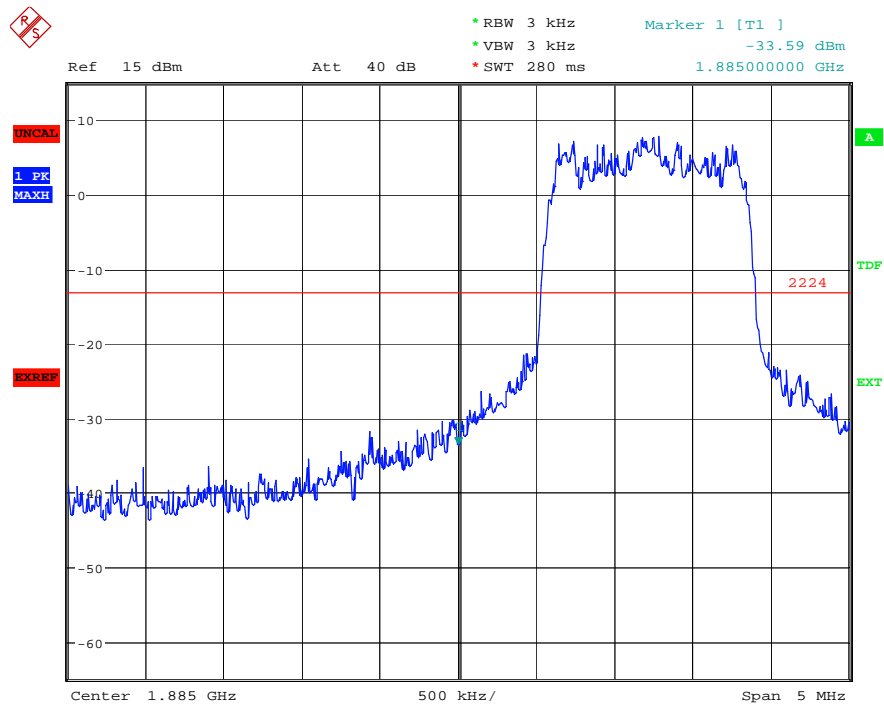
Date: 7.NOV.2007 06:56:23

BAND EDGE BLOCK-Channel 675



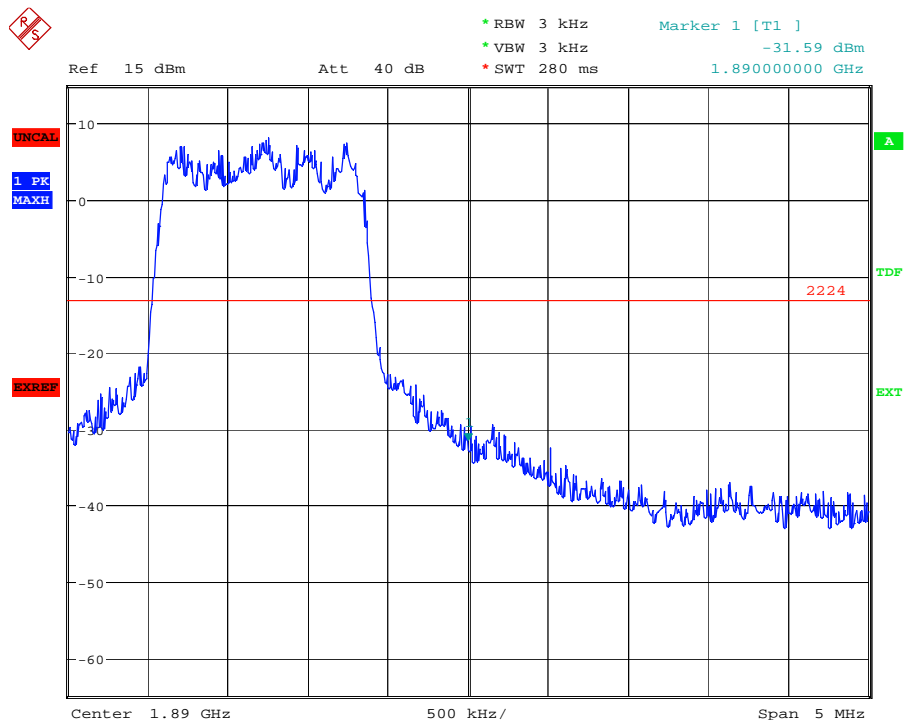
Date: 7.NOV.2007 06:57:24

BAND EDGE BLOCK-Channel 725



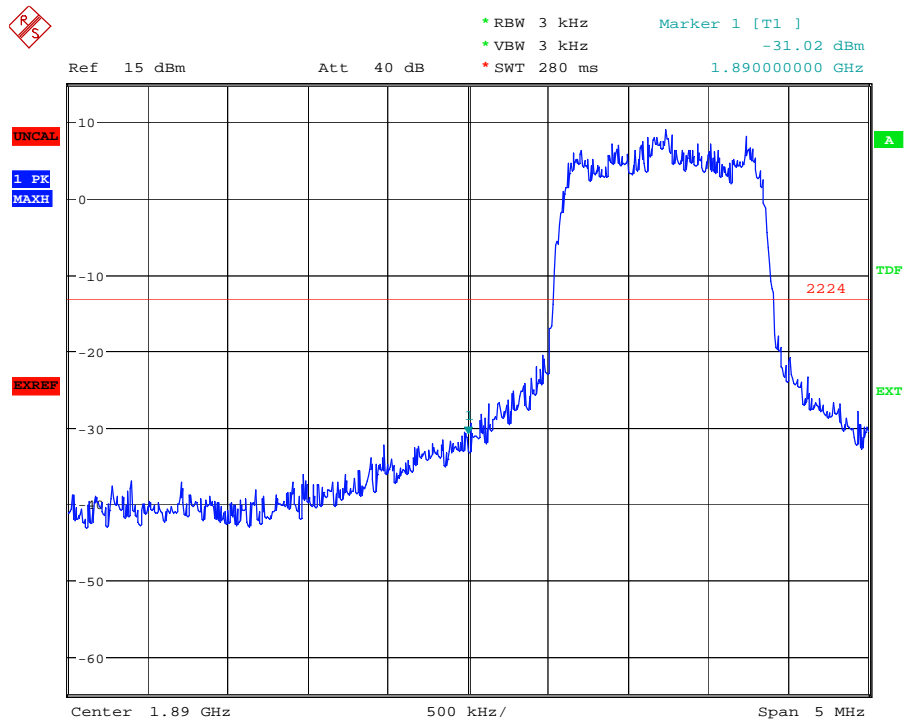
Date: 7.NOV.2007 06:58:03

BAND EDGE BLOCK-Channel 775



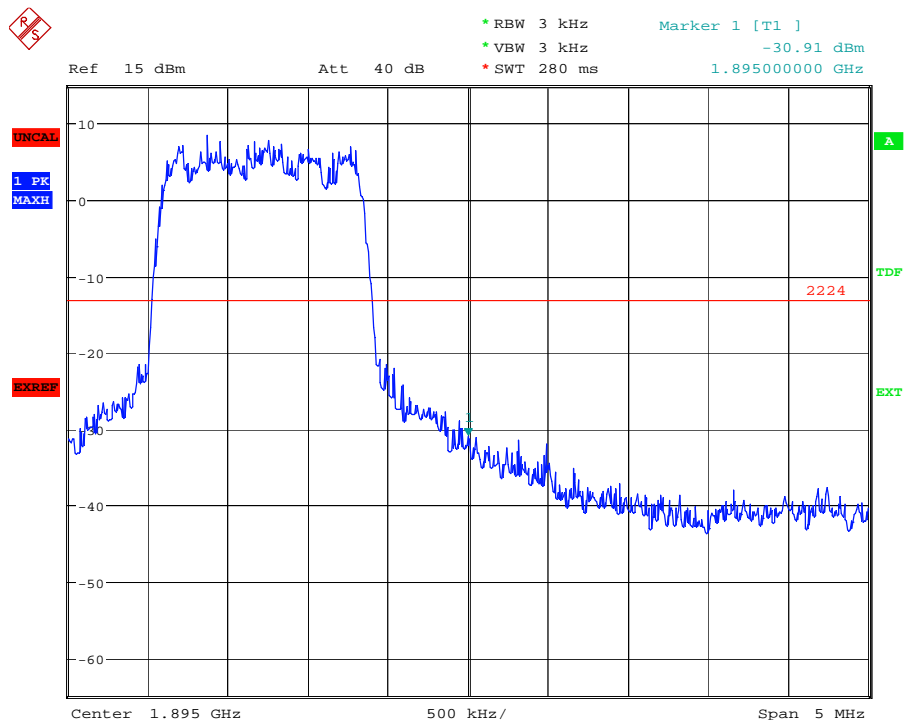
Date: 7.NOV.2007 06:58:51

BAND EDGE BLOCK-Channel 825



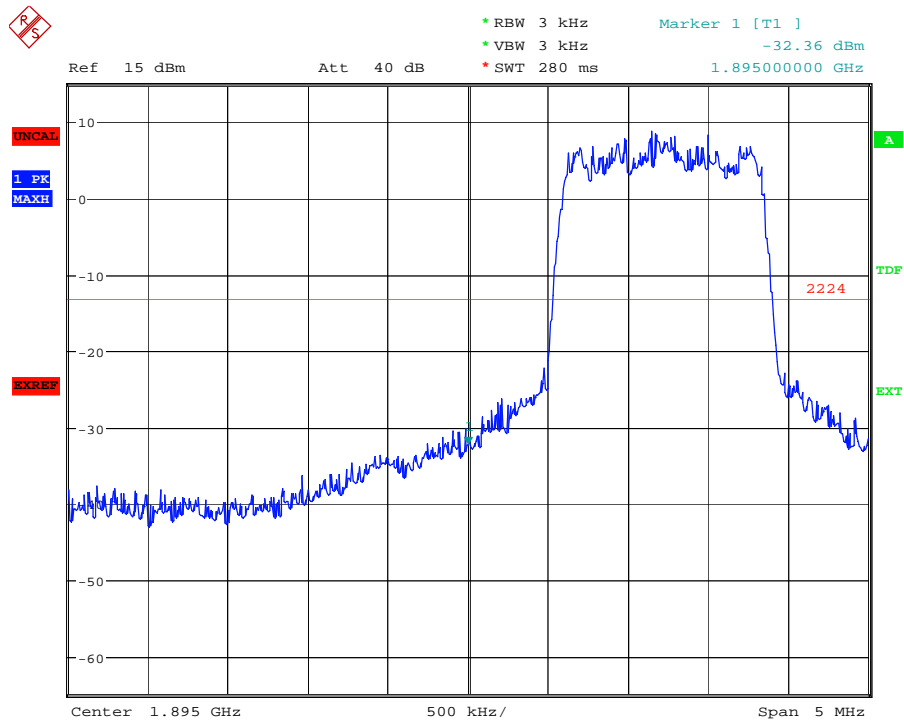
Date: 7.NOV.2007 06:59:39

BAND EDGE BLOCK-Channel 875



Date: 7.NOV.2007 07:00:26

BAND EDGE BLOCK-Channel 925



Date: 7.NOV.2007 07:02:05

A.8 CONDUCTED SPURIOUS EMISSION (§2.1057/§22.917/§24.238)

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.
2. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.

CDMA:

Channel	Frequency (MHz)
1013	824.70
384	836.52
777	848.31

PCS CDMA

Channel	Frequency (MHz)
25	1851.25
600	1877.50
1175	1908.75

A. 8.2 Measurement Limit

(a) On of band emissions. 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.

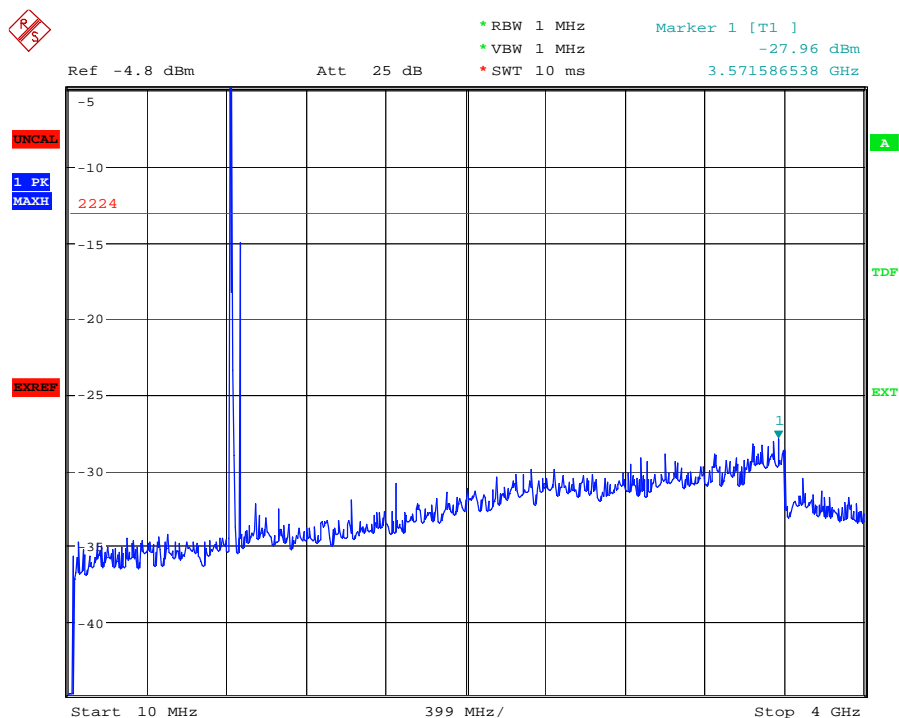
A. 8.3 Measurement result

CDMA

A.8.3.1 Channel 1013: 10MHz – 4GHz

Spurious emission limit –13dBm.

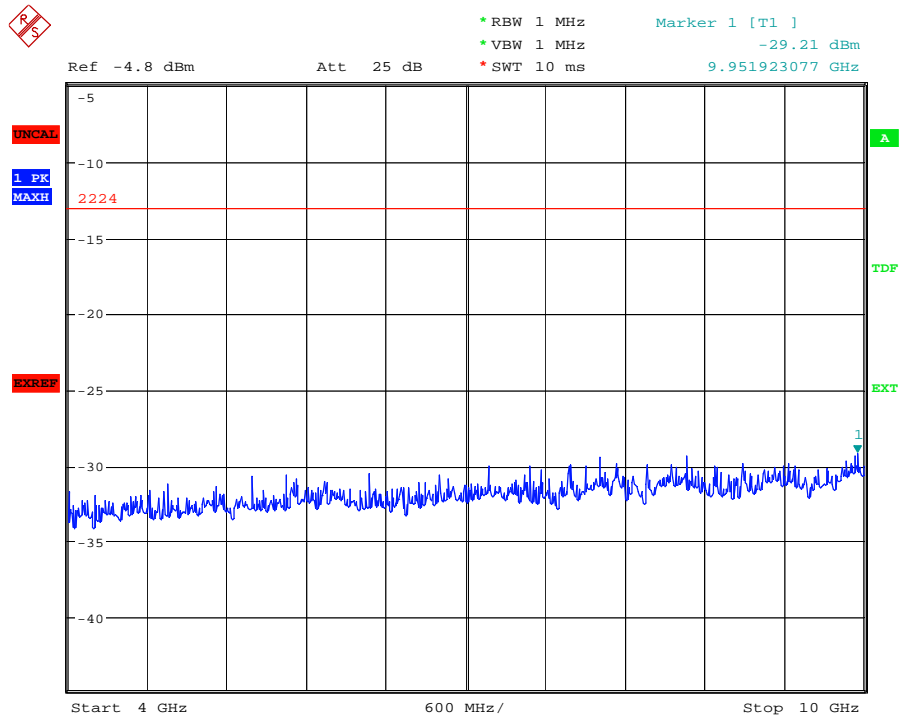
NOTE: peak above the limit line is the carrier frequency.



Date: 6.NOV.2007 08:08:31

A.8.3.2 Channel 1013: 4GHz – 10GHz

Spurious emission limit -13dBm.

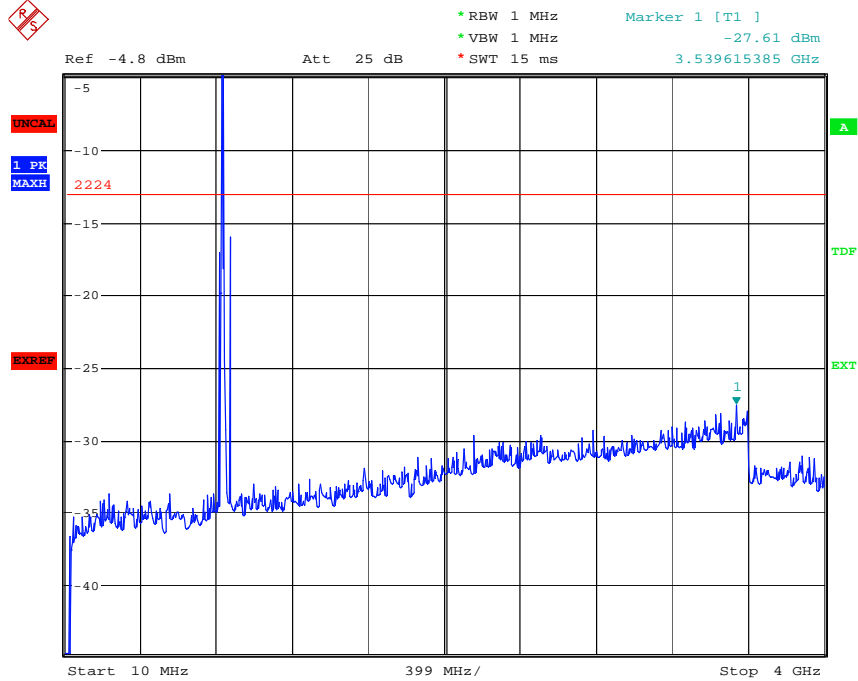


Date: 6.NOV.2007 08:09:31

A.8.3.3 Channel 384: 10MHz – 4GHz

Spurious emission limit –13dBm

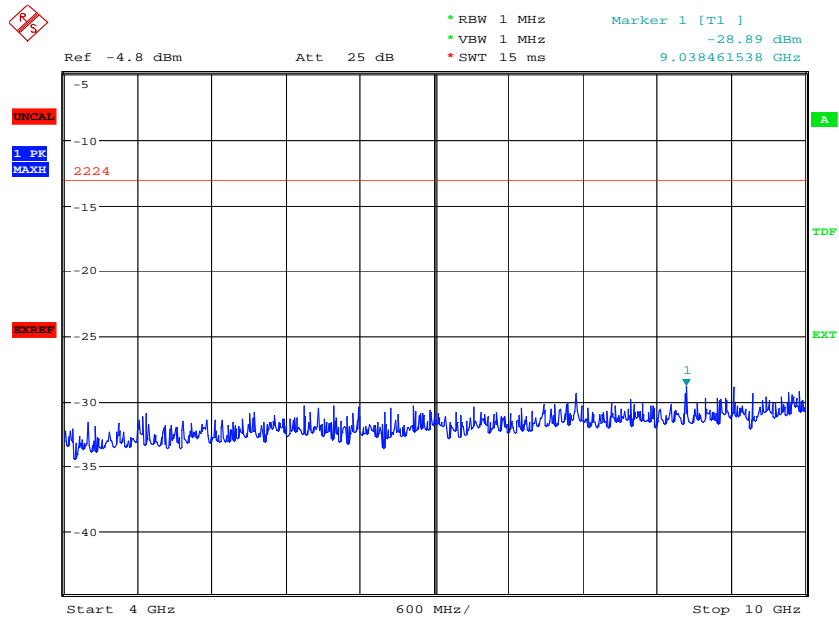
NOTE: peak above the limit line is the carrier frequency.



Date: 6.NOV.2007 08:10:45

A.8.3.4 Channel 384: 4GHz –10GHz

Spurious emission limit –13dBm

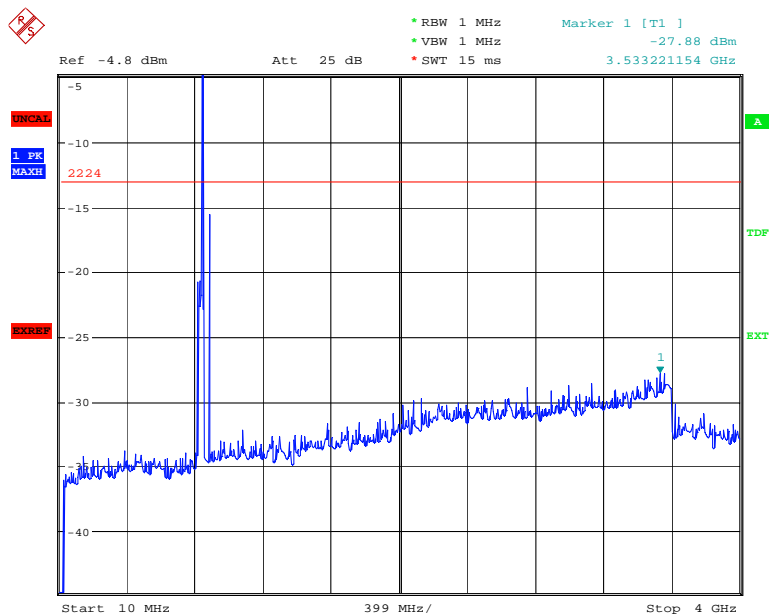


Date: 6.NOV.2007 08:11:35

A.8.3.5 Channel 777: 10MHz – 4GHz

Spurious emission limit –13dBm.

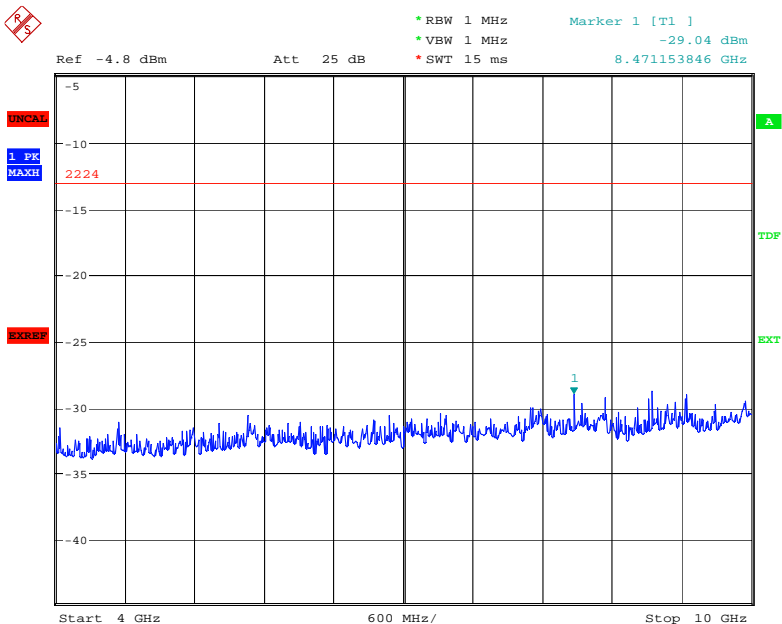
NOTE: peak above the limit line is the carrier frequency.



Date: 6.NOV.2007 08:12:43

A.8.3.6 Channel 777: 4GHz – 10GHz

Spurious emission limit –13dBm.



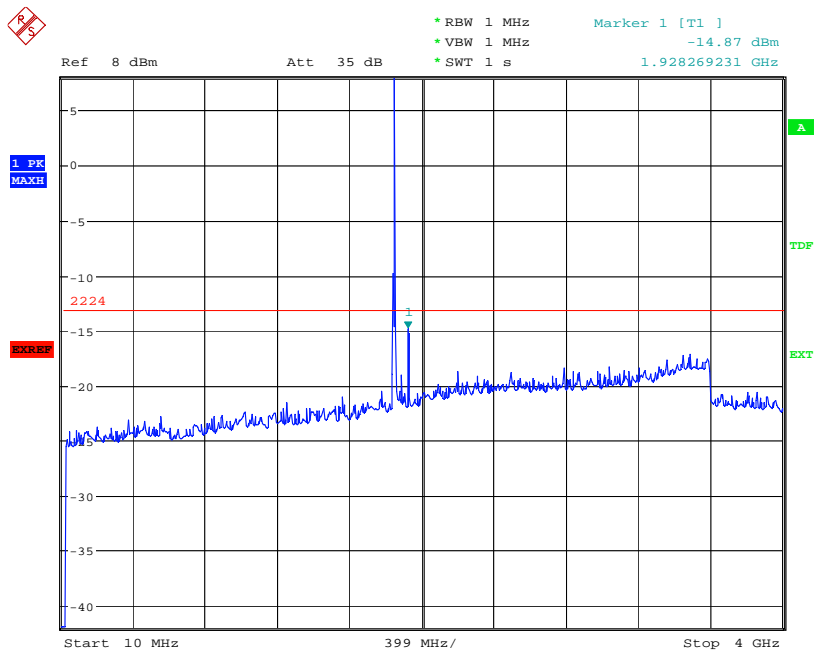
Date: 6.NOV.2007 08:13:11

PCS CDMA

A. 8.3.8 Channel 25: 10MHz – 4GHz

Spurious emission limit –13dBm.

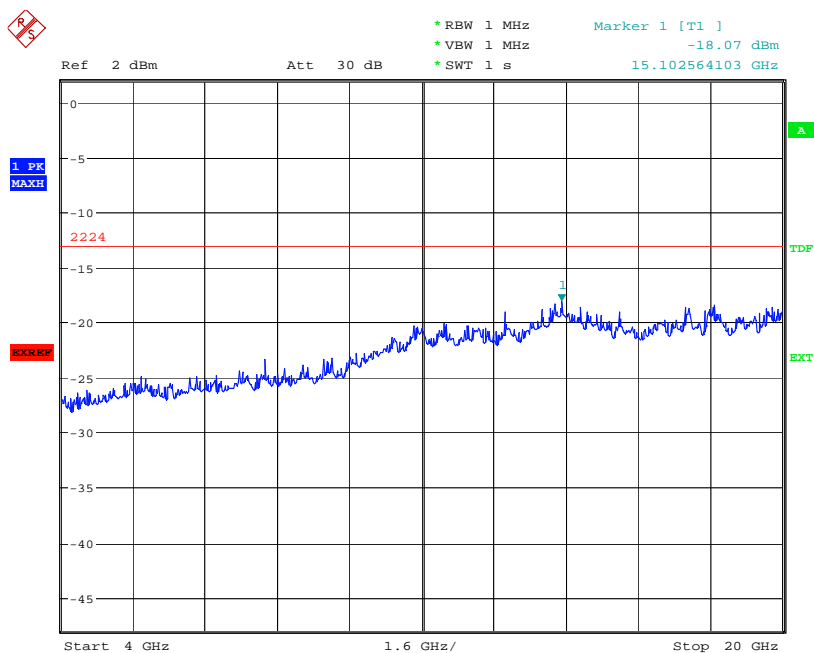
NOTE: peak above the limit line is the carrier frequency.



Date: 7.NOV.2007 07:09:23

A. 8.3.9 Channel 25: 4GHz – 20GHz

Spurious emission limit –13dBm.

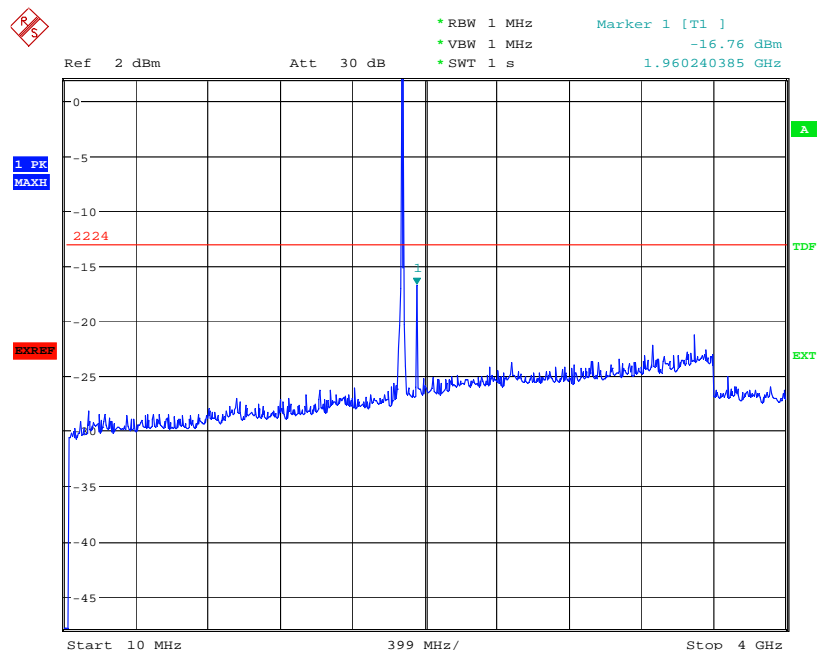


Date: 7.NOV.2007 07:10:14

A. 8.3.10 Channel 600: 10MHz – 4GHz

Spurious emission limit –13dBm

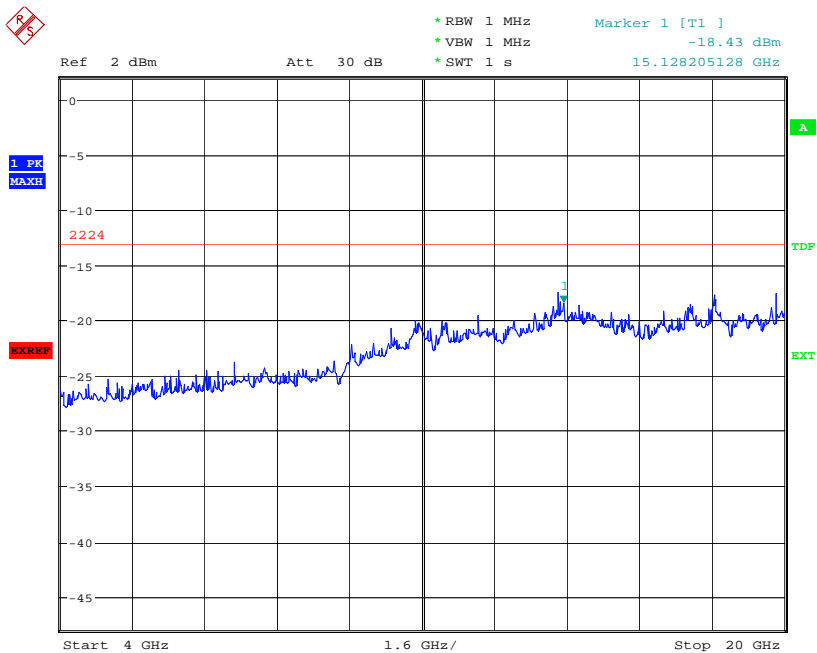
NOTE: peak above the limit line is the carrier frequency.



Date: 7.NOV.2007 07:11:40

A. 8.3.12 Channel 600: 4GHz –20GHz

Spurious emission limit –13dBm

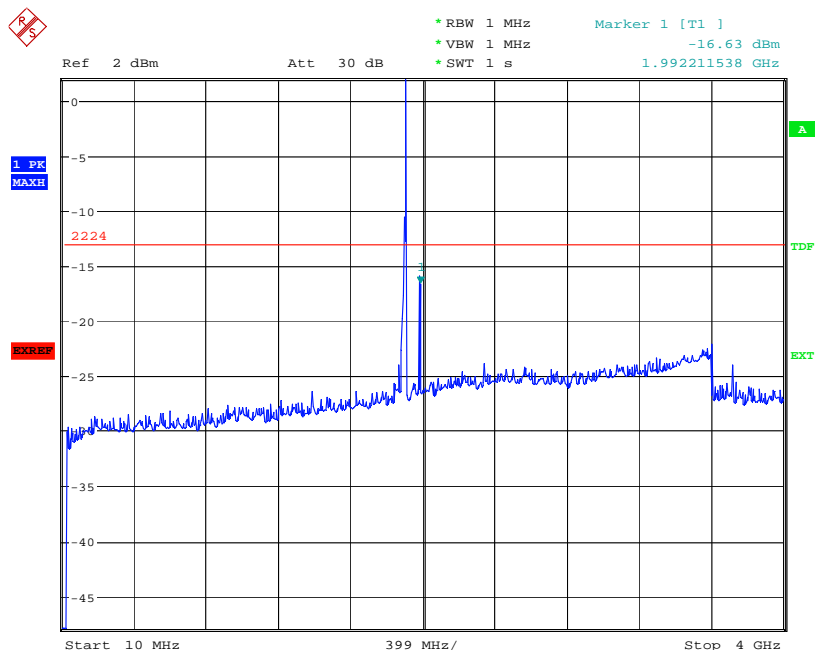


Date: 7.NOV.2007 07:11:03

A. 8.3.13 Channel 1175: 10MHz – 4GHz

Spurious emission limit –13dBm.

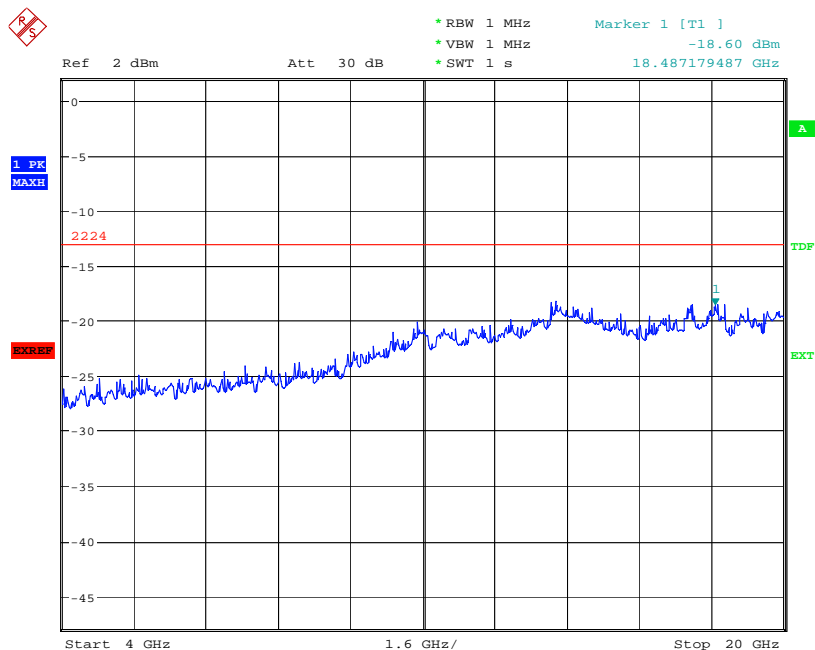
NOTE: peak above the limit line is the carrier frequency.



Date: 7.NOV.2007 07:12:30

A. 8.3.14 Channel 1175: 4GHz – 20GHz

Spurious emission limit –13dBm.



Date: 7.NOV.2007 07:13:09

ANNEX B PHOTOGRAPHS OF EUT

External Photo



Mobile Phone



Mobile Phone



Charger (AC/DC Adapter)



Label Charger

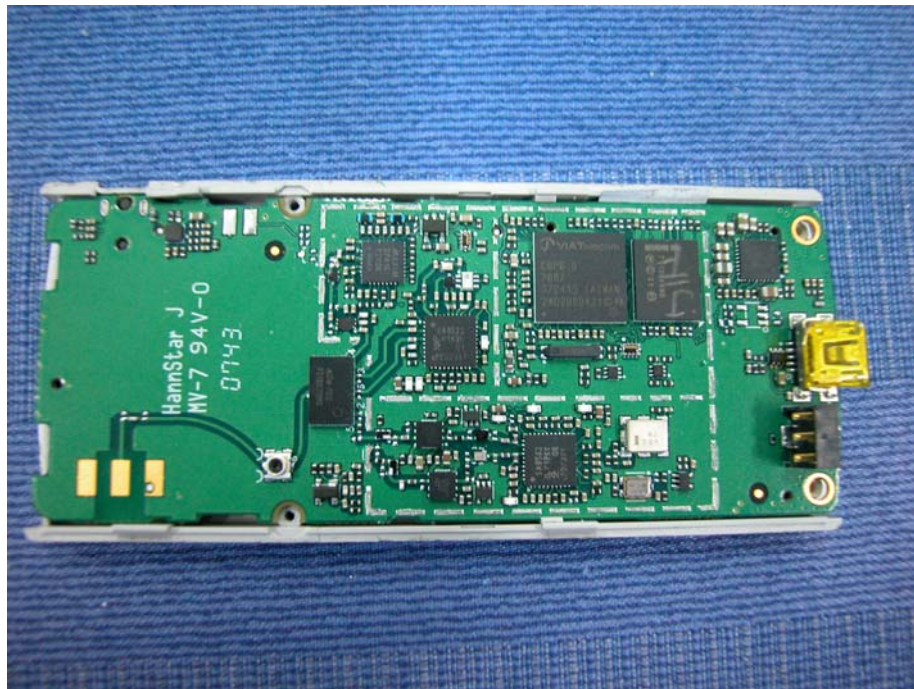
Internal Photo



Mobile phone Disassembly



Mobile phone Disassembly

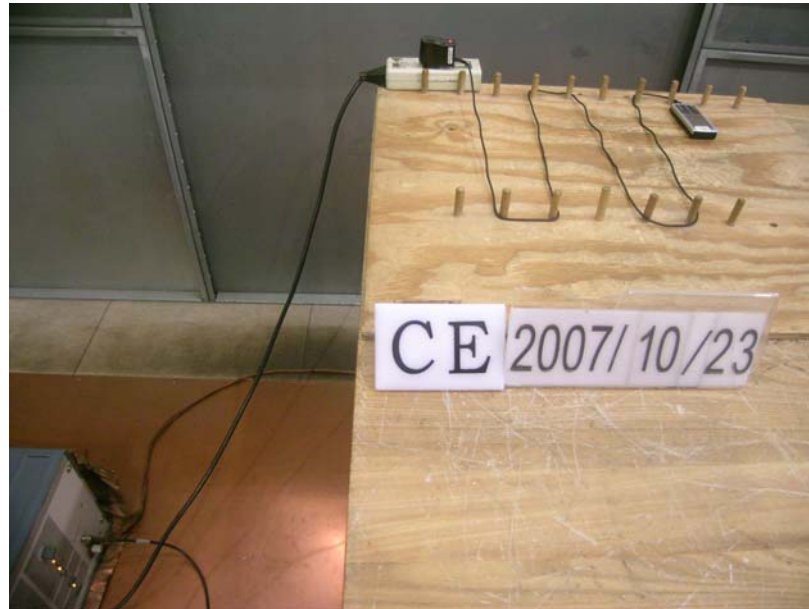


Mobile phone Disassembly



Mobile phone Disassembly

ANNEX C TEST LAYOUT



Pic1 Conducted Emission



Pic2 Radiated Spurious Emission

END OF REPORT BODY