Annex II: RF Power Output Radiated

Test report reference: 4_CHI_0202_GSM_FCCa

Date: 23.09.2002

1. Measurement Results

1.1 RF Power Output

Standard FCC Part 24,Subpart E, 10-01-98

The test was performed according to: FCC §2.1046 10-01-1998

1.2 Test Description

1) The mobile station was placed inside an anechoic chamber. Refer to chapter "Setup Drawings" of the test report. The mobile station was coupled via a signalling antenna to the R&S CMD55 Digital Communication Tester which was located outside the chamber via coaxial cable.

2) A speech call was established on a Traffic Channel (TCH) between the mobile station and the base station simulator (R&S CMD55 Digital Communication Tester).
Important Settings:
- Discontinuous Transmission: OFF
- Modulation Signal: PSR16-1 (Pseudo Random Sequence)
- Output Power: Varied during measurements from maximum to minimum power(0-15)
- Channel : Varied during measurements
(lowest channel: 512; middle channel:649: highest channel: 810)

3) Important Analyser Settings
- [Resolution Bandwidth / Video Bandwidth]:
  [1 MHz / 3 MHz] in the PCS-Band,
- Sweep Time: Auto
- Detector: Max. peak

4) The measurements were performed in 4 steps:
1. Search for the position of the EUT which gives the maximum RF power output on the middle channel
2. Measuring of the output power on this position for all power levels (0-15). This gives the output power uncorrected value.
3. Substitution measurement on maximum power level (0) and calculation of the correction value.
4. Correct the results of step 2 with the correction value to obtain the EIRP. The EIRP is equal to the substituted output power.
5. Steps 1-4 are repeated for low and high channel

1.3 Test Requirements / Limits

§2.1046 Measurements Required: RF Power Output
(a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in § 2.1033(c)(8). The electrical characteristics of the output terminals when this test is made shall be stated.
§24.232 Power and antenna height limits
(b) Mobile/portable stations are limited to 2 watts e.i.r.p peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.
(c) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage. The measurement results shall be properly adjusted for any instrument limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement for the emission in question over the full bandwidth of the channel.

1.4 Test Protocol

Temperature: 26 °C
Air Pressure: 1016 hPa
Humidity: 30 %

Op. Mode	**Setup**	**Port**
TCH 512	setup 1	enclosure

Power Control Level	**Output power Nominal (dBm)**	**Uncorrected Output power (dBm)**	**Correction value (dB)**	**EIRP (dBm)**	**Measured Difference (dB)**
0	30	-24,2	55,4	31,2	1,2
1	28	-25,5	55,4	29,9	1,9
2	26	-27,5	55,4	27,9	1,9
3	24	-29,5	55,4	25,9	1,9
4	22	-31,4	55,4	24	2
5	20	-33,0	55,4	22,4	2,4
6	18	-34,8	55,4	20,6	2,6
7	16	-36,5	55,4	18,9	2,9
8	14	-38,1	55,4	17,3	3,3
9	12	-40,2	55,4	15,2	3,2
10	10	-42,3	55,4	13,1	3,1
11	8	-44,3	55,4	11,1	3,1
12	6	-46,4	55,4	9	3
13	4	-47,9	55,4	7,5	3,5
14	2	-49,3	55,4	6,1	4,1
15	0	-50,2	55,4	5,2	5,2

Op. Mode	**Setup**	**Port**
TCH 649	setup 1	enclosure

Power Control Level	**Output power Nominal (dBm)**	**Output power Measured (dBm)**	**Correction value (dB)**	**EIRP (dBm)**	**Measured Difference (dB)**
0	30	-24,5	55,1	30,6	0,6
1	28	-25,4	55,1	29,7	1,7
2	26	-27,3	55,1	27,8	1,8
3	24	-29,2	55,1	25,9	1,9
4	22	-31,0	55,1	24,1	2,1
5	20	-32,5	55,1	22,6	2,6
6	18	-34,1	55,1	21	3
7	16	-35,8	55,1	19,3	3,3
8	14	-37,4	55,1	17,7	3,7
9	12	-38,9	55,1	16,2	4,2
10	10	-40,3	55,1	14,8	4,8
11	8	-41,7	55,1	13,4	5,4
12	6	-43,2	55,1	11,9	5,9
13	4	-44,4	55,1	10,7	6,7
14	2	-45,5	55,1	9,6	7,9
15	0	-49,8	55,1	5,3	5,3

Op. Mode	**Setup**	**Port**
TCH 810	setup 1	enclosure

Power Control Level	**Output power Nominal (dBm)**	**Output power Measured (dBm)**	**Correction value (dB)**	**EIRP (dBm)**	**Measured Difference (dB)**
0	30	-23,6	55,1	31,5	1,5
1	28	-24,7	55,1	30,4	2,4
2	26	-26,6	55,1	28,5	2,5
3	24	-28,5	55,1	26,6	2,6
4	22	-30,2	55,1	24,9	2,9
5	20	-31,9	55,1	23,2	3,2
6	18	-33,6	55,1	21,5	3,5
7	16	-35,4	55,1	19,7	3,7
8	14	-37,0	55,1	18,1	4,1
9	12	-38,9	55,1	16,2	4,2
10	10	-40,8	55,1	14,3	4,3
11	8	-42,4	55,1	12,7	4,7
12	6	-44,3	55,1	10,8	4,8
13	4	-46,0	55,1	9,1	5,1
14	2	-47,5	55,1	7,6	5,6
15	0	-48,3	55,1	6,8	6,8

1.5 Test result: RF Power Output

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Op. Mode	Setup	Port	Result
TCH 512	1	enclosure	passed
TCH 649	1	enclosure	passed
TCH 810	1	enclosure	passed