

Radiated Restricted Band Measurements

§15.205 / §15.209



Special attention is made for the EUT's harmonic and spurious radiated emission in the restricted bands of operations. The EUT was tested from 9kHz and up to the 10th harmonic of the fundamental frequency of the transmitter using CISPR quasi peak detector below 1GHZ. Above 1 GHz, average measurement was used, using RBW = 1MHz, VBW = 10Hz and linearly polarized horn antennas. All harmonics/spurs are at least 20dB below the highest emission in the authorized band using RBW = 100kHz. In addition, peak measurements were taken to ensure that the peak levels are not more than 20dB above the average limit. All out of band emissions, other than those created by the spreading sequence, data sequence, and the carrier modulation must not exceed the limits show in Table A-4 per Section 15.209.

Frequency	Field Strength [μ V/m]	Measured Distance [Meters]
0.009 – 0.490 MHz	2400/F (kHz)	300
0.490 – 1.705 MHz	24000/F (kHz)	30
1.705 – 30.00 MHz	30	30
30.00 – 88.00 MHz	100	3
88.00 – 216.0 MHz	150	3
216.0 – 960.0 MHz	200	3
Above 960.0 MHz	500	3

Table A-4. Radiated Limits

TEST MEASUREMENT EQUIPMENT

Agilent E4448A	PSA Spectrum Analyzer 3Hz - 50GHz
HP 8566B	Spectrum Analyzer 100 Hz - 22GHz
HP 83017A	Microwave Preamplifier 40dB Gain (0.5 - 26.5GHz)
HP 8257D	PSG Analog Signal Generator (250kHz - 20GHz)
EMCO 3115	Horn Antenna (1 - 18GHz)
EMCO 3116	Horn Antenna (18GHz - 40GHz)
HP 8493B	10dB Attenuator
MicroCoax Cables	Low Loss Microwave Cables (1 - 26.5GHz)

FCC ID: A3LSGHZ620		FCC Pt. 15.247 BLUETOOTH SUPPLEMENTAL DATA		Reviewed by: Quality Manager
Test Report S/N: 0608040650	Test Dates: August 8, 2006	EUT Type: Single-Band PCS GSM/EDGE Phone with Bluetooth	Page 1 of 3	

Radiated Restricted Band Measurements (Cont'd)

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Mode: Bluetooth

Measurement Distance: 3 Meters

Operating Frequency: 2480MHz



Channel: 78

Frequency [MHz]	Level [dBm]	AFCL [dB]	Pol. [H/V]	Field Strength [dB μ V/m]	Field Strength [μ V/m]	Margin [dB]
2486.42	-114.65	30.81	H	23.16	14.39	-30.82
2487.19	-115.23	30.82	V	22.59	13.47	-31.39
2491.36	-115.37	30.83	H	22.46	13.27	-31.52
2493.11	-115.28	30.83	H	22.55	13.41	-31.43
2495.87	-115.02	30.85	H	22.83	13.85	-31.15
2496.27	-115.16	30.86	H	22.70	13.65	-31.28

Table A-8. Radiated Restricted Band Measurements at 3-meters

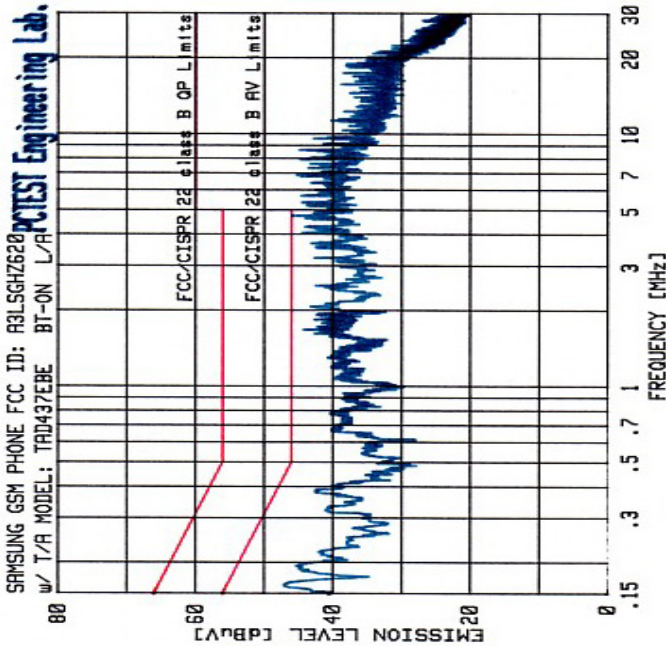
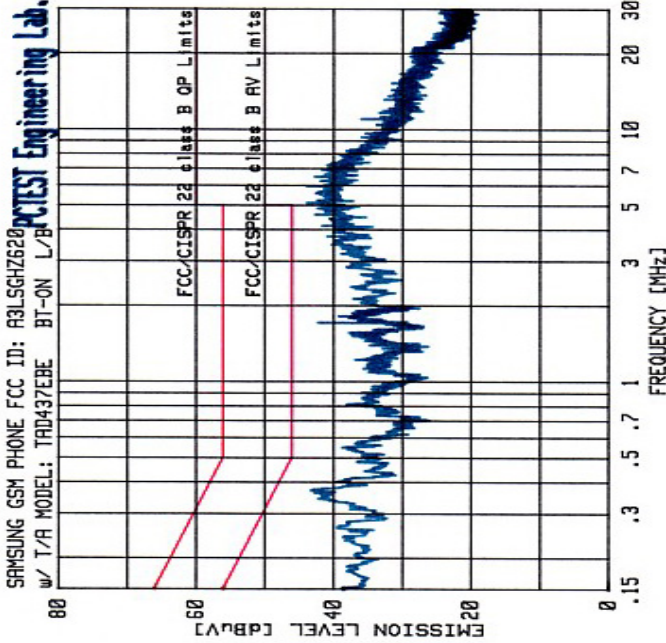
NOTES:

1. The antenna is manipulated through typical positions, polarity and length during the testing.
2. The EUT is supplied with the minimal AC voltage or/and a new/fully re-charged battery.
3. The spectrum is measured from 9kHz up to the 10th harmonic and the worst-case emissions are reported.
4. Above 1 GHz the limit is 500 μ V/m.
5. < -135 dBm is below the analyzer measurement floor level.
6. The peak emissions above 1 GHz are not more than 20 dB above the average limit.

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Line-Conducted Test Data

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No.	Freq. [MHz]	Quasi-Pk [dBuV]	Limit [dBuV]	Margin [dB]	Average [dBuV]	Limit [dBuV]	Margin [dB]
1	4.655	40.79	56.00	-15.21	18.46	46.00	-27.54
2	1.700	29.31	56.00	-26.69	18.72	46.00	-27.28
3	4.919	40.07	56.00	-15.93	19.02	46.00	-26.98
4	4.073	38.70	56.00	-17.30	19.08	46.00	-26.92
5	4.856	38.74	56.00	-17.26	18.73	46.00	-27.27
6	3.860	40.95	56.00	-15.05	18.79	46.00	-27.21
7	.354	44.18	58.86	-14.68	30.36	48.68	-18.32
8	4.434	39.57	56.00	-16.43	18.93	46.00	-27.07
9	3.443	40.76	56.00	-15.24	19.02	46.00	-26.98
10	.347	47.86	59.03	-11.17	30.26	48.74	-18.48

No.	Freq. [MHz]	Quasi-Pk [dBuV]	Limit [dBuV]	Margin [dB]	Average [dBuV]	Limit [dBuV]	Margin [dB]
1	4.699	38.20	56.00	-17.80	25.01	46.00	-20.99
2	3.991	36.30	56.00	-19.70	24.59	46.00	-21.41
3	1.690	27.90	56.00	-28.10	19.80	46.00	-26.20
4	2.144	33.00	56.00	-23.00	22.47	46.00	-23.53
5	3.624	33.53	56.00	-22.47	24.31	46.00	-21.69
6	3.219	31.83	56.00	-24.17	23.75	46.00	-22.25
7	1.617	30.11	56.00	-25.89	19.78	46.00	-26.22
8	1.837	31.52	56.00	-24.48	20.76	46.00	-25.24
9	2.490	33.23	56.00	-22.77	20.37	46.00	-25.63
10	1.917	30.74	56.00	-25.26	19.49	46.00	-26.51

Notes:

1. All Modes of operation were investigated and the worst-case emissions are reported.
2. The limit for Class B device(s) from 150kHz to 30MHz are Specified in EN55022.
3. Line A = Phase; Line B = Neutral
4. Deviations to the Specifications: None.

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