6b.3 MOTOtalk ISM Band Radiated Spurious Emissions

FCC Limits:

§15.247. If any 100 kHz bandwidth outside these frequency bands, the radio frequency power that is produced by the modulation products of the spreading sequence, the information sequence and the carrier frequency shall be either at least 20 dB below that in any 100 kHz bandwidth within the band that contains the highest level of the desired power or shall not exceed the general levels specified in Sec. 15.209, whichever results in the lesser attenuation. All other emissions outside these bands shall not exceed the general radiated emission limits specified in Sec. 15.209.
§15.209. Shows the limit above 960 MHz to be 500uV/m @ 3 meters.
§15.35. States the peak of the harmonics shall not exceed 20 dB above the limits specified in 15.209.
Restricted bands specified in 15.205 in the table below:

MHz	MHz	MHz	GHz
0.090–0.110	16.42–16.423	399.9–410	4.5–5.15
[1] 0.495–0.505	16.69475–16.69525	608–614	5.35–5.46
2.1735–2.1905	16.80425–16.80475	960–1240	7.25–7.75
4.125–4.128	25.5–25.67	1300–1427	8.025–8.5
4.17725–4.17775	37.5–38.25	1435–1626.5	9.0–9.2
4.20725–4.20775	73–74.6	1645.5–1646.5	9.3–9.5
6.215–6.218	74.8–75.2	1660–1710	10.6–12.7
6.26775–6.26825	108–121.94	1718.8–1722.2	13.25–13.4
6.31175–6.31225	123–138	2200–2300	14.47–14.5
8.291–8.294	149.9–150.05	2310–2390	15.35–16.2
8.362–8.366	156.52475–156.52525	2483.5–2500	17.7–21.4
8.37625–8.38675	156.7–156.9	2655–2900	22.01–23.12
8.41425–8.41475	162.0125–167.17	3260–3267	23.6–24.0
12.29–12.293	167.72–173.2	3332–3339	31.2–31.8
12.51975–12.52025	240–285	3345.8–3358	36.43–36.5
12.57675–12.57725	322–335.4	3600–4400	([2])
13.36–13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490–0.510 MHz.
[2] Above 38.6

NOTE 1: Spurious emissions are dependent on the linearity of the Power Amplifier (U2051) and are independent of modulation type or TDM interleaving.
NOTE 2: Spurious emission levels were measured with the non-detachable antenna mounted on the radio product, as in intended use.

Test Report

Product Name: iDEN i580 Tx ISM RADIATED

FCC ID: AZ489FT5848

Applicant:

MOTOROLA, INC. FL
8000 WEST SUNRISE BLVD,
FT. LAUDERDALE FL 33322-9947
USA

EMC Equipment List

Device	Manufacturer	Model	Serial Number	Cal/Char Date	Due Date
3-Meter OATS	TEI	N/A	N/A	Listed 1/13/03	1/12/06
Biconnical Antenna	Eaton	94455-1	1057	CAL 12/12/05	12/12/07
Biconnical Antenna	Eaton	94455-1	1096	CAL 8/17/04	8/17/06
Biconnical Antenna	Electro-Metrics	BIA-25	1171	CAL 4/29/05	4/29/07
Double-Ridged Horn Antenna	Electro-Metrics	RGA-180	2319	CAL 12/29/04	12/29/06
LISN	Electro-Metrics	ANS-25/2	2604	CAL 8/27/04	8/27/06
LISN	Electro-Metrics	EM-7820	2682	CAL 4/28/05	4/28/07
Log-Periodic Antenna	Eaton	96005	1243	CAL 12/14/05	12/14/07

TEST PROCEDURE

RADIATION INTERFERENCE: The test procedure used was ANSI STANDARD C63.4-2003 using a Agilent spectrum analyzer with a pre-selector. The bandwidth (RBW) of the spectrum analyzer was 100 kHz up to 1 GHz and 1 MHz above 1GHz with an appropriate sweep speed. The VBW above 1 GHz was = 3 MHz. The analyzer was calibrated in dB above a microvolt at the output of the antenna. The ambient temperature of the UUT was 76°F with a humidity of 55%.

15.247(c), 15.205 &15.209(b) Field strength of spurious emissions:

REQUIREMENTS:

FIELD STRENGTH	FIELD STRENGTH	S15.209
of Fundamental:	of Harmonics	30 - 88 MHz 40 dBuV/m @3M
902-928MHz		88 -216 MHz 43.5
2.4-2.4835GHz		216 -960 MHz 46
127.37dBuV/m	54dBuV/m	ABOVE 960 MHz 54 dBuV/m @3m

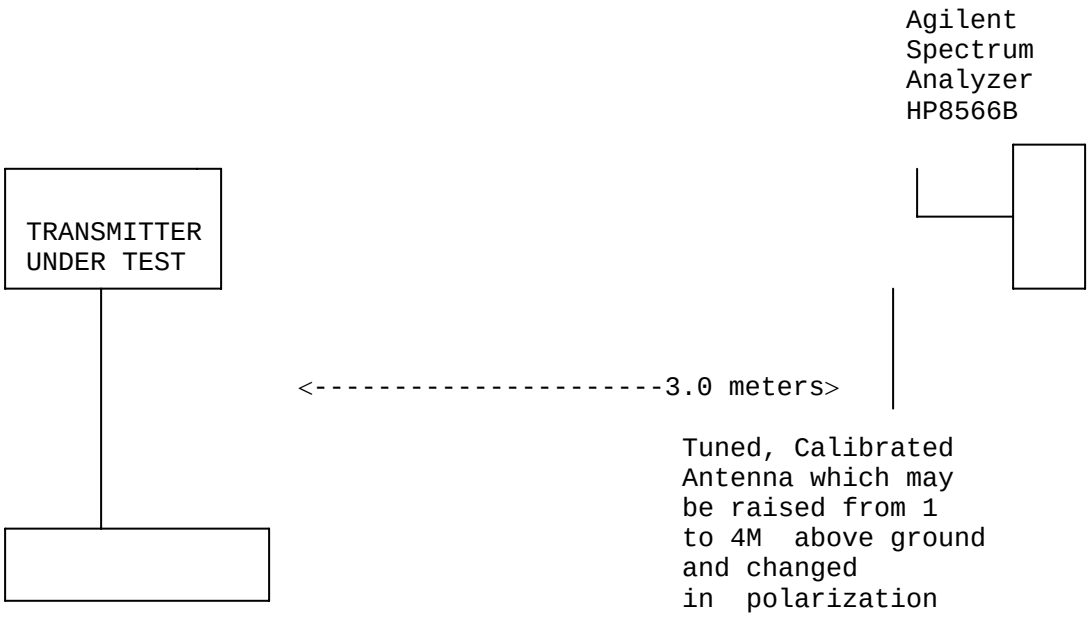
Emissions that fall in the restricted bands (15.205) must be less than or equal to 500 uV/m (54 dBuV/m). Spurious not in a restricted band must be 20 dBc.

TEST DATA:

Tuned Frequency MHz	Emission Frequency MHz	Meter Reading dBuV	Ant. Polarity	Coax Loss dB	Correction Factor dB	Field Strength dBuV/m	Margin dB
902.5	**902.53**	**93.9**	**H**	**1.95**	**27.75**	**95.85**	**31.52**
902.5	**902.53**	**103.9**	**V**	**1.95**	**27.75**	**105.85**	**21.52**
902.5	**1,805.05**	**21.4**	**H**	**2.74**	**27.96**	**24.14**	**61.71**
902.5	**1,805.05**	**22.3**	**V**	**2.74**	**27.96**	**25.04**	**60.81**
902.5	**2,707.58**	**14.6**	**V**	**3.40**	**29.74**	**18.00**	**36.00**
902.5	**2,707.58**	**16.8**	**H**	**3.40**	**29.74**	**20.20**	**33.80**
915.5	**915.53**	**95.5**	**H**	**1.97**	**28.01**	**97.47**	**29.90**
915.5	**915.53**	**103.9**	**V**	**1.97**	**28.01**	**105.87**	**21.50**
915.5	**1,831.05**	**22.4**	**H**	**2.76**	**28.08**	**25.16**	**60.71**
915.5	**1,831.05**	**24.2**	**V**	**2.76**	**28.08**	**26.96**	**58.91**
915.5	**2,746.58**	**15.1**	**H**	**3.42**	**29.83**	**18.52**	**35.48**
915.5	**2,746.58**	**15.1**	**V**	**3.42**	**29.83**	**18.52**	**35.48**
927.5	**927.48**	**91.5**	**H**	**1.99**	**28.25**	**93.49**	**33.88**
927.5	**927.48**	**102.5**	**V**	**1.99**	**28.25**	**104.49**	**22.88**
927.5	**1,854.95**	**21.2**	**H**	**2.78**	**28.19**	**23.98**	**60.51**
927.5	**1,854.95**	**23.6**	**V**	**2.78**	**28.19**	**26.38**	**58.11**
927.5	**2,782.43**	**15.1**	**H**	**3.45**	**29.91**	**18.55**	**35.45**
927.5	**2,782.43**	**20.2**	**V**	**3.45**	**29.91**	**23.65**	**30.35**

Harmonics were checked to the 10th harmonic

Method of Measuring Radiated Spurious Emissions



Equipment placed 80cm above ground on a rotable platform.

METHOD OF MEASUREMENT: The procedure used was ANSI STANDARD C63.4-2003 & the FCC/OET Guidance on Measurements for Direct Sequence Spread Spectrum Systems – Public Notice 54797 Dated July 12,1995.

Measurements were made at the open field test site of TIMCO ENGINEERING INC. located at 849 N.W. State Road 45, Newberry, FL 32669.

RADIATED EMISSIONS TEST SET UP PHOTO