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Electromagnetic Compatibility (EMC)
For
IMMEDIATE MARKETING, INC.

FCC PART 15, SUB-PART B CLASS A and FCC PART 15.239, SUB-PART C

Prepared For:

Prepared By: National Technical Systems
1701E. Plano Parkway Suit 150
Plano, TX 75074

Issued: 08/16/02

Service For: Immediate Marketing, Inc.

Purchase Order No.: 21119

This is to certify that the following report is true and correct to the best of my knowledge.

Trudy Hester

Dieu Vo, EMI Operations Supervisor FCC, CE, Telecommunication	Trudy Hester Quality Assurance Manager

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1.0 GENERAL INFORMATION

1.1 Product Description

The functions and components of the IMI-3000 consist of an integrated MP3 player, intentional radiator (or transmitter), and 1 to 4 distributed antennas. The IMI-3000L is the same product from an intentional radiator and distributed antenna perspective with the difference being the broadcast play-source. The IMI-3000L has an audio input connector, allowing customers to broadcast from a play-source of their choice (i.e. CD player, satellite receiver, etc.).

The antennas will be professionally installed outside of the buildings and mounted to fixed positions around the customer's property in order to cover a defined area of broadcast. Regardless of antenna locations or orientations, at no point in the broadcast area will the field strength limits of FCC 47 Code of Federal Regulation (CFR) Part 15 be exceeded. Furthermore, the antennas will not be mounted nearer to one another than 10 meters (physical distance). This is to avoid signal strength contribution from additional antennas that would increase field strength beyond the specifications.

There is a single CompactFlash memory card socket in the IMI-3000. The broadcast play list is stored on the memory cards and can be changed manually by the customer. Instructions on how to change the memory card are detailed in a later section of this document.

The standard mode of operation when the IMI-3000 is powered and contains a CompactFlash card is continuous play/broadcast. In other words, the broadcast message is playing and broadcasting in endless loop when the IMI-3000 is powered ON. The same is true of the IMI-3000L with the exception of the audio source. The audio source must be correctly plugged into the IMI-3000L and providing audio to be broadcast.

1.2 Support Details

None

1.3 Instrument Calibration

All test instrumentation requiring calibration will be calibrated in accordance with ANSI Standard NCSL Z540-1. There will be a current calibration sticker attached to the item and traceability documentation will be provided at the customer's request.

1.3.1 Accuracy of Measurement

The expected accuracy of measurement shall be:

Frequency Accuracy: ± 2%
Amplitude Accuracy: ± 2 dB
Distance: ± 5%
Amplitude, Measurement System (includes measurement receivers, transducers, cables, etc): ± 3 dB
Time (waveforms): ± 5%

1.4 Ambient Tests

In the event that an out-of-tolerance interference condition arises, ambient measurements shall be made in the frequency range where out-of-tolerance condition is present. Ambient measurements shall be made with power applied to all equipment, with the exception of the system under test. This level shall be at least 6 dB below the specification limits of FCC Part 15.

1.5 Failure Reporting

In the event of a test item failure or a test anomaly, the following procedure will be followed:

1. The testing will be stopped.
2. The IMI Program Manager or his designate will immediately be notified.
3. A Notice of Deviation (NOD) will be prepared.
4. The test item will be retained in the setup or in storage, as applicable, pending disposition from IMI.
5. Testing will be resumed only on instructions (written, if practicable) of IMI to the project engineer or test engineer.

1.6 Threshold of Susceptibility

When susceptibility indications are noted in test sample operation, the threshold level shall be determined where the susceptible condition is no longer present. The threshold level shall be determined as follows:

1. When a susceptibility condition is detected, reduce the signal level until the test sample recovers.
2. Gradually increase the signal level until the susceptibility condition reoccurs. The resulting level is the threshold of susceptibility, and that level shall be recorded.

1.7 Test Program Deviation

Unless otherwise directed by the responsible test witness, the tests described in the table summary page of this document may be performed in any sequence.

In the event that test plan deviations are required during the normal qualification test program, they shall be made only upon approval of the cognizant representative and that approval shall be noted in the test log with a complete description and justification for such deviations.

1.8 Inspection

All tests described herein may have been witnessed by the authorized representative(s) of Jamesport. All testing will be performed by qualified test engineers/personnel.

1.9 Disposition of Test Items

The test sample was returned to Jamesport upon completion of the test program.

1.10 Test Facility

Measurements for this report were taken at **National Technical Systems, EMC Test Facility**, 1701 East Plano Parkway Suit 150, Plano Texas, USA. At the time of testing, the EMC facility had the following accreditations, registrations, etc.:

- Compliance with the requirements of ISO/IEC Guide 25: 1990 (E).
- Compliance with the requirements of ISO 9000: 1997 (E).
- Compliance with the requirements NVLAP, VCCI, BSMI.
- Compliance with the radiated and AC line conducted test site criteria in ANSI C63.4-1992 as required by the Federal Communications Commission (FCC).

The EMC chamber has been qualified as one having performance characteristics suitable for testing to the requirements of IEC 1000-4-3;95, and the Open Area Test Site (OATS) has been qualified as one having performance characteristics suitable for testing as per CISPR, Part 16, and ANSI C63.4-1992.

2.0 GENERAL TEST METHODOLOGY

2.1 Emissions

Required emissions testing is performed in accordance with the respective measurement procedures listed on page 1. Specifics such as test locations will be listed in the appropriate data sections of this report.

Conducted measurements are made with power supplied to the IMI-3000 and IMI-3000L through a 50Ω/50µh Line Impedance Stabilization Network (LISN); support equipment not part of the IMI-3000 and IMI-3000L will be powered through a similar but separate LISN. Typically, each of the IMI-3000 and IMI-3000L's input power leads will be scanned first with a peak detector. The highest peak amplitudes relative to the appropriate limits will be identified and remeasured using a quasipeak detector. At least six of all peaks closest to the respective limits will be recorded in this report. The conducted emissions test was performed using NTS' automatic EMI test equipment. This equipment utilized HP EMI measurement software running on an HP computer that interfaced directly with HPIB (IEEE) compatible instruments with graphical displays presented on the spectrum analyzer's CRT, with hard copies of the data generated by a plotter. The program automatically selects the range of test frequencies or band, and sets the specification line limits to be used during the test. This equipment/software allows for real-time data reduction and prints tabulated data on peak value or quasi-peak value measurements.

Radiated measurements are made at an open area test site (OATS) with an antenna to IMI-3000 and IMI-3000L distance of 3m or 10m, as appropriate. The actual test distance will be listed in the respective test data sections. The applicable frequency spectrum is searched with a calibrated antenna system for RF emissions approaching the appropriate limits. “Maximization” of each suspect frequency is accomplished by a combination of a 360° azimuth search and varying the antenna to ground plane height from 1m to 4m, in both the vertical and horizontal polarizations. Final data was collected in the worst case configurations of the IMI-3000 and IMI-3000L with the highest emission levels. The six highest emission readings and the corresponding frequencies are listed in Appendix A. If necessary, radiated emissions over 1 GHz are maximized after first “aiming” the horn antennas using the “bore sight” method.

Other emissions tests will be performed in accordance with the appropriate measurement procedures listed in this report.

2.1.1 Radiated Emissions Field Strength Calculations

FS = RA + AF + CF - AG where: FS = field strength CF = cable attenuation factor
RA = receiver amplitude AG = amplifier gain

The receiver used for radiated emissions measurements performed the field strength calculations automatically. The program has resident AF and CF figures for individual antennas and cables.

2.2 Order of Testing

Testing normally proceeds from the least volatile to the most. As an example for "global" requirements the sequence typically would begin with conducted emissions, then radiated prescans in the semi-anechoic chamber, then OATS radiated emissions measurements. The actual order may vary due to tests conducted, scheduling and facility availability.

2.3 Special Test Justification

None

3.0 TEST CONFIGURATION

3.1 Selection of IMI-3000 and IMI-3000L Configuration and Modes of Operation

As per measurement procedures, **the worst-case test configuration and mode of operation was used for all testing**. Unless otherwise noted elsewhere in this report, this selection will apply to all testing. The selection process was based on previous investigative testing of the IMI-3000 and IMI-3000L system.
Worst case operating mode is described as "Operate." Other modes used will be listed in the respective data measurement sections when appropriate. Operating modes considered were all those available to the operator, including Standby.

3.2 Equipment Modifications

None

4.0 TEST INSTRUMENTATION

Instrument	Mfr.	Model	NTS Control No.	Cal Due
RADIATED EMISSIONS				
HP Spectrum Analyzer	HP	8566B	E1128P	08/15/02
Quasi Peak Detector	HP	85650A	E1004P	08/15/02
Pre-Amp	HP	8447F	E1120P	12/03/02
Biconilog Antenna	Chase	CBL 6140	E1021P	10/10/02
LISN	Solar Electronics	8028-50TS 24 BNC	E1110P	08/20/02
LISN	Solar Electronics	8028-50TS 24 BNC	E1111P	08/20/02

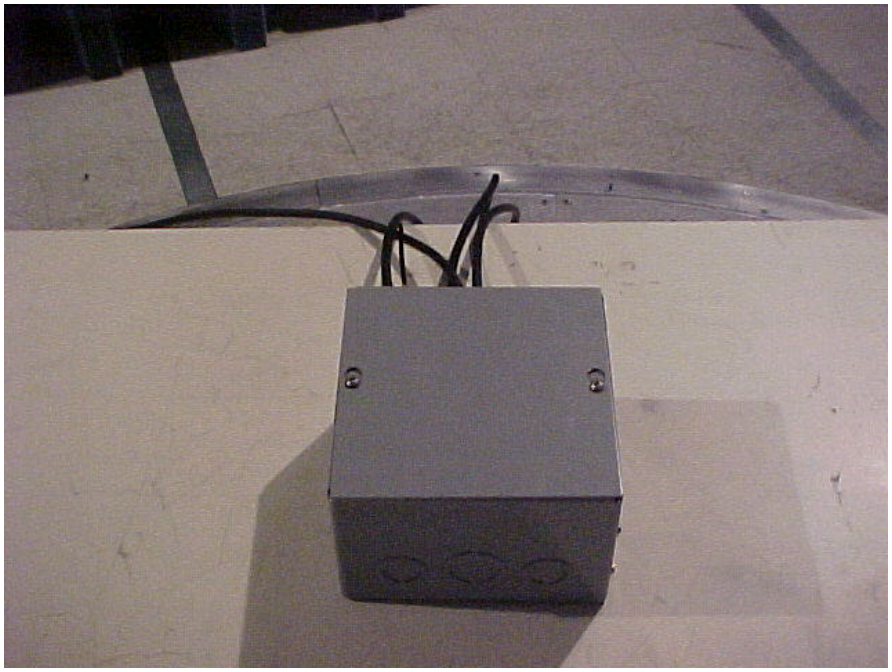
5.0 EMISSIONS

The test procedures of Paragraph 2.1 were followed for these measurements. Conducted measurements were made in shielded enclosures. Radiated final measurements were made at the OATS facility described in Paragraph 2.0. All readings are quasi-peak unless otherwise stated and are listed in order of ascending delta. The original test data is contained in Master Job Folder B2795, located at the National Technical Systems EMC Facility. Mode of operation is that listed under Paragraph 3.1, unless otherwise stated.

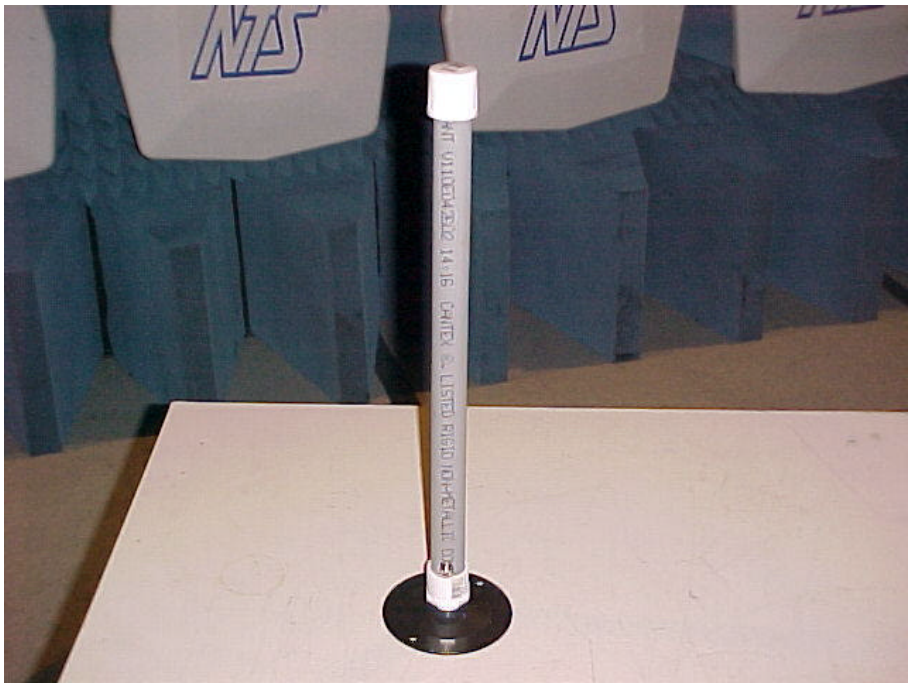
5.1 Radiated Emissions

5.1.1 Radiated Emissions Test Setup

Radiated Emissions 30Mhz-1Ghz



Transmitter



Antenna

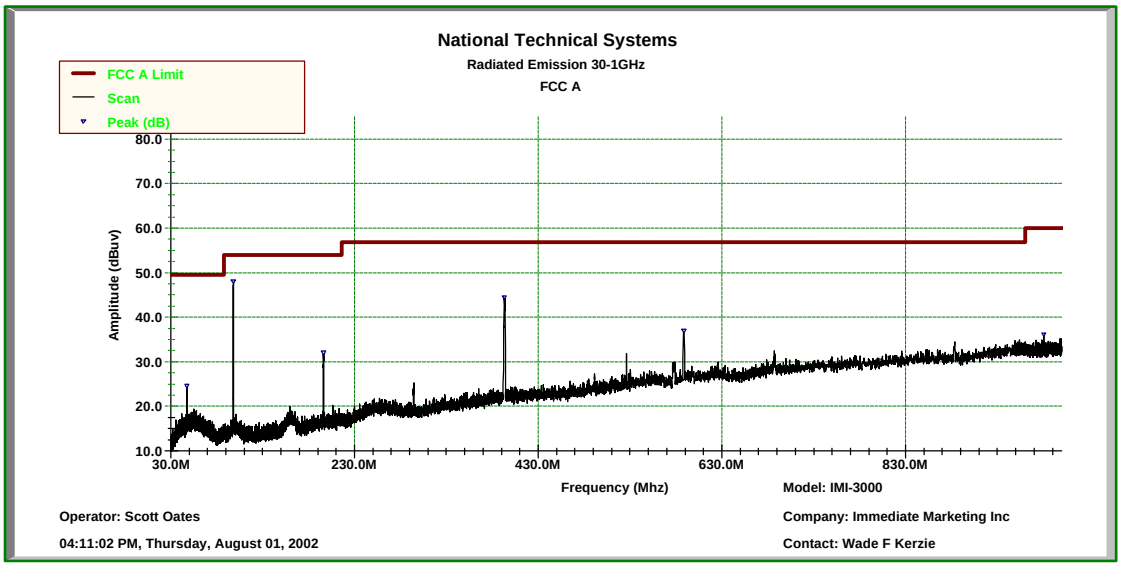
5.1.2 Radiated Measurement Data

Date of measurement: 08/01/02 Test Personnel: Scott Oates, EMC Technician
Radiated Emissions (FCC Class A prorate to 3m distance from antenna)

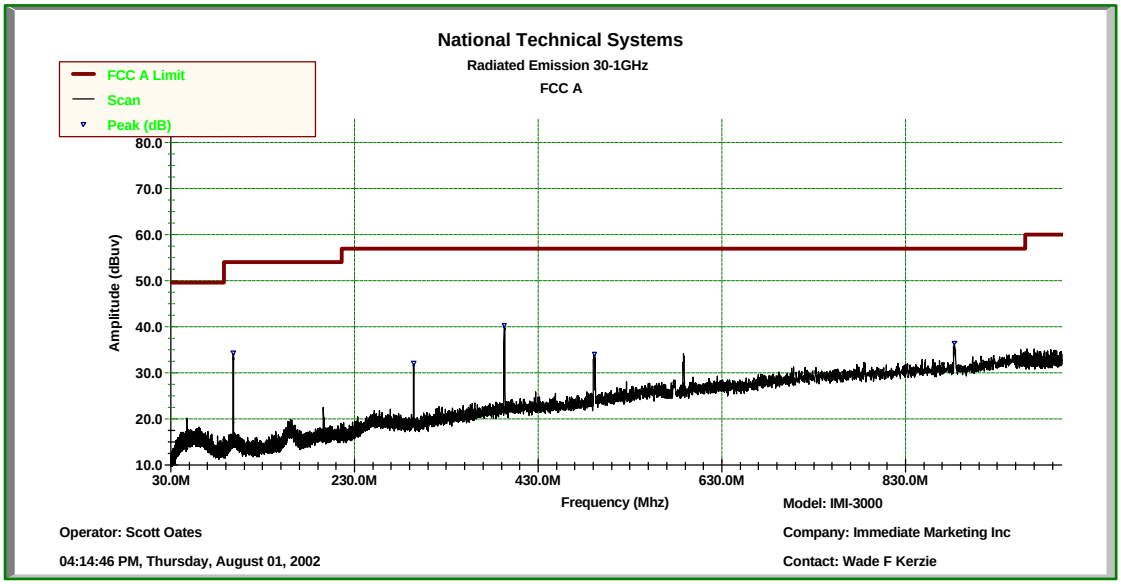
Model Number: IMI-3000
Contact: Wade F Kerzie
Company: Intermediate Marketing Inc

Frequency	FCC-A	Polarity	Peaks	QP	QP	Turn Table	Tower
MHz	3M				Margin		Height
196.16 MHz	53.980	V	32.739	31.889	-22.091	0.000	1.000
196.2 MHz	53.980	H	38.839	38.429	-15.551	140.000	1.500
294.3 MHz	56.900	H	47.091	45.791	-11.109	140.000	1.100
294.32 MHz	56.900	V	42.691	42.041	-14.859	190.000	1.000
392.4 MHz	56.900	H	49.457	46.957	-9.943	280.000	1.200
392.41 MHz	56.900	V	51.657	49.657	-7.243	220.000	1.300
490.48 MHz	56.900	H	35.576	34.886	-22.014	150.000	1.200
490.5 MHz	56.900	V	32.977	32.537	-24.363	160.000	1.000
588.58 MHz	56.900	H	41.998	41.618	-15.282	150.000	1.200
588.6 MHz	56.900	V	38.698	38.148	-18.752	50.000	1.000
686.64 MHz	56.900	V	38.973	37.423	-19.477	70.000	1.000
882.88 MHz	56.900	H	44.529	43.479	-13.421	250.000	1.200

98.1Mhz Transmitting Frequency in FCC 3meter Chamber



Radiated Emissions Pre-scan on FCC Chamber 30-1000MHz, Vertical



Radiated Emissions Pre-scan on FCC Chamber 30-1000MHz, Horizontal

5.13 Radiated Measurement CFR 47 FCC part 15.239 Subpart C

Mode of Operation during emissions test:

Test Result for FCC 15.239

The field strength was measured at 3 meters distance between Equipment under test and measurement antenna.

Radiated outside specific frequency band were met FCC part 15 subpart B class A and Spurious frequency per FCC part 15 subpart C requirement.

The maximum Radiated emission was scan from 30 Mhz to 1.08Ghz.

Final Measurements
3Meter Oats
Operator: Scott Oates **Model Number: IMI-3000**
Contact: Wade F Kerzie
03:39:48 PM, Thursday, November 09, 2000 **Company: Immediate Marketing Inc**

Frequency MHz	Polarity	Peaks	QP	QP Margin	AVG	AVG Margin	Limit
106.69 MHz	V	42.496	39.796	-8.154	35.996	-11.954	47.950
106.7 MHz	H	38.198	36.998	-10.952	32.118	-15.832	47.950
213.39 MHz	H	21.075	20.995	-26.955	15.975	-31.975	47.950
213.4 MHz	V	24.875	24.325	-23.625	20.795	-27.155	47.950
320.09 MHz	H	24.215	23.045	-24.905	18.485	-29.465	47.950
320.1 MHz	V	24.315	23.585	-24.365	18.815	-29.135	47.950
426.75 MHz	H	31.670	29.820	-18.130	24.920	-23.030	47.950
426.8 MHz	V	40.070	39.890	-8.060	39.220	-8.730	47.950
533.49 MHz	H	29.533	27.083	-20.867	22.233	-25.717	47.950
533.5 MHz	V	30.833	29.393	-18.557	24.833	-23.117	47.950
640.2 MHz	V	31.006	29.096	-18.854	24.486	-23.464	47.950
640.22 MHz	H	31.407	28.687	-19.263	24.357	-23.593	47.950
746.89 MHz	H	32.235	30.345	-17.605	25.835	-22.115	47.950
746.9 MHz	V	31.635	30.215	-17.735	25.785	-22.165	47.950
853.59 MHz	H	33.234	29.984	-17.966	26.534	-21.416	47.950
853.6 MHz	V	33.634	30.434	-17.516	26.984	-20.966	47.950
960.29 MHz	H	36.176	33.286	-14.664	28.776	-19.174	47.950
960.3 MHz	V	35.777	33.427	-14.523	28.777	-19.173	47.950
1.0668 GHz	H	34.968	30.430	-17.520	28.0	-19.50	47.950
1.067 GHz	V	36.270	30.540	-17.410	29.1	-18.850	47.950

106.7mhz Fundamental and Harmonics

Frequency	Polarity	Peaks	QP	QP	AVG	AVG	Limit
MHz				Margin		Margin	
97.294 MHz	V	39.833	38.933	-9.017	38.933	-9.017	47.950
97.3 MHz	H	31.834	29.434	-18.516	28.834	-19.116	47.950
194.59 MHz	V	30.376	30.096	-17.854	28.926	-19.024	47.950
194.6 MHz	H	25.576	24.536	-23.414	21.346	-26.604	47.950
291.89 MHz	V	28.892	27.602	-20.348	24.422	-23.528	47.950
291.9 MHz	H	26.592	24.722	-23.228	20.292	-27.658	47.950
389.19 MHz	V	39.150	39.360	-8.590	38.650	-9.300	47.950
389.2 MHz	H	34.150	33.470	-14.480	31.650	-16.300	47.950
486.49 MHz	V	34.202	32.962	-14.988	30.402	-17.548	47.950
486.5 MHz	H	28.802	28.372	-19.578	23.472	-24.478	47.950
583.79 MHz	V	28.163	28.553	-19.397	23.613	-24.337	47.950
583.8 MHz	H	30.364	27.804	-20.146	23.064	-24.886	47.950
681.08 MHz	V	37.617	34.518	-13.432	27.998	-19.952	47.950
681.1 MHz	H	33.118	30.018	-17.932	30.168	-17.782	47.950
778.39 MHz	V	34.813	30.173	-17.777	25.613	-22.337	47.950
778.4 MHz	H	31.013	30.143	-17.807	25.613	-22.337	47.950
875.55 MHz	V	37.359	34.789	-13.161	29.689	-18.261	47.950
875.56 MHz	H	31.659	31.749	-16.201	30.809	-17.141	47.950
972.99 MHz	V	35.556	34.356	-13.594	29.456	-18.494	47.950
973.0 MHz	H	37.956	33.716	-14.234	29.156	-18.794	47.950
97.3mhz Fundamental and Harmonics							

Frequency	Polarity	Peaks	QP	QP	AVG	AVG	Limit
MHz				Margin		Margin	
88.286 MHz	H	40.208	39.408	-8.542	39.608	-8.342	47.950
88.3 MHz	V	39.611	39.011	-8.939	39.261	-8.689	47.950
176.6 MHz	H	22.883	22.283	-25.667	17.913	-30.037	47.950
176.63 MHz	V	26.083	23.683	-24.267	20.083	-27.867	47.950
264.9 MHz	H	22.186	20.866	-27.084	16.286	-31.664	47.950
264.92 MHz	V	27.287	26.217	-21.733	22.887	-25.063	47.950
353.19 MHz	V	29.725	25.535	-22.415	20.725	-27.225	47.950
353.2 MHz	H	26.325	24.305	-23.645	19.825	-28.125	47.950
441.49 MHz	V	37.320	37.300	-10.650	36.320	-11.630	47.950
441.5 MHz	H	29.920	27.691	-20.260	22.920	-25.030	47.950
529.53 MHz	V	29.062	26.852	-21.098	23.362	-24.588	47.950
529.57 MHz	H	28.862	27.562	-20.388	22.062	-25.888	47.950
618.02 MHz	V	31.515	31.397	-16.553	27.117	-20.833	47.950
618.1 MHz	H	31.617	27.837	-20.113	23.817	-24.133	47.950
706.36 MHz	V	31.770	30.610	-17.340	26.070	-21.880	47.950
706.4 MHz	H	31.970	30.600	-17.350	26.070	-21.880	47.950
794.7 MHz	V	27.571	24.271	-23.679	19.221	-28.729	47.950
794.86 MHz	H	30.472	28.472	-19.478	21.452	-26.498	47.950
882.91 MHz	V	35.107	33.068	-14.882	27.988	-19.962	47.950
883.0 MHz	H	35.608	35.378	-12.572	30.958	-16.992	47.950
88.3mhz Fundamental and Harmonics							

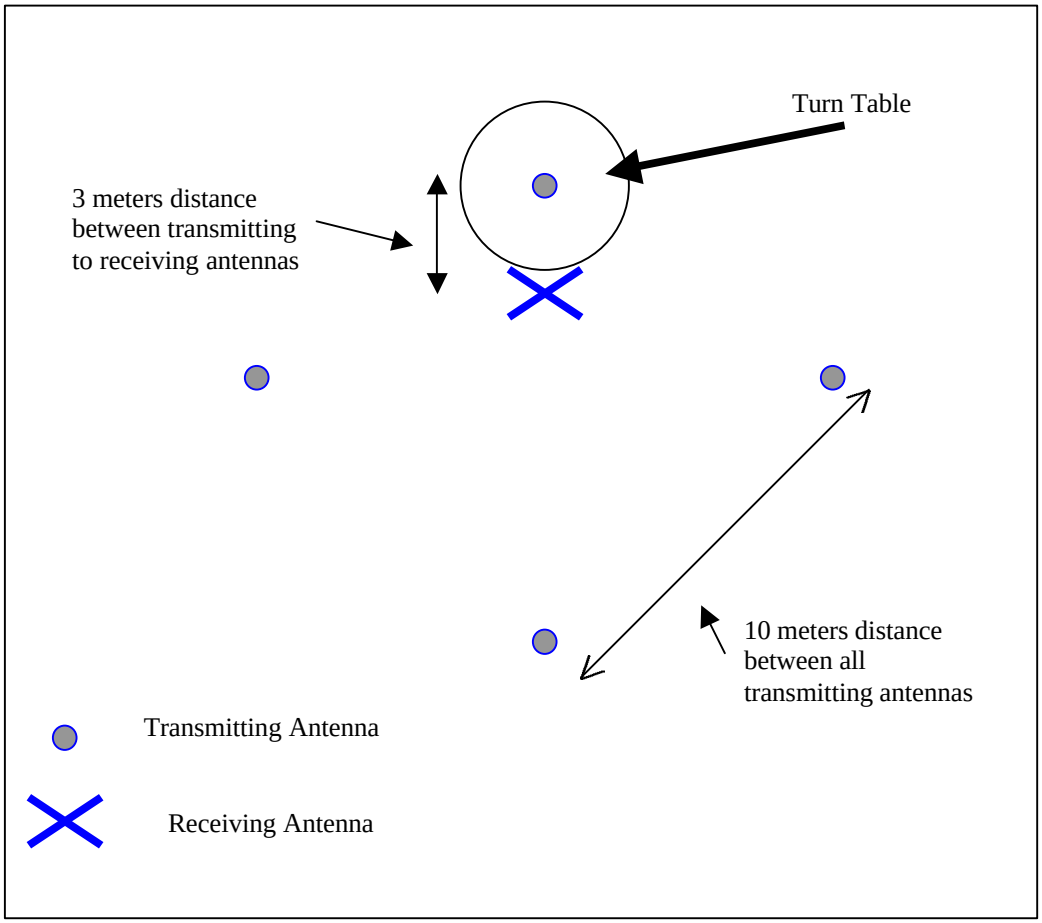
Test requirement Field Strength of Emissions from Intentional Radiator

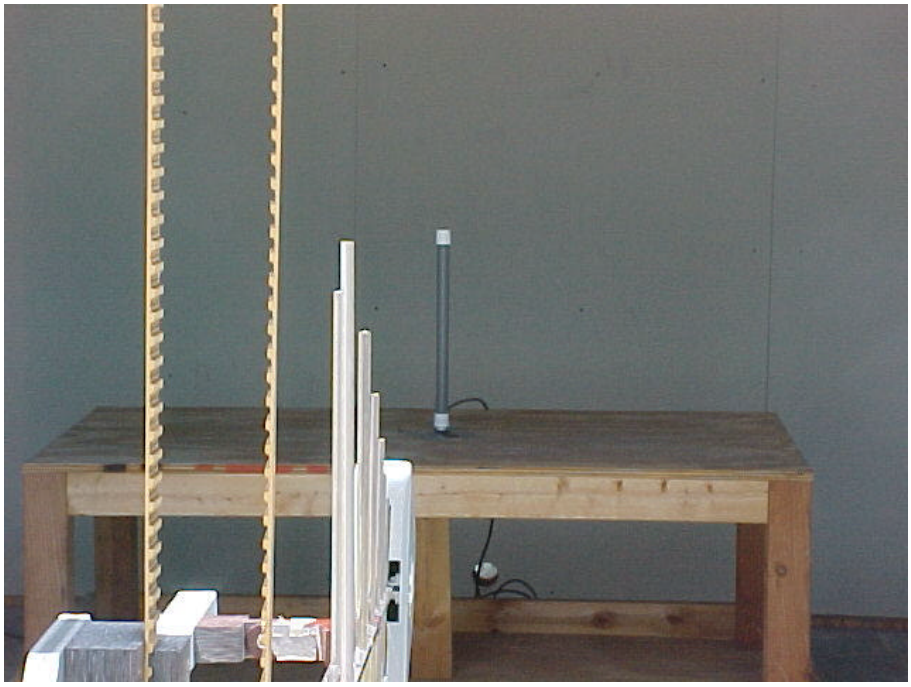
EUT name: IMI-3000 and IMI-3000L.
Reference to FCC part 15 subpart C, 15.239.
The fundamental frequency tuned at 87.3, 97.3, 106.7Mhz

Duty Cycle: 100 % (due to modulation method per manufacture information)

The table lists the fundamental and harmonic emissions frequencies. The site correction factor includes: cable loss, antenna factor, and pre-amplifier. All measurements were taken with 1 MHz RBW and 1 MHz VBW. All readings are peak with the specific bandwidth. The duty-cycle correction factor is not required, as all peak measurements are below the FCC limits.

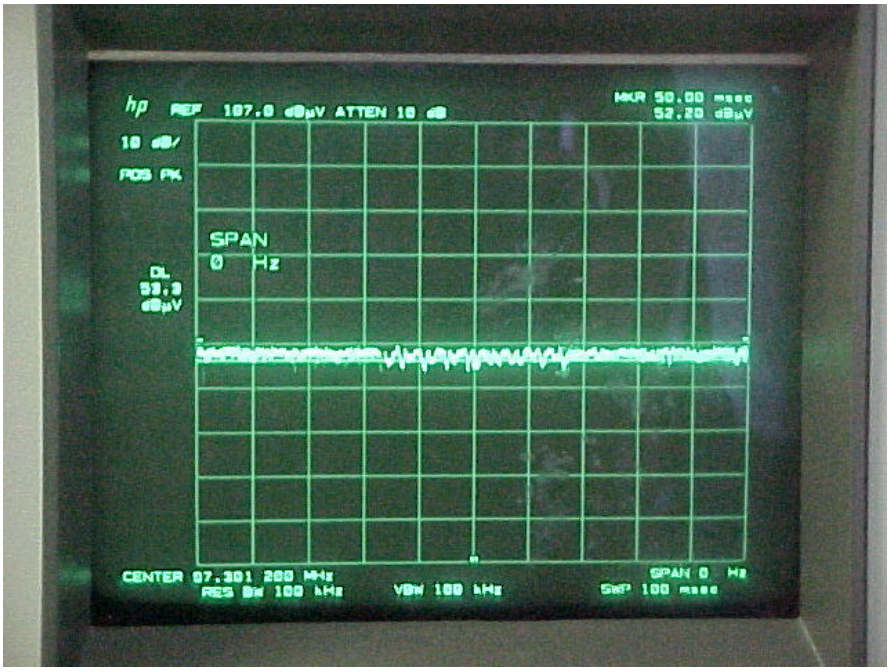
Radiated Emissions test setup at Open Area Test Site



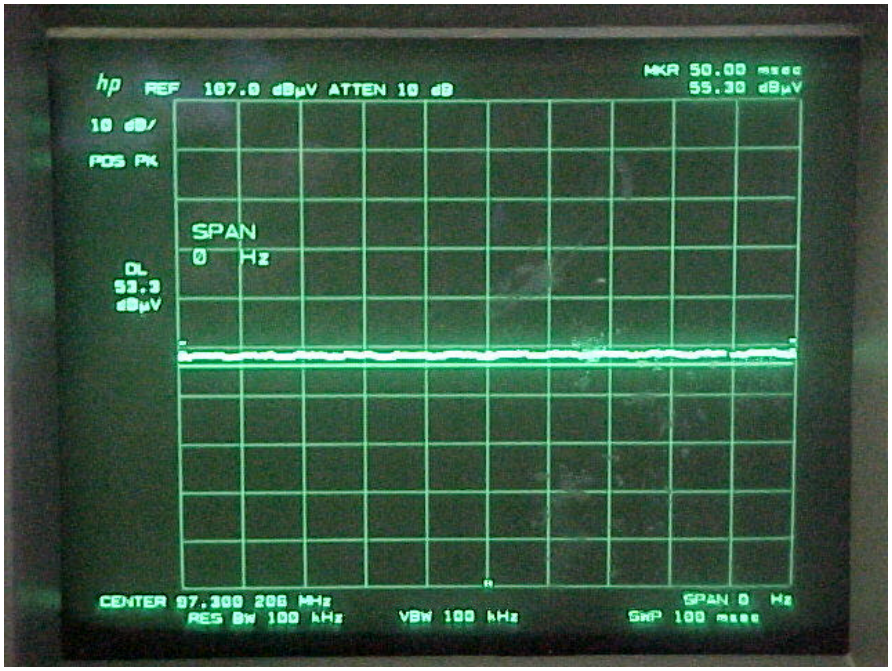


Radiated Emissions 200Mhz-1Ghz

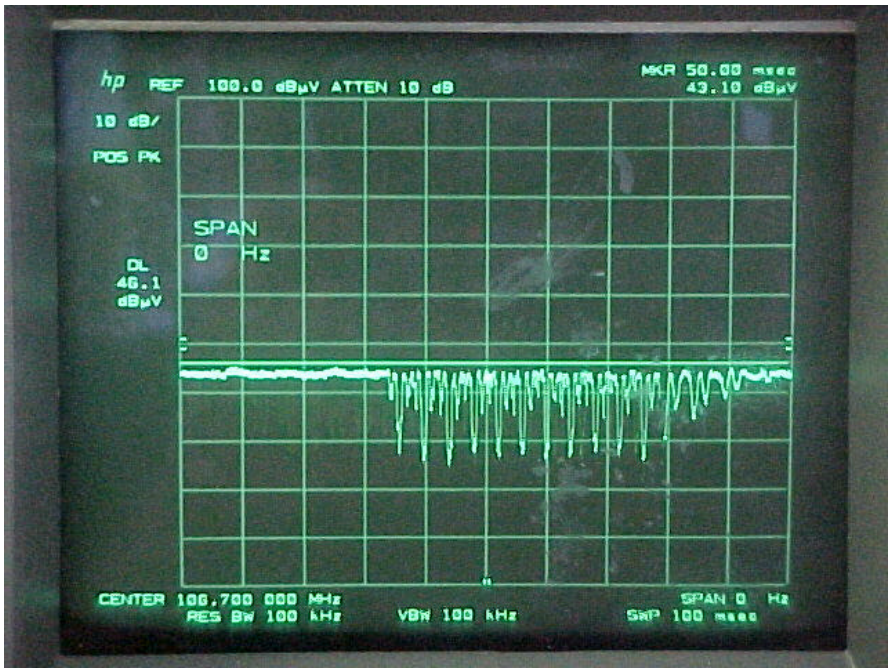
Radiated Emissions 30Mhz-200Mhz



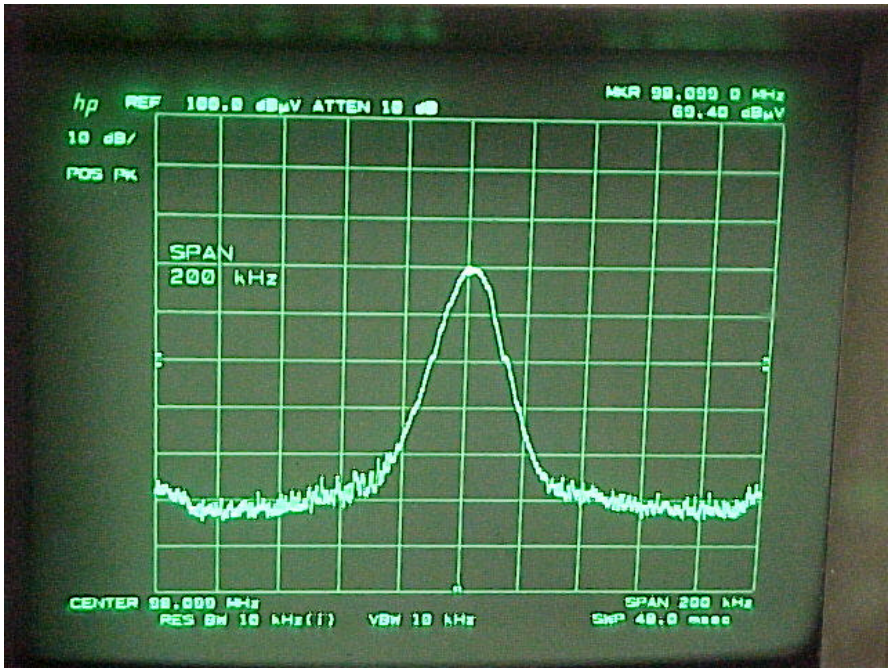
87.3Mhz 100% Duty Cycle



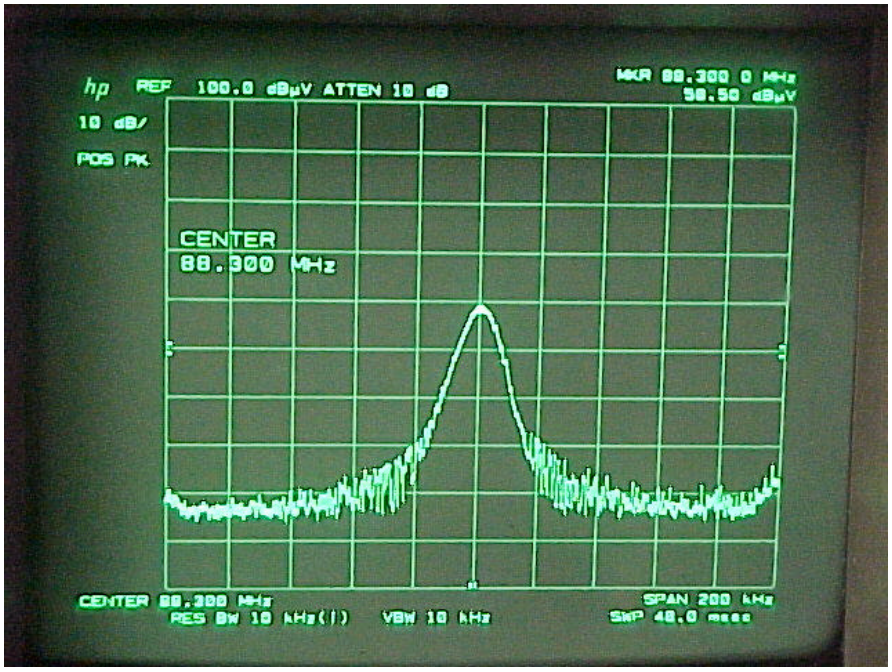
97.3Mhz 100% Duty Cycle



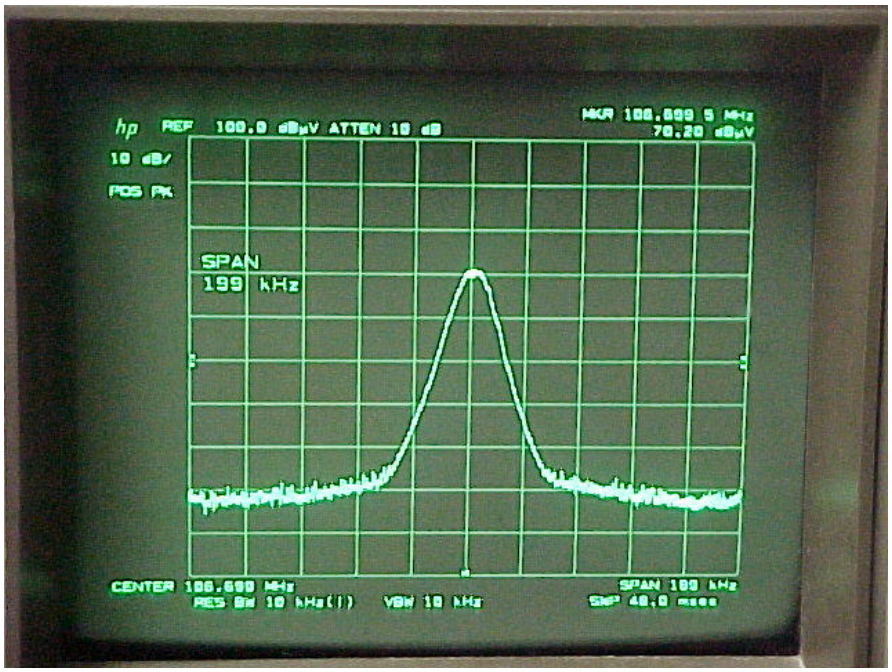
106.7Mhz 100% Duty Cycle



98.1Mhz 10Khz BW

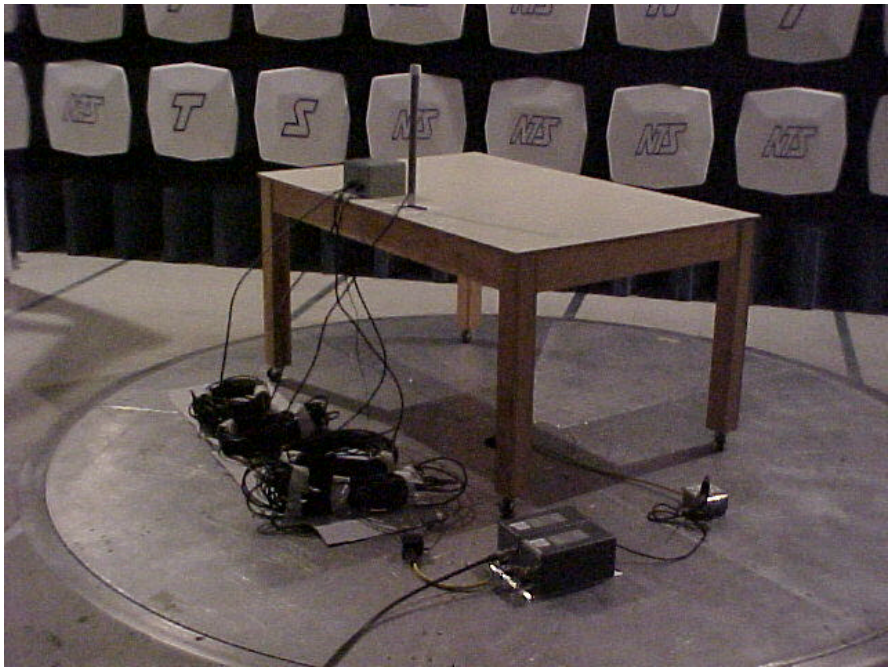


88.3Mhz 10Khz BW



106.7Mhz 10Khz BW

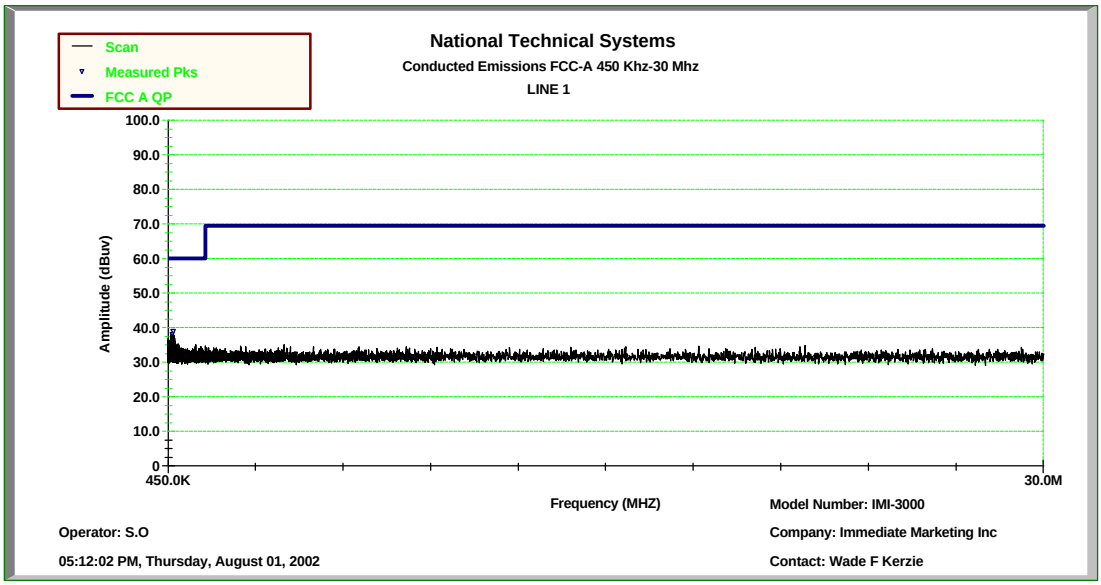
5.2 Conducted Emissions



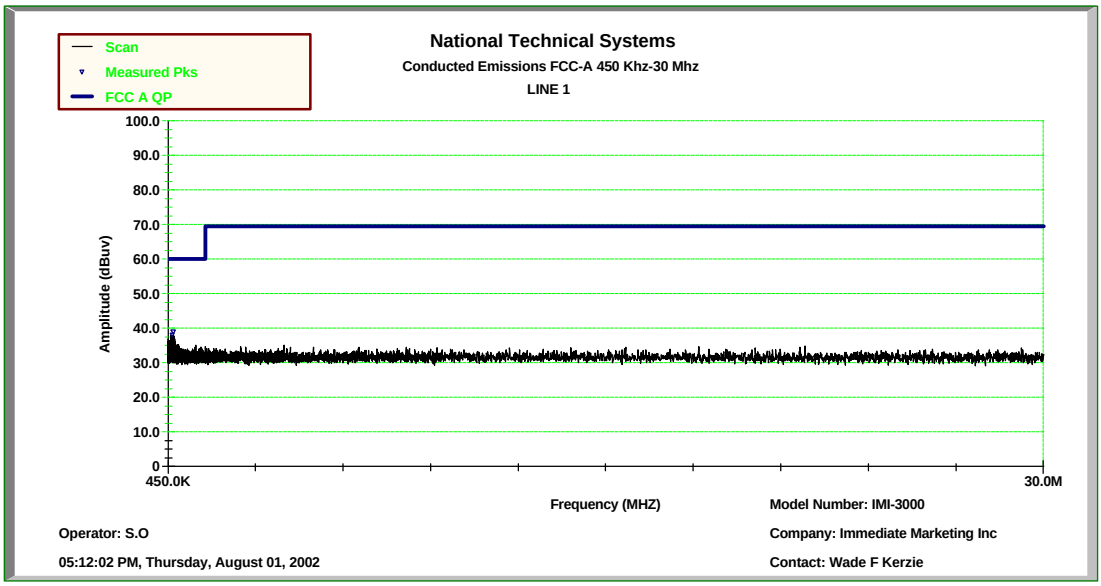
5.2.1 Conducted Emissions Test Setup

Note:

- The worst case configuration was selected to perform the emissions test.



Conducted Emissions 450Khz-30Mhz Line1



Conducted Emissions 450Khz-30Mhz Line2