2. Technical Description {2.983(d)}

2.1 Type of Emission {2.983(d)(1)}

800MHz: 40K0F8W, 40K0F1D, 40K0GXW
1900MHz: 40K0GXW

2.2 Frequency Range {2.983(d)(2)}

824 MHz to 849 MHz, 1850 MHz to 1910 MHz

2.3 Power Rating {2.983(d)(3-5)}

	A800MHz [40K0F8W,40K0F1D]	D800MHz [40K0GXW]	D1900MHz
(1) Input Power for Final Amplifier	4 dBm	4 dBm	0 dBm
(2) Input Voltage for Final Amplifier	4.8 V	4.8V	4.8 V
(3) Input Current for Final Amplifier	500 mA	550mA	600mA
(4) Rated Output Power	0.3 W ERP	0.6 W ERP	0.6W EIRP

2.4 Functions of All Active Devices {2.983(d)(6)}

Table 2.4-1 Active Devices of Transceiver Unit

Symbol	Part Number	Manufacture	Function
D 103	RB491D-T146	ROHM	DIODE
D 107	RB491D-T146	ROHM	DIODE
D 108	1SR154-400-TE25	ROHM	DIODE
D 110	RB520S-30TE61	ROHM	DIODE
D 112	UDZTE-175.1B	ROHM	DIODE
D 122	UDZTE-175.1B	ROHM	DIODE
D 123	HZU2.0BTRF	HITACHI	DIODE
D 124	RB521S-30TE61	ROHM	DIODE
D 125	RB520S-30TE61	ROHM	DIODE
D 126	1SS400TE61/MA2S111-T	ROHM	DIODE
D 127	UDZTE-173.3B	ROHM	DIODE
D 860	HVC202ATRU	HITACHI	DIODE
D 880	HVC202ATRU	HITACHI	DIODE
D 940	1SS295-TE85L	TOSHIBA	DIODE
D 970	1SS295-TE85L	TOSHIBA	DIODE
FL 700	LMS30K1880H103	MURATA	SWITCH&LPF
FL 710	MDR131A-T	SOSHIN	BPF
FL 720	MDR132A-T	SOSHIN	BPF
FL 730	DFYGR836CR881NHA-TA2	MURATA	DUPLEXER
FL 740	TQS-776A-7R	TOYOCOM	FILTER-SAW
FL 750	TS3-D8A01-138.15MHZ	TOYOCOM	FILTER-XTAL
FL 760	CFUXC450B101H-TC01	MURATA	FILTER-CER
FL 780	MLF-KR36D-450	NP-TOTO	FILTER-CER
FL 840	GSF606-SEP1021	SOSHIN	DUPLEXER
FL 920	FAR-F6CE-1G8800-L2XA	FUJITSU	FILTER-SAW

2.7 Tune-Up Procedure {2.983(d)(9)}

2.7.1 Set Up

Connect the RF terminal to the power meter.
Power on MS and enter test mode.

2.7.2 Analog Mode Power adjustment

Issue following test commands pushing ten Key.

402 SEND : enter analog mode
832 SEND : APC ON
01 SEND : Carrier ON

In the case of Power Level X adjustment :

9X SEND : Set Power Level X (See following table)
983 SEND : Set Reference Power level
Adjust the RF power within the adjustment tolerance shown in table 2.7-1, by up/down key.
After adjustment, Push END Key and store the value.
62 SEND : Set Initial APC level

Table 2.7-1 Power adjustment for Analog mode

Power Level	Test Command	Output Power
0	90 SEND	24.5 dBm +1/-0.5dB
1	91 SEND	24.5 dBm +1/-0.5dB
2	92 SEND	24.5 dBm +1/-0.5dB
3	93 SEND	22.3dBm+1/-2dB
4	94 SEND	19.3 dBm +1/-2dB
5	95 SEND	15.3 dBm +1/-2dB
6	96 SEND	11.3 dBm +1/-2dB
7	97 SEND	7.3 dBm +1/-2dB

2.7.3 Digital Mode Power adjustment

Issue following test commands pushing ten Key.

401 SEND : enter cellular band digital mode
(In the case of PCS band, Issue 400 SEND instead of 401 SEND)
832 SEND : APC ON
405 SEND : Asynchronous Transmission mode
408 SEND : Normal Burst transmission
01 SEND : Transmit ON

In the case of Power Level X adjustment :

9X SEND : Set Power Level X (See following table)
983 SEND : Set Reference Power level
Adjust the RF power within the adjustment tolerance shown in table 2.7-2, by up/down key. After adjustment, Push END Key and store the value.
62 SEND : Set Initial APC level

Table 2.7-2 Power adjustment for Digital mode

Power Level	Test Command	Output Power
0	90 SEND	27dBm +1/-1.5dB
1	91 SEND	27dBm +1/-1.5dB
2	92 SEND	27dBm +1/-1.5dB
3	93 SEND	23.3dBm +0.5/-2dB
4	94 SEND	19.3dBm +0.5/-2dB
5	95 SEND	15.3dBm +0.5/-2dB
6	96 SEND	11.3dBm +0.5/-2dB
7	97 SEND	7.3dBm +0.5/-2dB
8	958 SEND	3.5dBm +2/-2dB
9	959 SEND	-0.5dBm +2/-2dB
10	960 SEND	4dBm +3/-3 dB

March 25, 1999

Mr. Phil Bowden
Mitsubishi Consumer Electronics America, Inc.
CMT Group
2001 Cherry Drive
Braselton, GA 30517

Dear Mr. Bowden:

Enclosed please find a copy of the test data for the following project:

U.S. Tech Project #:	99-220
Mitsubishi Tracking #:	Unknown
Model:	MT253
Type of Test:	Spurious Emissions for 3 TX modes
Test Date(s):	3/23/99 & 3/24/99
Final Test Date:	3/23/99 & 3/24/99
Tested By:	Roger Bowen & Austin Thompson

Engineer Present: Phil Bowden

Thank you for this opportunity to be of service to Mitsubishi. Should you have any questions or need further assistance please don't hesitate to call.

Sincerely,

Timothy R. Johnson
Lab Manager

2.8 Description of Oscillator and Synthesizer Circuits {2.983(d)(10)}

The transmitter output frequency of this equipment is produced by the synthesizer circuits and its stability is determined by the voltage controlled temperature compensated crystal oscillator (VC-TCXO) located in the synthesizer circuits on the RF/BB board.

2.8.1 Oscillator Circuits

The VC-TCXO is made by TOYO COMMUNICATION EQUIPMENT CO., LTD. This specification is shown in Table 2.8-1. TCXO Specifications.

The schematic diagram of this temperature compensated crystal oscillator element is shown in Figure 2.8-1 TCXO Oscillator. This oscillator circuits, in which the frequency adopted with a Colpitts type oscillator as the oscillator system.

Table 2.8-1 TCXO Specifications

1.	Output Frequency	19.44MHz
2.	Supply voltage	DC +3.0V +/- 5%
3.	Current drain	2.0mA max.
4.	Output level	0.8 V p-p min. / Clipped sine wave (DC-cut)
5.	Harmonics	-5 dBc max.
6.	Load	(10 k ohm //10pF) +/- 10%
7.	Operating Temperature	-30 degrees C to +75 degrees C
8.	Storage temperature	-30 degrees C to +85 degrees C
9.	Frequency stability	
9.1	vs. Temperature	+/- 2.5ppm max. /-30 degrees C to +75 degrees C(Referenced to + 25 degrees C)
9.2	vs. Supply voltage	+/- 0.3 ppm max. / DC + 3.0V +/- 5%
9.3	vs. Load	+/- 0.3 ppm max. / (10k ohm // 10pF) +/- 10%
9.4	vs. Aging	+/- 1.0 ppm max. / year
10.	Vibration	5 to 150 Hz, 2G
11.	Shock	30G
12.	Humidity	90 to 95 % at 40 degrees C 24 hours
13.	Dimension	9.0 mm

MEASUREMENT PROCEDURE Subpart 2.1053(a), 22.359(a)(3), and 24.238(a)

Field Strength of Spurious Radiation

Radiated spurious emissions were evaluated for frequencies outside the occupied band while the EUT was transmitting into a 50 Ohm Load. Spurious emissions were evaluated from 30 MHz to 19 GHz at an EUT to antenna distance of 3 meters. Measurements for 30 to 1000 MHz were made with the analyzer's bandwidth set to 120 kHz. Measurements above 1000 MHz were made with the analyzer's bandwidth set to 1 MHz. The power output of the EUT was measured at the antenna terminals and the following values obtained when correcting for the cable loss:

a) Analog mode with Wideband Data being sent and maximum power
   Low Channel - 257.0 mW (824.040 MHz) 24.10
   Mid Channel - 331.1 mW (836.520 MHz) 25.2
   High Channel - 288.4 mW (848.970 MHz) 24.6

b) Digital Mode Pseudo-random 48.6 kbits per second and maximum power
   Low Channel - 549.5 mW (824.040 MHz) 27.4
   Mid Channel - 446.7 mW (836.520 MHz) 26.5
   High Channel - 398.1 mW (848.970 MHz) 26.0

c) Digital Mode Pseudo-random 48.6 kbits per second and maximum power
   Low Channel - 524.8 mW (1850.04 MHz) 27.2
   Mid Channel - 467.7 mW (1880.01 MHz) 26.7
   High Channel - 501.2 mW (1909.92 MHz) 27.0

1 MHz

These levels are used in the following calculations for the purpose of comparing the fundamental to the spurious radiation measurements as shown in Tables 1a-1i. Since the EUT was a hand held device, it was rotated about all axis in order to obtain the highest possible spurious emission at each frequency measured.

Using a larger Resolution BW increases the power meas by ~2dB.

MEASUREMENT PROCEDURE Subpart 2.1053(a), 22.359(a)(3), and 24.238(a)

Field Strength of Spurious Radiation (CONT.)

The spurious measurements made are compared to the level the transmitter would produce at 3 meters if connected to an ideal 1/2 wave dipole using:

$$E = \frac{(30\ Pt\ Gt)^{1/2}}{d} \text{ volts per meter}$$

E = Field intensity (volts per meter)

Pt = Measured power output of transmitter (watts)

Gt = Gain of antenna (1.64 for 1/2 wave dipole)

d = distance (meters)

Example: The 0.2570 watt transmitter would produce

$$\frac{[(30)(0.2570)(1.64)]^{1/2}}{3.0} \text{ volts per meter} = 1{,}185{,}299 \text{ uV/m @ 3m}$$

converting uV/m to dBm @ 3 meters yields

20 log (1,185,299) - 107 = 14.5 dBm @ 3 meters for the low channel.

Similar calculations were performed in order to obtain the following:

d) Analog mode with Wideband Data being sent and maximum power
   Low Channel – 14.5 dBm @ 3 m
   Mid Channel – 15.6 dBm @ 3 m
   High Channel – 15.0 dBm @ 3 m

e) Digital Mode Pseudo-random 48.6 kbits per second and maximum power
   Low Channel – 17.8 dBm @ 3m
   Mid Channel – 16.9 dBm @ 3 m
   High Channel – 16.4 dBm @ 3 m

f) Digital Mode Pseudo-random 48.6 kbits per second and maximum power
   Low Channel - 17.6 dBm @ 3 m
   Mid Channel - 17.1 dBm @ 3 m
   High Channel - 17.4 dBm @ 3 m

FCC Minimum Standard
The Lesser of 80 dB or
$43 + 10 \text{ Log}_{10} (P)$ = Minimum attenuation below carrier power (dB)

Field Strength of Fundamental

Test Date: March 23, 1999 ~ March 25, 1999
Model: MT253

Analog Mode

Freq. (MHz)	Measurement @ 3m (dBm)	Correction Note 1.	Corrected Measurement @ 3m (dBm)	Corrected Measurement @ 3m (dB uv/m)	Radiated Power (ERP)
824	-10.5	25.32	14.82	121.82	278mW
836.5	-11.0	25.42	14.42	121.42	253mW
849	-10.8	25.52	14.52	121.52	260mW

Digital Mode (800 MHz band)

Freq. (MHz)	Measurement @ 3m (dBm)	Correction Note 1.	Corrected Measurement @ 3m (dBm)	Corrected Measurement @ 3m (dB uv/m)	Radiated Power (ERP)
824	-7.0	25.32	18.32	125.32	623mW
836.5	-8.1	25.42	17.32	124.32	495mW
849	-7.0	25.52	18.52	125.52	652mW

Note 1. For low band measurements, the correction factor was obtained by the method of using a calibrated dipole antenna and a signal source in place of the DUT. As an example, in the case of 836.5, the gain of the calibrated dipole is 1.004, the input power to the dipole is -20.83dBm (=8.2603 x 10^{-6}W).

$$E = \frac{(30(8.2603 \times 10^{-6})*1.004)^{1/2}}{3} = 5.2578 \times 10^{-3}\ V/m$$

Converting E to power in dBm at 3m: $20\log(5.2578 \times 10^{-3} \times 10^{-6}) - 107 = -32.58dBm$

For the case shown, the spectrum analyzer measured -58dBm.
The correction factor is equal to -32.58dBm -- (-58dBm) = 25.42 dB.

Digital Mode (1900 MHz band)

Freq. (MHz)	Measurement @ 3m (dBm)	Correction AF+CL	Corrected Measurement @ 3m (dBm)	Corrected Measurement @ 3m (dB uv/m)	Radiated Power (EIRP)
1850	-7.0	31.6	14.6	121.6	433mW
1880	-8.1	31.7	15.7	122.7	558mW
1910	-7.0	31.8	14.8	121.8	454mW

AF+CL= Antenna Factor + Cable Loss

FIELD STRENGTH OF SPURIOUS RADIATION (Subpart 2.1053(a) & 22.359(a)(3))

TEST DATE: March 23, 1999 – March 25, 1999
UST PROJECT: 99-220
CUSTOMER: Mitsubishi
MODEL: MT253

FCC Minimum Standard: 43 + 10 log (0.257) = 37.1 dB attenuation

TABLE 1a

Mode of Operation = Analog
EUT Transmit Frequency = 824.040 MHz

FREQ. (GHz)	MEASUREMENT @ 3 m (dBm)	CORRECTION AF + CL - AMP GAIN	CORRECTED MEASUREMENT @ 3 m (dBm)	ATTENUATED LEVEL BELOW CARRIER POWER (dB)
1.648	-73*	30.5**	-42.5	57.0
2.472	-73*	34.9**	-38.1	52.6
3.296	-70*	36.4**	-33.6	48.1
4.120	-70*	39.0**	-31.0	45.5
4.944	-71*	38.9**	-32.1	46.6
5.768	-73*	41.7**	-31.3	45.8
6.592	-64*	8.2	-55.8	70.3
7.416	-57	9.7	-47.3	61.8
8.240	-61*	10.6	-50.4	64.9

* - Ground Floor Reading
** - Preamp not utilized during these measurements

NOTE: When high pass filter was utilized, a 1 dB correction was added to the measurement for its loss.

SAMPLE CALCULATION:
Results dBm @ 3m:
-73 + 30.5 = -42.5

Test Results Reviewed By
Signature: _____ **Name:** Roger Bowen

FIELD STRENGTH OF SPURIOUS RADIATION (Subpart 2.1053(a) & 22.359(a)(3))

TEST DATE: March 23, 1999 – March 25, 1999
UST PROJECT: 99-220
CUSTOMER: Mitsubishi
MODEL: MT253

FCC Minimum Standard: 43 + 10 log (0.3311) = 38.2 dB attenuation

TABLE 1b

Mode of Operation = Analog
EUT Transmit Frequency = 836.520 MHz

FREQ. (GHz)	MEASUREMENT @ 3 m (dBm)	CORRECTION AF + CL - AMP GAIN	CORRECTED MEASUREMENT @ 3 m (dBm)	ATTENUATED LEVEL BELOW CARRIER POWER (dB)
1.673	-72*	30.7**	-41.3	56.9
2.509	-74*	35.0**	-39.0	54.6
3.346	-71*	36.5**	-34.5	50.1
4.183	-72*	38.9**	-33.1	48.7
5.019	-69*	39.0**	-30.0	45.6
5.856	-72*	41.8**	-30.2	45.8
6.692	-62*	8.3	-53.7	69.3
7.529	-56	10.1	-45.9	61.5
8.365	-63*	10.4	-52.6	68.2

* - Ground Floor Reading
** - Preamp not utilized during these measurements

NOTE: When high pass filter was utilized, a 1 dB correction was added to the measurement for its loss.

SAMPLE CALCULATION:
Results dBm @ 3m:
-72 + 30.7 = -41.3

Test Results Reviewed By
Signature: _____ **Name:** Roger Bowen

FIELD STRENGTH OF SPURIOUS RADIATION (Subpart 2.1053(a) & 22.359(a)(3))

TEST DATE: March 23, 1999 – March 25, 1999
UST PROJECT: 99-220
CUSTOMER: Mitsubishi
MODEL: MT253

FCC Minimum Standard: 43 + 10 log (0.2884) = 37.6 dB attenuation

TABLE 1c

Mode of Operation = Analog
EUT Transmit Frequency = 848.970 MHz

FREQ. (GHz)	MEASUREMENT @ 3 m (dBm)	CORRECTION AF + CL - AMP GAIN	CORRECTED MEASUREMENT @ 3 m (dBm)	ATTENUATED LEVEL BELOW CARRIER POWER (dB)
1.697	-74*	30.8**	-43.2	58.2
2.547	-73*	35.0**	-38.0	53.0
3.396	-70*	36.7**	-33.3	48.3
4.245	-71*	38.9**	-32.1	47.1
5.094	-71*	39.4**	-31.6	46.6
5.943	-73*	42.0**	-31.0	46.0
6.792	-57	8.4	-48.6	63.6
7.641	-58	10.4	-47.6	62.6
8.489	-61*	10.2	-50.8	65.8

* - Ground Floor Reading
** - Preamp not utilized during these measurements

NOTE: When high pass filter was utilized, a 1 dB correction was added to the measurement for its loss.

SAMPLE CALCULATION:

Results dBm @ 3m:
-74 + 30.8 = -43.2

Test Results Reviewed By
Signature: _____ **Name:** Roger Bowen

FIELD STRENGTH OF SPURIOUS RADIATION (Subpart 2.1053(a) & 22.359(a)(3))

TEST DATE: March 23, 1999 – March 25, 1999
UST PROJECT: 99-220
CUSTOMER: Mitsubishi
MODEL: MT253

FCC Minimum Standard: 43 + 10 log (0.5495) = 40.4 dB attenuation

TABLE 1d

Mode of Operation = Digital
EUT Transmit Frequency = 824.040 MHz

FREQ. (GHz)	MEASUREMENT @ 3 m* (dBm)	CORRECTION AF + CL - AMP GAIN	CORRECTED MEASUREMENT @ 3 m (dBm)	ATTENUATED LEVEL BELOW CARRIER POWER (dB)
1.648	-73*	30.5**	-42.5	60.3
2.472	-72*	34.9**	-37.1	54.9
3.296	-70*	36.4**	-33.6	51.4
4.120	-70*	39.0**	-31.0	48.8
4.940	-71*	38.9**	-32.1	49.9
5.770	-70*	41.7**	-28.3	46.1
6.590	-63*	8.2	-54.8	72.6
7.416	-61*	9.7	-51.3	69.1
8.240	-60*	10.6	-49.4	67.2

* - Ground Floor Reading
** - Preamp not utilized during these measurements

NOTE: When high pass filter was utilized, a 1 dB correction was added to the measurement for its loss.

SAMPLE CALCULATION:
Results dBm @ 3m:
-73 +30.5 = -42.5

Test Results Reviewed By
Signature: _____ **Name:** Roger Bowen

FIELD STRENGTH OF SPURIOUS RADIATION (Subpart 2.1053(a) & 22.359(a)(3))

TEST DATE: March 23, 1999 – March 25, 1999
UST PROJECT: 99-220
CUSTOMER: Mitsubishi
MODEL: MT253

FCC Minimum Standard: 43 + 10 log (0.4467) = 39.5 dB attenuation

TABLE 1e

Mode of Operation = Digital
EUT Transmit Frequency = 836.520 MHz

FREQ. (GHz)	MEASUREMENT @ 3 m* (dBm)	CORRECTION AF + CL - AMP GAIN	CORRECTED MEASUREMENT @ 3 m (dBm)	ATTENUATED LEVEL BELOW CARRIER POWER (dB)
1.673	-71*	30.7**	-40.3	57.2
2.510	-72*	35.0**	-37.0	53.9
3.346	-67*	36.5**	-30.5	47.4
4.183	-71*	38.9**	-32.1	49.0
5.019	-69*	39.0**	-30.0	46.9
5.768	-71*	41.7**	-29.3	46.2
6.692	-63*	8.3	-54.7	71.6
7.529	-62*	10.1	-51.9	68.8
8.365	-61*	10.4	-50.6	67.5

* - Ground Floor Reading
** - Preamp not utilized during these measurements

NOTE: When high pass filter was utilized, a 1 dB correction was added to the measurement for its loss.

SAMPLE CALCULATION:

Results dBm @ 3m:
-71 + 30.7 = -40.3

Test Results Reviewed By
Signature: _____ **Name:** Roger Bowen

FIELD STRENGTH OF SPURIOUS RADIATION (Subpart 2.1053(a) & 22.359(a)(3))

TEST DATE: March 23, 1999 – March 25, 1999
UST PROJECT: 99-220
CUSTOMER: Mitsubishi
MODEL: MT253

FCC Minimum Standard: 43 + 10 log (0.3981) = 38.9 dB attenuation

TABLE 1f

Mode of Operation = Digital
EUT Transmit Frequency = 848.970 MHz

FREQ. (GHz)	MEASUREMENT @ 3m* (dBm)	CORRECTION AF + CL - AMP GAIN	CORRECTED MEASUREMENT @ 3 m (dBm)	ATTENUATED LEVEL BELOW CARRIER POWER (dB)
1.698	-71*	30.8**	-40.2	56.6
2.547	-74*	35.0**	-39.0	55.4
3.396	-68*	36.7**	-31.3	47.7
4.245	-70*	39.4**	-30.6	47.0
5.094	-71*	42.0**	-29.0	45.4
5.943	-69*	42.8**	-26.2	42.6
6.792	-63*	8.4	-54.6	71.0
7.641	-62*	10.4	-51.6	68.0
8.489	-60*	10.2	-49.8	66.2

* - Ground Floor Reading
** - Preamp not utilized during these measurements

NOTE: When high pass filter was utilized, a 1 dB correction was added to the measurement for its loss.

SAMPLE CALCULATION:
Results dBm @ 3m:
-71 + 30.8 = -40.2

Test Results Reviewed By
Signature: _____ **Name:** Roger Bowen

FIELD STRENGTH OF SPURIOUS RADIATION (Subpart 2.1053(a) & 23.238(a))

TEST DATE: March 23, 1999 – March 25, 1999
UST PROJECT: 99-220
CUSTOMER: Mitsubishi
MODEL: MT253

FCC Minimum Standard: 43 + 10 log (0.5248) = 40.2 dB attenuation

TABLE 1g

Mode of Operation = Digital
EUT Transmit Frequency = 1850.04 MHz

FREQ. (GHz)	MEASUREMENT @ 3 m* (dBm)	CORRECTION AF + CL - AMP GAIN	CORRECTED MEASUREMENT @ 3 m (dBm)	ATTENUATED LEVEL BELOW CARRIER POWER (dB)
3.700	-65	37.8**	-27.2	44.8
5.550	-70*	41.3**	-28.7	46.3
7.400	-53.4	9.7	-43.7	61.3
9.250	-55.7	12.1	-43.6	61.2
11.100	-61*	16.8	-44.2	61.8
12.950	-57*	18.7	-38.3	55.9
14.800	-59*	19.5	-39.5	57.1
16.700	-59*	21.4	-37.6	55.2
18.500	-57*	25.2	-31.8	49.4

* - Ground Floor Reading
** - Preamp not utilized during these measurements

NOTE: When high pass filter was utilized, a 1 dB correction was added to the measurement for its loss.

SAMPLE CALCULATION:

Results dBm @ 3m:
-65 + 37.8 = -27.2

Test Results Reviewed By
Signature: _____ **Name:** Roger Bowen

FIELD STRENGTH OF SPURIOUS RADIATION (Subpart 2.1053(a) & 24.238(a))

TEST DATE: March 23, 1999 – March 25, 1999
UST PROJECT: 99-220
CUSTOMER: Mitsubishi
MODEL: MT253

FCC Minimum Standard: 43 + 10 log (0.4677) = 39.7 dB attenuation

TABLE 1h

Mode of Operation = Digital
EUT Transmit Frequency = 1880.04 MHz

FREQ. (GHz)	MEASUREMENT @ 3 m* (dBm)	CORRECTION AF + CL - AMP GAIN	CORRECTED MEASUREMENT @ 3 m (dBm)	ATTENUATED LEVEL BELOW CARRIER POWER (dB)
3.700	-64	37.8**	-26.2	43.3
3.760	-63	38.0**	-25.0	42.1
5.640	-37.8	7.3	-30.5	47.6
7.520	-56.4	10.1	-46.3	63.4
9.400	-51.5	11.5	-40.0	57.1
11.280	-61*	16.6	-44.4	61.5
13.160	-59*	18.3	-40.7	57.8
15.040	-59*	20.1	-38.9	56.0
16.920	-58*	22.4	-35.6	52.7

* - Ground Floor Reading
** - Preamp not utilized during these measurements

NOTE: When high pass filter was utilized, a 1 dB correction was added to the measurement for its loss.

SAMPLE CALCULATION:
Results dBm @ 3m:
-64 + 37.8 = -26.2

Test Results Reviewed By
Signature: _____ **Name:** Roger Bowen

FIELD STRENGTH OF SPURIOUS RADIATION (Subpart 2.1053(a) & 24.238(a))

TEST DATE: March 23, 1999 – March 25, 1999
UST PROJECT: 99-220
CUSTOMER: Mitsubishi
MODEL: MT253

FCC Minimum Standard: 43 + 10 log (0.5012) = 40.0 dB attenuation

TABLE 1i

Mode of Operation = Digital
EUT Transmit Frequency = 1909.85 MHz

FREQ. (GHz)	MEASUREMENT @ 3 m* (dBm)	CORRECTION AF + CL - AMP GAIN	CORRECTED MEASUREMENT @ 3 m (dBm)	ATTENUATED LEVEL BELOW CARRIER POWER (dB)
3.820	-34.1	4.0	-30.1	47.5
5.730	-71*	41.7**	-29.3	46.7
7.640	-55.6	10.4	-45.2	62.6
9.550	-51.4	11.4	-40.0	57.4
11.460	-61*	16.5	-44.5	61.9
13.370	-59*	18.0	-41.0	58.4
15.280	-60*	19.9	-40.1	57.5
17.190	-58*	23.9	-34.1	51.5

* - Ground Floor Reading
** - Preamp not utilized during these measurements

NOTE: When high pass filter was utilized, a 1 dB correction was added to the measurement for its loss.

SAMPLE CALCULATION:

Results dBm @ 3m:
-61 + 4.0 = -30.1

Test Results Reviewed By
Signature: _____ **Name:** Roger Bowen

MEASUREMENT PROCEDURE

Field Strength of Fundamental

The Field Strength of Fundamental was measured for each mode of operation that was available with the EUT was transmitting into its actual antenna with the antenna extended. Measurements were made at a test distance of 3 meters. Measurements for 30 to 1000 MHz were made with the analyzer's bandwidth set to 120 kHz. Measurements above 1000 MHz were made with the analyzer's bandwidth set to 1 MHz. The readings were then corrected for all losses within the measurements system. The fundamental field strength received was approximately within 3 dB of the theoretical values calculated when assuming a ½ wave dipole reference antenna. The results are shown in Table 2.