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Radio Test Report

FCC Part 90 Subpart Z (3650–3700 MHz)

Model: Mercury 3650 Spread Spectrum XCVR

FCC ID: E5MDS-MERCURY3651

COMPANY: GE MDS LLC 175 Science Parkway Rochester, NY 14620

TEST SITE(S): Elliott Laboratories 684 W. Maude Avenue Sunnyvale, CA 94085

And

41039 Boyce Road. Fremont, CA. 94538-2435

REPORT DATE: October 1, 2009

FINAL TEST DATES:

July 23, July 24 and August 15, 2008 and September 28 and September 29, 2009

AUTHORIZED SIGNATORY:

Mark Briggs Staff Engineer Elliott Laboratories.



Testing Cert #2016-01

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REVISION HISTORY

Rev#	Date	Comments	Modified By
	October 2, 2009	First Release	

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SCOPE

Tests have been performed on the GE MDS LLC model Mercury 3650 Spread Spectrum XCVR, pursuant to the relevant requirements of the following standard(s) in order to obtain device certification against the regulatory requirements of the Federal Communications Commission and Industry Canada.

- Code of Federal Regulations (CFR) Title 47 Part 2
- CFR 47 Part 90 (Private Land Mobile Radio Service)

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in Elliott Laboratories test procedures:

ANSI C63.4:2003 ANSI TIA-603-C August 17, 2004

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant Industry Canada performance and procedural standards.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

The test results recorded herein are based on a single type test of the GE MDS LLC model Mercury 3650 Spread Spectrum XCVR and therefore apply only to the tested sample. The sample was selected and prepared by Dennis McCarthy of GE MDS LLC.

OBJECTIVE

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section.

Prior to marketing in the USA, the device requires certification. Prior to marketing in Canada, Class I transmitters, receivers and transceivers require certification.

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body's review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

STATEMENT OF COMPLIANCE

The tested sample of GE MDS LLC model Mercury 3650 Spread Spectrum XCVR complied with the requirements of the standards and frequency bands declared in the scope of this test report.

Maintenance of compliance is the responsibility of the manufacturer. Any modifications to the product should be assessed to determine their potential impact on the compliance status of the device with respect to the standards detailed in this test report.

DEVIATIONS FROM THE STANDARDS

No deviations were made from the published requirements listed in the scope of this report.

TEST RESULTS

FCC Part 90Z – Base and Fixed Stations, 3	3650 – 3700 MHz
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FCC	Description	Measured	Limit	Result
Transmitter Me	odulation, output power and	d other characteristics		
§2.1033 (c) (5) § 90.1321(b)	Frequency ranges	5 MHz 3652-3673 MHz MHz 3653-3672 MHz IHz 3653-3672 MHz IHz 3653-3672 MHz IHz 3654-3671 MHz MHz 3656-3669 MHz MHz 3658-3667 MHz		Complies
<pre>§2.1033 (c) (6) §2.1033 (c) (7) §2.1046 § 90.1321</pre>	EIRP – Total power (Maximum for each channel spacing)	1.75 MHz 1.585 W 3.5 MHz 2.754 W 5 MHz 3.981 W 7 MHz 5.623 W 10 MHz 5.248 W 14 MHz 5.012 W	25 Watts (Base and fixed stations)	Complies
	EIRP – PSD (Maximum)	30dBm/MHz	30 dBm/MHz	Complies
§2.1033 (c)	Emission types	G1D	Information only	-
(4) §2.1047 § 90.210	Emission mask	Device complies with spectral mask – refer to test data	Mask B	Complies
§2.1049	Occupied (99%) Bandwidth	1.75MHz: 1.70MHz 3.5 MHz: 3.20MHz 5 MHz: 4.60MHz 7 MHz: 6.40MHz 10 MHz: 9.20MHz 14 MHz: 12.7 MHz	Information only	-
	urious emissions			
\$2.1051 \$2.1057	At the antenna terminals Radiated (eirp)	-35.8dBm -45.2dBm	-13 dBm/MHz	Complies Complies
§90.1323		(50.1dBuV/m at 3m)		compiles
Receiver spurio				
15.109	Field strength	Not applicable, note 2		
Other details §90.1319	Policies of use	Refer to operational description for details of the implementation.	Device must employ a contention-based protocol.	Complies
§2.1055 §90.213(a)	Frequency stability	< 0.2 ppm	To be specified in the station authorization	-
\$1.1307(b) \$2.1093 \$90.1335	RF Exposure	Although RF exposure compliance is addressed at the time of licensing an MPE calculation has been provided to demonstrate compliance with limits at distances of 22cm or more from the antennas.		
§2.1033 (c) (8)	Final radio frequency amplifying circuit's dc voltages and currents for normal operation over the power range	5Vdc 2Amps	Information only	-
-	Antenna Gain	This application is submitted gain. All calculations assum feed cable between antenna t antenna.	ne a minimum loss of 3dE	B for the
contention-b of the band.	based protocol. This system of	n 3675 – 3700 MHz requires the does not have such a protocol a sonly apply to devices that or	and so cannot use the up	per portion

2) Receiver spurious emissions requirements only apply to devices that operate (tune) below 960MHz.

EXTREME CONDITIONS

Frequency stability is determined over extremes of temperature and voltage. The extremes of voltage were 85 to 115 percent of the nominal value. The extremes of temperature were -30° C to $+50^{\circ}$ C as specified in FCC §2.1055(a)(1).

MEASUREMENT UNCERTAINTIES

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2) and were calculated in accordance with NAMAS document NIS 81 and M3003.

Measurement Type	Measurement Unit	Frequency Range	Expanded Uncertainty
RF frequency	Hz	25 to 7,000 MHz	1.7 x 10 ⁻⁷
RF power, conducted	dBm	25 to 7,000 MHz	$\pm 0.52 \text{ dB}$
Conducted emission of transmitter	dBm	25 to 40,000 MHz	$\pm 0.7 \text{ dB}$
Conducted emission of receiver	dBm	25 to 40,000 MHz	$\pm 0.7 \text{ dB}$
Radiated emission (substitution method)	dBm	25 to 40,000 MHz	± 2.5 dB
Radiated emission (field strength)	dBµV/m	25 to 1,000 MHz 1 to 40 GHz	$\begin{array}{c} \pm 3.6 \text{ dB} \\ \pm 6.0 \text{ dB} \end{array}$

EQUIPMENT UNDER TEST (EUT) DETAILS

GENERAL

The GE MDS LLC model Mercury 3650 Spread Spectrum XCVR is a broadband wireless transceiver which is designed to transmit and receive data in the 3.65 - 3.675 GHz band. Normally, the EUT would be placed on a tabletop or in a rack during operation. The EUT was, therefore, placed on a table during emissions testing to simulate the end user environment. The electrical rating of the EUT is 10-30Vdc, 2.5 Amps.

The sample was received on July 23, 2008 and tested on July 23, July 24 and August 15, 2008. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number
GE MDS LLC	Mercury 3650	Digital UHF Radio	Not serialized

A second sample was received on September 28, 2009 and tested on September 28 and September 29, 2009. The EUT consisted of the following component(s):

Company	Model	Description	Serial Number
GE MDS LLC	Mercury 3650-A	Digital UHF Radio	1234567

OTHER EUT DETAILS

The Mercury 3650 can be used with antennas of 13dBi or 18 dB. The test data accounted for a minimum feed cable loss of 3dB between the devices rf port and the antenna when calculating the eirp values for power and power spectral density from the values measured at the device's rf terminal.

ENCLOSURE

The EUT enclosure is primarily constructed of die cast metal. It measures approximately 20cm wide by 11cm deep by 5cm high.

MODIFICATIONS

No modifications were made to the EUT during the time the product was at Elliott.

SUPPORT EQUIPMENT

The following equipment was used as support equipment for testing:

Company	Model	Description	Serial Number	FCC ID
IBM	Thinkpad	Laptop	L3-C3706	DoC
MECA	465-1	50 ohm termination	-	-

The following equipment was used as remote support equipment for emissions testing:

Company	Model	Description	Serial Number	FCC ID
Netgear	RP114	Router	RP14BC452759	DoC

EUT INTERFACE PORTS

Port	Connected	Cable(s)				
FOIL	То	Description	Shielded or Unshielded	Length(m)		
Antenna	50 ohms Termination	-	-	-		
Data Interface	Laptop	DB25	Shielded	2.0		
GPS	Terminator	Coax	Shielded	2.0		
LAN	Router	CAT 5	Unshielded	10.0		
DC Power	13.8V DC Source	2 wire	Unshielded	2.0		

The I/O cabling configuration during testing was as follows:

EUT OPERATION

During emissions testing the EUT was set to transmit mode. The device was transmitting continuously using either an unmodulated or modulated signal as required for testing.

All bandwidth, mask, radiated spurious emissions and conducted spurious emissions were measured with the output power set to the highest setting (setting 23) using the sample provided in July 2008. Power and power spectral density measurements were made on the sample provided in September 2009 at the highest power setting that complied with the eirp requirements, without exceeding setting 23. It was verified that the output power at the antenna terminals at setting 23 for the second sample was consistent (within 0.5dB) of the values measured on the first sample.

Preliminary measurements on all different data rates indicated that BPSK and QAM were representative of the highest power, highest power spectral density and widest signal bandwidths for all modulations, therefore final measurements were made using these two modulations.

TESTING

GENERAL INFORMATION

Antenna port measurements were taken at the Elliott Laboratories test site located at 684 West Maude Ave, Sunnyvale, CA 94085-3518 and 41039 Boyce Road, Fremont, CA 94538-2435.

Radiated spurious emissions measurements were taken at the Elliott Laboratories Anechoic Chambers and/or Open Area Test Site(s) listed below. The sites conform to the requirements of ANSI C63.4: 2003 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz and CISPR 16-1-4:2007 - Specification for radio disturbance and immunity measuring apparatus and methods Part 1-4: Radio disturbance and immunity measuring apparatus Ancillary equipment Radiated disturbances. They are on file with the FCC and industry Canada.

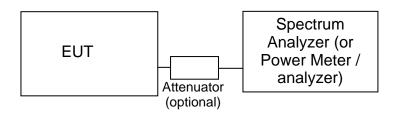
Site	Registratio	n Numbers	Location	
Site	FCC Canada		Location	
SVOATS #2	90593	IC 2845A-2	684 West Maude Ave, Sunnyvale CA 94085-3518	

In the case of Open Area Test Sites, ambient levels are at least 6 dB below the specification limits with the exception of predictable local TV, radio, and mobile communications traffic.

Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements.

RF PORT MEASUREMENT PROCEDURES

Conducted measurements are performed with the EUT's rf input/output connected to the input of a spectrum analyzer, power meter or modulation analyzer. When required an attenuator, filter and/or dc block is placed between the EUT and the spectrum analyzer to avoid overloading the front end of the measurement device. Measurements are corrected for the insertion loss of the attenuators and cables inserted between the rf port of the EUT and the measurement equipment.



Test Configuration for Antenna Port Measurements

For devices with an integral antenna the output power and spurious emissions are measured as a field strength at a test distance of (typically) 3m and then converted to an eirp using a substitution measurement (refer to RADIATED EMISSIONS MEASUREMENTS). All other measurements are made as detailed below but with the test equipment connected to a measurement antenna directed at the EUT.

OUTPUT POWER

Output power is measured using a power meter and an average sensor head, a spectrum analyzer or a power meter and peak power sensor head as required by the relevant rule part(s). Where necessary measurements are gated to ensure power is only measured over periods that the device is transmitting.

Power measurements made directly on the rf power port are, when appropriate, converted to an EIRP by adding the gain of the highest gain antenna that can be used with the device under test, as specified by the manufacturer.

BANDWIDTH MEASUREMENTS

The 6dB, 20dB and/or 26dB signal bandwidth is measured in using the bandwidths recommended by ANSI C63.4. When required, the 99% bandwidth is measured using the methods detailed in RSS GEN. The measurement bandwidth is set to be at least 1% of the instrument's frequency span.

CONDUCTED SPURIOUS EMISSIONS

Initial scans are made using a peak detector (RBW=VBW) and using scan rates to ensure that the EUT transmits before the sweep moves out of each resolution bandwidth (for transmit mode measurements). Where the limits are expressed as an average power the spectrum analyzer is tunes to that frequency with a narrow span (wide enough to capture the emission and its sidebands) and the resolution and video bandwidths are adjusted as required by the reference measurement standards. For transmitter measurements the appropriate detector (average, peak, normal ,sample, quasi-peak) is used when making measurements for licensed devices. For receiver conducted spurious measurements the detector is set to peak.

TRANSMITTER MASK MEASUREMENTS

The transmitter mask measurements are made using resolution bandwidths as specified in the pertinent rule part(s). Where narrower bandwidths are used the measurement is corrected to account for the reduced bandwidth by either using the adjacent channel power function of the spectrum analyzer to sum the power across the required measurement bandwidth. The frequency span of the analyzer is set to ensure the fundamental signal and all significant sidebands are displayed.

The top of the mask may be set by the total output power of the signal, the power of the unmodulated signal or the peak value of the signal in the reference bandwidth being used for the mask measurement.

FREQUENCY STABILITY

The EUT is placed inside a temperature chamber with all support and test equipment located outside of the chamber. The temperature is varied across the specified frequency range in 10 degree increments with frequency measurements made at each temperature step. The EUT is allowed enough time to stabilize at each temperature variation.

The spectrum analyzer is configured to give a 5- or 6-digit display for the markerfrequency function. The spectrum analyzer's built-in frequency counter is used to measure the maximum deviation of the fundamental frequency at each temperature. Where possible the device is set to transmit an unmodulated signal. Where this is not possible the frequency drift is determined by finding a stable point on the signal (e.g. the null at the centre of an OFDM signal) or by calculating a centre frequency based on the upper and lower XdB points (where X is typically 6dB or 10dB) on the signal's skirts.

RADIATED EMISSIONS MEASUREMENTS

Receiver radiated spurious emissions measurements are made in accordance with ANSI ANSI C63.4:2003 by measuring the field strength of the emissions from the device at a specific test distance and comparing them to a field strength limit. Where the field strength limit is specified at a longer distance than the measurement distance the measurement is extrapolated to the limit distance.

Transmitter radiated spurious emissions are initially measured as a field strength. The eirp or erp limit as specified in the relevant rule part(s) is converted to a field strength at the test distance and the emissions from the EUT are then compared to that limit. Emissions within 20dB of this limit are the subjected to a substitution measurement.

All radiated emissions measurements are performed in two phases. A preliminary scan of emissions is conducted in either an anechoic chamber or on an OATS during which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed across the complete frequency range of interest and at each operating frequency identified in the reference standard. One or more of these is with the antenna polarized vertically while the one or more of these is with the antenna polarized horizontally. Initial scans are made using a peak detector (RBW=VBW) and using scan rates to ensure that the EUT transmits before the sweep moves out of each resolution bandwidth (for transmit mode).

During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied and cable positions are varied to determine the highest emission relative to the limit. For transmitter spurious emissions, where the limit is expressed as an effective radiated power, the eirp or erp is converted to a field strength limit.

Final measurements are made on an OATS or in a semi-anechoic chamber at the significant frequencies observed during the preliminary scan(s) using the same process of rotating the EUT and raising/lowering the measurement antenna to find the highest level of the emission. The field strength is recorded and, for receiver spurious emissions, compared to the field strength limit. For the final measurement the appropriate detectors (average, peak, normal, sample, quasi-peak) are used. For receiver measurements below 1GHz the detector is a Quasi-Peak detector, above 1GHz a peak detector is used and the peak value (RB=VB=1MHz) and average value (RB=1MHz, VB=10Hz) are recorded.

For transmitter spurious emissions, the radiated power of all emissions within 20dB of the calculated field strength limit are determined using a substitution measurement. The substitution measurement is made by replacing the EUT with an antenna of known gain (typically a dipole antenna or a double-ridged horn antenna), connected to a signal source. The output power of the signal generator is adjusted until the maximum field strength from the substitution antenna is similar to the field strength recorded from the EUT. The erp of the EUT is then calculated.

INSTRUMENTATION

An EMI receiver as specified in CISPR 16-1-1 is used for radiated emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 7000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary.

For measurements above the frequency range of the receivers and for all conducted measurements a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Measurement bandwidths for the test instruments are set in accordance with the requirements of the standards referenced in this document.

Software control is used to correct the measurements for transducer factors (e.g. antenna) and the insertion loss of cables, attenuators and other series elements to obtain the final measurement value. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are exported in a graphic and/or tabular format, as appropriate.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the EUT antenna port or receiving antenna and the test receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A combination of biconical, log periodic or bi-log antennas are used to cover the range from 30 MHz to 1000 MHz. Broadband antennas or tuned dipole antennas are used over the entire 25 to 1000 MHz frequency range as the reference antenna for substitution measurements.

Above 1000 MHz, a dual-ridge guide horn antenna or octave horn antenna are used as reference and measurement antennas.

The antenna calibration factors are included in site factors that are programmed into the test receivers and instrument control software when measuring the radiated field strength.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a nonconductive antenna mast equipped with a motor-drive to vary the antenna height.

Table mounted devices are placed on a non-conductive table at a height of 80 centimeters above the floor. Floor mounted equipment is placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. The EUT is positioned on a motorized turntable to allow it to be rotated during testing to determine the angel with the highest level of emissions.

SAMPLE CALCULATIONS

SAMPLE CALCULATIONS - CONDUCTED SPURIOUS EMISSIONS

Measurements are compared directly to the conducted emissions specification limit (decibel form). The calculation is as follows:

$$R_r - S = M$$

where:

 R_r = Measured value in dBm

S = Specification Limit in dBm

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS -RADIATED FIELD STRENGTH

Measurements of radiated field strength are compared directly to the specification limit (decibel form). The receiver and/or control software corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

A distance factor is sued when measurements are made at a test distance that is different to the specified limit distance by using the following formula:

$$F_d = 20*LOG_{10} (D_m/D_s)$$

where:

 F_d = Distance Factor in dB D_m = Measurement Distance in meters D_s = Specification Distance in meters

For electric field measurements below 30MHz the extrapolation factor is either determined by making measurements at multiple distances or a theoretical value is calculated using the formula:

$$F_d = 40*LOG_{10} (D_m/D_s)$$

The margin of a given emission peak relative to the limit is calculated as follows:

 $R_c = R_r + F_d$

$$M = R_c - L_s$$

where:

and

- R_r = Receiver Reading in dBuV/m
- F_d = Distance Factor in dB
- R_c = Corrected Reading in dBuV/m
- L_S = Specification Limit in dBuV/m
- M = Margin in dB Relative to Spec

SAMPLE CALCULATIONS -RADIATED POWER

The erp/eirp limits for transmitter spurious measurements are converted to a field strength in free space using the following formula:

$$E = \frac{\sqrt{30 P G}}{d}$$

where:

- E = Field Strength in V/m
- P = Power in Watts
- G = Gain of isotropic antenna (numeric gain) = 1

D = measurement distance in meters

The field strength limit is then converted to decibel form (dBuV/m) and the margin of a given emission peak relative to the limit is calculated (refer to *SAMPLE CALCULATIONS –RADIATED FIELD STRENGTH*).

When substitution measurements are required (all signals with less than 20dB of margin relative to the calculated field strength limit) the eirp of the spurious emission is calculated using:

$$P_{EUT} = P_{S-}(E_{S-}E_{EUT})$$

$$P_s = G + P_{in}$$

where:

- P_{S} = effective isotropic radiated power of the substitution antenna (dBm)
- P_{in} = power input to the substitution antenna (dBm)
- G = gain of the substitution antenna (dBi)
- E_{S} = field strength the substitution antenna (dBm) at eirp P_{S}

 E_{EUT} = field strength measured from the EUT

Where necessary the effective isotropic radiated power is converted to effective radiated power by subtracting the gain of a dipole (2.2dBi) from the eirp value.

Appendix A Test Equipment Calibration Data

Radiated Emissions, 30 - 37,000 MHz, 23-Jul-08						
Manufacturer	Description	Model #	Asset #	Cal Due		
Elliott Laboratories	Biconical Antenna, 30-300 MHz	EL30.300	54	26-Mar-09		
EMCO	Log Periodic Antenna, 0.3-1 GHz	3146A	364	13-Dec-08		
Hewlett Packard	Microwave Preamplifier, 1- 26.5GHz	8449B	870	08-Nov-08		
Hewlett Packard	Head (Inc W1-W4, 1143, 1144) Red	84125C	1145	16-Nov-08		
EMCO	Antenna, Horn, 18-26.5 GHz (SA40-Red)	3160-09 (84125C)	1150	05-Nov-08		
EMCO	Antenna, Horn, 26.5-40 GHz (SA40-Red)	3160-10 (84125C)	1151	05-Nov-08		
EMCO	Antenna, Horn, 1-18 GHz	3115	1561	10-Jun-10		
Hewlett Packard	Preamplifier, 100 kHz - 1.3 GHz	8447D OPT 010	1826	29-May-09		
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40)	8564E	CH5273	20-Sep-08		
Environmental Test, 2	24-Jul-08					
<u>Manufacturer</u>	Description	Model #	Asset #	Cal Due		
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40)	8564E	CH5273	20-Sep-08		
Power, PSD, BW and	Spurious, 15-Aug-08					
Manufacturer	Description	<u>Model #</u>	Asset #	<u>Cal Due</u>		
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1538	25-Aug-08		
Hewlett Packard	SpecAn 9 kHz - 40 GHz, (SA40)	8564E	CH5273	20-Sep-08		
Radio Antenna Port (I	Power and Spurious Emission	s), 28-Sep-09				
Manufacturer	Description	Model #	Asset #	Cal Due		
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1756	10-Feb-10		
Radio Antenna Port (I	Power and Spurious Emission	s), 29-Sep-09				
Manufacturer	Description	Model #	Asset #	Cal Due		
Rohde & Schwarz	EMI Test Receiver, 20 Hz-7 GHz	ESIB7	1630	26-Feb-10		

Appendix B Test Data

T76967 30 Pages T76941 14 Pages



EMC Test Data

All DLIE	company		
Client:	GE MDS LLC	Job Number:	J76926
Model:	Mercury 3650	T-Log Number:	T76967
		Account Manager:	Susan Pelzl
Contact:	Dennis McCarthy		-
Emissions Standard(s):	FCC Part 90	Class:	A
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

GE MDS LLC

Model

Mercury 3650

Date of Last Test: 8/15/2008

Note - data in this data log whas been taken from J72039, T72175

Client: GE MDS LLC Job Number: J76926 Model: Mercury 3650 T-Log Number: T76967 Contact: Dennis McCarthy Susan Pelzi Standard: FCC Part 90 Class: N/A FCC Part 90 Class: N/A FCC Part 90 Class: N/A FCC Part 90 Class: N/A Standard: FCC Part 90 FCC Part 90 FCC Part 90 FCC Part 90 Class: N/A Modification lessed solution Standard: FCC Part 90 Frequency Stability <	Client: GE MDS LLC Job Number: J76926 Model: Mercury 3650 T-Log Number: T76967 Account Manager: Susan Pelzi Contact: Dennis McCarthy Image: Susan Pelzi Standard: FCC Part 90 Class: N/A FCC Part 90 Class: N/A FCC Part 90 FCC Part 90 FCC Part 90 Frequency Stability Standard: FCC Part 90 FCC Part 90 Fequency Stability The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Seneral Test Configuration The Difference Temperature: 20 °C Rel. Humidity: 36 % Summary of Results Modifications Made During Testing: No modifications were made to the EUT during testing No modifications were made to the EUT during testing Deviations From The Standard		ott			Radio Test	Da
Model: Mercury 3650 T-Log Number: T/T/5967 Account Manager: Suan Pelzl Contact: Dennis McCarthy Class: N/A FCC Part 90 Class: N/A FCC Part 90 Class: N/A FCC Part 90 FCC Part 90 FCC Part 90 Frequency Stability The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Semeral Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was plact inside an environmental chamber. umbient Conditions: Temperature: 20 °C Rel. Humidity: 36 % Summary of Results Modifications Made During Testing: No modifications were made to the EUT during testing No modifications were made to the EUT during testing	Model: Mercury 3650 T-Log Number: T/T6967 Account Manager: Susan Pelzi Contact: Dennis McCarthy Class: N/A FCC Part 90 Class: N/A FCC Part 90 Class: N/A FCC Part 90 FCC Part 90 Frequency Stability The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Semeral Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was plainside an environmental chamber. Ambient Conditions: Temperature: 20 °C Rel. Humidity: 36 % Summary of Results Modifications Made During Testing: No modifications were made to the EUT during testing No modifications were made to the EUT during testing Deviations From The Standard	An	AZAS company			Job Number: J76926	
Contact: Dennis McCarthy Account Manager: Susan Peizi Standard: FCC Part 90 Class: N/A FCC Part 90 Class: N/A FCC Part 90 Frequency Stability The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Seneral Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was plact inside an environmental chamber. Ambient Conditions: Temperature: 20 °C Rel. Humidity: 36 % Mage: Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing<	Contact: Dennis McCarthy Class: N/A Standard: FCC Part 90 Class: N/A FCC Part 90 Class: N/A FCC Part 90 Frequency Stability The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Seneral Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was plainside an environmental chamber. Ambient Conditions: Temperature: 20 °C Rel. Humidity: 36 % Matter Margin 1-2 Frequency and Voltage Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Modifications were made to	Model: Mercury (3650			•	
Standard: FCC Part 90 Frequency Stability The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Standard Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was place inside an environmental chamber. umbient Conditions: Temperature: 20 °C Rel. Humidity: 36 % Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing Deviations From The Standard	Standard: FCC Part 90 Frequency Stability Te objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Seneral Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was platinside an environmental chamber. Ambient Conditions: Temperature: 20 °C Rel. Humidity: 36 % Summary of Results Mun # Test Performed Limit Result Value / Margin 1-2 Frequency and Voltage Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing Deviations From The Standard				Acco	unt Manager: Susan Pelzl	
FCC Part 90 Frequency Stability 'est Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Seneral Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was place inside an environmental chamber. Seneral Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was place inside an environmental chamber. Sumbient Conditions: Temperature: 20 °C Rel. Humidity: 36 % Summary of Results Modifications Made During Testing: No modifications were made to the EUT during testing No modifications From The Standard	FCC Part 90 Frequency Stability Test Specific Details Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Seneral Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was platinside an environmental chamber. Ambient Conditions: Temperature: 20 °C Rel. Humidity: 36 % Summary of Results Multiple of the standard Unit Result Value / Margin (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing Deviations From The Standard					Class: N/A	
Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. General Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was place inside an environmental chamber. Ambient Conditions: Temperature: 20 °C Rel. Humidity: 36 % Summary of Results Test Performed Limit Result Value / Margin 1-2 Frequency and Voltage Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing Pass Highest Drift: 783 Hz (0.2ppm)	Notice The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above. Seneral Test Configuration The EUT's rf port was connected to the measurement instrument's rf port, via an attenuator or dc-block if necessary. EUT was plainside an environmental chamber. Seneral Conditions: Temperature: 20 °C Rel. Humidity: 36 % Summary of Results Test Performed Limit Result Value / Margin 1-2 Frequency and Voltage Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing Pass Highest Drift: 783 Hz (0.2ppm)						
ambient Conditions: Temperature: 20 °C. Rel. Humidity: 36 % aummary of Results Image: A standard for the standard Aummary of Results Image: A standard for the standard Image: A standard for the standard Aummary of Results Image: A standard for the standard	ambient Conditions: Temperature: 20 °C. Rel. Humidity: 36 % aummary of Results Image: A standard for the standard Aummary of Results Image: A standard for the standard Image: A standard for the standard Aummary of Results Image: A standard for the standard	Objectiv General Test Cor The EUT's rf port w	The objective of this test session is to p specification listed above. Infiguration ras connected to the measurement instrument				
Run # Test Performed Limit Result Value / Margin 1-2 Frequency and Voltage Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Iodifications Made During Testing: No modifications were made to the EUT during testing Peviations From The Standard	Run # Test Performed Limit Result Value / Margin 1-2 Frequency and Voltage Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Iodifications Made During Testing: No modifications were made to the EUT during testing Deviations From The Standard		ons: Temperature:				
1-2 Frequency and Voltage Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Deviations From The Standard Pass Pass Pass Pass Pass	1-2 Frequency and Voltage Stability Part 90.213 Pass Highest Drift: 783 Hz (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing Deviations From The Standard		ults				1
1-2 Frequency and Voltage Stability Part 90.213 Pass 0 (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing Deviations From The Standard	I-2 Frequency and Voltage Stability Part 90.213 Pass Control (0.2ppm) Modifications Made During Testing: No modifications were made to the EUT during testing Deviations From The Standard	-				· · · · · · ·	
No modifications were made to the EUT during testing Deviations From The Standard	No modifications were made to the EUT during testing Deviations From The Standard	Run #					
		Run #				Highest Drift: 783 Hz	
		Run # 1-2 Modifications Ma No modifications we Deviations From	Frequency and Voltage Stability ade During Testing: ere made to the EUT during testing The Standard	Part 90.213		Highest Drift: 783 Hz	
		Run # 1-2 Modifications Ma No modifications we Deviations From	Frequency and Voltage Stability ade During Testing: ere made to the EUT during testing The Standard	Part 90.213		Highest Drift: 783 Hz	
		Run # 1-2 Modifications Ma No modifications we Deviations From	Frequency and Voltage Stability ade During Testing: ere made to the EUT during testing The Standard	Part 90.213		Highest Drift: 783 Hz	
		Run # 1-2 Modifications Ma No modifications we Deviations From	Frequency and Voltage Stability ade During Testing: ere made to the EUT during testing The Standard	Part 90.213		Highest Drift: 783 Hz	

	Elliott			Radio	o Test Data
Client:	GE MDS LLC			Job Number:	J76926
Madalı	Marour / 2650			T-Log Number:	T76967
wodel:	Mercury 3650			Account Manager:	Susan Pelzl
Contact:	Dennis McCarthy				
Standard:	FCC Part 90			Class:	N/A
	For all tests: Unmodul	ated signal using mode RE	OSK at frequency (3662M	Hz) with nower setting of	23dBm was used
Note 1: Note 2:	Analyzer settings were	ated signal using mode BF e as follow: RBW=VBW= 1 to be specified in the statio	kHz and Span=5kHz.	Hz) with power setting of	23dBm was used.
	Analyzer settings were	e as follow: RBW=VBW= 1	kHz and Span=5kHz.	Hz) with power setting of Limit	23dBm was used. Drift
Note 2:	Analyzer settings were Frequency stability is t	e as follow: RBW=VBW= 1 to be specified in the statio	kHz and Span=5kHz.		
Note 2: Temperature	Analyzer settings were Frequency stability is t Reference Frequency	e as follow: RBW=VBW= 1 to be specified in the statio Measured frequency	kHz and Span=5kHz. n authorization. <u>Drift</u>	Limit	<u>Drift</u>
Note 2: <u>Temperature</u> (Celsius)	Analyzer settings were Frequency stability is t Reference Frequency (MHz)	e as follow: RBW=VBW= 1 to be specified in the statio Measured frequency (MHz)	kHz and Span=5kHz. on authorization. <u>Drift</u> (Hz)	Limit (Hz)	<u>Drift</u> (ppm)
Note 2: <u>Temperature</u> (Celsius) -30	Analyzer settings were Frequency stability is t Reference Frequency (MHz) 3662.002705	e as follow: RBW=VBW= 1 to be specified in the statio Measured frequency (MHz) 3662.002205	kHz and Span=5kHz. on authorization. <u>Drift</u> (Hz) 500	Limit (Hz) Note 2	<u>Drift</u> (ppm) 0.1
Note 2: <u>Temperature</u> (Celsius) -30 -20	Analyzer settings were Frequency stability is t Reference Frequency (MHz) 3662.002705 3662.002705	e as follow: RBW=VBW= 1 to be specified in the statio Measured frequency (MHz) 3662.002205 3662.002622	kHz and Span=5kHz. on authorization. Drift (Hz) 500 83	Limit (Hz) Note 2 Note 2	<u>Drift</u> (ppm) 0.1 0.0
Note 2: <u>Temperature</u> (Celsius) -30 -20 -10	Analyzer settings were Frequency stability is t Reference Frequency (MHz) 3662.002705 3662.002705 3662.002705	e as follow: RBW=VBW= 1 to be specified in the statio Measured frequency (MHz) 3662.002205 3662.002622 3662.002405	kHz and Span=5kHz. on authorization. Drift (Hz) 500 83 300	Limit (Hz) Note 2 Note 2 Note 2 Note 2	<u>Drift</u> (ppm) 0.1 0.0 0.1

783

33

509

Note 2

Note 2

Note 2

Run #2: Voltage Vs. Frequency

3662.002705

3662.002705

3662.002705

30

40

50

Nominal Voltage is 13.8Vdc.

<u>Voltage</u>	Reference Frequency	Frequency Drift	<u>Drift</u>	<u>Limit</u>
(Dc)	(MHz)	(MHz)	(Hz)	(Hz)
85%	3662.002705	3662.002638	67	Note 2
115%	3662.002705	3662.002630	75	Note 2

Worst case drift:

783.0 Hz 0.21 ppm

3662.003488

3662.002738

3662.002196

0.2

0.0

0.1

C E		ott			Radic	o Test
Client:	GE MDS LLC	2) company			Job Number:	J76926
Madalı	Maroury 2650			T-L	og Number:	T76967
wodel.	Mercury 3650)		Accou	int Manager:	Susan Pelz
	Dennis McCa	arthy				
Standard:	FCC Part 90				Class	N/A
	Pc	FCC ower, PSD, Occupied Bar	Part 90Z	urious Ei	mission	S
Test Spec	ific Details	5				
·	Objective:	The objective of this test session is to p specification listed above.	perform final qualification	testing of the	e EUT with re	espect to the
Te		8/14 and 8/15/2008 M. Birgani, D. Bare Chamber #2	Config. Used: Config Change: EUT Voltage:	None		
The EUT		uration d to the spectrum analyzer or power m been corrected to allow for the externa		ator.		
Airmeasu	iements nave		ai allenualors useu.			
Ambient Conditions:			8/14/2008	8/15/		
		: Temperature: Rel. Humidity:	22 °C 36 %	21 40	-	
	of Results		Limit	Pass / Fail		/ Margin
1.0			Linin			•
		Maximim Output Power	-	-		T76941
1						
2		99% Bandwidth	Information Only	-	3.5 MHz: 5.0 MHz: 7.0 MHz: 10.0 MHz	3.20 MHz 4.60 MHz 6.40 MHz : 9.20 MHz : 12.7 MHz
	2	99% Bandwidth Unwanted emissions (Mask)	Information Only FCC Part 90 - Mask B	- Pass	3.5 MHz: 5.0 MHz: 7.0 MHz: 10.0 MHz 14.0 MHz	3.20 MHz 4.60 MHz 6.40 MHz : 9.20 MHz

Modifications Made During Testing No modifications were made to the EUT during testing

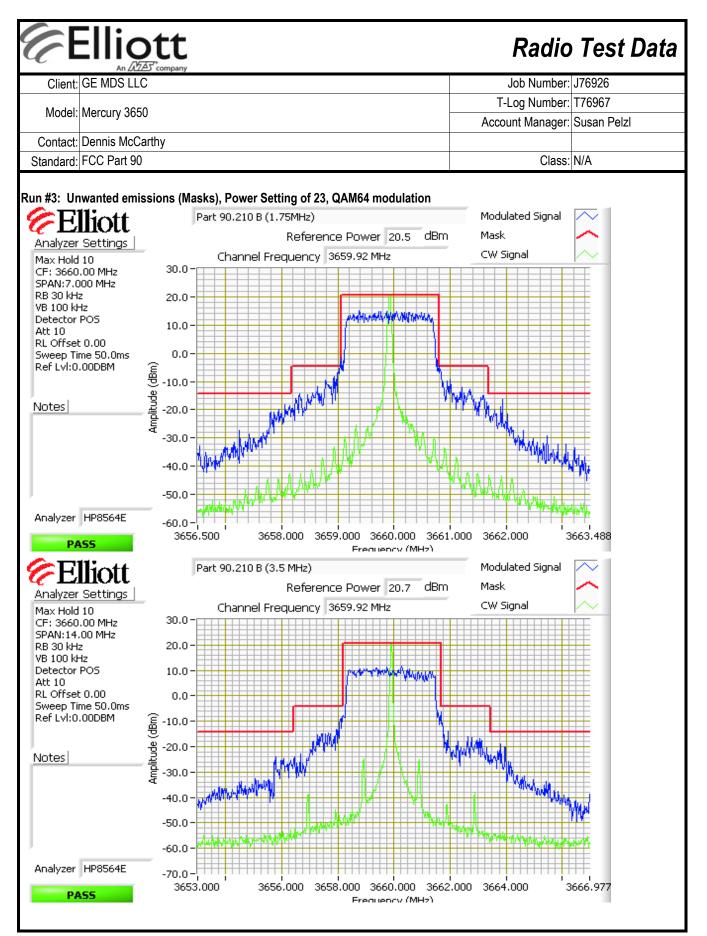
Deviations From The Standard

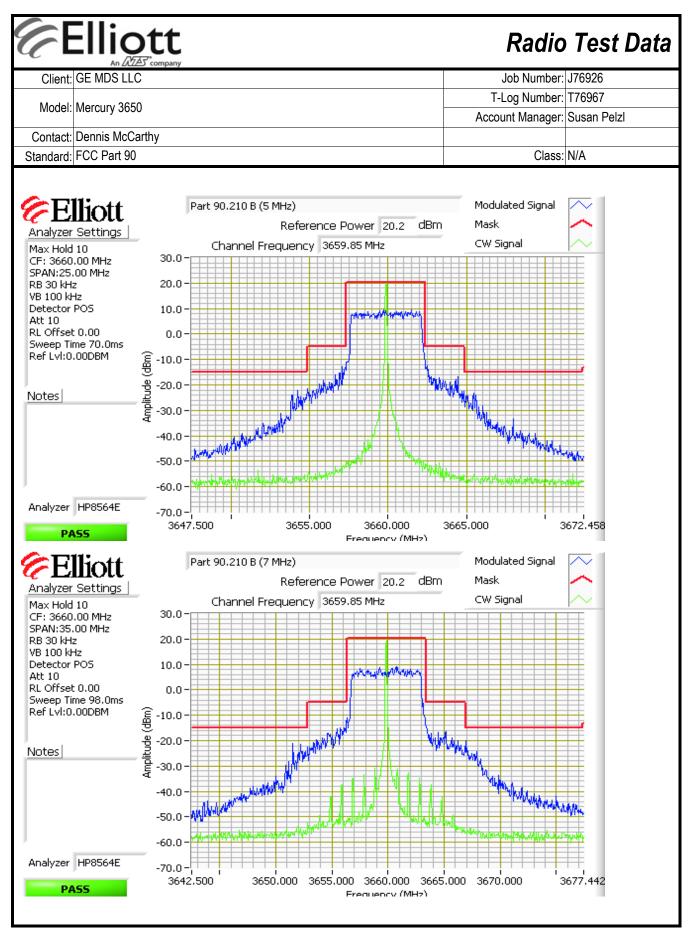
No deviations were made from the requirements of the standard.

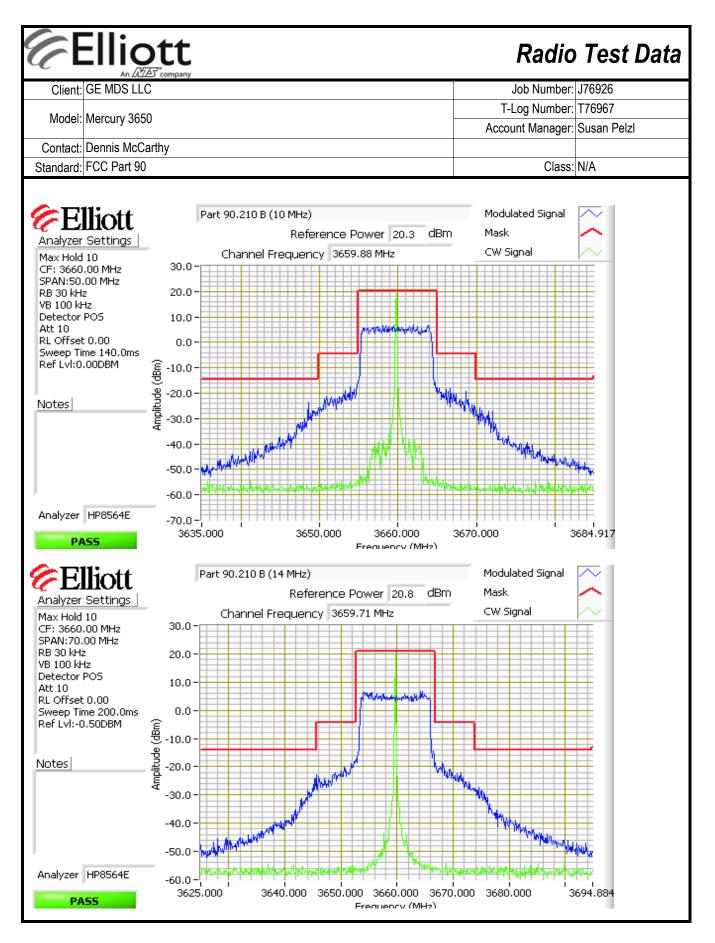
Æ	Elliott An DEAS' company	Radio Test Data		
Client:	GE MDS LLC	Job Number:	J76926	
Madal	Mercury 3650	T-Log Number:	T76967	
MOUEI.	Mercury 3050	Account Manager:	Susan Pelzl	
Contact:	Dennis McCarthy			
Standard:	FCC Part 90	Class:	N/A	

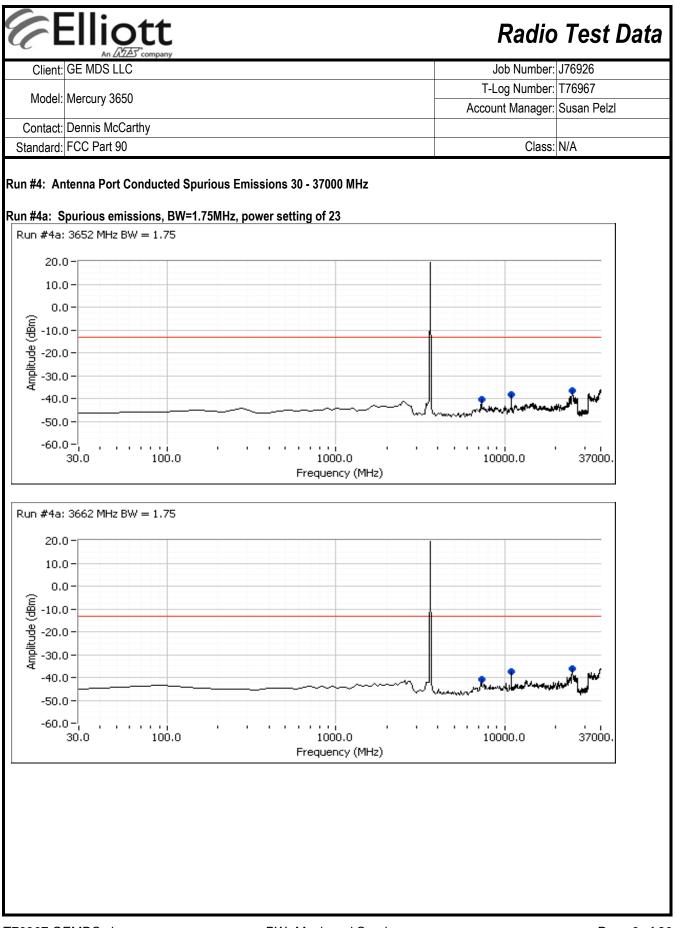
Run #2: Signal Bandwidth

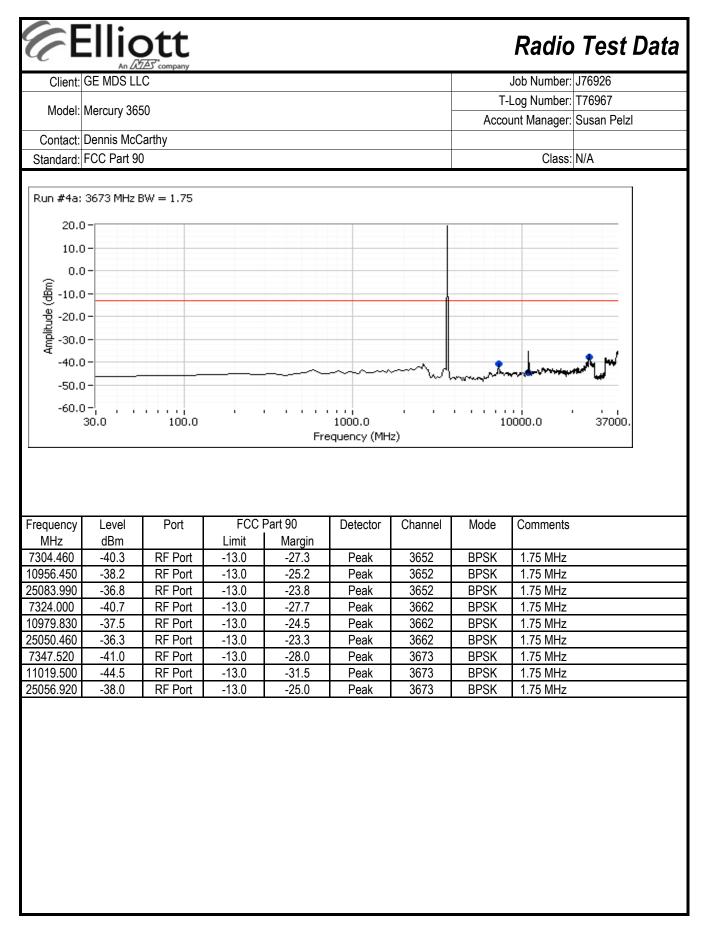
Mod Type	BW Type	Frequency	Resolution	99% BW
мой туре	ви туре	(MHz)	Bandwidth	(MHz)
BPSK	1.75 MHz	3652	100 kHz	1.7
BPSK	1.75 MHz	3662	100 kHz	1.7
BPSK	1.75 MHz	3673	100 kHz	1.7
QAM64	1.75 MHz	3652	100 kHz	1.7
QAM64	1.75 MHz	3662	100 kHz	1.7
QAM64	1.75 MHz	3673	100 kHz	1.7
BPSK	3.5 MHz	3653	100 kHz	3.2
BPSK	3.5 MHz	3662	100 kHz	3.2
BPSK	3.5 MHz	3672	100 kHz	3.2
QAM64	3.5 MHz	3653	100 kHz	3.2
QAM64	3.5 MHz	3662	100 kHz	3.2
QAM64	3.5 MHz	3672	100 kHz	3.2
BPSK	5.0 MHz	3653	100 kHz	4.6
BPSK	5.0 MHz	3662	100 kHz	4.5
BPSK	5.0 MHz	3672	100 kHz	4.6
QAM64	5.0 MHz	3653	100 kHz	4.5
QAM64	5.0 MHz	3662	100 kHz	4.6
QAM64	5.0 MHz	3672	100 kHz	4.6
BPSK	7.0 MHz	3654	100 kHz	6.3
BPSK	7.0 MHz	3662	100 kHz	6.3
BPSK	7.0 MHz	3671	100 kHz	6.3
QAM64	7.0 MHz	3654	100 kHz	6.4
QAM64	7.0 MHz	3662	100 kHz	6.3
QAM64	7.0 MHz	3671	100 kHz	6.3
BPSK	10.0 MHz	3656	300 kHz	9.2
BPSK	10.0 MHz	3662	300 kHz	9.2
BPSK	10.0 MHz	3669	300 kHz	9.2
QAM64	10.0 MHz	3656	300 kHz	9.2
QAM64	10.0 MHz	3662	300 kHz	9.2
QAM64	10.0 MHz	3669	300 kHz	9.2
BPSK	14.0 MHz	3658	300 kHz	12.6
BPSK	14.0 MHz	3662	300 kHz	12.6
BPSK	14.0 MHz	3667	300 kHz	12.7
QAM64	14.0 MHz	3658	300 kHz	12.7
QAM64	14.0 MHz	3662	300 kHz	12.6
QAM64	14.0 MHz	3667	300 kHz	12.5

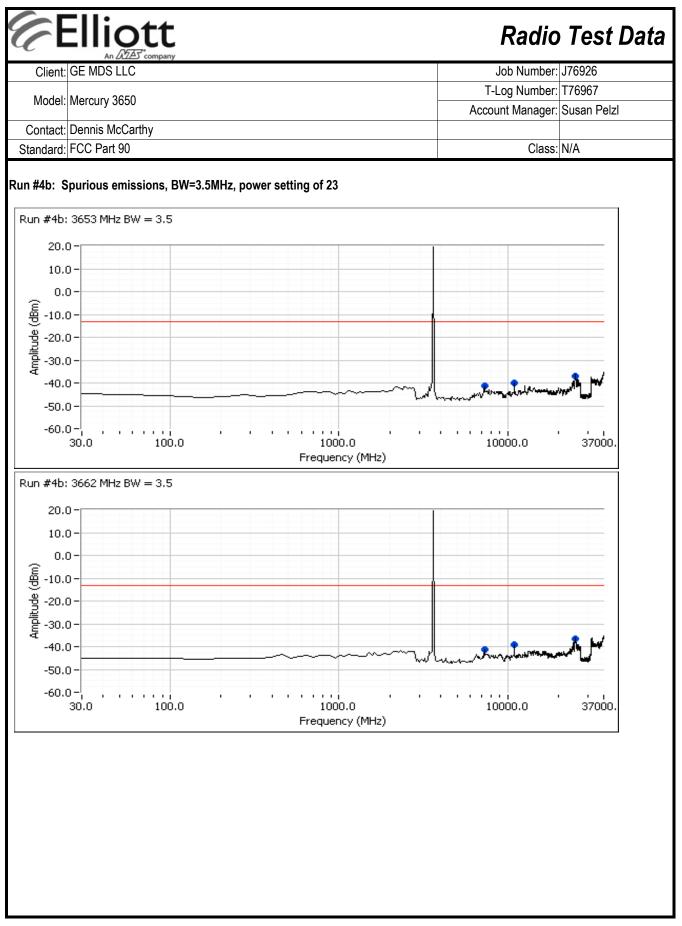


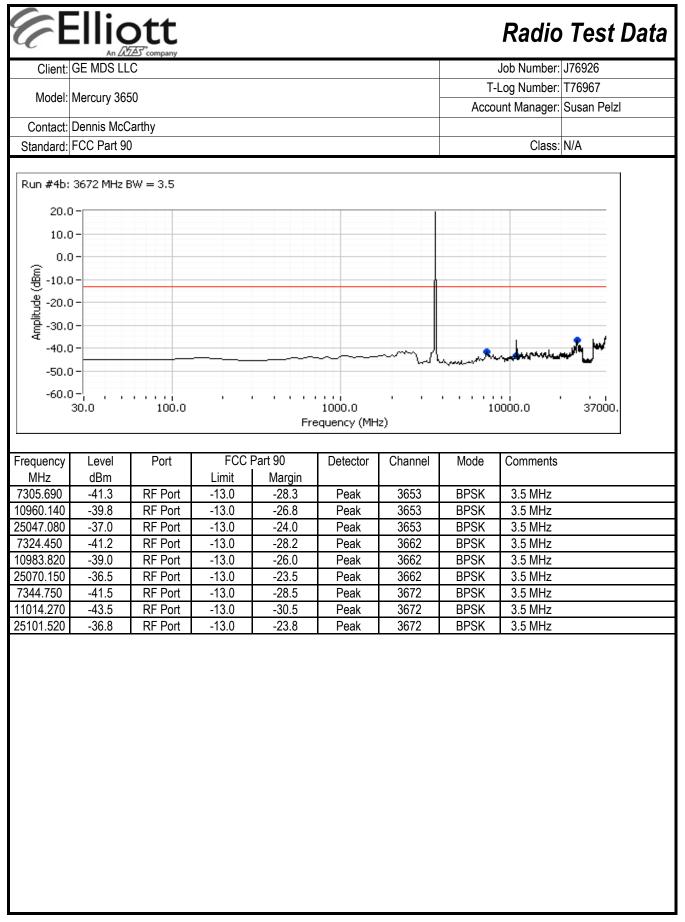


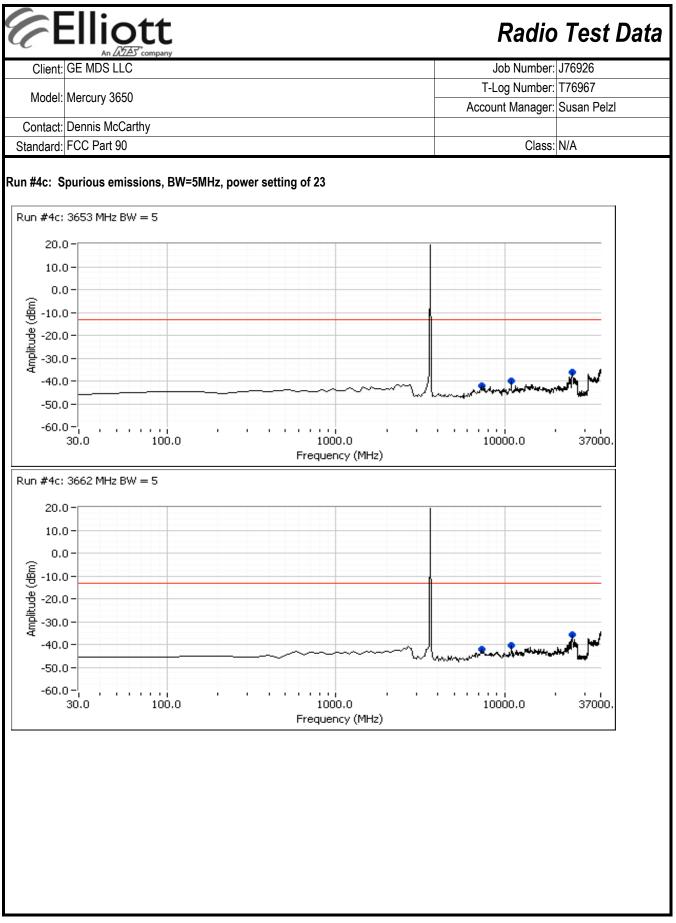


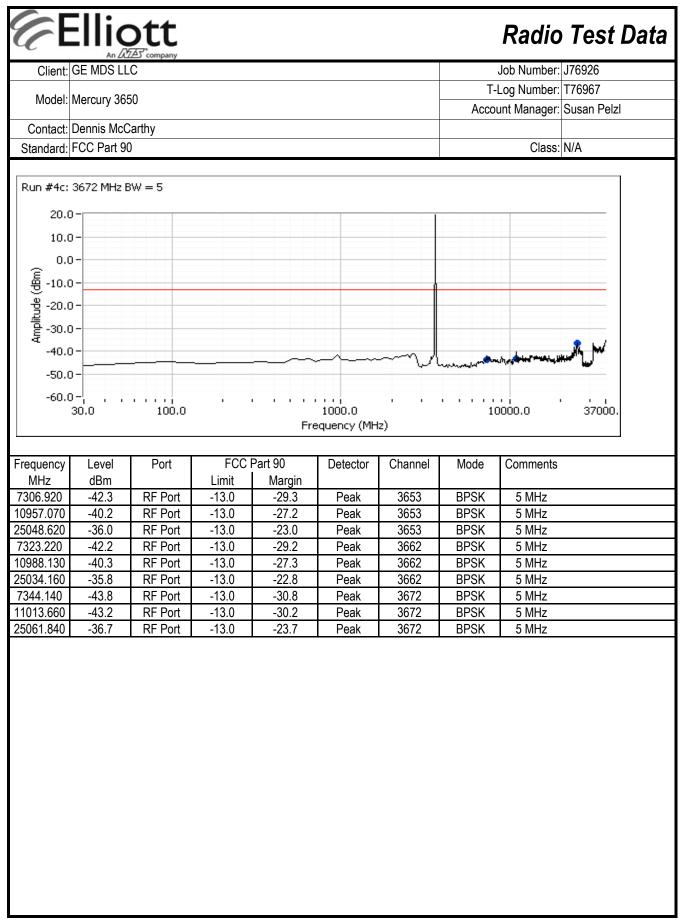


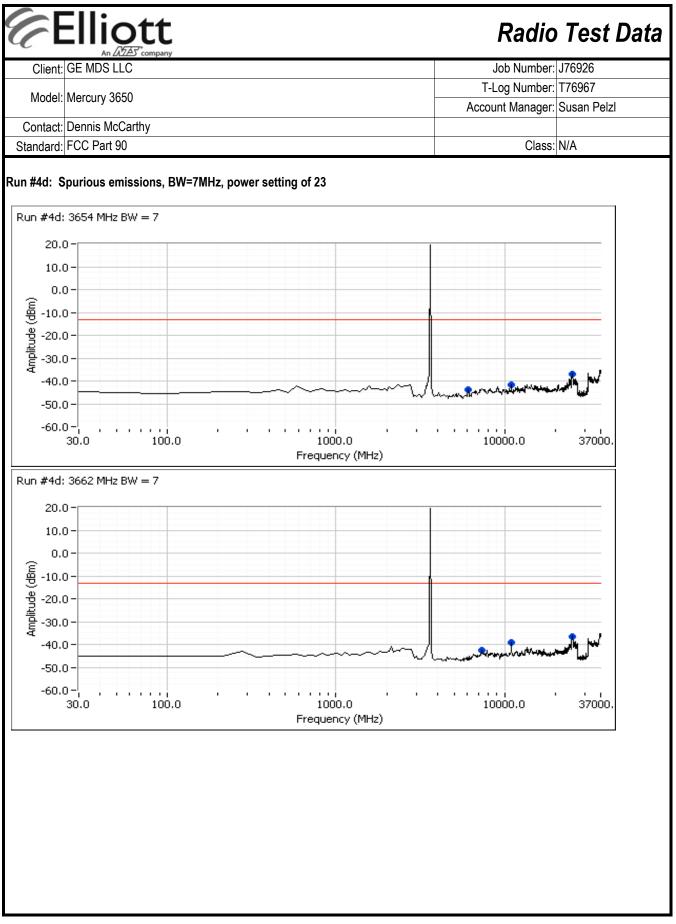


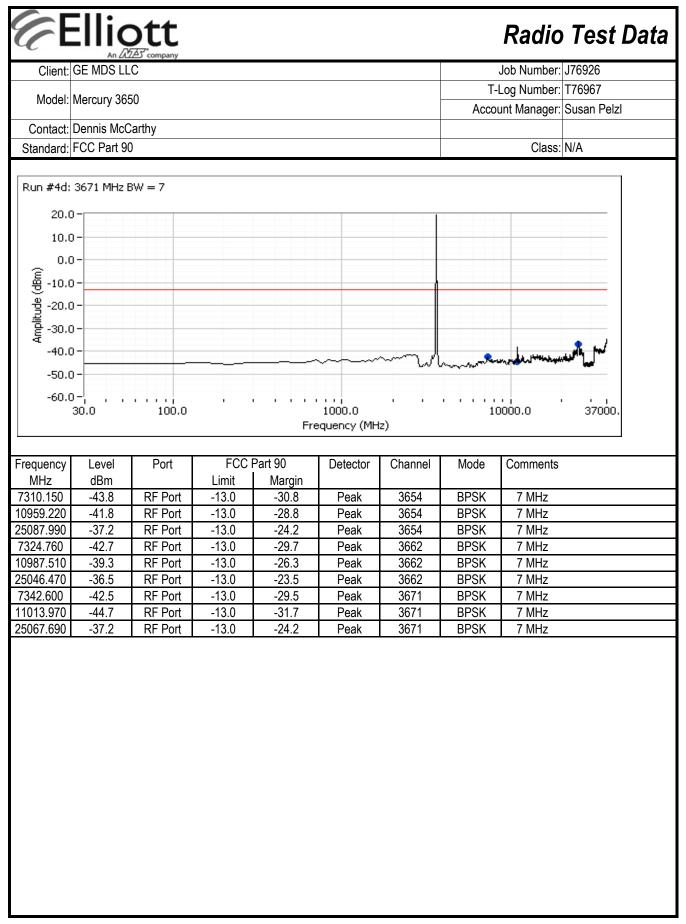


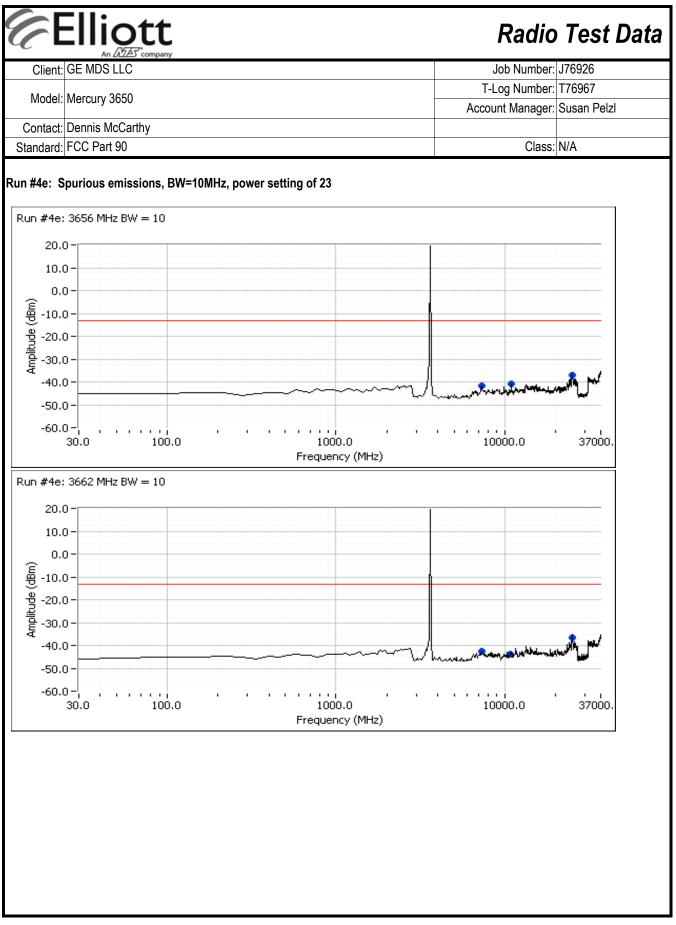


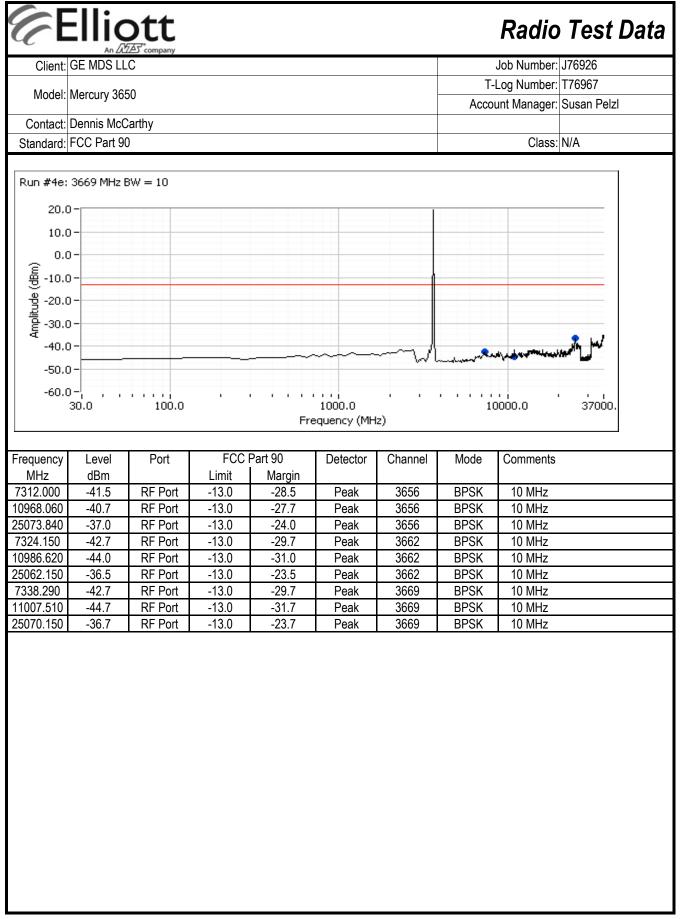


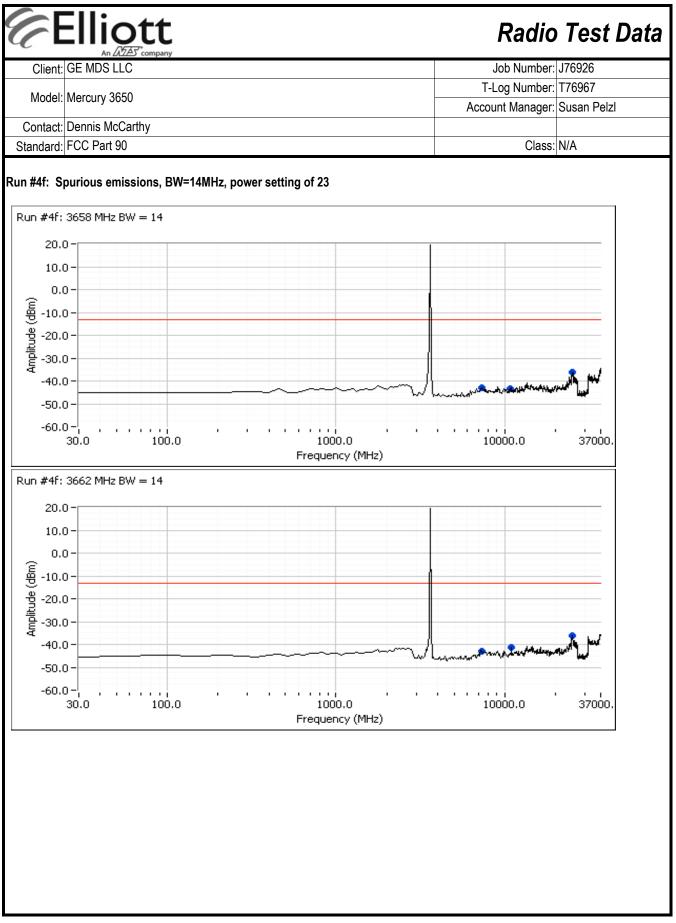


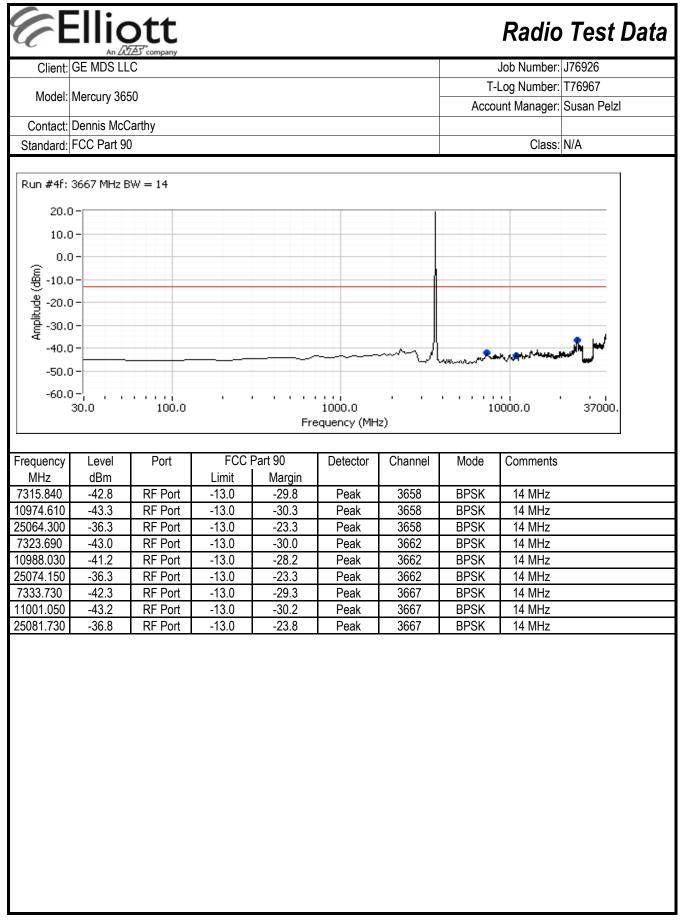




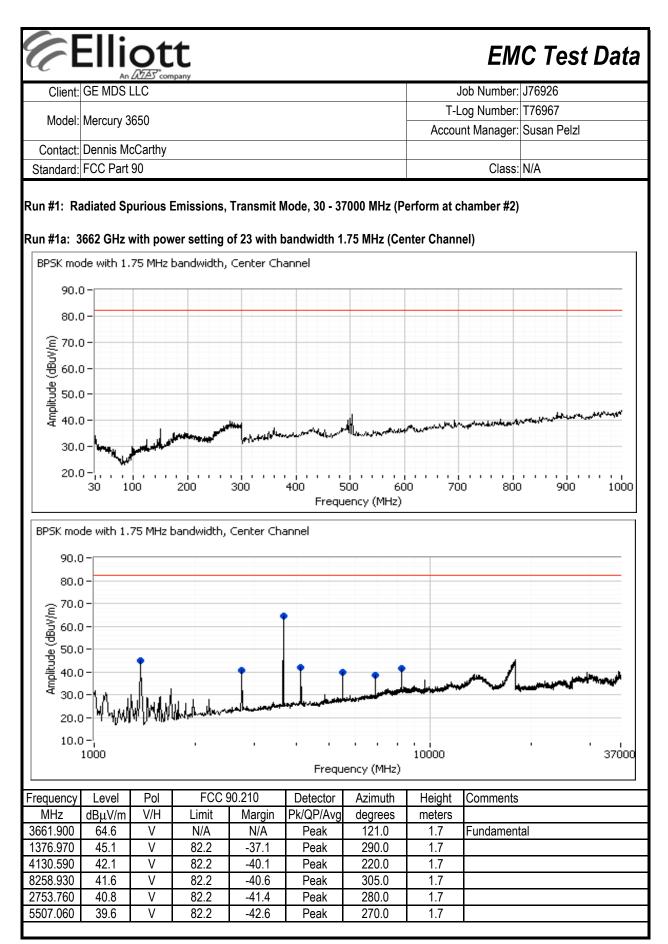


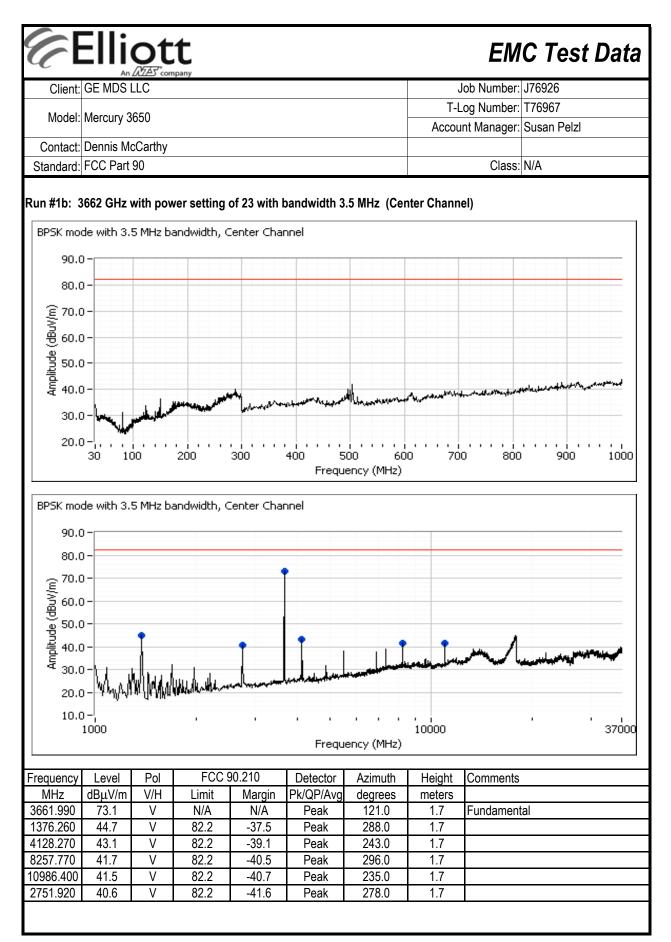


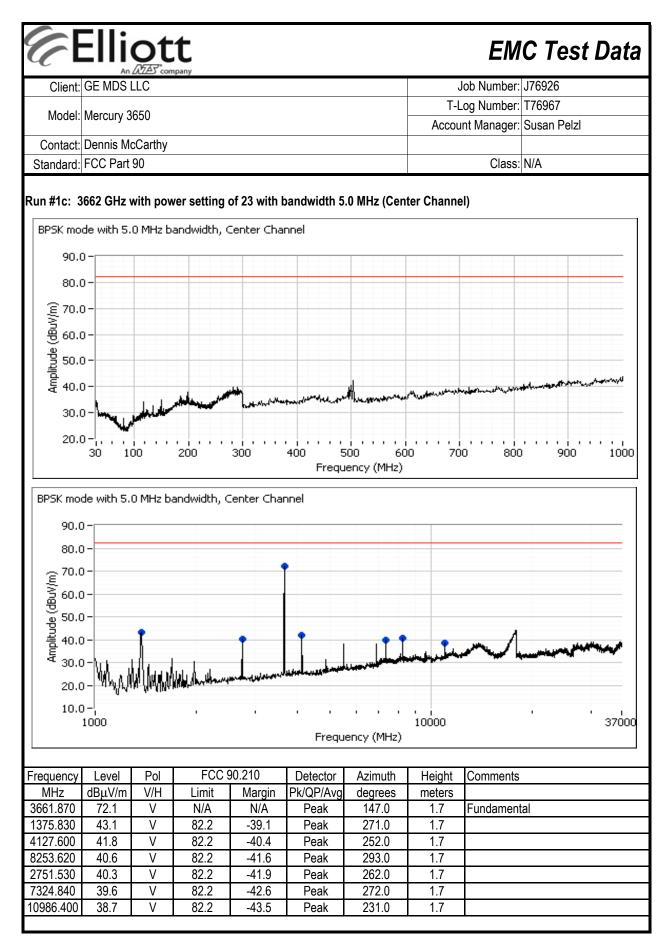


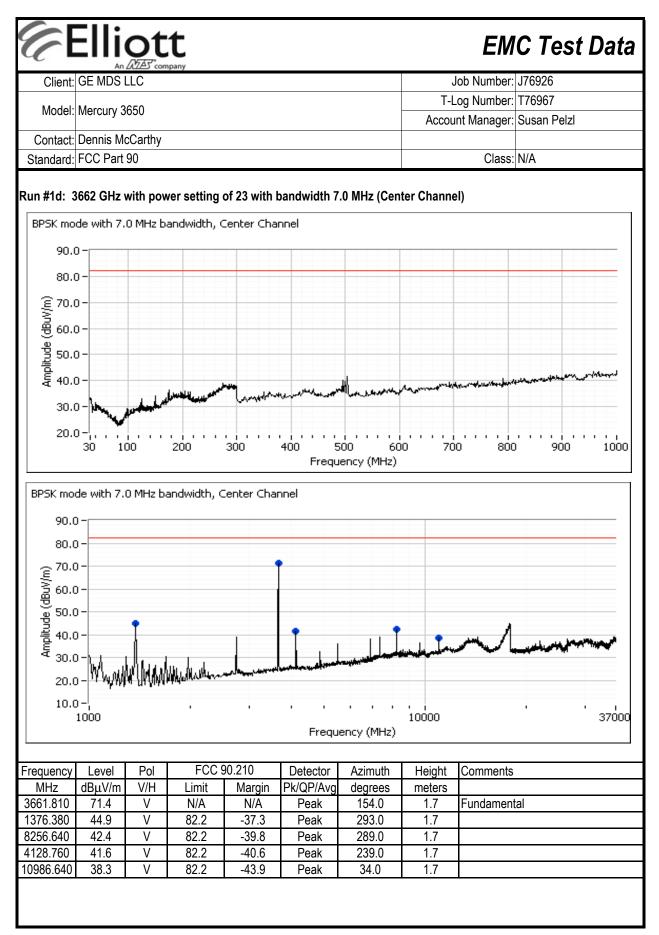


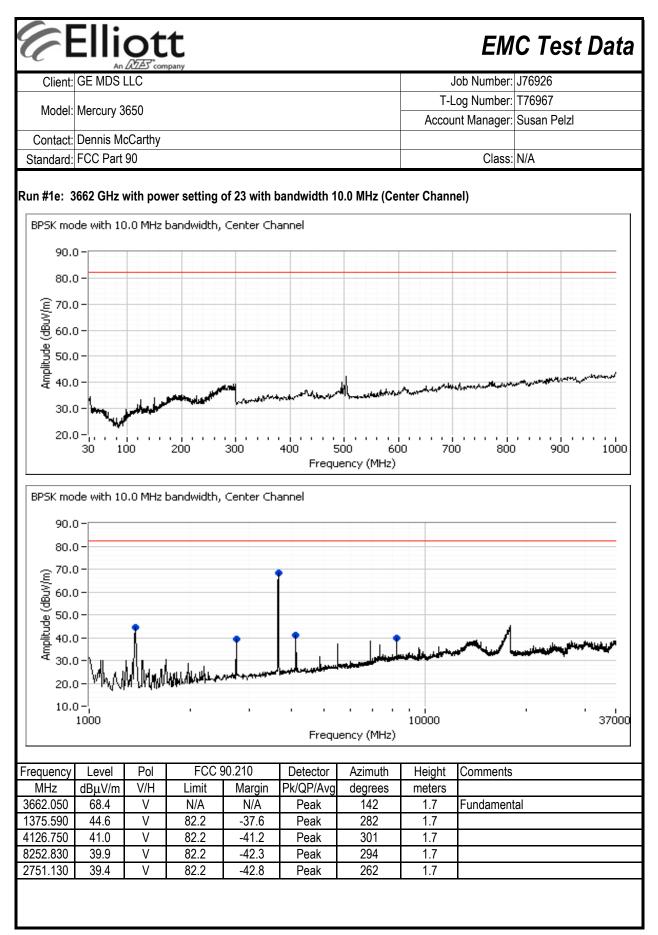
: T76967	
" Sucan I	
Jusann	an Pelzl
:: N/A	
IT with r	n rocport to
	n respect to
t / Margir	
	-
t / Margir BμV/m @ IHz (-32.2	rgin n @

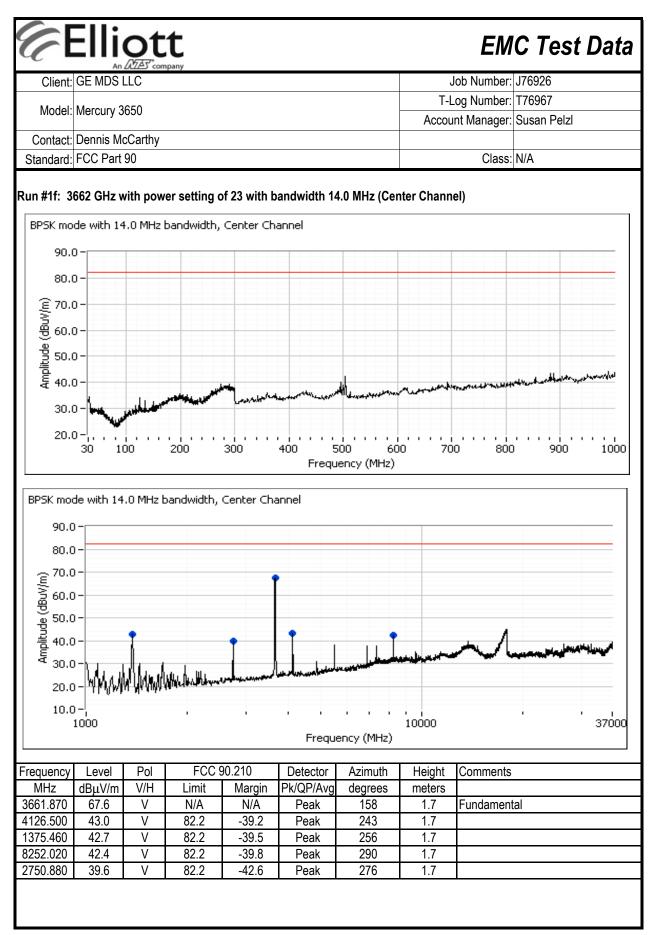


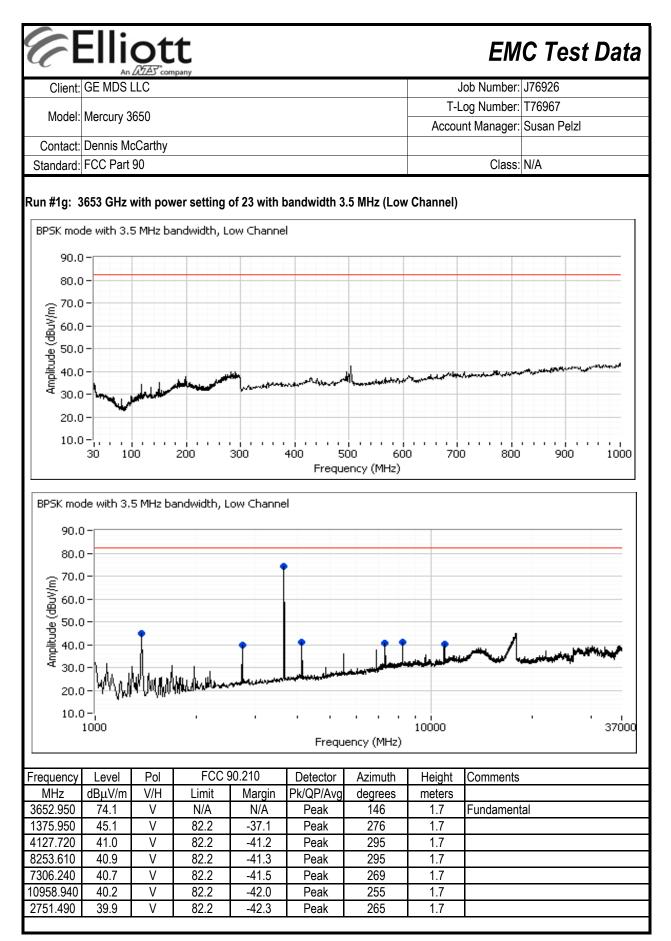


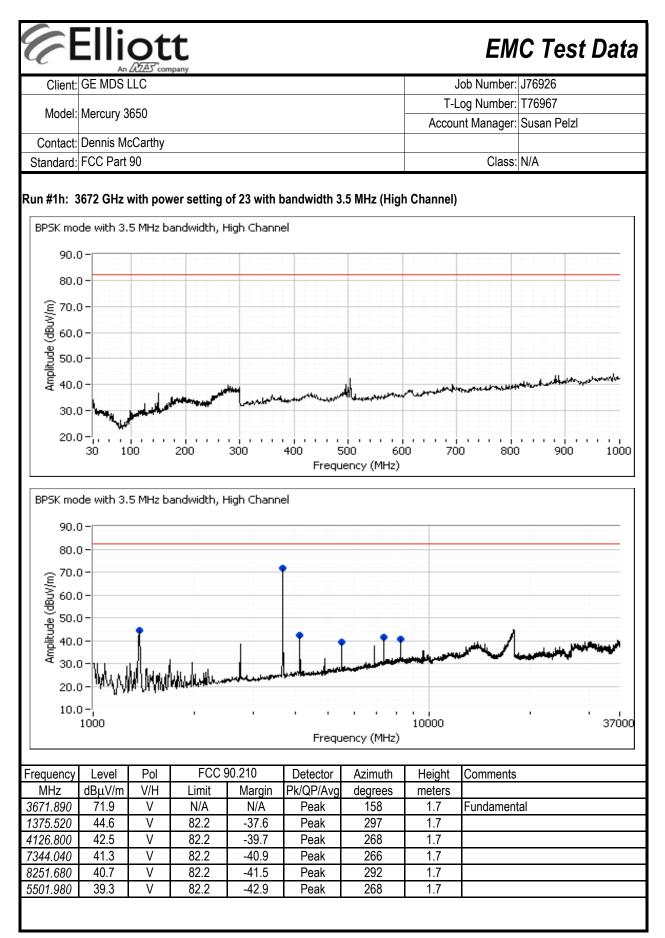














EMC Test Data

			npany							
Client:	GE MDS I	LC					J	ob Number:	J76926	
Madal	Moroury 2	650					T-L	og Number:	T76967	
MOUEI.	Mercury 3	000					Accou	nt Manager:	Susan Pelzl	
Contact:	Dennis Mo	cCarthy								
Standard:	FCC Part	90						Class:	N/A	
Test perfor Based on re Frequency	rmed at SV esults abov Level	/OATS # e, spuric Pol	2 pus emission FCC 9	is at highes 00.210	t and lowest Detector	channels for Azimuth	each BW w Height		easurements	ary Operating
MHz	dBµV/m	<u>V/H</u>	Limit	Margin	Pk/QP/Avg	degrees	meters	Due 1e	26601	Frequency
1376.970	40.6	V V	82.2	-41.6	PK	200	1.0	Run 1a		/Hz, 1.75BW
2750.880	39.9		82.2	-42.3	PK	203	1.3	Run 1g		MHz, 3.5BW
4130.590 5507.060	41.5 44.6	V V	82.2 82.2	-40.7 -37.6	PK PK	203 258	1.1 1.0	Run 1a Run 1a		<u>/IHz, 1.75BW</u> /IHz, 1.75BW
7306.240	44.0	V	82.2	-37.6	PK PK	304	1.0	Run 1a Run 1h		MHZ, 1.75BW
8252.020	40.8	V	82.2	-34.7	PK	192	1.0	Run 1g		MHz, 3.5BW
8258.930	47.5	V	82.2	-34.7	PK	192	1.0	Run 1g		/Hz, 1.75BW
10958.940	50.1	v	82.2	-34.5 -32.1	PK	219	1.0	Run 1h		2MHz, 3.5BW
Horizontal										
Frequency			surements	Site	1	T measureme		eirp Limit	erp Limit	Margin
Frequency MHz	Pin ¹	Gain ²	FS ³	Factor ⁴	FS⁵	T measureme eirp (dBm)	ents erp (dBm)	eirp Limit dBm	erp Limit dBm	Margin dB
Frequency MHz All signal	Pin ¹	Gain ²		Factor ⁴	FS⁵	1		-	-	-
Frequency MHz All signal Vertical	Pin ¹ s were mor	Gain ² re than 2	FS ³ OdB below t	Factor ⁴ he compute	FS ⁵ ed FS limit	eirp (dBm)	erp (dBm)	dBm	dBm	dB
Frequency MHz All signal Vertical Frequency	Pin ¹ s were mor Substitut	Gain ² re than 2 ion meas	FS ³ OdB below t	Factor ⁴ he compute Site	FS ⁵ ed FS limit EU	eirp (dBm) T measureme	erp (dBm) ents	dBm eirp Limit	dBm erp Limit	dB Margin
Frequency MHz All signal Vertical Frequency MHz	Pin ¹ s were mor Substitut Pin ¹	Gain ² re than 2 ion meas Gain ²	FS ³ OdB below t surements FS ³	Factor ⁴ he compute Site Factor ⁴	FS ⁵ ed FS limit EU FS ⁵	eirp (dBm)	erp (dBm)	dBm	dBm	dB
Frequency MHz All signal Vertical Frequency MHz	Pin ¹ s were mor Substitut Pin ¹	Gain ² re than 2 ion meas Gain ²	FS ³ OdB below t	Factor ⁴ he compute Site Factor ⁴	FS ⁵ ed FS limit EU FS ⁵	eirp (dBm) T measureme	erp (dBm) ents	dBm eirp Limit	dBm erp Limit	dB Margin
Frequency MHz All signal Vertical Frequency MHz All signal Note 1:	Pin ¹ s were mor Substitut Pin ¹ s were mor Pin is the	Gain ² re than 2 ion meas Gain ² re than 2	FS ³ 20dB below t surements FS ³ 20dB below t wer (dBm) to	Factor ⁴ he compute Site Factor ⁴ he compute	FS ⁵ ed FS limit EU FS ⁵ ed FS limit	eirp (dBm) T measureme eirp (dBm) a	erp (dBm) ents erp (dBm)	dBm eirp Limit dBm	dBm erp Limit	dB Margin
Frequency MHz All signal Vertical Frequency MHz All signal Note 1: Note 2:	Pin ¹ s were mor Substitut Pin ¹ s were mor Pin is the Gain is the	Gain ² re than 2 ion mea: Gain ² re than 2 input pov e gain (d	FS ³ 20dB below t surements FS ³ 20dB below t wer (dBm) to Bi) for the su	Factor ⁴ he compute Site Factor ⁴ he compute o the substitution a	FS ⁵ ed FS limit EU FS ⁵ ed FS limit tution antenn antenna. A di	eirp (dBm) T measureme eirp (dBm) a pole has a ga	erp (dBm) ents erp (dBm) ain of 2.2dB	dBm eirp Limit dBm	dBm erp Limit	dB Margin
Frequency MHz All signal Vertical Frequency MHz All signal Note 1: Note 2: Note 3:	Pin ¹ s were mor Substitut Pin ¹ s were mor Pin is the Gain is the FS is the f	Gain ² re than 2 ion meaa Gain ² re than 2 input pov e gain (d ield stree	FS ³ 00B below t surements FS ³ 00B below t wer (dBm) to Bi) for the si ngth (dBuV/	Factor ⁴ he compute Site Factor ⁴ he compute the substitution a m) measure	FS ⁵ ed FS limit EU FS ⁵ ed FS limit tution antenn antenna. A di ed from the s	eirp (dBm) T measureme eirp (dBm) a pole has a ga ubstitution ar	erp (dBm) ents erp (dBm) ain of 2.2dB atenna.	dBm eirp Limit dBm	dBm erp Limit dBm	dB Margin
Frequency MHz All signal Vertical Frequency MHz All signal Note 1: Note 2:	Pin ¹ s were mor Substitut Pin ¹ s were mor Pin is the Gain is the FS is the f Site Facto	Gain ² re than 2 ion meas Gain ² re than 2 input pov e gain (d ield strea r - this is	FS ³ 00B below t surements FS ³ 00B below t wer (dBm) to Bi) for the si ngth (dBuV/	Factor ⁴ he compute Site Factor ⁴ he compute o the substitution a m) measure tor to conve	FS^5 Ed FS limit EU^{-} FS^5 Ed FS limit tution antenna antenna. A dia Ed from the s Ed from the s	eirp (dBm) T measureme eirp (dBm) a pole has a ga	erp (dBm) ents erp (dBm) ain of 2.2dB atenna.	dBm eirp Limit dBm	dBm erp Limit dBm	dB Margin



EMC Test Data

	Company		
Client:	GE MDS LLC	Job Number:	J76926
Model:	Mercury 3650	T-Log Number:	T76941
		Account Manager:	Susan Pelzl
Contact:	Dennis McCarthy		-
Emissions Standard(s):	FCC Part 90Z	Class:	A
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

GE MDS LLC

Model

Mercury 3650

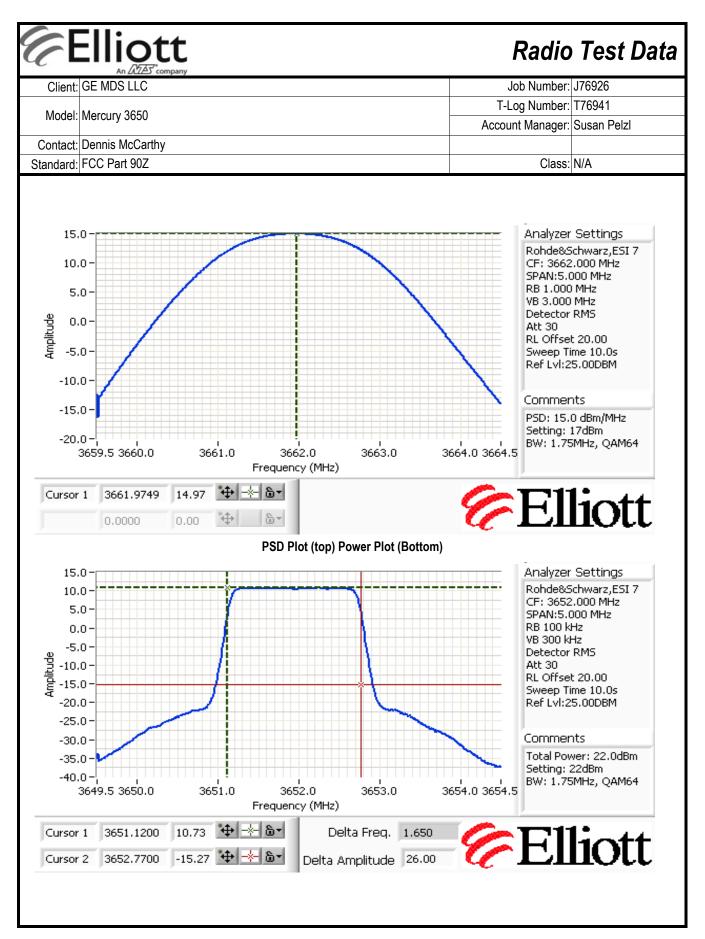
Date of Last Test: 9/29/2009

Client: GE	MDS LLC			J	Job Number:	J76926
				T-L	og Number:	T76941
Model: Me	rcury 3650				int Manager:	
	nnis McCarth	у				
andard: FC	C Part 90Z				Class:	N/A
		F	CC Part 90Z			
			ower and PSD			
t Spacifi	o Dotaile					
st Specific	The	objective of this test session	is to perform final qualification	n testing of the	FUT with re	snect to the
0		cification listed above.				
Ε.	·					
	of Test: 9/28		Config. Used			
i est E	ngineer: Meł	nran Birgani	Config Change	None		
		Chamber #4	ELIT Voltago	· 12 0\/DC		
Test L neral Tes ne EUT was I measurem	Location: FT (t Configura connected to nents have be					
Test L neral Tes ne EUT was	Location: FT (t Configura connected to nents have be	ation o the spectrum analyzer or pow	wer meter via a suitable atten external attenuators used. ture: 20-24 °C			
Test L neral Tes ne EUT was I measurem	Cocation: FT (t Configuration connected to nents have be nditions:	ation o the spectrum analyzer or por een corrected to allow for the e Tempera	wer meter via a suitable atten external attenuators used. ture: 20-24 °C			
Test L neral Test ne EUT was I measurem bient Cor	Cocation: FT (t Configura connected to nents have be nditions:	ation o the spectrum analyzer or pow een corrected to allow for the e Tempera Rel. Hum Test Performed	wer meter via a suitable attenn external attenuators used. ture: 20-24 °C idity: 32-48 % Limit			[/] Margin
Test L neral Test ne EUT was I measurem bient Cor mmary of Channel Spa	Cocation: FT (t Configura connected to nents have be nditions:	ation the spectrum analyzer or power een corrected to allow for the e Tempera Rel. Hum Test Performed Power EIRP	wer meter via a suitable attenu external attenuators used. ture: 20-24 °C idity: 32-48 %	uator. Pass / Fail	32.0 dBm	(1.585W)
Test L neral Test ne EUT was I measurem Ibient Cor mmary of	Cocation: FT (t Configura connected to nents have be nditions:	ation o the spectrum analyzer or pow een corrected to allow for the e Tempera Rel. Hum <u>Test Performed</u> <u>Power EIRP</u> PSD EIRP	wer meter via a suitable attenu external attenuators used. ture: 20-24 °C idity: 32-48 % Limit FCC Part 90Z Part 90Z (30dBm/MHz)	uator. Pass / Fail	32.0 dBm 30.0 dB	(1.585W) 3m/MHz
Test L neral Test ne EUT was I measurem bient Cor nmary of Channel Spa	Cocation: FT (t Configuration connected to nents have be nditions: Results acing	ation o the spectrum analyzer or power een corrected to allow for the e Tempera Rel. Hum Test Performed Power EIRP Power EIRP	wer meter via a suitable attenu external attenuators used. ture: 20-24 °C idity: 32-48 % <u>Limit</u> FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z	uator. Pass / Fail	32.0 dBm 30.0 dB 34.4 dBm	(1.585W) Bm/MHz (2.754W)
Test L neral Test ne EUT was I measurem bient Cor bient Cor mmary of Channel Spa 1.75 MH	Cocation: FT (t Configuration connected to nents have be nditions: Results acing	ation o the spectrum analyzer or power een corrected to allow for the e Tempera Rel. Hum <u>Test Performed</u> <u>Power EIRP</u> <u>Power EIRP</u> PSD EIRP PSD EIRP	wer meter via a suitable attenu external attenuators used. ture: 20-24 °C idity: 32-48 % <u>Limit</u> FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz)	uator. Pass / Fail Pass	32.0 dBm 30.0 dB 34.4 dBm 29.6 dB	(1.585W) Bm/MHz (2.754W) Bm/MHz
Test L neral Test ne EUT was I measurem bient Cor bient Cor mmary of Channel Spa 1.75 MH	cocation: FT t Configuration connected to connected to nents have be nditions: * Results acing z z	ation o the spectrum analyzer or power een corrected to allow for the e Tempera Rel. Hum Test Performed Power EIRP PSD EIRP PSD EIRP Power EIRP Power EIRP	wer meter via a suitable attenu external attenuators used. ture: 20-24 °C idity: 32-48 % Limit FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z	uator. Pass / Fail Pass	32.0 dBm 30.0 dB 34.4 dBm 29.6 dB 36.0 dBm	(1.585W) Bm/MHz (2.754W) Bm/MHz (3.981W)
Test L neral Tesi ne EUT was I measurem bient Con bient Con mmary of Channel Spa 1.75 MH 3.50 MH	cocation: FT t Configuration connected to connected to nents have be nditions: * Results acing z z	ation o the spectrum analyzer or power een corrected to allow for the e Tempera Rel. Hum Test Performed Power EIRP PSD EIRP Power EIRP PSD EIRP Power EIRP PSD EIRP PSD EIRP	wer meter via a suitable attenu external attenuators used. ture: 20-24 °C idity: 32-48 % Limit FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz)	Pass / Fail Pass Pass	32.0 dBm 30.0 dB 34.4 dBm 29.6 dB 36.0 dBm 29.9 dB	(1.585W) Bm/MHz (2.754W) Bm/MHz (3.981W) Bm/MHz
Test L neral Tesi ne EUT was I measurem bient Con bient Con mmary of Channel Spa 1.75 MH 3.50 MH	Cocation: FT (t Configura connected to nents have be nditions: TResults acing z z z	ation the spectrum analyzer or power een corrected to allow for the e Tempera Rel. Hum Test Performed Power EIRP PSD EIRP Power EIRP Power EIRP PSD EIRP Power EIRP Power EIRP Power EIRP Power EIRP	wer meter via a suitable attenu external attenuators used. ture: 20-24 °C idity: 32-48 % Limit FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z	Pass / Fail Pass Pass	32.0 dBm 30.0 dB 34.4 dBm 29.6 dB 36.0 dBm 29.9 dB 37.5 dBm	(1.585W) Bm/MHz (2.754W) Bm/MHz (3.981W) Bm/MHz (5.623W)
Test L neral Test ne EUT was I measurem bient Cor bient Cor nmary of Channel Spa 1.75 MH 3.50 MH 5.00 MH	Cocation: FT (t Configura connected to nents have be nditions: TResults acing z z z	ation o the spectrum analyzer or poweren corrected to allow for the end of th	wer meter via a suitable attent external attenuators used. ture: 20-24 °C idity: 32-48 % Limit FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz)	uator. Pass / Fail Pass Pass Pass	32.0 dBm 30.0 dB 34.4 dBm 29.6 dB 36.0 dBm 29.9 dB 37.5 dBm 29.9 dB	(1.585W) Bm/MHz (2.754W) Bm/MHz (3.981W) Bm/MHz (5.623W) Bm/MHz
Test L neral Test ne EUT was I measurem bient Cor bient Cor mmary of Channel Spa 1.75 MH 3.50 MH 5.00 MH	Cocation: FT Configuration Connected to Con	ation o the spectrum analyzer or poweren corrected to allow for the end of th	wer meter via a suitable attent external attenuators used. ture: 20-24 °C idity: 32-48 % Limit FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z	uator. Pass / Fail Pass Pass Pass	32.0 dBm 30.0 dB 34.4 dBm 29.6 dB 36.0 dBm 29.9 dB 37.5 dBm 29.9 dB 37.2 dBm	(1.585W) Bm/MHz (2.754W) Bm/MHz (3.981W) Bm/MHz (5.623W) Bm/MHz (5.248W)
Test L neral Test ne EUT was I measurem I 1.75 MH I 3.50 MH I 7.00 MH	Cocation: FT Configuration Connected to Con	ation o the spectrum analyzer or power een corrected to allow for the e Tempera Rel. Hum Test Performed Power EIRP PSD EIRP Power EIRP PSD EIRP Power EIRP PSD EIRP Power EIRP PSD EIRP Power EIRP PSD EIRP PSD EIRP Power EIRP PSD EIRP	wer meter via a suitable attent external attenuators used. ture: 20-24 °C idity: 32-48 % Limit FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z	uator. Pass / Fail Pass Pass Pass Pass	32.0 dBm 30.0 dB 34.4 dBm 29.6 dB 36.0 dBm 29.9 dB 37.5 dBm 29.9 dB 37.2 dBm 27.9 dB	(1.585W) Bm/MHz (2.754W) Bm/MHz (3.981W) Bm/MHz (5.623W) Bm/MHz (5.248W) Bm/MHz
Test L neral Test ne EUT was I measurem I 1.75 MH I 3.50 MH I 7.00 MH	Cocation: FT Configuration Connected to Con	ation o the spectrum analyzer or poweren corrected to allow for the end of th	wer meter via a suitable attent external attenuators used. ture: 20-24 °C idity: 32-48 % Limit FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z Part 90Z (30dBm/MHz) FCC Part 90Z	uator. Pass / Fail Pass Pass Pass Pass	32.0 dBm 30.0 dB 34.4 dBm 29.6 dB 36.0 dBm 29.9 dB 37.5 dBm 29.9 dB 37.2 dBm 27.9 dB 37.0 dBm	(1.585W) Bm/MHz (2.754W) Bm/MHz (3.981W) Bm/MHz (5.623W) Bm/MHz (5.248W) Bm/MHz

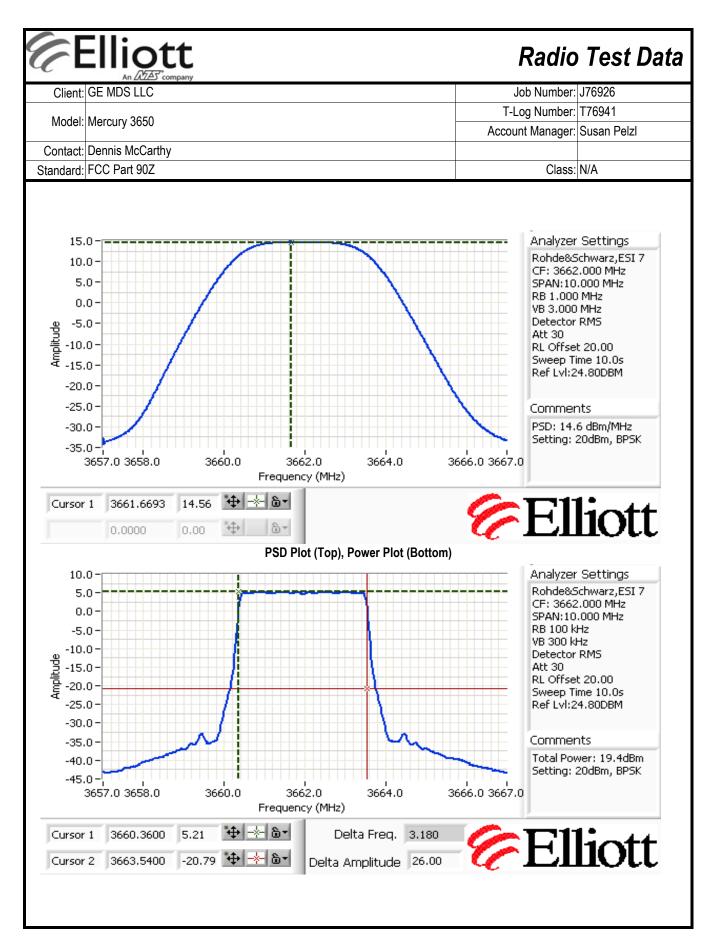
Deviations From The Standard

No deviations were made from the requirements of the standard.

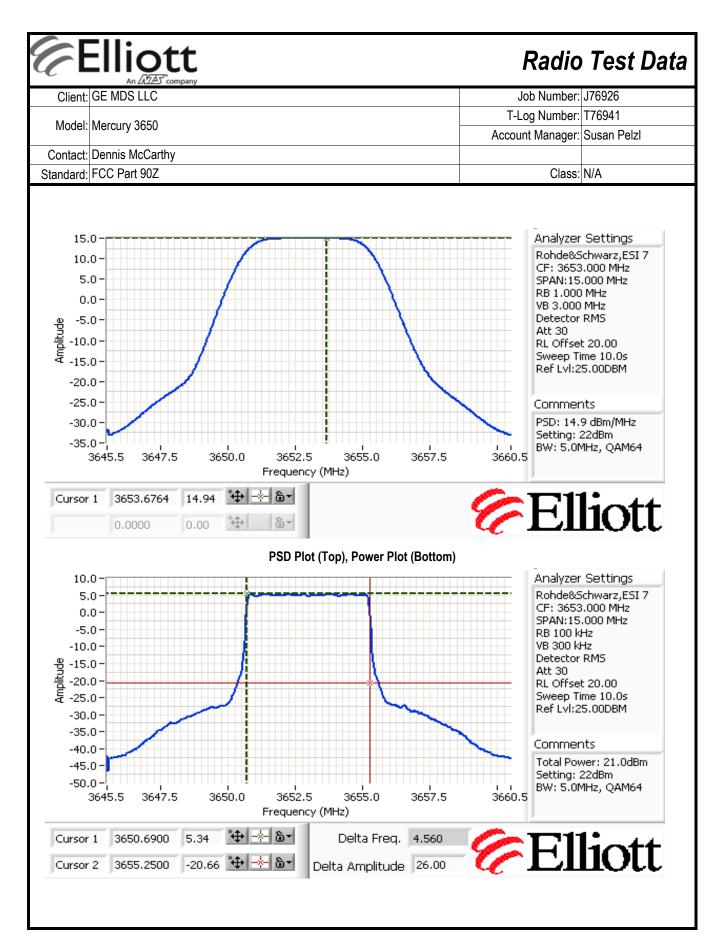
Client:	GE MDS LL	C						lob Number:	J76926
Model	Moroury 265	0					T-l	og Number:	T76941
wouer.	Mercury 365	0					Αςςοι	nt Manager:	Susan Pelzl
	Dennis McC								
tandard:	FCC Part 90	Z						Class:	N/A
	ower (conduc Channel Sp		RP) and PSD	(conducted	and EIRP) M	leasuremen	ts		_
Freq. MHz)	Modulation	Channel bandiwdth	Software setting ¹	Power ² (dBm)	PSD ³ dBm/MHz	Gain ⁴ (dBi)	EIRP PSD⁵ dBm/MHz	EIRP ⁶ dBm	
3652	BPSK	1.75 MHz	22	21.6	19.6	10.0	29.6	31.6	
3662	BPSK	1.75 MHz	22	20.9	19.5	10.0	29.5	30.9	
3673	BPSK	1.75 MHz	22	20.8	19.4	10.0	29.4	30.8	
3652 3662	QAM64 QAM64	1.75 MHz 1.75 MHz	22 22	22.0 21.5	19.8 19.5	10.0 10.0	29.8 29.5	32.0 31.5	
3673	QAM64 QAM64	1.75 MHz	22	21.5	19.5	10.0	29.5	31.5	
3652	BPSK	1.75 MHz	17	16.4	15.0	15.0	30.0	31.4	
3662	BPSK	1.75 MHz	17	16.8	14.8	15.0	29.8	31.8	
3673	BPSK	1.75 MHz	17	16.7	14.8	15.0	29.8	31.7	
3652	QAM64	1.75 MHz	17	16.9	14.9	15.0	29.9	31.9	
3662 3673	QAM64 QAM64	1.75 MHz 1.75 MHz	17 17	16.9 16.2	15.0 14.8	15.0 15.0	30.0 29.8	31.9 31.2	
Note 2: Note 3:	was integrat The psd was max hold. N provided bel This column evaluated - a	er measured ed over the s measured u lultiple swee ow. contains the an effective g	using RBW= span (span > using the follo ps were mad	100kHz VBW 2x channel b wing analyze e until the dis enna gain (a and an effect	=300kHz an andwidth). F er settings: F play had no ctual antenna	d detector se Plot for chanr RB=1MHz, VE new "peaks" a gain minus	el with the hi 3=3MHz, dete Plot for cha feed cable lo	ghest power ector = rms, s nnel with the ss). Two val	ed. The total powe provided below. sweep time 5 secor highest power ues are being e loss of 3dB so the
lote 5,6:		e eirp power	r spectral der	sity (measur				a gain) and p	oower (measured



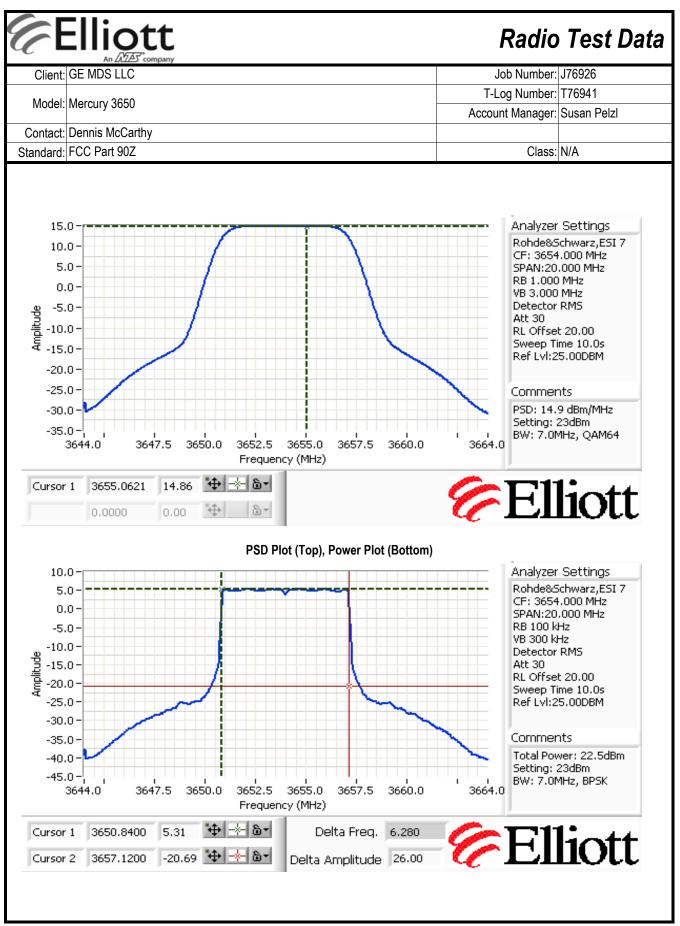
	GE MDS LL	Company						Job Number:	176026
Client		0							
Model	Mercury 365	50						og Number:	
	-						Αссοι	int Manager:	Susan Pelzl
	Dennis McC								
Standard	FCC Part 90	Z						Class:	N/A
3.5 MHz (Channel Spa	cing							
Freq. (MHz)	Modulation	Channel bandiwdth	Software setting ¹	Power ² (dBm)	PSD ³ dBm/MHz	Gain ⁴ (dBi)	EIRP PSD ⁵ dBm/MHz	EIRP ⁶ dBm	
3653	BPSK	3.50 MHz	23	. ,	17.7	10.0	27.7	32.4	
3662	BPSK	3.50 MHz 3.50 MHz	23	22.4 22.5	17.6	10.0	27.7	32.4	
3672	BPSK	3.50 MHz	23	22.5	17.0	10.0	27.0	32.5	
3653	QAM64	3.50 MHz	23	22.4	17.5	10.0	27.5	32.4	
3662	QAM64	3.50 MHz	23	22.4	17.7	10.0	27.7	32.4	
3672	QAM64	3.50 MHz	23	22.4	17.6	10.0	27.6	32.4	
3653	BPSK	3.50 MHz	20	19.3	14.5	15.0	29.5	34.3	
3662	BPSK	3.50 MHz	20	19.4	14.6	15.0	29.6	34.4	
3672	BPSK	3.50 MHz	20	19.3	14.5	15.0	29.5	34.3	
3653	QAM64	3.50 MHz	20	19.2	14.4	15.0	29.4	34.2	
3662	QAM64	3.50 MHz	20	19.4	14.6	15.0	29.6	34.4	
3672	QAM64	3.50 MHz	20	19.4	14.6	15.0	29.6	34.4	l
Noto 1:	Power settin	a is the soft	vara sattina i	used to set the		or			
							t to RMS ma	ax hold enabl	ed. The total powe
Note 2:			-						provided below.
									sweep time 5 seco
Note 3:			-	• •	-				highest power
	provided bel	ow.				·			- .
				• •		•		,	ues are being
Note 4:		-			tive gain of 1	5dBi. These	two values i	nclude a cabl	e loss of 3dB so th
	actual gain o								
Note 5,6:					•			a gain) and p	ower (measured
	power plus e	ettective ante	nna gain). T	he maximum	permitted ps	a is 30dBm/l	VIHZ.		



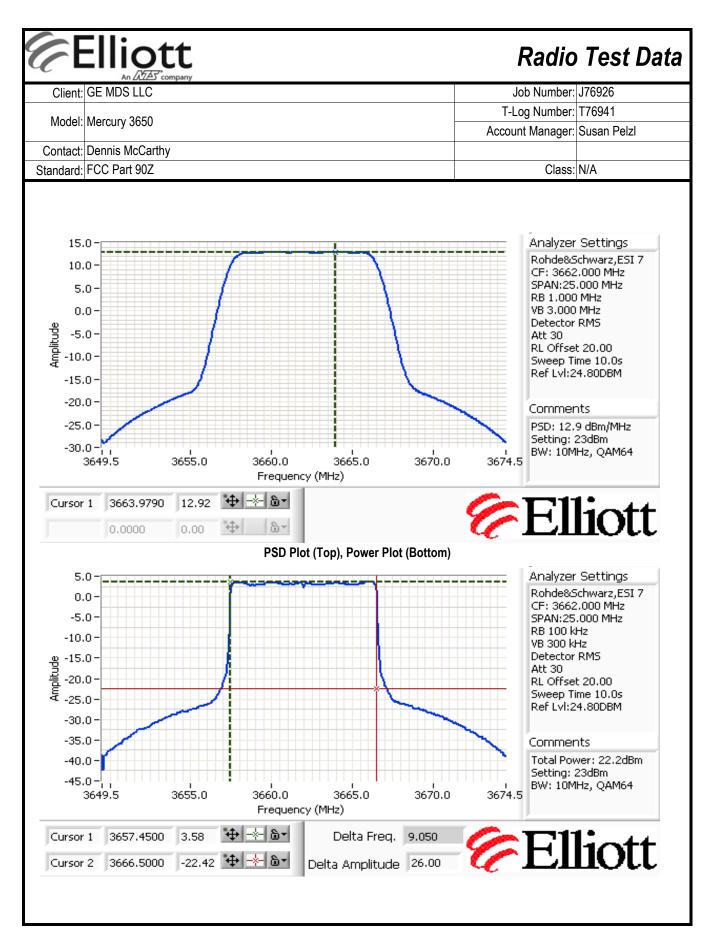
Client: GE MI Model: Mercur Contact: Dennis Standard: FCC P 5 MHz Channel Freq. (MHz) 3653 BPS 3662 BPS 3662 BPS 3662 BPS 3662 QAM 3653 BPS 3662 BPS 3653 QAM 3653 BPS 3662 BPS 3653 QAM 3653 QAM 3653 QAM	Iry 3650 s McCa Part 90Z Spacin Ilation SK SK SK SK M64 M64 SK SK SK) rthy Z	Software setting ¹ 23 23 23 23 23	Power ² (dBm) 22.0 21.9 21.8	PSD ³ dBm/MHz 15.9 15.8	Gain ⁴ (dBi) 10.0	T-I Accou EIRP PSD ⁵ dBm/MHz	lob Number: .og Number: .nt Manager: Class: EIRP ⁶ dBm	T76941 Susan Pelzl
Contact: Dennis Standard: FCC P Standard: Modul 3653 BPS 3662 BPS 3662 QAN 3662 BPS 3662 QAN 3662 QAN 3662 QAN 3662 QAN	s McCa Part 90Z Spacin Ilation SK SK SK M64 M64 SK SK SK	rthy 2 99 Channel bandiwdth 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz	setting ¹ 23 23 23 23 23	(dBm) 22.0 21.9	dBm/MHz 15.9		Accou EIRP PSD ⁵ dBm/MHz	nt Manager: Class:	Susan Pelzl
Standard: FCC P 6 MHz Channel Freq. Modul Modul 3653 BPS 3662 BPS 3662 QAN 3662 QAN 3662 QAN 3662 QAN 3662 BPS 3662 QAN 3662 BPS 3662 BPS 3662 BPS 3662 BPS 3662 QAN	Part 90Z Spacin Ilation SK SK SK M64 M64 SK SK SK	Channel bandiwdth 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz	setting ¹ 23 23 23 23 23	(dBm) 22.0 21.9	dBm/MHz 15.9		EIRP PSD ⁵ dBm/MHz	Class:	
tandard: FCC P MHz Channel Freq. MHz) Modul 3653 BPS 3662 BPS 3662 QAN 3662 QAN 3662 QAN 3662 QAN 3662 QAN 3662 BPS 3662 QAN 3662 BPS 3662 BPS 3662 BPS 3662 QAN 3653 QAN 3662 BPS 3662 QAN	Part 90Z Spacin Ilation SK SK SK M64 M64 SK SK SK	Channel bandiwdth 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz	setting ¹ 23 23 23 23 23	(dBm) 22.0 21.9	dBm/MHz 15.9		dBm/MHz		N/A
MHz Channel Freq. Modul 3653 BPS 3662 BPS 3653 QAN 3662 QAN 3653 BPS 3662 QAN 36653 BPS 3662 QAN 3653 BPS 3662 BPS 3662 QAN 3653 QAN 3662 BPS 3662 QAN	Spacin Ilation SK SK SK M64 M64 SK SK SK	Channel bandiwdth 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz	setting ¹ 23 23 23 23 23	(dBm) 22.0 21.9	dBm/MHz 15.9		dBm/MHz		
MHz) Moduli 3653 BPS 3662 BPS 3662 BPS 3662 QAN 3662 QAN 3662 QAN 3653 BPS 3662 QAN 3653 BPS 3662 BPS 3662 BPS 3653 QAN 3653 QAN 3653 QAN 3653 QAN 3662 BPS 3662 QAN	SK SK SK M64 M64 M64 SK SK	bandiwdth 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz	setting ¹ 23 23 23 23 23	(dBm) 22.0 21.9	dBm/MHz 15.9		dBm/MHz	EIRP ⁶ dBm	
MHz) Moduli 3653 BPS 3662 BPS 3662 BPS 3662 QAN 3662 QAN 3662 QAN 3653 BPS 3662 QAN 3653 BPS 3662 BPS 3662 BPS 3653 QAN 3653 QAN 3653 QAN 3653 QAN 3662 BPS 3662 QAN	SK SK SK M64 M64 M64 SK SK	bandiwdth 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz	setting ¹ 23 23 23 23 23	(dBm) 22.0 21.9	dBm/MHz 15.9		dBm/MHz	EIRP ⁶ dBm	
3662 BPS 3672 BPS 3653 QAM 3662 QAM 3663 BPS 3664 QAM 3653 BPS 3662 QAM 3653 BPS 3662 BPS 3662 BPS 3662 BPS 3653 QAM 3662 QAM 3662 QAM	SK SK M64 M64 M64 SK SK	5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz	23 23 23	21.9		10.0	05.0		
3672 BPS 3653 QAM 3662 QAM 3672 QAM 3653 BPS 3662 BPS 3662 BPS 3662 BPS 3653 QAM 3662 BPS 3662 BPS 3662 QAM 3653 QAM 3662 QAM 3662 QAM	SK M64 M64 M64 SK SK	5.00 MHz 5.00 MHz 5.00 MHz 5.00 MHz	23 23		15.8		25.9	32.0	
3653 QAM 3662 QAM 3672 QAM 3653 BPS 3662 BPS 3662 BPS 3672 BPS 3653 QAM 3653 QAM 3654 BPS 36653 QAM 3662 QAM 3662 QAM	M64 M64 M64 SK SK	5.00 MHz 5.00 MHz 5.00 MHz	23	21.8		10.0	25.8	31.9	
3662 QAM 3672 QAM 3653 BPS 3662 BPS 3672 BPS 3663 QAM 3653 QAM 3662 BPS 3663 QAM 3662 QAM 3662 QAM	M64 M64 SK SK	5.00 MHz 5.00 MHz			15.7	10.0	25.7	31.8	
3672 QAN 3653 BPS 3662 BPS 36672 BPS 3653 QAN 3653 QAN 3662 QAN	M64 SK SK	5.00 MHz	00	22.0	15.9	10.0	25.9	32.0	l
3653 BP 3662 BP 3672 BP 3653 QAN 3662 QAN	'SK 'SK		23	21.9	15.8	10.0	25.8	31.9	ļ
3662 BPS 3672 BPS 3653 QAN 3662 QAN	SK	5 ()() MH7	23	21.9	15.7	10.0	25.7	31.9	
3672 BPS 3653 QAN 3662 QAN			22	21.0	14.9	15.0	29.9	36.0	{
3653 QAN 3662 QAN	CK I	5.00 MHz	22 22	20.9	14.8 14.7	15.0 15.0	29.8 29.7	35.9 35.8	{
3662 QAN		5.00 MHz 5.00 MHz	22	20.8 21.0	14.7	15.0	29.7 29.9	35.8 36.0	1
		5.00 MHz	22	21.0	14.9	15.0	29.9	36.0	1
		5.00 MHz	22	20.9	14.8	15.0	29.8	35.9	1
				_0.0			_0.0	20.0	1
Note 1: Power									
	•		-						ed. The total pov
was in									provided below.
			-		-				sweep time 5 sec
	ioia. Iviu led belo	•	ps were mad	e unui the dis	spiay nad no	new peaks".	FIOL for cha	mei with the	e highest power
			effective and	enna cain (a	rtual antenna	a dain minue	feed cable lo	ss) Two va	lues are being
						-			le loss of 3dB so t
			as are 13dBi		and gain of h				
These	are the	eirp power	spectral der	sity (measur	ed power der	nsity plus effe	ctive antenn	a gain) and r	ower (measured
Noto 6 6			•	he maximum	•				



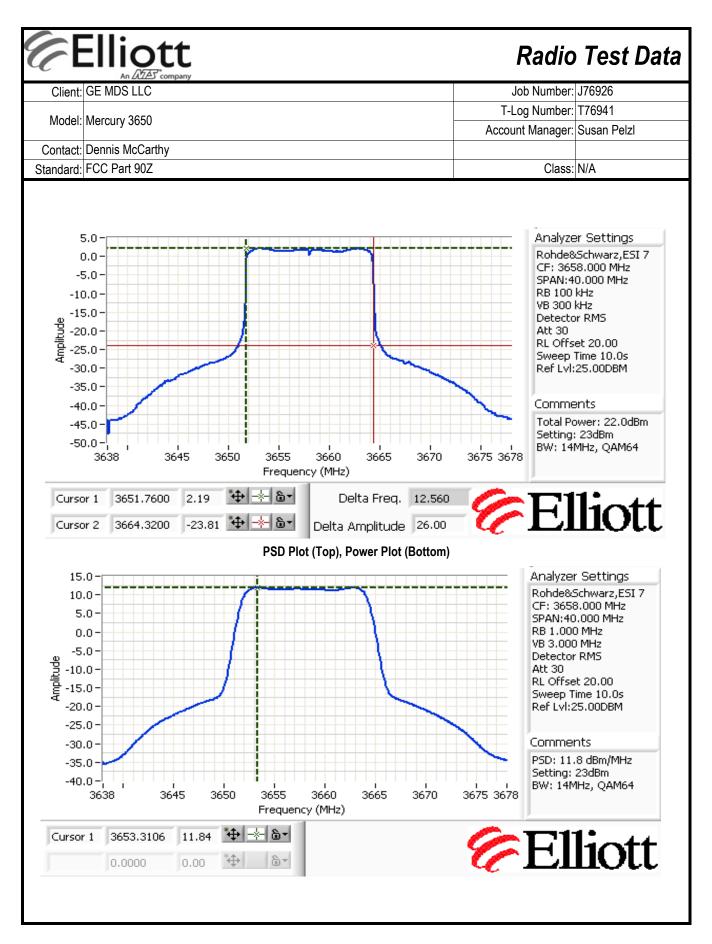
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	provided below.
	This column contains the effective antenna gain (actual antenna gain minus feed cable loss). Two va
Note 4: evaluated - an effective gain of 10dBi and an effective gain of 15dBi. These two values include a cab	
actual gain of the antennas are 13dBi and 18dBi.	actual gain of the antennas are 13dBi and 18dBi.
These are the eirp power spectral density (measured power density plus effective antenna gain) and	These are the eirp power spectral density (measured power density plus effective antenna gain) and
te 5,6: power plus effective antenna gain). The maximum permitted psd is 30dBm/MHz.	^{b.} power plus effective antenna gain). The maximum permitted psd is 30dBm/MHz.



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Appendix C Photographs

Appendix D Proposed FCC ID Label & Label Location

Appendix E Detailed Photographs

Appendix F Operator's Manual

Appendix G Block Diagram

Appendix H Schematic Diagrams

Appendix I Theory of Operation

Appendix J Tune-up Procedure

Not applicable - the device is factory tuned with no user-accessible, or user required, tuning.

Appendix K Parts List