TÜV
PRODUCT SERVICE

TEST RESULT SUMMARY

FCC PART 15 SUBPART C
Section 15.235

MANUFACTURER'S NAME	ComLink Enterprises, L.L.C.
NAME OF EQUIPMENT	Cellphone ComLink – 49.830 MHz Analog Low Power F.M. Transmitter/Receiver
MODEL NUMBER	100
MANUFACTURER'S ADDRESS	10001 Wayzata Boulevard, Suite 210 Minnetonka MN 55305
TEST REPORT NUMBER	NC203061
TEST DATE	06 June 2002

According to testing performed at TÜV Product Service Inc, the above-mentioned unit is in compliance with the electromagnetic compatibility requirements defined in FCC Part 15.

It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics. Any modifications necessary for compliance made during testing on the above mentioned date(s) must be implemented in all production units for compliance to be maintained.
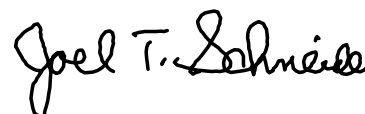
TÜV Product Service Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the requirements of FCC Part 15.

Date: 12 June 2002

Location: Taylors Falls MN
USA

J. C. Sausen
Test Engineer

J. T. Schneider
Chief Engineer

Not Transferable

EMC EMISSION - T E S T   R E P O R T

Test Report File No.   :   **NC203061**   Date of issue: 12 June 2002

Model / Serial No.   :   100 / 00001

Product Type   :   Cellphone ComLink – 49.830 MHz Analog Low Power F.M. Transmitter/Receiver

Applicant   :   ComLink Enterprises, L.L.C.

Manufacturer   :   ComLink Enterprises, L.L.C.

License holder   :   ComLink Enterprises, L.L.C.

Address   :   10001 Wayzata Boulevard, Suite 210

         :   Minnetonka MN 55305

Test Result   :   ■ **Positive**   □ **Negative**

Test Project Number Reference(s)   :

NC203061

Total pages including Appendices

25

D I R E C T O R Y - EMISSIONS

EMISSIONS TEST REGULATIONS :

The emissions tests were performed according to following regulations:

☐ - EN 50081-1 / 1991
☐ - EN 55011 / 1991   ☐ - Group 1   ☐ - Group 2
                                  ☐ - Class A   ☐ - Class B
☐ - EN 55013 / 1990
☐ - EN 55014 / 1987   ☐ - Household appliances and similar
                                  ☐ - Portable tools
                                  ☐ - Semiconductor devices

☐ - EN 55014 / A2:1990
☐ - EN 55014 / 1993   ☐ - Household appliances and similar
                                  ☐ - Portable tools
                                  ☐ - Semiconductor devices
☐ - EN 55015 / 1987
☐ - EN 55015 / A1:1990
☐ - EN 55015 / 1993
☐ - EN 55022 / 1987   ☐ - Class A   ☐ - Class B
☐ - EN 55022 / 1994   ☐ - Class A   ☐ - Class B

☐ - BS
☐ - VCCI   ☐ - Class A   ☐ - Class B
■ - FCC Part 15 Subpart C – Section 15.235
☐ - FCC Part 15 Subpart C Section 15.209 - Radiated
☐ - FCC Part 15 Subpart C Section 15.207 - Conducted

☐ - CISPR 11 (1990)   ☐ - Group 1   ☐ - Group 2
                                  ☐ - Class A   ☐ - Class B
☐ - CISPR 22 (1993)   ☐ - Class A   ☐ - Class B

Environmental conditions in the lab:

	Actual
Temperature	: 22 °C
Relative Humidity	: 35 %
Atmospheric pressure	: 99.2 kPa
Power supply system	: Battery

Sign Explanations:

☐ - not applicable
■ - applicable

Emissions Test Conditions: CONDUCTED EMISSIONS (15.207)

The *CONDUCTED EMISSIONS (INTERFERENCE VOLTAGE*) measurements were performed at the following test location:

■ **- Test not applicable**
☐ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - Oakwood Lab (Open Area Test Site)
☐ - Wild River Lab Screen Room
☐ - New Brighton Lab Shielded Room

Test Results:

Conducted emissions 450 kHz - 30 MHz

The requirements are	☐ - MET	☐ - NOT MET
Minimum margin of compliance	_____ dB	at _____ MHz
Maximum margin of non-compliance	_____ dB	at _____ MHz
Remarks:		

Emissions Test Conditions: RADIATED EMISSIONS (15.209 - 10 kHz to 30 MHz)

The *RADIATED EMISSIONS (MAGNETIC FIELD)* measurements were performed at the following test location:

■ **- Test not applicable**
☐ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)
☐ - Oakwood Lab (Open Area Test Site)

at a test distance of :
☐ - 0.3 meters
☐ - 1 meter
☐ - 3 meters
☐ - 10 meters

Test equipment used :

	TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
☐ -	2534	ESHS-20	Rhode & Schwarz	EMI Receiver	837055/003	8-22-02
☐ -	2517	HFH2-Z2	Polorad	Loop Antenna	879285/036	2-11-03

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually.

Emission Test Results:

Radiated emissions (magnetic field) 10 kHz - 30 MHz

The requirements are	☐ - MET		☐ - NOT MET	
Minimum limit margin for fundamental	_____ dB	at	_____ kHz	
Minimum limit margin for spurious/harmonics	_____ dB	at	_____ kHz	

Remarks: _____

Emissions Test Conditions: RADIATED EMISSIONS (Electric Field)

The *RADIATED EMISSIONS (ELECTRIC FIELD)* measurements, in the frequency range of **30 MHz-1000 MHz**, were tested in a horizontal and vertical polarization at the following test location:

☐ - **Test not applicable**

☐ - Wild River Lab Large Test Site (Open Area Test Site)
■ - Wild River Lab Small Test Site (Open Area Test Site) – NSA measurements made 7-01, due 7-02.
☐ - Oakwood Lab (Open Area Test Site)

at a test distance of :
■ - 3 meters
☐ - 10 meters
☐ - 30 meters

Test equipment used :

	TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
■	2686	8568B	Hewlett-Packard	Spectrum Analyzer (Unit B)	2049A01305	1-30-03
■	2674	85662A	Hewlett-Packard	Analyzer Display (Unit B)	2050A02007	1-30-03
■	2680	85650A	Hewlett-Packard	Quasi-Peak Adapter (Unit B)	2043A00343	1-30-03
■ -	2830	ZHL-1042J	Mini-Circuits	Preamplifier	H081396-16	3-15-03
■ -	3203	EM-6917B	Electro-Metrics	Biconicalog Periodic	106	2-14-03
■ -	2535	ESVS 20	Rhode-Schwarz	EMI Receiver	830350/004	4-26-03

All measurement instrumentation is traceable to the National Institute of Standards and Technology (NIST) and is calibrated annually.

Emission Test Results:

Radiated emissions (electric field) 30 MHz - 1000 MHz

The requirements are	■ - MET		☐ - NOT MET	
Minimum margin of compliance for fundamental	7 dB	at	49.83	MHz
Minimum margin of compliance for spurious	>10 dB	at		MHz
Minimum limit margin for spurious	dB	at		MHz

Remarks: The fundamental was measured to be 72.4 dBuV/m (4168 uV/m) at 49.83 MHz with peak detector

compared to a limit of 80 dBuV/m (10000 uV/m) with average detector. A plot demonstrating band edge

compliance is included.

Equipment Under Test (EUT) Test Operation Mode - Emission tests :

The device under test was operated under the following conditions during emissions testing:

☐ - Standby

☐ - Test program (H - Pattern)

☐ - Test program (color bar)

☐ - Test program (customer specific)

☐ - Practice operation

■ - Normal Operating Mode - Attached to the back of hand-held cell phone and plugged into the head-set jack.

☐ - _____

Configuration of the device under test:

■ - See Constructional Data Form in Appendix B

☐ - See Product Information Form in Appendix B

The following peripheral devices and interface cables were connected during the measurement:

☐ - _____   Type : _____

☐ - _____   Type : _____

☐ - _____   Type : _____

☐ - _____   Type : _____

☐ - _____   Type : _____

☐ - _____   Type : _____

☐ - _____   Type : _____

☐ - _____   Type : _____

☐ - unshielded power cable

☐ - unshielded cables

☐ - shielded cables   MPS.No.: _____

☐ - customer specific cables

☐ - _____

☐ - _____

DEVIATIONS FROM STANDARD:

None.

GENERAL REMARKS:

SUMMARY:

The requirements according to the technical regulations are

■ - met
☐ - **not** met.
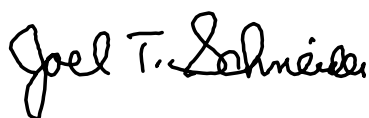
The device under test does

■ - fulfill the general approval requirements mentioned on page 3.
☐ - **not** fulfill the general approval requirements mentioned on page 3.

Testing Start Date: 06 June 2002

Testing End Date: 06 June 2002

- TÜV PRODUCT SERVICE INC -

J. T. Schneider (signature)

J. T. Schneider
Chief Engineer

J. C. Sausen (signature)

Tested By:
J. C. Sausen

Test-setup photo(s) and Test Site Drawings

Refer to the Photo Exhibit in the Submittal Package.

Appendix A

Test Data Sheets

Radiated Electromagnetic Emissions

Test Report #:	**3061 Run 06**	Test Area:	STS 3M			
Test Method:	FCC Part 15	Test Date:	06-Jun-2002			
EUT Model #:	CellPhone ComLink	EUT Power:	internal batery			
EUT Serial #:	00001			Temperature:	22	°C
Manufacturer:	ComLink Enterprises, L.L.C.			Relative Humidity:	35	%
EUT Description:	49.8 MHz Analog Cellphone communications link			Air Pressure:	99.2	kPa
Notes:	Transmitter and receiver			Page:	1 of 2	
	TRX in active continous transmit.					

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB)	FINAL (dBuV/m)	POL / HGT / AZ (m) (DEG)	DELTA1 FCC B (< 1GHz)	DELTA2 N/A
99.72	45.5 Qp	1.9 / 8.9 / 27.8	28.6	V / 1.0 / 0.0	-14.9	N/A
99.72	46.6 Qp	1.9 / 8.9 / 27.8	29.7	V / 1.0 / 0.0	-13.8	N/A
249.37	29.9 Qp	3.0 / 11.6 / 27.9	16.7	V / 1.0 / 0.0	-29.3	N/A
99.7 MHz maxed:						
99.72	47.1 Qp	1.9 / 8.9 / 27.8	30.2	V / 1.1 / 1.0	-13.3	N/A
99.7 MHz maxed:						
99.72	34.0 Qp	1.9 / 8.9 / 27.8	17.0	H / 1.1 / 1.0	-26.5	N/A
No further significant EUT spurious emmissions detected 30 MHz to 1000 MHz, vert and hor ant.						
See seperate data sheets for information on fundamental signal measurements.						

Tested by: J. C. Sausen
Printed   Signature

Reviewed by: J. T. Schneider
Printed   Signature

Radiated Electromagnetic Emissions

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Test Report #:	**3061 Run 06**	Test Area:	STS 3M
Test Method:	FCC Part 15	Test Date:	06-Jun-2002
EUT Model #:	CellPhone ComLink	EUT Power:	internal batery
EUT Serial #:	00001		
Manufacturer:	ComLink Enterprises, L.L.C.		
EUT Description:	49.8 MHz Analog Cellphone communications link		
Notes:	Transmitter and receiver		
	TRX in active continous transmit.		

Temperature:	22	°C
Relative Humidity:	35	%
Air Pressure:	99.2	kPa
Page:	2 of 2	

FREQ (MHz)	LEVEL (dBuV)	CABLE / ANT / PREAMP (dB)	FINAL (dBuV/m)	POL / HGT / AZ (m) (DEG)	DELTA1 FCC B (< 1GHz)	DELTA2 N/A
********** **MEASUREMENT SUMMARY** **********						
99.72	47.1 Qp	1.9 / 8.9 / 27.8	30.2	V / 1.1 / 1.0	-13.3	N/A
249.37	29.9 Qp	3.0 / 11.6 / 27.9	16.7	V / 1.0 / 0.0	-29.3	N/A

Tested by:	J. C. Sausen	
	Printed	Signature
Reviewed by:	J. T. Schneider	
	Printed	Signature

RADIATED EMISSIONS

TEST REPORT # _3061_

DATE _6/6/02_

PRODUCT ID: _Comlink_

ANALYZER _ESVS-20_

ANTENNA _Biconalog_

SHEET _____ OF _____

TEST FREQ. (MHz)	dBuV	Factor (dB)*	Condition 1 dBuV/m	Condition 2 dBuV/m	Condition 3 dBuV/m	Condition 4 dBuV/m	Ant. Polar.	Ant. Dist. (m)		REMARKS
										PEAK - 120 KHz RBw
49.834	48.9	15.6	64.5	(Ant. Ht = 4m)			V	3		Center Freq.
49.834	55.8	15.6	71.4					↑		
49.839	56.8	15.6	72.4	Maxed rotation				↓		
49.839	41.0	15.6	56.6	maxed htt rotation			H	3		↓
* 49.81	-5	15.6	10.6				V	↑		
* 49.91	-6	15.6	9.6				↑			
* 49.845	1	15.6	16.6							
* 49.842	10									
* 49.844	30	15.6	45.6							
* 49.834	24.4	15.6	40.0				↓	↓		
* 49.820	24.0	15.6	39.6				V	3		
	JC Jausen									

Condition 1 *_Res Bw = 10KHz_

TECH _____   ENGR _____

BAND EDGE MEASUREMENT

REF 68.5 dBµV   ATTEN 10 dB

/D

10 dB/

POS PK

49.8308 MHz
54.7 dBµV

49.8363 MHz

49.8371 MHz
@ 34.3 dBµV (16.2µV) (class B)

49.8233
@ 34.5 dBµV

MARKER
49.8241 MHz
28.50 dBµV

DL
28.5
dBµV

CORR'D
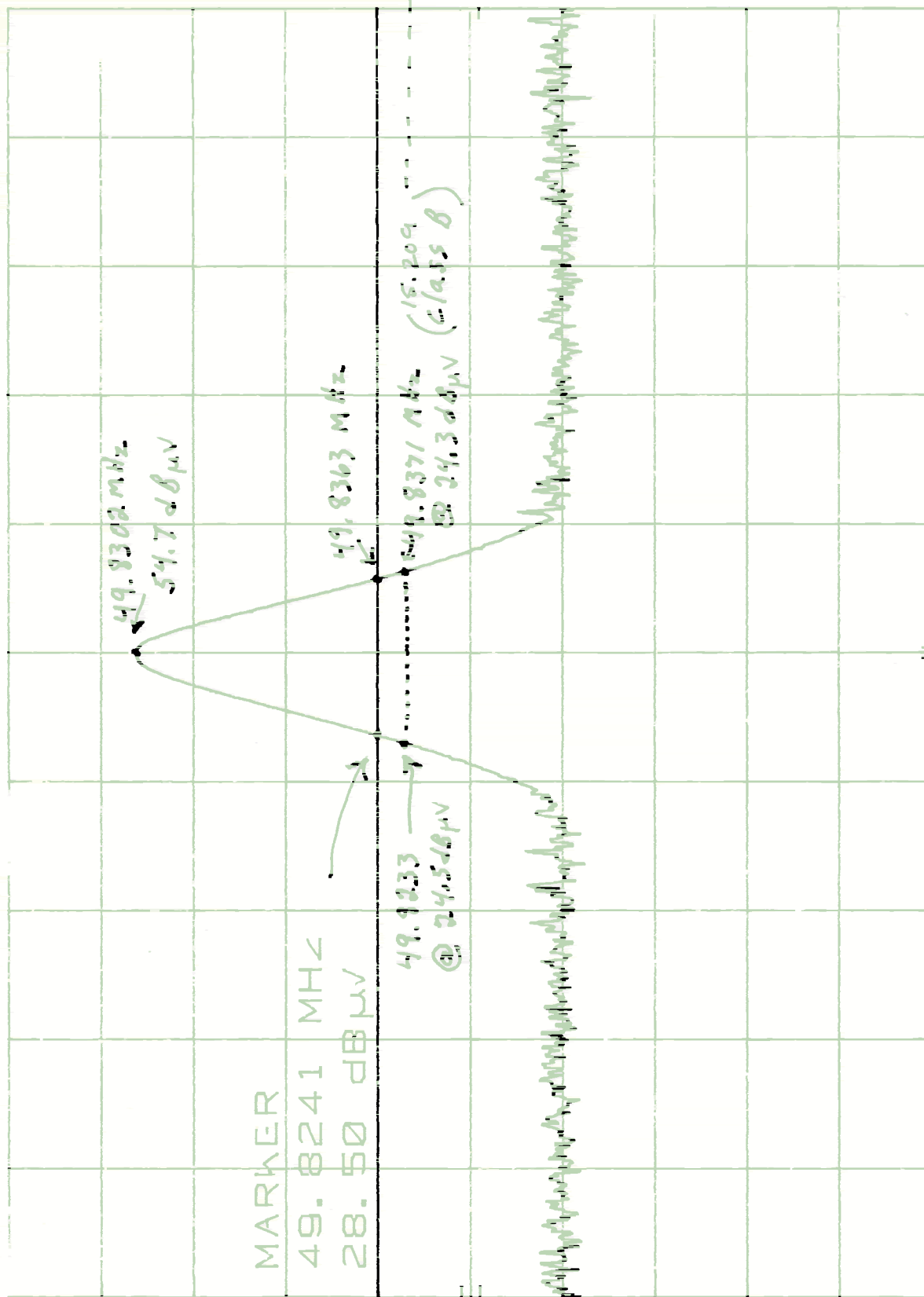
CENTER 49.8305 MHz   SPAN 100.0 kHz
RES BW 3 kHz   VBW 3 kHz   SWP 100 msec

Appendix B

Constructional Data Form

And/or

Product Information Form(s)

Form

EMC Test Plan and Constructional Data Form

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PRODUCT SERVICE
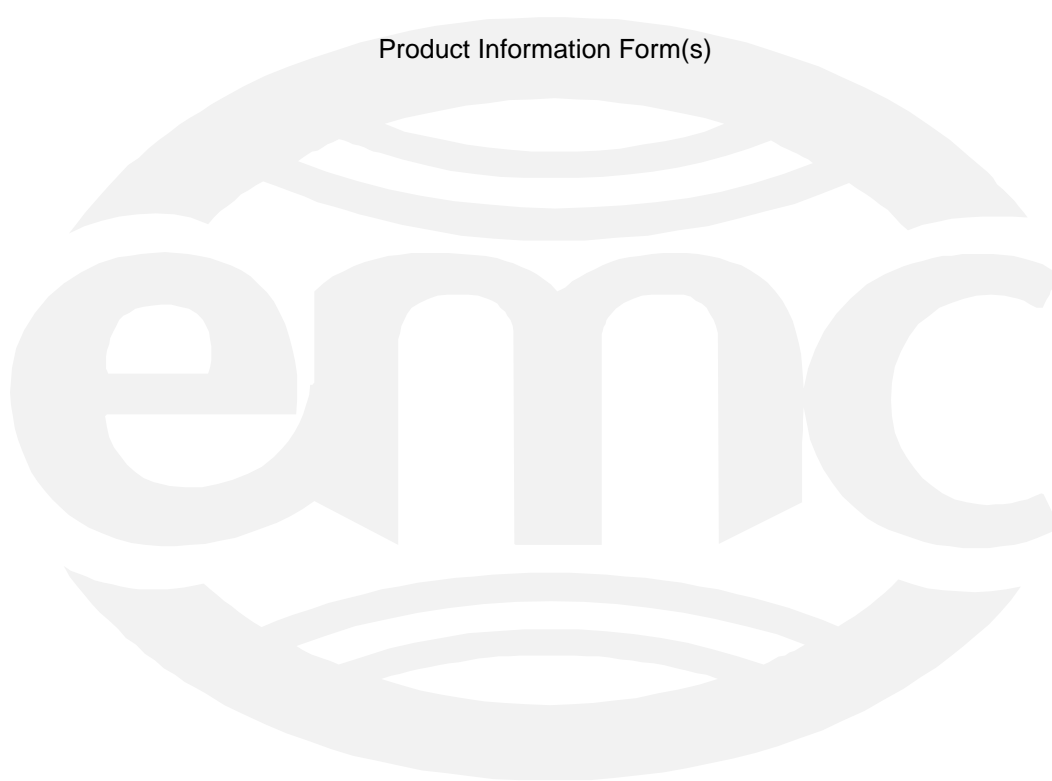
PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE.

Applicant -- *NOTE: This information will be input into your test report as shown below.*
Press the F1 key at any time to get HELP for the current field selected.

Company: COMLINK ENTERPRISES, L.L.C.

Address: 10001 WAYZATA BLVD, Ste. 210
Minnetonka, MN 55305

Contact: DR. BARRY VOROBA   Position: C.E.O.

Phone: 952-545-2627   Fax: 952-545-1715

E-mail Address: bVOROBA@CS.com

General Equipment Description -- *NOTE: This information will be input into your test report as shown below.*

EUT Description: 49.830 MHz Analog Low Power FM. Transmitter/Receiver

EUT Name: CELLPHONE COMLINK

Model No.: 100   Serial No.: 00001

Product Options: None

Configurations to be tested: Intentional Radiator plus Receiver

---

Test Objective

☐ EMC Directive 89/336/EEC (EMC)	☒ FCC:	Class ☐ A ☐ B Part	15.235
Std:	☐ VCCI:	Class ☐ A ☐ B	
☐ Machinery Directive 89/392/EEC (EMC	☐ BSMI:	Class ☐ A ☐ B	
Std:	☐ Canada:	Class ☐ A ☐ B	
☐ Medical Device Directive 93/42/EEC (EMC)	☐ Australia:	Class ☐ A ☐ B	
Std:	☐ Other:		
☐ Vehicle Directive 72/245/EEC (EMC) Std:			
☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC)			

Form

EMC Test Plan and Constructional Data Form

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TÜV Product Service Certification Requested

☐ *Attestation of Conformity (AoC)*   ☒ *EMC Certification (used with Octagon Mark)*

☐ Certificate of Conformity (CoC)   ☐ Compliance Document

Protection Class (N/A for vehicles)   ☐ Class I   ☐ Class II   ☐ Class III

(Press **F1** when field is selected to show additional information on Protection Class.)

Attendance

Test will be: ☒   Attended by the customer   ☐   Unattended by the customer

---

Failure - *Complete this section if testing will not be attended by the customer.*

If a failure occurs, TUV Product Service should:

☐ Call contact listed above, if not available then stop   (After hrs phone):
testing.

☐ Continue testing to complete test series.

☐ *Continue testing to define corrective action.*

☐ Stop testing.

EUT Specifications and Requirements

Length: 2 inches   Width: 1 inch   Height: 1/4 inch   Weight: 2 oz.

ANTENNA 2 1/2 inches

Power Requirements

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Voltage: Battery   (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: _____

Current   Current
(Amps/phase(max)): _____   (Amps/phase(nominal)): _____

Other _____

Other Special Requirements

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)

Form

EMC Test Plan and Constructional Data Form

EUT Power Cable				
☐ Permanent	OR	☐ Removable	Length (in meters):	_____
☐ Shielded	OR	☐ Unshielded		
☐ Not Applicable				

Form

EMC Test Plan and Constructional Data Form

EUT Interface Ports and Cables

Interface				Shielding								
Type	Analog	Digital	Qty	Yes	No	Type	Termination	Connector Type	Port Termination	Length (in meters)	Removable	Permanent
EXAMPLE: *RS232*	☐	☒	*2*	☒	☐	*Foil over braid*	*Coaxial*	*Metallized 9-pin D-Sub*	*Characteristic Impedance*	*6*	☒	☐
	☐ ☐			☐ ☐							☐ ☐	
	☐ ☐			☐ ☐							☐ ☐	
	☐ ☐			☐ ☐							☐ ☐	
	☐ ☐			☐ ☐							☐ ☐	
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	☐ ☐			☐ ☐							☐ ☐	

EMC Test Plan and Constructional Data Form

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EUT Software.

Revision Level:

Description:

Equipment Under Test (EUT) Operating Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing. Consult with your TÜV Product Service Representative if additional assistance is required.

1. *Attached to back of hand-held cell phone and plugged into the head-set jack.*

2.

3.

Equipment Under Test (EUT) System Components -- List and describe all components which are part of the EUT. For FCC testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc.)				
Description	**Model #**	**Serial #**	**FCC ID #**
EUT (TRANSMITTER) ONLY			

EMC Test Plan and Constructional Data Form

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Support Equipment -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)

Description	Model #	Serial #	FCC ID #
Hand-held cell phone			

Oscillator Frequencies

Frequency	Derived Frequency	Component # / Location	Description of Use
16.610 MHz	49.830 MHz	X1 / Next to MC2833	Generates Tx fundamental

---

Power Supply

Manufacturer	Model #	Serial #	Type
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____

Power Line Filters

Manufacturer	Model #	Location in EUT

EMC Test Plan and Constructional Data Form

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Critical EMI Components (Capacitors, ferrites, etc.)				
Description	_Manufacturer_	_Part # or Value_	_Qty_	_Component # / Location_

EMC Critical Detail -- Describe other EMC Design details used to reduce high frequency noise.

(PLEASE INSERT "**ELECTRONIC SIGNATURE**" BELOW IF POSSIBLE)

Authorization Signatures

Barry Vorola

Customer authorization to perform tests
according to this test plan.

$6-2-02$

Date

BARRY VoRoBA

Test Plan/CDF Prepared By (please print)

$6-2-02$

Date

Reviewed by TÜV Product Service Associate

Date

Appendix C

Measurement Protocol

MEASUREMENT PROTOCOL FOR FCC

GENERAL INFORMATION

In compliance with FCC Docket 92-152, "Harmonization of Rules for Digital Devices Incorporate International Standards", testing for FCC compliance may be done following the ANSI C63.4-1992 procedures and using the CISPR 22 Limits.

Measurement Uncertainty
The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. These test systems have a measurement uncertainty of ±4.5 dB. The equipment comprising the test systems are calibrated on an annual basis.

Justification
The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into it's characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

CONDUCTED EMISSIONS
The final level, expressed in dBμV, is arrived at by taking the reading directly from the EMI receiver. This level is compared directly to the CISPR limit. Conducted and radiated emission testing is performed according to the procedures in ANSI C.63.4-1992.

To convert between dBμV and μV, the following conversions apply:
   dBμV = 20(log μV)
   μV = Inverse log(dBμV/20)

RADIATED EMISSIONS
The final level, expressed in dBμV/m, is arrived at by taking the reading from the spectrum analyzer (Level dBμV), adding the antenna correction factor and cable loss factor (Factor dB) to it, then subtracting the preamp gain. This result then has the CISPR limit subtracted from it to provide the Delta which gives the tabular data as shown in the data sheets in Attachment A.

Example:

FREQ (MHz)	LEVEL (dBuV)	CABLE (dB)	ANT (dB/m)	PREAMP (dB)	FINAL (dBuV/m)	POL	HGT (m)	AZ (deg)	DELTA1 FCC
60.80	42.5Qp	+ 1.2	+ 10.9	- 25.5 =	29.1	V	1.0	0.0	-10.9

DETAILS OF TEST PROCEDURES

General Standard Information
The test methods used comply with ANSI C63.4-1992 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz."

Conducted Emissions
Conducted emissions on the 60 Hz power interface of the EUT are measured in the frequency range of 450 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection, and a Line Impedance Stabilization Network (LISN), with 50 Ω/50 μH (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters from the vertical ground plane (wall) of the screen room. In some cases, a pre-scan using a spectrum analyzer is initially performed on the units comprising the system under test to locate the highest emissions. If the minimum passing margin appears to be less than 20 dB with a peak mode measurement, the emissions are re-measured using a tuned receiver or spectrum analyzer with quasi-peak and average detection and recorded on the data sheets.

Radiated Emissions
Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz/6 dB bandwidth and peak detection. The fundamental was measured using 120 kHz/6 dB bandwidth and peak detection, and since the limit was kept was not remeasured with average detection. Table top equipment is placed on a 1.0 X 1.5 meter non-conducting table 80 centimeters above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT are rotated 360 degrees. The final level, expressed in dBμV/m, is arrived at by taking the reading from the spectrum analyzer (Level dBμV), adding the antenna correction factor and cable loss factor, and then subtracting the preamplifier gain.