

EMC TEST REPORT

Test Report No. NC72103606.1 Date of issue: 02 April 2015

Product Name TRX-1

Model(s) Tested 39169

Serial No(s) Tested 12675

Product Description PhysioTel Digital Transceiver

Manufacturer Data Sciences International
119 14th Street
St Paul MN 55112

Test Result ☒ **Positive** ☐ **Negative**

TÜV SÜD America Inc reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. TÜV SÜD America Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD America Inc issued reports.

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REVISION RECORD

REVISION	TOTAL NUMBER OF PAGES	DATE	DESCRIPTION
	24	02 April 2015	Initial Release



DIRECTORY

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LAB ACCREDITATION:

TÜV SÜD America's New Brighton, Taylors Falls, and Millville Labs maintain A2LA accreditation to ISO/IEC 17025 for the specific tests listed in A2LA Certificate #2955.11 as Electrical Testing Laboratories, and are recognized by the National RRA under Phase I of the APEC Tel MRA, Identification Number US0080. These Labs are located at the following addresses:

Main Location:	1775 Old Highway 8 NW, Suite 104 New Brighton MN 55112-1891 USA	
Satellite Location 1:	Oakwood Town Road Millville MN 55957-0255 USA	(VCCI Registration Number A-0010)
Satellite Location 2:	19333 Wild Mountain Road Taylors Falls MN 55084 USA	(VCCI Registration Number A-0025)

EMC TEST REGULATIONS:

The tests were performed according to the following regulations:

FCC Part 15 Subpart C Section 15.249 Paragraph (a), (d)

FCC Part 15 Subpart B Section 15.109

IC RSS-210 Issue 8 Amendment 1 Section A2.9 (a), (b)

IC RSS-Gen Issue 4 Sections 4.6.1, 7.2.5

ENVIRONMENTAL CONDITIONS IN THE LAB

	<u>Actual</u>
Temperature:	: 21°C
Atmospheric pressure	: 99kPa
Relative Humidity	: 22%

POWER SUPPLY UTILIZED

Power supply system : POE

TEST EQUIPMENT

All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.

MEASUREMENT UNCERTAINTY

The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system has a measurement uncertainty of ± 1.8 dB. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. The test system has a measurement uncertainty of ± 4.8 dB. All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.

SIGN EXPLANATIONS

□ - not applicable

■ - applicable

Field strength of fundamental/harmonics

FCC 15.249(a), IC RSS-210 A2.9(a)

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2009, clause 8.2.3, 8.2.4.

Maximum field strength of the fundamental is 92.52 dB μ V/m (42.3 mV/m) at 3 meters at 909.0 MHz.

Test location

TÜV SÜD America Inc, Taylors Falls, Large Test Site (Open Area Test Site)

Test distance

3 meters

Test equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
OWLE03202	EM-6917B	Electro-Metrics	Biconicalog Periodic	101	16-Oct-14	16-Oct-15
WRLE10897	ZHL-1042J	Mini-Circuits	Amplifier Broadband AMP/ SMA	NA	Code B 6-Feb-15	Code B 06-Feb-16
NBLE03196	8566B	Hewlett-Packard	Spectrum Analyzer	2240A01856	27-Feb-15	27-Feb-16
NBLE03195	85662A	Hewlett-Packard	Analyzer Display	2648A13518	27-Feb-15	27-Feb-16
WRLE02680	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00343	08-Sep-14	08-Sep-15
NBLE03367	E4440A	Agilent	Spectrum Analyzer	MY42510439	10-Sep-14	10-Sep-15
WRLE02075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	26-Feb-15	26-Feb-16
WRLE10536	SL18B4020	Phase 1 Microwave	Preamplifier 1 – 18 GHz	0002	Code B 07-Jan-15	Code B 07-Jan-16
WRLE03933	F551B-1	Acronetics	8 – 12 GHz Bandpass Filter	010	Code B 08-Jan-15	Code B 08-Jan-16
WRLE03934	F549B-1	Acronetics	2 – 4 GHz Bandpass Filter	010	Code B 08-Jan-15	Code B 08-Jan-16
WRLE03935	F548B-1	Acronetics	1 – 2 GHz Bandpass Filter	010	Code B 08-Jan-15	Code B 08-Jan-16
WRLE02003	F550B1	Acronetics	4 – 8 GHz Bandpass Filter	010	Code B 08-Jan-15	Code B 08-Jan-16
WRLE10863	N/A	TÜV SÜD America	TC Software v3.4.75	N/A	Code Y	Code Y

Code B = Calibration verification performed internally. Code Y = Calibration not required when used with other calibrated equipment

Test limit

Fundamental Frequency (MHz)	Field strength of fundamental mV/m	Field strength of harmonics μ V/m
902-928	50	500

Field strength limits are specified at a distance of 3 meters. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands above 1000 MHz. As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

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 a 120 kHz / 6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the 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, 10 or 30 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 is rotated 360 degrees. The transmitter is rotated through 3 orthogonal axes to determine worst case.

Test Data

See following page

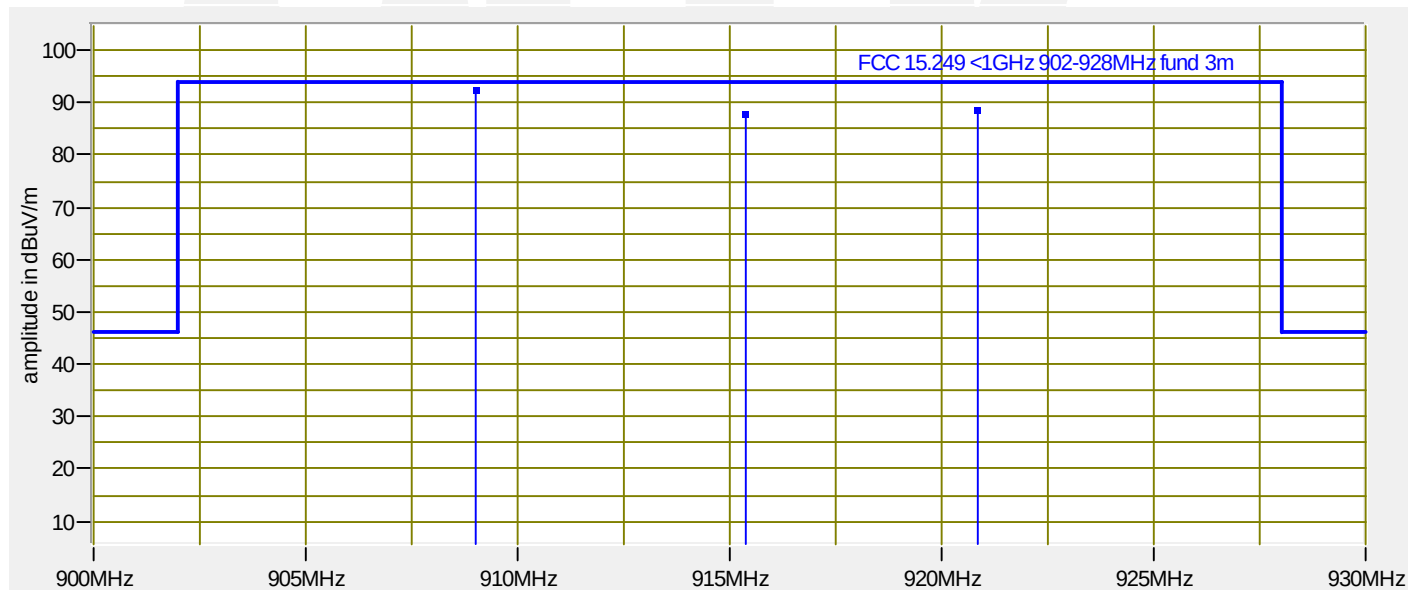
Field strength of fundamental

List of measurements for run #: 2

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.249 <1GHz 902- 928MHz fund 3m	DELTA2
Fundamental field strength						
Power trim = 0.						
Low, mid, & high channels maximized						
Low channel						
909.0 MHz	60.59 Qp	3.58 / 28.33 / 0.0 / 0.0	92.5	V / 1.06 / 0	-1.5	n/a
Mid channel						
915.37 MHz	55.79 Qp	3.6 / 28.55 / 0.0 / 0.0	87.93	V / 1.06 / 0	-6.07	n/a
High channel						
920.832 MHz	56.15 Qp	3.61 / 28.68 / 0.0 / 0.0	88.44	V / 1.06 / 0	-5.56	n/a

Measurement summary: FCC 15.249 <1GHz 902-928MHz fund 3m

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV/m)	FINAL (mV/m)	POL / HGT / AZ (m)(DEG)	LIMIT (mV/m)
909.0 MHz	91.0 Qp	3.58 / 28.33 / 30.39 / 0.0	92.52	42.3	V / 1.06 / 0	50
920.832 MHz	56.15 Qp	3.61 / 28.68 / 0.0 / 0.0	88.44	26.4	V / 1.06 / 0	50
915.37 MHz	55.79 Qp	3.6 / 28.55 / 0.0 / 0.0	87.93	24.9	V / 1.06 / 0	50



Field strength of harmonics

Scanned 1 – 10 GHz. No significant harmonic emissions detected.

Spurious Radiated Emissions 30 - 9300 MHz

FCC 15.249(d), IC RSS-210 A2.9(b)

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 8.2.3, 8.2.4.

Test limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

FCC 15.209

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

All measurements made at 3 meters. The emission limits shown in the above tables are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§ 15.250, 15.252, 15.255, and 15.509–15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. 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 a 120 kHz / 6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the 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, 10 or 30 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 is rotated 360 degrees.

Test location

TÜV SÜD America Inc, Taylors Falls, Large Test Site (Open Area Test Site)

Test distance

3 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
OWLE03202	EM-6917B	Electro-Metrics	Biconicalog Periodic	101	16-Oct-14	16-Oct-15
WRLE10897	ZHL-1042J	Mini-Circuits	Preamplifier 30 - 3000 MHz	NA	Code B 6-Feb-15	Code B 06-Feb-16
NBLE03196	8566B	Hewlett-Packard	Spectrum Analyzer	2240A01856	27-Feb-15	27-Feb-16
NBLE03195	85662A	Hewlett-Packard	Analyzer Display	2648A13518	27-Feb-15	27-Feb-16
WRLE02680	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00343	08-Sep-14	08-Sep-15
WRLE02075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	26-Feb-15	26-Feb-16
WRLE10536	SL18B4020	Phase 1 Microwave	Preamplifier 1 - 18 GHz	0002	Code B 07-Jan-15	Code B 07-Jan-16
WRLE03933	F551B-1	Acronetics	8 - 12 GHz Bandpass Filter	010	Code B 08-Jan-15	Code B 08-Jan-16
WRLE03934	F549B-1	Acronetics	2 - 4 GHz Bandpass Filter	010	Code B 08-Jan-15	Code B 08-Jan-16
WRLE03935	F548B-1	Acronetics	1 - 2 GHz Bandpass Filter	010	Code B 08-Jan-15	Code B 08-Jan-16
WRLE02003	F550B1	Acronetics	4 - 8 GHz Bandpass Filter	010	Code B 08-Jan-15	Code B 08-Jan-16
WRLE10863	N/A	TÜV SÜD America	TC Software v3.4.75	N/A	Code Y	Code Y

Code B = Calibration verification performed internally. Code Y = Calibration not required when used with other calibrated equipment

Test data

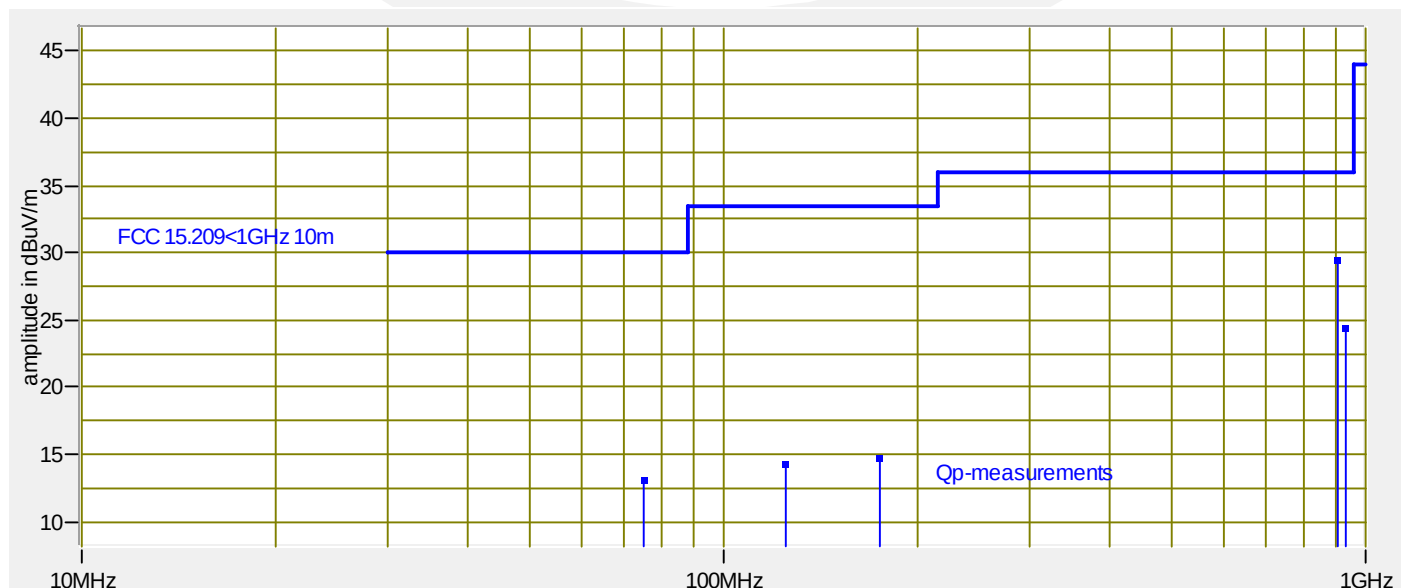
See following pages

List of measurements for run #: 2

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.249 <1GHz 902- 928MHz fund 3m	DELTA2
Band edge						
Low channel						
902.0 MHz	28.01 Qp	3.56 / 28.26 / 30.39 / 0.0	29.44	V / 1.06 / 0	-16.56	n/a
Spurious scan 30-1000MHz						
Low channel						
175.004 MHz	28.85 Qp	1.3 / 14.67 / 30.1 / 0.0	14.72	V / 1.00 / 180	-28.78	n/a
125.004 MHz	29.05 Qp	1.1 / 14.1 / 29.96 / 0.0	14.29	V / 1.00 / 180	-29.21	n/a
75.004 MHz	28.7 Qp	0.78 / 13.35 / 29.83 / 0.0	13.01	V / 1.00 / 180	-26.99	n/a
125.004 MHz	28.7 Qp	1.1 / 14.1 / 29.96 / 0.0	13.94	V / 1.00 / 270	-29.56	n/a
DUT rotated 360°. Measurement antenna 1-4m high, V&H						
No other significant emissions detected						
Spurious scan with mid & high channels						
No other significant emissions detected						
High channel						
Band edge						
928.01 MHz	22.46 Qp	3.63 / 28.66 / 30.37 / 0.0	24.38	V / 1.00 / 0	-21.62	n/a

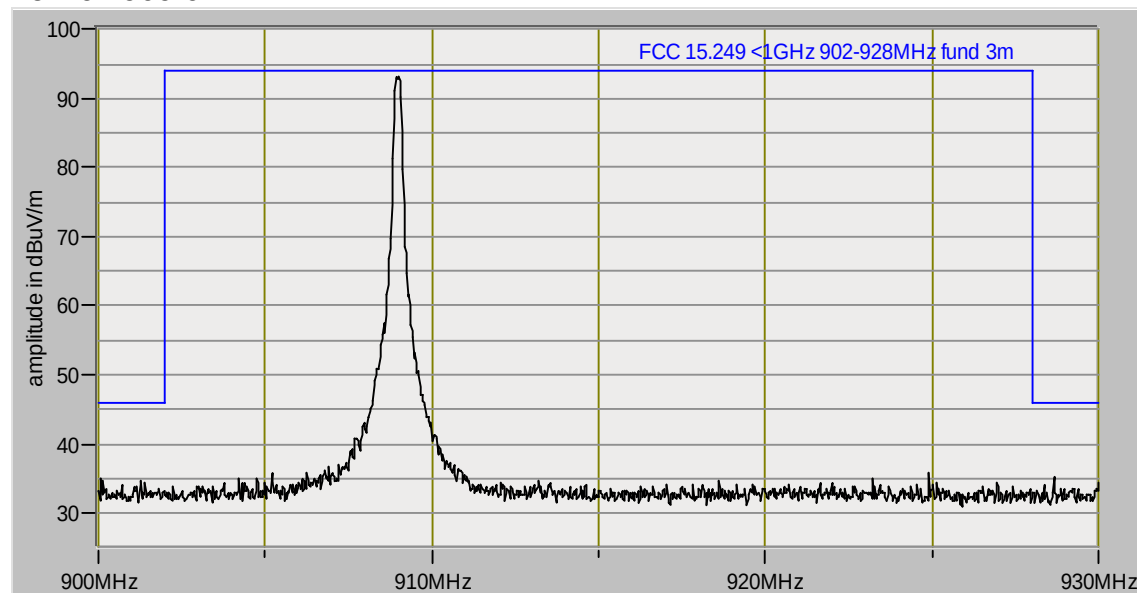
Measurement summary: FCC 15.209 <1GHz 3m

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC 15.209 <1GHz 3m
902.0 MHz	28.01 Qp	3.56 / 28.26 / 30.39 / 0.0	29.44	V / 1.06 / 0	-16.56
928.01 MHz	22.46 Qp	3.63 / 28.66 / 30.37 / 0.0	24.38	V / 1.00 / 0	-21.62
75.004 MHz	28.7 Qp	0.78 / 13.35 / 29.83 / 0.0	13.01	V / 1.00 / 180	-26.99
175.004 MHz	28.85 Qp	1.3 / 14.67 / 30.1 / 0.0	14.72	V / 1.00 / 180	-28.78
125.004 MHz	29.05 Qp	1.1 / 14.1 / 29.96 / 0.0	14.29	V / 1.00 / 180	-29.21



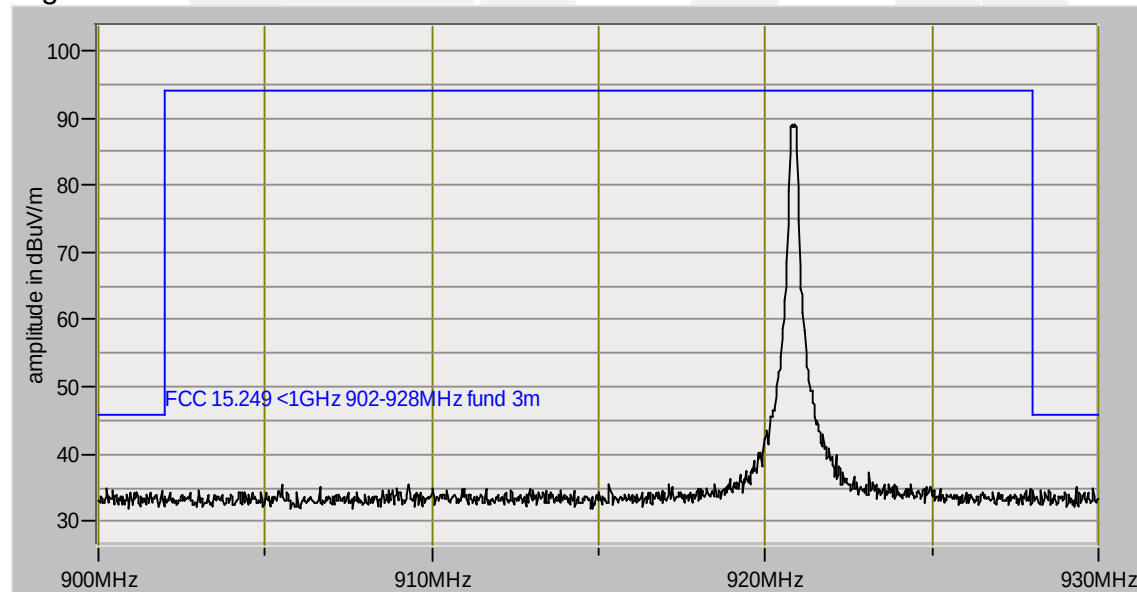
Band edge:

Low ch 909.0MHz



RBW 120kHz

High channel 920.83MHz



RBW 120kHz

List of measurements for run #: 3

Harmonic / spurious scan 1-10GHz

High channel

Scan 1-2GHz with a 1-2GHz BPF

Scanning 360°, 1-4m high, V&H

No significant emissions detected

Repeat previous with a 2-4GHz BPF

No significant emissions detected

Repeat previous with a 4-8GHz BPF

No significant emissions detected

Repeat previous with a 8-12GHz BPF

No significant emissions detected

Repeat the previous with low & mid channels transmitting

No significant emissions detected

mid channel, bore sight

No significant emissions detected

End scan 1-10GHz



Receiver Radiated Emissions 30 - 9300 MHz

FCC 15.109, IC RSS Gen Section 6

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 8.2.3, 8.2.4.

No receiver emissions were detected.

Test limits

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
30 – 88	100	40	3
88 – 216	150	43.5	3
216 – 960	200	46	3
Above 960	500	54	3

All measurements made at 3 meters. The emission limits shown in the above tables are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§ 15.250, 15.252, 15.255, and 15.509–15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. 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 a 120 kHz / 6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the 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, 10 or 30 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 is rotated 360 degrees.

Test location

TÜV SÜD America Inc, Taylors Falls, Large Test Site (Open Area Test Site)

Test distance

3 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
OWLE03202	EM-6917B	Electro-Metrics	Biconicalog Periodic	101	16-Oct-14	16-Oct-15
WRLE10897	ZHL-1042J	Mini-Circuits	Preamplifier 30 - 3000 MHz	NA	Code B 6-Feb-15	Code B 06-Feb-16
NBLE03196	8566B	Hewlett-Packard	Spectrum Analyzer	2240A01856	27-Feb-15	27-Feb-16
NBLE03195	85662A	Hewlett-Packard	Analyzer Display	2648A13518	27-Feb-15	27-Feb-16
WRLE02680	85650A	Hewlett-Packard	Quasi-Peak Adapter	2043A00343	08-Sep-14	08-Sep-15
WRLE02075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	26-Feb-15	26-Feb-16
WRLE10536	SL18B4020	Phase 1 Microwave	Preamplifier 1 – 18 GHz	0002	Code B 07-Jan-15	Code B 07-Jan-16
WRLE10863	N/A	TÜV SÜD America	TC Software v3.4.75	N/A	Code Y	Code Y

Code B = Calibration verification performed internally. Code Y = Calibration not required when used with other calibrated equipment

Test data

No receiver emissions were detected.

Occupied bandwidth

RSS-Gen 4.6.1

Test summary

The requirements are: ☒ - MET ☐ - NOT MET

Occupied bandwidth = 239.3 kHz

Test location

TÜV SÜD America Inc, Taylors Falls, Large Test Site (Open Area Test Site)

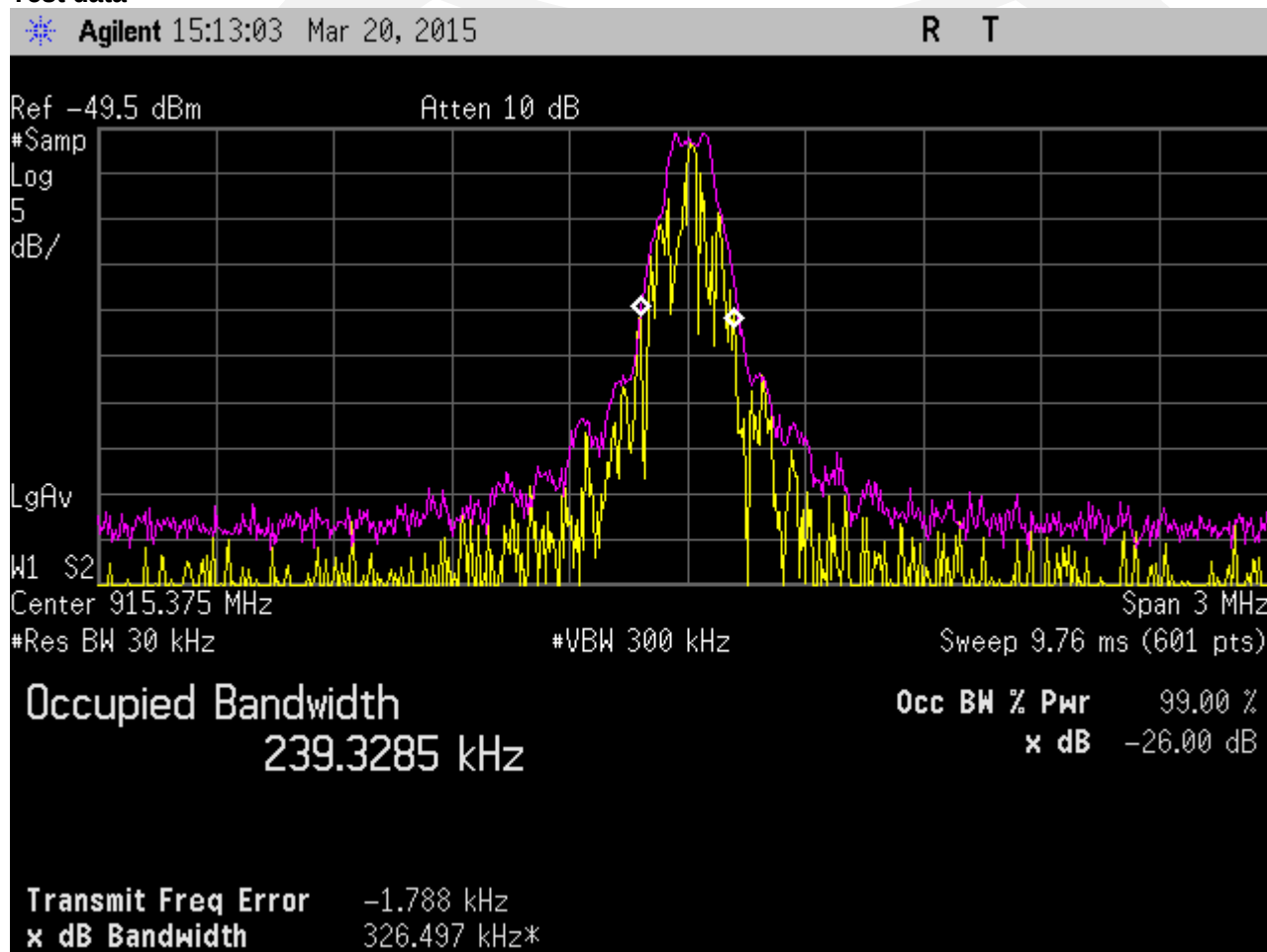
Test equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Date	Cal Due
NBLE03367	E4440A	Agilent	Spectrum Analyzer	MY42510439	10-Sep-14	10-Sep-15
WRLE02075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	26-Feb-15	26-Feb-16

Test limit

No limit specified

Test data

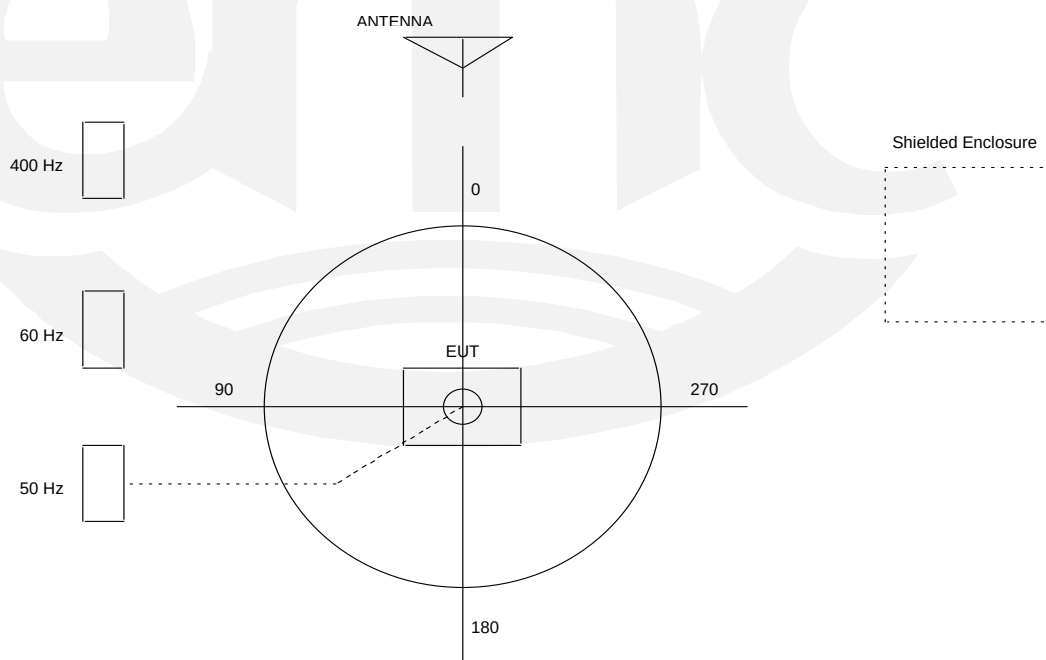


TEST SETUP FOR EMISSIONS TESTING

TÜV SÜD America Inc
Taylors Falls, Large Test Site

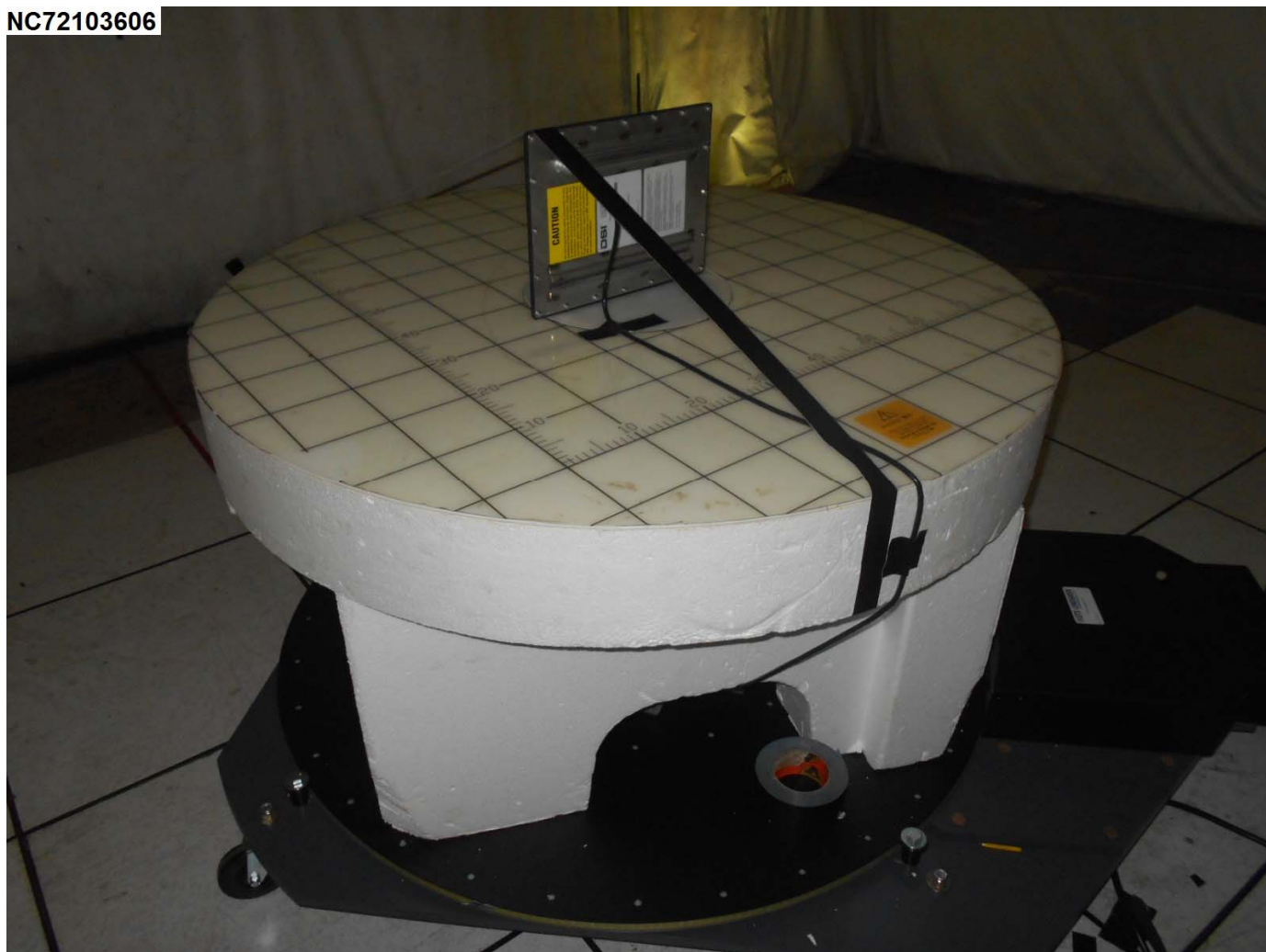
Notes:

1. Items shown in dotted lines are located on the floor below the test area. It is 5 meters vertically from the ground floor to the test area.
2. 50 Hz, 60 Hz, and 400 Hz are power panels for alternating current.
3. The antenna may be positioned horizontally 3, 10 or 30 meters from the center of the turntable.
4. The circle is a 6.7 meter diameter turntable.
5. A ground plane is in the plane of this sheet.
6. The test sample is shown in the azimuthal position representing zero degrees.



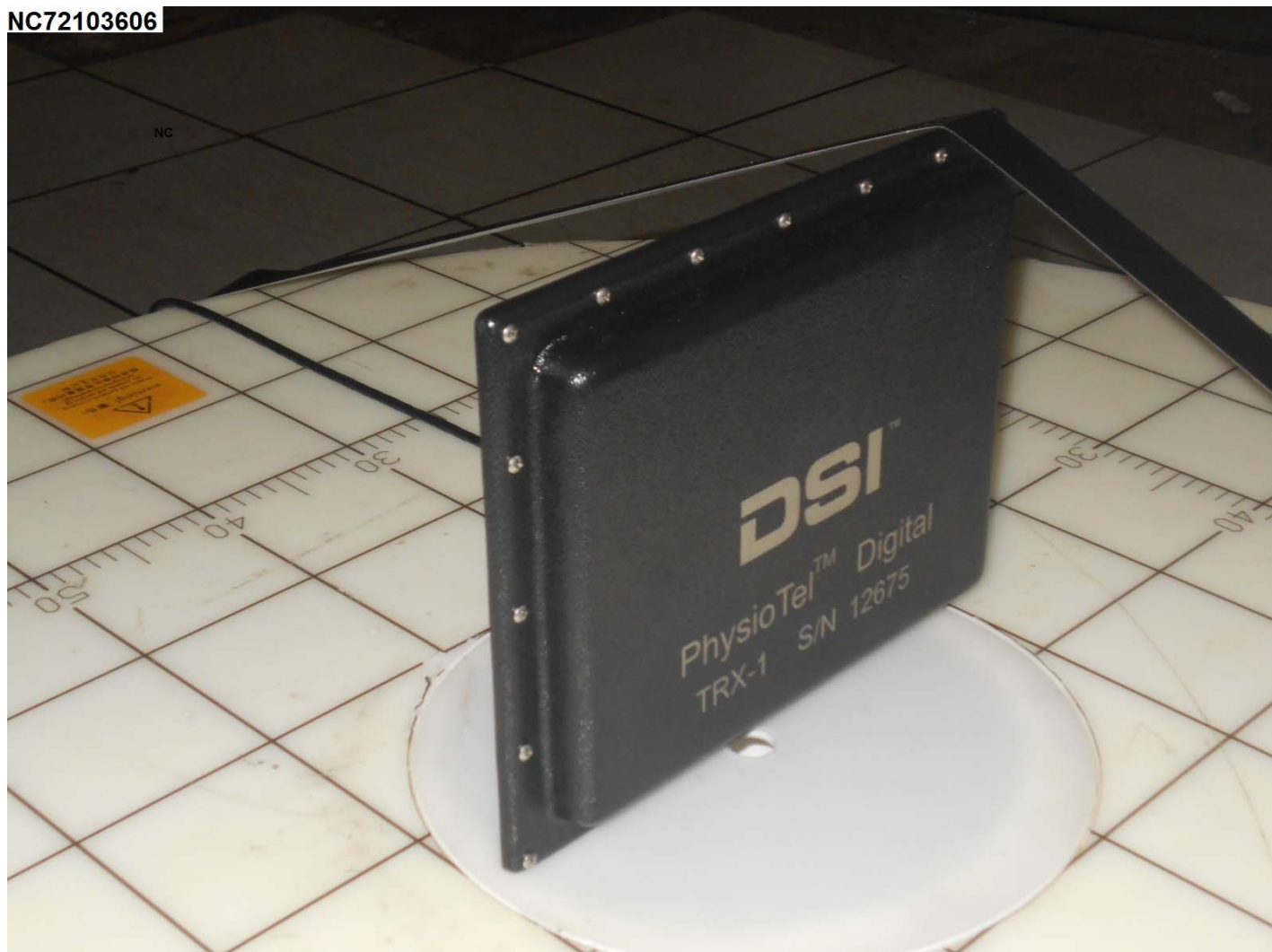
Test-setup photo(s):
Radiated emissions

NC72103606



Test-setup photo(s):
Radiated emissions

NC72103606



Equipment Under Test (EUT) Test Operation Mode:

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

- ☐ - Standby
- ☐ - Test program (H - Pattern)
- ☐ - Test program (color bar)
- ☐ - Test program (customer specific)
- ☐ - Practice operation
- ☒ - Transmit mode. Continuously on. Either low, mid, or high channel
- ☒ - Receive mode.

Configuration of the device under test:

- ☒ - See Appendix A and test setup photos
- ☐ - See Product Information Form(s) in Appendix B

DEVIATIONS FROM STANDARD:

None.

GENERAL REMARKS:

None

Modifications required to pass:

- ☒ None
- ☐ As indicated on the data sheet(s)

Test Specification Deviations: Additions to or Exclusions from:

- ☒ None
- ☐ As indicated in the Test Plan

SUMMARY:

The requirements according to the technical regulations are

- ☒ - met and the device under test does fulfill the general approval requirements.
- ☐ - **not** met and the device under test does **not** fulfill the general approval requirements..

EUT Received Date: 20 March 2015

Condition of EUT: Normal

Testing Start Date: 20 March 2015

Testing End Date: 20 March 2015

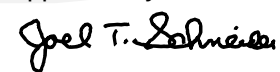
TÜV SÜD AMERICA INC

Tested by:



Greg Jakubowski
Senior EMC Technician

Approved by:



Joel T Schneider
Senior EMC Engineer

Appendix A

Constructional Data Form





EMC Test Plan and Constructional Data Form

PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE. IF TESTING RESULTS IN MODIFICATIONS TO THE EQUIPMENT, PLEASE SUBMIT A REVISED TP/CDF INDICATING THOSE MODIFICATIONS.
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: Data Sciences
 Address: 119 14th St. NW
New Brighton, MN
55112
 Contact: Luke Strawn Position: Electrical Engineernig Manager
 Phone: 651-414-5493 Fax: _____
 E-mail Address: lstrawn@datasci.com

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

EUT Description PhysioTel Digital Transceiver
 EUT Name TRX-1
 Model No.: 39169 Serial No.: _____
 Product Options: _____
 Configurations to be tested: Transmitting Power

Equipment Modification (If applicable, indicate modifications since EUT was last tested. If modifications are made during this testing, submit revised TP/CDF after testing is complete.)

Modifications since last test: _____
 Modifications made during test: _____

Test Objective(s): Please indicate the tests to be performed, entering the applicable standard(s) where noted.

- | | |
|---|---|
| ☒ EMC Directive 2004/108/EC (EMC)
Std: <u>FCC 15.249</u> | ☒ FCC: Class ☐ A ☐ B Part _____ |
| ☐ Machinery Directive 89/392/EEC (EMC)
Std: _____ | ☐ VCCI: Class ☐ A ☐ B |
| ☐ Medical Device Directive 93/42/EEC (EMC)
Std: _____ | ☐ BSMI: Class ☐ A ☐ B (Separate Report) |
| ☐ Vehicle Directive - 2004/104/EC (EMC)
☐ Other Vehicle Std: _____ | ☐ Canada: Class ☐ A ☐ B |
| ☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC) | ☐ Australia: Class ☐ A ☐ B |
| | ☐ Other: _____ |
| | ☐ Ag Directive *2009/64/EC (EMC) |

Third Party Certification (contact TÜV for quote), if applicable (*Signature on last page required).

- | | |
|--|--|
| ☐ Attestation of Compliance (AoC)* | ☐ EMC Certification (used with Octagon Mark)* |
| ☐ Statement of Compliance (SoC, previously CoC)* - All aspects of the essential requirements were assessed | |
| Protection Class (Req'd for AoC, SoC, EMC Cert. N/A for vehicles) ☐ Class I ☐ Class II ☐ Class III
(Press F1 when field is selected to show additional information on Protection Class.) | |
| ☐ FCC / TCB Certification | ☐ Taiwan Certification |
| ☐ Industry Canada / FCB Certification | ☐ Korean Certification |
| ☐ e-Mark Certification | |



EMC Test Plan and Constructional Data Form

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, TÜV SÜD America should:

- ☐ Call contact listed above, if not available then stop testing. (After hrs phone): _____
- ☐ Continue testing to complete test series.
- ☐ Continue testing to define corrective action.
- ☐ Stop testing.

EUT Specifications and Requirements

Length: _____ Width: _____ Height: _____ Weight: _____

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

of Phases: _____

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

Other _____

Other Special Requirements

Typical Installation and/or Operating Environment

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

Labratory

EUT Power Cable

- ☐ Permanent OR ☐ Removable Length (in meters): _____
- ☐ Shielded OR ☐ Unshielded
- ☐ Not Applicable

EMC Test Plan and Constructional Data Form

EUT Interface Ports and Cables														
Type	Analog	Digital	During Test		Qty	Shielding		Termination	Connector Type	Port Termination	Length tested (in meters)	Removable	Permanent	
			Active	Passive		Yes	No							Type
EXAMPLE: RS232	☐	☒	☒	☐	2	☒	☐	Foil over braid	Coaxial	Metallized 9-pin D-Sub	Characteristic Impedance	6	☒	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐

**EMC Test Plan and Constructional Data Form****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. Transmitting Mode
- 2.
- 3.

Equipment Under Test (EUT) System Components -- List and describe all components which are part of the EUT. For FCC & Taiwan testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc)

Description	Model #	Serial #	FCC ID #



EMC Test Plan and Constructional Data Form

Support Equipment -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc)
This information is required for FCC & Taiwan testing.

<i>Description</i>	<i>Model #</i>	<i>Serial #</i>	<i>FCC ID #</i>

Oscillator Frequencies

<i>Manufacturer</i>	<i>Frequency</i>	<i>Derived Frequency</i>	<i>Component # / Location</i>	<i>Description of Use</i>

Power Supply

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

Power Line Filters

<i>Manufacturer</i>	<i>Model #</i>	<i>Location in EUT</i>

**EMC Test Plan and Constructional Data Form****Critical EMI Components (Capacitors, ferrites, etc.)**

<i>Description</i>	<i>Manufacturer</i>	<i>Part # or Value</i>	<i>Qty</i>	<i>Component # / Location</i>

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

PLEASE ENTER NAMES BELOW (INSERT ELECTRONIC SIGNATURE IF POSSIBLE)

Authorization (Signature Required if a Third Party Certification is checked on pg 1)

Customer authorization to perform tests
according to this test plan.

Date

Test Plan/CDF Prepared By (please print)

Date