

# Noninvasive Medical Technologies, Inc.

## NclQ 920 MHz Radio

July 23, 2008

Report No. GMCO0280.1

Report Prepared By



[www.nwemc.com](http://www.nwemc.com)  
1-888-EMI-CERT

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EMC Test Report



22975 NW Evergreen Parkway  
Suite 400  
Hillsboro, Oregon 97124

**Certificate of Test**  
**Issue Date: July 23, 2008**  
**Noninvasive Medical Technologies, Inc.**  
**Model: NclQ 920 MHz Radio**

Emissions			
Test Description	Specification	Test Method	Pass/Fail
Field Strength of Harmonics and Spurious Emissions	FCC 15.245:2007	ANSI C63.4:2003	Pass
Field Strength of the Fundamental	FCC 15.245:2007	ANSI C63.4:2003	Pass

**Modifications made to the product**

**See the Modifications section of this report**

**Test Facility**

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.  
22975 NW Evergreen Parkway, Suite 400  
Hillsboro, OR 97124

Phone: (503) 844-4066 Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada (Site filing #2834D-2).

**Approved By:**

Ethan Schoonover, Sultan Lab Manager



NVLAP Lab Code: 200630-0

*This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.*

*Product compliance is the responsibility of the client, therefore the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. This Report may only be duplicated in its entirety. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test.*

Revision Number	Description	Date	Page Number
00	None		

**FCC:** Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.



**NVLAP:** Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 2004/108/EC, and ANSI C63.4. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.



NVLAP LAB CODE 200629-0  
 NVLAP LAB CODE 200630-0  
 NVLAP LAB CODE 200676-0  
 NVLAP LAB CODE 200761-0

**Industry Canada:** Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS-Gen, Issue 2 and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements. (*Site Filing Numbers - Hillsboro: 2834D-1, 2834D-2, Sultan: 2834C-1, Irvine: 2834B-1, 2834B-2*)



**CAB:** Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.



**TÜV Product Service:** Included in TÜV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TÜV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TÜV's current Listing of CARAT Laboratories, available from TÜV. A certificate was issued to represent that this laboratory continues to meet TÜV's CARAT Program requirements. Certificate No. USA0604C.



**TÜV Rheinland:** Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.



**NEMKO:** Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).



**Australia/New Zealand:** The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).



**VCCI:** Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (*Registration Numbers. - Hillsboro: C-1071, R-1025, C-2687, T-289, and R-2318, Irvine: R-1943, C-2766, and T-298, Sultan: R-871, C-1784, and T-294.*)



**BSMI:** Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement (US0017). License No.SL2-IN-E-1017.



**GOST:** Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification



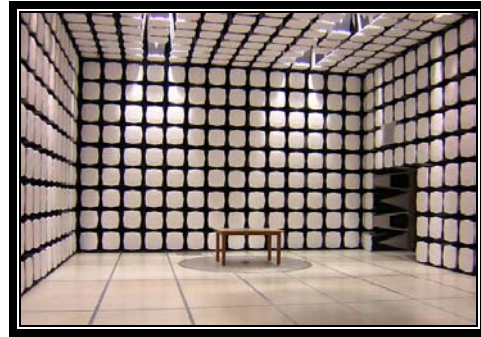
**MIC:** Northwest EMC, Inc is a CAB designated by MRA partners and recognized by Korea. (*Assigned Lab Numbers: Hillsboro: US0017, Irvine: US0158, Sultan: US0157*)



## SCOPE

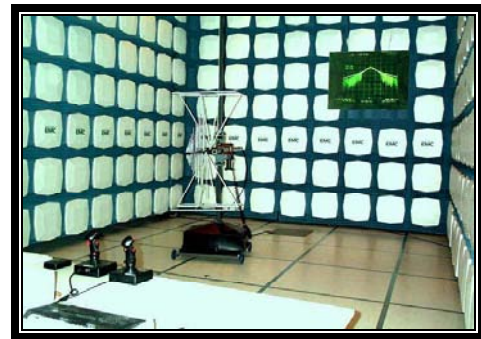
For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>



**California – Orange County Facility  
Labs OC01 – OC13**

41 Tesla Ave. Irvine, CA 92618  
(888) 364-2378 Fax: (503) 844-3826



**Oregon – Evergreen Facility  
Labs EV01 – EV11**

22975 NW Evergreen Pkwy. Suite 400 Hillsboro, OR 97124  
(503) 844-4066 Fax: (503) 844-3826



**Washington – Sultan Facility  
Labs SU01 – SU07**

14128 339<sup>th</sup> Ave. SE Sultan, WA 98294  
(888) 364-2378

**Party Requesting the Test**

<b>Company Name:</b>	Noninvasive Medical Technologies, Inc.
<b>Address:</b>	6412 S Arville St
<b>City, State, Zip:</b>	Las Vegas, NV 89118
<b>Test Requested By:</b>	Victor Ratnoff – G & M Compliance
<b>Model:</b>	NclQ 920 MHz Radio
<b>First Date of Test:</b>	July 17, 2008
<b>Last Date of Test:</b>	July 17, 2008
<b>Receipt Date of Samples:</b>	July 17, 2008
<b>Equipment Design Stage:</b>	Preproduction
<b>Equipment Condition:</b>	No Damage

**Information Provided by the Party Requesting the Test****Functional Description of the EUT (Equipment Under Test):**

A Transportable Non-Contact Hemodynamic monitor which provides measurement of Heart rate, Respiration, & Cardiac Output.

**Testing Objective:**

Demonstrate compliance of the radio with FCC 15.245 specifications.

Northwest

**EMC**

## Configurations

Revision 9/21/05

### CONFIGURATION 2 GMCO0280

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Host product	Noninvasive Medical Technologies, Inc.	NclQ	None



Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	7/17/2008	Field Strength of Harmonics and Spurious Emissions	Modified from delivered configuration. Initial or No Modification	Replaced the 2369 amplifier with a 2370 amplifier. Modification done by Ann McCaughan.	EUT remained at Northwest EMC following the test.
2	7/17/2008	Field Strength of the Fundamental	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

**MODES OF OPERATION**

Transmitting on single channel

**POWER SETTINGS INVESTIGATED**

Battery

**TEST EQUIPMENT**

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Biconilog	EMCO	3141	AXG	9/27/2006	24
EV12 Cables		Bilog Cables	EVS	6/17/2008	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

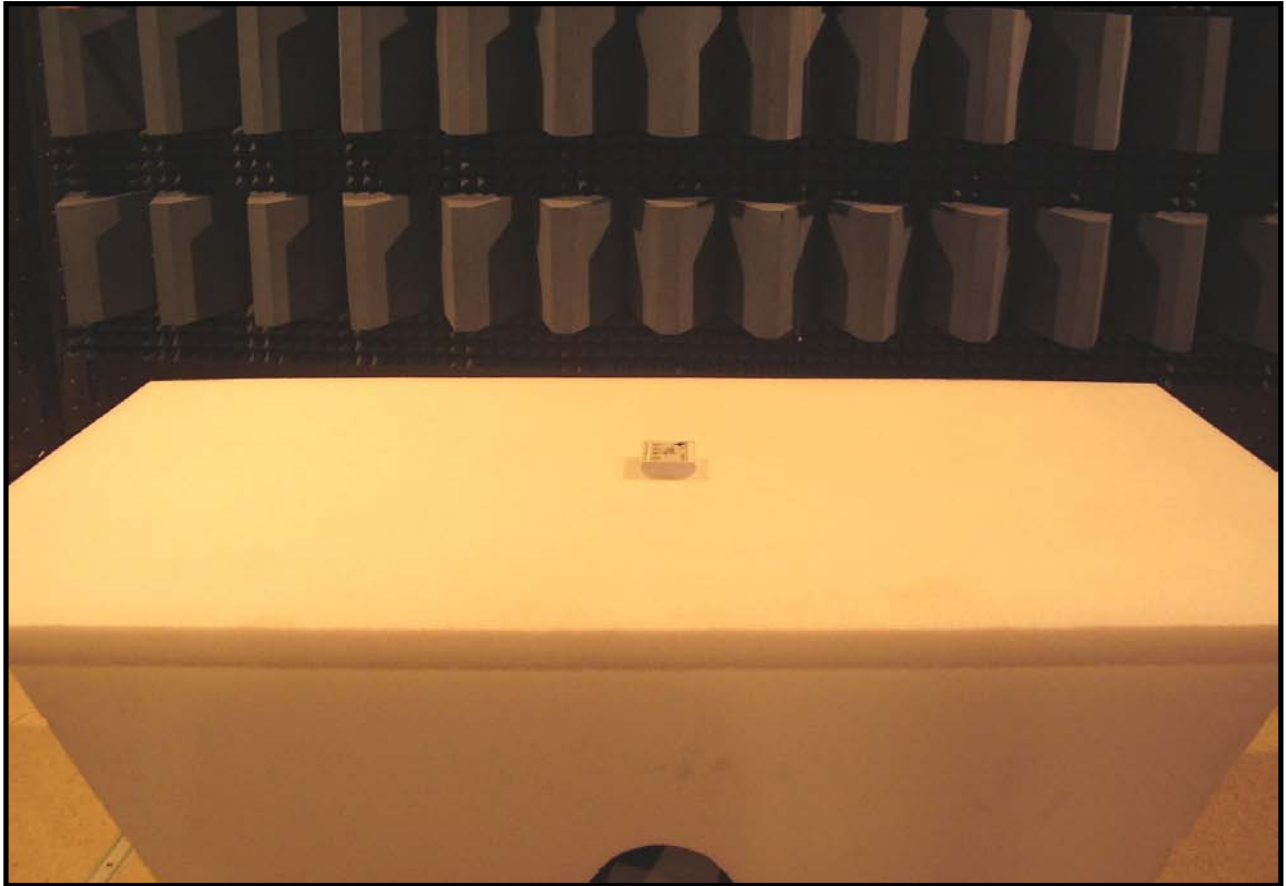
**MEASUREMENT UNCERTAINTY**

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

**TEST DESCRIPTION**

The antennas to be used with the EUT were tested. The EUT was transmitting while set at its single operating channel. Emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003).

NORTHWEST										PSA 2007.05.07			
EMC										EMI 2008.1.9			
Field Strength of the Fundamental													
EUT: NciQ 920 MHz Radio										Work Order: GMC00280			
Serial Number: None										Date: 07/17/08			
Customer: Noninvasive Medical Technologies, Inc.										Temperature: 23.7			
Attendees: None										Humidity: 39%			
Project: None										Barometric Pres.: 1020.7			
Tested by: Holly Ashkannejhad										Power: Battery			
										Job Site: EV12			
TEST SPECIFICATIONS										Test Method			
FCC 15.245:2007										ANSI C63.4:2003			
TEST PARAMETERS													
Antenna Height(s) (m)		1 - 4		Test Distance (m)		3							
COMMENTS													
2369 amplifier replaced with 2370 amplifier.													
EUT OPERATING MODES													
Transmitting on single channel													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #		2		Signature <i>Holly Ashkannejhad</i>									
Configuration #		2											
Results		Pass											
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
920.000	70.7	27.4	276.0	1.1	3.0	0.0	V-Bilog	PK	0.0	98.1	134.0	-35.9	EUT on side
919.983	69.9	27.4	290.0	1.0	3.0	0.0	H-Bilog	PK	0.0	97.3	134.0	-36.7	EUT on side
920.010	66.5	27.4	81.0	1.0	3.0	0.0	H-Bilog	PK	0.0	93.9	134.0	-40.1	EUT horizontal
920.027	63.1	27.4	193.0	2.5	3.0	0.0	V-Bilog	PK	0.0	90.5	134.0	-43.5	EUT on side
919.977	61.9	27.4	177.0	1.0	3.0	0.0	V-Bilog	PK	0.0	89.3	134.0	-44.7	EUT horizontal
919.973	58.3	27.4	226.0	1.0	3.0	0.0	H-Bilog	PK	0.0	85.7	134.0	-48.3	EUT on side
920.000	70.6	27.4	276.0	1.1	3.0	0.0	V-Bilog	AV	0.0	98.0	114.0	-16.0	EUT on side
919.983	69.8	27.4	290.0	1.0	3.0	0.0	H-Bilog	AV	0.0	97.2	114.0	-16.8	EUT on side
920.010	66.3	27.4	81.0	1.0	3.0	0.0	H-Bilog	AV	0.0	93.7	114.0	-20.3	EUT horizontal
920.027	63.0	27.4	193.0	2.5	3.0	0.0	V-Bilog	AV	0.0	90.4	114.0	-23.6	EUT on side
919.977	61.7	27.4	177.0	1.0	3.0	0.0	V-Bilog	AV	0.0	89.1	114.0	-24.9	EUT horizontal
919.973	58.2	27.4	226.0	1.0	3.0	0.0	H-Bilog	AV	0.0	85.6	114.0	-28.4	EUT on side





Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

#### MODES OF OPERATION

Transmitting on single channel

#### POWER SETTINGS INVESTIGATED

Battery

#### TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Attenuator	INMET	64671 6A-10dB	AUI	5/10/2008	13
Attenuator	Pasternack	PE7005-20	AUN	5/10/2008	13
High Pass Filter	Micro-Tronics	50108	HGF	5/14/2008	13
Antenna, Horn	ETS	3160.07	AHZ	10/25/2007	12
EV12 Cables		Standard Gain Horn Cables	EVU	5/14/2008	13
Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	AVH	5/14/2008	13
Antenna, Horn	ETS	3115	AIB	11/14/2007	12
EV12 Cables		Double Ridge Horn Cables	EVT	6/17/2008	13
Pre-Amplifier	Miteq	AMF-3D00100800-32-13P	AVF	6/17/2008	13
Antenna, Biconilog	EMCO	3141	AXG	9/27/2006	24
EV12 Cables		Bilog Cables	EVS	6/17/2008	13
Pre-Amplifier	Miteq	AM-1616-1000	AVM	6/17/2008	13
Spectrum Analyzer	Agilent	E4446A	AAY	12/18/2007	12

#### MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

#### TEST DESCRIPTION

The antennas to be used with the EUT were tested. The EUT was transmitting while set at its single operating channel. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes (per ANSI C63.4:2003).

## Field Strength of Harmonics and Spurious Emissions

EUT:	NciQ 920 MHz Radio	Work Order:	GMCO0280
Serial Number:	None	Date:	07/17/08
Customer:	Noninvasive Medical Technologies, Inc.	Temperature:	23.7
Attendees:	None	Humidity:	39%
Project:	None	Barometric Pres.:	1020.7
Tested by:	Holly Ashkannejhad	Power:	Battery
		Job Site:	EV12

## TEST SPECIFICATIONS

FCC 15.245:2007

## Test Method

ANSI C63.4:2003

## TEST PARAMETERS

Antenna Height(s) (m)	1 - 4	Test Distance (m)	3
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## COMMENTS

2369 amplifier replaced with 2370 amplifier.

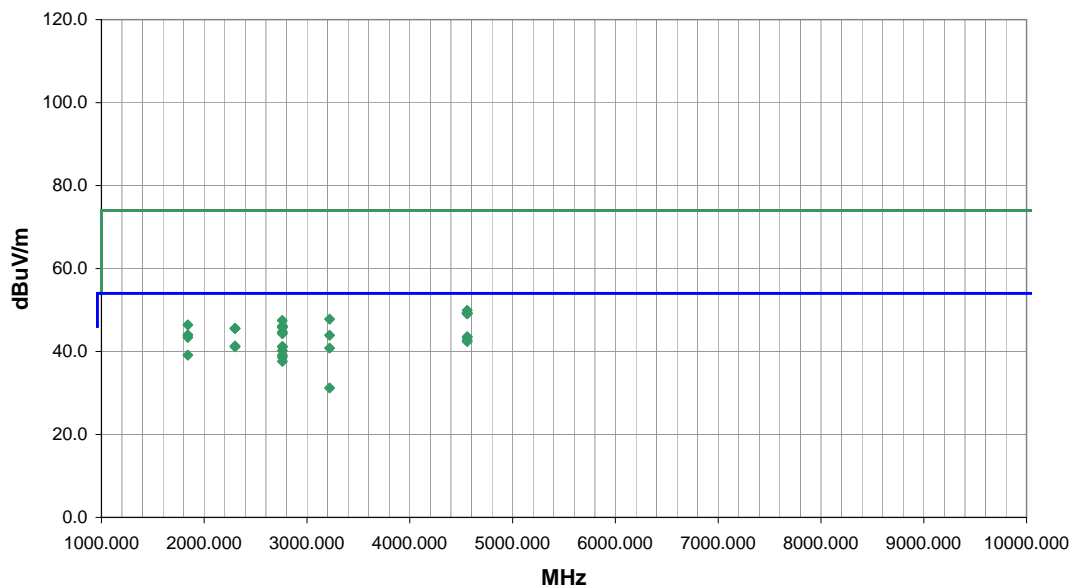
## EUT OPERATING MODES

Transmitting on single channel

## DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	1	Signature <i>Holly Ashkannejhad</i>
Configuration #	2	
Results	Pass	



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4558.776	36.0	7.5	85.0	1.0	3.0	0.0	V-Horn	AV	0.0	43.5	54.0	-10.5	EUT horizontal
4558.798	36.0	7.5	84.0	1.0	3.0	0.0	V-Horn	AV	0.0	43.5	54.0	-10.5	EUT horizontal
1840.058	46.1	-2.7	44.0	1.4	3.0	0.0	V-Horn	AV	0.0	43.4	54.0	-10.6	EUT horizontal
4558.626	35.3	7.5	238.0	1.0	3.0	0.0	V-Horn	AV	0.0	42.8	54.0	-11.2	EUT on side
4558.598	34.9	7.5	233.0	1.0	3.0	0.0	V-Horn	AV	0.0	42.4	54.0	-11.6	EUT on side
2300.042	41.9	-0.6	298.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.3	54.0	-12.7	EUT horizontal
2760.009	39.7	1.5	142.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.2	54.0	-12.8	EUT horizontal
2300.058	41.7	-0.6	174.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.1	54.0	-12.9	EUT on side
2760.042	39.6	1.5	44.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.1	54.0	-12.9	EUT on side
3220.051	37.2	3.6	76.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.8	54.0	-13.2	EUT horizontal
2760.059	38.7	1.5	244.0	1.5	3.0	0.0	H-Horn	AV	0.0	40.2	54.0	-13.8	EUT vertical
1840.050	41.8	-2.7	259.0	1.3	3.0	0.0	V-Horn	AV	0.0	39.1	54.0	-14.9	EUT on side
2759.992	37.6	1.5	172.0	1.5	3.0	0.0	H-Horn	AV	0.0	39.1	54.0	-14.9	EUT on side
2760.059	37.1	1.5	78.0	1.0	3.0	0.0	V-Horn	AV	0.0	38.6	54.0	-15.4	EUT vertical
2760.050	36.1	1.5	284.0	1.5	3.0	0.0	H-Horn	AV	0.0	37.6	54.0	-16.4	EUT horizontal
3220.042	27.6	3.6	0.0	1.9	3.0	0.0	V-Horn	AV	0.0	31.2	54.0	-22.8	EUT on side
4558.656	42.4	7.5	84.0	1.0	3.0	0.0	V-Horn	PK	0.0	49.9	74.0	-24.1	EUT horizontal
4558.509	41.8	7.5	85.0	1.0	3.0	0.0	V-Horn	PK	0.0	49.3	74.0	-24.7	EUT horizontal
4558.798	41.6	7.5	233.0	1.0	3.0	0.0	V-Horn	PK	0.0	49.1	74.0	-24.9	EUT on side
4558.909	41.6	7.5	238.0	1.0	3.0	0.0	V-Horn	PK	0.0	49.1	74.0	-24.9	EUT on side



