



Measurement of RF Emissions from a NTN2574A Mission Critical Wireless Earpiece Transmitter

For	Motorola, Inc. 1301 E. Algonquin Road Schaumburg, IL 60196
P.O. Number	NP5181731
Date Tested	August 12 and 13, 2010
Test Personnel	Mark E. Longinotti
Test Specification	FCC "Code of Federal Regulations" Title 47 Part15, Subpart C, Section 15.207 and 15.209

Test Report By:

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THIS REPORT SHALL NOT BE REPRODUCED, EXCEPT IN FULL, WITHOUT THE
WRITTEN APPROVAL OF ELITE ELECTRONIC ENGINEERING INCORPORATED.

REVISION HISTORY

Revision	Date	Description
—	August 26, 2010	Initial release

Measurement of RF Emissions from a Mission Critical Wireless Earpiece, Model No. NTN2574A Transmitter

1. INTRODUCTION

1.1. Scope of Tests

This report presents the results of the RF emissions measurements performed on a Mission Critical Wireless Earpiece, Model No. NTN2574A, Serial No. 6082, (hereinafter referred to as the Equipment Under Test (EUT)). The test item was designed to transmit at approximately 125kHz using an internal antenna. The EUT was manufactured and submitted for testing by Motorola, Inc. located in Schaumburg, IL.

1.2. Purpose

The test series was performed to determine if the test item meets the conducted and radiated RF emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Sections 15.207 and 15.209 for Intentional Radiators. Testing was performed in accordance with ANSI C63.4-2003.

1.3. Deviations, Additions and Exclusions

There were no deviations, additions to, or exclusions from the test specification during this test series.

1.4. EMC Laboratory Identification

This series of tests was performed by Elite Electronic Engineering Incorporated of Downers Grove, Illinois. The laboratory is accredited by The American Association for Laboratory Accreditation (A2LA). A2LA Certificate Number: 1786.01.

1.5. Laboratory Conditions

The temperature at the time of the test was 23°C and the relative humidity was 61%.

2. APPLICABLE DOCUMENTS

The following documents of the exact issue designated form part of this document to the extent specified herein:

- Federal Communications Commission "Code of Federal Regulations", Title 47, Part 15, Subpart C, dated 1 October 2009
- 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"

3. EUT SETUP AND OPERATION

3.1. General Description

The EUT is a Motorola, Inc., Mission Critical Wireless Earpiece, Model No. NTN2574A. It can transmit while the internal battery is being charged. The battery is charged via the USB port of the EUT. The EUT could be used as a standalone device or with one of two accessories. Therefore the EUT could be configured in one of the following:

- NTN2572A headset with battery charging using a Motorola AC Power Supply
- NTN2572A headset
- NTN2575A headset with battery charging using a Motorola AC Power Supply
- NTN2575A headset
- Battery charging using a Motorola AC Power Supply, No headset

- No headset

A block diagram of the EUT setup is shown as Figure 1.

3.1.1. Power Input

The EUT obtained 3VDC from an internal lithium polymer battery. The EUT can transmit while the battery is being charged. The battery is charged via the USB port of the EUT. For testing purposes, battery charging mode was accomplished by connecting the 5VDC output of a Motorola AC Power Supply, M/N: DCH3-050US-0303 to the USB port of the EUT. The Motorola AC Power Supply was connected to the EUT via a 2 wire 1.8 meter long cable. The Motorola AC Power Supply was powered with 115V, 60Hz.

3.1.2. Peripheral Equipment

The following peripheral equipment was submitted with the EUT:

Item	Description
NTN2572A	Headset
NTN2575A	Headset

3.1.3. Signal Input/Output Leads

No interconnect cables were submitted with the EUT for testing.

3.1.4. Grounding

The EUT was ungrounded during the tests.

3.2. Operational Mode

For all tests the EUT and all peripheral equipment were placed on an 80cm high non-conductive stand. The EUT was energized. The EUT was programmed so that once it was powered up it would transmit continuously at 125kHz.

3.3. EUT Modifications

No modifications were required for compliance.

4. TEST FACILITY AND TEST INSTRUMENTATION

4.1. Shielded Enclosure

All tests were performed in a 32ft. x 20ft. x 18ft. hybrid ferrite-tile/anechoic absorber lined test chamber. With the exception of the floor, the reflective surfaces of the shielded chamber are lined with ferrite tiles on the walls and ceiling. Anechoic absorber material is installed over the ferrite tile. The floor of the chamber is used as the ground plane. The chamber complies with ANSI C63.4-2003 for site attenuation.

4.2. Test Instrumentation

The test instrumentation and auxiliary equipment used during the tests are listed in Table 9-1. All equipment was calibrated per the instruction manuals supplied by the manufacturer.

Conducted and radiated emission measurements were performed with a spectrum analyzer. This receiver allows measurements with the bandwidths and detector functions specified by the FCC. The receiver bandwidth was 200Hz for the 10kHz to 150kHz radiated emissions data and 9kHz for the 150kHz to 30MHz conducted emissions and radiated emissions data.

4.3. Calibration Traceability

Test equipment is maintained and calibrated on a regular basis. All calibrations are traceable to the National Institute of Standards and Technology (NIST).

4.4. Measurement Uncertainty

All measurements are an estimate of their true value. The measurement uncertainty characterizes, with a specified confidence level, the spread of values which may be possible for a given measurement system.

The measurement uncertainty for these tests is presented below:

Conducted Emissions Measurements			
Combined Standard Uncertainty		1.07	-1.07
Expanded Uncertainty (95% confidence)		2.1	-2.1

Radiated Emissions Measurements			
Combined Standard Uncertainty		2.26	-2.18
Expanded Uncertainty (95% confidence)		4.5	-4.4

5. TEST PROCEDURES

5.1. Powerline Conducted Emissions

5.1.1. Requirements

All radio frequency voltages on the power lines for any frequency or frequencies of an intentional radiator shall not exceed the limits in the following table:

Frequency MHz	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 – 0.5	66 decreasing with logarithm of frequency to 56	56 decreasing with logarithm of frequency to 46
0.5 - 5	56	46
5 – 30	60	50

Note 1: The lower limit shall apply at the transition frequencies.

5.1.2. Procedures

The interference on each power lead of the EUT was measured by connecting the measuring equipment to the appropriate meter terminal of the Line Impedance Stabilization Network (LISN). The meter terminal of the LISN not under test was terminated with 50 ohms.

- a) The EUT was operated in the Transmit at 125kHz mode, with NTN2572A headset.
- b) Measurements were first made on the 115V, 60Hz high line of the Motorola AC Power Supply.
- c) The frequency range from 150 kHz to 30 MHz was broken up into smaller frequency sub-bands.
- d) Conducted emissions measurements were taken on the first frequency sub-band using a peak detector.
- e) The data thus obtained was then searched by the computer for the highest levels. Any emissions levels that were within 10dB of the average limit were then measured again using

both a quasi-peak detector and an average detector. (If no peak readings were within 10dB of the average limit, quasi-peak and average readings were taken on the highest emissions levels measured during the peak detector scan.)

- f) Steps (d) and (e) were repeated for the remainder of the frequency sub-bands until the entire frequency range from 150kHz to 30MHz was investigated. The peak trace was automatically plotted. The plot also shows quasi-peak and average readings that were taken on discrete frequencies. A table showing the quasi-peak and average readings was also generated. This tabular data compares the quasi-peak and average conducted emissions to the applicable conducted emissions limits.
- g) Steps (c) through (f) were repeated on the 115V, 60Hz return line of the Motorola AC Power Supply.
- h) Steps (b) through (g) were repeated with the EUT operated in the Transmit at 125kHz mode, with NTN2575A headset.
- i) Steps (b) through (g) were repeated with the EUT operated in the Transmit at 125kHz mode, with no headset.

5.1.3. Results

The plots of the peak, quasi-peak, and average conducted voltage levels acquired from each input power line with the EUT operated in the Transmit at 125kHz mode, with NTN2572A headset are shown on pages 17 and 19. The tabular quasi-peak and average results from each input power line with the EUT operated in the Transmit at 125kHz mode, with NTN2572A headset are shown on pages 16 and 18. All power line conducted emissions measured from the EUT were within the specification limits. The emissions level closest to the limit (worst case) occurred at 586kHz. The emissions level at this frequency was 21.4dB within the limit. Photographs of the test configuration which yielded the highest or worst case, conducted emission levels are shown on Figure 4.

The plots of the peak, quasi-peak, and average conducted voltage levels acquired from each input power line with the EUT operated in the Transmit at 125kHz mode, with NTN2575A headset are shown on pages 21 and 23. The tabular quasi-peak and average results from each input power line with the EUT operated in the Transmit at 125kHz mode, with NTN2575A headset are shown on pages 20 and 22. All power line conducted emissions measured from the EUT were within the specification limits. The emissions level closest to the limit (worst case) occurred at 590kHz. The emissions level at this frequency was 22.5dB within the limit. Photographs of the test configuration which yielded the highest or worst case, conducted emission levels are shown on Figure 4.

The plots of the peak, quasi-peak, and average conducted voltage levels acquired from each input power line with the EUT operated in the Transmit at 125kHz mode, with no headset are shown on pages 25 and 27. The tabular quasi-peak and average results from each input power line with the EUT operated in the Transmit at 125kHz mode, with no headset are shown on pages 24 and 26. All power line conducted emissions measured from the EUT were within the specification limits. The emissions level closest to the limit (worst case) occurred at 586kHz. The emissions level at this frequency was 22.3dB within the limit. Photographs of the test configuration which yielded the highest or worst case, conducted emission levels are shown on Figure 4.

5.2. Radiated Measurements

5.2.1. Requirements

The test item must comply with the requirements of FCC "Code of Federal Regulations Title 47", Part 15, Subpart C, Section 15.209.

Section 15.209(a) has the following radiated emission limits:

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (meters)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	2400/F(kHz)	30
1.705 – 30.0	30	30
30 -88	100	3
88 – 216	150	3
216 – 960	200	3
Above 960	500	3

Note 1: The lower limit shall apply at the transition frequencies.

Per 15.31(f)(1), At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations. When performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

5.2.2. Procedures

Radiated measurements were performed in a 32ft. x 20ft. x 14ft. high shielded enclosure. The shielded enclosure prevents emissions from other sources, such as radio and TV stations from interfering with the measurements. All powerlines and signal lines entering the enclosure pass through filters on the enclosure wall. The powerline filters prevent extraneous signals from entering the enclosure on these leads.

A preliminary radiated emissions test was performed to determine the emission characteristics of the test item. For the preliminary test, an active loop antenna was positioned at a 30 cm distance from the test item. The entire frequency range from 10kHz to 30MHz was investigated using a peak detector function. The data was then processed by the computer to calculate equivalent field intensity.

The final open field emission tests were then manually performed over the frequency range of 125kHz to 1.25MHz using an active loop antenna at a 3 meter test distance. All significant broadband and narrowband signals were measured and recorded. For measurements below 0.490MHz, the data was converted to equivalent field intensity at 300 meters using the inverse linear distance extrapolation factor of 40dB/decade. Since the test distance of 3 meters is 2 decades closer than the specification test distance of 300 meters, a distance correction factor of 80dB was used (80 dB = 40dB/decade x 2 decades). For measurements above 0.490MHz, the data was converted to equivalent field intensity at 30 meters using the inverse linear distance extrapolation factor of 40dB/decade. Since the test distance of 3 meters is 1 decade closer than the specification test distance of 30 meters, a distance correction factor of 40dB was used (40 dB = 40dB/decade x 1 decade). The resultant field strength (FS) is a summation in decibels (dB) of the receiver meter reading (MTR), the antenna correction factor (AF), and the cable loss factor (CF). If an external pre-amplifier is used, the total is reduced by its gain (-PA). If a distance correction (DC) is required, it is added to the total.

Formula 1: $FS (\text{dBuV/m}) = MTR (\text{dBuV}) + AF (\text{dB/m}) + CF (\text{dB}) + (-PA (\text{dB})) + DC (\text{dB})$

To convert the Field Strength dBuV/m term to uV/m, the dBuV/m is first divided by 20. The Base 10 AntiLog is taken of this quotient. The result is the Field Strength value in uV/m terms.

Formula 2: $FS (\text{uV/m}) = \text{AntiLog} [(FS (\text{dBuV/m})) / 20]$

To ensure that maximum or worst case, emission levels were measured, the following steps were taken:

- 1) The test item was rotated so that all of its sides were exposed to the receiving antenna.
- 2) Since the measuring antenna is linearly polarized, both horizontal and vertical field components were measured. In the vertical polarization, the active loop antenna was rotated 360 degrees about its vertical axis.
- 3) For hand-held or body-worn devices, the test item was rotated through three orthogonal axes to determine which orientation produces the highest emission relative to the limit.

5.2.3. Results

The preliminary plots, with the test item transmitting at 125kHz, are presented on data pages 28 through 33. The plots are presented for a reference only, and are not used to determine compliance.

The final radiated levels, with the test item transmitting at 125kHz, are presented on data pages 34 through 39. As can be seen from the data, all emissions measured from the test item were within the specification limits. All emissions measured from the test item at 3 meters were ambient. Photographs of the test configuration which yielded the highest, or worst case, radiated emission levels are shown on Figure 5.

6. OTHER TEST CONDITIONS

6.1. Test Personnel and Witnesses

All tests were performed by qualified personnel from Elite Electronic Engineering Incorporated.

6.2. Disposition of the EUT

The EUT and all associated equipment were returned to Motorola, Inc. upon completion of the tests.

7. CONCLUSIONS

It was determined that the Motorola, Inc. Mission Critical Wireless Earpiece, Model No. NTN2574A, Serial No. 6082, did fully meet the conducted and radiated emission requirements of the FCC "Code of Federal Regulations" Title 47, Part 15, Subpart C, Section 15.207 and 15.209 for Intentional Radiators, when tested per ANSI C63.4-2003.

8. CERTIFICATION

Elite Electronic Engineering Incorporated certifies that the information contained in this report was obtained under conditions which meet or exceed those specified in the test specifications.

The data presented in this test report pertains to the EUT at the test date. Any electrical or mechanical modification made to the EUT subsequent to the specified test date will serve to invalidate the data and void this certification.

This report must not be used to claim product endorsement by NVLAP or any agency of the US Government.

9. EQUIPMENT LIST

Table 9-1 Equipment List

Eq ID	Equipment Description	Manufacturer	Model No.	Serial No.	Frequency Range	Cal Date	Due Date
CDS2	COMPUTER	GATEWAY	MFATXPNT NMZ 500L	0028483108	1.8GHZ	N/A	
CMA1	Controllers	EMCO	2090	9701-1213	---	N/A	
NLS1	24" ACTIVE LOOP ANTENNA	EMCO	6502	8903-2329	0.01-30MHZ	4/20/2010	4/20/2011
PLL9	50UH LISN 462D	ELITE ELECTRONIC ENG	462D/70A	010	0.01-400MHZ	3/2/2010	3/2/2011
PLLA	50UH LISN 462D	ELITE ELECTRONIC ENG	462D/70A	011	0.01-400MHZ	3/3/2010	3/3/2011
RBB0	EMI TEST RECEIVER 20HZ TO 40 GHZ	ROHDE & SCHWARZ	ESIB40	100250	20 HZ TO 40GHZ	3/16/2010	3/16/2011
T1D2	10DB 20W ATTENUATOR	NARDA	768-10	6	DC-11GHZ	1/5/2010	1/5/2011

I/O: Initial Only

N/A: Not Applicable

Note 1: For the purpose of this test, the equipment was calibrated over the specified frequency range, pulse rate, or modulation prior to the test or monitored by a calibrated instrument.

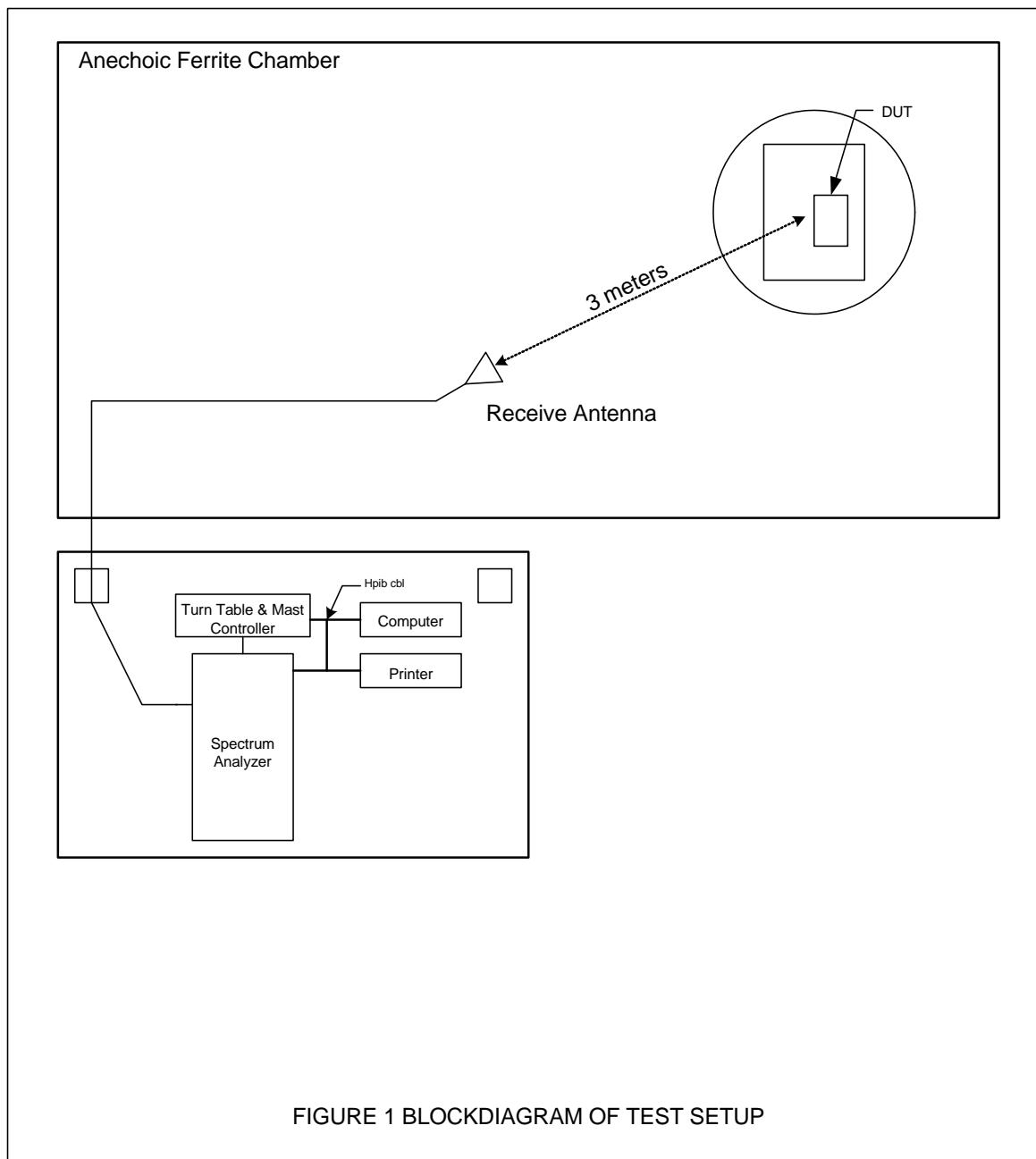


Figure 2



EUT With No Headset

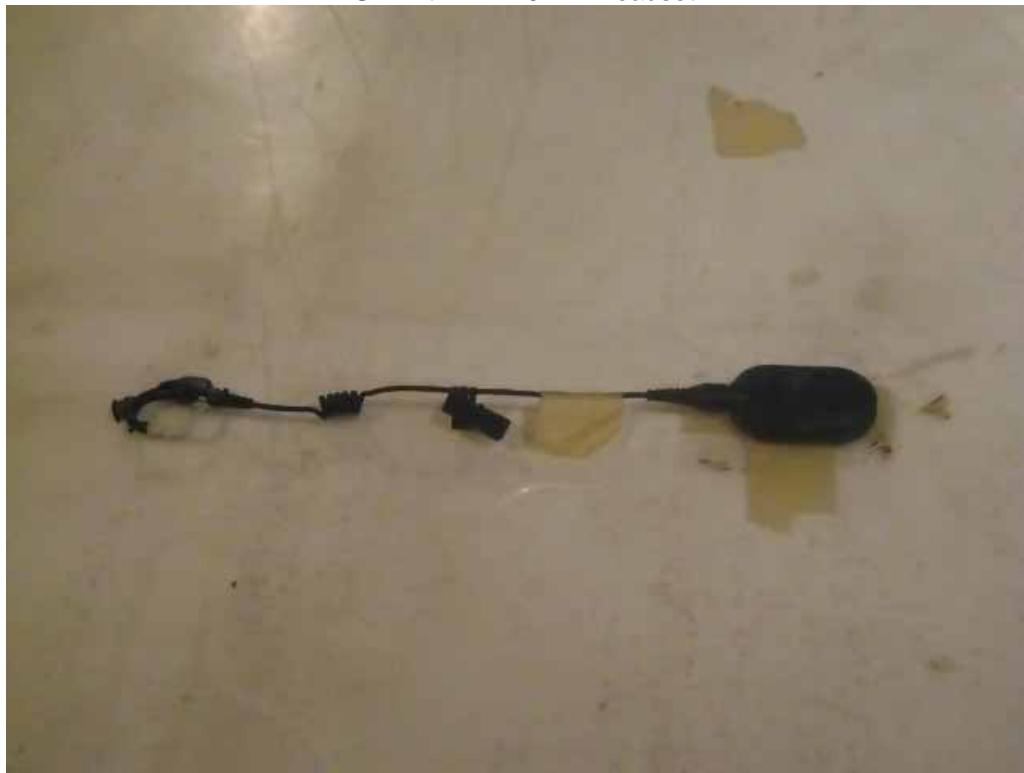


EUT With Motorola AC Power Supply, No Headset

Figure 3

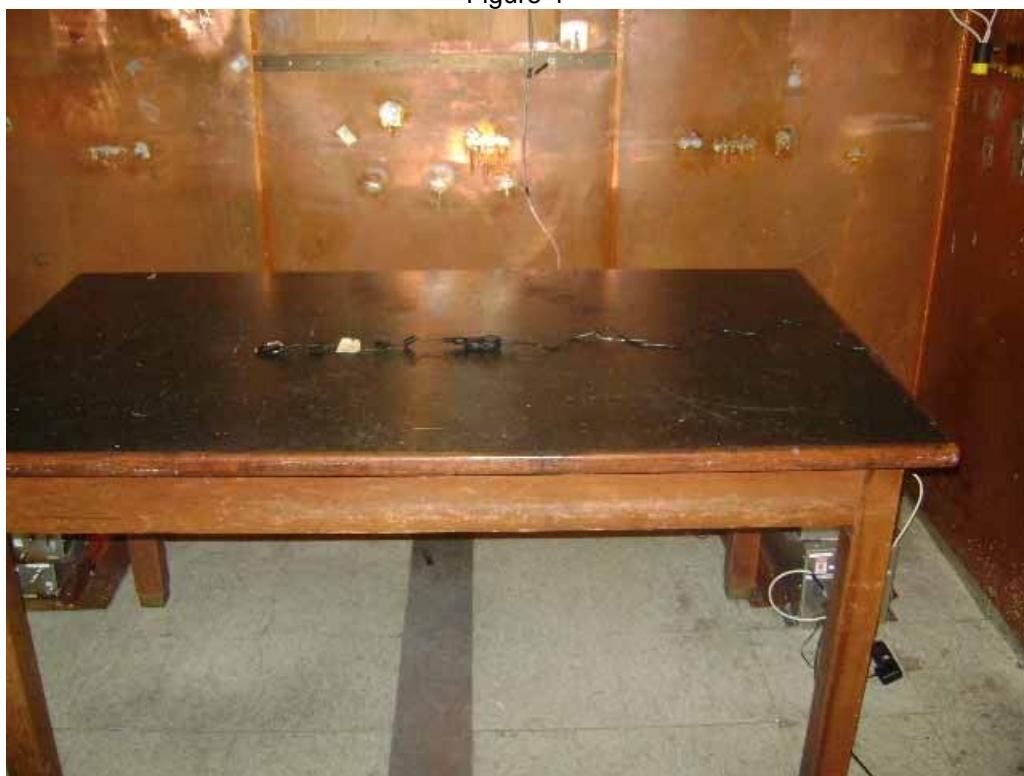


EUT With NTN2572A Headset



EUT With NTN2575A Headset

Figure 4

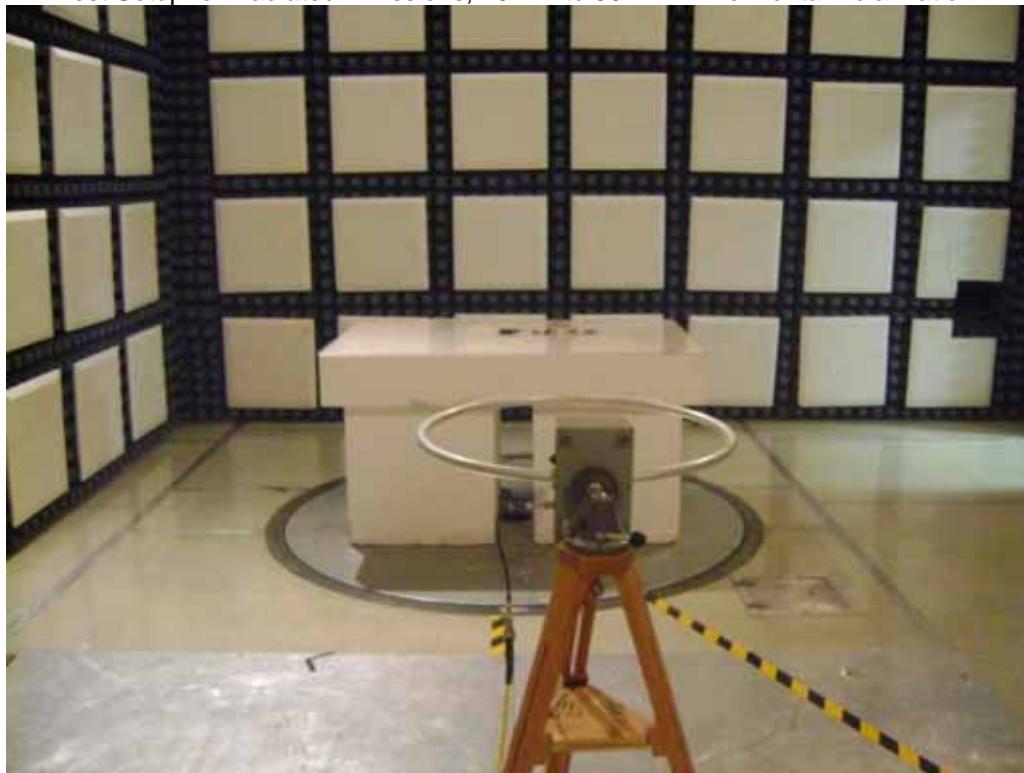


Test Setup for Conducted Emissions

Figure 5



Test Setup for Radiated Emissions, 10kHz to 30MHz – Horizontal Polarization



Test Setup for Radiated Emissions, 10kHz to 30MHz – Vertical Polarization

FCC Part 15 Subpart B Conducted Emissions Test

Significant Emissions Data

VB** 05/14/2010

Manufacturer : Motorola
Model : NTN2574A
DUT Revision :
Serial Number :
DUT Mode : Tx @ 125kHz
Line Tested : 115V, 60Hz High
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -6
Notes : Tested w/ NTN2572A Headset & Motorola AC Power Supply
Test Engineer : M. Longinotti
Limit : Class B
Test Date : Aug 13, 2010 11:11:56 AM
Data Filter : Up to 80 maximum levels detected with 6 dB level excursion threshold over 6 dB margin below limit

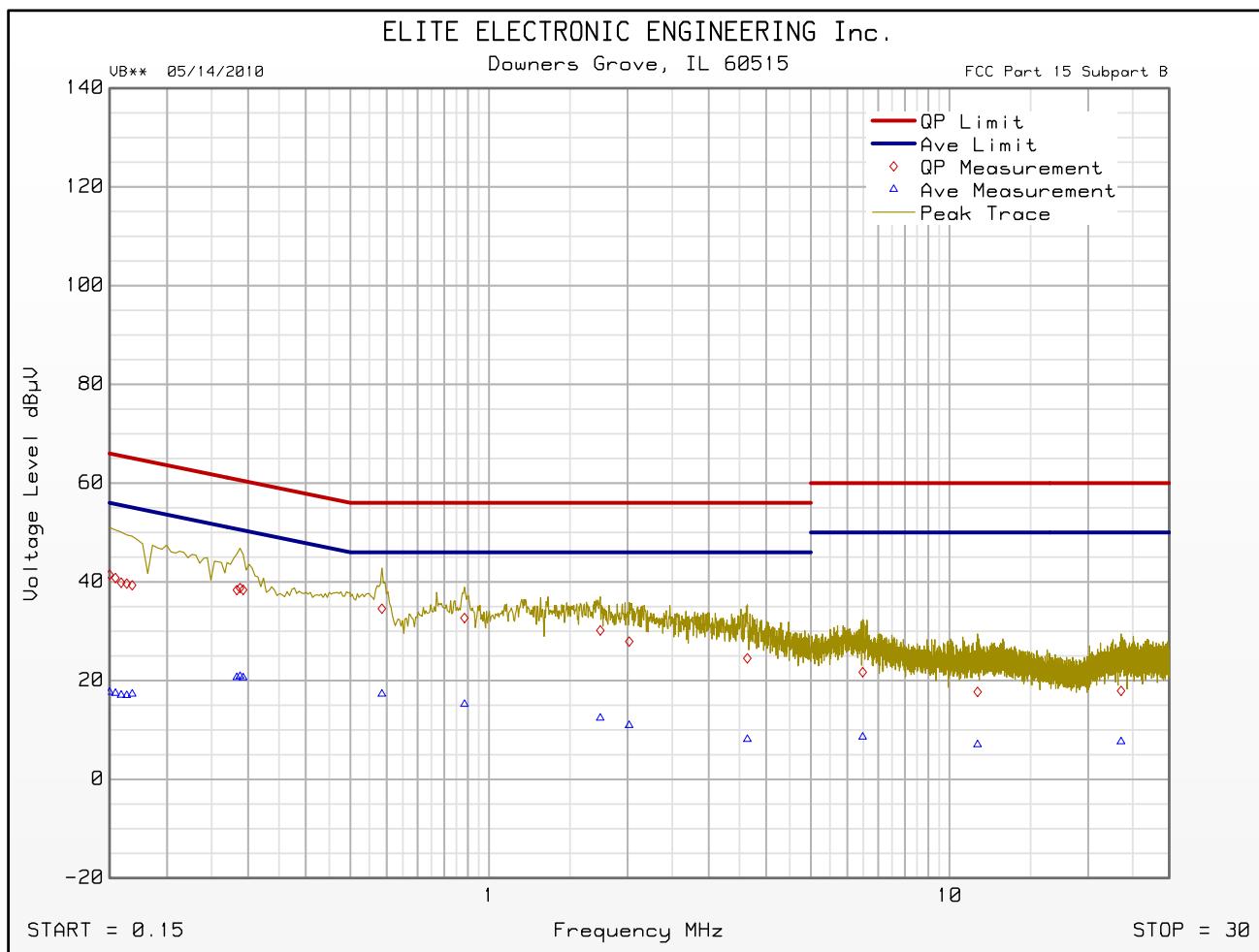
Freq MHz	Quasi-peak Level dB μ V	Quasi-peak Limit dB μ V	Excessive Quasi-peak Emissions	Average Level dB μ V	Average Limit dB μ V	Excessive Average Emissions
0.168	39.3	65.1		17.3	55.1	
0.288	38.8	60.6		20.9	50.6	
0.586	34.6	56.0		17.3	46.0	
0.885	32.7	56.0		15.2	46.0	
1.745	30.2	56.0		12.4	46.0	
2.016	27.9	56.0		11.0	46.0	
3.640	24.5	56.0		8.1	46.0	
6.481	21.7	60.0		8.6	50.0	
11.507	17.7	60.0		7.1	50.0	
23.576	17.9	60.0		7.7	50.0	

FCC Part 15 Subpart B Conducted Emissions Test

Cumulative Data

VB** 05/14/2010

Manufacturer : Motorola
Model : NTN2574A
DUT Revision :
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Notes : Tested w/ NTN2572A Headset & Motorola AC Power Supply
Test Engineer : M. Longinotti
Limit : Class B
Test Date : Aug 13, 2010 11:11:56 AM



Emissions Meet QP Limit
Emissions Meet Ave Limit

FCC Part 15 Subpart B Conducted Emissions Test

Significant Emissions Data

VB** 05/14/2010

Manufacturer : Motorola
Model : NTN2574A
DUT Revision :
Serial Number :
DUT Mode : Tx @ 125kHz
Line Tested : 115V, 60Hz Return
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -6
Notes : Tested w/ NTN2572A Headset & Motorola AC Power Supply
Test Engineer : M. Longinotti
Limit : Class B
Test Date : Aug 13, 2010 11:03:26 AM
Data Filter : Up to 80 maximum levels detected with 6 dB level excursion threshold over 6 dB margin below limit

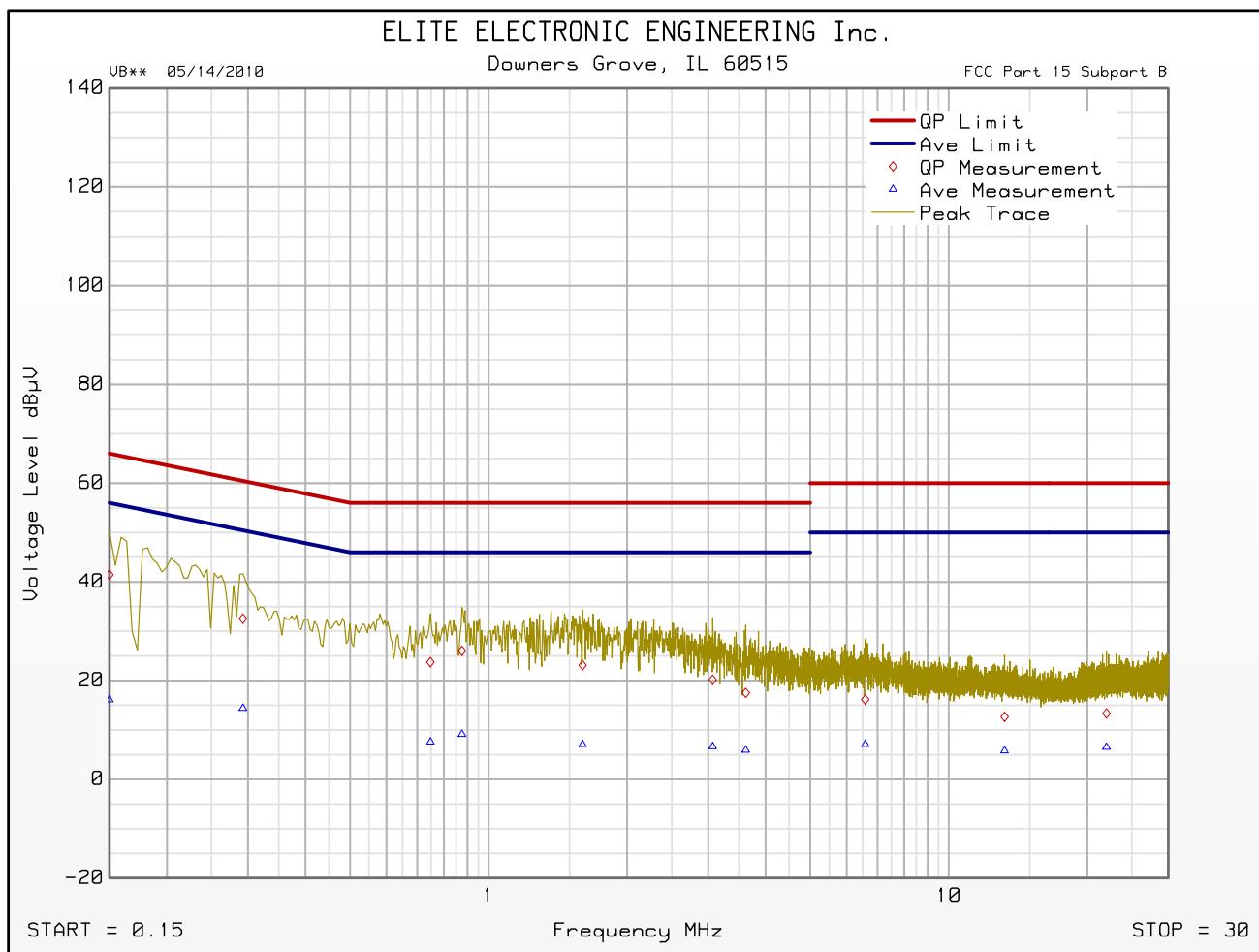
Freq MHz	Quasi-peak Level dB μ V	Quasi-peak Limit dB μ V	Excessive Quasi-peak Emissions	Average Level dB μ V	Average Limit dB μ V	Excessive Average Emissions
0.150	41.4	66.0		16.1	56.0	
0.293	32.5	60.5		14.4	50.5	
0.748	23.7	56.0		7.6	46.0	
0.876	26.0	56.0		9.1	46.0	
1.601	23.1	56.0		7.1	46.0	
3.069	20.2	56.0		6.7	46.0	
3.622	17.5	56.0		5.9	46.0	
6.584	16.2	60.0		7.1	50.0	
13.221	12.7	60.0		5.8	50.0	
22.019	13.4	60.0		6.5	50.0	

FCC Part 15 Subpart B Conducted Emissions Test

Cumulative Data

VB** 05/14/2010

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DUT Revision :
Serial Number :
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Emissions Meet QP Limit
Emissions Meet Ave Limit

FCC Part 15 Subpart B Conducted Emissions Test

Significant Emissions Data

VB** 05/14/2010

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Model : NTN2574A
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Serial Number :
DUT Mode : Tx @ 125kHz
Line Tested : 115V, 60Hz High
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -6
Notes : Tested w/ NTN2575A Headset & Motorola AC Power Supply
Test Engineer : M. Longinotti
Limit : Class B
Test Date : Aug 13, 2010 11:20:46 AM
Data Filter : Up to 80 maximum levels detected with 6 dB level excursion threshold over 6 dB margin below limit

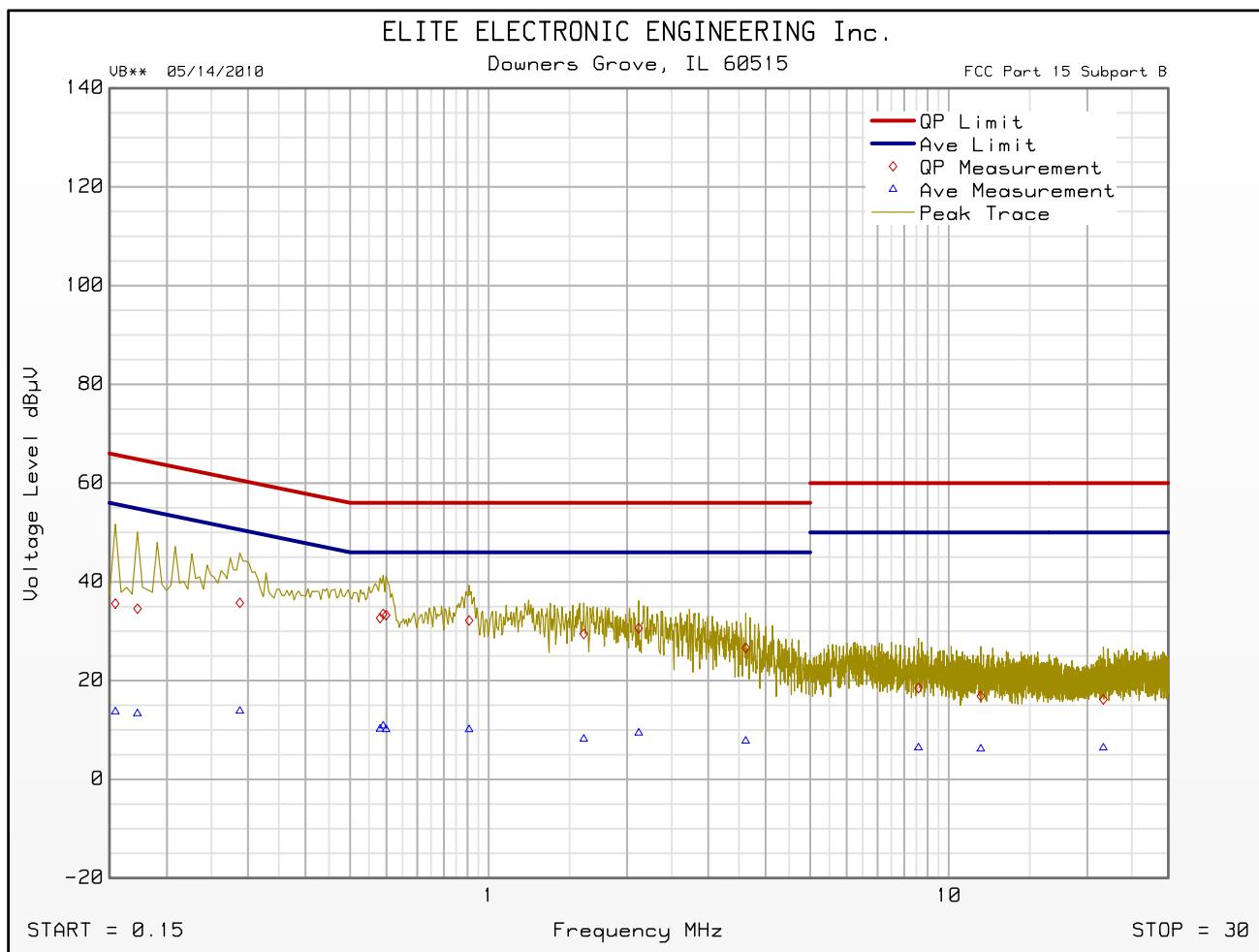
Freq MHz	Quasi-peak Level dB μ V	Quasi-peak Limit dB μ V	Excessive Quasi-peak Emissions	Average Level dB μ V	Average Limit dB μ V	Excessive Average Emissions
0.173	34.6	64.8		13.3	54.8	
0.288	35.8	60.6		13.9	50.6	
0.590	33.5	56.0		10.8	46.0	
0.907	32.2	56.0		10.1	46.0	
1.610	29.5	56.0		8.2	46.0	
2.120	30.6	56.0		9.4	46.0	
3.622	26.6	56.0		7.8	46.0	
8.591	18.5	60.0		6.4	50.0	
11.736	16.9	60.0		6.2	50.0	
21.677	16.2	60.0		6.4	50.0	

FCC Part 15 Subpart B Conducted Emissions Test

Cumulative Data

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Limit : Class B
Test Date : Aug 13, 2010 11:20:46 AM



Emissions Meet QP Limit
Emissions Meet Ave Limit

FCC Part 15 Subpart B Conducted Emissions Test

Significant Emissions Data

VB** 05/14/2010

Manufacturer : Motorola
Model : NTN2574A
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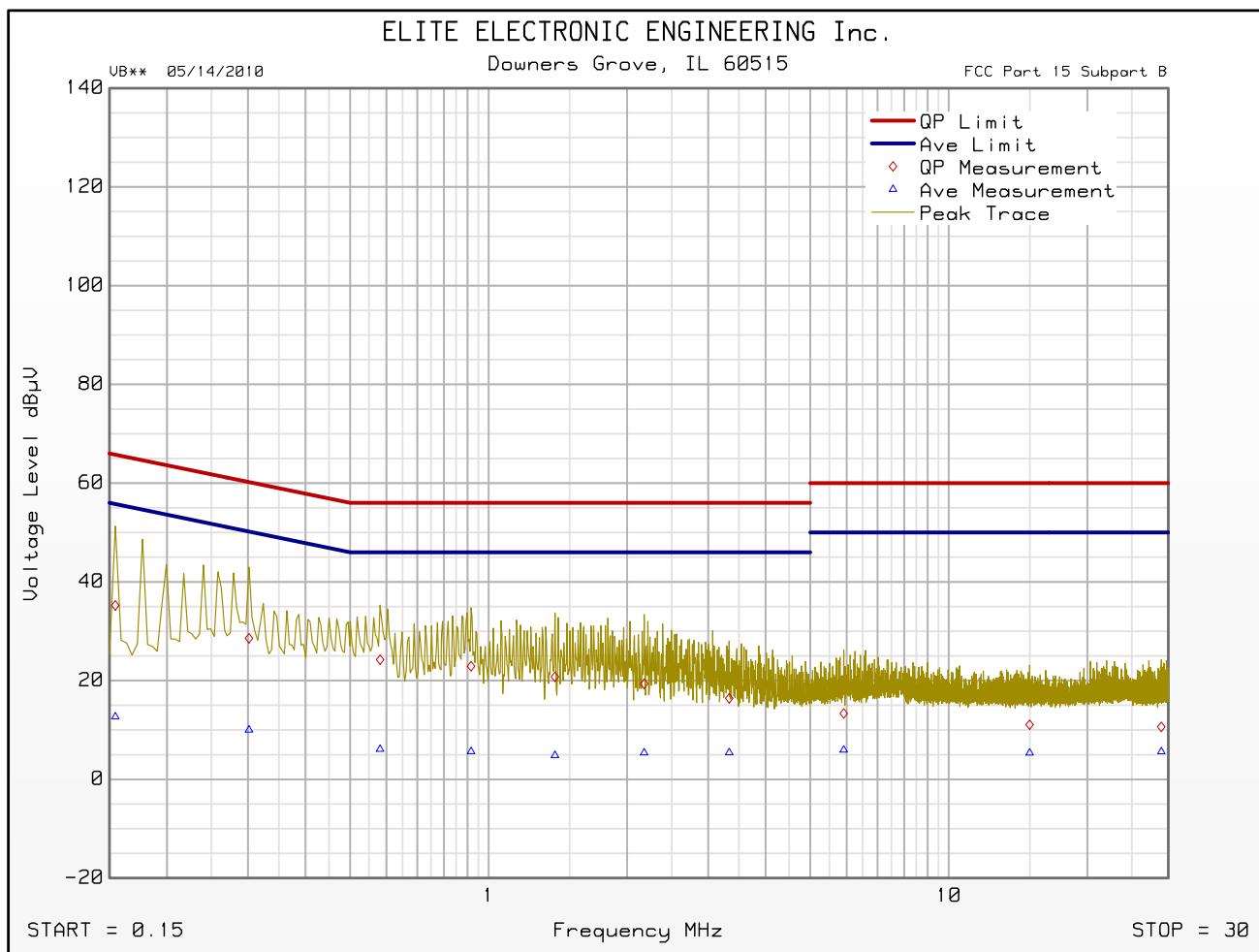
Freq MHz	Quasi-peak Level dB μ V	Quasi-peak Limit dB μ V	Excessive Quasi-peak Emissions	Average Level dB μ V	Average Limit dB μ V	Excessive Average Emissions
0.155	35.2	65.8		12.7	55.8	
0.302	28.6	60.2		10.0	50.2	
0.581	24.2	56.0		6.1	46.0	
0.916	22.9	56.0		5.6	46.0	
1.394	20.8	56.0		4.8	46.0	
2.178	19.4	56.0		5.4	46.0	
3.334	16.4	56.0		5.4	46.0	
5.914	13.4	60.0		6.0	50.0	
14.990	11.1	60.0		5.4	50.0	
28.963	10.6	60.0		5.6	50.0	

FCC Part 15 Subpart B Conducted Emissions Test

Cumulative Data

VB** 05/14/2010

Manufacturer : Motorola
Model : NTN2574A
DUT Revision :
Serial Number :
DUT Mode : Tx @ 125kHz
Line Tested : 115V, 60Hz Return
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -6
Notes : Tested w/ NTN2575A Headset & Motorola AC Power Supply
Test Engineer : M. Longinotti
Limit : Class B
Test Date : Aug 13, 2010 11:26:55 AM



Emissions Meet QP Limit
Emissions Meet Ave Limit

FCC Part 15 Subpart B Conducted Emissions Test

Significant Emissions Data

VB** 05/14/2010

Manufacturer : Motorola
Model : NTN2574A
DUT Revision :
Serial Number :
DUT Mode : Tx @ 125kHz
Line Tested : 115V, 60Hz High
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -6
Notes : No Headset, w/ Motorola AC Power Supply
Test Engineer : M. Longinotti
Limit : Class B
Test Date : Aug 13, 2010 10:44:28 AM
Data Filter : Up to 80 maximum levels detected with 6 dB level excursion threshold over 6 dB margin below limit

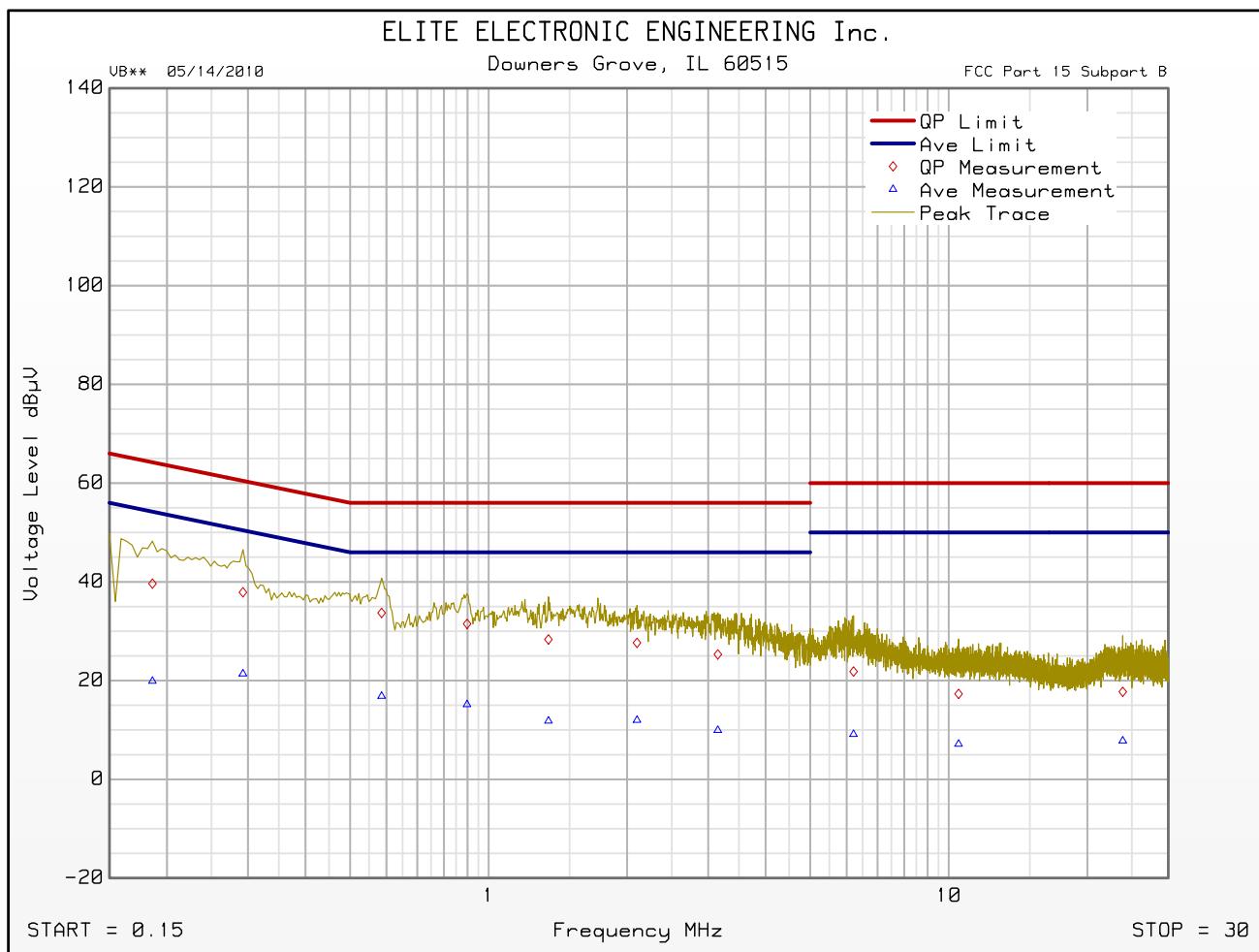
Freq MHz	Quasi-peak Level dB μ V	Quasi-peak Limit dB μ V	Excessive Quasi-peak Emissions	Average Level dB μ V	Average Limit dB μ V	Excessive Average Emissions
0.186	39.7	64.2		19.9	54.2	
0.293	37.9	60.5		21.4	50.5	
0.586	33.7	56.0		16.9	46.0	
0.898	31.5	56.0		15.2	46.0	
1.349	28.3	56.0		11.8	46.0	
2.102	27.7	56.0		12.0	46.0	
3.149	25.3	56.0		9.9	46.0	
6.211	21.8	60.0		9.1	50.0	
10.503	17.3	60.0		7.1	50.0	
23.887	17.7	60.0		7.8	50.0	

FCC Part 15 Subpart B Conducted Emissions Test

Cumulative Data

VB** 05/14/2010

Manufacturer : Motorola
Model : NTN2574A
DUT Revision :
Serial Number :
DUT Mode : Tx @ 125kHz
Line Tested : 115V, 60Hz High
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -6
Notes : No Headset, w/ Motorola AC Power Supply
Test Engineer : M. Longinotti
Limit : Class B
Test Date : Aug 13, 2010 10:44:28 AM



Emissions Meet QP Limit
Emissions Meet Ave Limit

FCC Part 15 Subpart B Conducted Emissions Test

Significant Emissions Data

VB** 05/14/2010

Manufacturer : Motorola
Model : NTN2574A
DUT Revision :
Serial Number :
DUT Mode : Tx @ 125kHz
Line Tested : 115V, 60Hz Return
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -6
Notes : No Headset, w/ Motorola AC Power Supply
Test Engineer : M. Longinotti
Limit : Class B
Test Date : Aug 13, 2010 10:57:31 AM
Data Filter : Up to 80 maximum levels detected with 6 dB level excursion threshold over 6 dB margin below limit

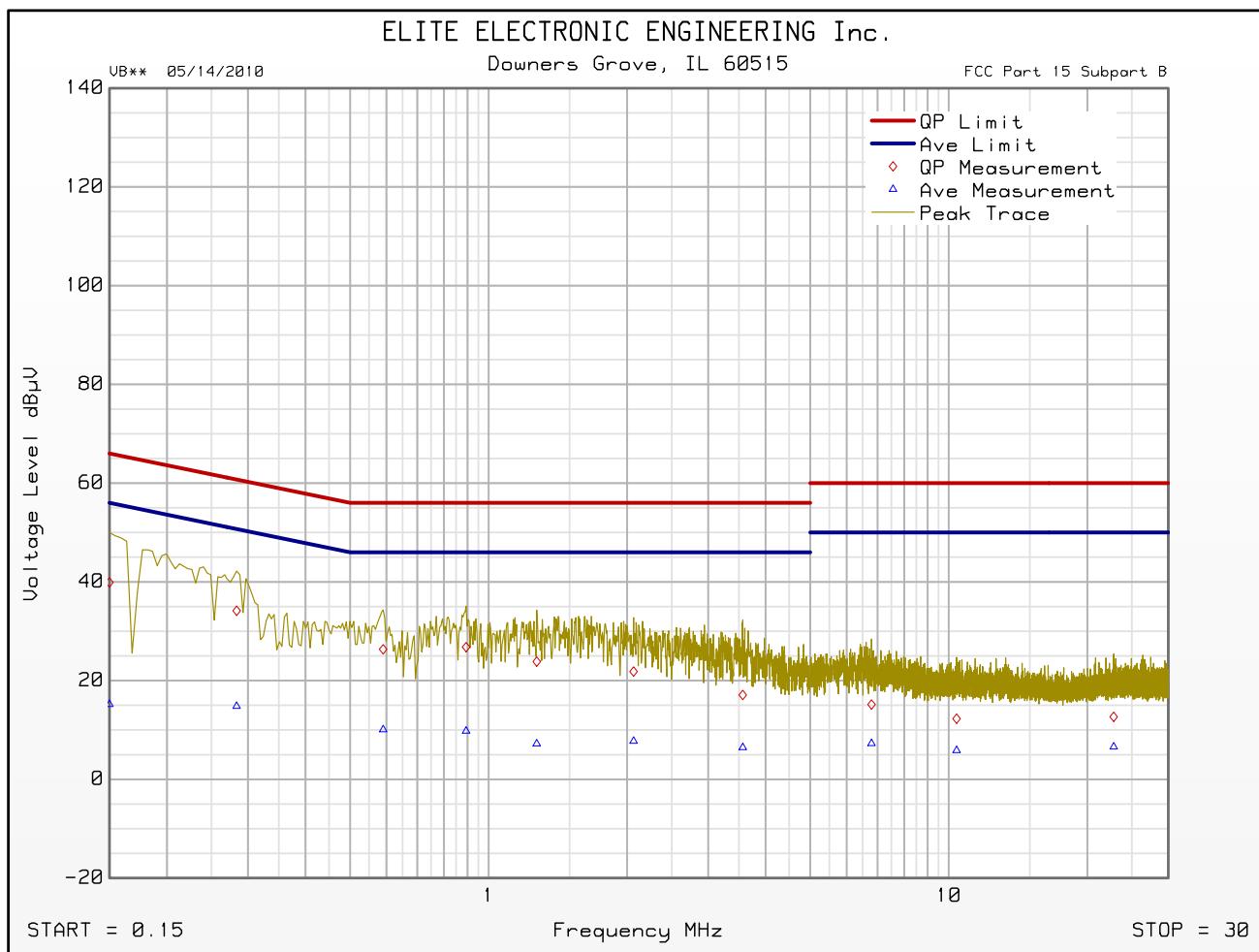
Freq MHz	Quasi-peak Level dB μ V	Quasi-peak Limit dB μ V	Excessive Quasi-peak Emissions	Average Level dB μ V	Average Limit dB μ V	Excessive Average Emissions
0.150	39.9	66.0		15.2	56.0	
0.284	34.2	60.7		14.8	50.7	
0.590	26.3	56.0		10.1	46.0	
0.894	26.8	56.0		9.8	46.0	
1.273	23.8	56.0		7.2	46.0	
2.066	21.8	56.0		7.8	46.0	
3.568	17.1	56.0		6.5	46.0	
6.796	15.2	60.0		7.3	50.0	
10.400	12.3	60.0		5.9	50.0	
22.825	12.7	60.0		6.6	50.0	

FCC Part 15 Subpart B Conducted Emissions Test

Cumulative Data

VB** 05/14/2010

Manufacturer : Motorola
Model : NTN2574A
DUT Revision :
Serial Number :
DUT Mode : Tx @ 125kHz
Line Tested : 115V, 60Hz Return
Scan Step Time [ms] : 30
Meas. Threshold [dB] : -6
Notes : No Headset, w/ Motorola AC Power Supply
Test Engineer : M. Longinotti
Limit : Class B
Test Date : Aug 13, 2010 10:57:31 AM



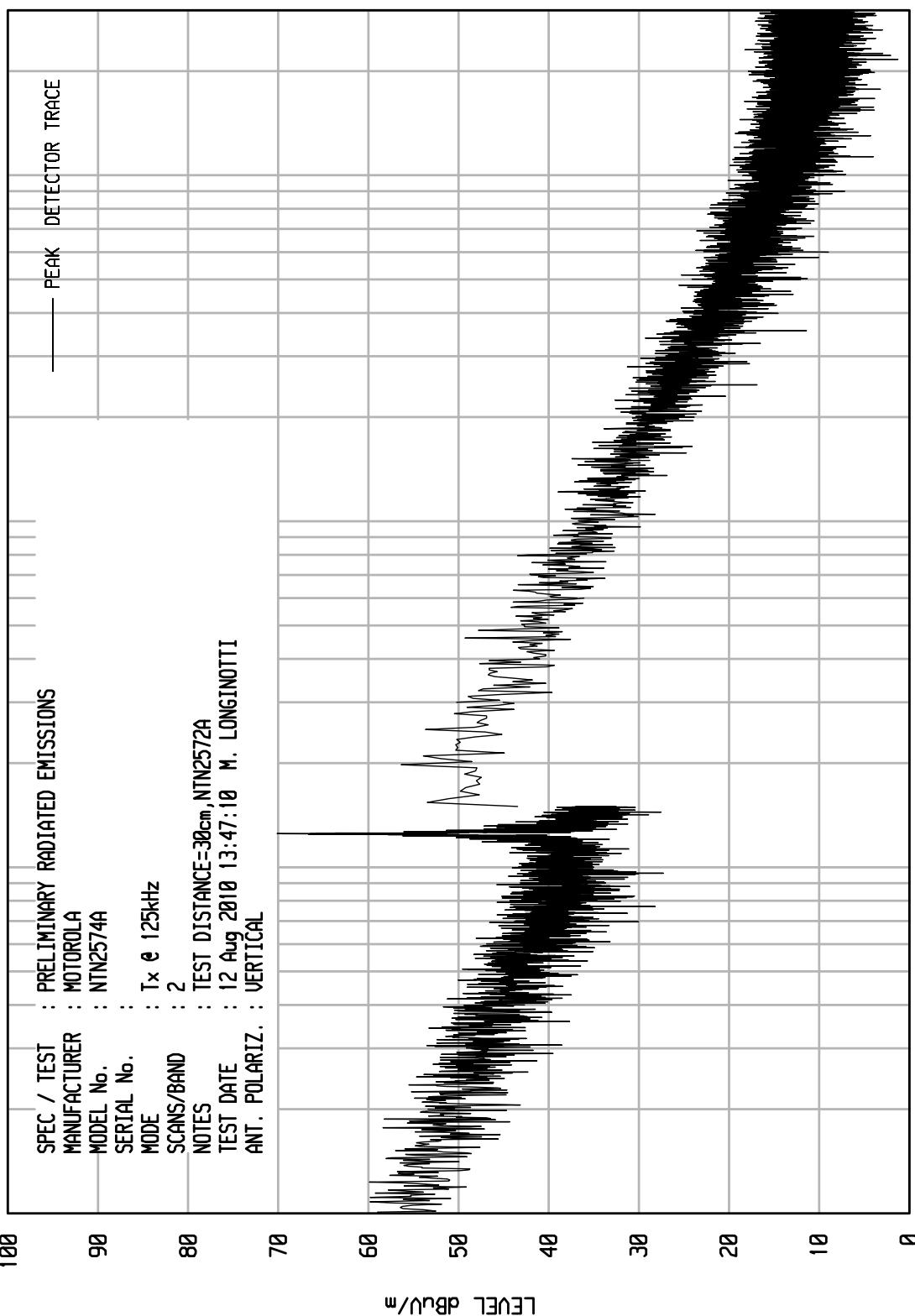
Emissions Meet QP Limit
Emissions Meet Ave Limit

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

WKA1 01/25/10

UNIV RCU EMI RUN 19

SPEC / TEST	:	PRELIMINARY RADIATED EMISSIONS
MANUFACTURER	:	MOTOROLA
MODEL No.	:	NTN2574A
SERIAL No.	:	
MODE	:	Tx & 125kHz
SCANS/BAND	:	2
NOTES	:	TEST DISTANCE=30cm, NTN2572A
TEST DATE	:	12 Aug 2010 13:47:10
ANT. POLARIZ.	:	VERTICAL

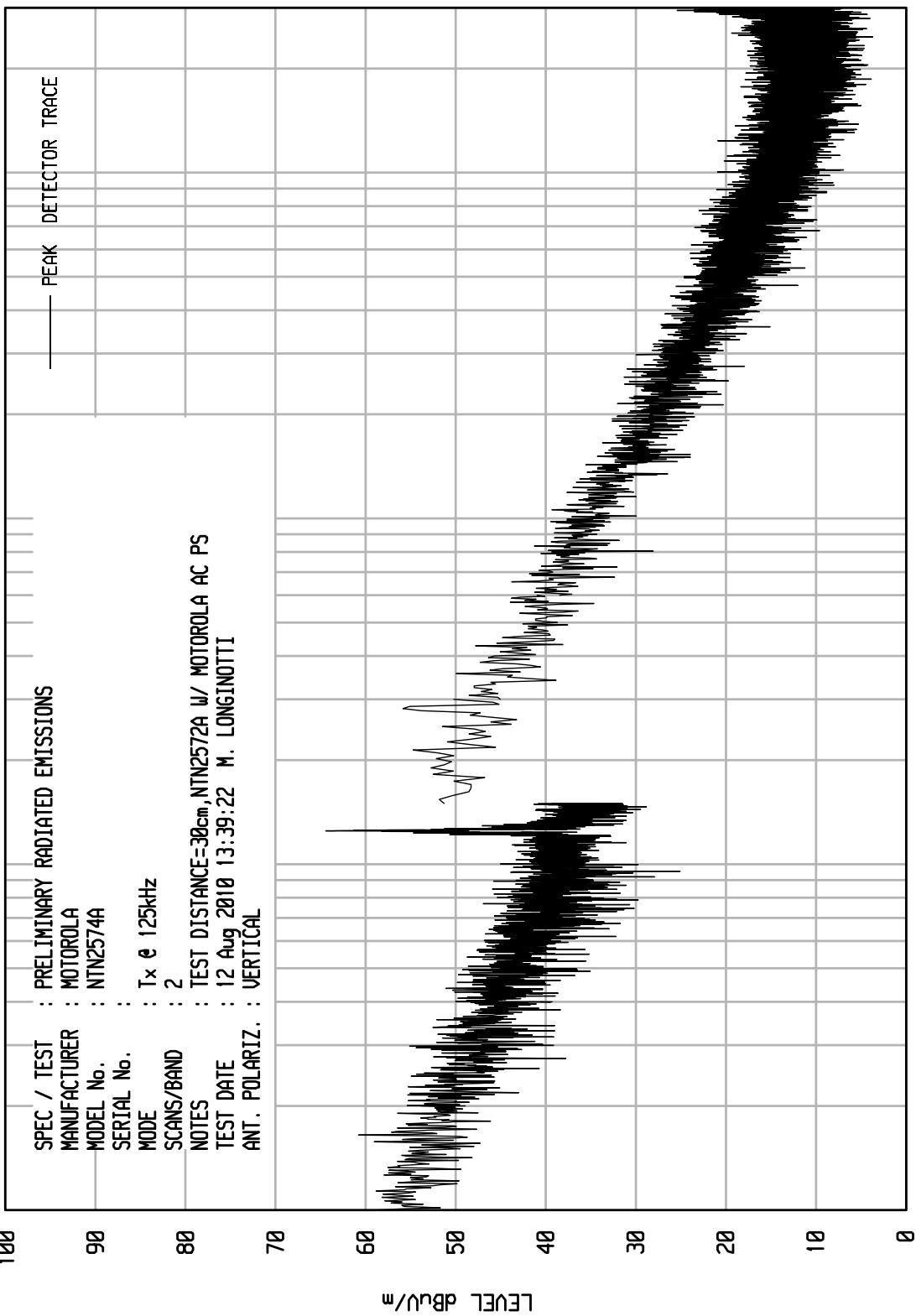


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

UNIV RCU EMI RUN 17

WKA1 01/25/10

SPEC / TEST	:	PRELIMINARY RADIATED EMISSIONS
MANUFACTURER	:	MOTOROLA
MODEL No.	:	NTN2574A
SERIAL No.	:	
MODE	:	Tx & 125kHz
SCANS/BAND	:	2
NOTES	:	TEST DISTANCE=30cm, NTN2572A W/ MOTOROLA AC PS
TEST DATE	:	12 Aug 2010 13:39:22
ANT. POLARIZ.	:	M. LONGINOTTI
ANT. POLARIZ.	:	VERTICAL



START = .01

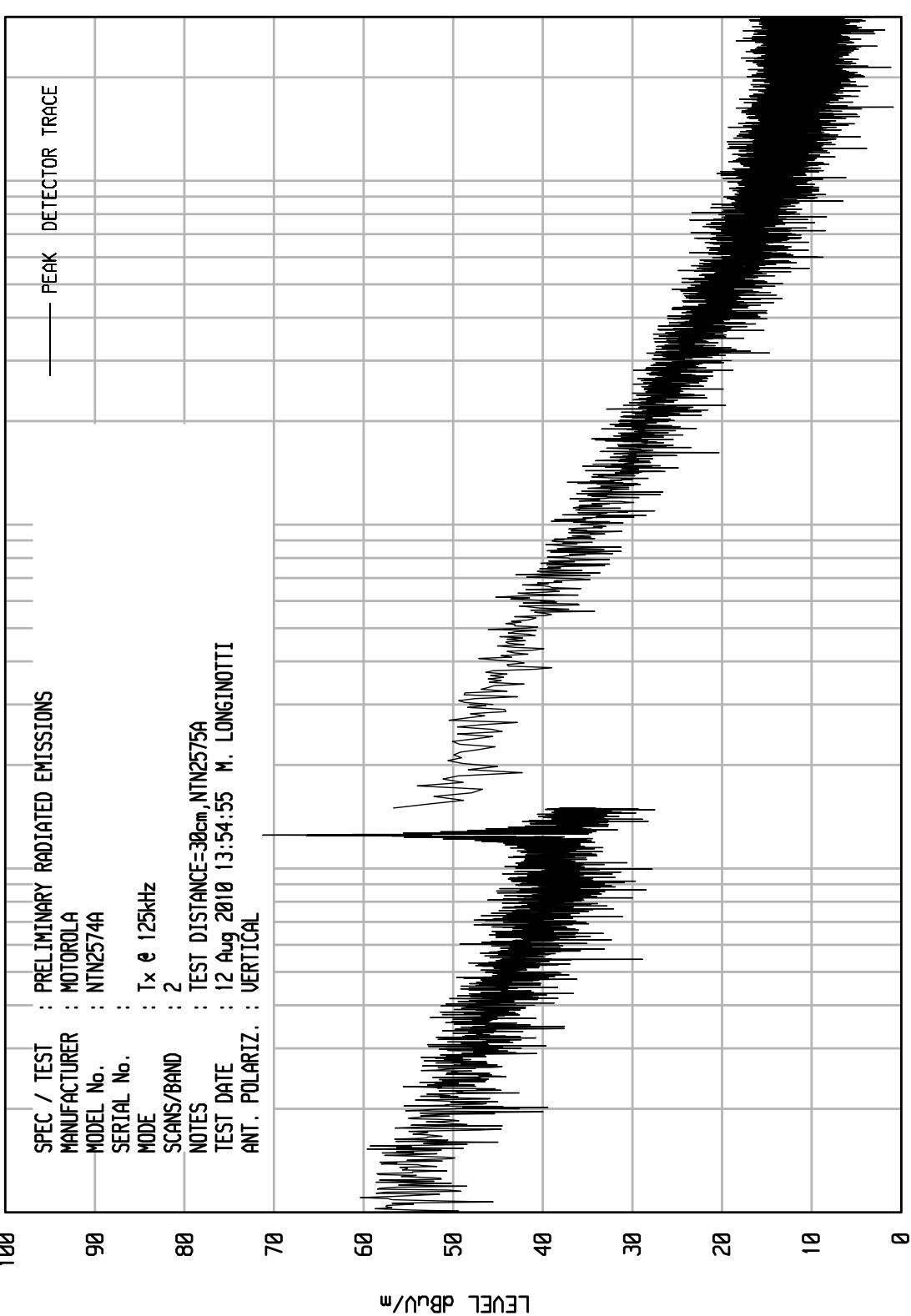
STOP = 30

ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

WKA1 01/25/10

UNIV RCU EMI RUN 20

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : MOTOROLA
MODEL No. : NTN2574A
SERIAL No. :
MODE : Tx & 125kHz
SCANS/BAND : 2
NOTES : TEST DISTANCE=30cm, NTN2575A
TEST DATE : 12 Aug 2010 13:54:55 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL

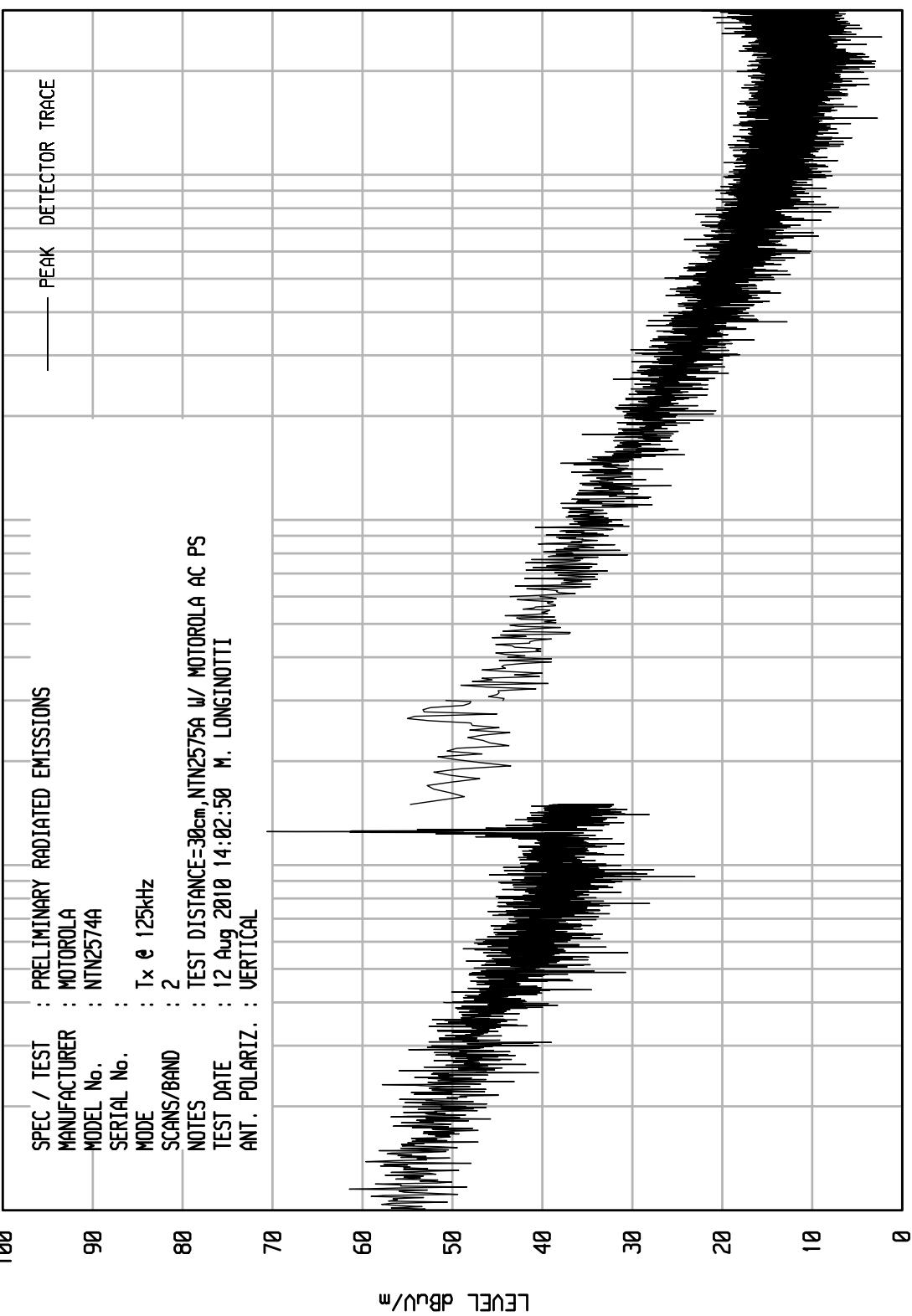


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

WKA1 01/25/10

UNIV RCU EMI RUN 22

SPEC / TEST	:	PRELIMINARY RADIATED EMISSIONS
MANUFACTURER	:	MOTOROLA
MODEL No.	:	NTN2574A
SERIAL No.	:	
MODE	:	Tx & 125kHz
SCANS/BAND	:	2
NOTES	:	TEST DISTANCE=30cm, NTN2575A W/ MOTOROLA AC PS
TEST DATE	:	12 Aug 2010 14:02:50
ANT. POLARIZ.	:	VERTICAL

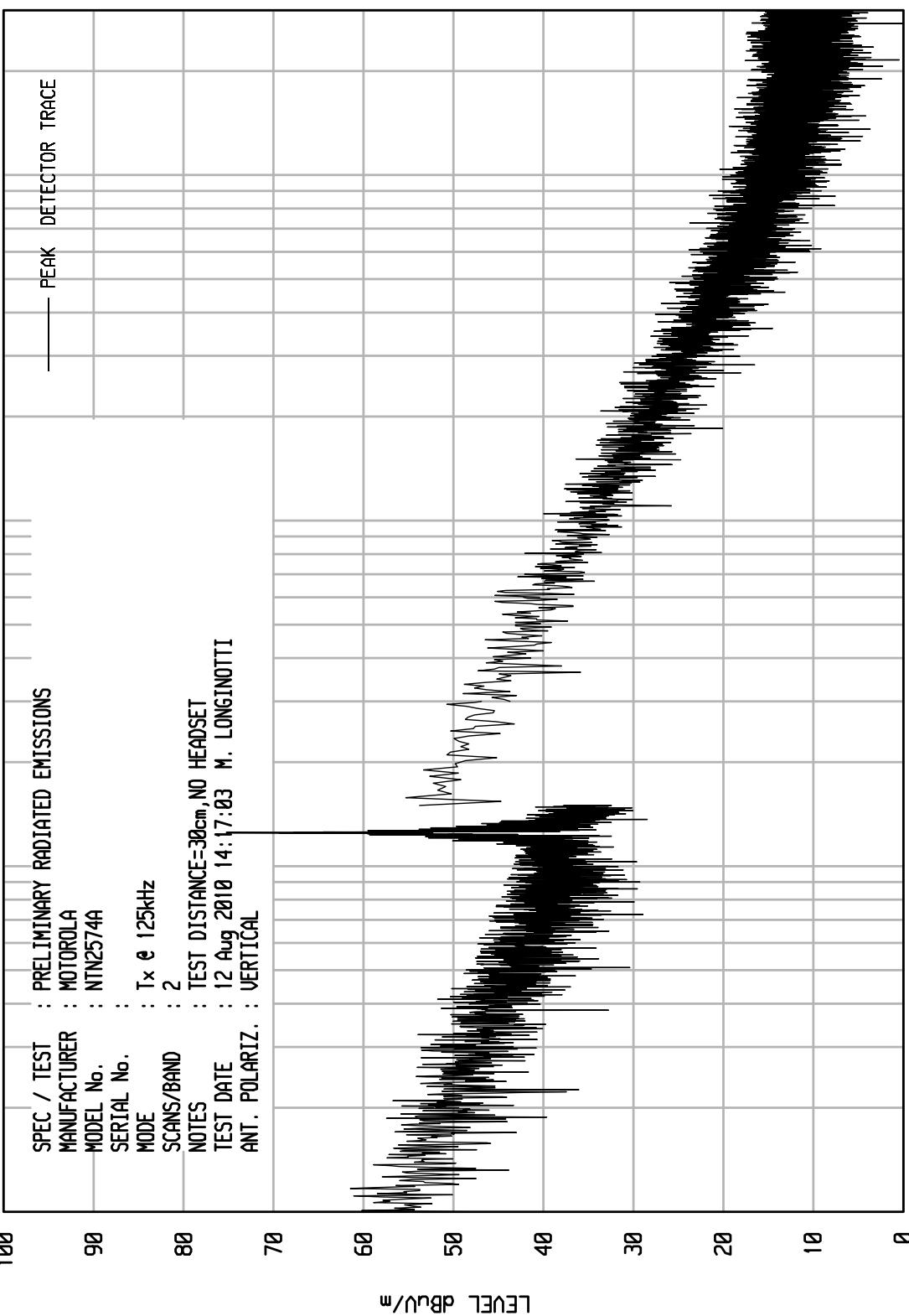


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

WKA1 01/25/10

UNIV RCU EMI RUN 25

SPEC / TEST : PRELIMINARY RADIATED EMISSIONS
MANUFACTURER : MOTOROLA
MODEL No. : NTN2574A
SERIAL No. :
MODE : Tx & 125kHz
SCANS/BAND : 2
NOTES : TEST DISTANCE=30cm, NO HEADSET
TEST DATE : 12 Aug 2010 14:17:03 M. LONGINOTTI
ANT. POLARIZ. : VERTICAL

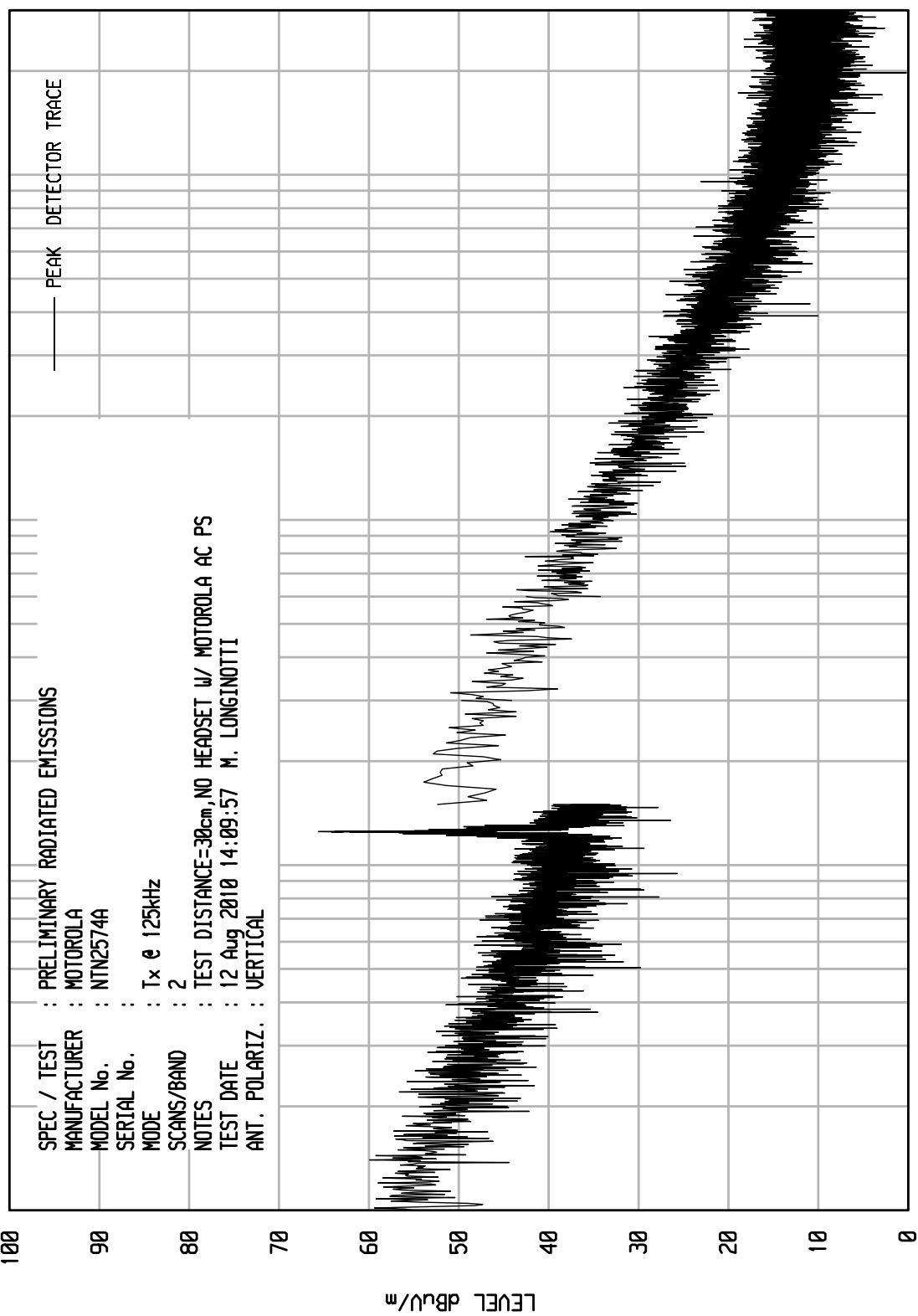


ELITE ELECTRONIC ENGINEERING Inc.
Downers Grove, Ill. 60515

WKA1 01/25/10

UNIV RCU EMI RUN 24

SPEC / TEST	:	PRELIMINARY RADIATED EMISSIONS
MANUFACTURER	:	MOTOROLA
MODEL No.	:	NTN2574A
SERIAL No.	:	
MODE	:	Tx & 125kHz
SCANS/BAND	:	2
NOTES	:	TEST DISTANCE=30cm, NO HEADSET W/ MOTOROLA AC PS
TEST DATE	:	12 Aug 2010 14:09:57
ANT. POLARIZ.	:	VERTICAL



START = .01

.1 1 10



MANUFACTURER : Motorola
TEST ITEM : Mission Critical Wireless Earpiece
MODEL NUMBER : NTN2574A
SERIAL NUMBER : 6082
TEST MODE : Transmit at 125kHz
TEST DATE : August 12, 2010
TEST PARAMETERS : FCC CFR 47, Part 15, Subpart C, Section 15.209 Radiated Emissions
TEST DISTANCE : 3 meters
NOTES : Tested with NTN2572A headset and Motorola AC Power Supply
EQUIPMENT USED : NLS1, RBB0, CMA1

Freq (MHz)	Ant Pol	Meter Reading		CBL Fac	Ant Fac	Dist. Corr.	Total dBuV/m at 3 M	Total uV/m at 300m/30m	Limit uV/m at 300m/30m	Margin
		(dBuV)	Ambient	(dB)	(dB)	(dB)				(dB)
0.125	H	33.6	Ambient	0.0	10.8	-80.0	-35.6	0.0166	19.2	-61.3
0.125	V	34.7	Ambient	0.0	10.8	-80.0	-34.5	0.0188	19.2	-60.2
0.250	H	46.3	Ambient	0.0	10.6	-80.0	-23.1	0.0701	9.6	-42.7
0.250	V	46.9	Ambient	0.0	10.6	-80.0	-22.5	0.0751	9.6	-42.1
0.375	H	42.7	Ambient	0.0	10.7	-80.0	-26.6	0.0466	6.4	-42.8
0.375	V	42.4	Ambient	0.0	10.7	-80.0	-26.9	0.0450	6.4	-43.1
0.500	H	40.6	Ambient	0.0	10.7	-40.0	11.3	3.6588	48.0	-22.4
0.500	V	40.3	Ambient	0.0	10.7	-40.0	11.0	3.5345	48.0	-22.7
0.625	H	37.3	Ambient	0.0	10.7	-40.0	8.0	2.5133	38.4	-23.7
0.625	V	37.4	Ambient	0.0	10.7	-40.0	8.1	2.5424	38.4	-23.6
0.750	H	36.0	Ambient	0.0	10.5	-40.0	6.5	2.1174	32.0	-23.6
0.750	V	36.3	Ambient	0.0	10.5	-40.0	6.8	2.1918	32.0	-23.3
0.875	H	34.2	Ambient	0.0	10.6	-40.0	4.8	1.7330	27.4	-24.0
0.875	V	34.3	Ambient	0.0	10.6	-40.0	4.9	1.7531	27.4	-23.9
1.000	H	32.8	Ambient	0.0	10.7	-40.0	3.5	1.5020	24.0	-24.1
1.000	V	33.1	Ambient	0.0	10.7	-40.0	3.8	1.5548	24.0	-23.8
1.125	H	32.4	Ambient	0.0	10.7	-40.0	3.1	1.4356	21.3	-23.4
1.125	V	32.0	Ambient	0.0	10.7	-40.0	2.7	1.3710	21.3	-23.8
1.250	H	31.4	Ambient	0.0	10.7	-40.0	2.1	1.2805	19.2	-23.5
1.250	V	30.7	Ambient	0.0	10.7	-40.0	1.4	1.1814	19.2	-24.2

Limit distance is 300 meters below 490kHz. Limit distance is 30 meters from 490kHz to 1.705MHz



MANUFACTURER : Motorola
TEST ITEM : Mission Critical Wireless Earpiece
MODEL NUMBER : NTN2574A
SERIAL NUMBER : 6082
TEST MODE : Transmit at 125kHz
TEST DATE : August 12, 2010
TEST PARAMETERS : FCC CFR 47, Part 15, Subpart C, Section 15.209 Radiated Emissions
TEST DISTANCE : 3 meters
NOTES : Tested with NTN2572A headset
EQUIPMENT USED : NLS1, RBB0, CMA1

Freq (MHz)	Ant Pol	Meter Reading		CBL Fac	Ant Fac	Dist. Corr.	Total dBuV/m at 3 M	Total uV/m at 300m/30m	Limit uV/m at 300m/30m	Margin
		(dBuV)	Ambient	(dB)	(dB)	(dB)	at 3 M	300m/30m	300m/30m	(dB)
0.125	H	33.9	Ambient	0.0	10.8	-80.0	-35.3	0.0172	19.2	-61.0
0.125	V	34.6	Ambient	0.0	10.8	-80.0	-34.6	0.0186	19.2	-60.3
0.250	H	46.0	Ambient	0.0	10.6	-80.0	-23.4	0.0678	9.6	-43.0
0.250	V	45.9	Ambient	0.0	10.6	-80.0	-23.5	0.0670	9.6	-43.1
0.375	H	42.5	Ambient	0.0	10.7	-80.0	-26.8	0.0455	6.4	-43.0
0.375	V	43.0	Ambient	0.0	10.7	-80.0	-26.3	0.0482	6.4	-42.5
0.500	H	40.0	Ambient	0.0	10.7	-40.0	10.7	3.4145	48.0	-23.0
0.500	V	40.0	Ambient	0.0	10.7	-40.0	10.7	3.4145	48.0	-23.0
0.625	H	38.2	Ambient	0.0	10.7	-40.0	8.9	2.7877	38.4	-22.8
0.625	V	37.5	Ambient	0.0	10.7	-40.0	8.2	2.5718	38.4	-23.5
0.750	H	36.5	Ambient	0.0	10.5	-40.0	7.0	2.2429	32.0	-23.1
0.750	V	36.0	Ambient	0.0	10.5	-40.0	6.5	2.1174	32.0	-23.6
0.875	H	34.8	Ambient	0.0	10.6	-40.0	5.4	1.8570	27.4	-23.4
0.875	V	34.6	Ambient	0.0	10.6	-40.0	5.2	1.8147	27.4	-23.6
1.000	H	33.3	Ambient	0.0	10.7	-40.0	4.0	1.5910	24.0	-23.6
1.000	V	33.2	Ambient	0.0	10.7	-40.0	3.9	1.5728	24.0	-23.7
1.125	H	31.8	Ambient	0.0	10.7	-40.0	2.5	1.3398	21.3	-24.0
1.125	V	31.8	Ambient	0.0	10.7	-40.0	2.5	1.3398	21.3	-24.0
1.250	H	30.7	Ambient	0.0	10.7	-40.0	1.4	1.1814	19.2	-24.2
1.250	V	30.6	Ambient	0.0	10.7	-40.0	1.3	1.1679	19.2	-24.3

Limit distance is 300 meters below 490kHz. Limit distance is 30 meters from 490kHz to 1.705MHz

MANUFACTURER : Motorola
 TEST ITEM : Mission Critical Wireless Earpiece
 MODEL NUMBER : NTN2574A
 SERIAL NUMBER : 6082
 TEST MODE : Transmit at 125kHz
 TEST DATE : August 12, 2010
 TEST PARAMETERS : FCC CFR 47, Part 15, Subpart C, Section 15.209 Radiated Emissions
 TEST DISTANCE : 3 meters
 NOTES : Tested with NTN2575A headset and Motorola AC Power Supply
 EQUIPMENT USED : NLS1, RBB0, CMA1

Freq (MHz)	Ant Pol	Meter Reading		CBL Fac	Ant Fac	Dist. Corr.	Total dBuV/m at 3 M	Total uV/m at 300m/30m	Limit uV/m at 300m/30m	Margin
		(dBuV)	Ambient	(dB)	(dB)	(dB)				(dB)
0.125	H	33.7	Ambient	0.0	10.8	-80.0	-35.5	0.0168	19.2	-61.2
0.125	V	34.7	Ambient	0.0	10.8	-80.0	-34.5	0.0188	19.2	-60.2
0.250	H	47.3	Ambient	0.0	10.6	-80.0	-22.1	0.0787	9.6	-41.7
0.250	V	47.0	Ambient	0.0	10.6	-80.0	-22.4	0.0760	9.6	-42.0
0.375	H	42.3	Ambient	0.0	10.7	-80.0	-27.0	0.0445	6.4	-43.2
0.375	V	43.4	Ambient	0.0	10.7	-80.0	-25.9	0.0505	6.4	-42.1
0.500	H	39.6	Ambient	0.0	10.7	-40.0	10.3	3.2609	48.0	-23.4
0.500	V	40.6	Ambient	0.0	10.7	-40.0	11.3	3.6588	48.0	-22.4
0.625	H	39.3	Ambient	0.0	10.7	-40.0	10.0	3.1641	38.4	-21.7
0.625	V	37.4	Ambient	0.0	10.7	-40.0	8.1	2.5424	38.4	-23.6
0.750	H	36.4	Ambient	0.0	10.5	-40.0	6.9	2.2172	32.0	-23.2
0.750	V	36.2	Ambient	0.0	10.5	-40.0	6.7	2.1667	32.0	-23.4
0.875	H	34.7	Ambient	0.0	10.6	-40.0	5.3	1.8357	27.4	-23.5
0.875	V	34.9	Ambient	0.0	10.6	-40.0	5.5	1.8785	27.4	-23.3
1.000	H	33.0	Ambient	0.0	10.7	-40.0	3.7	1.5370	24.0	-23.9
1.000	V	33.5	Ambient	0.0	10.7	-40.0	4.2	1.6280	24.0	-23.4
1.125	H	31.4	Ambient	0.0	10.7	-40.0	2.1	1.2795	21.3	-24.4
1.125	V	31.9	Ambient	0.0	10.7	-40.0	2.6	1.3553	21.3	-23.9
1.250	H	30.0	Ambient	0.0	10.7	-40.0	0.7	1.0899	19.2	-24.9
1.250	V	30.4	Ambient	0.0	10.7	-40.0	1.1	1.1413	19.2	-24.5

Limit distance is 300 meters below 490kHz. Limit distance is 30 meters from 490kHz to 1.705MHz



MANUFACTURER : Motorola
TEST ITEM : Mission Critical Wireless Earpiece
MODEL NUMBER : NTN2574A
SERIAL NUMBER : 6082
TEST MODE : Transmit at 125kHz
TEST DATE : August 12, 2010
TEST PARAMETERS : FCC CFR 47, Part 15, Subpart C, Section 15.209 Radiated Emissions
TEST DISTANCE : 3 meters
NOTES : Tested with NTN2575A headset
EQUIPMENT USED : NLS1, RBB0, CMA1

Freq (MHz)	Ant Pol	Meter Reading		CBL Fac	Ant Fac	Dist. Corr.	Total dBuV/m at 3 M	Total uV/m at 300m/30m	Limit uV/m at 300m/30m	Margin
		(dBuV)	Ambient	(dB)	(dB)	(dB)	at 3 M	300m/30m	300m/30m	(dB)
0.125	H	33.1	Ambient	0.0	10.8	-80.0	-36.1	0.0157	19.2	-61.8
0.125	V	36.8	Ambient	0.0	10.8	-80.0	-32.4	0.0240	19.2	-58.1
0.250	H	47.1	Ambient	0.0	10.6	-80.0	-22.3	0.0769	9.6	-41.9
0.250	V	46.7	Ambient	0.0	10.6	-80.0	-22.7	0.0734	9.6	-42.3
0.375	H	42.4	Ambient	0.0	10.7	-80.0	-26.9	0.0450	6.4	-43.1
0.375	V	42.3	Ambient	0.0	10.7	-80.0	-27.0	0.0445	6.4	-43.2
0.500	H	40.3	Ambient	0.0	10.7	-40.0	11.0	3.5345	48.0	-22.7
0.500	V	39.8	Ambient	0.0	10.7	-40.0	10.5	3.3368	48.0	-23.2
0.625	H	38.6	Ambient	0.0	10.7	-40.0	9.3	2.9191	38.4	-22.4
0.625	V	38.0	Ambient	0.0	10.7	-40.0	8.7	2.7242	38.4	-23.0
0.750	H	36.1	Ambient	0.0	10.5	-40.0	6.6	2.1419	32.0	-23.5
0.750	V	36.1	Ambient	0.0	10.5	-40.0	6.6	2.1419	32.0	-23.5
0.875	H	34.6	Ambient	0.0	10.6	-40.0	5.2	1.8147	27.4	-23.6
0.875	V	35.1	Ambient	0.0	10.6	-40.0	5.7	1.9222	27.4	-23.1
1.000	H	33.9	Ambient	0.0	10.7	-40.0	4.6	1.7048	24.0	-23.0
1.000	V	33.8	Ambient	0.0	10.7	-40.0	4.5	1.6853	24.0	-23.1
1.125	H	32.3	Ambient	0.0	10.7	-40.0	3.0	1.4192	21.3	-23.5
1.125	V	31.7	Ambient	0.0	10.7	-40.0	2.4	1.3245	21.3	-24.1
1.250	H	31.0	Ambient	0.0	10.7	-40.0	1.7	1.2229	19.2	-23.9
1.250	V	30.5	Ambient	0.0	10.7	-40.0	1.2	1.1545	19.2	-24.4

Limit distance is 300 meters below 490kHz. Limit distance is 30 meters from 490kHz to 1.705MHz



MANUFACTURER : Motorola
TEST ITEM : Mission Critical Wireless Earpiece
MODEL NUMBER : NTN2574A
SERIAL NUMBER : 6082
TEST MODE : Transmit at 125kHz
TEST DATE : August 12, 2010
TEST PARAMETERS : FCC CFR 47, Part 15, Subpart C, Section 15.209 Radiated Emissions
TEST DISTANCE : 3 meters
NOTES : Tested with Motorola AC Power Supply, No Headset
EQUIPMENT USED : NLS1, RBB0, CMA1

Freq (MHz)	Ant Pol	Meter Reading		CBL Fac	Ant Fac	Dist. Corr.	Total dBuV/m at 3 M	Total uV/m at 300m/30m	Limit uV/m at 300m/30m	Margin
		(dBuV)	Ambient	(dB)	(dB)	(dB)	at 3 M	300m/30m	300m/30m	(dB)
0.125	H	33.8	Ambient	0.0	10.8	-80.0	-35.4	0.0170	19.2	-61.1
0.125	V	34.9	Ambient	0.0	10.8	-80.0	-34.3	0.0193	19.2	-60.0
0.250	H	46.3	Ambient	0.0		-80.0	-33.7	0.0207	9.6	-53.3
0.250	V	47.3	Ambient	0.0	10.6	-80.0	-22.1	0.0787	9.6	-41.7
0.375	H	42.6	Ambient	0.0	10.7	-80.0	-26.7	0.0460	6.4	-42.9
0.375	V	42.3	Ambient	0.0	10.7	-80.0	-27.0	0.0445	6.4	-43.2
0.500	H	40.0	Ambient	0.0	10.7	-40.0	10.7	3.4145	48.0	-23.0
0.500	V	41.1	Ambient	0.0	10.7	-40.0	11.8	3.8755	48.0	-21.9
0.625	H	38.3	Ambient	0.0	10.7	-40.0	9.0	2.8200	38.4	-22.7
0.625	V	38.0	Ambient	0.0	10.7	-40.0	8.7	2.7242	38.4	-23.0
0.750	H	36.8	Ambient	0.0	10.5	-40.0	7.3	2.3217	32.0	-22.8
0.750	V	36.3	Ambient	0.0	10.5	-40.0	6.8	2.1918	32.0	-23.3
0.875	H	34.6	Ambient	0.0	10.6	-40.0	5.2	1.8147	27.4	-23.6
0.875	V	34.6	Ambient	0.0	10.6	-40.0	5.2	1.8147	27.4	-23.6
1.000	H	33.4	Ambient	0.0	10.7	-40.0	4.1	1.6094	24.0	-23.5
1.000	V	33.9	Ambient	0.0	10.7	-40.0	4.6	1.7048	24.0	-23.0
1.125	H	32.0	Ambient	0.0	10.7	-40.0	2.7	1.3710	21.3	-23.8
1.125	V	32.8	Ambient	0.0	10.7	-40.0	3.5	1.5033	21.3	-23.0
1.250	H	31.7	Ambient	0.0	10.7	-40.0	2.4	1.3255	19.2	-23.2
1.250	V	31.8	Ambient	0.0	10.7	-40.0	2.5	1.3409	19.2	-23.1

Limit distance is 300 meters below 490kHz. Limit distance is 30 meters from 490kHz to 1.705MHz



MANUFACTURER : Motorola
TEST ITEM : Mission Critical Wireless Earpiece
MODEL NUMBER : NTN2574A
SERIAL NUMBER : 6082
TEST MODE : Transmit at 125kHz
TEST DATE : August 12, 2010
TEST PARAMETERS : FCC CFR 47, Part 15, Subpart C, Section 15.209 Radiated Emissions
TEST DISTANCE : 3 meters
NOTES : Tested with No Headset
EQUIPMENT USED : NLS1, RBB0, CMA1

Freq (MHz)	Ant Pol	Meter Reading		CBL Fac	Ant Fac	Dist. Corr.	Total dBuV/m at 3 M	Total uV/m at 300m/30m	Limit uV/m at 300m/30m	Margin
		(dBuV)	Ambient	(dB)	(dB)	(dB)	at 3 M	300m/30m	300m/30m	(dB)
0.125	H	34.0	Ambient	0.0	10.8	-80.0	-35.2	0.0174	19.2	-60.9
0.125	V	35.0	Ambient	0.0	10.8	-80.0	-34.2	0.0195	19.2	-59.9
0.250	H	46.1	Ambient	0.0	10.6	-80.0	-23.3	0.0685	9.6	-42.9
0.250	V	47.6	Ambient	0.0	10.6	-80.0	-21.8	0.0815	9.6	-41.4
0.375	H	42.4	Ambient	0.0	10.7	-80.0	-26.9	0.0450	6.4	-43.1
0.375	V	43.2	Ambient	0.0	10.7	-80.0	-26.1	0.0493	6.4	-42.3
0.500	H	41.0	Ambient	0.0	10.7	-40.0	11.7	3.8312	48.0	-22.0
0.500	V	39.8	Ambient	0.0	10.7	-40.0	10.5	3.3368	48.0	-23.2
0.625	H	38.1	Ambient	0.0	10.7	-40.0	8.8	2.7558	38.4	-22.9
0.625	V	37.7	Ambient	0.0	10.7	-40.0	8.4	2.6317	38.4	-23.3
0.750	H	35.9	Ambient	0.0	10.5	-40.0	6.4	2.0932	32.0	-23.7
0.750	V	36.4	Ambient	0.0	10.5	-40.0	6.9	2.2172	32.0	-23.2
0.875	H	35.9	Ambient	0.0	10.6	-40.0	6.5	2.1077	27.4	-22.3
0.875	V	34.7	Ambient	0.0	10.6	-40.0	5.3	1.8357	27.4	-23.5
1.000	H	33.7	Ambient	0.0	10.7	-40.0	4.4	1.6660	24.0	-23.2
1.000	V	32.9	Ambient	0.0	10.7	-40.0	3.6	1.5194	24.0	-24.0
1.125	H	31.7	Ambient	0.0	10.7	-40.0	2.4	1.3245	21.3	-24.1
1.125	V	31.6	Ambient	0.0	10.7	-40.0	2.3	1.3093	21.3	-24.2
1.250	H	31.0	Ambient	0.0	10.7	-40.0	1.7	1.2229	19.2	-23.9
1.250	V	32.2	Ambient	0.0	10.7	-40.0	2.9	1.4041	19.2	-22.7

Limit distance is 300 meters below 490kHz. Limit distance is 30 meters from 490kHz to 1.705MHz