

Mr. Russell Grant  
Nemko TCB

Russell,

This data is submitted in support of your review of the Andrew EO Cell.

The data attached is from Elliott Laboratories, 684 Maude Avenue, Sunnyvale, California. They are a Nemko ELA (#157) in good standing and, as such, are certified by Nemko and NIST to be in compliance with ISO 17025. Elliott Labs are conducting DGT testing on the EO Cell for Nemko Dallas under contract.


The data herein are collected as the EO Cell progresses through LP0002 testing for the DGT. These attachments are – in effect - the qualification data, sent to Nemko Dallas as a preliminary test results. There is no modification to the EO Cell unit after completion of this testing, so the preliminary conducted emissions data will be the final conducted emissions data. The data transmitted herein (excerpted data from the preliminary results) will be presented as the final data upon generation of the LP0002 report by Elliott. There is no test equipment information attached.


The data collected is for the Master, 120VAC/60Hz. The photos show the test setup on the OATS for conducted emissions.


Best Regards,


A handwritten signature in black ink that reads 'T.B. Ketterling'. A vertical red line is positioned to the right of the signature.

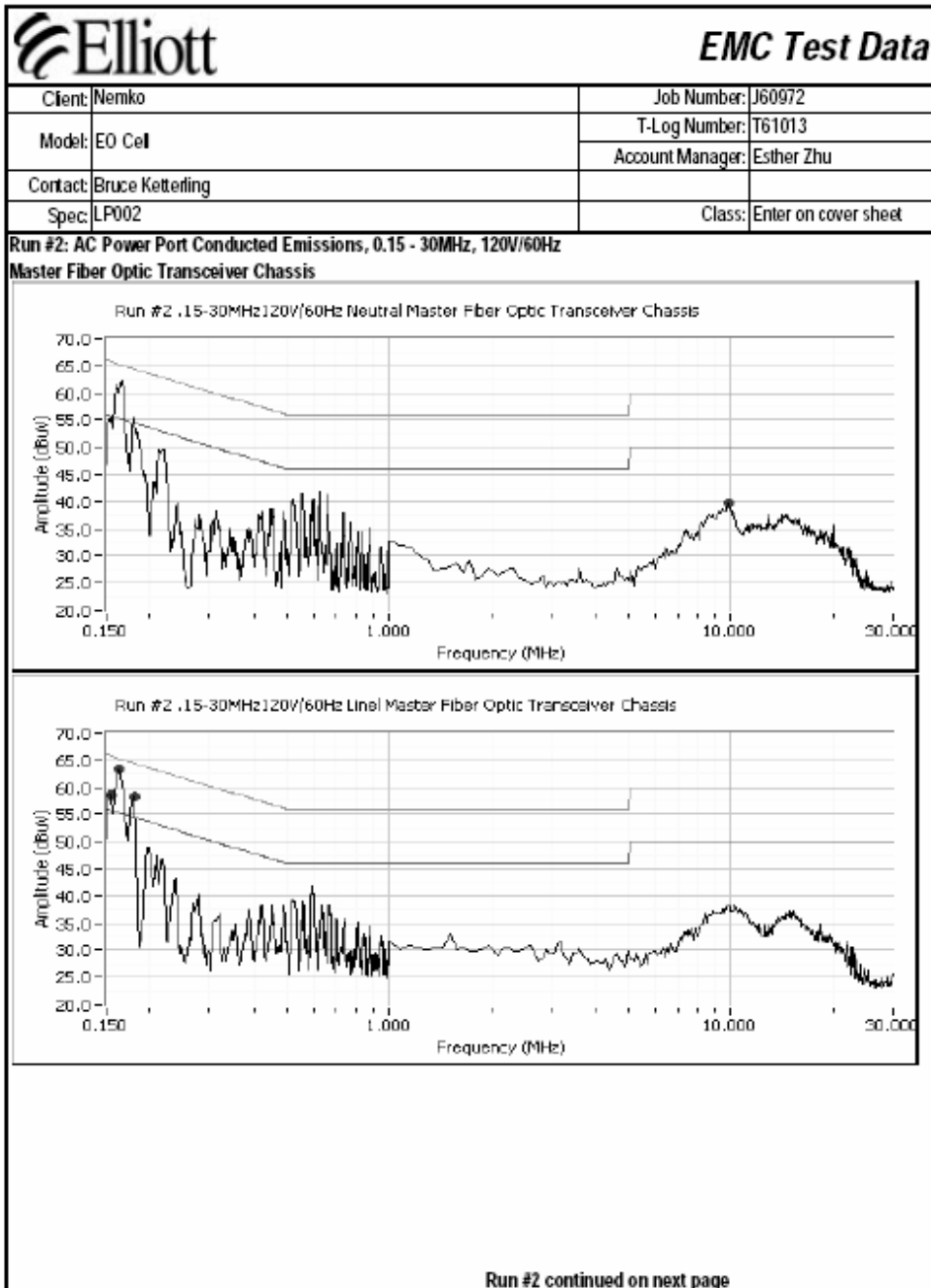
T.B. Ketterling  
Nemko USA, Inc. - Dallas

		<i><b>EMC Test Data</b></i>	
Client:	Nemko	Job Number:	J60072
Model:	EO Cell	T-Log Number:	T61013
		Account Manager:	Esther Zhu
Contact:	Bruce Ketterling		
Emissions Spec:	LP002	Class:	
Immunity Spec:		Environment:	
  <b>EMC Test Data</b>  For The  <b>Nemko</b>  Model  EO Cell    Date of Last Test: 8/31/2005			

		<b>EMC Test Data</b>		
Client:	Nemko	Job Number:	J60972	
Model:	EO Cell	T-Log Number:	T61013	
		Account Manager:	Esther Zhu	
Contact:	Bruce Kettering			
Emissions Spec:	LP002	Class:		
Immunity Spec:	Enter immunity spec on cover	Environment:		
<b>EUT INFORMATION</b>				
<b>General Description</b>				
<p>The EUT is a 2.4GHz DTS Transceiver system which is designed to monitor train location at an airport. Normally, the EUT would be mounted along the train tracks. The EUT was, therefore, treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 120/240 V, 50/60 Hz.</p>				
<b>Equipment Under Test</b>				
Manufacturer	Model	Description	Serial Number	FCC ID
Andrews	385700-6000-022 Rev B	Master Fiber Optic Transceiver Chassis	04ART052	
Afar Communications	ATC-24027	Ethernet Spread Spectrum Radio	101	QTN-24027
Andrews	385700-5000-X01	Remote Fiber Fed Amplifier Unit		
<b>Other EUT Details</b>				
<p>The following dash numbers are included in the 385700-5000 part number</p> <ul style="list-style-type: none"> <li>-X02 - 2 RF outputs, Pout 19.5 +/- 0.25dBm</li> <li>-X03 - 3 RF outputs, Pout 17.5 +/- 0.25dBm</li> <li>-X04 - 4 RF outputs, Pout 16.0 +/- 0.25dBm</li> </ul> <p>Power splitting is accomplished via a passive power divider. All other circuitry is identical to the -X01 model</p>				
<b>EUT Antenna</b>				
<p>The EUT antenna can be either a:</p> <ul style="list-style-type: none"> <li>Antenna Products ISM Horn antenna M/N ISM04-2400-12-TAN with a gain of 12 dBi</li> <li>Andrews Radiax Antenna MN RCT6-S-1A-RNT1</li> </ul> <p>The following Radiax Part numbers are electrical equivalents RNT1, the difference is the fire rating of the covering:</p> <ul style="list-style-type: none"> <li>RCT6-S-1A-AX</li> <li>RCT6-S-1A-RN</li> <li>RCT6-S_1A-RNT</li> </ul> <p>The antenna connects to the EUT via a standard N type connector. The EUT is professionally installed</p>				

		<b>EMC Test Data</b>		
Client:	Nemko	Job Number:	J60972	
Model:	EO Cell	T-Log Number:	T61013	
Contact:	Bruce Ketterling	Account Manager:	Esther Zhu	
Emissions Spec:	LP002	Class:		
Immunity Spec:	Enter immunity spec on cover	Environment:		
<b>Test Configuration #1</b>				
<b>Local Support Equipment</b>				
Manufacturer	Model	Description	Serial Number	FCC ID
AFAR Communications	HL-0204-421	POE Power Supply	WB008807	
Compaq	Armada	Laptop		
Hewlett Packard		Variable attenuator		
<b>Remote Support Equipment</b>				
Manufacturer	Model	Description	Serial Number	FCC ID
None				
<b>Interface Cabling and Ports</b>				
Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
<b>Master Fiber Optic Transceiver Chassis</b>				
Trasmit	Pad-variable attenuator	coax	Shielded	0.25
Fiber Transceiver Tx	Remote Fiber Fed	Fiber	N/A	2
Fiber Transceiver Rx	Not cabled	-	-	-
AC in	AC Mains	3 wire	Unshielded	1.5
Alarm (x3)	Not cabled			
<b>Ethernet Spread Spectrum Radio</b>				
Ant A	Pad -Variable attenuator	coax	Shielded	0.25
Ant B	Terminated	-	-	-
Serial	Unterminated	multiwire	Shielded	1
Power	POE module	CAT 5	Unshielded	1.5
<b>Remote Fiber Fed Amplifier Unit</b>				
FO	Master Fiber Optic Transceiver Chassis Transceiver Tx	Fiber	N/A	2
RF 1	Antenna	coax	Shielded	1
AC in	AC Mains	3 wire	Unshielded	1.5
<b>EUT Operation During Emissions Tests</b>				
The EUT was transmitting continuously on either the low, 2448MHz, the middle, 2460MHz, or the high, 2472MHz, channel				

		<i>EMC Test Data</i>		
Client: Nemko		Job Number: J60972		
Model: EO Cell		T-Log Number: T61013		
		Account Manager: Esther Zhu		
Contact: Bruce Ketterling				
Spec: LP002		Class: Enter on cover sheet		
<b>Conducted Emissions - Power Ports</b>				
<b>Test Specifics</b>				
Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.				
Date of Test: 8/31/2005		Config. Used: 1		
Test Engineer: Chris Byleckie		Config Change: None		
Test Location: SVOATS #1		EUT Voltage: Refer to individual run		
<b>General Test Configuration</b>				
The EUT was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment.				
<b>Ambient Conditions:</b>		Temperature: 26 °C		
		Rel. Humidity: 50 %		
<b>Summary of Results</b>				
Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 230V/50Hz	LP002 2.3	Pass	43.7dB $\mu$ V (153.1 $\mu$ V) @ 0.468MHz (-12.8dB)
2	CE, AC Power, 120V/60Hz	LP002 2.3	Pass	62.0dB $\mu$ V (1258.9 $\mu$ V) @ 0.161MHz (-3.4dB)
3	CE, AC Power, 230V/50Hz	LP002 2.3	Pass	26.6dB $\mu$ V (21.4 $\mu$ V) @ 0.531MHz (-19.4dB)
4	CE, AC Power, 120V/60Hz	LP002 2.3	Pass	34.0dB $\mu$ V (50.1 $\mu$ V) @ 13.900MHz (-16.0dB)
<b>Modifications Made During Testing:</b>				
No modifications were made to the EUT during testing				
<b>Deviations From The Standard</b>				
No deviations were made from the requirements of the standard.				



Elliott		EMC Test Data				
Client:	Nemko	Job Number:	J60972			
Model:	EO Cell	T-Log Number:	T61013			
Contact:	Bruce Ketterling	Account Manager:	Esther Zhu			
Spec:	LP002	Class:	Enter on cover sheet			
<b>Run #2 continued</b>						
Frequency MHz	Level dB $\mu$ V	AC Line	LP002 2.3 Limit	Margin	Detector QP/Ave	Comments
<b>Preliminary peak readings captured during pre-scan (peak readings vs. average limit)</b>						
0.165	61.9	Neutral	55.2	6.7	Peak	
0.179	55.6	Neutral	54.5	1.1	Peak	
9.892	39.6	Neutral	50.0	-10.4	Peak	
0.152	58.5	Line 1	55.8	2.7	Peak	
0.161	63.5	Line 1	55.3	8.2	Peak	
0.180	58.2	Line 1	54.4	3.8	Peak	
<b>Final quasi-peak and average readings</b>						
0.161	62.0	Line 1	65.4	-3.4	QP	
0.165	60.8	Neutral	65.2	-4.4	QP	
0.179	55.5	Neutral	64.5	-9.0	QP	
0.152	56.7	Line 1	65.9	-9.2	QP	
0.180	55.1	Line 1	64.5	-9.4	QP	
0.161	39.3	Line 1	55.4	-16.1	Average	
0.165	38.2	Neutral	55.2	-17.0	Average	
0.179	33.1	Neutral	54.5	-21.4	Average	
0.152	34.1	Line 1	55.9	-21.8	Average	
0.180	32.1	Line 1	54.5	-22.4	Average	
9.982	13.6	Neutral	50.0	-36.4	Average	
9.982	21.2	Neutral	60.0	-38.8	QP	



Please note that there is a 2m x 2m Vertical Reference Plane outside the tent @ 40cm spacing from the Master. The measurement LISN is at right, 40cm off the VRP, and the Aux LISN is front and center.