ADDENDEM TO TEST REPORT FC00-089

FOR THE

INTERROGATION TRANSMITTER, 870-00004

FCC PERMISSIVE CHANGE II FOR PART 87 COMPLIANCE

DATE OF ISSUE: OCTOBER 25, 2000

PREPARED FOR:

EM Research, Inc.
2465 Highway 40
Verdi, NV 89439

P.O. No: 11442
W.O. No: 73741

PREPARED BY:

Joyce Walker
reports@ckc.com
CKC Laboratories, Inc.
5473A Clouds Rest
Mariposa, CA 95338

Date of test: August 15, 2000

Report No: FC00-089A

DOCUMENTATION CONTROL:

Tracy Phillips
Documentation Control Supervisor
CKC Laboratories, Inc.

APPROVED BY:

Dennis Ward
Director of Laboratories
CKC Laboratories, Inc.

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PART 87 CERTIFICATION TEST REPORT

ADMINISTRATIVE INFORMATION

DATE OF TEST:	August 15, 2000
PURPOSE OF TEST:	To demonstrate the compliance of the Interrogation Transmitter, 870-00004, with the requirements for FCC Permissive Change II to Part 87 devices. This report represents testing of the transmitter with the addition of an output spectrum control filter, which was added to meet output pulse rise and fall times. This modification was initiated as a result of FAA system tests, and spectrum management inputs. The addendum is to reflect a change to the mean power calculations in the RF Power Output test data and to provide a new plot for the Occupied Bandwidth section.
MANUFACTURER:	EM Research, Inc. 2465 Highway 40 Verdi, NV 89439
REPRESENTATIVE:	Matt Eiting
TEST LOCATION:	CKC Laboratories, Inc. 5473A Clouds Rest, Mariposa, CA 95338
TEST PERSONNEL:	Skip Doyle
TEST METHOD:	FCC Parts 2 and 87
FREQUENCY RANGE TESTED:	450 kHz – 10.3 GHz
EQUIPMENT UNDER TEST:	**Interrogation Transmitter** Manuf: EM Research, Inc. Model: 870-00004 Serial: 1845 FCC ID: NYKEMPA101

2.1033(c)(14)/2.1046/87.131 - RF POWER OUTPUT

Test Location: CKC Laboratories, Inc. • 5473A Clouds Rest Rd, Barn • Mariposa, CA 95338 • (800)-500-4EMC
Customer: **EM Research**
Specification: **FCC Part 87.131**
Work Order #: **73741** Date: 08/15/2000
Test Type: **FCC Part 2.1046, Power Output** Time: 12:51:16
Equipment: **Interrogation Transmitter** Sequence#: 1
Manufacturer: EM Research Tested By: Skip Doyle
Model: P/N: EMPA-870-00004 S/N: 1845

***Test Equipment Used*:**

Equipment	Mfg.	Model	S/N	Date Cal.	Cal Due
Coax cable # 3 (2')	Andrew	FSL1-50A	N/A	05/10/2000	05/10/2001
Coax cable # 2 (2')	Andrew	FSL1-50A	N/A	05/10/2000	05/10/2001
Directional Coupler	Werlatone	C2630	3805	04/21/2000	04/21/2001
QP Adapter	HP	85650A	2811A01267	07/07/2000	07/07/2001
Spectrum Analyzer-Display	HP	8566B	2209A01404	07/07/2000	07/07/2001
Spectrum Analyzer-RF Sect.	HP	8566B	2209A01404	07/07/2000	07/07/2001

***Equipment Under Test* (* = EUT):**

Function	Manufacturer	Model #	S/N
Interrogation Transmitter*	EM Research	P/N: EMPA-870-00004	1845

Support Devices:

Function	Manufacturer	Model #	S/N
PC	MEGA		
Monitor	Hyundai		
Keyboard	Sierra Computers		

Test Conditions / Notes:

Spec Limit for EUT is 400W, which = 56dBm = 163dBuV. EUT operation in accordance with customers setup procedure. Computer timing is producing a pulse @ 10Hz, 0.8uS width pulse pair, and amplitude of 1.5V. Interrogation RF output is connected to Spectrum analyzer via 1 40dB directional coupler with 50 ohm load and 2 6dB Pads. Tested in accordance with FCC Parts 87.131/2.1046.

Measurement Data: Reading listed by margin. Test Distance: Direct Connection

#	Freq MHz	Rdng dBµV	Cable dB	Cable dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	1029.970M	155.9	+0.3	+0.2			+0.0	156.4	163.0	-6.6	None

Calculation for Mean Power in watts:

Total pulse on time = 0.0016ms
1) 0.0016ms/100ms=0.000016
2) 0.000016 x 400watts = 0.0064Watts
3) 0.0064W/1mW = 6.4mW
4) 10log (6.4) = 8.06dBm mean power
~~5)Half wave dipole = 2.15dBm~~
~~8.06dBm + 2.15dBm = 10.21dBm total mean power~~

VIDEO BANDWIDTH AND RESOLUTION BANDWIDTH SETTINGS:

Frequency Range	Signal AnalyzerVBW & RBW Setting
1029.970MHz	1MHz

PHOTOGRAPH OF TEST SETUP

2.1033(c)(14)/2.1049(i)/87.135 - OCCUPIED BANDWIDTH

Test Conditions: The EUT was connected directly to the signal analyzer. Computer timing is producing a pulse @ 10Hz, 0.8uS width pulse pair, and amplitude of 1.5V. Interrogation RF output is connected to Spectrum analyzer via 1 40dB directional coupler with 50 ohm load and 2 6dB Pads.

The emission designator is 6M00M1D.

TEST EQUIPMENT USED:

Equipment	Mfg.	Model	S/N	Date Cal.	Cal Due
Coax cable # 3 (2')	Andrew	FSL1-50A	N/A	05/10/2000	05/10/2001
Coax cable # 2 (2')	Andrew	FSL1-50A	N/A	05/10/2000	05/10/2001
Directional Coupler	Werlatone	C2630	3805	04/21/2000	04/21/2001
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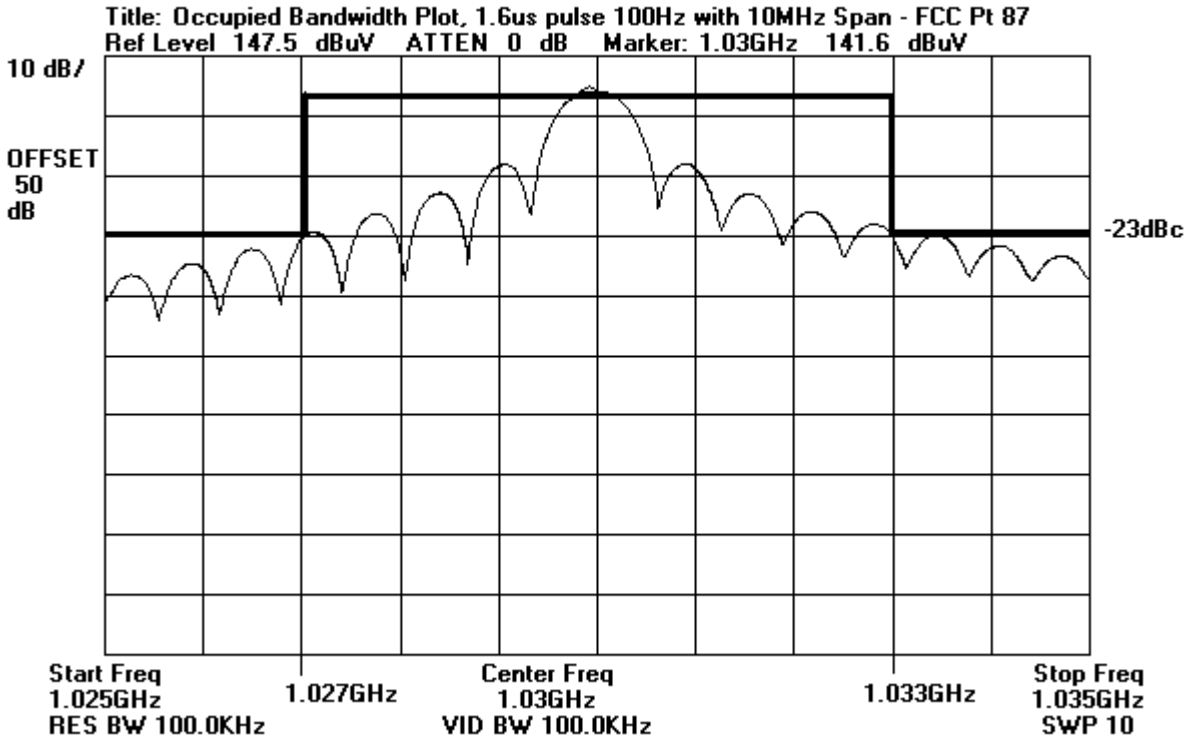
Title: Occupied Bandwidth Plot, 1.6us pulse 100Hz with 10MHz Span - FCC Pt 87
Ref Level 147.5 dBuV ATTEN 0 dB Marker: 1.03GHz 141.6 dBuV
10 dB/
OFFSET
50
dB
-23dBc
Start Freq
1.025GHz
RES BW 100.0KHz
1.027GHz
Center Freq
1.03GHz
VID BW 100.0KHz
1.033GHz
Stop Freq
1.035GHz
SWP 10

PHOTOGRAPH OF TEST SETUP