

Nemko Test Report: 0L0528RUS1

Applicant: L.R. Nelson Corp.
One Sprinkler Lane
Peoria, IL 61615-9544

**Equipment Under Test:
(E.U.T.)** EZ Pro Command

FCC ID: NYD8600

In Accordance With: **FCC Part 15, Subpart C, 15.247**
Frequency Hopping Transmitters

Tested By: Nemko Dallas Inc.
802 N. Kealy
Lewisville, Texas 75057-3136

Authorized By:

A handwritten signature in black ink, appearing to read "Tom Tidwell", is shown within a rectangular border.

Tom Tidwell, RF Group Manager

Date:

Total Number of Pages: 54

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Section 1. Summary of Test Results

Manufacturer: L.R. Nelson Corp.

Model No.: EZ Pro Command

Serial No.: None

General: **All measurements are traceable to national standards.**

These tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 15, Subpart C, Paragraph 15.247 for Frequency Hopping Spread Spectrum devices. Radiated tests were conducted in accordance with ANSI C63.4-1992. Radiated emissions are made on an open area test site. A description of the test facility is on file with the FCC.



New Submission



Production Unit



Class II Permissive Change



Pre-Production Unit



Family Listing

THIS TEST REPORT RELATES ONLY TO THE ITEM(S) TESTED.

THE FOLLOWING DEVIATIONS FROM, ADDITIONS TO, OR EXCLUSIONS FROM THE TEST
SPECIFICATIONS HAVE BEEN MADE.

See " Summary of Test Data".

**NVLAP LAB CODE: 100426-0**

TESTED BY: _____ DATE: _____

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Summary Of Test Data

NAME OF TEST	PARA. NO.	SPEC.	MEAS.	RESULT
Powerline Conducted Emissions	15.207(a)	48 dB μ V	N/A	N/A
Channel Separation	15.247(a)(1)	Greater of 25 kHz or 20 dB Bandwidth	85 kHz	Complies
Pseudorandom Hopping Algorithm	15.247(a)(1)	Customer Supplied	Customer Supplied	Customer Supplied
Time of Occupancy	15.247(a)(1)(ii)	$\leq$ 0.4 sec in 30 sec	0.144 mS in 30 sec	Complies
20 dB Occupied Bandwidth	15.247(a)(1)	$\leq$ 1 MHz		Complies
Peak Power Output	15.247(b)	4 Watts EIRP	88 mW	Complies
Spurious Emissions (Antenna Conducted)	15.247(c)	-20 dBc	N/A	N/A
Spurious Emissions (Radiated)	15.247(c)	Table 15.209(a)	See Data	Complies

Footnotes:

The device does not have a detachable antenna.

The device is battery powered.

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Section 2. Equipment Under Test (E.U.T.)

General Equipment Information

Frequency Band:

- ☐ 902 – 928 MHz
☒ 2400 – 2483.5 MHz

Number of Channels:

75

Channel Spacing:

85 kHz

User Frequency Adjustment:

Software controlled

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FCC PART 15,
SUBPART C
FREQUENCY HOPPING SPREAD SPECTRUM
TRANSMITTER

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Description of Modification for Modification Filing

Not Applicable

Family List Rational

Not Applicable

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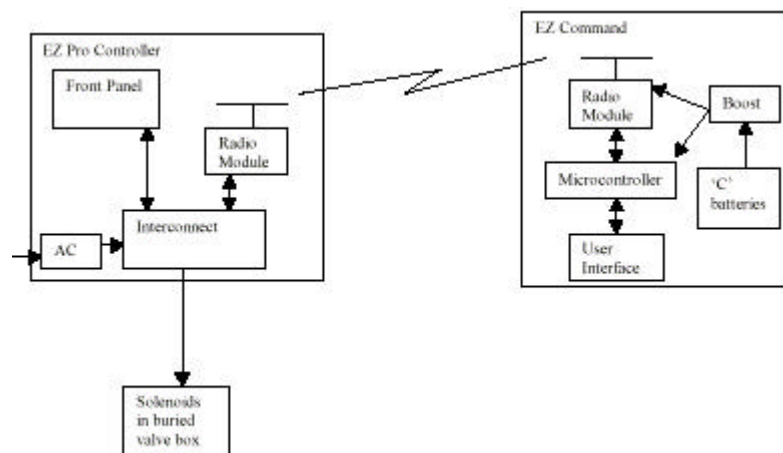
Theory of Operation

The EZ Pro is an AC Powered Irrigation Controller. The Primary input voltage is stepped down from line voltage (120VAC 60Hz Domestic, 230VAC 50Hz Export) to 24VAC (nominal), which then energizes the DC power supply and supplies power for the zones. The secondary is protected by a 1A Raychem® polyswitch (self-resetting current limiter). A microcontroller aboard the Front Panel Module controls a user interface which consists of 3 knobs and a 4 button keypad. The microcontroller keeps time using a 32kHz quartz oscillator and schedules when to turn on the appropriate zones according to what was programmed in on the user interface. The microcontroller also supplies limited diagnostic information as to the presence or absence of a fault on a zone and discontinues operation of a faulty zone. The outputs consist of 4 through 24 zones which can only be turned on one at a time, along with a secondary output (called the Pump/Master Valve) which may or may not be turned on based upon user programming.

86xxR models incorporate a radio module, which allows for extension of the user interface to a handheld device. The radio consists of a Zinc encased 2.4GHz Spread Spectrum Radio.

The addition of the **EZ Command** and radio modules to the system allows the user to have a mirror of the interface at the front panel to the user carrying the Command. The LCD display on the command mirrors the display on the controller, and the Command periodically sends the dial position and any key-presses.

System Diagram



Section 3. Powerline Conducted Emissions

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FCC PART 15,
SUBPART C
FREQUENCY HOPPING SPREAD SPECTRUM
TRANSMITTER

EQUIPMENT: EZ Pro Command

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NAME OF TEST: Powerline Conducted Emissions

PARA. NO.: 15.207(a)

TESTED BY:

DATE:

Test Results: Complies.

Measurement Data: See attached plots.

Equipment Used:

Measurement Uncertainty: +/- .7 dB

Temperature: °C

Relative Humidity: %

Not Applicable

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Section 4. Channel Separation

NAME OF TEST: Channel Separation	PARA. NO.: 15.247(a)(1)
TESTED BY: David Light	DATE:3/16/01

Test Results: Complies.

Measurement Data: See 20 dB BW plot
Measured 20 dB bandwidth: 81.8 kHz
Channel Separation: 85 kHz

Measurement Uncertainty: +/- .7 dB

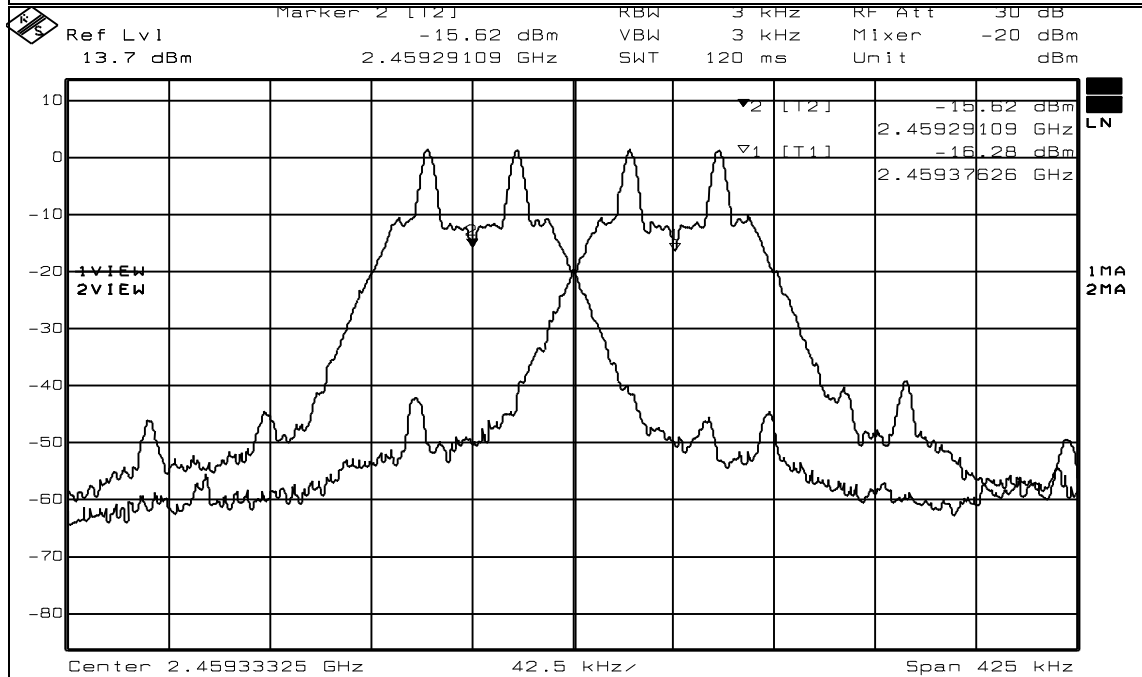
EQUIPMENT: EZ Pro Command

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Test Data - Channel Separation

Data Plot		CHANNEL SEPERATION	
Page 1 of 1		Complete <u>X</u> Preliminary _____	
Job No.:	0L0528R	Date:	3/16/01
Specification:	15.247	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	50
E.U.T.:	EZ Pro		
Configuration:	Transmit modulated data		
Sample Number:	S08		
Location:	Lab 1	RBW:	3 kHz
Detector Type:	Peak	VBW:	3 kHz
Test Equipment Used			
Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1043
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1:		Cable #4:	
Attenuator #2:		Mixer:	
Additional equipment used: #802 Near Field Probe Set			
Measurement Uncertainty:	+/-3.6 dB		
			
Title: CONDUCTED EMISSIONS - L2 Date: 16.MAR.2001 11:49:08			
Notes: HOP GROUP 1 - CHANNELS 39 & 40 CHANNEL SEPERATION = 85 kHz			

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Section 5. Pseudorandom Hopping Algorithm

NAME OF TEST: Pseudorandom Hopping Algorithm	PARA. NO.: 15.247(a)(1)
TESTED BY: Supplied by Customer	DATE:

Test Results: Complies.

Measurement Data: See sample hopping sequence.
Number of Hopping Frequencies: 75
Number of Hopping Patterns: 8

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Proposal for modification of the Nelson EZ-Pro radio system firmware to comply with pseudo-random hopping requirements of the FCC.

The Nelson EZ-Pro radio system is installed into two different types of host units: The Pro Controller (fixed, AC powered) and the EZ Programmer (mobile, battery powered). The radios are strapped by the connector wiring of the host unit into either a Master or Slave configuration. The Pro Controller contains the Master radio, and the EZ Programmer contains the Slave.

Prior to a connection attempt, a unique four-byte ID is loaded into each by the operator through the front panel user interface. This ID is used for radio addressing and connection authentication.

The Master radio is placed into a listen-only state in which it slowly hops through all available channels listening for a valid packet from a Slave radio. If one is received but does not match the stored ID, it is ignored and the radio remains in a listen-only state. The radio does not transmit during this time.

When a connection is desired, the operator activates the Slave radio, which causes it to start a transmit/receive sequence attempting to contact a Master radio. Each short transmit burst is followed immediately by a longer listen window, then the radio hops to the next channel and repeats this sequence.

When the Master radio hears a valid packet from the Slave, it validates the received ID against its own. If they match, the Master replies immediately to the Slave and is placed into "connected" mode. Upon receipt of a valid message from the Master, the Slave is now also in "connected" mode. The two radios hop in sync and continue to exchange data for the duration of the connection. This connection can be continuous, but in the interest of power savings, the Slave may terminate the connection at any time. In this case, the Master radio reverts to listen-only mode and slowly hops through all available channels listening for a valid packet from a Slave radio.

For the hopping scheme, we propose to implement a two-table lookup system. The end result is that the overall hopping pattern is much longer than the number of channels in the system.

One table, the "synthesizer table", contains the synthesizer register values for each of the 75 channels, numbered 0-74, and the other table, the "pr pattern table" contains a long list pseudo-randomly arranged pointers to entries in the synthesizer table. This table's length is a multiple of 75, guaranteeing that each channel is occupied an equal amount of time.

The Slave radio data header contains a pointer indicating the current index into the pr pattern table. The Master then uses this information to determine where it should hop next. The following diagram illustrates the new lookup scheme.

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Synthesizer Table

```
;Hop group 0 :  
    retlw 12h    ; LO= 2084  
;Hop group 1 :  
    retlw 16h    ; LO= 2085  
;Hop group 2 :  
    retlw 1ah    ; LO= 2086  
;Hop group 3:  
    retlw 1eh    ; LO= 2087  
;Hop group 4 :  
    retlw 12h    ; LO= 2084  
;Hop group 5 :  
    retlw 16h    ; LO= 2085  
;Hop group 6 :  
    retlw 1ah    ; LO= 2086  
;Hop group 7:  
    retlw 1eh    ; LO= 2087  
  
;TX channel 0 :  
    retlw 012h  
    retlw 08Ch  
    retlw 033h  ; Freq= 370.9775 MHz  
;TX channel 1 :  
    retlw 012h  
    retlw 08Dh  
    retlw 04Ah  ; Freq= 371.0625 MHz  
;TX channel 2 :  
    retlw 012h  
    retlw 08Eh  
    retlw 060h  ; Freq= 371.1475 MHz  
;TX channel 3 :  
    retlw 012h  
    retlw 08Fh  
    retlw 077h  ; Freq= 371.2325 MHz  
;TX channel 4 :  
    retlw 012h  
    retlw 090h  
    retlw 08Dh  ; Freq= 371.3175 MHz  
;TX channel 5 :
```

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```
retlw 012h
retlw 091h
retlw 0A4h ; Freq= 371.4025 MHz
;TX channel 6 :
retlw 012h
retlw 092h
retlw 0BAh ; Freq= 371.4875 MHz
;TX channel 7 :
retlw 012h
retlw 093h
retlw 0D1h ; Freq= 371.5725 MHz
;TX channel 8 :
retlw 012h
retlw 094h
retlw 0E7h ; Freq= 371.6575 MHz
;TX channel 9 :
retlw 012h
retlw 095h
retlw 0FEh ; Freq= 371.7425 MHz
;TX channel 10 :
retlw 012h
retlw 097h
retlw 014h ; Freq= 371.8275 MHz
;TX channel 11 :
retlw 012h
retlw 098h
retlw 02Bh ; Freq= 371.9125 MHz
;TX channel 12 :
retlw 012h
retlw 099h
retlw 041h ; Freq= 371.9975 MHz
;TX channel 13 :
retlw 012h
retlw 09Ah
retlw 058h ; Freq= 372.0825 MHz
;TX channel 14 :
retlw 012h
retlw 09Bh
retlw 06Eh ; Freq= 372.1675 MHz
;TX channel 15 :
retlw 012h
```

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```
    retlw    09Ch
    retlw    085h ; Freq= 372.2525 MHz
;TX channel 16 :
    retlw    012h
    retlw    09Dh
    retlw    09Ch ; Freq= 372.3375 MHz
;TX channel 17 :
    retlw    012h
    retlw    09Eh
    retlw    0B2h ; Freq= 372.4225 MHz
;TX channel 18 :
    retlw    012h
    retlw    09Fh
    retlw    0C8h ; Freq= 372.5075 MHz
;TX channel 19 :
    retlw    012h
    retlw    0A0h
    retlw    0DFh ; Freq= 372.5925 MHz
;TX channel 20 :
    retlw    012h
    retlw    0A1h
    retlw    0F6h ; Freq= 372.6775 MHz
;TX channel 21 :
    retlw    012h
    retlw    0A3h
    retlw    00Ch ; Freq= 372.7625 MHz
;TX channel 22 :
    retlw    012h
    retlw    0A4h
    retlw    023h ; Freq= 372.8475 MHz
;TX channel 23 :
    retlw    012h
    retlw    0A5h
    retlw    039h ; Freq= 372.9325 MHz
;TX channel 24 :
    retlw    012h
    retlw    0A6h
    retlw    050h ; Freq= 373.0175 MHz
;TX channel 25 :
    retlw    012h
    retlw    0A7h
```

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```
    retlw    066h ; Freq= 373.1025 MHz
;TX channel 26 :
    retlw    012h
    retlw    0A8h
    retlw    07Dh ; Freq= 373.1875 MHz
;TX channel 27 :
    retlw    012h
    retlw    0A9h
    retlw    093h ; Freq= 373.2725 MHz
;TX channel 28 :
    retlw    012h
    retlw    0AAh
    retlw    0AAh ; Freq= 373.3575 MHz
;TX channel 29 :
    retlw    012h
    retlw    0ABh
    retlw    0C0h ; Freq= 373.4425 MHz
;TX channel 30 :
    retlw    012h
    retlw    0ACh
    retlw    0D7h ; Freq= 373.5275 MHz
;TX channel 31 :
    retlw    012h
    retlw    0ADh
    retlw    0EEh ; Freq= 373.6125 MHz
;TX channel 32 :
    retlw    012h
    retlw    0AFh
    retlw    004h ; Freq= 373.6975 MHz
;TX channel 33 :
    retlw    012h
    retlw    0B0h
    retlw    01Ah ; Freq= 373.7825 MHz
;TX channel 34 :
    retlw    012h
    retlw    0B1h
    retlw    031h ; Freq= 373.8675 MHz
;TX channel 35 :
    retlw    012h
    retlw    0B2h
    retlw    048h ; Freq= 373.9525 MHz
```

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```
;TX channel 36 :  
    retlw    012h  
    retlw    0B3h  
    retlw    05Eh ; Freq= 374.0375 MHz  
;TX channel 37 :  
    retlw    012h  
    retlw    0B4h  
    retlw    075h ; Freq= 374.1225 MHz  
;TX channel 38 :  
    retlw    012h  
    retlw    0B5h  
    retlw    08Bh ; Freq= 374.2075 MHz  
;TX channel 39 :  
    retlw    012h  
    retlw    0B6h  
    retlw    0A2h ; Freq= 374.2925 MHz  
;TX channel 40 :  
    retlw    012h  
    retlw    0B7h  
    retlw    0B8h ; Freq= 374.3775 MHz  
;TX channel 41 :  
    retlw    012h  
    retlw    0B8h  
    retlw    0CFh ; Freq= 374.4625 MHz  
;TX channel 42 :  
    retlw    012h  
    retlw    0B9h  
    retlw    0E5h ; Freq= 374.5475 MHz  
;TX channel 43 :  
    retlw    012h  
    retlw    0BAh  
    retlw    0FCh ; Freq= 374.6325 MHz  
;TX channel 44 :  
    retlw    012h  
    retlw    0BCh  
    retlw    012h ; Freq= 374.7175 MHz  
;TX channel 45 :  
    retlw    012h  
    retlw    0E3h  
    retlw    03Dh ; Freq= 377.7775 MHz  
;TX channel 46 :
```

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```
retlw 012h
retlw 0E4h
retlw 054h ; Freq= 377.8625 MHz
;TX channel 47 :
retlw 012h
retlw 0E5h
retlw 06Ah ; Freq= 377.9475 MHz
;TX channel 48 :
retlw 012h
retlw 0E6h
retlw 081h ; Freq= 378.0325 MHz
;TX channel 49 :
retlw 012h
retlw 0E7h
retlw 097h ; Freq= 378.1175 MHz
;TX channel 50 :
retlw 012h
retlw 0E8h
retlw 0AEh ; Freq= 378.2025 MHz
;TX channel 51 :
retlw 012h
retlw 0E9h
retlw 0C4h ; Freq= 378.2875 MHz
;TX channel 52 :
retlw 012h
retlw 0EAh
retlw 0DBh ; Freq= 378.3725 MHz
;TX channel 53 :
retlw 012h
retlw 0EBh
retlw 0F2h ; Freq= 378.4575 MHz
;TX channel 54 :
retlw 012h
retlw 0EDh
retlw 008h ; Freq= 378.5425 MHz
;TX channel 55 :
retlw 012h
retlw 0EEh
retlw 01Eh ; Freq= 378.6275 MHz
;TX channel 56 :
retlw 012h
```

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```
    retlw    0EFh
    retlw    035h ; Freq= 378.7125 MHz
;TX channel 57 :
    retlw    012h
    retlw    0F0h
    retlw    04Ch ; Freq= 378.7975 MHz
;TX channel 58 :
    retlw    012h
    retlw    0F1h
    retlw    062h ; Freq= 378.8825 MHz
;TX channel 59 :
    retlw    012h
    retlw    0F2h
    retlw    079h ; Freq= 378.9675 MHz
;TX channel 60 :
    retlw    012h
    retlw    0F3h
    retlw    08Fh ; Freq= 379.0525 MHz
;TX channel 61 :
    retlw    012h
    retlw    0F4h
    retlw    0A6h ; Freq= 379.1375 MHz
;TX channel 62 :
    retlw    012h
    retlw    0F5h
    retlw    0BCh ; Freq= 379.2225 MHz
;TX channel 63 :
    retlw    012h
    retlw    0F6h
    retlw    0D3h ; Freq= 379.3075 MHz
;TX channel 64 :
    retlw    012h
    retlw    0F7h
    retlw    0E9h ; Freq= 379.3925 MHz
;TX channel 65 :
    retlw    012h
    retlw    0F9h
    retlw    000h ; Freq= 379.4775 MHz
;TX channel 66 :
    retlw    012h
    retlw    0FAh
```

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```
    retlw    016h ; Freq= 379.5625 MHz
;TX channel 67 :
    retlw    012h
    retlw    0FBh
    retlw    02Dh ; Freq= 379.6475 MHz
;TX channel 68 :
    retlw    012h
    retlw    0FCh
    retlw    044h ; Freq= 379.7325 MHz
;TX channel 69 :
    retlw    012h
    retlw    0FDh
    retlw    05Ah ; Freq= 379.8175 MHz
;TX channel 70 :
    retlw    012h
    retlw    0FEh
    retlw    070h ; Freq= 379.9025 MHz
;TX channel 71 :
    retlw    012h
    retlw    0FFh
    retlw    087h ; Freq= 379.9875 MHz
;TX channel 72 :
    retlw    013h
    retlw    000h
    retlw    09Eh ; Freq= 380.0725 MHz
;TX channel 73 :
    retlw    013h
    retlw    001h
    retlw    0B4h ; Freq= 380.1575 MHz
;TX channel 74 :
    retlw    013h
    retlw    002h
    retlw    0CBh ; Freq= 380.2425 MHz
```

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Pseudo-random Table

prtable

movlw	prtbl2<
movwf	pclath
movf	tall,w
addwf	2,1

prtbl2

;seed = 6826

retlw	25	;0
retlw	64	;1
retlw	29	;2
retlw	12	;3
retlw	45	;4
retlw	16	;5
retlw	5	;6
retlw	26	;7
retlw	59	;8
retlw	7	;9
retlw	0	;a
retlw	60	;b
retlw	2	;c
retlw	70	;d
retlw	9	;e
retlw	54	;f
retlw	46	;10
retlw	23	;11
retlw	65	;12
retlw	11	;13
retlw	44	;14
retlw	69	;15
retlw	48	;16
retlw	14	;17
retlw	47	;18
retlw	40	;19
retlw	57	;1a
retlw	51	;1b
retlw	15	;1c
retlw	21	;1d
retlw	53	;1e
retlw	20	;1f

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retlw	50	;20
retlw	63	;21
retlw	71	;22
retlw	66	;23
retlw	52	;24
retlw	13	;25
retlw	67	;26
retlw	24	;27
retlw	73	;28
retlw	19	;29
retlw	30	;2a
retlw	3 ;2b	
retlw	35	;2c
retlw	38	;2d
retlw	74	;2e
retlw	41	;2f
retlw	27	;30
retlw	1 ;31	
retlw	68	;32
retlw	72	;33
retlw	28	;34
retlw	36	;35
retlw	49	;36
retlw	18	;37
retlw	43	;38
retlw	31	;39
retlw	58	;3a
retlw	42	;3b
retlw	8 ;3c	
retlw	34	;3d
retlw	32	;3e
retlw	4 ;3f	
retlw	62	;40
retlw	6 ;41	
retlw	37	;42
retlw	17	;43
retlw	10	;44
retlw	55	;45
retlw	61	;46
retlw	56	;47
retlw	22	;48

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```

retlw 39 ;49
retlw 33 ;4a
;seed = 8866
retlw 39 ;4b
retlw 60 ;4c
retlw 32 ;4d
retlw 68 ;4e
retlw 26 ;4f
retlw 45 ;50
retlw 42 ;51
retlw 15 ;52
retlw 46 ;53
retlw 29 ;54
retlw 25 ;55
retlw 63 ;56
retlw 54 ;57
retlw 40 ;58
retlw 9 ;59
retlw 66 ;5a
retlw 50 ;5b
retlw 65 ;5c
retlw 20 ;5d
retlw 30 ;5e
retlw 11 ;5f
retlw 72 ;60
retlw 7 ;61
retlw 18 ;62
retlw 34 ;63
retlw 38 ;64
retlw 19 ;65
retlw 49 ;66
retlw 10 ;67
retlw 74 ;68
retlw 52 ;69
retlw 12 ;6a
retlw 53 ;6b
retlw 13 ;6c
retlw 44 ;6d
retlw 14 ;6e
retlw 43 ;6f
retlw 48 ;70

```

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

```

retlw    70      ;71
retlw    57      ;72
retlw    21      ;73
retlw    62      ;74
retlw    28      ;75
retlw    69      ;76
retlw    37      ;77
retlw    47      ;78
retlw    56      ;79
retlw    5 ;7a
retlw    73      ;7b
retlw    6 ;7c
retlw    41      ;7d
retlw    59      ;7e
retlw    67      ;7f
retlw    33      ;80
retlw    24      ;81
retlw    61      ;82
retlw    17      ;83
retlw    3 ;84
retlw    27      ;85
retlw    23      ;86
retlw    58      ;87
retlw    71      ;88
retlw    51      ;89
retlw    1 ;8a
retlw    4 ;8b
retlw    22      ;8c
retlw    36      ;8d
retlw    16      ;8e
retlw    35      ;8f
retlw    2 ;90
retlw    8 ;91
retlw    64      ;92
retlw    0 ;93
retlw    31      ;94
retlw    55      ;95
;seed = 4596
retlw    17      ;96
retlw    26      ;97
retlw    23      ;98

```

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

```

retlw    13      ;99
retlw    19      ;9a
retlw    16      ;9b
retlw    10      ;9c
retlw    51      ;9d
retlw    9;9e
retlw    56      ;9f
retlw    34      ;a0
retlw    2;a1
retlw    61      ;a2
retlw    64      ;a3
retlw    31      ;a4
retlw    46      ;a5
retlw    63      ;a6
retlw    41      ;a7
retlw    36      ;a8
retlw    68      ;a9
retlw    47      ;aa
retlw    32      ;ab
retlw    28      ;ac
retlw    54      ;ad
retlw    70      ;ae
retlw    52      ;af
retlw    48      ;b0
retlw    18      ;b1
retlw    20      ;b2
retlw    25      ;b3
retlw    71      ;b4
retlw    6;b5
retlw    24      ;b6
retlw    53      ;b7
retlw    58      ;b8
retlw    4;b9
retlw    74      ;ba
retlw    38      ;bb
retlw    69      ;bc
retlw    66      ;bd
retlw    15      ;be
retlw    44      ;bf
retlw    5;c0
retlw    1;c1

```

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

retlw	8 ;c2	
retlw	33	;c3
retlw	60	;c4
retlw	30	;c5
retlw	7 ;c6	
retlw	73	;c7
retlw	29	;c8
retlw	11	;c9
retlw	27	;ca
retlw	3 ;cb	
retlw	42	;cc
retlw	45	;cd
retlw	22	;ce
retlw	40	;cf
retlw	43	;d0
retlw	14	;d1
retlw	0 ;d2	
retlw	37	;d3
retlw	49	;d4
retlw	55	;d5
retlw	21	;d6
retlw	62	;d7
retlw	65	;d8
retlw	57	;d9
retlw	12	;da
retlw	72	;db
retlw	35	;dc
retlw	59	;dd
retlw	67	;de
retlw	39	;df
retlw	50	;e0

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Section 6. Time of Occupancy

NAME OF TEST: Time of Occupancy	PARA. NO.: 15.247(a)(1)
TESTED BY: David Light	DATE: 3/19/01

Test Results: Complies.

Measurement Data:

Maximum Dwell Time On Any Channel: 48 mS

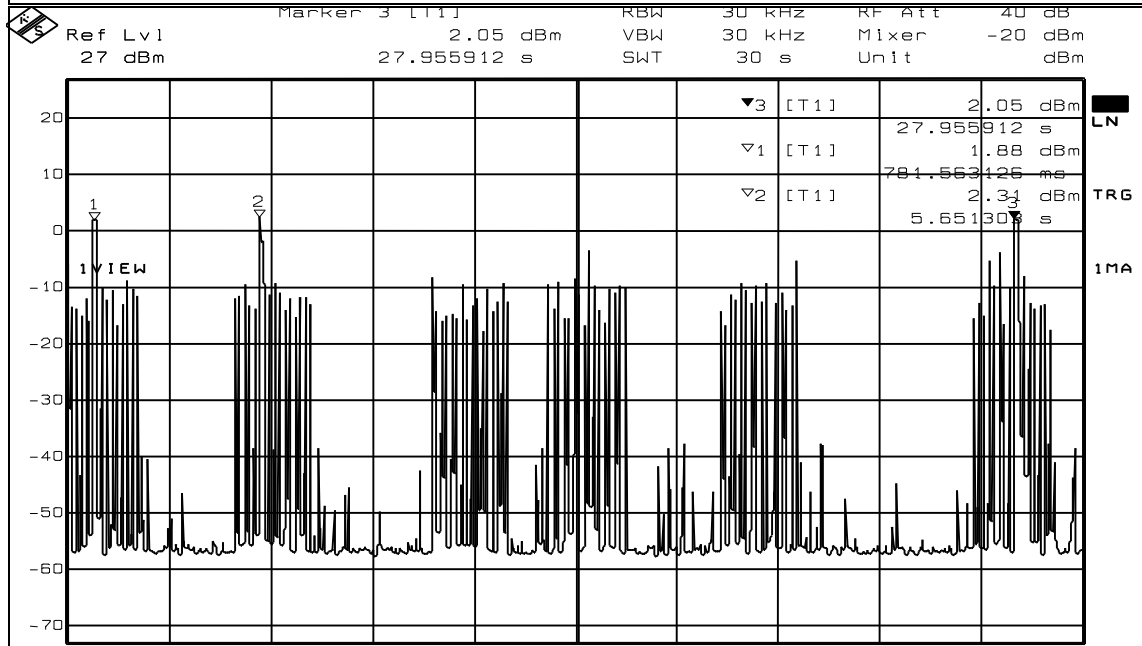
EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Test Data-Time of Occupancy

Data Plot		Time of Occupancy	
Page 1 of 2		Complete ☒ Preliminary ☐	
Job No.:	0L0528R	Date:	3/19/01
Specification:	15.247	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%):	50
E.U.T.:	EZ Pro Handset		
Configuration:	Transmit modulated data		
Sample Number:	S08		
Location:	Lab 1	RBW:	Refer to Plots
Detector Type:	Peak	VBW:	Refer to Plots
Test Equipment Used			
Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1043
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1:		Cable #4:	
Attenuator #2:		Mixer:	
Additional equipment used: #802 Near Field Probe Set			
Measurement Uncertainty:	+/-3.6 dB		
			
Center 2.459405354 GHz 3 s			
Title: CONDUCTED EMISSIONS - L2			
Date: 19.MAR.2001 13:36:36			
Notes: 3 PULSES IN 30 SECOND PERIOD			
48 mS / pulse			
144 mS total occupancy in 30 seconds			

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

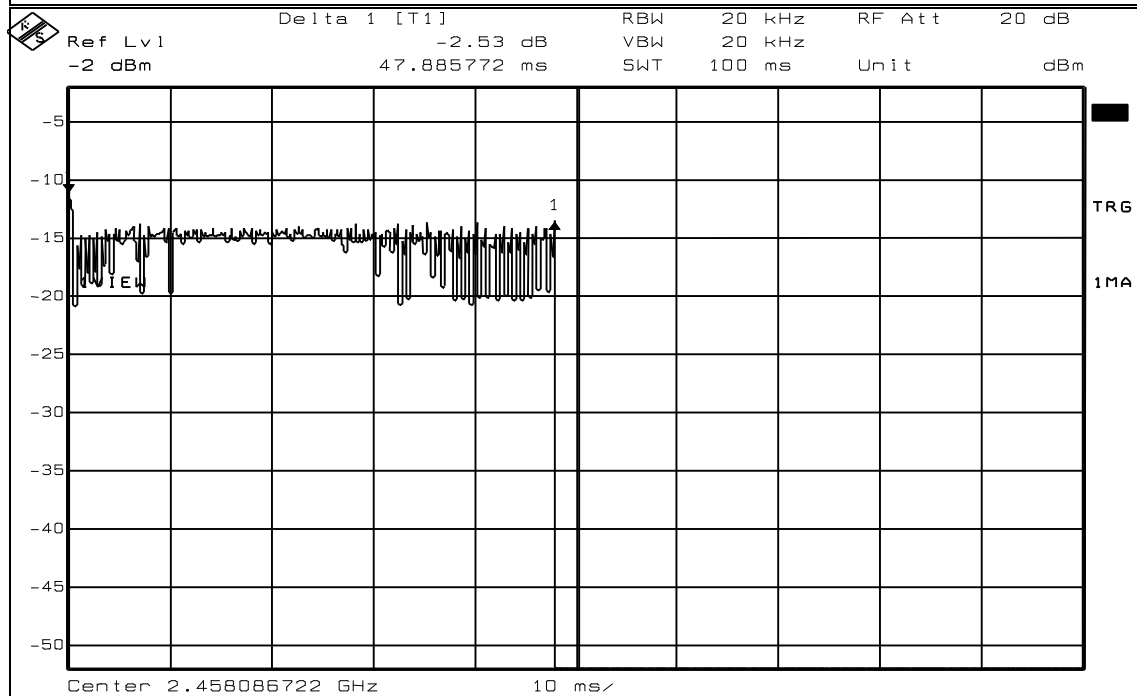
0L0528RUS1

Test Data-Time of Occupancy

Data Plot Time of Occupancy

Page 2 of 2

Job No.: 0L0528R Date: 3/19/01
Specification: 15.2 Temperature(°C): 22
Tested By: David Light Relative Humidity(%) 50
E.U.T.: EZ Pro Hand
Configuration: Transmit modulated data



Date: 13.MAR.2001 11:40:27

Notes: 1 PULSE = 48 Ms (Base)

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Section 7. Occupied Bandwidth

NAME OF TEST: Occupied Bandwidth	PARA. NO.: 15.247(a)(1)(i)
TESTED BY: David Light	DATE:3/16/01

Test Results: Complies.

Measurement Data: See attached plots.

Measurement Uncertainty: +/- 0.7 dB

—

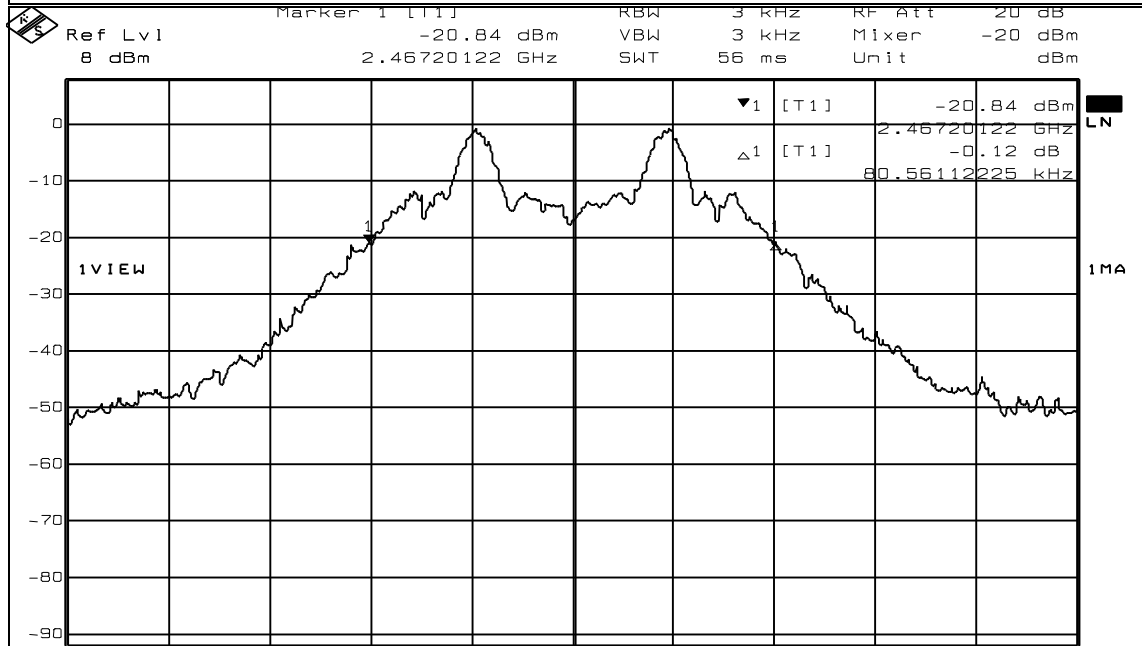
EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Test Data – Occupied Bandwidth

Data Plot		20 dB Bandwidth	
Page 1 of 3		Complete <u>X</u> Preliminary _____	
Job No.:	0L0528R	Date:	3/16/01
Specification:	15.247	Temperature(°C):	22
Tested By:	David Light	Relative Humidity(%)	50
E.U.T.:	EZ Pro		
Configuration:	Transmit modulated data		
Sample Number:	S08		
Location:	Lab 1	RBW:	3 kHz
Detector Type:	Peak	VBW:	3 kHz
Test Equipment Used			
Antenna:		Directional Coupler:	
Pre-Amp:		Cable #1:	1043
Filter:		Cable #2:	
Receiver:	1036	Cable #3:	
Attenuator #1:		Cable #4:	
Attenuator #2:		Mixer:	
Additional equipment used: #802 Near Field Probe Set			
Measurement Uncertainty:	+/-3.6 dB		
			
Title: CONDUCTED EMISSIONS - L2 Date: 16.MAR.2001 11:33:05			
Notes: <u>Highest channel</u> <u>HOP GROUP 7 - CHANNEL 74</u>			

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

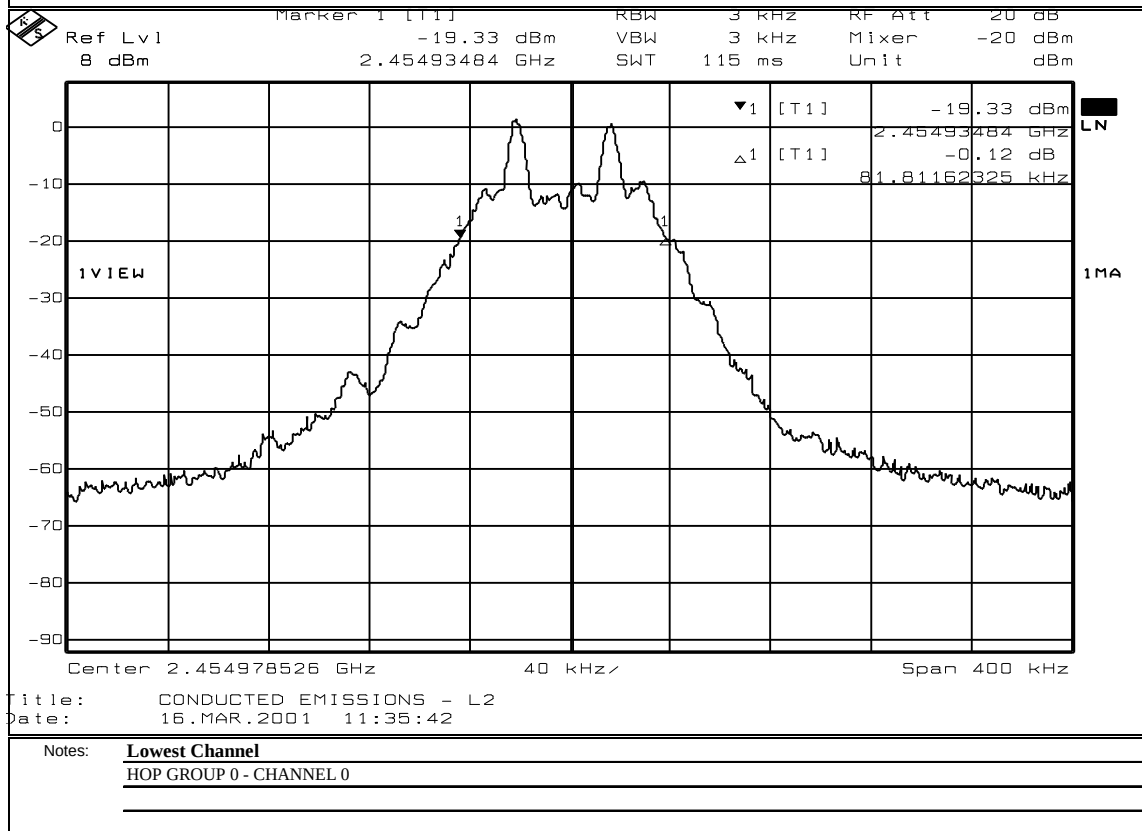
0L0528RUS1

Test Data – Occupied Bandwidth

Data Plot 3 Bandwidth

Page 2 of 3

Job No.: 0L0528R Date: 3/16/01
Specification: 15.2 Temperature(°C): 22
Tested By: David Light Relative Humidity(%) 50
E.U.T.: EZ Pro
Configuration: Transmit modulated data



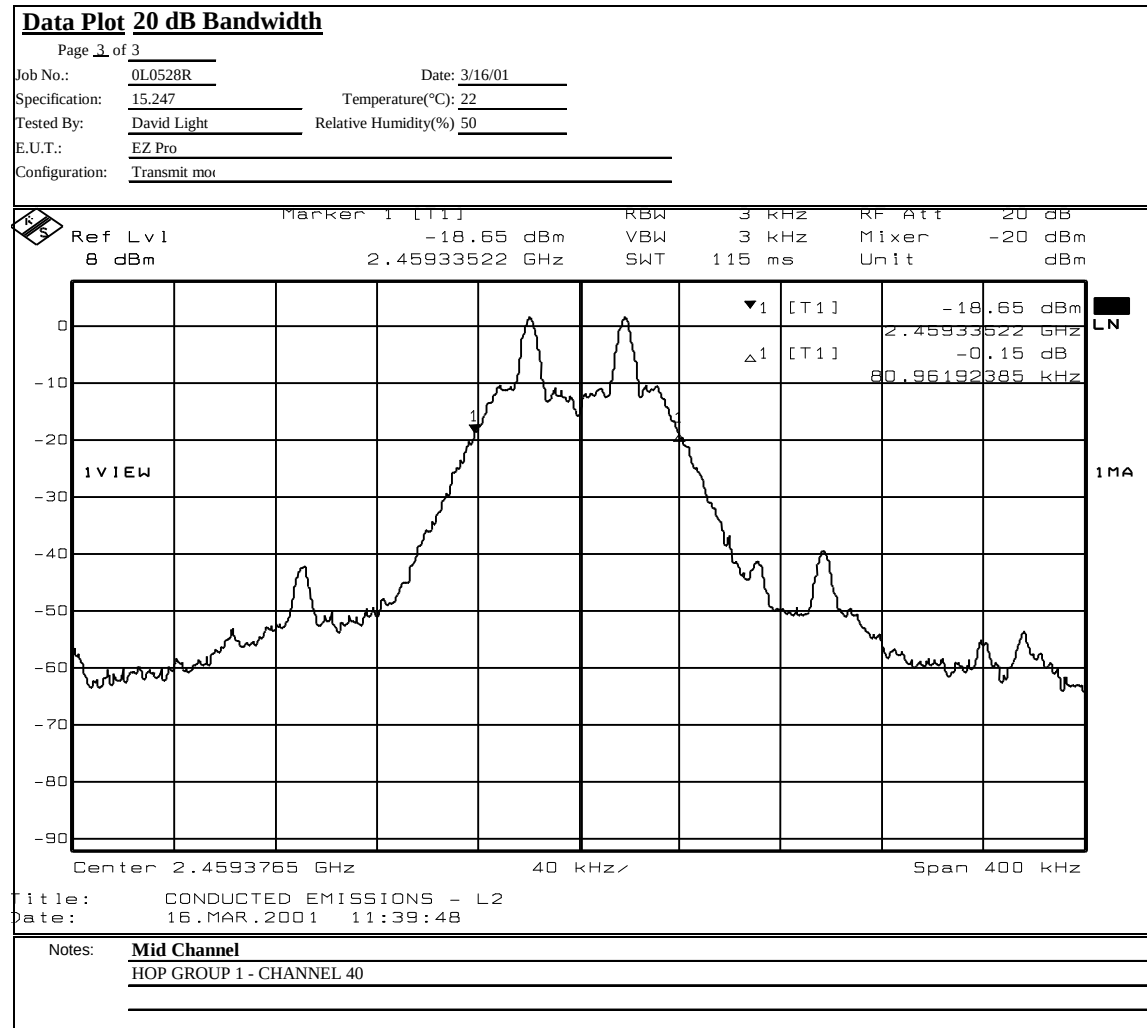
EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Test Data – Occupied Bandwidth



EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Section 8. Peak Power Output

NAME OF TEST: Peak Power Output

PARA. NO.: 15.247 (b)

TESTED BY: David Light

DATE: 3/14/01

Test Results: Complies.**Measurement Data:** See attached plots.Detachable antenna? ☐ Yes ☒ NoIf yes, state the type of non-standard connector
used:**Antennas:** ///

Model	Type	Manufacturer	Gain (dBi)	E.I.R.P. (dBm)

Peak power output at antenna port(dBm):

Note: Refer to measurement data in Section 10-Spurious Emissions (Radiated)**Measurement Uncertainty:** +/- .7 dB

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Section 9. Spurious Emissions (Antenna Conducted)

NAME OF TEST: Spurious Emissions (Antenna Conducted) PARA. NO.: 15.247(c)

TESTED BY:

DATE:

Test Results:

Measurement Data: See Table 9.1

Measurement Uncertainty: +/- 0.7 dB

Not Applicable

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Section 10. Spurious Emissions (Radiated)

NAME OF TEST: Spurious Emissions (Radiated)	PARA. NO.: 15.247(c)
TESTED BY: David Light	DATE:3/14/01

Test Results: Complies.

Measurement Data: See attached table.

Duty Cycle Calculation:

$20 \log(47.9\text{mS}/100\text{mS}) = \underline{-6.4 \text{ dB}}$ Duty Cycle Correction

Refer to plot for data

Measurement Uncertainty: +/- 0.7 dB

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Test Data - Radiated Emissions (Restricted Bands)

Radiated Emissions								
Page 1 of 1								
Job No.: 0L0528R		Date: 3/13/01						
Specification: 15.247		Temperature(°C): 22						
Tested By: David Light		Relative Humidity(%) 50						
E.U.T.: EZ PRO MOBILE								
Configuration: TX AT LO, MID & HI CHANNELS								
Sample Number:								
Location: AC 3		RBW: 1 MHz						
Detector Type: Peak		VBW: 3 kHz						
Test Equipment Used								
Antenna: 993		Directional Coupler: #N/A						
Pre-Amp: 1016		Cable #1: 1484						
Filter: 1482		Cable #2: 1485						
Receiver: 1036		Cable #3: #N/A						
Attenuator #1: #N/A		Cable #4: #N/A						
Attenuator #2: #N/A		Mixer: #N/A						
Measurement Uncertainty: +/- 1.6 dB								
Frequency (GHz)	Meter Reading (dBuV)	Antenna Factor (dB)	Cable Loss (dB)	Pre-Amp Gain (dB)	Corrected Reading (dBuV/m)	Limit (dBuV/m)	Delta (dB)	Comment
4.931	28.6	33.8	4.3	32.8	33.9	54	-20.1	Horizontal
7.397	25.8	35.9	5.3	33	34.0	54	-20.0	Horizontal - Noise Floor
12.328	27.2	40.2	7.3	36.7	38.0	54	-16.0	Horizontal - Noise Floor
4.931	32.1	33.8	4.3	32.8	37.4	54	-16.6	Vertical
7.397	38.2	35.9	5.3	33	46.4	54	-7.6	Vertical
12.328	28.3	40.2	7.3	36.7	39.1	54	-14.9	Vertical
4.91	28.1	33.8	4.3	32.8	33.4	54	-20.6	Horizontal
7.365	34.3	35.9	5.3	33	42.5	54	-11.5	Horizontal
12.274	27.2	40.2	7.3	36.7	38.0	54	-16.0	Horizontal - Noise Floor
4.91	32.7	33.8	4.3	32.8	38.0	54	-16.0	Vertical
7.365	36.4	35.9	5.3	33	44.6	54	-9.4	Vertical
12.274	28.3	40.2	7.3	36.7	39.1	54	-14.9	Vertical
4.916	34	33.8	4.3	32.8	39.3	54	-14.7	Vertical
7.374	37.8	35.9	5.3	33	46.0	54	-8.0	Vertical
12.29	28.5	40.2	7.3	36.7	39.3	54	-14.7	Vertical
4.916	27.8	33.8	4.3	32.8	33.1	54	-20.9	Horizontal
7.374	34.4	35.9	5.3	33	42.6	54	-11.4	Horizontal
12.29	27.2	40.2	7.3	36.7	38.0	54	-16.0	Horizontal - Noise Floor
Notes: -6 dB correction added to meter reading								

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Test Data - Radiated Emissions

Field Strength of Spurious Emissions										
Page <u>1</u> of <u>1</u>						Complete <u>X</u>				
Job No.: 0L0528R		Date: 3/12/01				Preliminary _____				
Specification: 15.247		Temperature(°C): 22								
Tested By: Tom Tidwell		Relative Humidity(%) 50								
E.U.T.: MOBILE UNIT										
Configuration: TX FULL POWER - LYING ON BACK (WORST CASE)										
Sample No: _____										
Location: AC 3		RBW: 1 MHz		Measurement						
Detector Type: Peak		VBW: 30 kHz		Distance: 3 m						
Test Equipment Used										
Antenna: 993		Directional Coupler: _____								
Pre-Amp: _____		Cable #1: 1484								
Filter: _____		Cable #2: 1485								
Receiver: 1036		Cable #3: _____								
Attenuator #1: _____		Cable #4: _____								
Attenuator #2: _____		Mixer: _____								
Additional equipment used: _____										
Measurement Uncertainty: +/-3.6 dB										
Frequency (MHz)	Meter Reading (dBm)	Correction Factor (dB)		Pre-Amp Gain (dB)	Substitution Antenna Gain (dBd)	Limit (dBm)	ERP (dBm)	ERP (mW)	Polarity	Comments
2455	-35.4	34.1		0	6.9	36.0	5.5	3.548134	V	CARRIER - LO CH.
9819.6	-50.0	40.4		36.3	10.5	-15.6	-35.4	0.000291	V	NOISE FLOOR
14729.4	-47.2	48.1		34.1	10.1	-15.6	-23.1	0.004909	V	NOISE FLOOR
17184.3	-50.2	47.0		34.5	11.7	-15.6	-25.9	0.002547	V	NOISE FLOOR
2454.9	-24.3	36.7		0	6.9	36.0	19.2	83.752928	H	CARRIER - LO CH.
9819.6	-48.1	42.6		36.3	10.5	-15.6	-31.3	0.000745	H	
14729.4	-47.2	48.7		34.1	10.1	-15.6	-22.5	0.005610	H	NOISE FLOOR
17184.3	-50.2	50.5		34.5	11.7	-15.6	-22.5	0.005662	H	NOISE FLOOR
2458.1	-24.4	36.7		0	6.9	36.0	19.1	81.846479	H	CARRIER - MID CH.
9832.4	-50.0	42.6		36.3	10.5	-15.6	-33.2	0.000481	H	NOISE FLOOR
14748.5	-47.0	48.7		34.1	10.1	-15.6	-22.3	0.005875	H	NOISE FLOOR
17206.6	-50.0	50.5		34.5	11.7	-15.6	-22.3	0.005929	H	NOISE FLOOR
2458.1	-35.7	34.1		0	6.9	36.0	5.2	3.311311	V	CARRIER - MID CH.
9832.4	-50.0	40.4		36.3	10.5	-15.6	-35.4	0.000291	V	NOISE FLOOR
14748.5	-47.0	48.1		34.1	10.1	-15.6	-22.9	0.005140	V	NOISE FLOOR
17206.6	-50.0	47.0		34.5	11.7	-15.6	-25.7	0.002667	V	NOISE FLOOR
2465.55	-36.5	34.1		0	6.9	36.0	4.4	2.754229	V	CARRIER - HI CH.
9862.2	-50.0	40.4		36.3	10.5	-15.6	-35.4	0.000291	V	NOISE FLOOR
14793.3	-47.0	48.1		34.1	10.1	-15.6	-22.9	0.005140	V	NOISE FLOOR
17258.9	-50.0	47.0		34.5	11.7	-15.6	-25.7	0.002667	V	NOISE FLOOR
2465.55	-24.1	36.7		0	6.9	36.0	19.4	87.700082	H	CARRIER - HI CH.
9862.2	-50.0	42.6		36.3	10.5	-15.6	-33.2	0.000481	H	NOISE FLOOR
14793.3	-47.0	48.7		34.1	10.1	-15.6	-22.3	0.005875	H	NOISE FLOOR
17258.9	-50.0	50.5		34.5	11.7	-15.6	-22.3	0.005929	H	NOISE FLOOR
Notes: SCANNED HARMONICS OF CARRIER TO THE 10TH HARMONIC EXCLUDING THOSE FREQUENCIES THAT FALL IN THE RESTRICTED BANDS OF OPERATION PER 15.205 (Limit is -20 dBc from lowest carrier measured)										

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Test Data – Duty Cycle

Data Plot DUTY CYCLE

Page 1 of 1

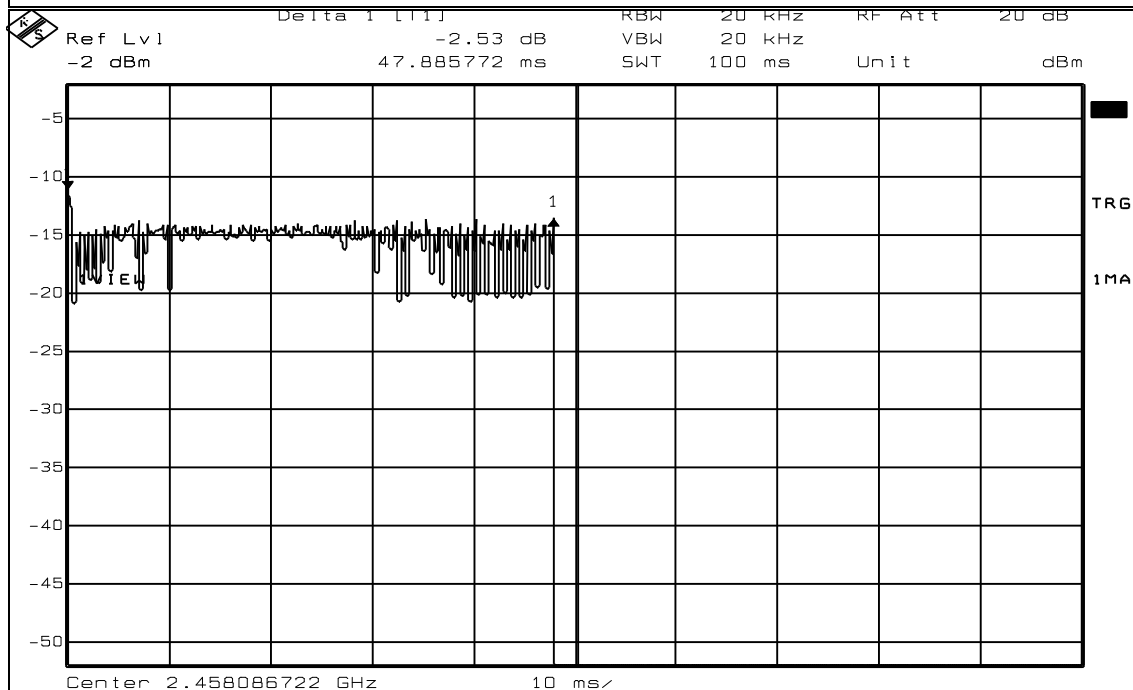
Complete X

Preliminary _____

Job No.: 0L0528R Date: 3/13/01
Specification: 15.247 Temperature(°C): 22
Tested By: David Light Relative Humidity(%) 50
E.U.T.: EZ PRO - MOBILE
Configuration: HOPPING
Sample Number: _____
Location: Lab 2 RBW: Refer to plots
Detector Type: Peak VBW: Refer to plots

Test Equipment Used

Antenna: _____ Directional Coupler: _____
Pre-Amp: _____ Cable #1: 1043
Filter: _____ Cable #2: _____
Receiver: 1036 Cable #3: _____
Attenuator #1: _____ Cable #4: _____
Attenuator #2: _____ Mixer: _____
Additional equipment used: NEAR FIELD PROBE #802
Measurement Uncertainty: +/-3.6 dB



Date: 13.MAR.2001 11:40:27

Notes: $20 \log(47.9\text{mS}/100\text{mS}) = -6.4 \text{ dB Duty Cycle Correction}$

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Radiated Photographs (Worst Case Configuration)

FRONT VIEW



REAR VIEW



EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Section 11. Test Equipment List

ASSET	Description	Manufacturer Model Number	Serial Number	Cal. Date	Cal. Due
993	Horn antenna	A.H. Systems SAS-200/571	XXX	07/16/99	07/16/01
1036	SPECTRUM ANALYZER	ROHDE & SCHWARZ FSEK30	830844/006	06/14/99	06/14/01
1043	Flexible cable 1m	Astrolab Inc. 32027-2-29094K-1M	0	01/29/01	01/29/02
802	Near Field Probe Set	EMCO 7405	103	CNR	CNR
1482	Band Pass Filter	K & L 11SH10-4000/T12000-0/0	2	Cal B4 Use	N/A
1016	AMPLIFIER	HEWLETT PACKARD 8449A	2749A00159	05/24/00	05/24/01
1484	Cable 2.0-18.0 Ghz	Storm PR90-010-072	N/A	05/25/00	05/25/01
1485	Cable 2.0-18.0 Ghz	Storm PR90-010-216	N/A	05/25/00	05/25/01

Nemko Dallas

FCC PART 15,
SUBPART C
FREQUENCY HOPPING SPREAD SPECTRUM
TRANSMITTER

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

ANNEX A - TEST DETAILS

Nemko Dallas

FCC PART 15,
SUBPART C
FREQUENCY HOPPING SPREAD SPECTRUM
TRANSMITTER

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

NAME OF TEST: Powerline Conducted Emissions

PARA. NO.: 15.207(a)

Minimum Standard:

The R.F. that is conducted back onto the AC power line on any frequency within the band 0.45 to 30 MHz shall not exceed 250 μ V (48 dB μ V) across 50 ohms.

Nemko Dallas

FCC PART 15,
SUBPART C
FREQUENCY HOPPING SPREAD SPECTRUM
TRANSMITTER

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

NAME OF TEST: Channel Separation

PARA. NO.: 15.247(a)(1)

Minimum Standard:

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

NAME OF TEST: Pseudorandom Hopping Algorithm

PARA. NO.: 15.247(a)(1)

Minimum Standard:

The system shall hop to channel frequencies that are selected from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their transmitters and shall shift frequencies in synchronization with the transmitted signals.

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

NAME OF TEST: Time of Occupancy

PARA. NO.: 15.247(a)(1)(ii)

Minimum Standard:

Frequency Band (MHz)	20 dB Bandwidth	No. of Hopping Channels	Average Time of Occupancy
902 - 928	<250 kHz	50	=<0.4 sec. in 20 sec.
902 – 928	=>250 kHz	25	=<0.4 sec. in 10 sec.
2400 – 2483.5	-----	75	=<0.4 sec. in 30 sec.
5725 – 5850	-----	75	=<0.4 sec. in 30 sec.

Method Of Measurement:

The spectrum analyzer is set as follows:

RBW: 1 MHz

VBW: = RBW

Span: 0 Hz

LOG dB/div.: 10 dB

Sweep: Sufficient to see one hop time sequence.

Trigger: Video

The occupancy time of one hop is measured as above. The average time of occupancy is calculated over the appropriate period of time from above table (10, 20, or 30 seconds).

Avg. time of occupancy = (period from table/duration of one hop)/no. of channels multiplied by the duration of one hop.

For instance:

If a 2.4 GHz system has a measured hop duration time of 1 msec. and uses 75 channels, then the average time of occupancy would be:

$(30 \text{ sec.} / .001 \text{ sec.}) / 75 \text{ chan.} = 400 \times 1 \text{ msec.} = 400 \text{ msec. or } 0.4 \text{ sec. in } 30 \text{ sec.}$

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

NAME OF TEST: Occupied Bandwidth

PARA. NO.: 15.247(a)(2)

Minimum Standard:

Frequency Band (MHz)	Maximum 20 dB Bandwidth
902 - 928	500 kHz
2400 – 2483.5	1 MHz
5725 – 5850	1 MHz

Method Of Measurement:

The spectrum analyzer is set as follows:

RBW: At least 1% of span/div.

VBW: >RBW

Span: Sufficient to display 20 dB bandwidth

LOG dB/div.: 10 dB

Sweep: Auto

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

NAME OF TEST: Peak Power Output

PARA. NO.: 15.247(b)

Minimum Standard:

Frequency Band (MHz)	No. of Hopping Channels	Maximum Peak Power Output at Antenna Port
902 - 928	at least 50	1 watt
902 – 928	25 - 49	0.25 watts
2400 – 2483.5	75	1 watt
5725 – 5850	75	1 watt

If transmitting antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Systems operating in the 2400-2483.5 MHz band that are used exclusively for fixed, point to point operation may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceed 6 dBi.

Systems operating in the 5725 – 5850 MHz band that are used exclusively for fixed, point-to-point operation may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter peak output power.

Direct Measurement Method For Detachable Antennas:

If the antenna is detachable, a peak power meter is used to measure the power output with the transmitter operating into a 50 ohm load. The dBi gain of the antenna(s) employed shall be reported.

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Calculation Of EIRP For Integral Antenna:

If the antenna is not detachable from the circuit then the Peak Power Output is derived from the peak radiated field strength of the fundamental emission by using the plane wave relation $GP/4\pi R^2 = E^2/120\pi$ and proceeding as follows:

$$P = \frac{E^2 R^2}{30G} = \frac{E^2 3^2}{30G}$$

where,

P = the equivalent isotropic radiated power in watts

E = the maximum measured field strength in V/m

R = the measurement range (3 meters)

G = the numeric gain of the transmit antenna in relation to an isotropic radiator

The RBW of the spectrum analyzer shall be set to a value greater than the measured 20 dB occupied bandwidth of the E.U.T.

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

NAME OF TEST: Spurious Emissions at Antenna Terminals PARA. NO.: 15.247(c)

Minimum Standard:

In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits. Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength (mV/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

THE SPECTRUM WAS SEARCHED TO THE 10th HARMONIC**Method Of Measurement:**30 MHz - 10th harmonic plot

RBW: 100 kHz

VBW: 300 kHz

Sweep: Auto

Display line: -20 dBc

Lower Band Edge

RBW: At least 1% of span/div.

VBW: >RBW

Span: As necessary to display any spurious at band edge.

Sweep: Auto

Center Frequency: 902 MHz, 2400 MHz, or 5725 MHz

Marker: Peak of fundamental emission

Marker Δ: Peak of highest spurious level below center frequency.

Upper Band Edge

RBW: At least 1% of span/div.

VBW: >RBW

Span: As necessary to display any spurious at band edge.

Sweep: Auto

Center Frequency: 928 MHz, 2483.5 MHz, or 5850 MHz

Marker: Peak of fundamental emission

Marker Δ: Peak of highest spurious level above center frequency.

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

NAME OF TEST: Radiated Spurious Emissions

PARA. NO.: 15.247(c)

Minimum Standard: In any 100kHz bandwidth outside the frequency band in which the transmitter is operating, emissions shall be at least 20 dB below the fundamental emission or shall not exceed the following field strength limits:

Emissions falling in the restricted bands of 15.205 shall not exceed the following field strength limits:

Frequency (MHz)	Field Strength (mV/m @ 3m)	Field Strength (dB @ 3m)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

THE SPECTRUM WAS SEARCHED TO THE 10th HARMONIC

15.205 Restricted Bands

MHz	MHz	MHz	GHz
0.09-0.11	16.42-16.423	399.9-410	4.5-5.25
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.125-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2655-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41	1718		

Number of channels tested:

Tuning range	Number of channels tested	Channel location in band
1 MHz or less	1	middle
1 to 10 MHz	2	top and bottom
more than 10 MHz	3	top, middle, bottom

Nemko Dallas

FCC PART 15,
SUBPART C
FREQUENCY HOPPING SPREAD SPECTRUM
TRANSMITTER

EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

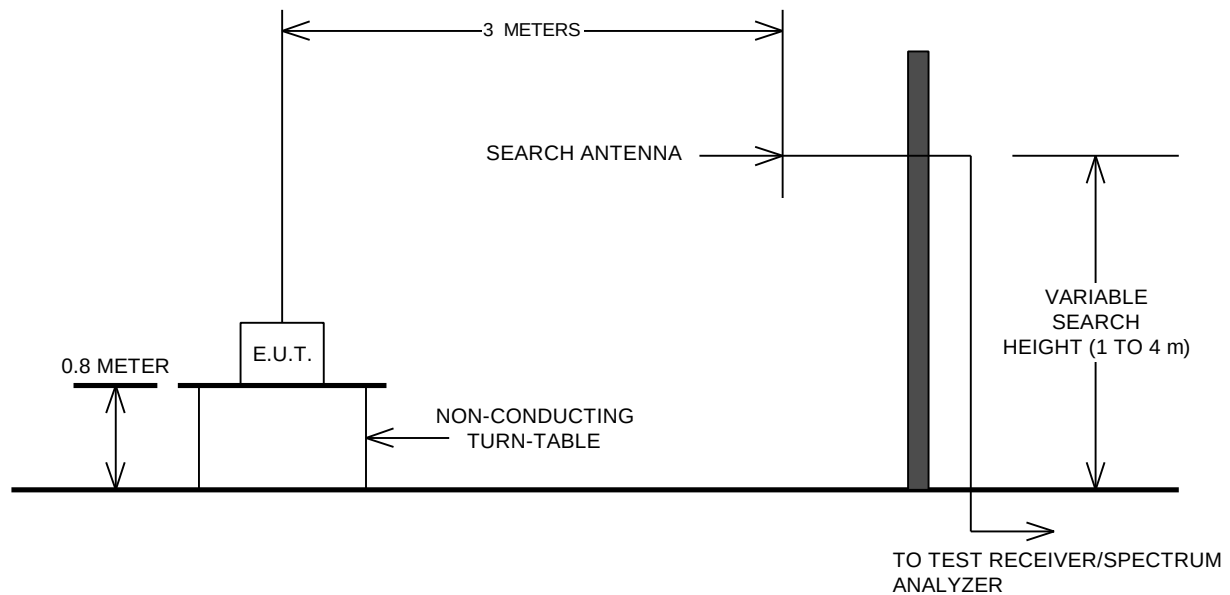
0L0528RUS1

ANNEX B - TEST DIAGRAMS

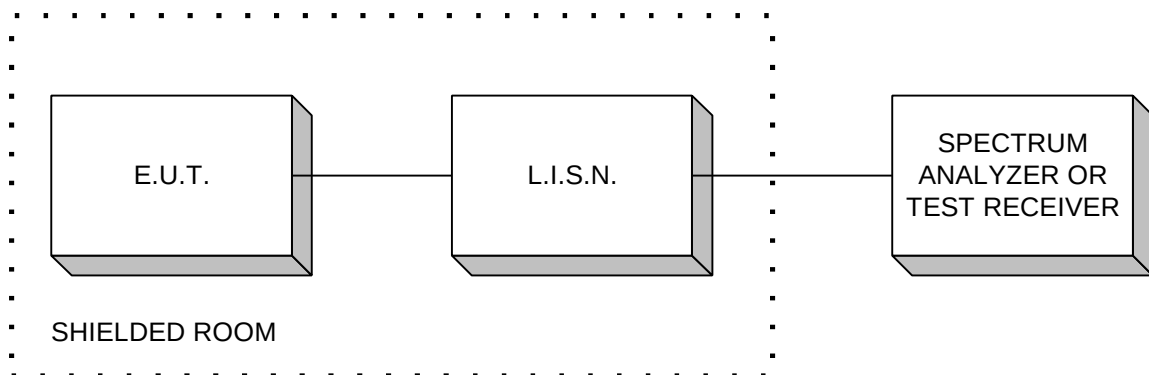
EQUIPMENT: EZ Pro Command
FCC ID:

PROJECT NO.: 0L0528RUS1

Test Site For Radiated Emissions



Conducted Emissions



EQUIPMENT: EZ Pro Command

FCC ID:

PROJECT NO.:

0L0528RUS1

Peak Power At Antenna Terminals

