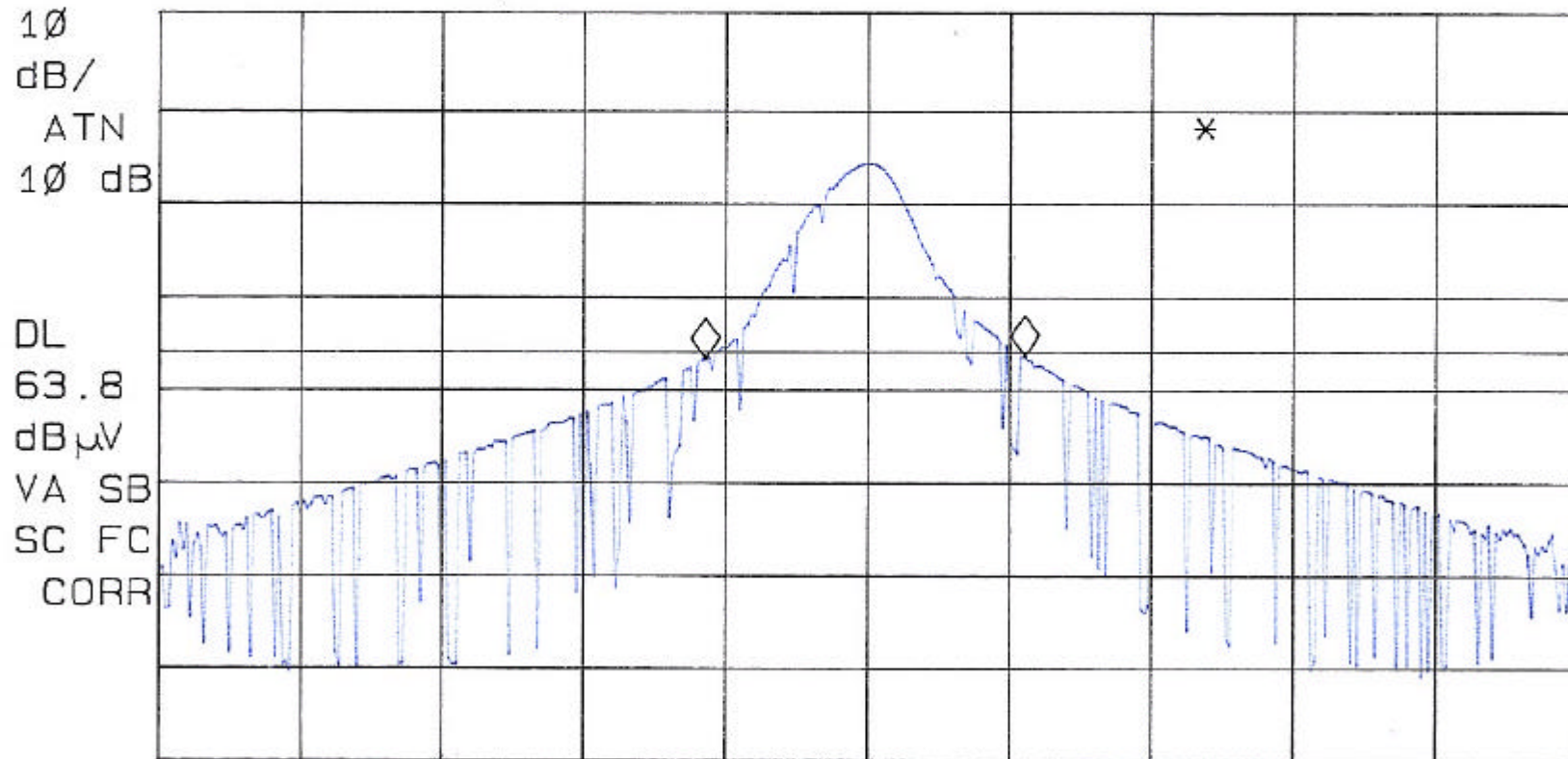


hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 450 kHz
.32 dB

LOG REF 100.0 dB μ V



CENTER 434.005 MHz
IF BW 120 kHz

AVG BW 300 kHz

SPAN 2.000 MHz
SWP 20.0 msec

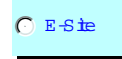
C&C Laboratory CO., LTD.

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

No. 199 Chung Sheng Road
Hsin Tien City, Taipei, Taiwan, R.O.C.
PHONE: 02-2217-0894 FAX: 02-2217-1254

Project #: 02E0635
Report #: 0635E1
Date & Time: 2002/11/19
Test Engr: DAVID HUNG

Company: DIRECTED ELECTRONICS INC.
EUT Description: DEI477T (433.92 MHz / CAR ALARM TRANSCIVER)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: TRANSMITTER MODE



$$M\% = ((t1+t2+t3+...)/T) * 100\% = 45.7 \%$$

$$\begin{aligned} \text{Av Reading} &= \text{Pk Reading} + 20 * \log(M\%) \\ 20 * \log(M\%) &= -6.8017 \end{aligned}$$

	Freq. (MHz)	Pk Rdg (dBuV)	Av Rdg (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)
	Button #1:											
X	434.00	78.90	72.10	17.43	3.21	26.33	66.41	80.83	-14.42	3mV	90	1.10
	868.00	52.00	45.20	24.81	4.75	26.31	48.45	60.83	-12.38	3mV	90	1.20
Y	433.99	80.50	73.70	17.43	3.21	26.33	68.01	80.83	-12.82	3mV	0	1.00
	868.00	52.30	45.50	24.81	4.75	26.31	48.75	60.83	-12.08	3mV	0	1.80
Z	434.00	90.30	83.50	17.43	3.21	26.33	77.81	80.83	-3.02	3mV	180	1.00
	867.99	48.60	41.80	24.81	4.75	26.31	45.05	60.83	-15.78	3mV	180	1.40
X	433.99	89.60	82.80	17.43	3.21	26.33	77.11	80.83	-3.72	3mH	0	1.00
	867.99	48.40	41.60	24.81	4.75	26.31	44.85	60.83	-15.98	3mH	0	2.00
Y	434.00	90.90	84.10	17.43	3.21	26.33	78.41	80.83	-2.42	3mH	90	1.00
	868.00	48.60	41.80	24.81	4.75	26.31	45.05	60.83	-15.78	3mH	90	1.20
Z	433.99	91.40	84.60	17.43	3.21	26.33	78.91	80.83	-1.92	3mH	270	1.10
	868.01	48.70	41.90	24.81	4.75	26.31	45.15	60.83	-15.68	3mH	270	1.30

Peak: RBW= 120KHz
VBW= 300KHz
A(Average): PkReading - 6.8017dB

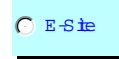
Total Data #12

C&C Laboratory CO., LTD.

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 UL, CSA, TUV, BSMI, DHHS, NVLAP
 No. 199 Chung Sheng Road
 Hsin Tien City, Taipei, Taiwan, R.O.C.
 PHONE: 02-2217-0894 FAX: 02-2217-1254

Project #: 02E0635
Report #: 0635E2
Date & Time: 2002/11/19
Test Engr: DAVID HUNG

Company: DIRECTED ELECTRONICS INC.
EUT Description: DEI477T (433.92 MHz / CAR ALARM TRANSCIEVER)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: TRANSMITTER MODE



$$M\% = ((t1+t2+t3+...)/T) * 100\% = 45.7 \%$$

$$Av \text{ Reading} = Pk \text{ Reading} + 20 * \log(M\%)$$

$$20 * \log(M\%) = -6.8017$$

	Freq. (MHz)	Pk Rdg (dBuV)	Av Rdg (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)
	Button #2:											
X	434.00	76.40	69.60	17.43	3.21	26.33	63.91	80.83	-16.92	3mV	270	1.00
	868.01	40.90	34.10	24.81	4.75	26.31	37.35	60.83	-23.48	3mV	270	1.30
Y	434.00	78.90	72.10	17.43	3.21	26.33	66.41	80.83	-14.42	3mV	0	1.00
	868.01	50.40	43.60	24.81	4.75	26.31	46.85	60.83	-13.98	3mV	0	1.30
Z	434.00	87.20	80.40	17.43	3.21	26.33	74.71	80.83	-6.12	3mV	90	1.00
	868.02	44.70	37.90	24.81	4.75	26.31	41.15	60.83	-19.68	3mV	90	1.40
X	434.00	86.40	79.60	17.43	3.21	26.33	73.91	80.83	-6.92	3mH	90	1.00
	868.01	45.40	38.60	24.81	4.75	26.31	41.85	60.83	-18.98	3mH	90	1.20
Y	434.00	88.80	82.00	17.43	3.21	26.33	76.31	80.83	-4.52	3mH	0	1.10
	868.01	44.20	37.40	24.81	4.75	26.31	40.65	60.83	-20.18	3mH	0	1.10
Z	434.00	72.30	65.50	17.43	3.21	26.33	59.81	80.83	-21.02	3mH	270	1.10
	867.99	42.50	35.70	24.81	4.75	26.31	38.95	60.83	-21.88	3mH	270	1.30

Peak: RBW= 120KHz
 VBW= 300KHz
 A(Average): PkReading - 6.8017dB

Total Data #12

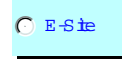
C&C Laboratory CO., LTD.

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

No. 199 Chung Sheng Road
Hsin Tien City, Taipei, Taiwan, R.O.C.
PHONE: 02-2217-0894 FAX: 02-2217-1254

Project #: 02E0635
Report #: 0635E3
Date & Time: 2002/11/19
Test Engr: DAVID HUNG

Company: DIRECTED ELECTRONICS INC.
EUT Description: DEI477T (433.92 MHz / CAR ALARM TRANSCIEVER)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: TRANSMITTER MODE



$$M\% = ((t1+t2+t3+...)/T) * 100\% = 45.7 \%$$

$$\begin{aligned} \text{Av Reading} &= \text{Pk Reading} + 20 * \log(M\%) \\ 20 * \log(M\%) &= -6.8017 \end{aligned}$$

	Freq. (MHz)	Pk Rdg (dBuV)	Av Rdg (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)
	Button #3:											
X	434.00	75.80	69.00	17.43	3.21	26.33	63.31	80.83	-17.52	3mV	90	1.00
	868.01	50.40	43.60	24.81	4.75	26.31	46.85	60.83	-13.98	3mV	90	1.20
Y	434.00	77.80	71.00	17.43	3.21	26.33	65.31	80.83	-15.52	3mV	180	1.00
	868.00	48.30	41.50	24.81	4.75	26.31	44.75	60.83	-16.08	3mV	180	1.40
Z	434.01	87.90	81.10	17.43	3.21	26.33	75.41	80.83	-5.42	3mV	90	1.00
	868.01	47.10	40.30	24.81	4.75	26.31	43.55	60.83	-17.28	3mV	90	1.40
X	434.00	75.80	69.00	17.43	3.21	26.33	63.31	80.83	-17.52	3mH	90	1.00
	868.00	43.20	36.40	24.81	4.75	26.31	39.65	60.83	-21.18	3mH	90	1.20
Y	433.96	77.40	70.60	17.43	3.21	26.33	64.91	80.83	-15.92	3mH	0	1.00
	868.00	47.60	40.80	24.81	4.75	26.31	44.05	60.83	-16.78	3mH	0	1.60
Z	433.99	88.30	81.50	17.43	3.21	26.33	75.81	80.83	-5.02	3mH	270	1.10
	868.02	46.20	39.40	24.81	4.75	26.31	42.65	60.83	-18.18	3mH	270	1.30

Peak: RBW= 120KHz
VBW= 300KHz
A(Average): PkReading - 6.8017dB

Total Data #12

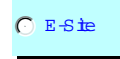
C&C Laboratory CO., LTD.

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

No. 199 Chung Sheng Road
Hsin Tien City, Taipei, Taiwan, R.O.C.
PHONE: 02-2217-0894 FAX: 02-2217-1254

Project #: 02E0635
Report #: 0635E4
Date & Time: 2002/11/19
Test Engr: DAVID HUNG

Company: DIRECTED ELECTRONICS INC.
EUT Description: DEI477T (433.92 MHz / CAR ALARM TRANSCEIVER)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)
Mode of Operation: TRANSMITTER MODE



$$M\% = ((t1+t2+t3+\dots)/T) * 100\% = 45.7 \%$$

$$\begin{aligned} \text{Av Reading} &= \text{Pk Reading} + 20 * \log(M\%) \\ 20 * \log(M\%) &= -6.8017 \end{aligned}$$

	Freq. (MHz)	Pk Rdg (dBuV)	Av Rdg (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)
	Button #4:											
X	434.02	73.20	66.40	17.43	3.21	26.33	60.71	80.83	-20.12	3mV	90	1.00
	868.00	51.10	44.30	24.81	4.75	26.31	47.55	60.83	-13.28	3mV	90	1.30
Y	434.01	76.20	69.40	17.43	3.21	26.33	63.71	80.83	-17.12	3mV	180	1.00
	867.99	48.60	41.80	24.81	4.75	26.31	45.05	60.83	-15.78	3mV	180	1.30
Z	434.00	87.40	80.60	17.43	3.21	26.33	74.91	80.83	-5.92	3mV	90	1.00
	867.99	44.90	38.10	24.81	4.75	26.31	41.35	60.83	-19.48	3mV	90	1.40
X	434.00	87.30	80.50	17.43	3.21	26.33	74.81	80.83	-6.02	3mH	90	1.00
	868.00	46.20	39.40	24.81	4.75	26.31	42.65	60.83	-18.18	3mH	90	1.30
Y	434.00	85.70	78.90	17.43	3.21	26.33	73.21	80.83	-7.62	3mH	0	1.00
	868.00	42.90	36.10	24.81	4.75	26.31	39.35	60.83	-21.48	3mH	0	1.10
Z	433.99	71.50	64.70	17.43	3.21	26.33	59.01	80.83	-21.82	3mH	270	1.50
	867.99	47.30	40.50	24.81	4.75	26.31	43.75	60.83	-17.08	3mH	270	1.30

There are total 5 buttons, only one has function, the other 4 buttons which if pressed will produce the digital control signals and modulate the carrier signal.

Peak: RBW= 120KHz
VBW= 300KHz
A(Average): PkReading - 6.8017dB

Total Data #12

C&C Laboratory CO., LTD.

FCC, VCCI, CISPR, CE, AUSTEL, NZ
UL, CSA, TUV, BSMI, DHHS, NVLAP

No. 199 Chung Sheng Road
Hsin Tien City, Taipei, Taiwan, R.O.C.
PHONE: 02-2217-0894 FAX: 02-2217-1254

Project #: 02E0635
Report #: 0635E5
Date & Time: 2002/11/19
Test Engr: DAVID HUNG

Company: DIRECTED ELECTRONICS INC.
EUT Description: DEI477T (433.92 MHz / CAR ALARM TRANSCEIVER)
Test Configuration : EUT ONLY
Type of Test: FCC 15.231(b)/FCC 15.209
Mode of Operation: TRANSMITTER MODE

E-Site

Freq. (MHz)	Pk Rdg (dBuV)	Av Rdg (dBuV)	AF (dB)	Closs (dB)	Pre-amp (dB)	Level (dBuV/m)	Limit FCC_B	Margin (dB)	Pol (H/V)	Az (Deg)	Height (Meter)	Mark (P/Q/A)
1302	61.84	55.038	24.9	3.6	37.07	46.44	54.0	-7.56	3mV	0	1.0	A
1736	64.48	57.678	26.4	4.4	36.47	52.02	60.8	-8.81	3mV	0	1.0	A
2170	62.74	55.938	27.8	4.5	36.06	52.10	60.8	-8.70	3mV	0	1.0	A
2604	63.43	56.628	28.8	5.6	36.02	55.07	60.8	-5.73	3mV	0	1.0	A
3038	60.16	53.358	30.4	5.8	36.06	53.49	60.8	-7.31	3mV	0	1.0	A
3472	53.03	46.228	31.3	6.1	35.64	47.98	60.8	-12.85	3mV	0	1.0	A
3906	47.16	40.358	32.3	6.7	35.21	44.13	54.0	-9.87	3mV	0	1.0	A
4340	47.86	41.058	32.4	7.2	35.17	45.40	54.0	-8.60	3mV	0	1.0	A
1302	60.97	54.168	24.9	3.6	37.07	45.57	54.0	-8.43	3mH	0	1.0	A
1736	60.91	54.108	26.4	4.4	36.47	48.45	60.8	-12.38	3mH	0	1.0	A
2170	64.01	57.208	27.8	4.5	36.06	53.37	60.8	-7.43	3mH	0	1.0	A
2604	62.81	56.008	28.8	5.6	36.02	54.45	60.8	-6.35	3mH	0	1.0	A
3038	58.88	52.078	30.4	5.8	36.06	52.21	60.8	-8.59	3mH	0	1.0	A
3472	57.76	50.958	31.3	6.1	35.64	52.71	60.8	-8.12	3mH	0	1.0	A
3906	49.40	42.598	32.3	6.7	35.21	46.37	54.0	-7.63	3mH	0	1.0	A
4340	51.08	44.278	32.4	7.2	35.17	48.62	54.0	-5.38	3mH	0	1.0	A

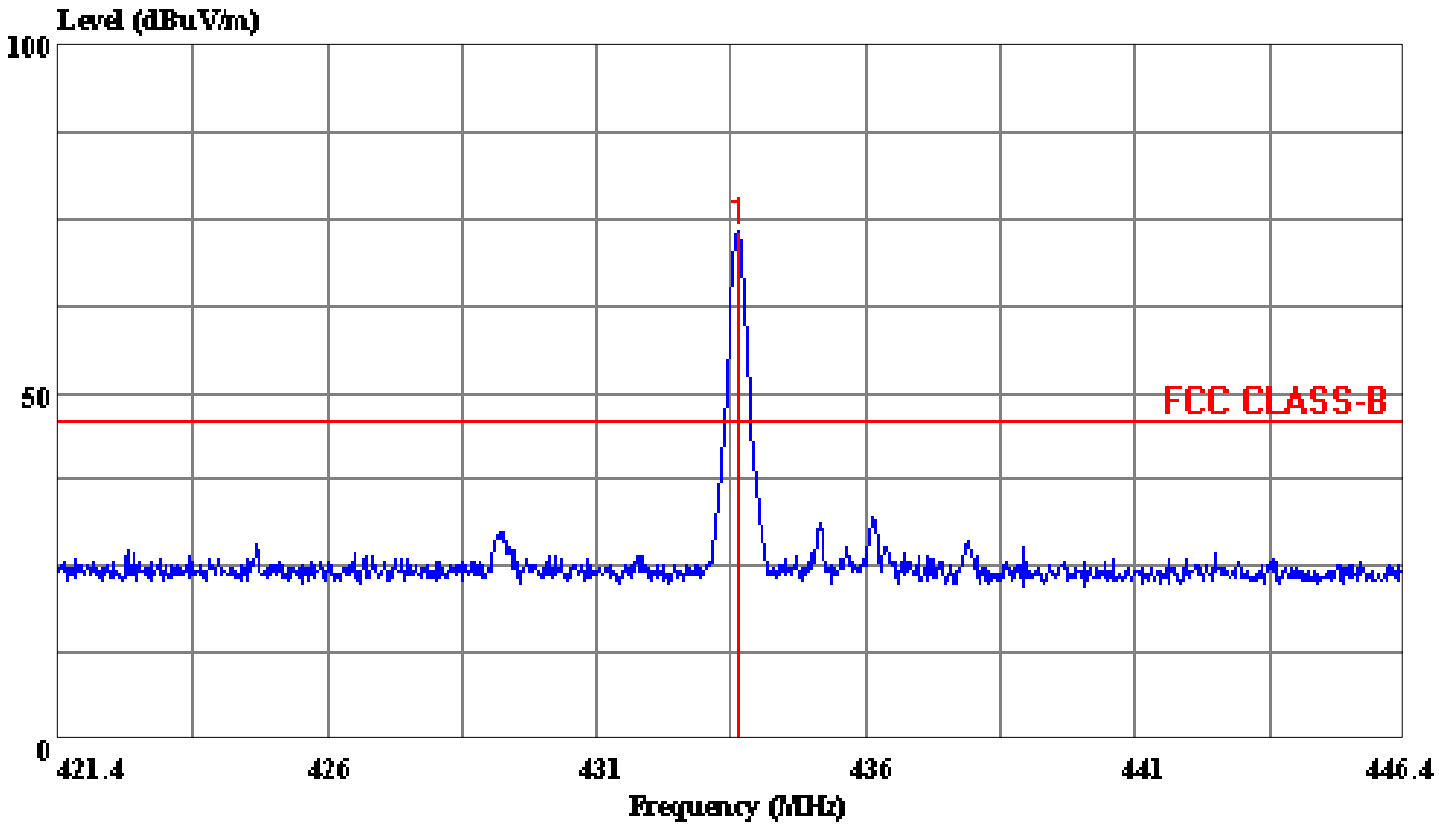
* No other emission were found within 20dB under the limits upto 4.5 GHz.

Total data #16
V.2d

P(Peak): RBW=VBW=1MHz
A(Average): Pk Reading - 6.8017dB(For FCC 15.231(b))

Data#: 32 File#: 0635e.emi

Date: 2002-11-18 Time: 11:39:17



(E- Site)

Trace: 28

Ref Trace:

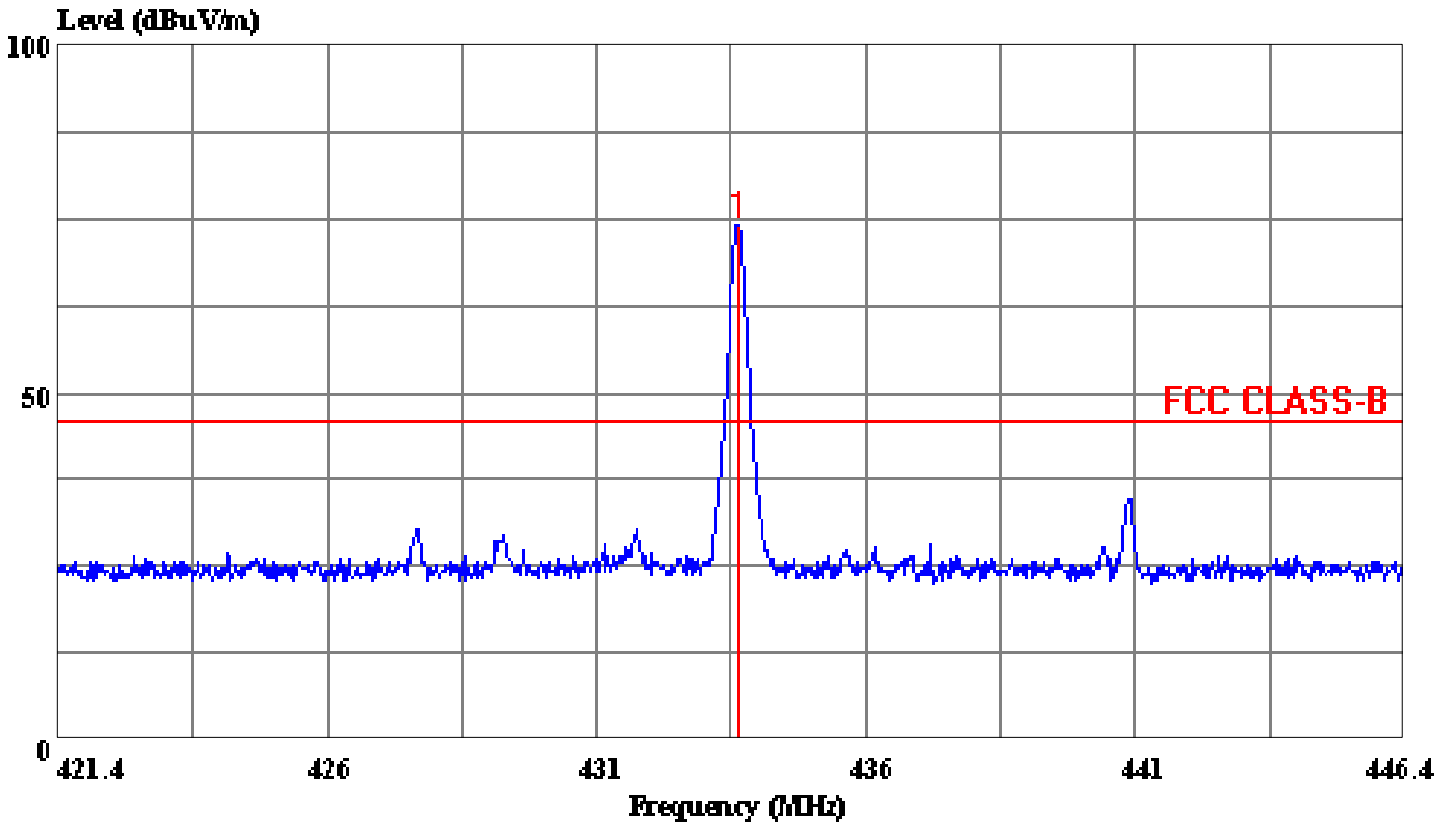
Condition: VERTICAL
 Report No. : 02E0635
 Test Engr. : DAVID HUNG
 Company : DIRECTED ELECTRONICS INC.
 EUT : DEI477T
 Test Config : EUT / S.G.
 Type of Test: FCC 15.109
 Mode of Op. : RECEIVER MODE

Page: 1

	Read
Freq	Level
MHz	dBuV
1 *	434.025 78.70

Data#: 30 File#: 0635e.emi

Date: 2002-11-18 Time: 11:38:22



(E-Site)

Trace: 29

Ref Trace:

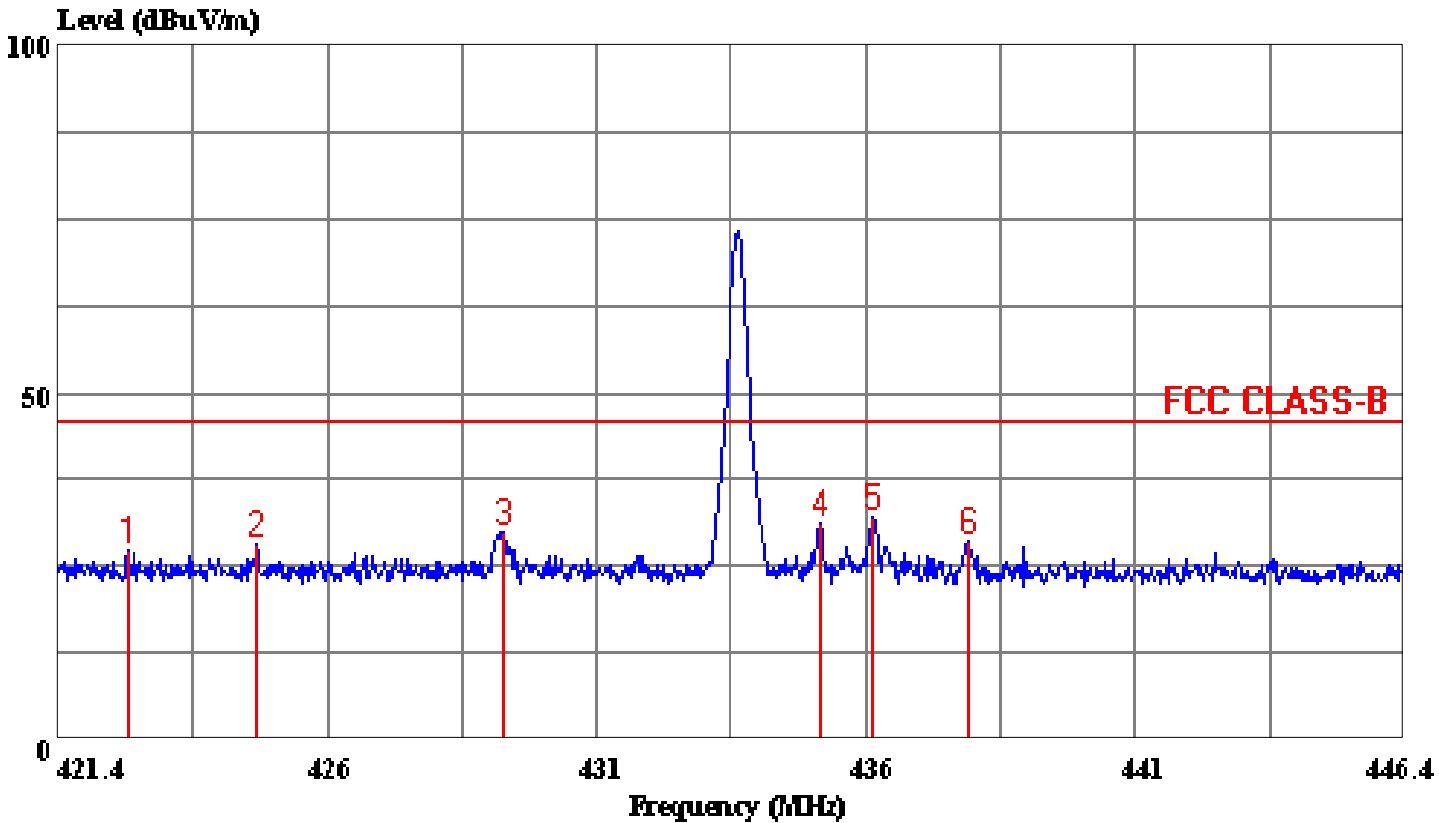
Condition: HORIZONTAL
 Report No. : 02E0635
 Test Engr. : DAVID HUNG
 Company : DIRECTED ELECTRONICS INC.
 EUT : DEI477T
 Test Config : EUT / S.G.
 Type of Test: FCC 15.109
 Mode of Op. : RECEIVER MODE

Page: 1

	Read
Freq	Level
MHz	dBuV
1 *	434.025 79.90

Data#: 33 File#: 0635e.emi

Date: 2002-11-18 Time: 11:40:15



(E-Site)

Trace: 28

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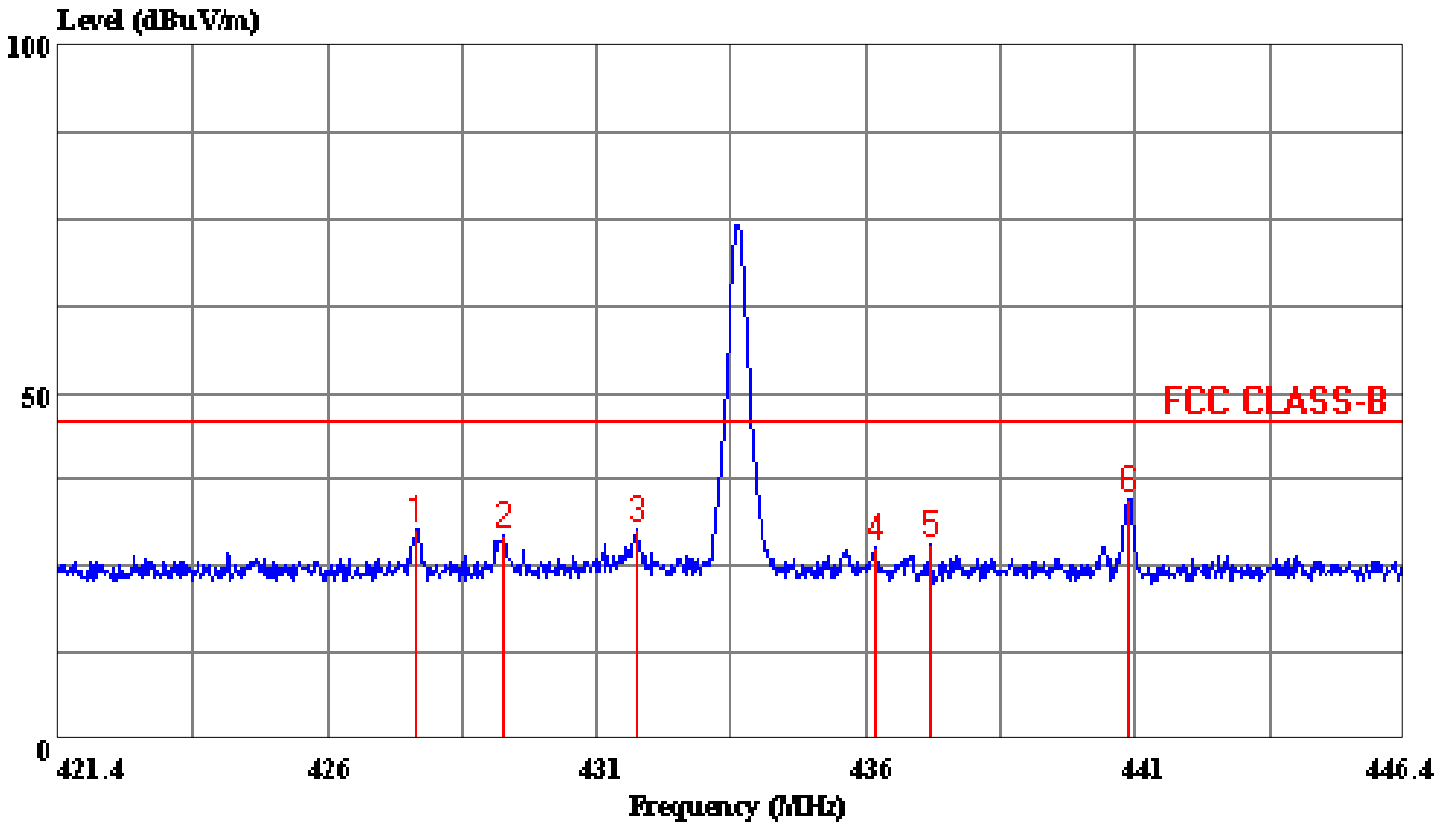
Condition: VERTICAL
Report No. : 02E0635
Test Engr. : DAVID HUNG
Company : DIRECTED ELECTRONICS INC.
EUT : DEI477T
Test Config : EUT / S.G.
Type of Test: FCC 15.109
Mode of Op. : RECEIVER MODE

Page: 1

	Freq	Read Level	Probe Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	422.675	32.90	17.63	3.17	26.29	27.41	46.00	-18.59	Peak
2	425.075	33.50	17.59	3.18	26.30	27.97	46.00	-18.03	Peak
3	429.650	35.70	17.49	3.20	26.31	30.08	46.00	-15.92	Peak
4	435.550	36.70	17.38	3.21	26.34	30.95	46.00	-15.05	Peak
5	436.525	37.70	17.36	3.22	26.34	31.93	46.00	-14.07	Peak
6	438.300	34.40	17.32	3.22	26.35	28.60	46.00	-17.40	Peak

Data#: 40 File#: 0635e.emi

Date: 2002-11-18 Time: 11:38:42



(E-Site)

Trace: 29

Ref Trace:

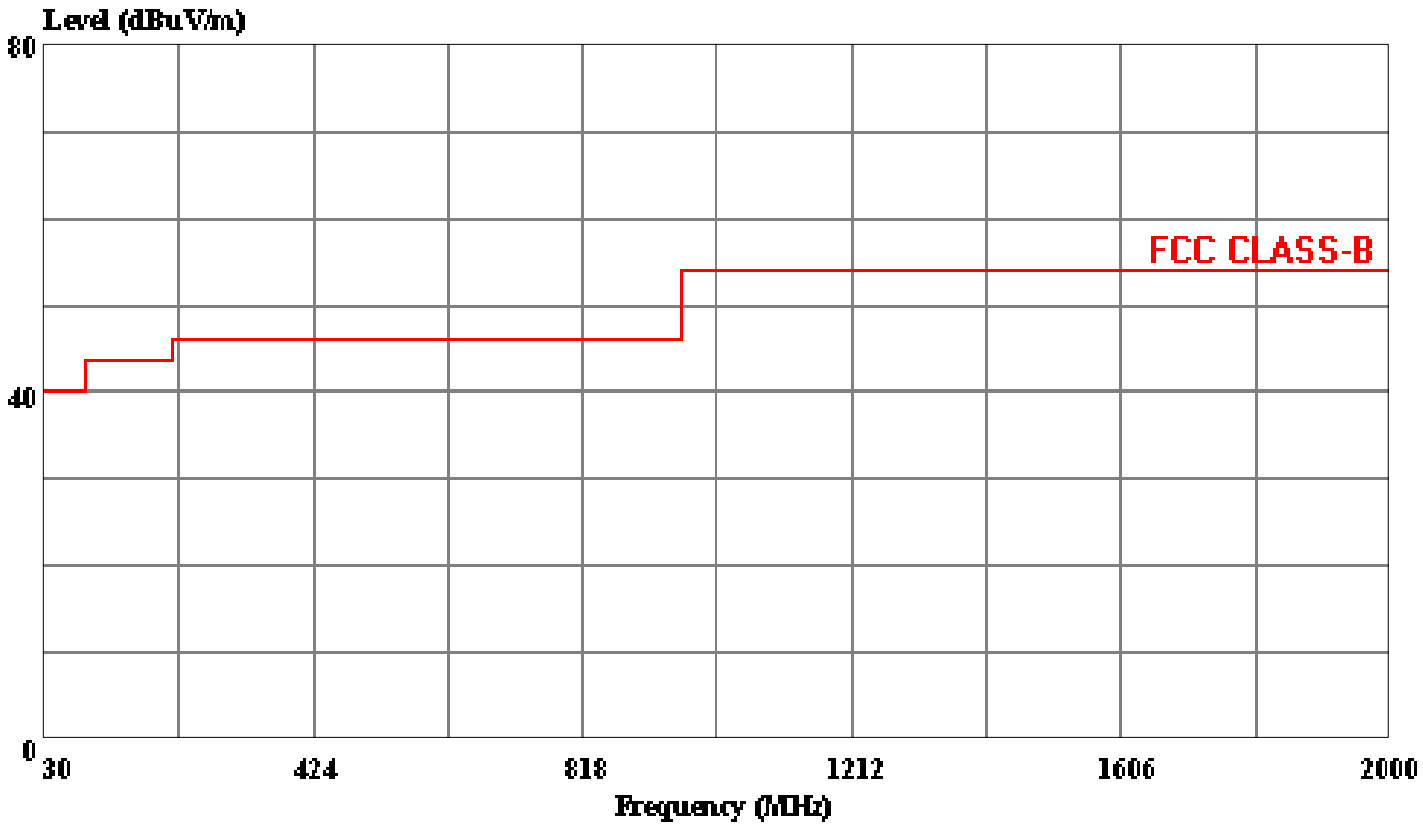
Condition: HORIZONTAL
Report No. : 02E0635
Test Engr. : DAVID HUNG
Company : DIRECTED ELECTRONICS INC.
EUT : DEI477T
Test Config : EUT / S.G.
Type of Test: FCC 15.109
Mode of Op. : RECEIVER MODE

Page: 1

	Read Freq	Probe Level	Probe Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dB	dBuV/m	dBuV/m	dB	
1	428.025	36.00	17.53	3.19	26.31	30.41	46.00	-15.59	Peak
2	429.675	35.10	17.49	3.20	26.31	29.48	46.00	-16.52	Peak
3	432.125	35.80	17.45	3.20	26.32	30.12	46.00	-15.88	Peak
4	436.550	33.40	17.36	3.22	26.34	27.63	46.00	-18.37	Peak
5	437.575	33.80	17.34	3.22	26.34	28.01	46.00	-17.99	Peak
6	441.275	40.60	17.26	3.23	26.36	34.73	46.00	-11.27	Peak

Data#: 34 File#: 0635e.emi

Date: 2002-11-18 Time: 11:41:23



(E-Site)

Trace:

Ref Trace:

Condition:
 Report No. : 02E0635
 Test Engr. : DAVID HUNG
 Company : DIRECTED ELECTRONICS INC.
 EUT : DEI477T
 Test Config : EUT / S.G.
 Type of Test : FCC 15.109
 Mode of Op. : RECEIVER MODE
 : NO OTHER EMISSION WERE FOUND WITHIN
 : 20 dB BELOW THE LIMITS FROM 30-2000MHZ

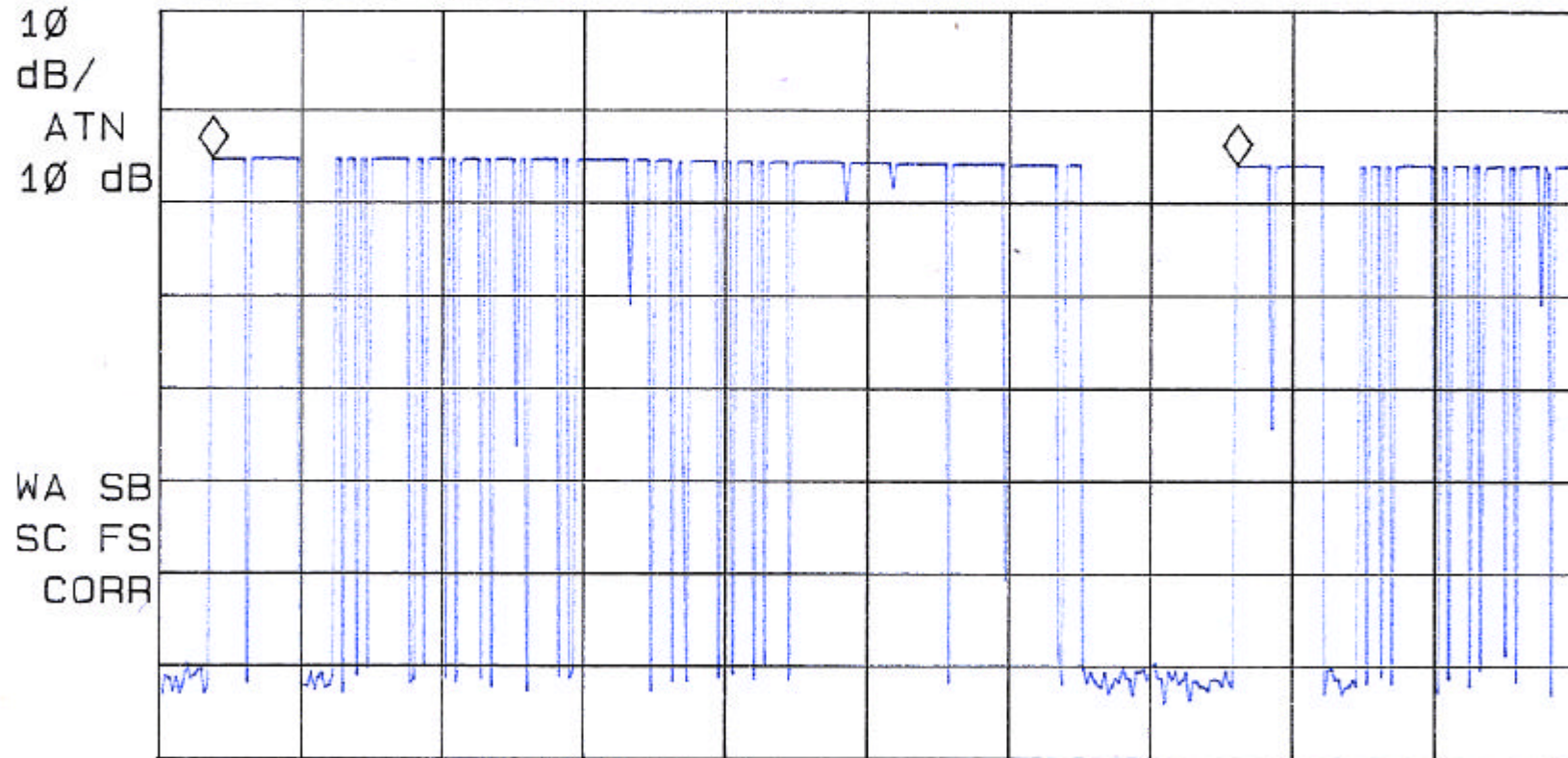
APPENDIX 2

TEST DATA

hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 108.38 msec
-.77 dB

LOG REF 100.0 dB μ V



CENTER 434.005 MHz

IF BW 120 kHz

AVG BW 300 kHz

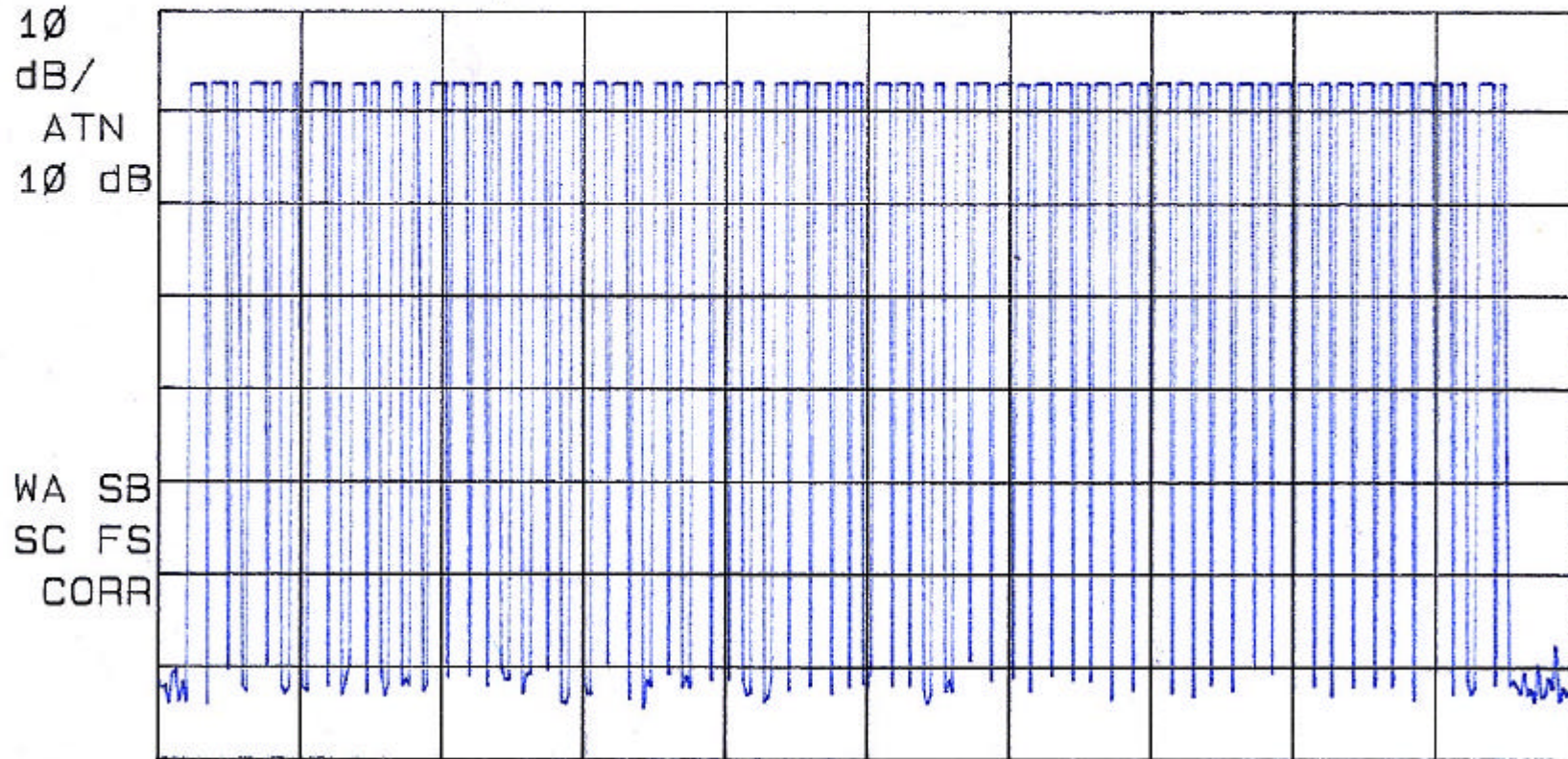
SPAN 0 Hz

#SWP 150 msec

hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG

LOG REF 100.0 dB μ V



CENTER 434.005 MHz

SPAN 0 Hz

IF BW 120 kHz

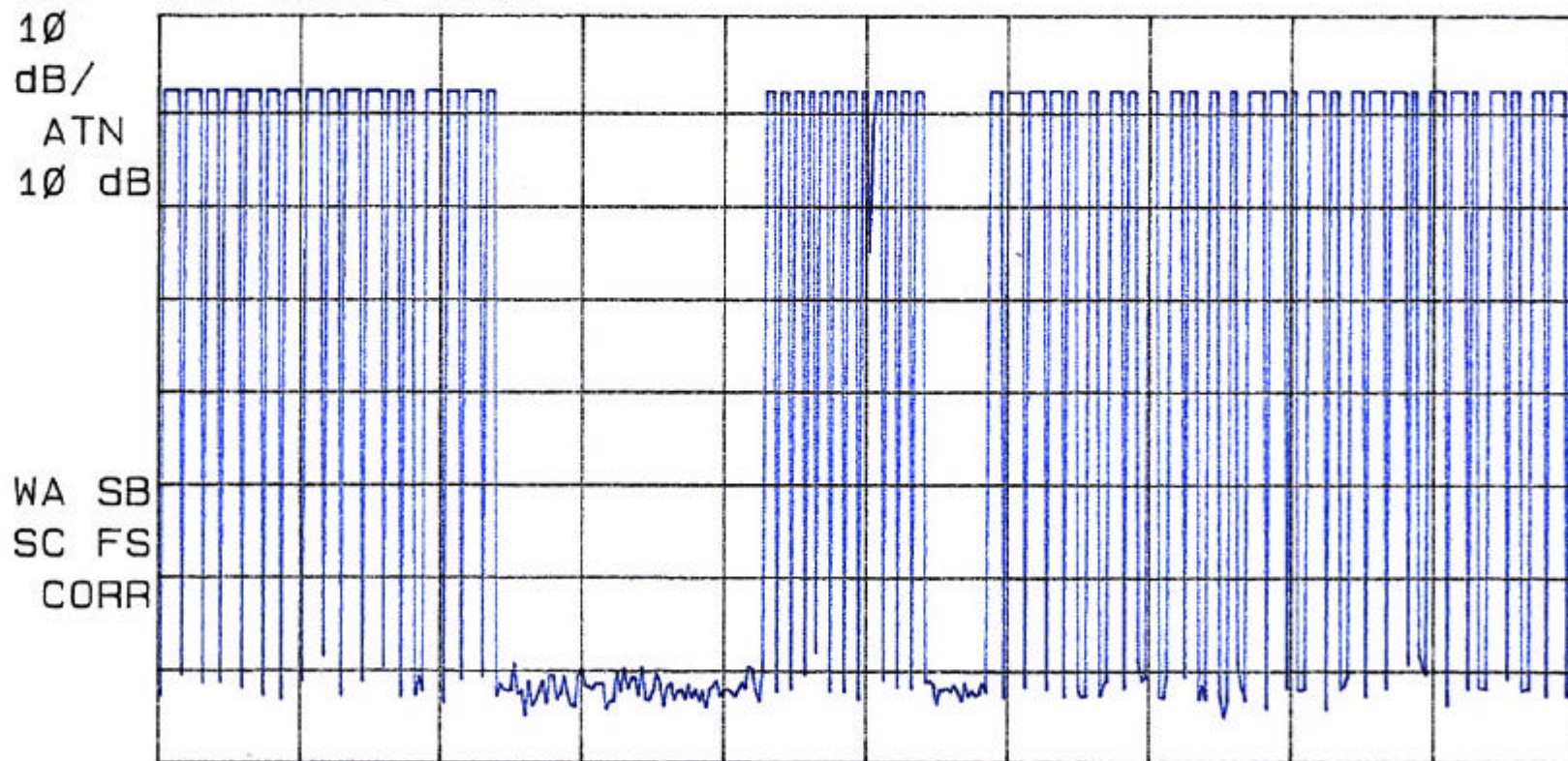
AVG BW 300 kHz

#SWP 85.0 msec

hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG

LOG REF 100.0 dB μ V



CENTER 434.005 MHz

SPAN 0 Hz

IF BW 120 kHz

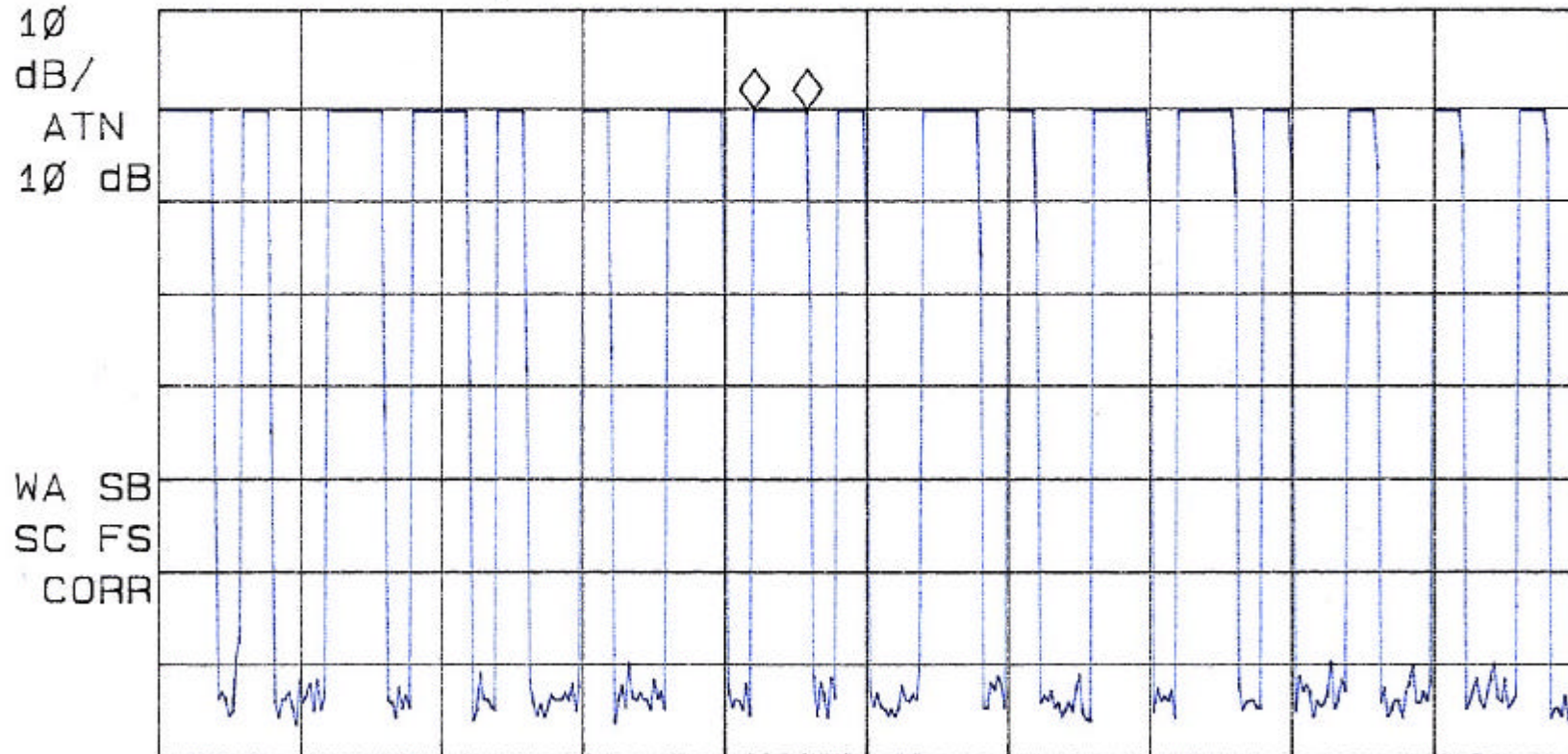
AVG BW 300 kHz

#SWP 85.0 msec

hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 750.00 μ sec
-.04 dB

LOG REF 100.0 dB μ V



CENTER 434.005 MHz

SPAN 0 Hz

IF BW 120 kHz

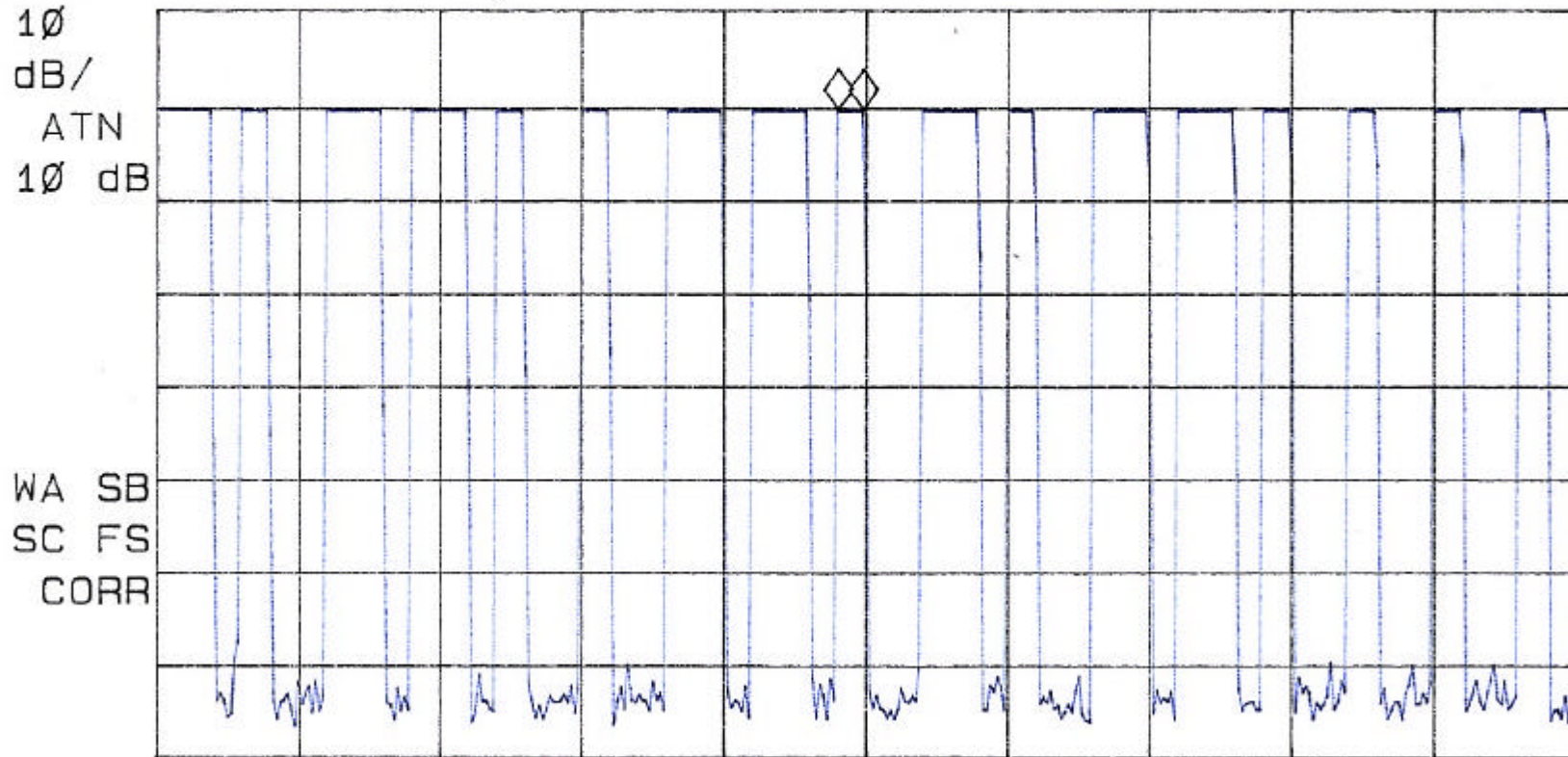
AVG BW 300 kHz

#SWP 20.0 msec

hp

ACTV DET: PEAK
MEAS DET: PEAK QP AVG
MKR 350.00 μ sec
-.04 dB

LOG REF 100.0 dB μ V



CENTER 434.005 MHz

SPAN 0 Hz

IF BW 120 kHz

AVG BW 300 kHz

#SWP 20.0 msec