

0111-EX-ST-2000

Office of Experimental Radio Services
PO Box 358326
Pittsburgh, PA 15251-0531

Charles Anzalone
Richardson Electronics
40W267 Keslinger Road
PO Box 393
LaFox, IL 60147-0393
March 10, 2000

Dear Sir or Madam:

Richardson Electronics is interested in establishing a temporary base station for the purpose of demonstrating the quality and operation of their FM transmitters to their sales force and customers. Every year during the month of August, the sales force visits us here in LaFox, Illinois.

To improve their training, we need to demonstrate the operation of our FM transmitters and to provide a means for evaluating the listening quality. The demonstration will take place in a large conference room. The total distance of the transmission will be less than 60 feet. The output of each transmitter will be feed into a termination load.

Each transmitter was verified as per the FCC rules under Parts 2 and 73. Data is available for each FM transmitter that we would like to demonstrate. Radiated power obtained at our subcontractor, Elite Electronics, indicates that the fundamental power level is typically -28 dBm and as high as -15 dBm. See attached data. This value is only slightly larger than the FCC limit of 1250 microvolts (or -35.5 dBm). See conversion chart.

Based upon experimental results, we can demonstrate the reception quality within a 60 foot conference room when each transmitter is loaded with a 50 ohm termination.

D?

Attached is the response to the questions that you require in Part 5.56:

1. Name and Address:

Richardson Electronics, Ltd
40W267 Keslinger Road
PO Box 393
LaFox, IL 60147-0393

2. Need for special action:

The FM transmitters will be relocated in the conference room at the Author Anderson Center located in St. Charles, Illinois.

3. Operation to be conducted.

Each FM transmitter will be separately turned on and off at the center frequency of 98 MHz. Personnel will have FM radios to individually evaluate each FM transmitter.

4. Purpose of the operation.

Demonstrate and test the quality of various transmitters. See drawing.

5. Time and date of proposed operation.

Richardson Electronics has their world wide sales meetings for one week anytime between the months June 1 to Sept 1. During the daytime working hours of this week, they would demonstrate their FM products.

6. Call sign of station.

Since the transmission will be less than 60 feet, a call sign will not be used or required.
(The grantee code for Richardson Electronics, Ltd is NXH.)

7. Location of the proposed site:

Author Anderson Center
1405 N. 5th Avenue
St Charles, IL 60174-1264
(630) 587-0967
317-3100

FCC Part 5.56 (continued)

8. Equipment to be used, manufacture, origin, model & number of units:

- a) FM TX 1000 watt, Ingenium & Richardson, Italy, BT1K, one unit
- b) FM TX 500 watt, RVR, Italy, MT500, one unit
- c) FM TX 300 watt, RVR, Italy, MT300, one unit
- d) FM TX 10 watt, Ingenium & Richardson, Italy, ITXV10/S, one unit
- e) FM TX 1 watt, Ingenium & Richardson, Italy, OME-11, one unit

Richardson Electronics owns Ingenium and they distribute for RVR under the brand name Omnicast.

9. Frequencies desired:

The center of the FM band where all FCC test were performed or 98 MHz.

10. Plate power to final stage:

- a) .5 watts for the BT1K
- b) 4 to 5 watts for the MT500
- c) 8 watts for the MT300
- d) .5 watts for the ITXV10/S
- e) no power amplifier is used for the OME-11

11. Type of emission:

All transmitters have F3E and F8E emissions. (FM broadcast with single and multiple channels.)

12. Overall height of antenna

No antenna will be used. Only radiation transmissions will be allowed for the following:

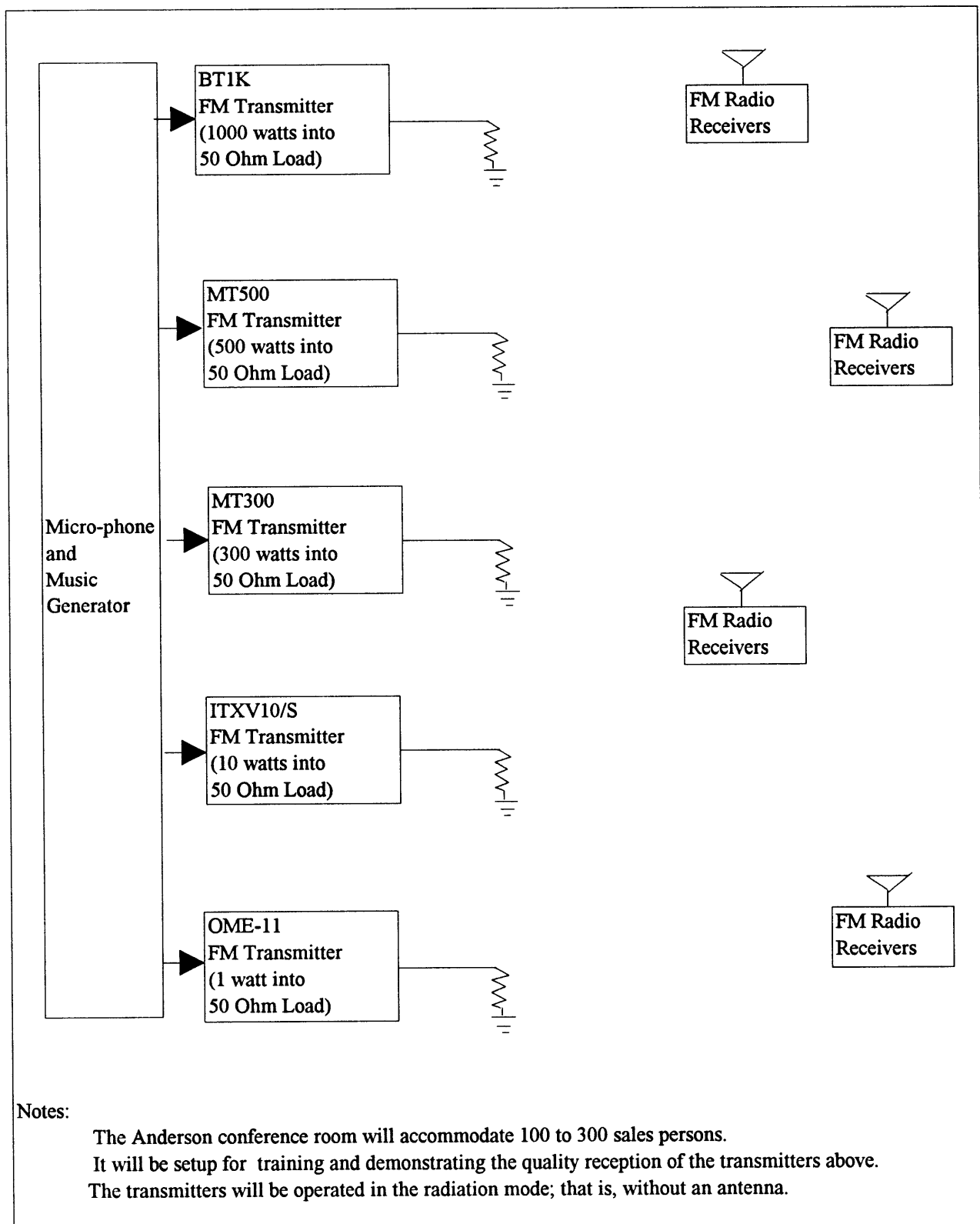
- a) -28 dBm for the BT1K *0.0016 mW*
- b) -15 dBm for the MT500 *0.0316 mW*
- c) -28 dBm for the MT300
- d) -28 dBm for the ITXV10/S
- e) Test is in progress

Please refer to the radiation data that was obtained at Elite Engineering.

Truly,


Charles Anzalone

The Anderson Conference Room with Various FM Transmitter Setups



Conversion of dBm to dBmv & dBuv

Reference:		@ 1 meter		@ 3 meter				@ 1 meter		@ 3 meter	
<u>dBm</u>	<u>dBmv</u>	<u>dBuv</u>	<u>v</u>	<u>dBuv</u>	<u>v</u>	<u>dBm</u>	<u>dBmv</u>	<u>dBuv</u>	<u>mv</u>	<u>dBuv</u>	<u>uv</u>
-10	37	97	70.71	87	0.024	-10	37	97	70.71	87	23570
-9	38	98	0.079	88	0.026	-11	36	96	63.02	86	21007
-8	39	99	0.089	89	0.030	-12	35	95	56.17	85	18722
-7	40	100	0.100	90	0.033	-13	34	94	50.06	84	16686
-6	41	101	0.112	91	0.037	-14	33	93	44.62	83	14872
-5	42	102	0.126	92	0.042	-15	32	92	39.76	82	13255
-4	43	103	0.141	93	0.047	-16	31	91	35.44	81	11813
-3	44	104	0.158	94	0.053	-17	30	90	31.59	80	10528
-2	45	105	0.178	95	0.059	-18	29	89	28.15	79	9383
-1	46	106	0.199	96	0.066	-19	28	88	25.09	78	8363
0	47	107	0.224	97	0.075	-20	27	87	22.36	77	7454
1	48	108	0.251	98	0.084	-21	26	86	19.93	76	6643
2	49	109	0.282	99	0.094	-22	25	85	17.76	75	5921
3	50	110	0.316	100	0.105	-23	24	84	15.83	74	5277
4	51	111	0.354	101	0.118	-24	23	83	14.11	73	4703
5	52	112	0.398	102	0.133	-25	22	82	12.57	72	4191
6	53	113	0.446	103	0.149	-26	21	81	11.21	71	3736
7	54	114	0.501	104	0.167	-27	20	80	9.99	70	3329
8	55	115	0.562	105	0.187	-28	19	79	8.90	69	2967
9	56	116	0.630	106	0.210	-29	18	78	7.93	68	2645
10	57	117	0.707	107	0.236	-30	17	77	7.07	67	2357
11	58	118	0.793	108	0.264	-31	16	76	6.30	66	2101
12	59	119	0.890	109	0.297	-32	15	75	5.62	65	1872
13	60	120	0.999	110	0.333	-33	14	74	5.01	64	1669
14	61	121	1.121	111	0.374	-34	13	73	4.46	63	1487
15	62	122	1.257	112	0.419	-35	12	72	3.98	62	1325
16	63	123	1.411	113	0.470	-35.5	11.5	70.5	3.75	61.0	1251
17	64	124	1.583	114	0.528	-36	11	71	3.54	61	1181
18	65	125	1.776	115	0.592	-37	10	70	3.16	60	1053
19	66	126	1.993	116	0.664	-38	9	69	2.82	59	938
20	67	127	2.236	117	0.745	-39	8	68	2.51	58	836
21	68	128	2.509	118	0.836	-40	7	67	2.24	57	745
22	69	129	2.815	119	0.938	-41	6	66	1.99	56	664
23	70	130	3.159	120	1.053	-42	5	65	1.78	55	592
24	71	131	3.544	121	1.181	-43	4	64	1.58	54	528
25	72	132	3.976	122	1.325	-44	3	63	1.41	53	470
26	73	133	4.462	123	1.487	-45	2	62	1.26	52	419
27	74	134	5.006	124	1.669	-46	1	61	1.12	51	374
28	75	135	5.617	125	1.872	-47	0	60	1.00	50	333
29	76	136	6.302	126	2.101	-48	-1	59	0.89	49	297
30	77	137	7.071	127	2.357	-49	-2	58	0.79	48	264
31	78	138	7.934	128	2.645	-50	-3	57	0.71	47	236
Equations:						Where :					
	$\text{dBm} = 10 \cdot \log((V^2)/(R \cdot .001))$						R = 50 ohms				
Or	$v = (10^{(\text{dbm}/10)} \cdot 50 \cdot .001)^{.5}$						V = volts				
And	$\text{dBuv}(3\text{m}) = \text{dBuv}(1\text{m}) - 20 \cdot \log(3 \text{ meter})$										

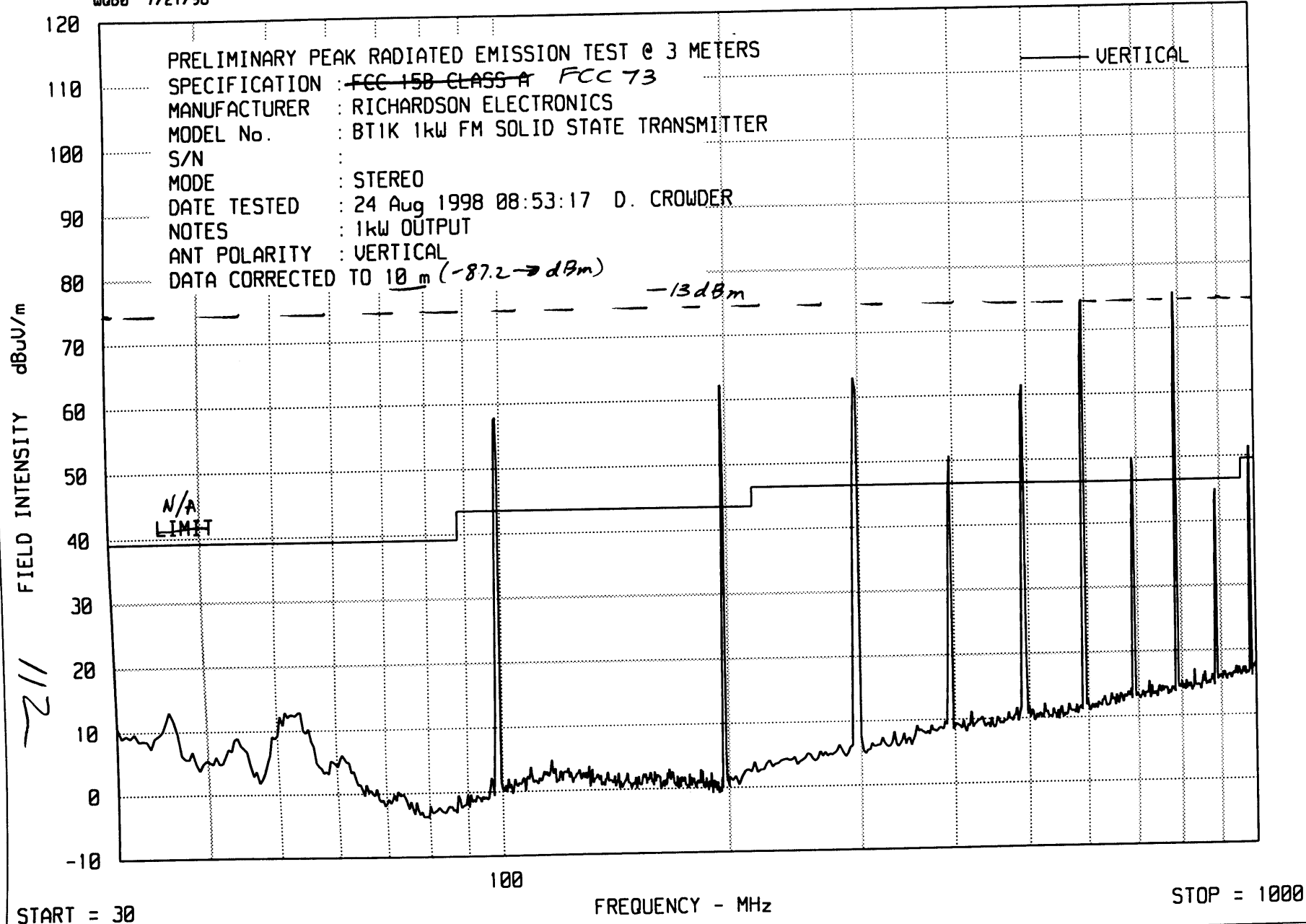
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ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

8546A RE RUN 2

W080 7/21/98



EEE

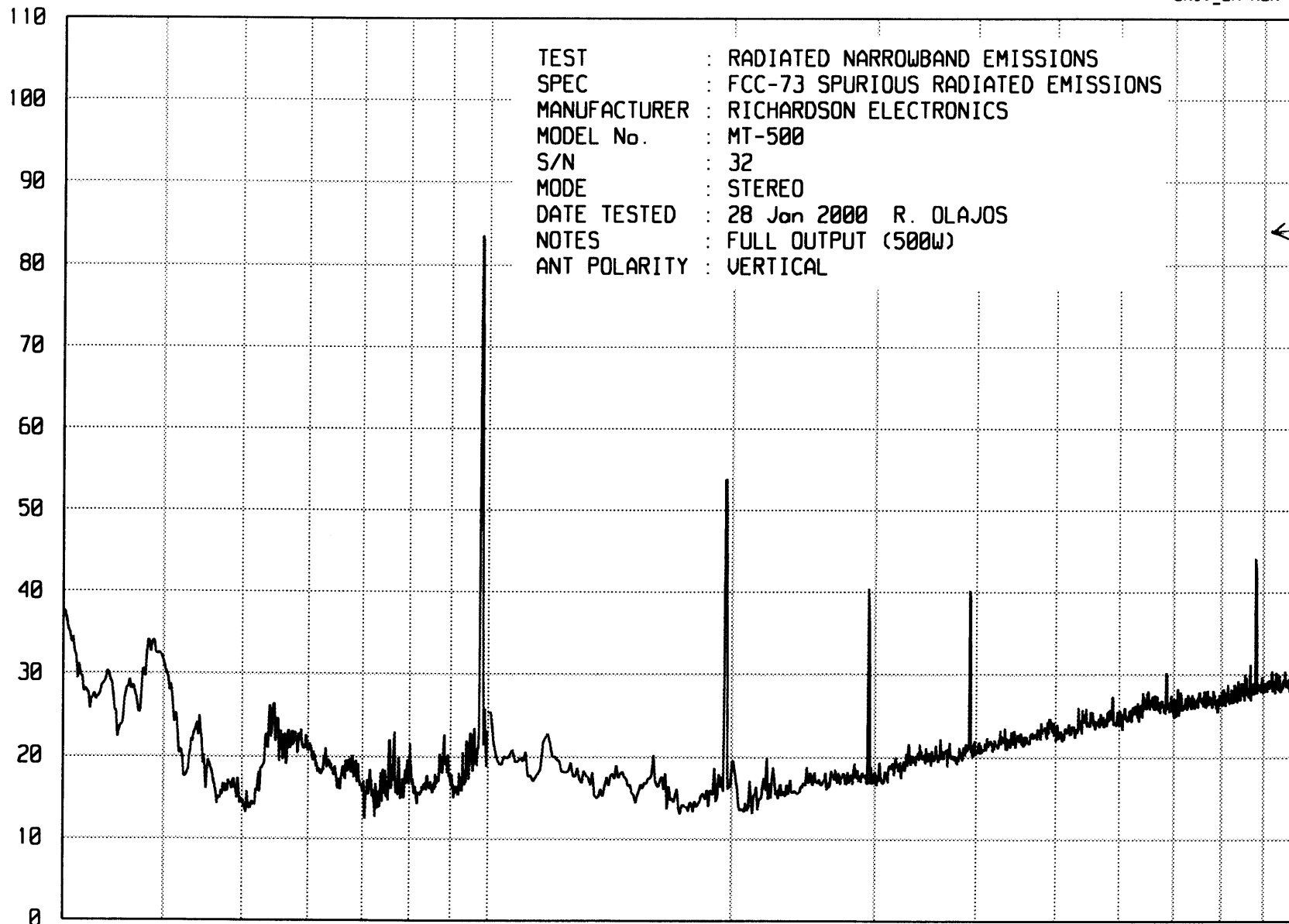
ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

WKA08 09/13/99

UNIV_EM RUN RUN 1

RADIATED NARROWBAND EMISSIONS - dBuV/m



TEST : RADIATED NARROWBAND EMISSIONS
 SPEC : FCC-73 SPURIOUS RADIATED EMISSIONS
 MANUFACTURER : RICHARDSON ELECTRONICS
 MODEL No. : MT-500
 S/N : 32
 MODE : STEREO
 DATE TESTED : 28 Jan 2000 R. OLAJOS
 NOTES : FULL OUTPUT (500W)
 ANT POLARITY : VERTICAL

FCC
 LIMIT
 ← -13dBm

ETC 22375

START = 30

FREQUENCY - MHz

STOP = 1000

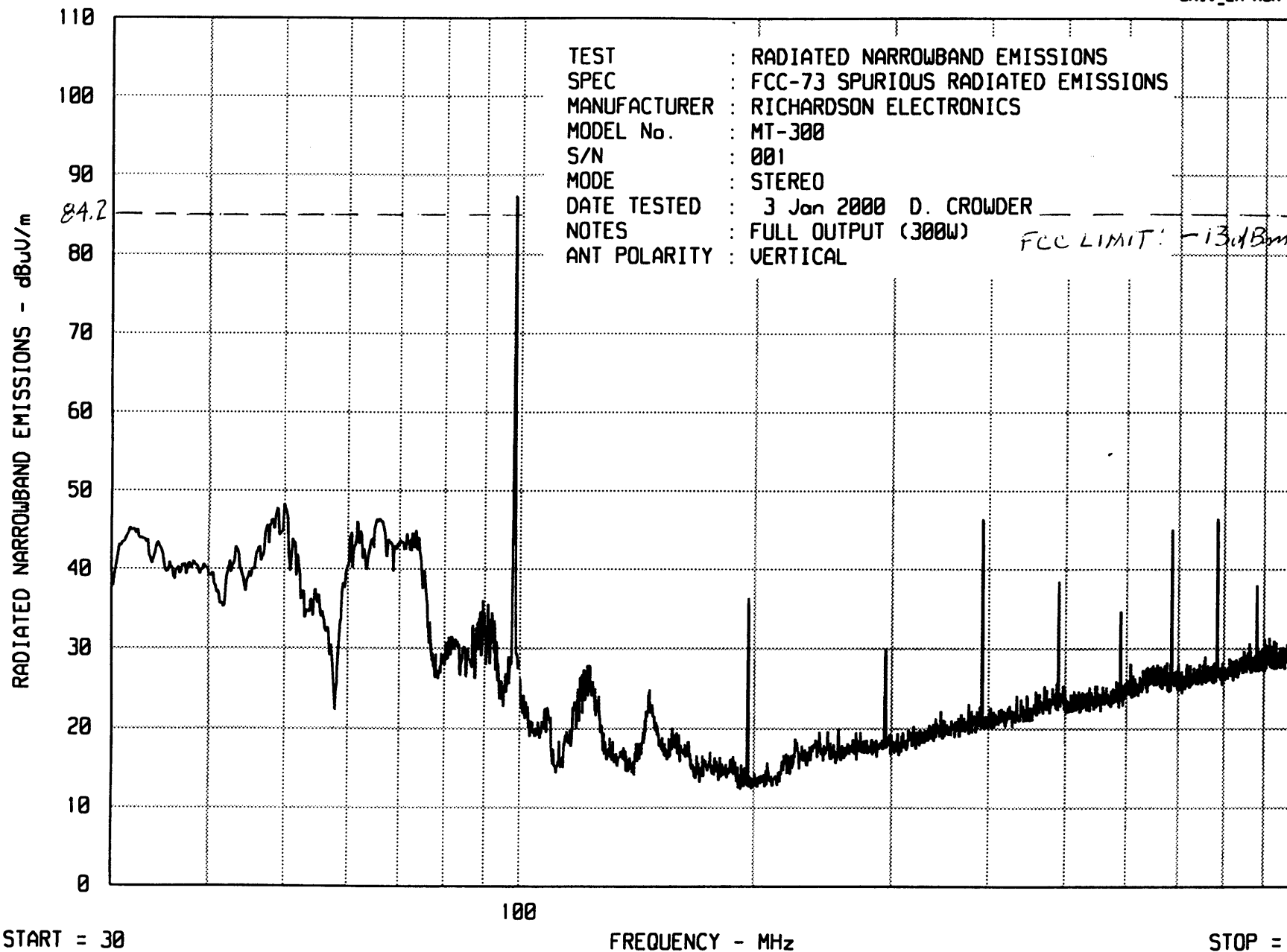
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ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

WKA08 09/13/99

UNITV_EN RUN RUN 1



F7A 22311

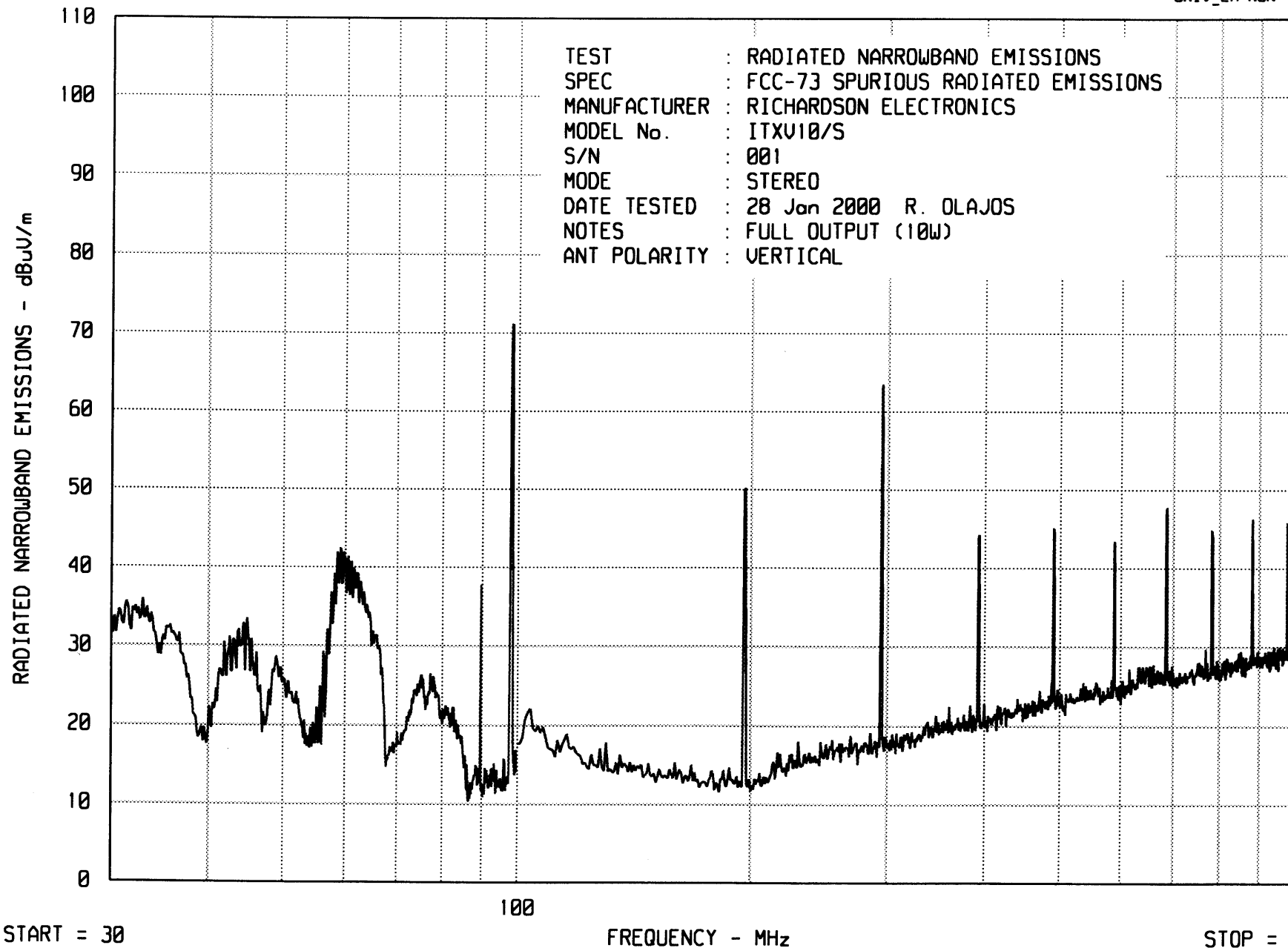
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ELITE ELECTRONIC ENGINEERING Co.

Downers Grove, Ill. 60515

WKA00 09/13/99

UNIV_EM RUN RUN 1



57A 22375

(b) Applications, amendments thereto, and related statements of fact required by the Commission may be signed by the applicant's attorney in case of the applicant's physical disability or of his absence from the United States. The attorney shall in that event separately set forth the reason why the application is not signed by the applicant. In addition, if any matter is stated on the basis of the attorney's belief only (rather than his knowledge), he shall separately set forth his reasons for believing that such statements are true.

(c) Only the original of applications, amendments, or related statements of fact need be signed; copies may be conformed.

(d) Applications, amendments, and related statements of fact need not be submitted under oath. Willful false statements made therein, however, are punishable by fine and imprisonment, U.S. Code, Title 18, section 1001, and by appropriate administrative sanctions, including revocation of station license pursuant to section 312(a)(1) of the Communications Act of 1934, as amended.

§5.55 Forms to be used.

(a) *Application for combined construction permit and radio station license for land stations and fixed stations.* A separate application shall be submitted on FCC Form 442 for each base station and each fixed station. Whenever the proposed antenna exceeds 6 meters in height above the ground level or more than 6 meters in height above an existing building, the applicant must comply with the requirement of part 17 of this chapter.

(b) *Application for combined construction permit and radio station license for mobile stations.* An application for each mobile station comprising any specified number of mobile units to be operated in the same service and within the same geographical area, including handcarried or pack-carried units, may be combined into one application and shall be submitted on FCC Form 442.

NOTE: An application for mobile units may be combined with an application for a single base station for such mobile units as will operate with that base station only.

(c) *Application for modification of combined construction permit and station license.* An application for modification of station authorization shall be submitted on FCC Form 442. A blanket application for modification of a group of authorizations of the same class where the modifications requested are the same for all stations covered by the application. The individual stations covered by such application shall be clearly identified therein. However, application for modification to change location of a base or fixed station shall be filed as a separate application.

(d) *Application for renewal of station authorization.* Application for renewal of station license shall be submitted on FCC Form 405. A blanket application may be submitted for renewal of a group of station licenses in the same class in those cases where the renewal requested is in exact accordance with the terms of the existing authorizations. The individual stations covered by such applications shall be clearly identified thereon. Unless otherwise directed by the Commission, each application for renewal of license shall be filed at least 60 days prior to the expiration date of the license to be renewed.

(e) *Application for consent to assignment of radio station authorization.* Application on FCC Form 702 shall be submitted when the legal right to construct or to control the use and operation of a station is to be transferred as a result of a voluntary act (contract or other agreement) or an involuntary act (death or legal disability) of the grantee of a station authorization or by involuntary assignment of the physical property constituting the station under a court decree in bankruptcy proceedings, or other court order, or by operation of law in any other manner. Such application must be accompanied by the FCC Form 442 of which only the certification need be signed by the proposed assignee. No other information is required to be submitted on this form.

(f) *Application for consent to transfer of control of Corporation holding radio station authorization.* Application for consent to transfer of control shall be submitted on FCC Form 703 whenever it is proposed to change the control of a

corporation holding a station authorization.

(g) *Informal application.* (1) An application not submitted on a standard form prescribed by the Commission is considered to be an informal application. Each informal application shall be submitted normally in letter form, and with the original signed in accordance with §5.54. Each application shall be clear and complete within itself as to the facts presented and the action desired.

(2) An informal application for authority to operate transmitting equipment will be accepted only under the conditions set forth in §5.56.

[41 FR 45007, Oct. 14, 1976, as amended at 48 FR 52737, Nov. 22, 1983]

§5.56 Procedure for obtaining a special temporary authorization.

(a) The Commission may issue a special temporary authorization under this part in cases where a need is shown for operation of an authorized station for a limited time only, in a manner other than that specified in the existing authorization, but not in conflict with the Commission's rules.

(b) An application for special temporary authorization may be filed as an informal application in the manner prescribed by §5.55(k) and shall contain the following information:

- (1) Name and address.
- (2) Need for special action.
- (3) Type of operation to be conducted.
- (4) Purpose of operation.
- (5) Time and date of proposed operation.
- (6) Class of station, call sign of station, and nature of service.
- (7) Location of proposed operation.
- (8) Equipment to be used, including name of manufacturer, model and number of units.
- (9) Frequency(ies) desired.
- (10) Plate power input to final radio frequency stage.
- (11) Type of emission.
- (12) Overall height of antenna structure above ground.

(c) No request for special temporary authorization will be considered unless full particulars as to the purpose for which the request is made are stated.

[28 FR 12506, Nov. 22, 1963, as amended at 34 FR 3802, Mar. 5, 1969]

§5.57 Supplementary statements required.

(a) Each applicant for an authorization in the Experimental Radio Service must enclose with the application a narrative statement describing in detail the program of research and experimentation proposed, the specific objectives sought to be accomplished; and how the program of experimentation has a reasonable promise of contribution to the development, extension, or expansion, or utilization of the radio art, or is along lines not already investigated. An applicant may request non-disclosure of proprietary information submitted under this part. These requests should follow the procedures for submission set forth in §0.459 of this chapter.

(b) Applications involving government contracts. In addition to the requirement of paragraph (a) of this section, if the authorization is to be used for the purpose of fulfilling the requirements of a contract with an agency of the United States Government, the applicant shall submit the name of the contracting agency and the contract number.

(c) Applications involving development of equipment for export purposes. In addition to the requirements of paragraph (a) of this section, if the authorization is to be used for the purpose of developing equipment for exportation to be employed by stations under the jurisdiction of a foreign government, the applicant shall submit the contract number and the name of the foreign government concerned.

(d) *Applications involving communications essential to a research project.* The provisions of paragraph (a) of this section shall not be applicable to applications for an authorization in the Experimental Radio Service to be used for communications essential to a research project. Applicants in this service shall include as a part of the application for an authorization the following:

(1) A description of the nature of the research project being conducted.

(2) A showing that communication facilities are necessary for the research project involved.