



**M. Flom Associates, Inc. - Global Compliance Center**

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T R A N S M I T T E R      C E R T I F I C A T I O N

of

FCC ID: LJPRH-13

MODEL: 6340i

Samples Numbers: IMEI: 001004/10/07456/9 ESN: 235/140484173 and  
IMEI: 001004/10/070455/1 ESN: 235/14048172

to

FEDERAL COMMUNICATIONS COMMISSION

Rule Part(s) 22H, 24E, Confidentiality

DATE OF REPORT: August 21, 2002

ON THE BEHALF OF THE APPLICANT:

Nokia Corporation

AT THE REQUEST OF:

P.O. Kare Oksanen August 5, 2002

Nokia Corporation  
Elektroniikkatie 10  
Fin-90570  
Oulu, Finland

Attention of:

Olli Kautio, Senior Engineering Manager,  
Testing & Type Approvals  
olli.kautio@nokia.com  
and/or Kare Oksanen, R&D Type Approvals  
kare.oksanen@nokia.com  
011 358 7180 08000; FAX: 011 358 7180 47222

SUPERVISED BY:

A handwritten signature in black ink, reading 'M. Flom P. Eng.', is positioned above the printed name.

Morton Flom, P. Eng.

THE APPLICANT HAS BEEN CAUTIONED AS TO THE FOLLOWING:

15.21 INFORMATION TO USER.

The users manual or instruction manual for an intentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

15.27(a) SPECIAL ACCESSORIES.

Equipment marketed to a consumer must be capable of complying with the necessary regulations in the configuration in which the equipment is marketed. Where special accessories, such as shielded cables and/or special connectors are required to enable an unintentional or intentional radiator to comply with the emission limits in this part, the equipment must be marketed with, i.e. shipped and sold with, those special accessories. However, in lieu of shipping or packaging the special accessories with the unintentional or intentional radiator, the responsible party may employ other methods of ensuring that the special accessories are provided to the consumer, without additional charge.


Information detailing any alternative method used to supply the special accessories for a grant of equipment authorization or retained in the verification records, as appropriate. The party responsible for the equipment, as detailed in § 2.909 of this chapter, shall ensure that these special accessories are provided with the equipment. The instruction manual for such devices shall include appropriate instructions on the first page of text concerned with the installation of the device that these special accessories must be used with the device. It is the responsibility of the user to use the needed special accessories supplied with the equipment.

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Required information per ISO/IEC Guide 25-1990, paragraph 13.2:

- a) TEST REPORT
- b) Laboratory: M. Flom Associates, Inc.  
(FCC: 31040/SIT) 3356 N. San Marcos Place, Suite 107  
(Canada: IC 2044) Chandler, AZ 85225
- c) Report Number: d0280017
- d) Client: Nokia Corporation  
Elektroniikkatie 10  
Fin-90570  
Oulu, Finland
- e) Identification: 6340i  
FCC ID: LJPRH-13  
Description: Dual Band, 5-Mode Cellular Telephone
- f) EUT Condition: Not required unless specified in individual tests.
- g) Report Date: August 21, 2002  
EUT Received: August 5, 2002
- h, j, k): As indicated in individual tests.
- i) Sampling method: No sampling procedure used.
- l) Uncertainty: In accordance with MFA internal quality manual.
- m) Supervised by:
-   
Morton Flom, P. Eng.
- n) Results: The results presented in this report relate only to the item tested.
- o) Reproduction: This report must not be reproduced, except in full, without written permission from this laboratory.

ACCESSORIES USED DURING TESTING:

Type	Model	S/N	MFA #
EUT	6340i	IMEI: 001004/10/07456/9 ESN: 235/140484173	s00462
Dummy Battery	FLV-1	N/A	s00463
Headset	HDE-1	N/A	s00464
Charger	ACP-12U	N/A	s00465
Battery	BLB-3	N/A	s00466
EUT	6340i	IMEI: 001004/10/070455/1 ESN: 235/14048172	s00467
Rapid Charger	ACP-9U	N/A	s00468
Charger	ACP-8U	N/A	s00862
Charger	ACP-7U	N/A	s00966

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LIST OF GENERAL INFORMATION REQUIRED FOR CERTIFICATION

IN ACCORDANCE WITH FCC RULES AND REGULATIONS,  
VOLUME II, PART 2 AND TO  
22H, 24E, Confidentiality

Sub-part 2.1033

(c)(1): NAME AND ADDRESS OF APPLICANT:

Nokia Corporation  
Elektroniikkatie 10  
Fin-90570  
Oulu, Finland

MANUFACTURERS:

Nokia Mexico, S.A. DE C.V.  
Ave. Ind. Rio Bravo s/n, Parque Ind. Del Nte.  
Cd. Reynosa, Tam. CP 88730

Nokia Brazil Manaus AM  
Rod. Torquato Tapajos, 7200 KM 12 - Taruma  
Manaus, Amazonas, AM 69048-660

(c)(2): FCC ID: LJPRH-13MODEL NO: 6340i

(c)(3): INSTRUCTION MANUAL(S):  
PLEASE SEE ATTACHED EXHIBITS

(c)(4)&amp;(5)

<u>FREQUENCY RANGES, MHz</u>	<u>EMISSION DESIGNATORS</u>	<u>NAME</u>
824 - 849	40K0F1D, 40K0F8W	AMPS
824 - 849	30K0DXW	TDMA AMPS
824 - 849	256K0GXW	GSM AMPS
1850 - 1910	30K0DXW	TDMA PCS
1880 - 1910	256K0GXW	GSM PCS

(c)(6): POWER RATING, Watts: 0.575 AMPS800  
0.916 TDMA800  
1.48 GSM850  
0.692 TDMA1900  
1.41 GSM1900  
     Switchable   x   Variable      N/A

FCC GRANT NOTE:

BC - The output power is  
continuously variable from  
the value listed in this  
entry to 5%-10% of the  
value listed.

(c)(7): MAXIMUM POWER RATING, Watts: 0.6 AMPS800  
0.6 TDMA800  
1.0 GSM850  
0.6 TDMA1900  
1.0 GSM1900

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Subpart 2.1033 (continued)

(c)(8): VOLTAGES & CURRENTS IN ALL ELEMENTS IN FINAL R. F. STAGE,  
INCLUDING FINAL TRANSISTOR OR SOLID STATE DEVICE:

COLLECTOR CURRENT, A = per manual  
COLLECTOR VOLTAGE, Vdc = per manual  
SUPPLY VOLTAGE, Vdc = 3.9

(c)(9): TUNE-UP PROCEDURE:

PLEASE SEE ATTACHED EXHIBITS

(c)(10): CIRCUIT DIAGRAM/CIRCUIT DESCRIPTION:

Including description of circuitry & devices provided for  
determining and stabilizing frequency, for suppression of  
spurious radiation, for limiting modulation and limiting  
power.

PLEASE SEE ATTACHED EXHIBITS

(c)(11): LABEL INFORMATION:

PLEASE SEE ATTACHED EXHIBITS

(c)(12): PHOTOGRAPHS:

PLEASE SEE ATTACHED EXHIBITS

(c)(13): DIGITAL MODULATION DESCRIPTION:

     ATTACHED EXHIBITS  
  x   N/A

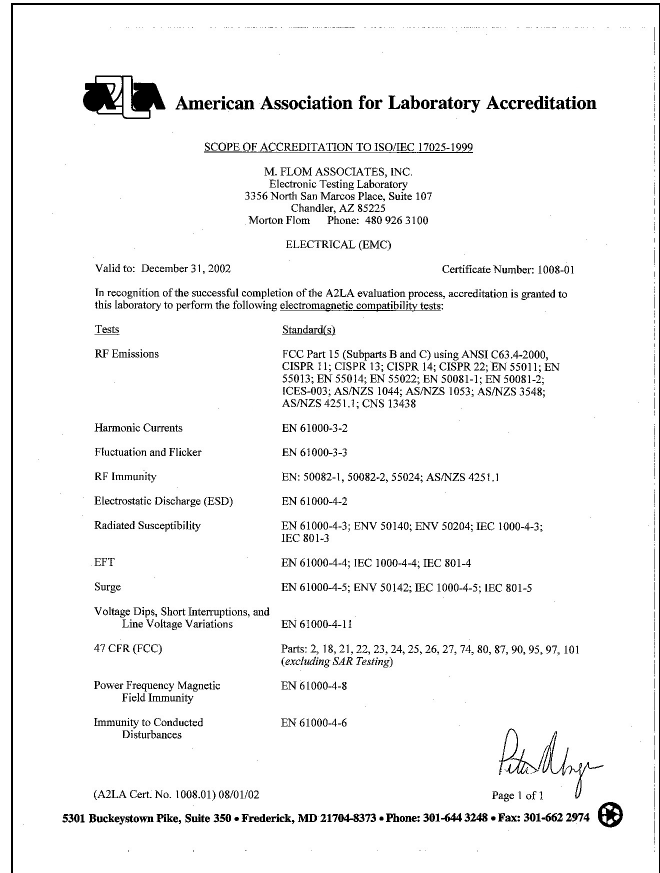
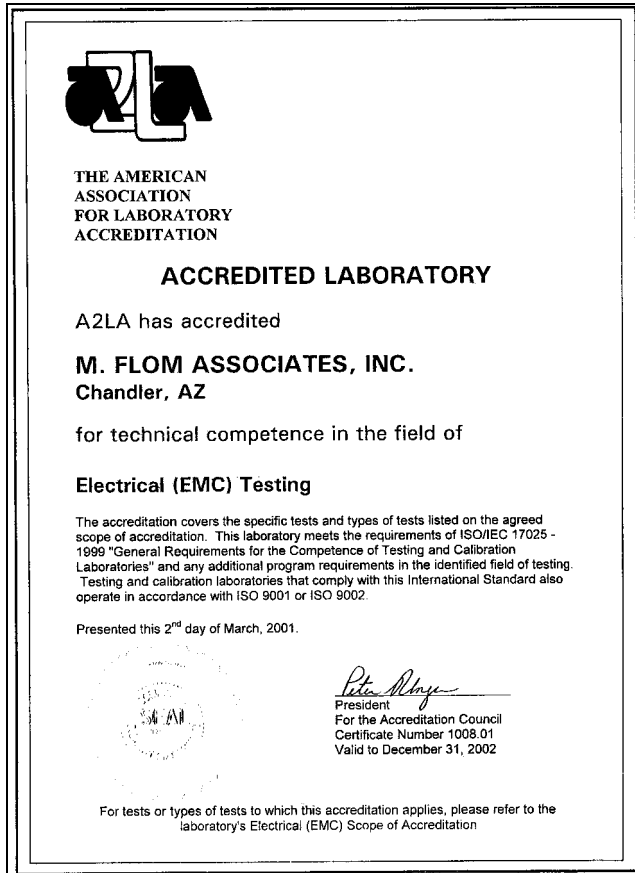
(c)(14): TEST AND MEASUREMENT DATA:

FOLLOWS

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M. Flom Associates, Inc. is accredited by the American Association for Laboratory Accreditation (A2LA) as shown in the scope below.



"This laboratory is accredited by the American Association for Laboratory Accreditation (A2LA) and the results shown in this report have been determined in accordance with the laboratory's terms of accreditation unless stated otherwise in the report."

Should this report contain any data for tests for which we are not accredited, or which have been undertaken by a subcontractor that is not A2LA accredited, such data would not covered by this laboratory's A2LA accreditation.

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Sub-part

2.1033(c)(14):

TEST AND MEASUREMENT DATA

All tests and measurement data shown were performed in accordance with FCC Rules and Regulations, Volume II; Part 2, Sub-part J, Sections 2.947, 2.1033(c), 2.1041, 2.1046, 2.1047, 2.1079, 2.1051, 2.1053, 2.1055, 2.1057 and the following individual Parts:

- \_\_\_\_\_ 21 - Domestic Public Fixed Radio Services
- \_\_\_\_\_ 22 - Public Mobile Services
- x   22 Subpart H - Cellular Radiotelephone Service
- \_\_\_\_\_ 22.901(d) - Alternative technologies and auxiliary services
- \_\_\_\_\_ 23 - International Fixed Public Radiocommunication services
- x   24 - Personal Communications Services
- \_\_\_\_\_ 74 Subpart H - Low Power Auxiliary Stations
- \_\_\_\_\_ 80 - Stations in the Maritime Services
- \_\_\_\_\_ 80 Subpart E - General Technical Standards
- \_\_\_\_\_ 80 Subpart F - Equipment Authorization for Compulsory Ships
- \_\_\_\_\_ 80 Subpart K - Private Coast Stations and Marine Utility Stations
- \_\_\_\_\_ 80 Subpart S - Compulsory Radiotelephone Installations for Small Passenger Boats
- \_\_\_\_\_ 80 Subpart T - Radiotelephone Installation Required for Vessels on the Great Lakes
- \_\_\_\_\_ 80 Subpart U - Radiotelephone Installations Required by the Bridge-to-Bridge Act
- \_\_\_\_\_ 80 Subpart V - Emergency Position Indicating Radiobeacons (EPIRB'S)
- \_\_\_\_\_ 80 Subpart W - Global Maritime Distress and Safety System (GMDSS)
- \_\_\_\_\_ 80 Subpart X - Voluntary Radio Installations
- \_\_\_\_\_ 87 - Aviation Services
- \_\_\_\_\_ 90 - Private Land Mobile Radio Services
- \_\_\_\_\_ 94 - Private Operational-Fixed Microwave Service
- \_\_\_\_\_ 95 Subpart A - General Mobile Radio Service (GMRS)
- \_\_\_\_\_ 95 Subpart C - Radio Control (R/C) Radio Service
- \_\_\_\_\_ 95 Subpart D - Citizens Band (CB) Radio Service
- \_\_\_\_\_ 95 Subpart E - Family Radio Service
- \_\_\_\_\_ 95 Subpart F - Interactive Video and Data Service (IVDS)
- \_\_\_\_\_ 97 - Amateur Radio Service
- \_\_\_\_\_ 101 - Fixed Microwave Services



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GENERAL INFORMATION

1. Prior to testing, the deviation for audio modulation and each of the respective SAT + ST tones were set as close as possible to the required limit.
2. Except for audio modulation, which was applied externally, Wideband Data SAT, ST and all other tones and operational modes were provided by a test control unit incorporating appropriate software. Worst case repetition rate for Wideband Data was 10 kb/s.
3. Spurious radiation was measured at three (3) meters.
4. The two cellular frequency bands are available to the user automatically. Please refer to the manual contained in the documentation.
5. The normal modes of modulation are:
  - x   (a) VOICE
  - x   (b) WIDEBAND DATA
  - x   (c) SAT
  - x   (d) ST
  - x   (e) SAT + VOICE
  - x   (f) SAT + DTMF
  - x   (g) GSM 850
  - x   (h) TDMA 800
  - x   (i) TDMA PCS
  - x   (j) GSM PCS

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## STANDARD TEST CONDITIONS

and

## ENGINEERING PRACTICES

Except as noted herein, the following conditions and procedures were observed during the testing:

In accordance with ANSI C63.4-1992/2000, section 6.1.9, and unless otherwise indicated in the specific measurement results, the ambient temperature of the actual EUT was maintained within the range of 10° to 40°C (50° to 104 °F) unless the particular equipment requirements specify testing over a different temperature range. Also, unless otherwise indicated, the humidity levels were in the range of 10% to 90% relative humidity.

Prior to testing, the EUT was tuned up in accordance with the manufacturer's alignment procedures. All external gain controls were maintained at the position of maximum and/or optimum gain throughout the testing.

Measurement results, unless otherwise noted, are worst case measurements.

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NAME OF TEST: Carrier Output Power (Conducted)

SPECIFICATION: 47 CFR 2.1046(a)

TEST EQUIPMENT: As per attached page

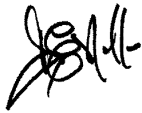
MEASUREMENT PROCEDURE

1. The EUT was connected to a resistive coaxial attenuator of normal load impedance, and the unmodulated output power was measured by means of an R. F. Power Meter.
2. Measurement accuracy is  $\pm 3\%$ .

MEASUREMENT RESULTS

NOMINAL, MHz	CHANNEL	dBm		R. F. POWER, WATTS	
		Lo	Hi	Lo	Hi
AMPS MODE:					
824.040	991	5.3	25.9	3.87 m	0.389
836.400	380	5.4	25.9	3.46 m	0.393
848.970	799	5.2	25.9	3.34 m	0.385
TDMA AMPS MODE:					
824.040	991	-2.6	27.7	548 μ	0.583
836.400	380	-2.9	27.7	503 μ	0.585
848.970	799	-2.9	27.6	515 μ	0.572
GSM AMPS MODE:					
824.20	128	4.0	29.6	2.49 m	0.904
836.40	189	4.0	29.6	2.52 m	0.914
848.8	251	4.0	29.6	2.49 m	0.906
TDMA 1900 MODE:					
1850.04	02	-3.3	27.4	468 μ	0.549
1879.98	1000	-3.7	27.4	423 μ	0.544
1909.02	1998	-5.1	27.4	312 μ	0.537
GSM 1900 MODE:					
1850.20	512	0.2	29.6	1.04 m	0.919
1880.00	664	-0.6	29.6	875 μ	0.918
1909.80	810	-1.9	29.6	641 μ	0.932

PERFORMED BY:

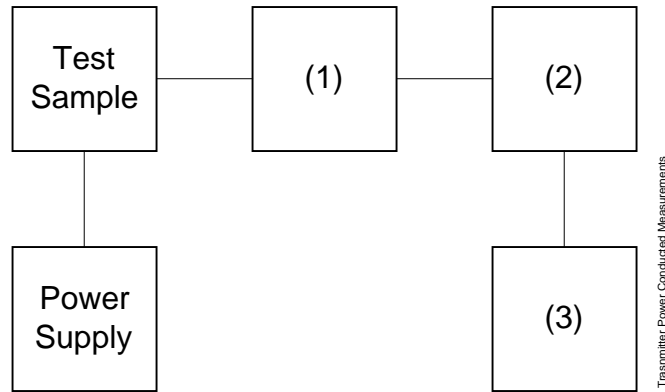
  
Doug Noble, B.A.S. E.E.T.

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## TRANSMITTER POWER CONDUCTED MEASUREMENTS

TEST 1: R. F. POWER OUTPUT  
 TEST 2: FREQUENCY STABILITY



Asset	Description (as applicable)	s/n
(1)	<u>COAXIAL ATTENUATOR</u>	
i00122	Narda 766-10	7802
i00123	Narda 766-10	7802A
i00069	Bird 8329 (30 dB)	1006
i00113	Sierra 661A-3D	1059
(2)	<u>POWER METERS</u>	
i00014	HP 435A	1733A05836
i00039	HP 436A	2709A26776
i00020	HP 8901A POWER MODE	2105A01087
(3)	<u>FREQUENCY COUNTER</u>	
i00042	HP 5383A	1628A00959
i00019	HP 5334B	2704A00347
i00020	HP 8901A FREQUENCY MODE	2105A01087

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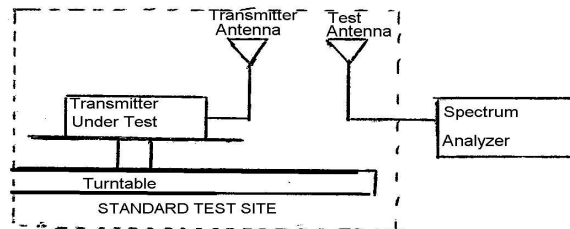
NAME OF TEST: ERP Carrier Power (Radiated)

SPECIFICATION: TIA/EIA 603A (Substitution Method)

Definition: The average radiated power of device is the equivalent power required, when delivered to a substitution antenna, to produce at a distant point the same average received power as produced by the licensed device.

Method of Measurement:

a) Connect the equipment as illustrated. Place the transmitter to be tested on the turntable in the standard test site.



b) Raise and lower the test antenna from 1m to 4m and rotate turntable from 0° to 360°. Record the highest received signal in dB as  $E_T$ .

c) Replace the transmitter under test with a substitution antenna. The center of the antenna should be at the same location as the transmitter under test. Connect the antenna to a signal generator with a known output power level using the same modulation as with the transmitter. Raise and lower the test antenna like in step b) and record the highest received signal in dB as  $E_S$ .

d) Calculate radiated power as following:

$$\text{Radiated power} = \text{Level} + E_T - E_S + \text{Gain}_{\text{Ant}}$$

$E_T$  Signal level received from transmitter

$E_S$  Signal level received from substitution antenna

RESULTS ATTACHED

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TEST RESULTS FOR: ERP Carrier Power (Radiated)

Freq MHz	Level dBm	Antenna Gain, db	E <sub>T</sub> - E <sub>S</sub> dBm	Radiated P Out EMI dbm	Radiated P Out Watts EMI
AMPS					
824.04	17.1	-5.21	87.9-75.8	24 ERP	0.251
836.4	17.1	-5.28	88.4-72.6	27.6 ERP	0.578
848.94	17.1	-5.35	88-73	26.7 ERP	0.473
TDMA 800					
824.04	18.9	-5.21	92.9-79.8	26.8 ERP	0.478
836.4	18.9	-5.28	92.3-76.3	29.6 ERP	0.916
848.97	18.9	-5.35	91.6-76.6	28.4 ERP	0.700
GSM 850					
824.2	16.8	-5.21	91.5-75.2	27.9 ERP	0.615
836.4	16.8	-5.28	91.9-71.7	31.7 ERP	1.486
848.8	16.8	-5.35	91.6-72.4	30.6 ERP	1.161
TDMA 1900					
1850.04	15.8	-3.25	83.2-67.5	28.3 EIRP	0.668
1879.98	15.8	-3.31	82.2-66.3	28.4 EIRP	0.690
1909.92	15.7	-3.27	81.5-66	27.9 EIRP	0.621
GSM 1900					
1850.2	18	-3.25	83.5-67.1	31.2 EIRP	1.303
1880	18	-3.31	82.4-65.6	31.5 EIRP	1.409
1909.8	18.1	-3.27	81.9-65.9	30.8 EIRP	1.211

## SAMPLE CALCULATION:

$$P_{\text{ANT OUT}} + \text{ANT GAIN} + E_T - E_S = P.O. \text{ RADIATED}$$

$$18.1 - 3.27 + 81.9 - 65.9 = 30.8 \text{ dbm EIRP}$$

$$= 1.2 \text{ W EIRP}$$

ANTENNA: Siebersdorf Model PBA 10200 Precisional BICON. S/M 327/00

ANTENNA GAIN IN CELLULAR BAND = dBd

ANTENNA GAIN IN PCS BAND = dBi

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NAME OF TEST: Audio Frequency Response  
SPECIFICATION: 47 CFR 2.1047(a)  
TEST EQUIPMENT: As per previous page

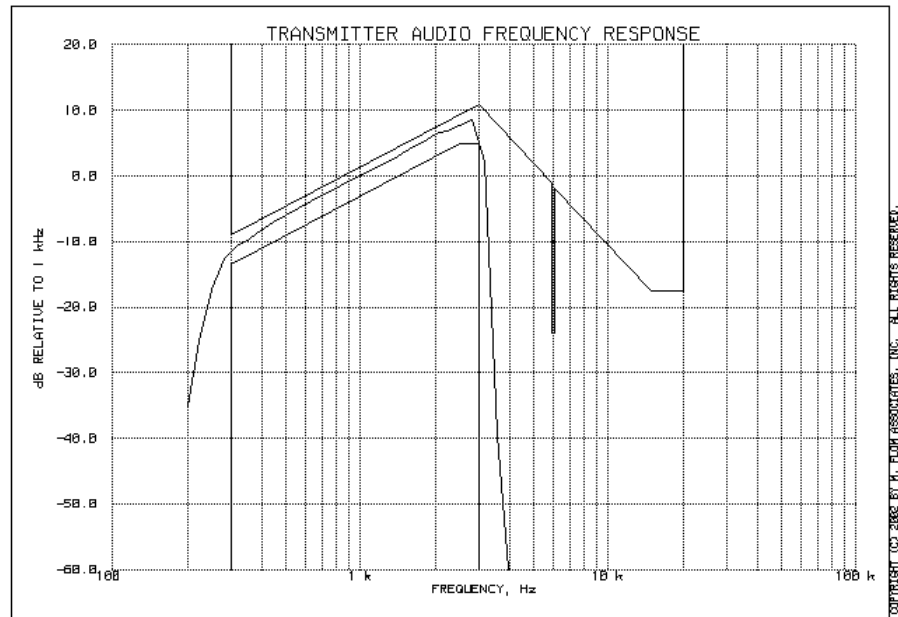
MEASUREMENT PROCEDURE

1. The EUT and test equipment were set up as shown on the following page.
2. The audio signal generator was connected to the audio input circuit/microphone of the EUT.
3. The audio signal input was adjusted to obtain 20% modulation at 1 kHz, and this point was taken as the 0 dB reference level.
4. With input levels held constant and below limiting at all frequencies, the audio signal generator was varied from 100 Hz to 50 kHz.
5. The response in dB relative to 1 kHz was then measured, using the HP 8901A Modulation Analyzer.
6. MEASUREMENT RESULTS: ATTACHED

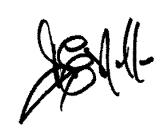
PAGE NO.

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NAME OF TEST: Audio Frequency Response  
g0280004: 2002-Aug-05 Mon 15:50:00  
STATE: 0:General



PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.



PAGE NO. 14 of 99.  
NAME OF TEST: Audio Low Pass Filter (Voice Input)  
SPECIFICATION: 47 CFR 2.1047(a)  
TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The EUT and test equipment were set up such that the audio input was connected at the input to the modulation limiter, and the modulated stage.
2. The audio output was connected at the output to the modulated stage.
3. MEASUREMENT RESULTS: ATTACHED

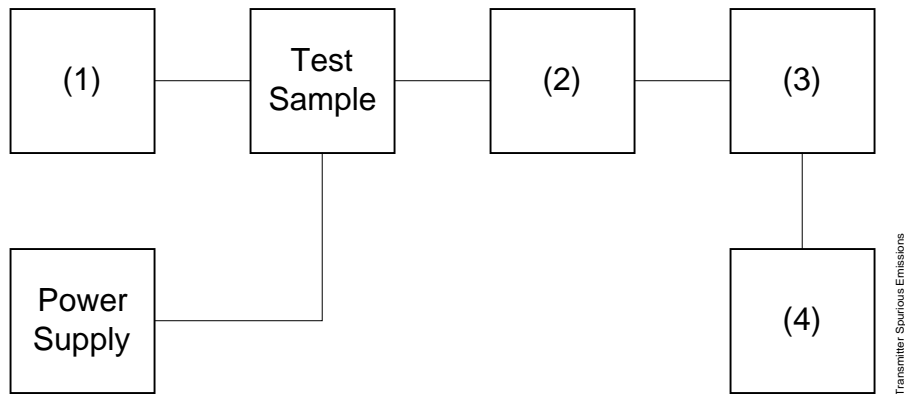
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TRANSMITTER SPURIOUS EMISSION

TEST A. OCCUPIED BANDWIDTH (IN-BAND SPURIOUS)

TEST B. OUT-OF-BAND SPURIOUS

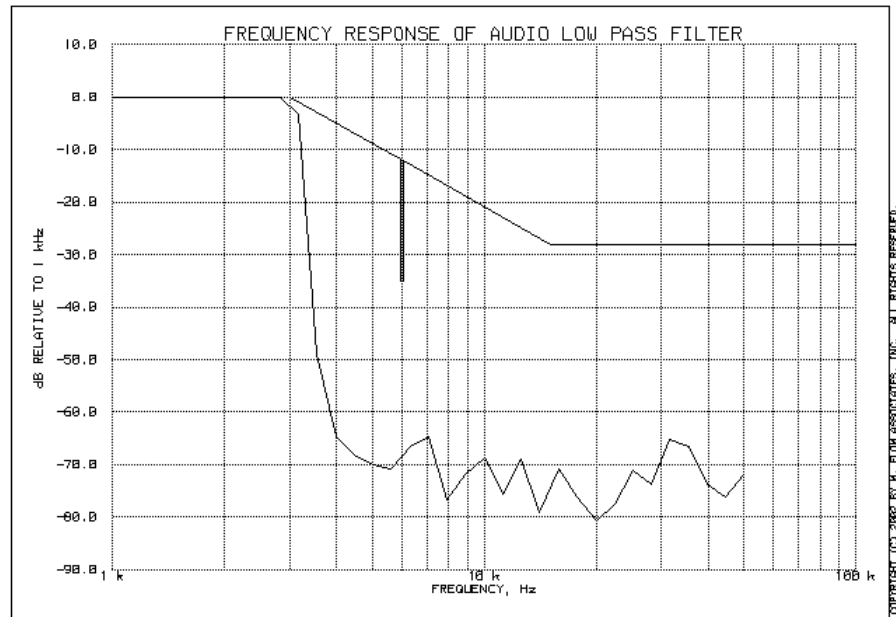


Asset Description (as applicable)	s/n
(1) <u>AUDIO OSCILLATOR/GENERATOR</u>	
i00010 HP 204D	1105A04683
i00017 HP 8903A	2216A01753
i00012 HP 3312A	1432A11250
(2) <u>COAXIAL ATTENUATOR</u>	
i00122 Narda 766-10	7802
i00123 Narda 766-10	7802A
i00069 Bird 8329 (30 dB)	1006
i00113 Sierra 661A-3D	1059
(3) <u>FILTERS; NOTCH, HP, LP, BP</u>	
i00126 Eagle TNF-1	100-250
i00125 Eagle TNF-1	50-60
i00124 Eagle TNF-1	250-850
(4) <u>SPECTRUM ANALYZER</u>	
i00048 HP 8566B	2511A01467
i00029 HP 8563E	3213A00104


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NAME OF TEST: Audio Low Pass Filter (Voice Input)  
g0280005: 2002-Aug-05 Mon 15:57:00  
STATE: 0:General



PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Modulation Limiting  
SPECIFICATION: 47 CFR 2.1047(b)  
TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

1. The audio signal generator was connected to the audio input circuit/microphone of the EUT as for Frequency Response of the Audio Modulating Circuit.
2. The modulation response was measured for each of three tones (one of which was the frequency of maximum response), and the input voltage was varied and was observed on an HP 8901A Modulation Analyzer.
3. The audio input level was varied from 30% modulation ( $\pm 3.6$  kHz deviation) to at least 20 dB higher than the saturation point.
4. Measurements were performed for both negative and positive modulation and the respective results were recorded.
5. MEASUREMENT RESULTS ATTACHED FOR:

COMPANDER ON:

x VOICE

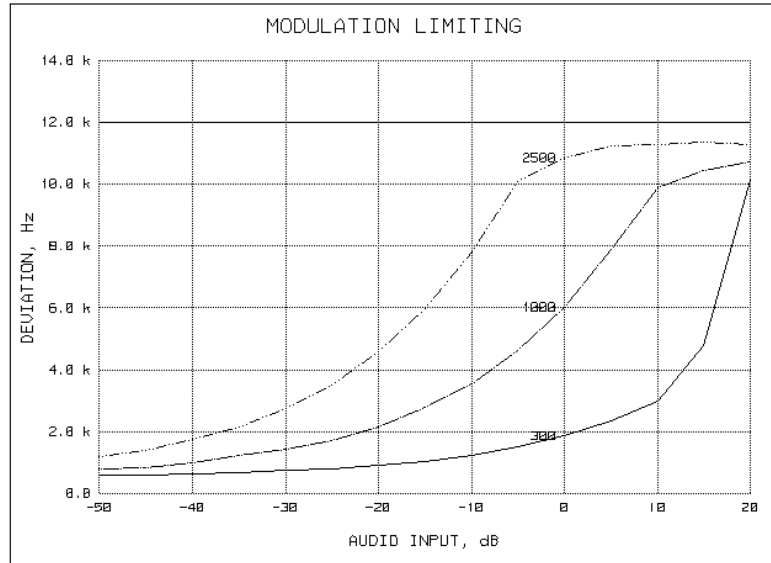
x VOICE + SAT

PAGE NO.

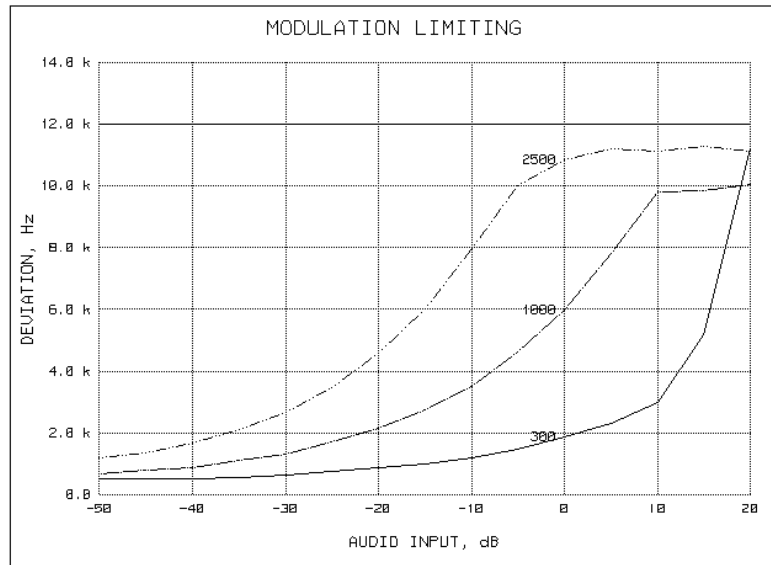
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NAME OF TEST: Modulation Limiting  
g0280001: 2002-Aug-05 Mon 15:29:00  
STATE: 0:General VOICE ONLY

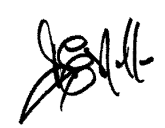
Positive  
Peaks:



Negative  
Peaks:



PERFORMED BY:

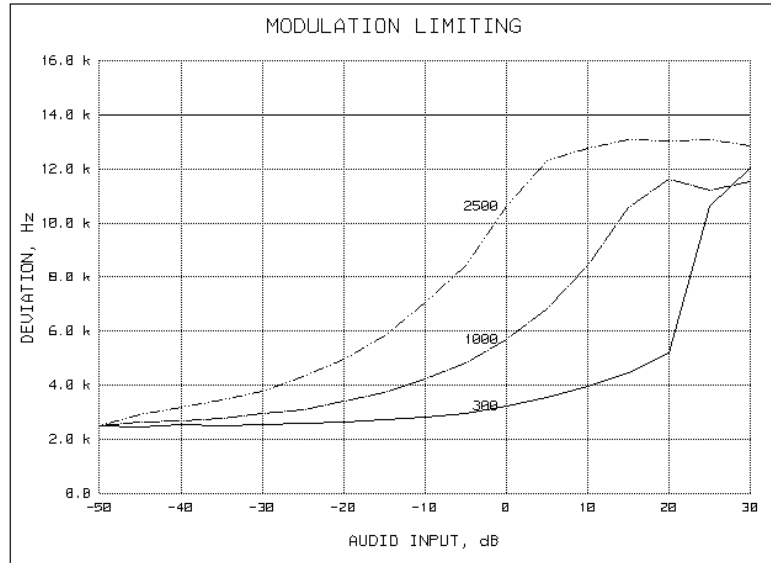
  
Doug Noble, B.A.S. E.E.T.

PAGE NO.

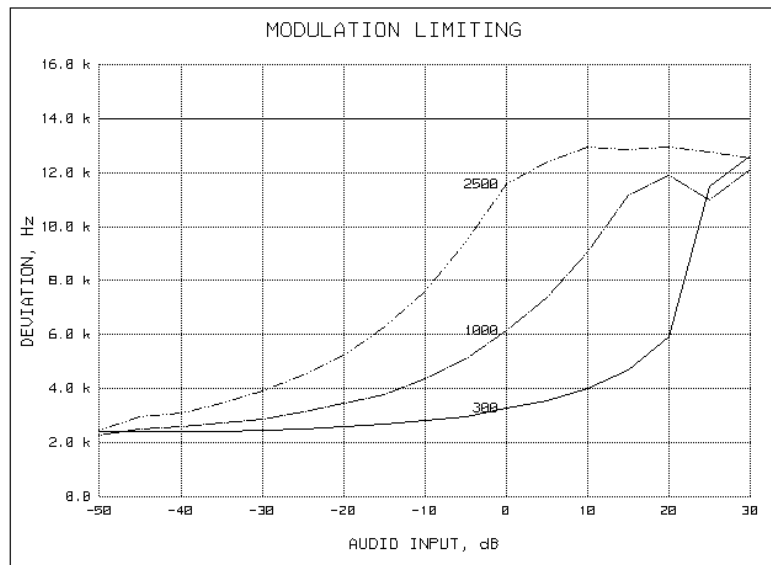
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NAME OF TEST: Modulation Limiting  
g0280002: 2002-Aug-05 Mon 15:37:00  
STATE: 0:General VOICE + SAT

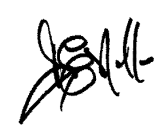
Positive  
Peaks:



Negative  
Peaks:



PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Measurement Of Maximum Deviation

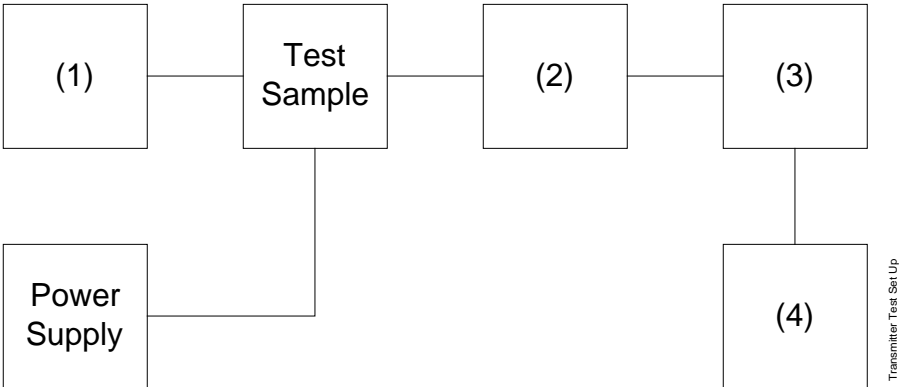
TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The presentation of tones was obtained by attaching the HP 8903A Oscilloscope to the Modulation Output of the HP 8901 Modulation Analyzer.
2. The EUT was modulated by an HP 8903 Audio Analyzer and/or internally generated signals.
3. Maximum deviation measurements were recorded for the various configurations.
4. MEASUREMENT RESULTS: ATTACHED SUMMARY FOR DEVIATION

TRANSMITTER TEST SET-UP

- TEST A. MODULATION CAPABILITY/DISTORTION
- TEST B. AUDIO FREQUENCY RESPONSE
- TEST C. HUM AND NOISE LEVEL
- TEST D. RESPONSE OF LOW PASS FILTER
- TEST E. MODULATION LIMITING



Asset	Description (as applicable)	s/n
(1)	<u>Audio Oscillator</u>	
i00010	HP 204D	1105A04683
i00017	HP 8903A	2216A01753
i00118	HP 33120A	US36002064
(2)	<u>COAXIAL ATTENUATOR</u>	
i00122	NARDA 766-10	7802
i00123	NARDA 766-10	7802A
i00113	SIERRA 661A-3D	1059
i00069	BIRD 8329 (30 dB)	10066
(3)	<u>MODULATION ANALYZER</u>	
i00020	HP 8901A	2105A01087
(4)	<u>AUDIO ANALYZER</u>	
i00017	HP 8903A	2216A01753



PAGE NO.

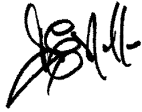
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MEASUREMENT SUMMARY:

Measurement Of Maximum Deviation

MODULATION	LIMIT, kHz	DEVIATION, kHz
(a) Voice	$\geq 10.8 \text{ \& } \leq 13.2$	11.2
(b) Wideband Data	$\geq 7.2 \text{ \& } \leq 8.8$	8.3
(c) SAT	$\geq 1.8 \text{ \& } \leq 2.2$	2.1
(d) ST	$\geq 7.2 \text{ \& } \leq 8.8$	8.1
(e) SAT + VOICE	N/A	12.9
(f) SAT + DTMF	N/A	11.5
(i) NAMPS VOICE	N/A	N/A
(j) NAMPS DSAT	N/A	N/A
(k) NAMPS ST	N/A	N/A
(l) NAMPS VOICE	N/A	N/A

PERFORMED BY:

  
 Doug Noble, B.A.S. E.E.T.

PAGE NO. 23 of 99.  
NAME OF TEST: Emission Masks (Occupied Bandwidth)  
SPECIFICATION: 47 CFR 2.1049(c)(1), 22  
TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

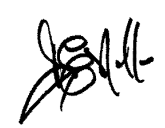
1. The EUT and test equipment were set up as shown on the following page, with the Spectrum Analyzer connected.
2. For EUTs supporting audio modulation, the audio signal generator was adjusted to the frequency of maximum response and with output level set for  $\pm 2.5$  kHz deviation (or 50% modulation). With level constant, the signal level was increased 16 dB.
3. For EUTs supporting digital modulation, the digital modulation mode was operated to its maximum extent.
4. The Occupied Bandwidth was measured with the Spectrum Analyzer controls set as shown on the test results.
5. MEASUREMENT RESULTS: ATTACHED

PAGE NO. 24 of 99.

MEASUREMENT SUMMARY: Emission Masks (Occupied Bandwidth)

MODULATION	MEASURED DEVIATION ±kHz (HP 8901A)	LIMIT ±kHz	B/W @-26 dB PLOTS, kHz
NONE	0.0	0.0	0.0
VOICE	11.2	≥ 10.8 & ≤ 13.2	26
WIDEBAND DATA	8.3	≥ 7.2 & ≤ 8.8	29
SAT + VOICE	12.9	N/A	27
SAT + DTMF	11.5	N/A	23
TDMA 800	N/A	N/A	28
GSM 850	N/A	N/A	254
TDMA PCS	N/A	N/A	27
GSM PCS	N/A	N/A	256

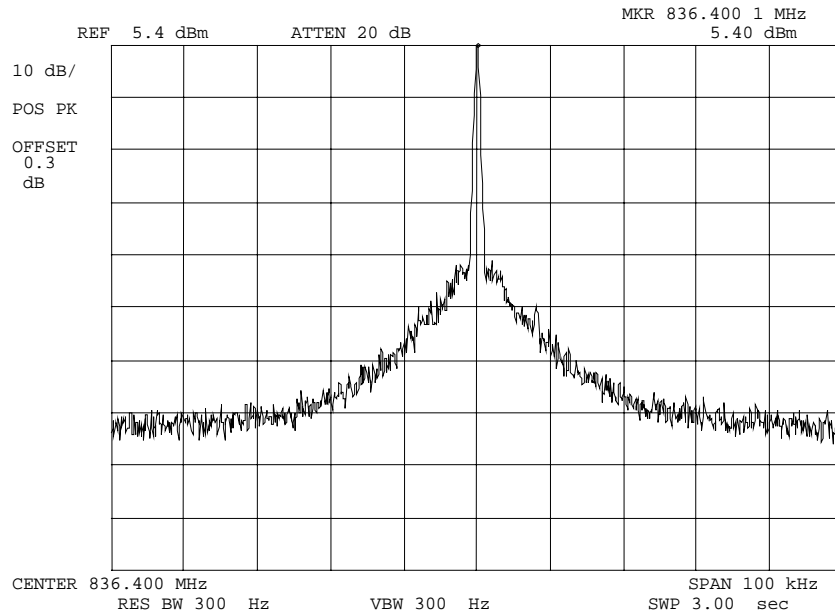
PERFORMED BY:

  
 Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280055: 2002-Aug-06 Tue 13:55:00  
STATE: 1:Low Power



POWER:  
MODULATION:

LOW  
NONE

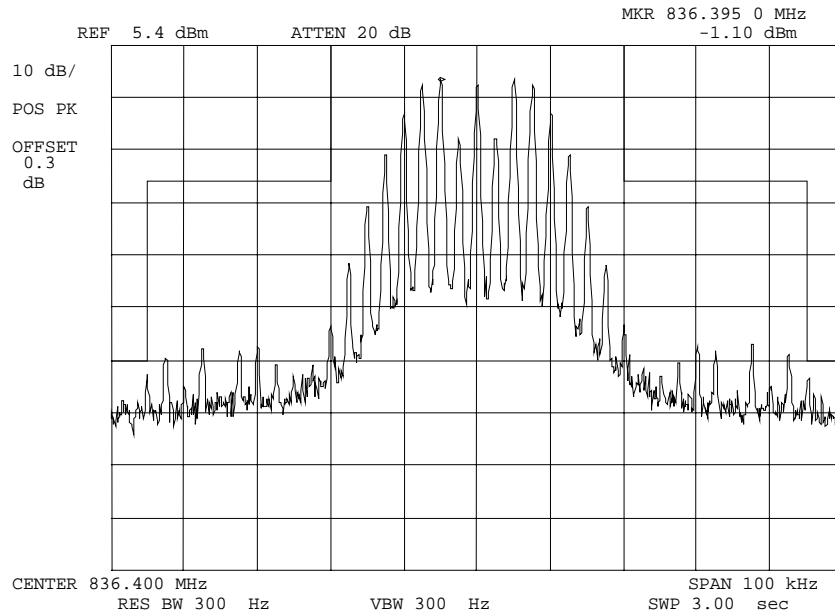
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280057: 2002-Aug-06 Tue 13:58:00  
STATE: 1:Low Power



POWER:  
MODULATION:

LOW  
VOICE: 2500 Hz SINE WAVE  
MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

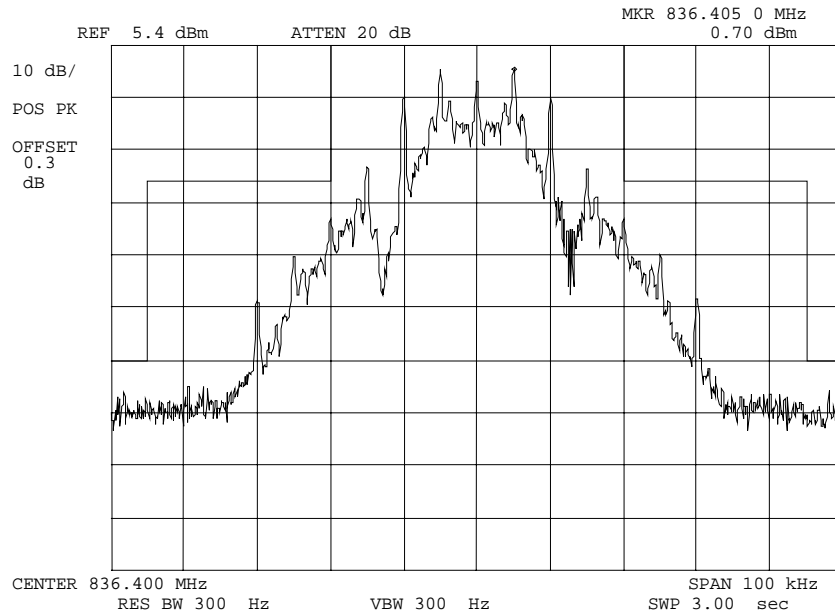
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280058: 2002-Aug-06 Tue 13:59:00  
STATE: 1:Low Power



POWER:  
MODULATION:

LOW  
WBD  
MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

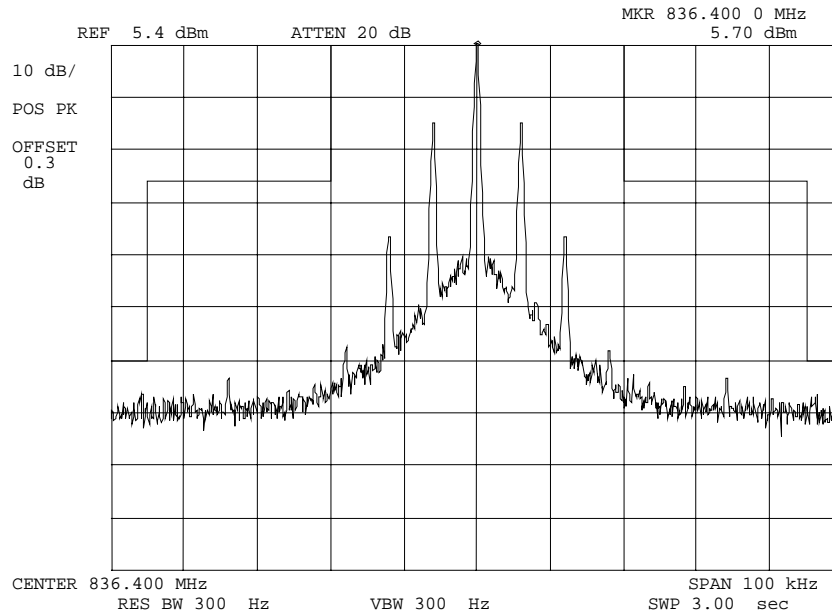
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280060: 2002-Aug-06 Tue 14:01:00  
STATE: 1:Low Power



POWER:

LOW

MODULATION:

SAT

MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

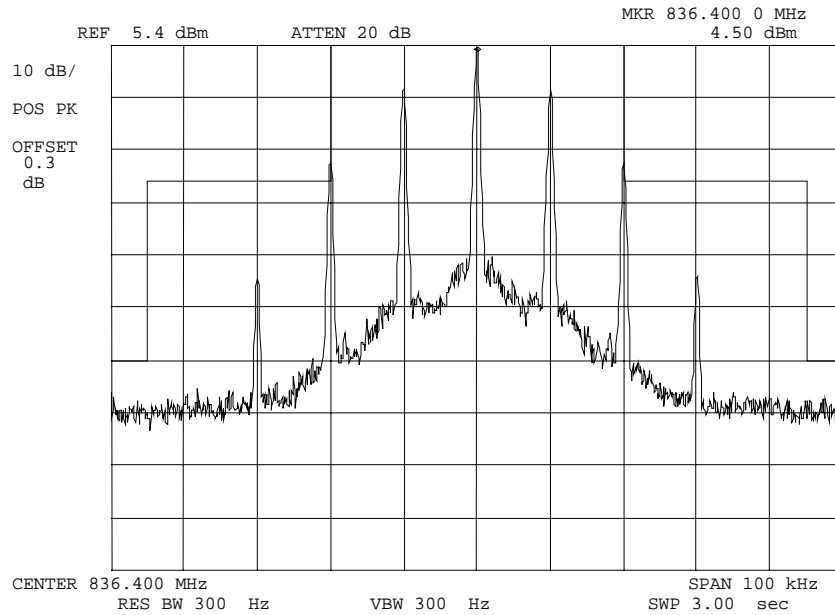
PERFORMED BY:

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PAGE NO.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280062: 2002-Aug-06 Tue 14:04:00  
STATE: 1:Low Power



POWER:

LOW

MODULATION:

ST

MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

PERFORMED BY:

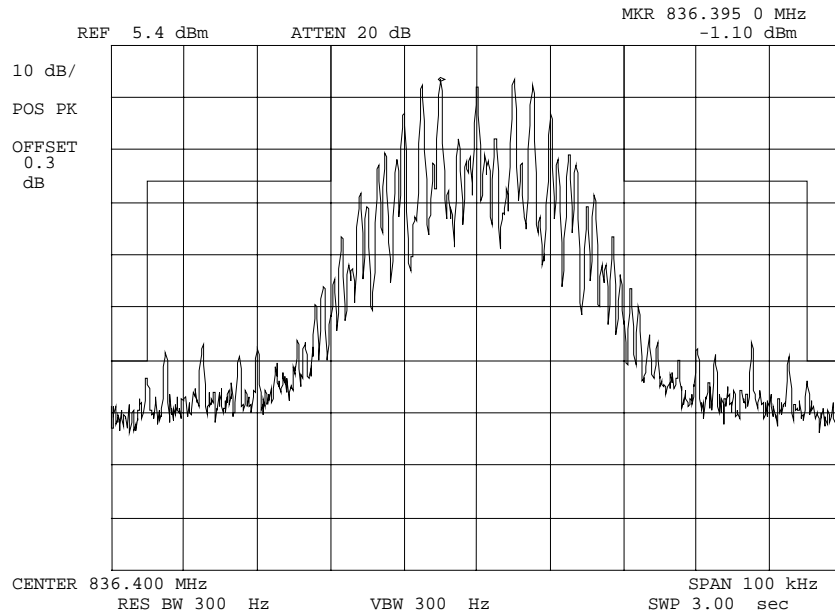
Doug Noble, B.A.S. E.E.T.



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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280066: 2002-Aug-06 Tue 14:14:00  
STATE: 1:Low Power



POWER:

LOW

MODULATION:

SAT+VOICE

MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

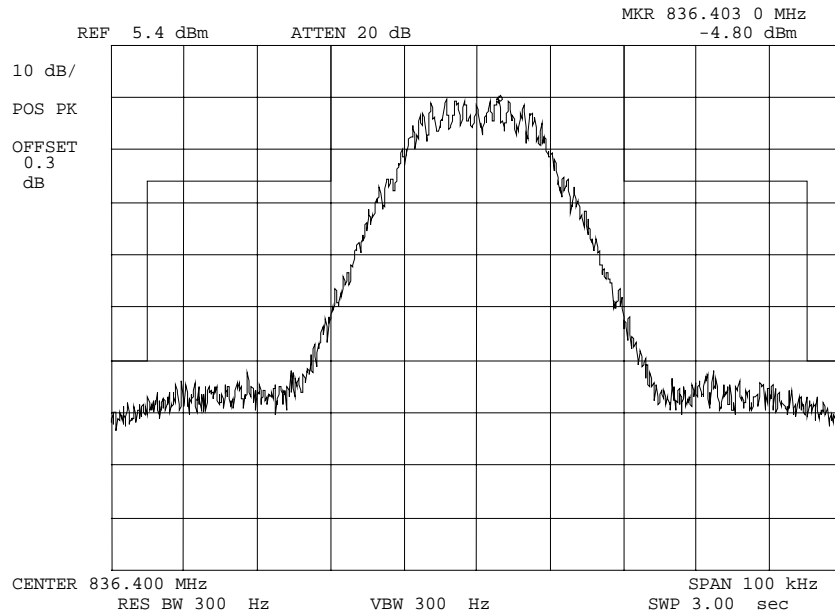
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280064: 2002-Aug-06 Tue 14:09:00  
STATE: 1:Low Power



POWER:

MODULATION:

LOW

SAT+DTMF

MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

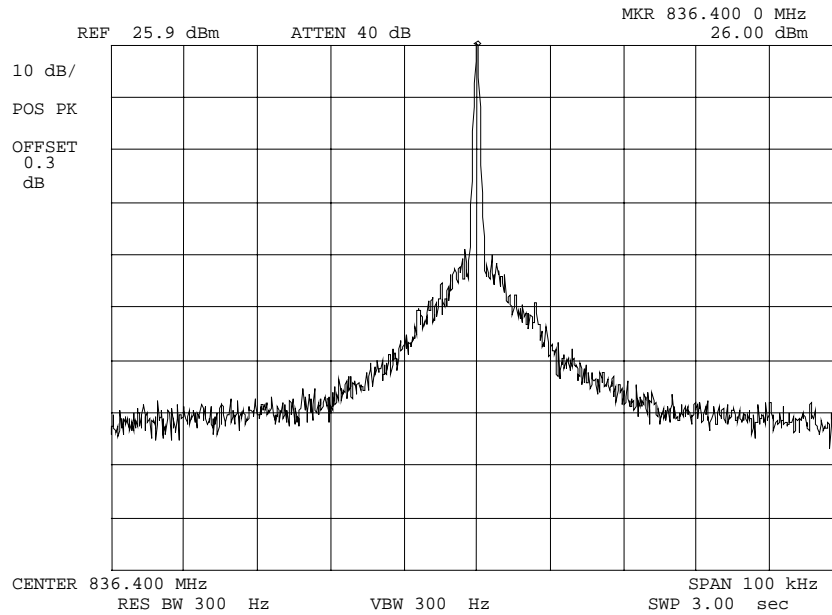
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280054: 2002-Aug-06 Tue 12:41:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: NONE

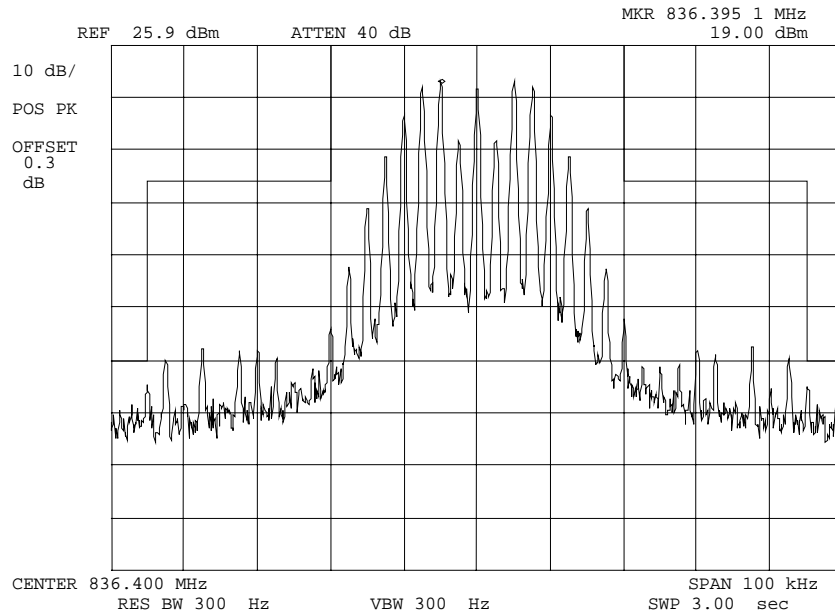
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280056: 2002-Aug-06 Tue 13:57:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
VOICE: 2500 Hz SINE WAVE  
MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

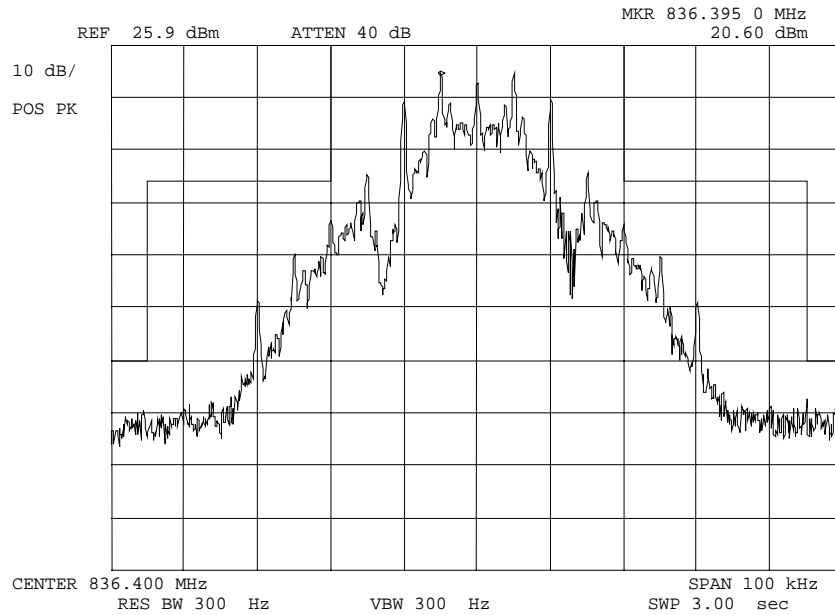
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280051: 2002-Aug-06 Tue 12:31:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
WBD  
MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

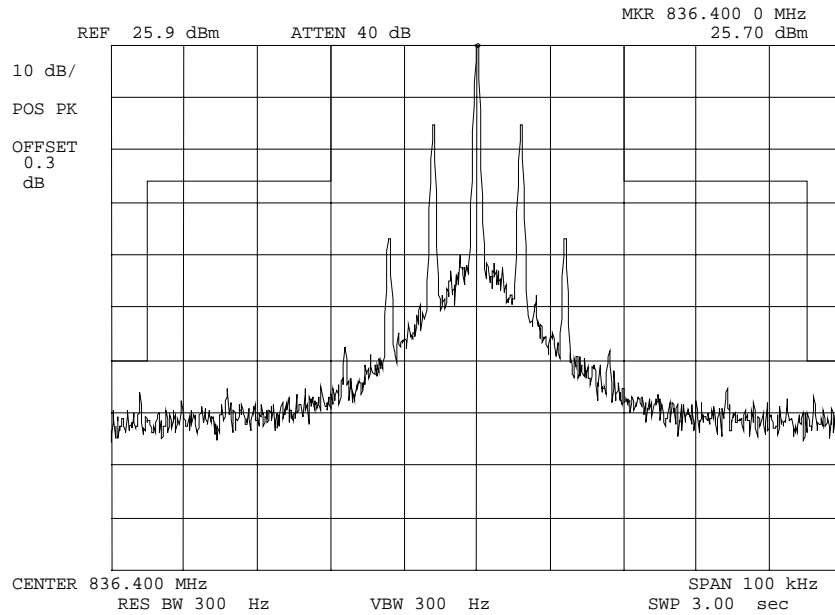
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280059: 2002-Aug-06 Tue 14:00:00  
STATE: 2:High Power



POWER:

HIGH

MODULATION:

SAT

MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

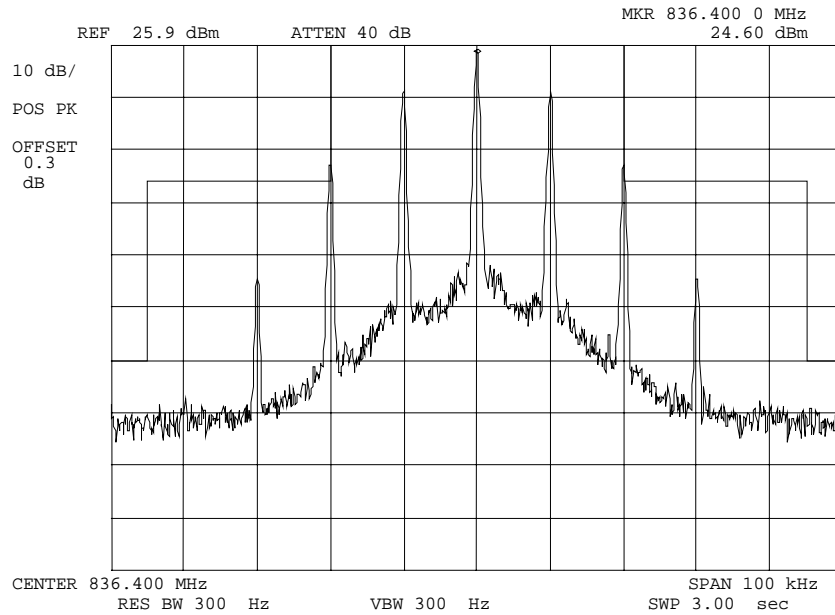
PERFORMED BY:

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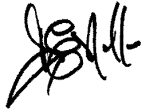
NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280061: 2002-Aug-06 Tue 14:03:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
ST  
MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

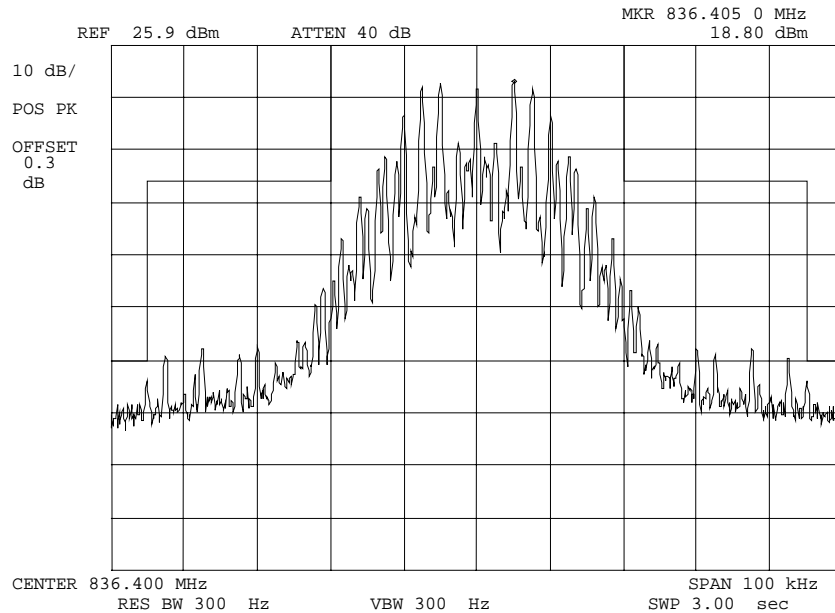
PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280065: 2002-Aug-06 Tue 14:13:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
SAT+VOICE  
MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

PERFORMED BY:

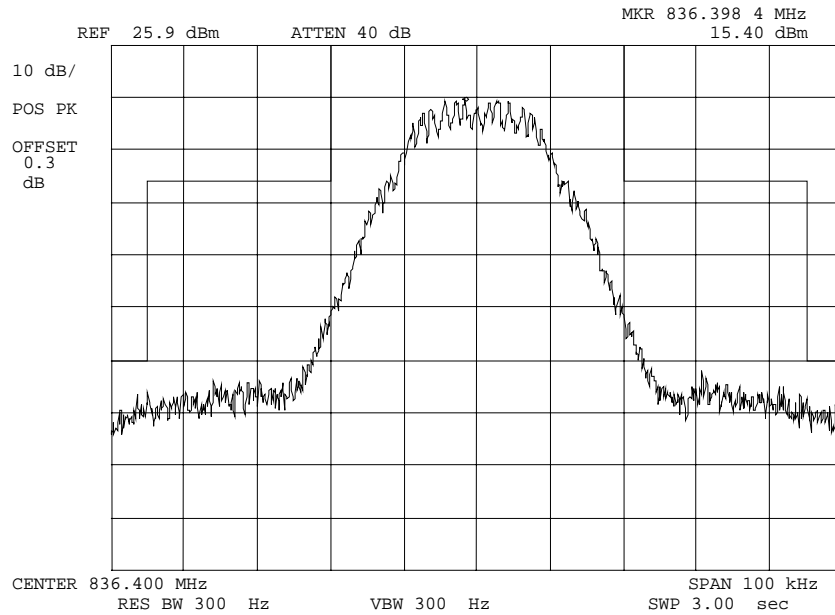
Doug Noble, B.A.S. E.E.T.



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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280063: 2002-Aug-06 Tue 14:06:00  
STATE: 2:High Power



POWER:  
MODULATION:

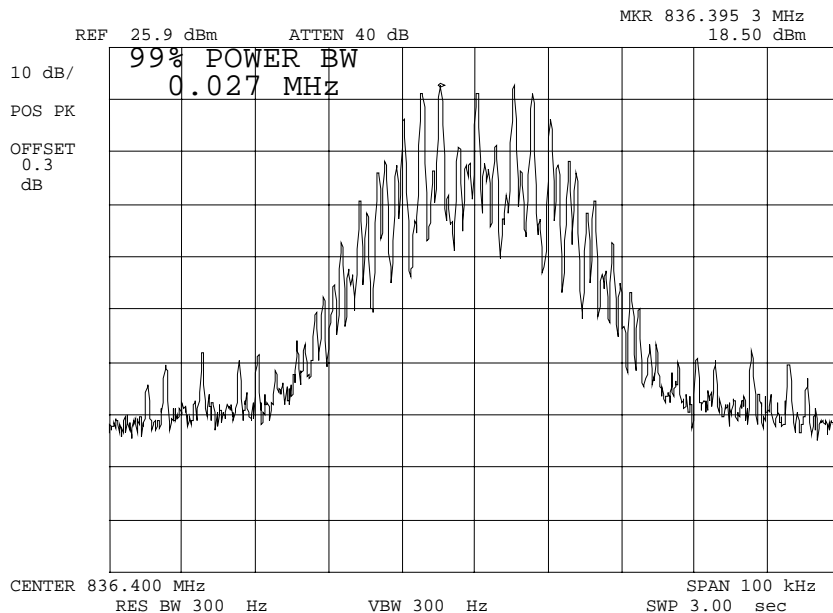
HIGH  
SAT+DTMF  
MASK: AMPS CELLULAR,  
F3E/F3D w/LPF

PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

PAGE NO. 39 of 99.

NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280113: 2002-Aug-08 Thu 08:37:00  
 STATE: 2:High Power

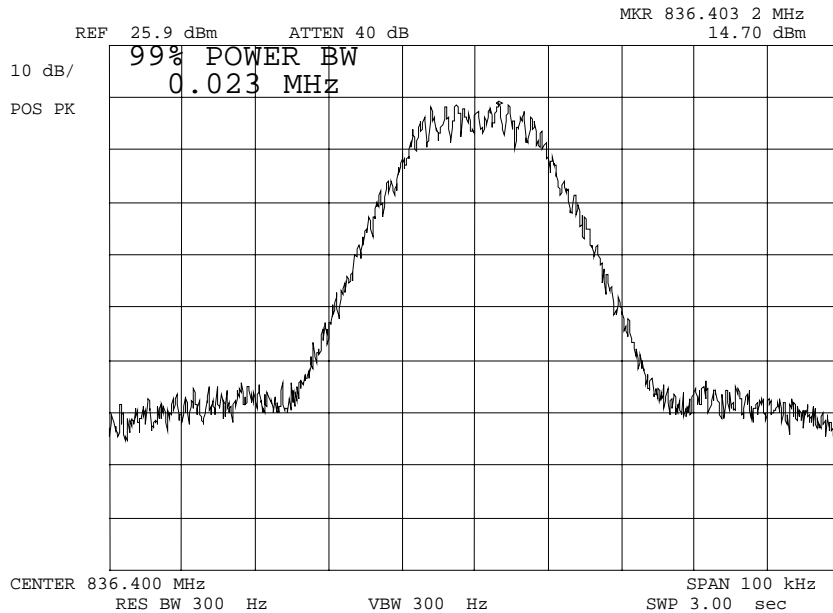


POWER: HIGH  
 MODULATION: SAT+VOICE AMPS  
 99% POWER BANDWIDTH

PERFORMED BY: Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280114: 2002-Aug-08 Thu 08:38:00  
 STATE: 2:High Power

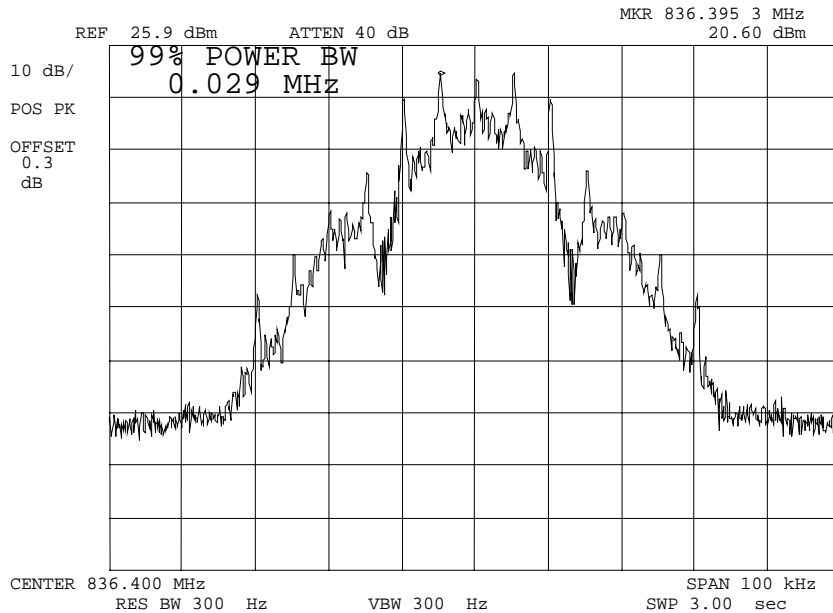


POWER: HIGH  
 MODULATION: SAT+DTMF AMPS  
 99% POWER BANDWIDTH

PERFORMED BY: Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280115: 2002-Aug-08 Thu 08:40:00  
 STATE: 2:High Power



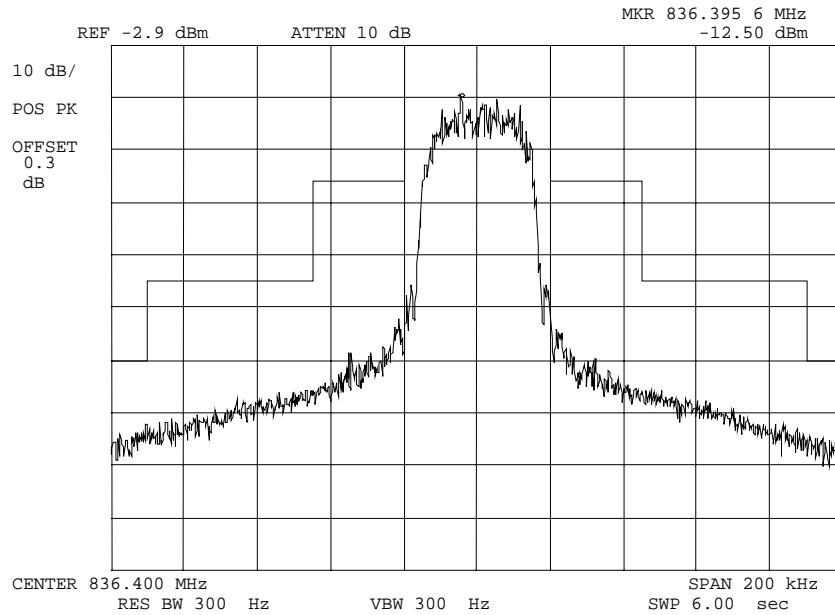
POWER: HIGH  
 MODULATION: WBD AMPS  
 99% POWER BANDWIDTH

PERFORMED BY: Doug Noble, B.A.S. E.E.T.

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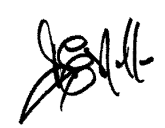
NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280077: 2002-Aug-06 Tue 14:45:00  
STATE: 1:Low Power



POWER:  
MODULATION:

LOW  
TDMA  
800 BAND

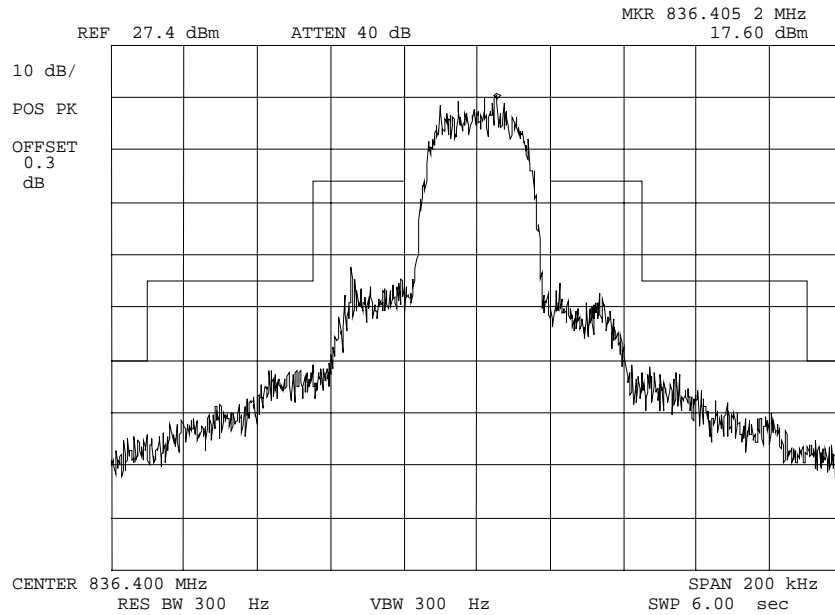
PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.

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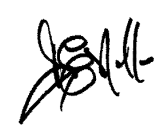
NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280076: 2002-Aug-06 Tue 14:43:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
TDMA  
800 BAND

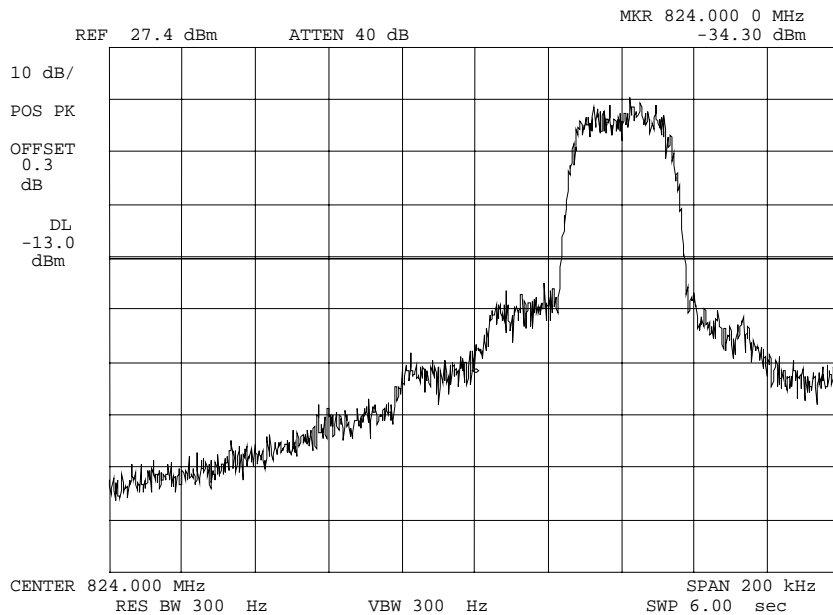
PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280078: 2002-Aug-06 Tue 14:51:00  
 STATE: 2:High Power



POWER: HIGH  
 MODULATION: TDMA  
 LOWER BANDEDGE CH 991

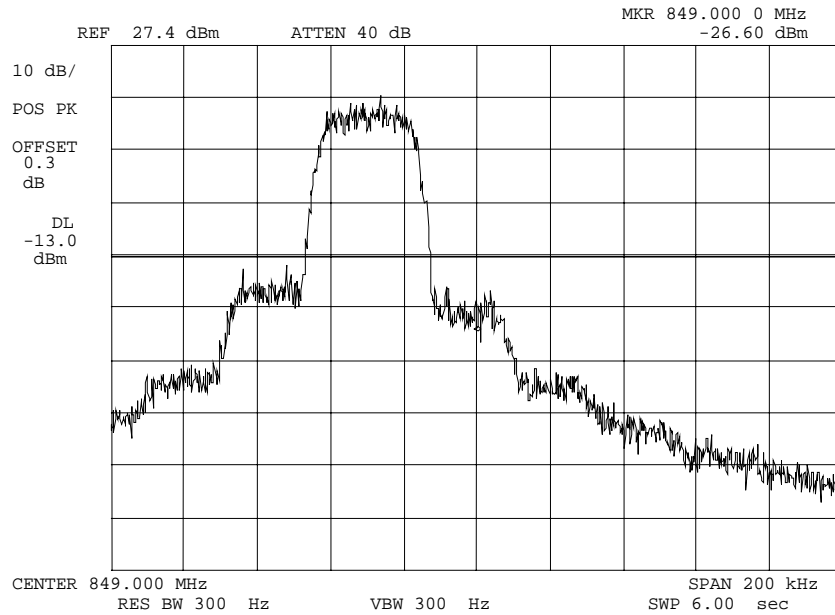
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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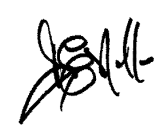
NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280079: 2002-Aug-06 Tue 14:54:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
TDMA  
UPPER BANDEDGE CH 799

PERFORMED BY:

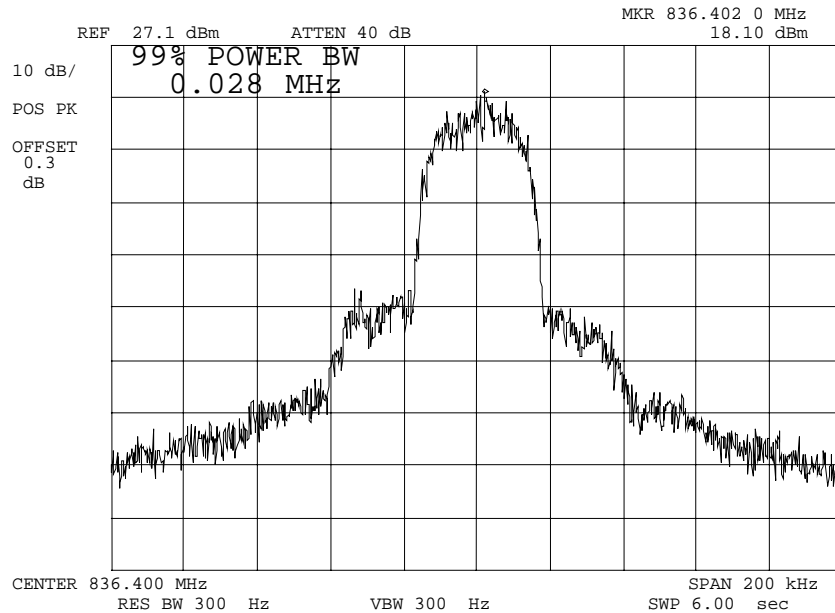
  
Doug Noble, B.A.S. E.E.T.



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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280109: 2002-Aug-08 Thu 08:28:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: TDMA 800  
99% POWER BANDWIDTH

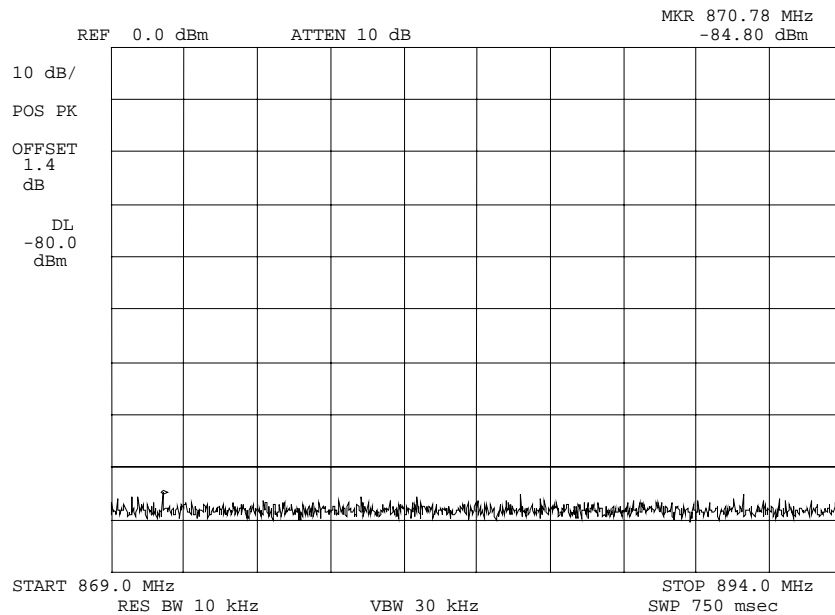
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280087: 2002-Aug-06 Tue 15:51:00  
STATE: 2:High Power



POWER :


MODULATION:

LOW

TDMA 800

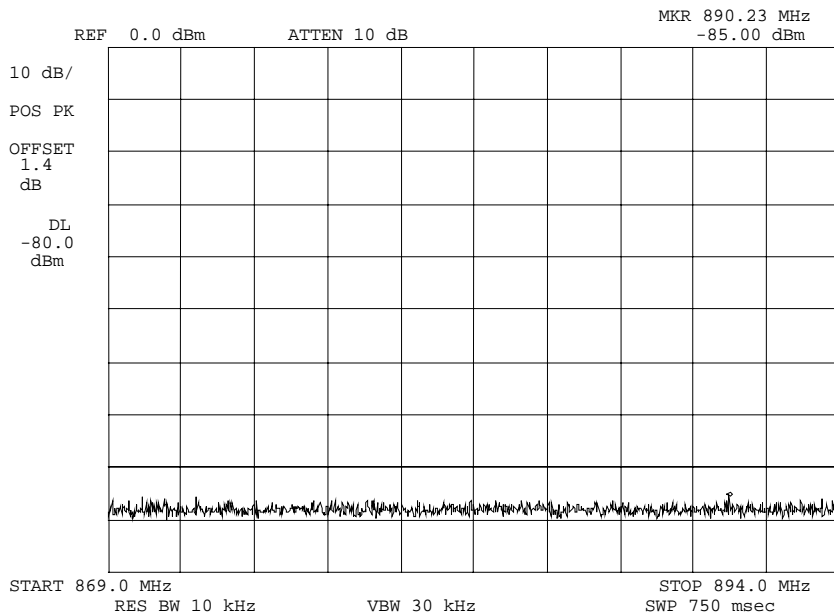
TX SPURS IN RX CRITICAL  
BAND

PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280080: 2002-Aug-06 Tue 15:10:00  
 STATE: 2:High Power



POWER: HIGH  
 MODULATION: TDMA 800  
 TX SPURS IN RX CRITICAL BAND

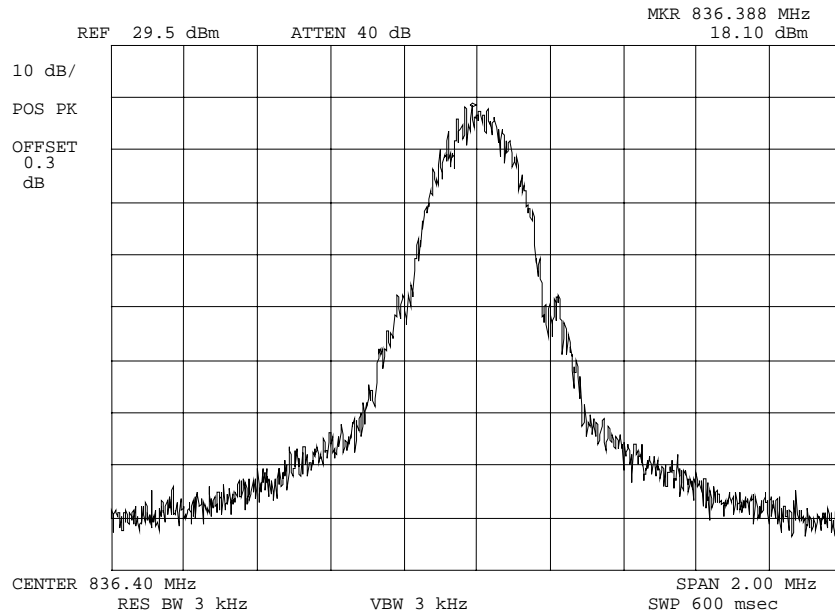
PERFORMED BY: Doug Noble, B.A.S. E.E.T.



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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280082: 2002-Aug-06 Tue 15:20:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
GSM 850

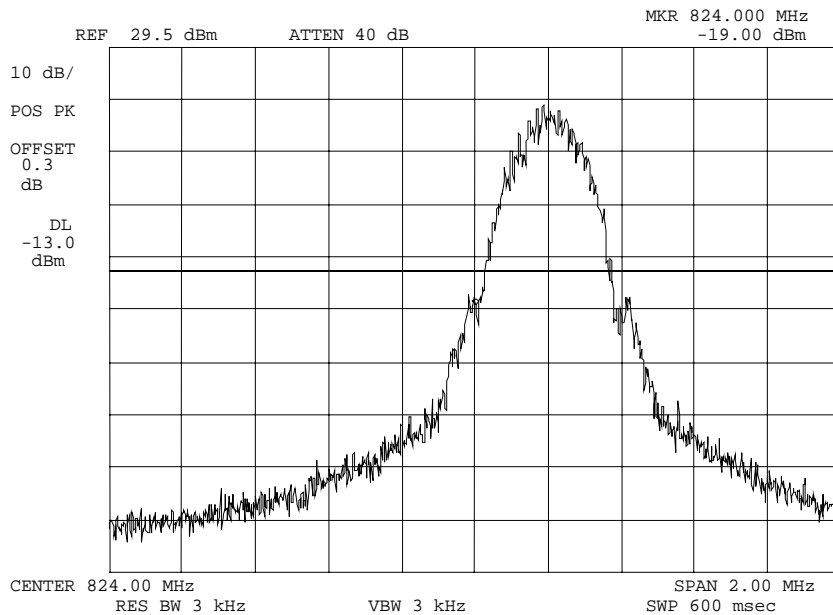
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280084: 2002-Aug-06 Tue 15:26:00  
 STATE: 2:High Power



POWER: HIGH  
 MODULATION: GSM 850  
 LOWER BANDEDGE CH 128

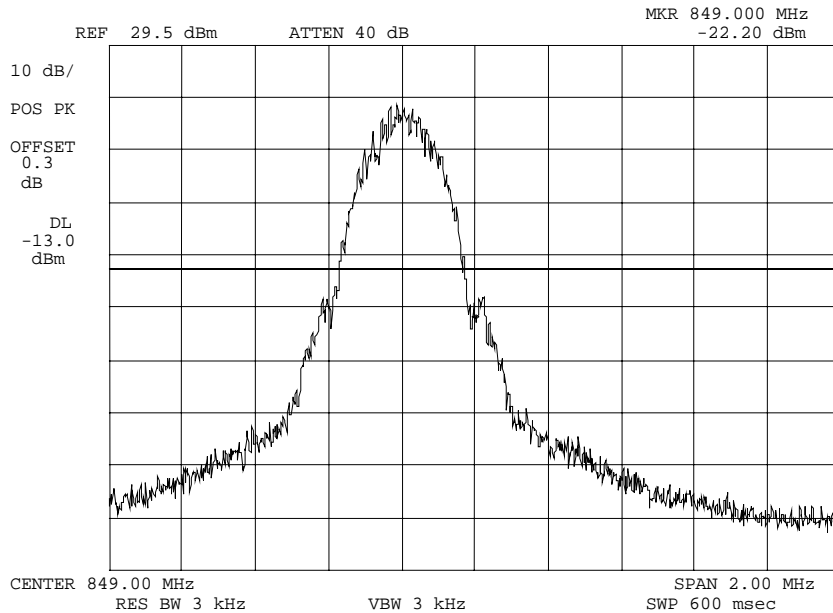
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280085: 2002-Aug-06 Tue 15:28:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: GSM 850  
UPPER BANDEDGE CH 251

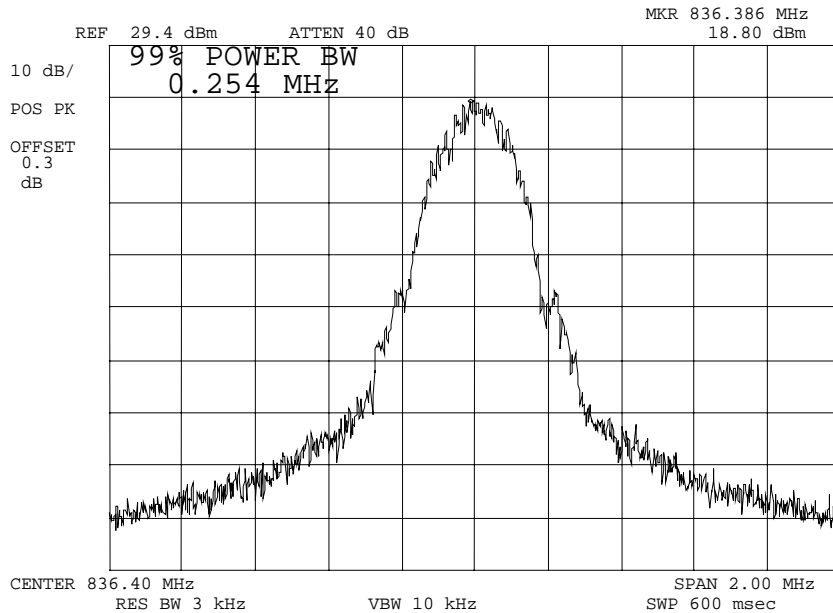
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280110: 2002-Aug-08 Thu 08:30:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: GSM 850  
99% POWER BANDWIDTH

PERFORMED BY:

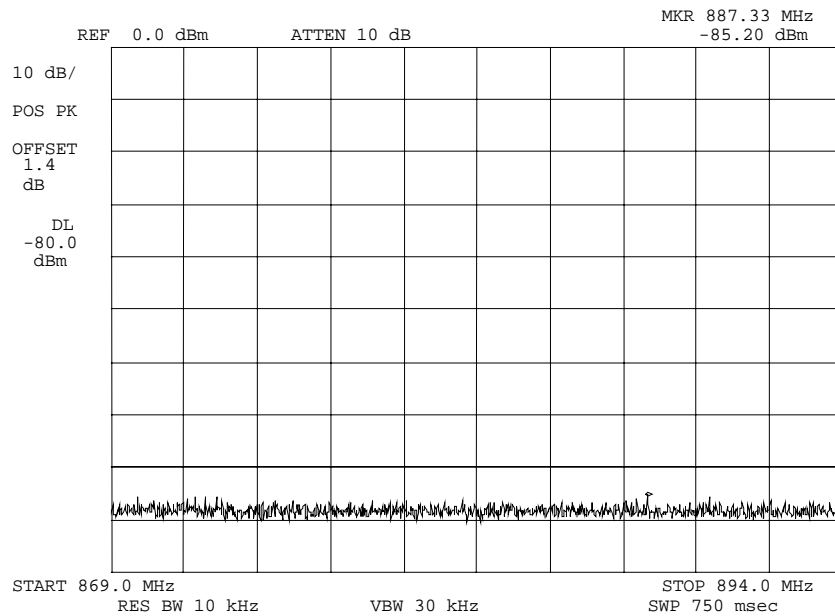
Doug Noble, B.A.S. E.E.T.



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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280086: 2002-Aug-06 Tue 15:49:00  
STATE: 2:High Power



POWER:

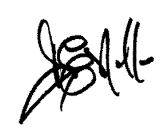
LOW

MODULATION:

GSM 850

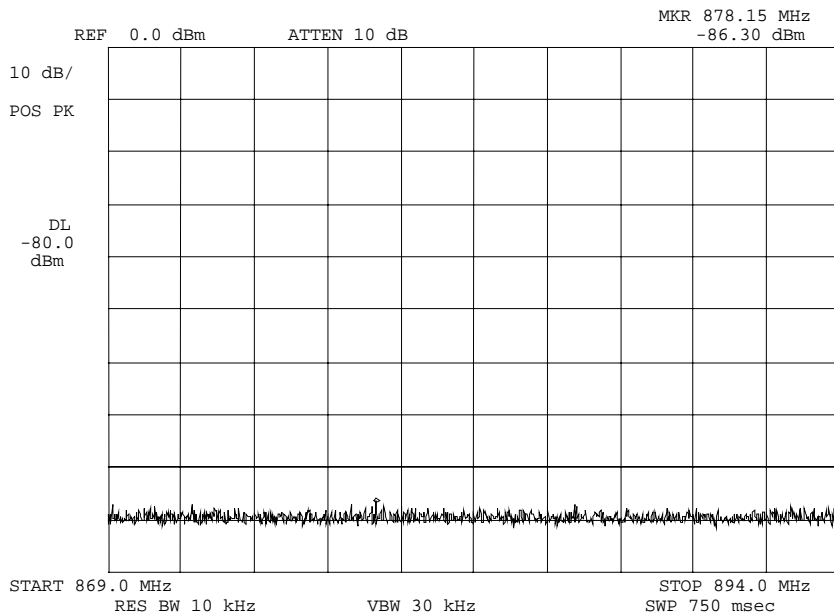
TX SPURS IN RX CRITICAL  
BAND

PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280081: 2002-Aug-06 Tue 15:11:00  
 STATE: 2:High Power



POWER: HIGH  
 MODULATION: GSM 850  
 TX SPURS IN RX CRITICAL BAND

PERFORMED BY: Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Transmitter Conducted Measurements


SPECIFICATION: 47 CFR 2.1051: Unwanted (spurious) Emissions  
2.1049(c), 24.238(b): Occupied Bandwidth  
24: Emissions at Band Edges

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

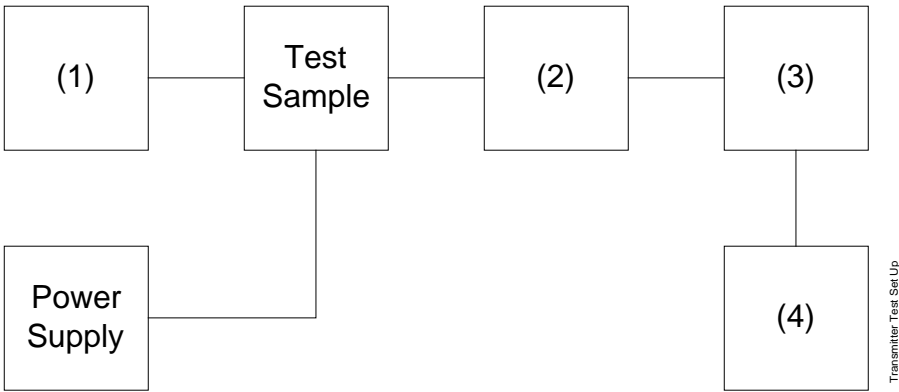
1. The EUT and test equipment were set up as shown on the following page with the Spectrum Analyzer connected.
2. The low and high channels for all RF powers within the designated frequency block(s) were measured.
3. MEASUREMENT RESULTS: ATTACHED

PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.

TRANSMITTER SPURIOUS EMISSION

TEST A. OCCUPIED BANDWIDTH (IN-BAND SPURIOUS)  
TEST B. OUT-OF-BAND SPURIOUS

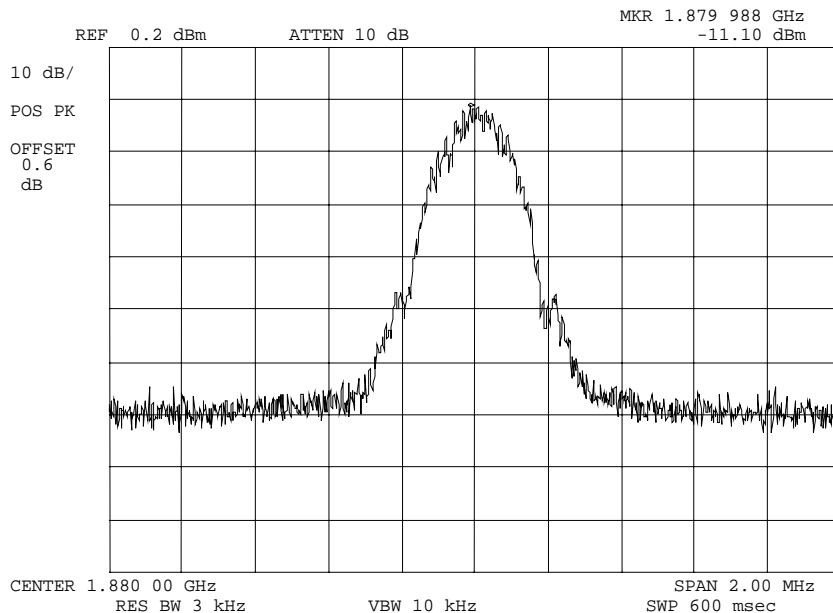


Asset Description (as applicable)	s/n
(1) <u>AUDIO OSCILLATOR/GENERATOR</u>	
i00010 HP 204D	1105A04683
i00017 HP 8903A	2216A01753
i00012 HP 3312A	1432A11250
(2) <u>COAXIAL ATTENUATOR</u>	
i00122 Narda 766-10	7802
i00123 Narda 766-10	7802A
i00069 Bird 8329 (30 dB)	1006
i00113 Sierra 661A-3D	1059
(3) <u>FILTERS; NOTCH, HP, LP, BP</u>	
i00126 Eagle TNF-1	100-250
i00125 Eagle TNF-1	50-60
i00124 Eagle TNF-1	250-850
(4) <u>SPECTRUM ANALYZER</u>	
i00048 HP 8566B	2511A01467
i00029 HP 8563E	3213A00104

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280105: 2002-Aug-07 Wed 09:17:00  
STATE: 1:Low Power



POWER: LOW  
MODULATION: GSM PCS BAND

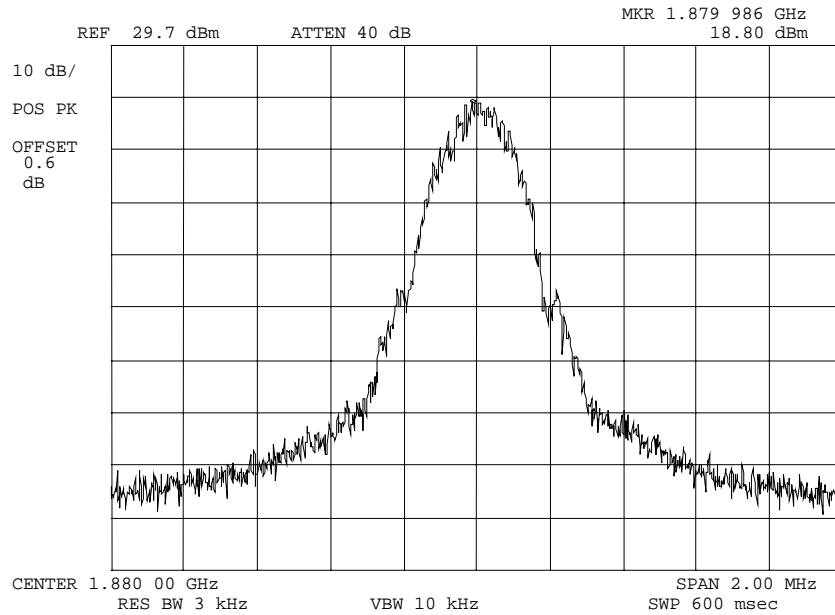
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280104: 2002-Aug-07 Wed 09:14:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
GSM PCS BAND

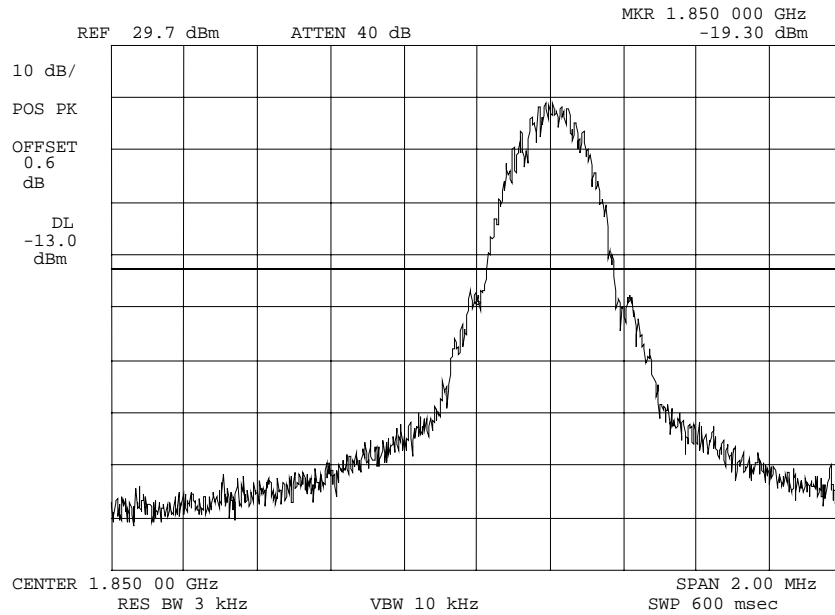
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280106: 2002-Aug-07 Wed 09:18:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
GSM PCS BAND  
LOWER BANDEDGE CH 512

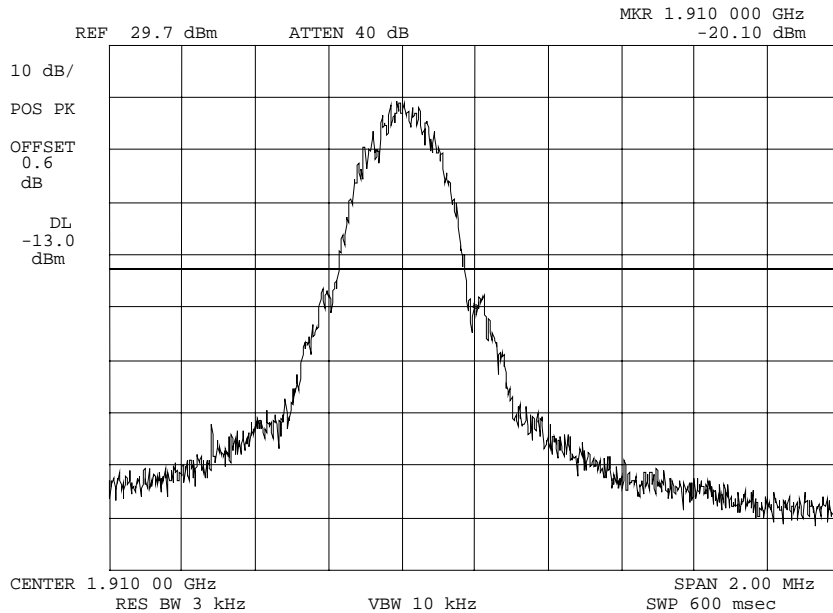
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280107: 2002-Aug-07 Wed 09:19:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: GSM PCS BAND  
UPPER BANDEDGE CH 810

PERFORMED BY:

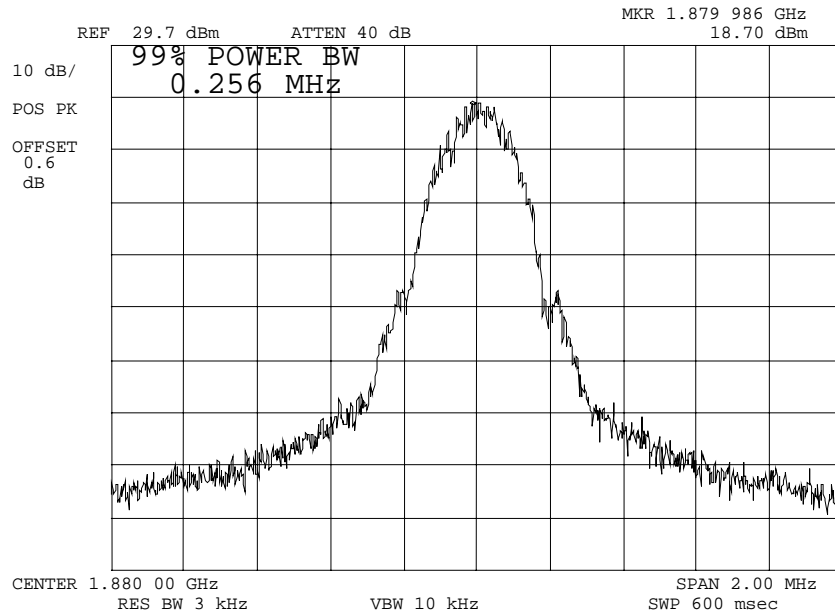
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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280111: 2002-Aug-08 Thu 08:31:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: GSM PCS  
99% POWER BANDWIDTH

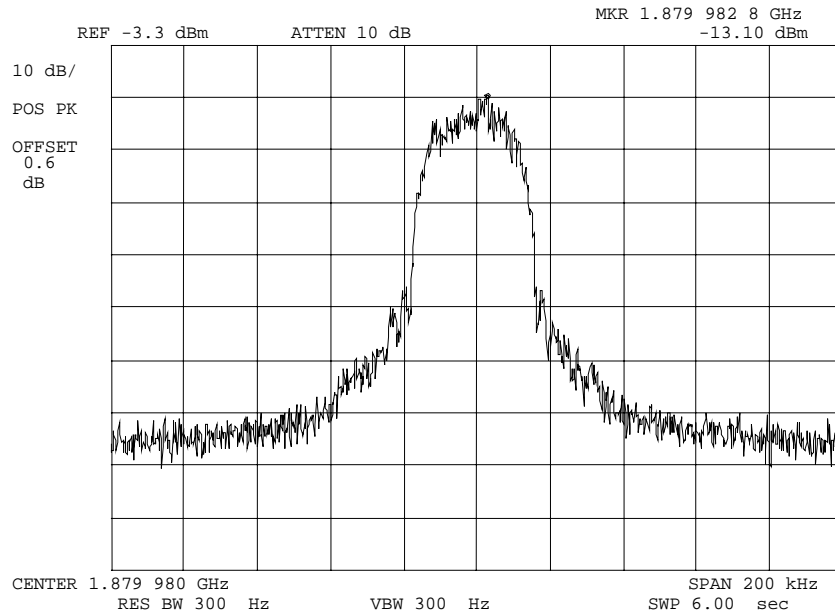
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280101: 2002-Aug-07 Wed 09:05:00  
STATE: 1:Low Power



POWER:  
MODULATION:

LOW  
TDMA PCS BAND

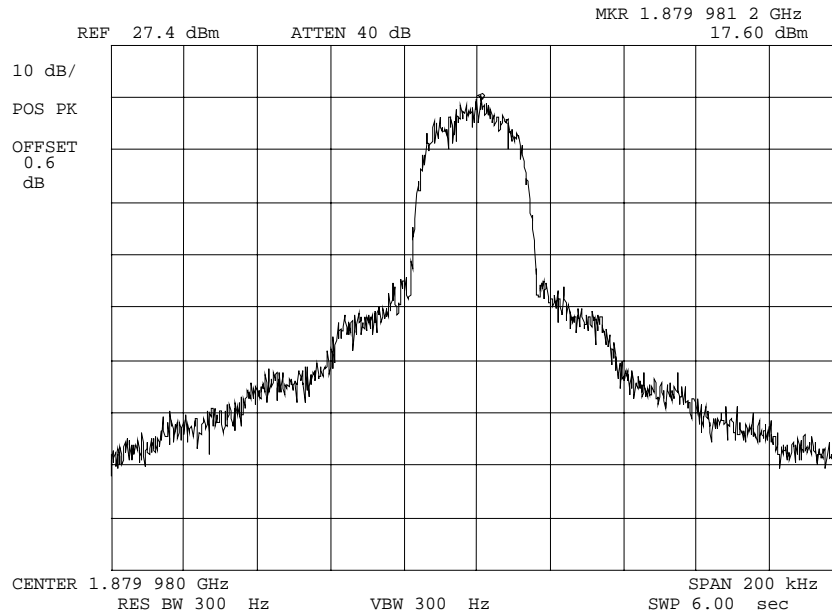
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280100: 2002-Aug-07 Wed 09:02:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
TDMA PCS BAND

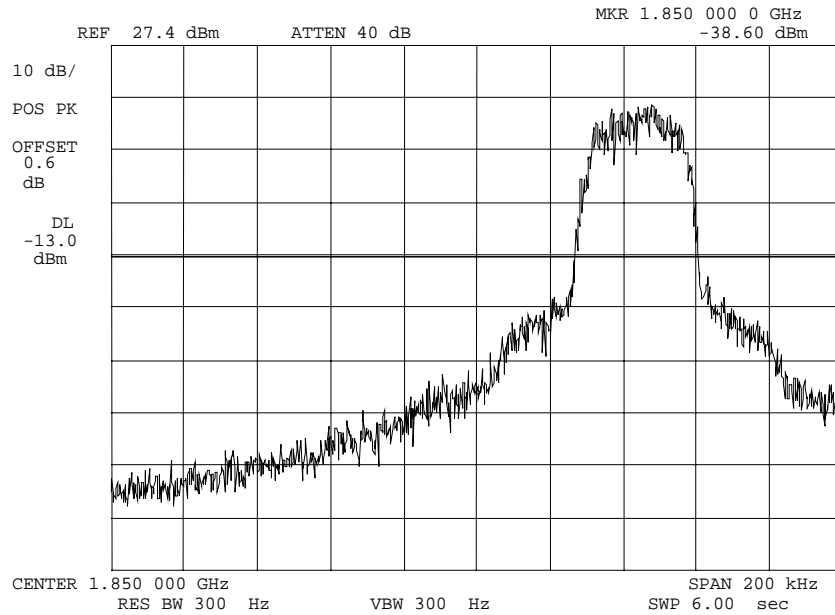
PERFORMED BY:

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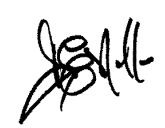
NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280102: 2002-Aug-07 Wed 09:09:00  
 STATE: 2:High Power



POWER:  
 MODULATION:

HIGH  
 TDMA PCS BAND  
 LOWER BANDEDGE CH 02

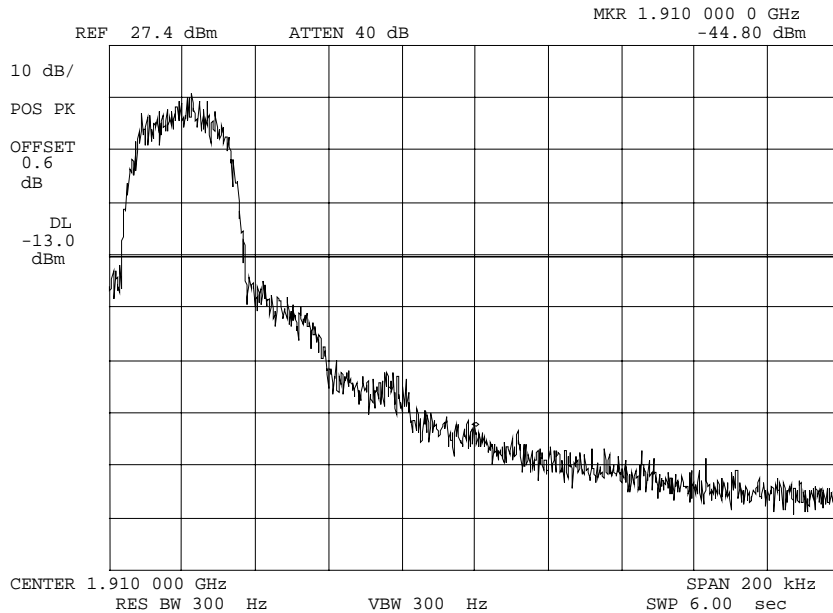
PERFORMED BY:

  
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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280103: 2002-Aug-07 Wed 09:11:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: TDMA PCS BAND  
UPPER BANDEDGE CH 1998

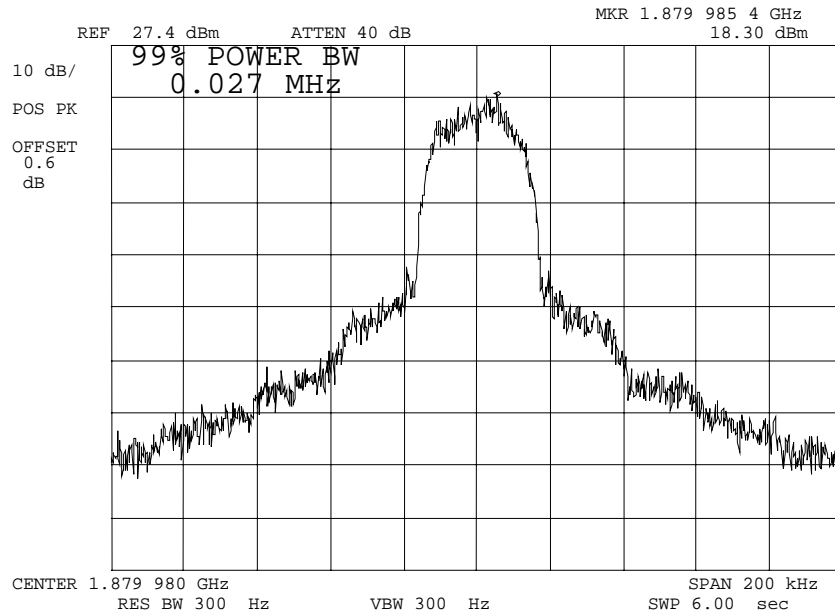
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280112: 2002-Aug-08 Thu 08:34:00  
STATE: 2:High Power



POWER: HIGH  
MODULATION: TDMA PCS  
99% POWER BANDWIDTH

PERFORMED BY:

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NAME OF TEST: Emission Requirements -  
Worst Case Modulation & Wideband Data

SPECIFICATION: 47 CFR 22.917

TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

1. The EUT was connected to a coaxial attenuator and then to a spectrum analyzer. The unmodulated carrier was set for 0 dB reference level.
2. A notch filter was introduced to reduce or eliminate any spectrum analyzer internally generated spurious for measurements of the harmonics and the carrier level.
3. Spectrum analyzer bandwidth was set to section 22.917(h) as applicable.
4. Measurements were made on channels 380, 799 and 991. The equipment was first modulated for the Worst Case Modulation, then for Wideband Data (F8W, F1D).
5. All other spurious emissions over the range of 0 the beyond the 10<sup>th</sup> harmonic (10 GHz) were 20 dB or more below the limit
6. The data presented here is for the Worst Case.
7. MEASUREMENT RESULTS: ATTACHED

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MEASUREMENT SUMMARY: Emission Requirements -  
Worst Case Modulation

WORST CASE MODULATION = VOICE +\_SAT

EMISSION, MHz/HARM.	LIMIT, dBc	SPURIOUS EMISSIONS, dBc	
		Lo	Hi
F0 + 20 kHz to F0 + 45 kHz	$\leq -26$	$\leq -46$	$\leq -47$
F0 + 45 kHz to 2 <sup>nd</sup> Harmonic	$\leq -60$ or $43 + 10 \log P$	$\leq -65$	$\leq -67$
2 <sup>nd</sup> to 10 <sup>th</sup>	$(\leq -13 \text{ dBm})$	$\leq -61$	$\leq -63$


MEASUREMENT RESULTS = ATTACHED OFFSET PLOTS

## EMISSION IN THE RECEIVER CRITICAL BAND

EMISSION, MHz/HARM.	LIMIT, dBm	SPURIOUS EMISSIONS, dBm	
		Lo	Hi
869 to 894	$\leq -80$	$\leq -87$	$\leq -87$

MEASUREMENT RESULTS = ATTACHED PLOTS

PERFORMED BY:

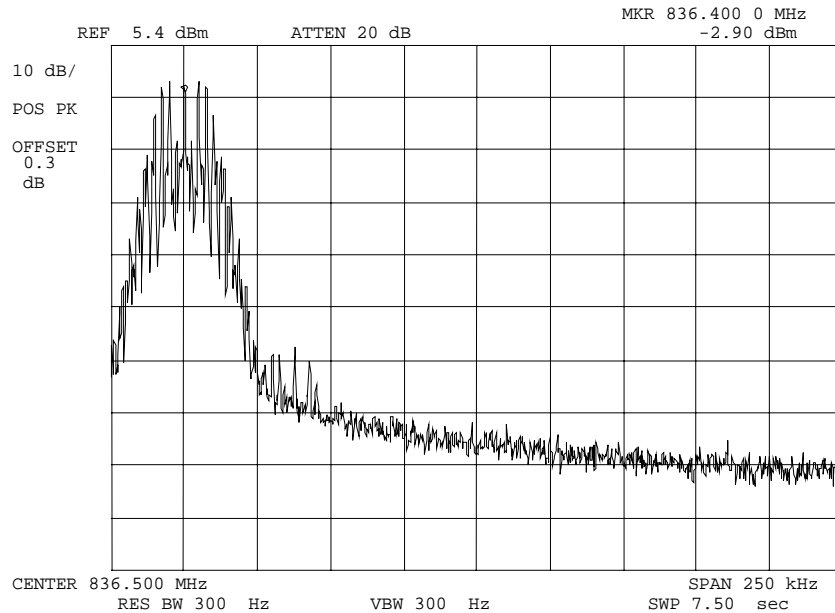
  
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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280067: 2002-Aug-06 Tue 14:15:00  
STATE: 1:Low Power



POWER:

LOW

MODULATION:

SAT+VOICE

OFFSET OCCUPIED BANDWIDTH

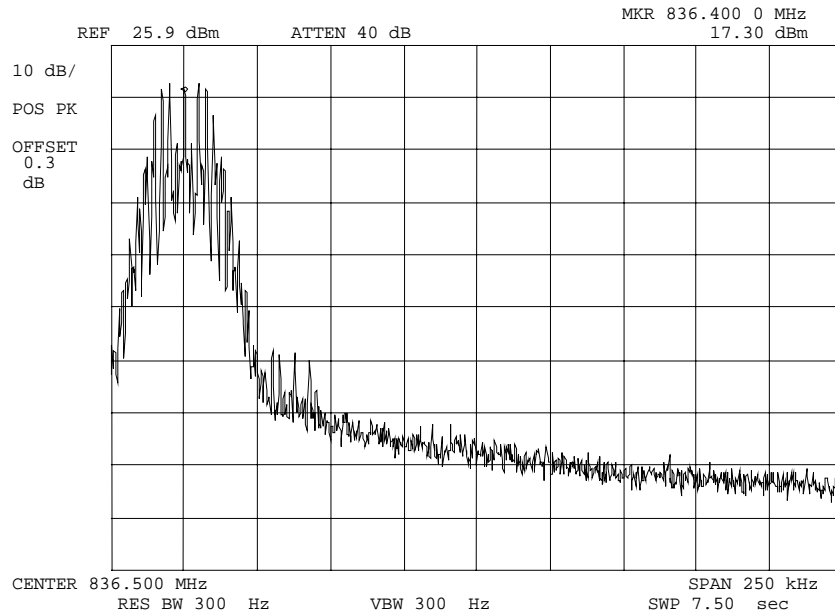
PERFORMED BY:

Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280068: 2002-Aug-06 Tue 14:17:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
SAT+VOICE  
OFFSET OCCUPIED BANDWIDTH

PERFORMED BY:

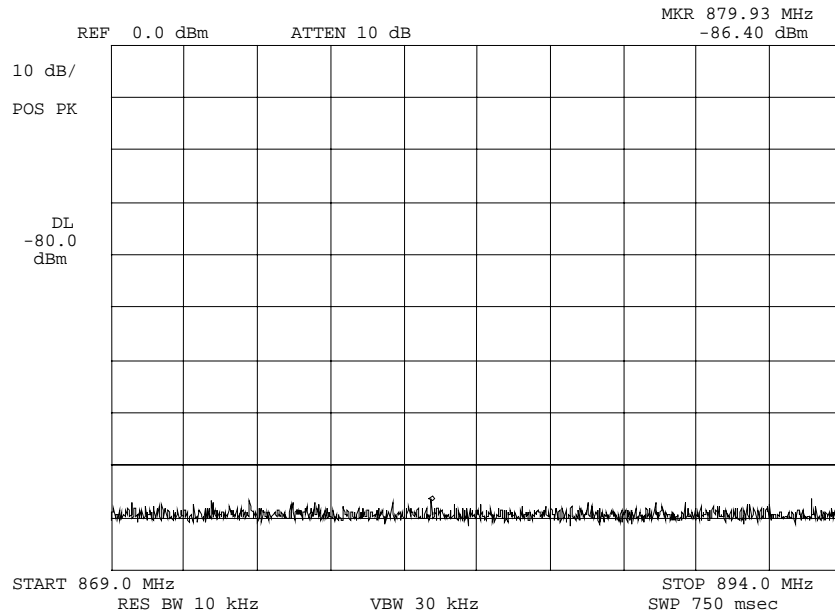
Doug Noble, B.A.S. E.E.T.



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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280073: 2002-Aug-06 Tue 14:25:00  
STATE: 2:High Power



POWER :

MODULATION:

HIGH

ANY (SAT + VOICE)

TX SPRUS IN RX CRITICAL  
BAND

PERFORMED BY:

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MEASUREMENT SUMMARY:Emission Requirements -  
Wideband Data (F1D, 10 kb/s)

EMISSION, MHz/HARM.	LIMIT, dBc	SPURIOUS EMISSIONS, dBc	
		Lo	Hi
F0 + 20 kHz to F0 + 45 kHz	≤-26	≤-41	≤-41
F0 + 45 kHz to F0 + 90 kHz	≤-45	≤-68	≤-69
F0 + 90 kHz to 2 <sup>nd</sup> Harmonic	≤-60 (≤-13 dBm)	≤-58	≤-56
2 <sup>nd</sup> to 10 <sup>th</sup>	(≤-13 dBm)	≤-61	≤-63

MEASUREMENT RESULTS

= ATTACHED OFFSET PLOTS

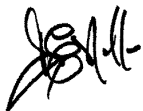
## EMISSION IN THE RECEIVER CRITICAL BAND

EMISSION, MHz/HARM.	LIMIT, dBm	SPURIOUS EMISSIONS, dBm	
		Lo	Hi
869 to 894	≤-80	≤-87	≤-87

MEASUREMENT RESULTS

= ATTACHED PLOTS

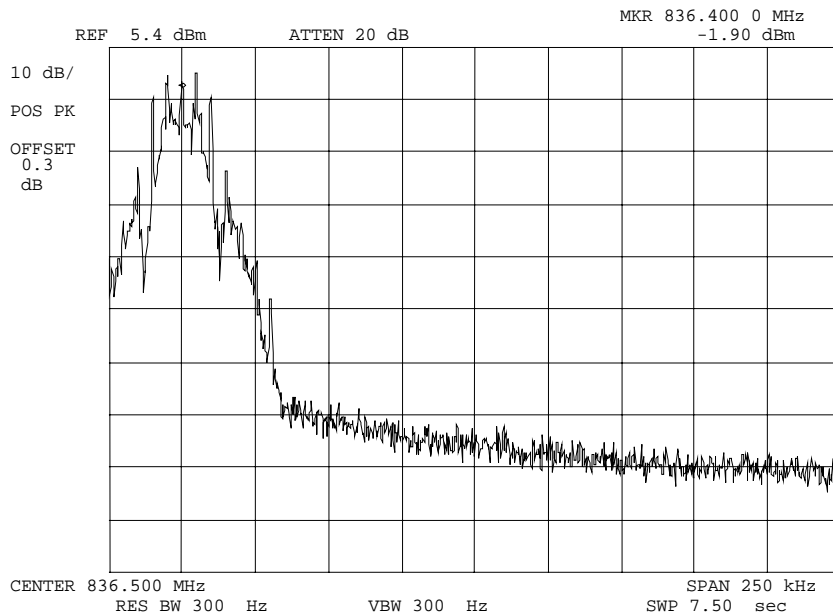
PERFORMED BY:

  
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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280070: 2002-Aug-06 Tue 14:19:00  
STATE: 1:Low Power



POWER: LOW  
MODULATION: WBD  
OFFSET OCCUPIED BANDWIDTH

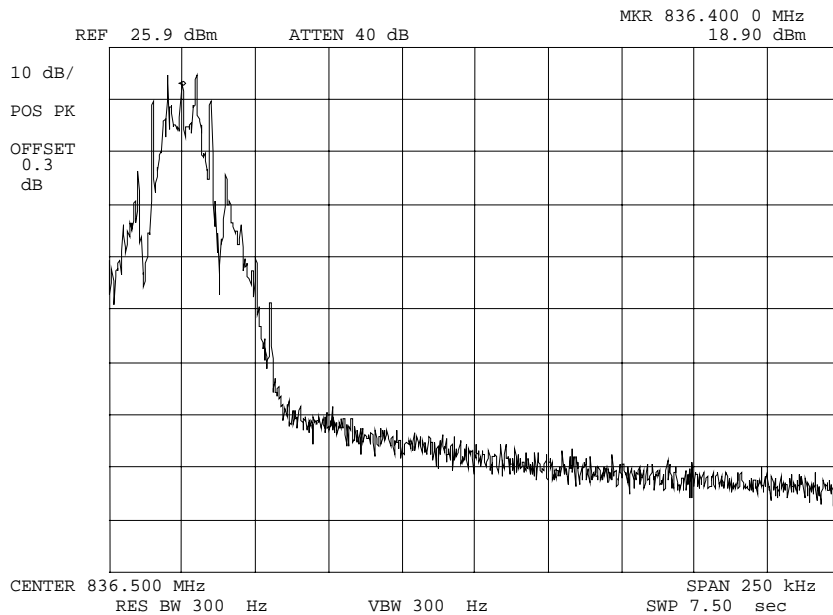
PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280069: 2002-Aug-06 Tue 14:18:00  
 STATE: 2:High Power



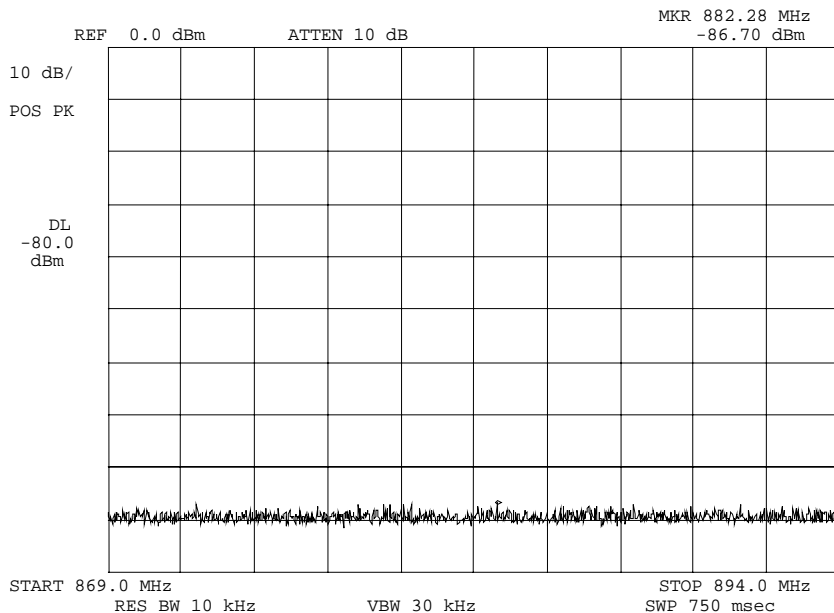
POWER: HIGH  
 MODULATION: WBD  
 OFFSET OCCUPIED BANDWIDTH

PERFORMED BY:

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NAME OF TEST: Emission Masks (Occupied Bandwidth)  
 g0280071: 2002-Aug-06 Tue 14:23:00  
 STATE: 1:Low Power



POWER: LOW  
 MODULATION: ANY (WIDEBAND DATA)  
 TX SPRUS IN RX CRITICAL  
 BAND

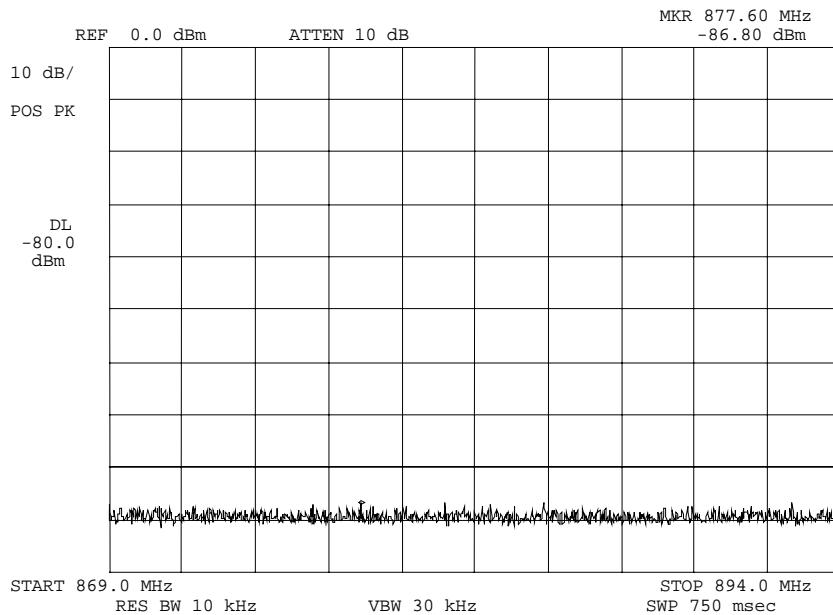
PERFORMED BY: Doug Noble, B.A.S. E.E.T.



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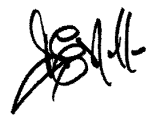
NAME OF TEST: Emission Masks (Occupied Bandwidth)  
g0280072: 2002-Aug-06 Tue 14:24:00  
STATE: 2:High Power



POWER:  
MODULATION:

HIGH  
ANY (WIDEBAND DATA)  
TX SPRUS IN RX CRITICAL  
BAND

PERFORMED BY:

  
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NAME OF TEST: Spurious Emissions at Antenna Terminals

SPECIFICATION: 47 CFR 2.1051, 22.917

TEST EQUIPMENT: As per attached page

MEASUREMENT PROCEDURE

1. The EUT was connected to a coaxial attenuator and then to a Spectrum Analyzer.
2. A notch filter was introduced to reduce or eliminate spurious emission which could be generated internally in the spectrum analyzer.
3. Measurements were made over the range from 45 kHz to 10 GHz for the worst case modulation so both the highest and lowest R.F. power settings.
4. All other emissions were 20 dB or more below the limit.
5. Spectrum analyzer bandwidth was set to section 22.917(h) as applicable.
6. MEASUREMENT RESULTS: ATTACHED

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280090: 2002-Aug-06 Tue 16:06:00  
 STATE: 1:Low Power AMPS

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
824.040000	1648.066000	-55.4	-60.8	-42.4
836.400000	1672.823000	-57.6	-63	-44.6
848.970000	1697.945500	-59.4	-64.8	-46.4
824.040000	2472.106500	-64.7	-70.1	-51.7
836.400000	2509.425500	-74.3	-79.7	-61.3
848.970000	2546.761000	-74.2	-79.6	-61.2
824.040000	3296.284500	-75.7	-81.1	-62.7
836.400000	3345.669500	-75.2	-80.6	-62.2
848.970000	3395.896500	-75.8	-81.2	-62.8
824.040000	4120.006500	-76	-81.4	-63
836.400000	4181.865000	-75.2	-80.6	-62.2
848.970000	4244.985000	-75.6	-81	-62.6
824.040000	4944.476500	-75.9	-81.3	-62.9
836.400000	5018.216500	-75.8	-81.2	-62.8
848.970000	5093.778500	-74.6	-80	-61.6
824.040000	5768.065500	-74.9	-80.3	-61.9
836.400000	5854.760500	-69.5	-74.9	-56.5
848.970000	5942.859000	-69.7	-75.1	-56.7
824.040000	6592.415500	-69.8	-75.2	-56.8
836.400000	6691.033500	-69.4	-74.8	-56.4
848.970000	6791.794500	-68.9	-74.3	-55.9
824.040000	7416.112500	-68.9	-74.3	-55.9
836.400000	7527.360500	-68.7	-74.1	-55.7
848.970000	7640.883000	-69.1	-74.5	-56.1
824.040000	8240.262000	-69.3	-74.7	-56.3
836.400000	8364.038000	-67.7	-73.1	-54.7
848.970000	8489.490000	-69.3	-74.7	-56.3
824.040000	9064.462000	-68.1	-73.5	-55.1
836.400000	9200.385000	-69	-74.4	-56
848.970000	9338.464500	-69.1	-74.5	-56.1
824.040000	9888.495000	-69.3	-74.7	-56.3
836.400000	10036.913500	-69.1	-74.5	-56.1
848.970000	10187.805000	-69.1	-74.5	-56.1
824.040000	10712.341500	-69.1	-74.5	-56.1
836.400000	10873.189500	-68.8	-74.2	-55.8
848.970000	11036.433000	-67.8	-73.2	-54.8
824.040000	11536.351000	-68.1	-73.5	-55.1
836.400000	11709.397000	-69	-74.4	-56
848.970000	11885.719000	-68.8	-74.2	-55.8
824.040000	12360.763500	-67.7	-73.1	-54.7
836.400000	12546.171200	-64.6	-70	-51.6
848.970000	12734.698100	-65.3	-70.7	-52.3



PERFORMED BY:

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280089: 2002-Aug-06 Tue 16:03:00  
 STATE: 2:High Power AMPS

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
824.040000	1648.085000	-35.2	-61.1	-22.2
836.400000	1672.812500	-37.3	-63.2	-24.3
848.970000	1697.929500	-38.6	-64.5	-25.6
824.040000	2472.108000	-34.2	-60.1	-21.2
836.400000	2509.131000	-53.7	-79.6	-40.7
848.970000	2546.818500	-55	-80.9	-42
824.040000	3296.045000	-55.1	-81	-42.1
836.400000	3345.367500	-55.2	-81.1	-42.2
848.970000	3395.826500	-56	-81.9	-43
824.040000	4120.120500	-55.7	-81.6	-42.7
836.400000	4181.980000	-55.3	-81.2	-42.3
848.970000	4244.696000	-55.1	-81	-42.1
824.040000	4944.344000	-55	-80.9	-42
836.400000	5018.165000	-55.3	-81.2	-42.3
848.970000	5093.790000	-55.3	-81.2	-42.3
824.040000	5768.250000	-54.6	-80.5	-41.6
836.400000	5854.852500	-49.5	-75.4	-36.5
848.970000	5942.878500	-48.9	-74.8	-35.9
824.040000	6592.431000	-47.8	-73.7	-34.8
836.400000	6690.964000	-49.6	-75.5	-36.6
848.970000	6791.940000	-48.6	-74.5	-35.6
824.040000	7416.208000	-49.5	-75.4	-36.5
836.400000	7527.573500	-46.9	-72.8	-33.9
848.970000	7640.641000	-48.1	-74	-35.1
824.040000	8240.236500	-49.2	-75.1	-36.2
836.400000	8364.067000	-48.7	-74.6	-35.7
848.970000	8489.678500	-49.2	-75.1	-36.2
824.040000	9064.274500	-49.1	-75	-36.1
836.400000	9200.266000	-48.7	-74.6	-35.7
848.970000	9338.809000	-50.2	-76.1	-37.2
824.040000	9888.501500	-50	-75.9	-37
836.400000	10036.638000	-49.2	-75.1	-36.2
848.970000	10187.791500	-49.4	-75.3	-36.4
824.040000	10712.514500	-49.6	-75.5	-36.6
836.400000	10873.419500	-48.6	-74.5	-35.6
848.970000	11036.795000	-49.2	-75.1	-36.2
824.040000	11536.409500	-48.7	-74.6	-35.7
836.400000	11709.378500	-49.4	-75.3	-36.4
848.970000	11885.596500	-47.5	-73.4	-34.5
824.040000	12360.557500	-48.3	-74.2	-35.3
836.400000	12545.921200	-45.1	-71	-32.1
848.970000	12734.794500	-43.3	-69.2	-30.3



PERFORMED BY:

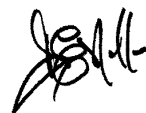
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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280093: 2002-Aug-06 Tue 16:35:00  
 STATE: 1:Low Power TDMA 800

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
824.040000	1648.073500	-60.5	-57.6	-47.5
836.400000	1672.833500	-82.4	-79.5	-69.4
848.970000	1697.935000	-65.3	-62.4	-52.3
824.040000	2472.108500	-60.2	-57.3	-47.2
836.400000	2509.139500	-84.3	-81.4	-71.3
848.970000	2546.862000	-84.5	-81.6	-71.5
824.040000	3296.325500	-85.3	-82.4	-72.3
836.400000	3345.795000	-84.2	-81.3	-71.2
848.970000	3396.033500	-84.6	-81.7	-71.6
824.040000	4120.349500	-84.6	-81.7	-71.6
836.400000	4182.230500	-86	-83.1	-73
848.970000	4244.645000	-85.4	-82.5	-72.4
824.040000	4944.044000	-84.9	-82	-71.9
836.400000	5018.224500	-84.9	-82	-71.9
848.970000	5093.774000	-85.1	-82.2	-72.1
824.040000	5768.152500	-84	-81.1	-71
836.400000	5854.806000	-79.1	-76.2	-66.1
848.970000	5942.563000	-77.1	-74.2	-64.1
824.040000	6592.398500	-78.9	-76	-65.9
836.400000	6691.149000	-78.8	-75.9	-65.8
848.970000	6791.920000	-79	-76.1	-66
824.040000	7416.576500	-79.5	-76.6	-66.5
836.400000	7527.706000	-78.2	-75.3	-65.2
848.970000	7640.662000	-79	-76.1	-66
824.040000	8240.617000	-79.3	-76.4	-66.3
836.400000	8363.851500	-78.8	-75.9	-65.8
848.970000	8489.905500	-78.5	-75.6	-65.5
824.040000	9064.579000	-77.6	-74.7	-64.6
836.400000	9200.575000	-79.7	-76.8	-66.7
848.970000	9338.813500	-79.5	-76.6	-66.5
824.040000	9888.539500	-79	-76.1	-66
836.400000	10037.033000	-77.8	-74.9	-64.8
848.970000	10187.636500	-79.7	-76.8	-66.7
824.040000	10712.531500	-78.8	-75.9	-65.8
836.400000	10873.414000	-79.1	-76.2	-66.1
848.970000	11036.668500	-78.8	-75.9	-65.8
824.040000	11536.501000	-77.2	-74.3	-64.2
836.400000	11709.826000	-79.1	-76.2	-66.1
848.970000	11885.434500	-78.2	-75.3	-65.2
824.040000	12360.693000	-79.5	-76.6	-66.5
836.400000	12545.826300	-74.8	-71.9	-61.8
848.970000	12734.688100	-74.4	-71.5	-61.4



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Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280092: 2002-Aug-06 Tue 16:33:00  
 STATE: 2:High Power TDMA 800

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
824.040000	1648.110000	-28.6	-56	-15.6
836.400000	1672.739500	-52.6	-80	-39.6
848.970000	1697.954500	-33.9	-61.3	-20.9
824.040000	2472.139000	-25.5	-52.9	-12.5
836.400000	2509.296000	-54.9	-82.3	-41.9
848.970000	2546.842000	-54.1	-81.5	-41.1
824.040000	3296.189500	-56	-83.4	-43
836.400000	3345.569000	-55	-82.4	-42
848.970000	3396.115000	-55.2	-82.6	-42.2
824.040000	4120.019500	-55.5	-82.9	-42.5
836.400000	4181.874000	-55.7	-83.1	-42.7
848.970000	4244.984500	-55.3	-82.7	-42.3
824.040000	4944.386000	-55.5	-82.9	-42.5
836.400000	5018.208500	-54.3	-81.7	-41.3
848.970000	5094.015500	-54.9	-82.3	-41.9
824.040000	5768.253000	-55.1	-82.5	-42.1
836.400000	5854.687000	-48.9	-76.3	-35.9
848.970000	5942.896000	-48.6	-76	-35.6
824.040000	6592.214500	-48.4	-75.8	-35.4
836.400000	6691.161500	-48.4	-75.8	-35.4
848.970000	6791.823500	-46.3	-73.7	-33.3
824.040000	7416.349000	-48.5	-75.9	-35.5
836.400000	7527.823000	-48.8	-76.2	-35.8
848.970000	7640.579500	-50	-77.4	-37
824.040000	8240.564500	-49.2	-76.6	-36.2
836.400000	8363.937000	-49	-76.4	-36
848.970000	8489.565000	-48.7	-76.1	-35.7
824.040000	9064.670000	-49.4	-76.8	-36.4
836.400000	9200.409000	-48.3	-75.7	-35.3
848.970000	9338.639000	-50	-77.4	-37
824.040000	9888.387500	-48.8	-76.2	-35.8
836.400000	10037.006500	-48.7	-76.1	-35.7
848.970000	10187.518000	-47.6	-75	-34.6
824.040000	10712.725000	-49.5	-76.9	-36.5
836.400000	10873.066500	-48.5	-75.9	-35.5
848.970000	11036.742000	-48.9	-76.3	-35.9
824.040000	11536.409000	-49.5	-76.9	-36.5
836.400000	11709.847000	-48.4	-75.8	-35.4
848.970000	11885.512500	-48.9	-76.3	-35.9
824.040000	12360.360500	-49.4	-76.8	-36.4
836.400000	12545.917700	-42.8	-70.2	-29.8
848.970000	12734.500800	-44.9	-72.3	-31.9



PERFORMED BY:

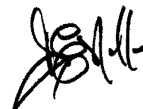
Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280095: 2002-Aug-07 Wed 08:31:00  
 STATE: 1:Low Power GSM 850

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
824.040000	1648.307000	-64.1	-68.1	-51.1
836.400000	1672.795000	-68.4	-72.4	-55.4
848.970000	1697.728500	-67.8	-71.8	-54.8
824.040000	2472.356000	-71.8	-75.8	-58.8
836.400000	2508.998000	-74.8	-78.8	-61.8
848.970000	2546.770000	-74	-78	-61
824.040000	3296.034500	-75.3	-79.3	-62.3
836.400000	3345.777500	-75	-79	-62
848.970000	3395.939500	-74.7	-78.7	-61.7
824.040000	4120.272500	-75.1	-79.1	-62.1
836.400000	4181.834500	-75.4	-79.4	-62.4
848.970000	4244.935500	-75	-79	-62
824.040000	4944.032500	-74.8	-78.8	-61.8
836.400000	5018.642000	-75.5	-79.5	-62.5
848.970000	5093.876500	-75.9	-79.9	-62.9
824.040000	5768.456500	-75.4	-79.4	-62.4
836.400000	5854.981000	-68.8	-72.8	-55.8
848.970000	5942.708500	-69.2	-73.2	-56.2
824.040000	6592.511500	-69.6	-73.6	-56.6
836.400000	6691.201500	-69.1	-73.1	-56.1
848.970000	6791.772000	-69.4	-73.4	-56.4
824.040000	7416.176000	-70.1	-74.1	-57.1
836.400000	7527.710000	-68.3	-72.3	-55.3
848.970000	7640.670000	-69.6	-73.6	-56.6
824.040000	8240.545000	-69.7	-73.7	-56.7
836.400000	8363.862000	-69.5	-73.5	-56.5
848.970000	8489.929500	-68.7	-72.7	-55.7
824.040000	9064.435000	-70.5	-74.5	-57.5
836.400000	9200.613500	-69.7	-73.7	-56.7
848.970000	9338.601500	-69	-73	-56
824.040000	9888.318000	-67.8	-71.8	-54.8
836.400000	10036.554000	-68.5	-72.5	-55.5
848.970000	10187.567000	-69.8	-73.8	-56.8
824.040000	10712.292000	-68.6	-72.6	-55.6
836.400000	10873.217500	-68.6	-72.6	-55.6
848.970000	11036.669000	-69.6	-73.6	-56.6
824.040000	11536.350000	-68.7	-72.7	-55.7
836.400000	11709.697500	-68.4	-72.4	-55.4
848.970000	11885.359000	-68.6	-72.6	-55.6
824.040000	12360.517000	-69.1	-73.1	-56.1
836.400000	12545.856400	-64.1	-68.1	-51.1
848.970000	12734.399400	-65	-69	-52



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Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280094: 2002-Aug-07 Wed 08:29:00  
 STATE: 2:High Power GSM 850

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
824.040000	1648.294500	-33.5	-63	-20.5
836.400000	1672.799500	-35.7	-65.2	-22.7
848.970000	1697.746000	-36.4	-65.9	-23.4
824.040000	2472.347000	-40.3	-69.8	-27.3
836.400000	2508.990500	-54.7	-84.2	-41.7
848.970000	2547.133500	-53.9	-83.4	-40.9
824.040000	3296.088500	-55.6	-85.1	-42.6
836.400000	3345.714000	-55	-84.5	-42
848.970000	3395.663500	-53.6	-83.1	-40.6
824.040000	4120.356000	-55.5	-85	-42.5
836.400000	4181.807000	-54.7	-84.2	-41.7
848.970000	4244.907500	-55.9	-85.4	-42.9
824.040000	4944.126000	-54.6	-84.1	-41.6
836.400000	5018.562000	-55.4	-84.9	-42.4
848.970000	5093.714000	-55.4	-84.9	-42.4
824.040000	5768.425000	-54.1	-83.6	-41.1
836.400000	5854.874500	-49.1	-78.6	-36.1
848.970000	5942.582000	-49.3	-78.8	-36.3
824.040000	6592.561500	-48	-77.5	-35
836.400000	6691.120500	-48.7	-78.2	-35.7
848.970000	6791.593500	-48.8	-78.3	-35.8
824.040000	7416.567000	-48.8	-78.3	-35.8
836.400000	7527.506000	-49.3	-78.8	-36.3
848.970000	7640.483500	-48.1	-77.6	-35.1
824.040000	8240.474500	-48.9	-78.4	-35.9
836.400000	8363.815000	-50.1	-79.6	-37.1
848.970000	8489.536000	-48.3	-77.8	-35.3
824.040000	9064.576500	-49.5	-79	-36.5
836.400000	9200.574000	-49.2	-78.7	-36.2
848.970000	9338.491500	-49.9	-79.4	-36.9
824.040000	9888.691000	-49	-78.5	-36
836.400000	10036.577000	-50.1	-79.6	-37.1
848.970000	10187.479500	-48.9	-78.4	-35.9
824.040000	10712.494500	-48.8	-78.3	-35.8
836.400000	10873.083500	-48.7	-78.2	-35.7
848.970000	11036.535500	-48.1	-77.6	-35.1
824.040000	11536.572000	-48.4	-77.9	-35.4
836.400000	11709.365500	-48.9	-78.4	-35.9
848.970000	11885.779000	-49.8	-79.3	-36.8
824.040000	12360.644000	-49.3	-78.8	-36.3
836.400000	12545.930700	-44.7	-74.2	-31.7
848.970000	12734.366800	-44.8	-74.3	-31.8



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Doug Noble, B.A.S. E.E.T.




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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280117: 2002-Aug-08 Thu 08:48:00  
 STATE: 1:Low Power TDMA PCS

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
1850.040000	3700.064500	-85.4	-82.1	-72.4
1879.980000	3759.727000	-85.4	-82.1	-72.4
1909.920000	3819.811500	-84	-80.7	-71
1850.040000	5549.921500	-84.4	-81.1	-71.4
1879.980000	5639.996500	-84.7	-81.4	-71.7
1909.920000	5729.986000	-83.5	-80.2	-70.5
1850.040000	7400.185500	-79	-75.7	-66
1879.980000	7520.150500	-78.7	-75.4	-65.7
1909.920000	7639.878000	-79.2	-75.9	-66.2
1850.040000	9250.263000	-79.1	-75.8	-66.1
1879.980000	9400.144000	-78.7	-75.4	-65.7
1909.920000	9549.351500	-78.7	-75.4	-65.7
1850.040000	11100.319000	-78.6	-75.3	-65.6
1879.980000	11279.680500	-78.9	-75.6	-65.9
1909.920000	11459.565000	-78.3	-75	-65.3
1850.040000	12950.503900	-73.2	-69.9	-60.2
1879.980000	13159.996000	-74	-70.7	-61
1909.920000	13369.515300	-74.2	-70.9	-61.2
1850.040000	14800.314000	-74.3	-71	-61.3
1879.980000	15039.787800	-74.1	-70.8	-61.1
1909.920000	15279.405700	-73.4	-70.1	-60.4
1850.040000	16650.506100	-73.1	-69.8	-60.1
1879.980000	16919.702500	-73.5	-70.2	-60.5
1909.920000	17189.269500	-72.6	-69.3	-59.6
1850.040000	18500.572700	-73	-69.7	-60
1879.980000	18799.711800	-67.3	-64	-54.3
1909.920000	19099.037200	-66.9	-63.6	-53.9
1850.040000	20350.660200	-65.9	-62.6	-52.9
1879.980000	20679.833900	-64.4	-61.1	-51.4
1909.920000	21009.141200	-65.3	-62	-52.3

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 Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280116: 2002-Aug-08 Thu 08:45:00  
 STATE: 2:High Power TDMA PCS

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
1850.040000	3700.287500	-54.8	-82.2	-41.8
1879.980000	3759.901500	-54.7	-82.1	-41.7
1909.920000	3820.037500	-55.6	-83	-42.6
1850.040000	5550.064000	-53.8	-81.2	-40.8
1879.980000	5639.833500	-53.6	-81	-40.6
1909.920000	5729.724500	-54.7	-82.1	-41.7
1850.040000	7399.952000	-49.5	-76.9	-36.5
1879.980000	7519.737500	-48.7	-76.1	-35.7
1909.920000	7639.504500	-49.8	-77.2	-36.8
1850.040000	9250.310500	-48.9	-76.3	-35.9
1879.980000	9399.679000	-49	-76.4	-36
1909.920000	9549.368500	-48.6	-76	-35.6
1850.040000	11100.023000	-49.5	-76.9	-36.5
1879.980000	11280.050000	-49	-76.4	-36
1909.920000	11459.334500	-47.7	-75.1	-34.7
1850.040000	12950.309100	-43.5	-70.9	-30.5
1879.980000	13159.988000	-43.3	-70.7	-30.3
1909.920000	13369.634300	-43.2	-70.6	-30.2
1850.040000	14800.110700	-43.9	-71.3	-30.9
1879.980000	15039.876600	-42.8	-70.2	-29.8
1909.920000	15279.213900	-43.8	-71.2	-30.8
1850.040000	16650.564800	-42.9	-70.3	-29.9
1879.980000	16920.070000	-43.2	-70.6	-30.2
1909.920000	17189.063600	-42	-69.4	-29
1850.040000	18500.411000	-42.8	-70.2	-29.8
1879.980000	18799.795500	-37.5	-64.9	-24.5
1909.920000	19099.044300	-37.1	-64.5	-24.1
1850.040000	20350.197100	-35.1	-62.5	-22.1
1879.980000	20679.828400	-36.4	-63.8	-23.4
1909.920000	21009.001600	-35.3	-62.7	-22.3

PERFORMED BY:

  
 Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280120: 2002-Aug-08 Thu 09:15:00  
 STATE: 1:Low Power GSM PCS

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
1850.200000	3700.616000	-85.2	-85.4	-72.2
1880.000000	3759.778500	-83.8	-84	-70.8
1909.800000	3819.719000	-84.8	-85	-71.8
1850.200000	5550.589500	-84.5	-84.7	-71.5
1880.000000	5639.862500	-83.5	-83.7	-70.5
1909.800000	5729.548500	-85.2	-85.4	-72.2
1850.200000	7400.948000	-78.6	-78.8	-65.6
1880.000000	7519.846000	-78.5	-78.7	-65.5
1909.800000	7639.379500	-78.9	-79.1	-65.9
1850.200000	9250.865000	-78.3	-78.5	-65.3
1880.000000	9399.836000	-78.7	-78.9	-65.7
1909.800000	9548.777500	-79.6	-79.8	-66.6
1850.200000	11101.155500	-78.4	-78.6	-65.4
1880.000000	11280.087500	-78.5	-78.7	-65.5
1909.800000	11458.834500	-78.4	-78.6	-65.4
1850.200000	12951.603200	-74.2	-74.4	-61.2
1880.000000	13160.185000	-74.2	-74.4	-61.2
1909.800000	13368.504100	-73.7	-73.9	-60.7
1850.200000	14801.530500	-74	-74.2	-61
1880.000000	15039.928800	-73.6	-73.8	-60.6
1909.800000	15278.319200	-73.3	-73.5	-60.3
1850.200000	16651.862200	-73.5	-73.7	-60.5
1880.000000	16920.225700	-73.5	-73.7	-60.5
1909.800000	17188.345100	-72.3	-72.5	-59.3
1850.200000	18502.162800	-71.8	-72	-58.8
1880.000000	18800.014400	-67.4	-67.6	-54.4
1909.800000	19098.242400	-67.9	-68.1	-54.9
1850.200000	20352.339100	-65.8	-66	-52.8
1880.000000	20680.075400	-65.2	-65.4	-52.2
1909.800000	21007.861500	-65.9	-66.1	-52.9

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 Doug Noble, B.A.S. E.E.T.

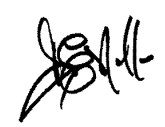
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NAME OF TEST: Unwanted Emissions (Transmitter Conducted)  
 g0280119: 2002-Aug-08 Thu 09:14:00  
 STATE: 2:High Power GSM PCS

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	LEVEL, dBm	LEVEL, dBc	MARGIN, dB
1850.200000	3700.214000	-54.3	-84	-41.3
1880.000000	3760.157000	-55.8	-85.5	-42.8
1909.800000	3819.771000	-55.2	-84.9	-42.2
1850.200000	5550.408500	-54	-83.7	-41
1880.000000	5639.817000	-54.1	-83.8	-41.1
1909.800000	5729.396000	-54.6	-84.3	-41.6
1850.200000	7400.606000	-49.7	-79.4	-36.7
1880.000000	7520.156500	-49.5	-79.2	-36.5
1909.800000	7638.993000	-48	-77.7	-35
1850.200000	9251.067000	-48.3	-78	-35.3
1880.000000	9400.057000	-49.4	-79.1	-36.4
1909.800000	9548.873000	-48.9	-78.6	-35.9
1850.200000	11101.423000	-48.4	-78.1	-35.4
1880.000000	11280.035000	-49.5	-79.2	-36.5
1909.800000	11458.724500	-48.5	-78.2	-35.5
1850.200000	12951.234200	-44.5	-74.2	-31.5
1880.000000	13159.769000	-43.8	-73.5	-30.8
1909.800000	13368.616600	-43.9	-73.6	-30.9
1850.200000	14801.738500	-43.2	-72.9	-30.2
1880.000000	15039.828200	-42.9	-72.6	-29.9
1909.800000	15278.267500	-43.4	-73.1	-30.4
1850.200000	16651.623800	-42.5	-72.2	-29.5
1880.000000	16920.008400	-42.2	-71.9	-29.2
1909.800000	17188.060400	-43	-72.7	-30
1850.200000	18502.164800	-40.6	-70.3	-27.6
1880.000000	18800.075900	-37.5	-67.2	-24.5
1909.800000	19097.962200	-37.3	-67	-24.3
1850.200000	20352.217600	-36	-65.7	-23
1880.000000	20679.950900	-34.6	-64.3	-21.6
1909.800000	21007.807600	-35.1	-64.8	-22.1

PERFORMED BY:

  
 Doug Noble, B.A.S. E.E.T.

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NAME OF TEST: Field Strength of Spurious Radiation

SPECIFICATION: 47 CFR 2.1053(a)

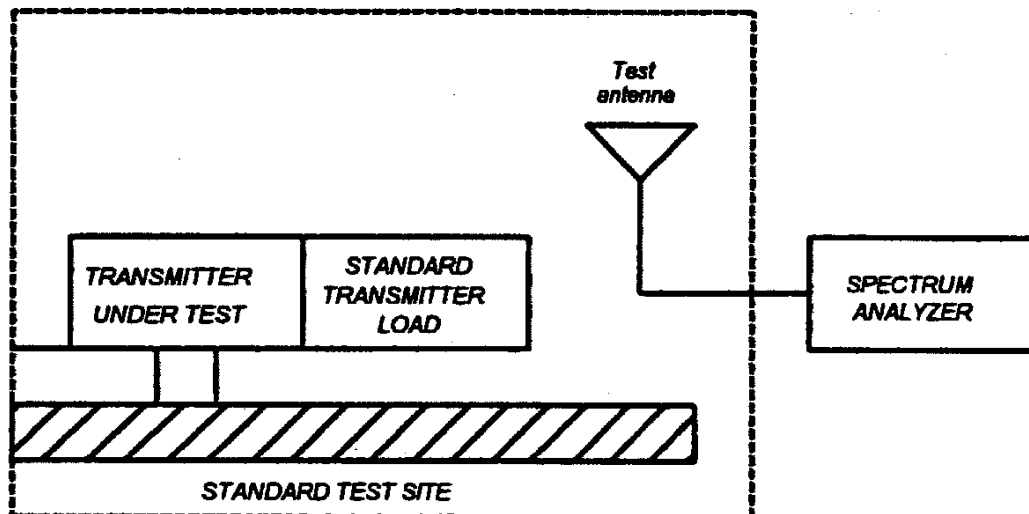
GUIDE: ANSI/TIA/EIA-603-1992/2001, Paragraph 1.2.12 and Table 16, 47 CFR 22.917

MEASUREMENT PROCEDURE

1.2.12.1 Definition: Radiated spurious emissions are emissions from the equipment when transmitting into a non-radiating load on a frequency or frequencies which are outside an occupied band sufficient to ensure transmission of information of required quality for the class of communications desired.

1.2.12.2 Method of Measurement

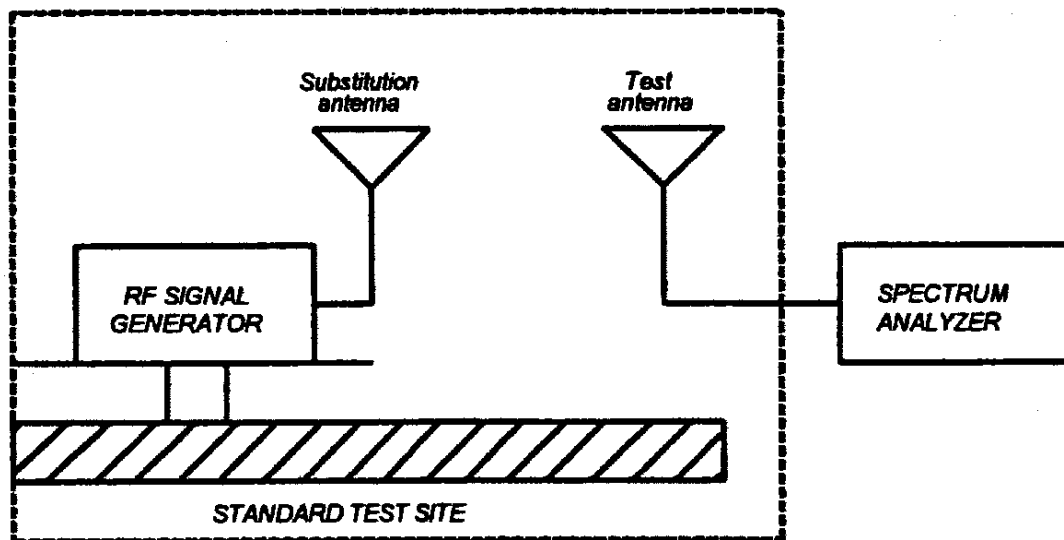
- A) Connect the equipment as illustrated
- B) Adjust the spectrum analyzer for the following settings:
  - 1) Resolution Bandwidth 100 kHz (<1 GHz), 1 MHz (> 1GHz).
  - 2) Video Bandwidth  $\geq 3$  times Resolution Bandwidth, or 30 kHz (22.917)
  - 3) Sweep Speed  $\leq 2000$  Hz/second
  - 4) Detector Mode = Mean or Average Power
- C) Place the transmitter to be tested on the turntable in the standard test site. The transmitter is transmitting into a non-radiating load which is placed on the turntable. The RF cable to this load should be of minimum length.



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NAME OF TEST: Field Strength of Spurious Radiation (Cont.)

- D) For each spurious measurement the test antenna should be adjusted to the correct length for the frequency involved. This length may be determined from a calibration ruler supplied with the equipment. Measurements shall be made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier, except for the region close to the carrier equal to  $\pm$  the test bandwidth (see section 1.3.4.4).
- E) For each spurious frequency, raise and lower the test antenna from 1 m to 4 m to obtain a maximum reading on the spectrum analyzer with the test antenna at horizontal polarity. Repeat this procedure to obtain the highest possible reading. Record this maximum reading.
- F) Repeat step E) for each spurious frequency with the test antenna polarized vertically.



- G) Reconnect the equipment as illustrated.
- H) Keep the spectrum analyzer adjusted as in step B).
- I) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter. At lower frequencies, where the substitution antenna is very long, this will be impossible to achieve when the antenna is polarized vertically. In such case the lower end of the antenna should be 0.3 m above the ground.

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NAME OF TEST: Field Strength of Spurious Radiation (Cont.)

- J) Feed the substitution antenna at the transmitter end with a signal generator connected to the antenna by means of a non-radiating cable. With the antennas at both ends horizontally polarized and with the signal generator tuned to a particular spurious frequency, raise and lower the test antenna to obtain a maximum reading at the spectrum analyzer. Adjust the level of the signal generator output until the previously recorded maximum reading for this set of conditions is obtained. This should be done carefully repeating the adjustment of the test antenna and generator output.
- K) Repeat step J) with both antennas vertically polarized for each spurious frequency.
- L) Calculate power in dBm into a reference ideal half-wave dipole antenna by reducing the readings obtained in steps J) and K) by the power loss in the cable between the generator and the antenna and further corrected for the gain of the substitution antenna used relative to an ideal half-wave dipole antenna.
- M) The levels recorded in step L) are absolute levels of radiated spurious emissions in dBm. The radiated spurious emissions in dB can be calculated by the following:

Radiated spurious emissions dB =  
 $10\log_{10}(\text{TX power in watts}/0.001) - \text{the levels in step l})$

NOTE: It is permissible that other antennas provided can be referenced to a dipole.

## Test Equipment:

Asset	Description	s/n	Cycle	Last Cal
(as applicable)				
<u>TRANSDUCER</u>				
i00088	EMCO 3109-B 25MHz-300MHz	2336	12 mo.	Sep-01
i00065	EMCO 3301-B Active Monopole	2635	12 mo.	Sep-01
i00089	Apriel 2001 200MHz-1GHz	001500	12 mo.	Sep-01
i00103	EMCO 3115 1GHz-18GHz	9208-3925	12 mo.	Sep-01
<u>AMPLIFIER</u>				
i00028	HP 8449A	2749A00121	12 mo.	Mar-02
<u>SPECTRUM ANALYZER</u>				
i00029	HP 8563E	3213A00104	12 mo.	Jan-02
i00033	HP 85462A	3625A00357	12 mo.	Jan-02
i00048	HP 8566B	2511AD1467	6 mo.	Jan-02

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NAME OF TEST: Field Strength of Spurious Radiation

STATE: 2:High Power g0280096: 2002-Aug-07 Wed 10:17:00

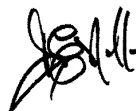
FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	ERP, dBm	ERP, dbc
836.400000	1672.801667	-50.7	-76.6
836.400000	2509.190000	-50.5	-76.4
836.400000	3345.605833	-59.6	-85.5
836.400000	4181.992999	-51.9	-77.8
836.400000	5018.412733	-52.6	-78.5
836.400000	5854.818233	-57.4	-83.3
836.400000	6691.207399	-52.4	-78.3
836.400000	7527.601399	-49	-74.9
836.400000	8364.013066	-53.8	-79.7

STATE: 2:High Power g0280097: 2002-Aug-07 Wed 12:22:00

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	ERP, dBm	ERP, dbc
836.400000	1672.802566	-49.3	-77.0
836.400000	2509.191732	-46.3	-74.0
836.400000	3345.600066	-47.9	-75.6
836.400000	4181.988399	-51.7	-79.4
836.400000	5018.411732	-57.9	-85.6
836.400000	5854.760899	-53.1	-80.8
836.400000	6691.205066	-55.1	-82.8
836.400000	7527.613399	-54.3	-82.0
836.400000	8364.013399	-55.2	-83.0

STATE: 2:High Power g0280098: 2002-Aug-07 Wed 14:28:00

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	ERP, dBm	ERP, dbc
836.400000	1672.671732	-50	-79.6
836.400000	2508.988399	-47	-76.6
836.400000	3345.851732	-49	-78.6
836.400000	4181.651732	-53.5	-83.1
836.400000	5018.293399	-56.1	-85.7
836.400000	5854.783399	-56.6	-86.2
836.400000	6691.220066	-53.1	-82.7
836.400000	7527.600066	-53.6	-83.2
836.400000	8364.008399	-51.7	-81.3



PERFORMED BY:

Doug Noble, B.A.S. E.E.T.



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NAME OF TEST: Field Strength of Spurious Radiation (CONTINUED)

STATE: 2:High Power g0280108: 2002-Aug-07 Wed 15:59:00

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	EIRP, dBm	EIRP, dbc
1979.980000	3759.957500	-45.7	-73.1
1879.980000	5640.060000	-32.2	-59.6
1879.980000	7519.893333	-29.8	-57.2
1879.980000	9399.980000	-35	-62.4
1879.980000	11279.840000	-36.1	-63.5
1879.980000	13159.856667	-35.7	-63.1
1879.980000	15039.843333	-36.6	-64.0
1879.980000	16919.823333	-33.5	-60.9

STATE: 2:High Power g0280121: 2002-Aug-08 Thu 10:43:00

FREQUENCY TUNED, MHz	FREQUENCY EMISSION, MHz	EIRP, dBm	EIRP, dbc
1880.000000	3759.916667	-38.9	-68.6
1880.000000	5639.826667	-29.2	-58.9
1880.000000	7520.166667	-30.2	-59.9
1880.000000	9400.343333	-33.2	-62.9
1880.000000	11279.756667	-36.3	-66.0
1880.000000	13160.003333	-35.7	-65.4
1880.000000	15039.306667	-34.6	-64.3
1880.000000	16919.963333	-32.2	-61.9

PERFORMED BY:

  
 Doug Noble, B.A.S. E.E.T.

PAGE NO. 95 of 99.

NAME OF TEST: Frequency Stability (Temperature Variation)

SPECIFICATION: 47 CFR 2.1055(a)(1)

TEST CONDITIONS: As Indicated

TEST EQUIPMENT: As per previous page

MEASUREMENT PROCEDURE

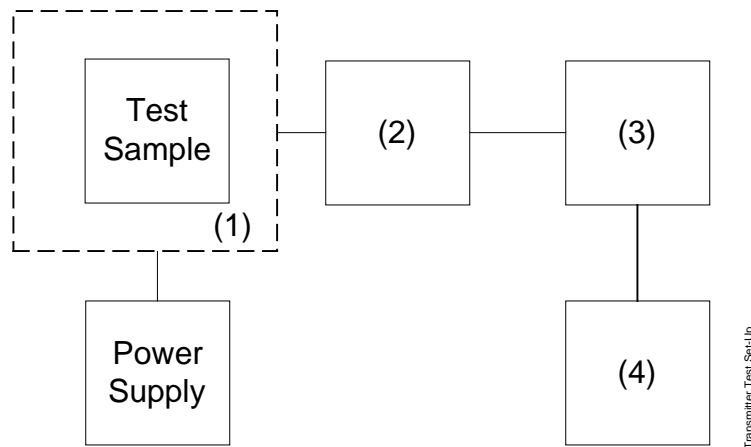
1. The EUT and test equipment were set up as shown on the following page.
2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was noted within one minute.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The temperature tests were performed for the worst case.
5. MEASUREMENT RESULTS: ATTACHED

PAGE NO.

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TRANSMITTER TEST SET-UP

TEST A. OPERATIONAL STABILITY  
 TEST B. CARRIER FREQUENCY STABILITY  
 TEST C. OPERATIONAL PERFORMANCE STABILITY  
 TEST D. HUMIDITY  
 TEST E. VIBRATION  
 TEST F. ENVIRONMENTAL TEMPERATURE  
 TEST G. FREQUENCY STABILITY: TEMPERATURE VARIATION  
 TEST H. FREQUENCY STABILITY: VOLTAGE VARIATION



Asset Description  
 (as applicable)

s/n

(1) TEMPERATURE, HUMIDITY, VIBRATION

i00027	Tenney Temp. Chamber	9083-765-234
i00	Weber Humidity Chamber	
i00	L.A.B. RVH 18-100	

(2) COAXIAL ATTENUATOR

i00122	NARDA 766-10	7802
i00123	NARDA 766-10	7802A
i00113	SIERRA 661A-3D	1059
i00069	BIRD 8329 (30 dB)	10066

(3) R.F. POWER

i00014	HP 435A POWER METER	1733A05839
i00039	HP 436A POWER METER	2709A26776
i00020	HP 8901A POWER MODE	2105A01087

(4) FREQUENCY COUNTER

i00042	HP 5383A	1628A00959
i00019	HP 5334B	2704A00347
i00020	HP 8901A	2105A01087

PAGE NO. 97 of 99.  
NAME OF TEST: Frequency Stability (Temperature Variation)

AMPS MODE	°C	Change, Hz	Change, ppm
	-30	248	0.3
	-20	259	0.3
	-10	294	0.4
	0	273	0.3
	10	252	0.3
	20	286	0.3
	30	278	0.3
	40	260	0.3
	50	291	0.3
TDMA MODE	°C	Change, Hz	Change, ppm
	-30	3.4	0.0
	-20	0.4	0.0
	-10	5.1	0.0
	0	1.2	0.0
	10	-4.2	0.0
	20	-0.4	0.0
	30	-6.1	0.0
	40	-1.2	0.0
	50	-1.9	0.0
GSM MODE	°C	Change, Hz	Change, ppm
	-30	-13.7	0.0
	-20	-10.2	0.0
	-10	1.8	0.0
	0	-7.7	0.0
	10	-11.9	0.0
	20	12.4	0.0
	30	-12.8	0.0
	40	19.8	0.0
	50	3.8	0.0
PCS BAND, TDMA MODE	°C	Change, Hz	Change, ppm
	-30	25.5	0.0
	-20	2.0	0.0
	-10	-4.2	0.0
	0	11.1	0.0
	10	8.2	0.0
	20	6.7	0.0
	30	-2.6	0.0
	40	2.8	0.0
	50	0.5	0.0
PCS BAND, GSM MODE	°C	Change, Hz	Change, ppm
	-30	-23.2	0.0
	-20	-55.7	0.0
	-10	-21.6	0.0
	0	-9.7	0.0
	10	-10.2	0.0
	20	-21.8	0.0
	30	13.1	0.0
	40	-10.7	0.0
	50	-2.7	0.0

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NAME OF TEST: Frequency Stability (Voltage Variation)

SPECIFICATION: 47 CFR 2.1055 (b)(1)

TEST EQUIPMENT: As per previous page

#### MEASUREMENT PROCEDURE

1. The EUT was placed in a temperature chamber at 25±5°C and connected as for "Frequency Stability - Temperature Variation" test.
2. The power supply voltage to the EUT was varied from 85% to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

#### AMPS MODE:

BATTERY END POINT (Voltage) = 3.2

% of STV	Voltage	Frequency, MHz	Change, Hz	Change, ppm
85	3.3	836.400313	313	0.4
100	3.9	836.400286	286	0.3
115	4.5	836.400305	305	0.4
B.E.P.	3.2	836.400316	316	0.4

#### TDMA MODE:

BATTERY END POINT (Voltage) = 3.2

% of STV	Voltage	Frequency, MHz	Change, Hz	Change, ppm
85	3.3	836.3999963	-3.7	0.0
100	3.9	836.3999996	-0.4	0.0
115	4.5	836.3999991	-0.9	0.0
B.E.P.	3.2	836.3999956	-4.4	0.0

#### GSM MODE:

BATTERY END POINT (Voltage) = 3.2

% of STV	Voltage	Frequency, MHz	Change, Hz	Change, ppm
85	3.3	836.4000209	20.9	0.0
100	3.9	836.4000124	12.4	0.0
115	4.5	836.4000179	17.9	0.0
B.E.P.	3.2	836.4000094	9.4	0.0

#### PCS BAND, TDMA MODE:

BATTERY END POINT (Voltage) = 3.2

% of STV	Voltage	Frequency, MHz	Change, Hz	Change, ppm
85	3.3	1879.9800196	19.6	0.0
100	3.9	1879.9800067	6.7	0.0
115	4.5	1879.9800188	18.8	0.0
B.E.P.	3.2	1879.9800198	19.8	0.0

#### PCS BAND, GSM MODE:

BATTERY END POINT (Voltage) = 3.2

% of STV	Voltage	Frequency, MHz	Change, Hz	Change, ppm
85	3.3	1880.0000031	3.1	0.0
100	3.9	1879.9999782	-21.8	0.0
115	4.5	1879.9999958	-4.2	0.0
B.E.P.	3.2	1879.9999988	-1.2	0.0

LIMIT: Must remain within authorized frequency block.

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NAME OF TEST: Necessary Bandwidth and Emission Bandwidth

SPECIFICATION: 47 CFR 2.202(g)

MODULATION = 40K0F1D

NECESSARY BANDWIDTH:

NECESSARY BANDWIDTH ( $B_N$ ), kHz = 40.0

MODULATION = 30K0DXW

NECESSARY BANDWIDTH:

NECESSARY BANDWIDTH ( $B_N$ ), kHz = 30

MODULATION = 256KGXW

NECESSARY BANDWIDTH:

NECESSARY BANDWIDTH ( $B_N$ ), kHz = 256

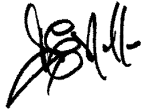
MODULATION = 40K0F8W

NECESSARY BANDWIDTH:

NECESSARY BANDWIDTH ( $B_N$ ), kHz = 40.0

Per Rule: 2.201 & TCB Training Course July 10-12, 2001 Session 9, Slide 13

PERFORMED BY:

  
Doug Noble, B.A.S. E.E.T.

END OF TEST REPORT

TESTIMONIAL  
AND  
STATEMENT OF CERTIFICATION

THIS IS TO CERTIFY THAT:

1. THAT the application was prepared either by, or under the direct supervision of, the undersigned.
2. THAT the technical data supplied with the application was taken under my direction and supervision.
3. THAT the data was obtained on representative units, randomly selected.
4. THAT, to the best of my knowledge and belief, the facts set forth in the application and accompanying technical data are true and correct.

CERTIFYING ENGINEER:

A handwritten signature in black ink, reading "M. Flom P. Eng.", with a horizontal line drawn underneath the signature.

Morton Flom, P. Eng.