

CFR 47 Part 2, 22, Test Report

Test Report Number: WR1021.001

Terminal device:FCC ID: QNMNR-124: Model: 2855i, Type: RM-124, HW: 3201, SW: VR125_05w21_21.nbr
(Detailed information is listed in section 4).

Originator: Hai To
Function: TCC – Dallas – EMC
Version/Status: 2.0 Approved
Location: QATrax Directories
Date: 3-Feb-06

Change History:

Version	Date	Status	Handled By	Comments
0.1	11-Jan-06	Draft	Hai To	
0.2	11-Jan-06	Proposal	Hai To	
0.3	12-Jan-06	Reviewed	Jesse Torres	
1.0	12-Jan-06	Approved	Jesse Torres	
1.1	2-Feb-06	Proposal	Hai To	
2.0	3-Feb-06	Approved	Jesse Torres	

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For the contents:

Hai To
Test OperatorJesse Torres
Technical Review

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1. GENERAL

1.1 Quality System

The quality system in place for TCC-Dallas conforms to ISO/IEC 17025 and has been audited to the standard by A2LA (American Association of Laboratory Accreditation). TCC – Dallas has also been audited using the ISO 9000 Quality System, as part of Nokia Mobile Phones, Inc., by ABS (American Bureau of Shipping) Quality Evaluations Inc.

TCC-Dallas is a recognized laboratory with the Federal Communications Commission in filing applications for Certification under Parts 15 and 18, Registration Number 100060, and Industry Canada, Registration Number IC 661N.

1.2 Objective

All tests and measurement data shown was performed to determine whether the selected handset was in compliance as specified in FCC: CFR47 Parts 2.947, 2.1033I, 2.1041, 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, Part 22, and Part 24.

1.3 Test Summary

Test Results: *The test result relates only to those tested devices mentioned in Section 4 of this test report.*

Test Performed	Reference	Section of Report	Complies / Does not comply / Not Tested
Modulation Requirements: TX Audio Frequency/Low Pass Filter Response	FCC Part 2.1047(a)	6	Complies
Modulation Requirements: Modulation Limiting	FCC Part 2.1047(a)	7	Complies
Occupied Bandwidth: Transmitter Conducted Measurements	FCC Part 2.1049	8	Complies

2. STANDARDS BASIS

Testing has been carried out in accordance with:

Code of the standard	Name of the standard
ANSI C63.4	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz.
FCC: CFR 47 Part 2	Code of Federal Regulations (CFR) Title 47, Part 2 – Frequency Allocations and Radio Treaty Matters; General Rules and Regulations: Subpart J – Equipment Authorization Procedures
FCC: CFR 47 Part 22	Code of Federal Regulations (CFR) Title 47, Part 22 – Public Mobile Services: Subpart H – Cellular Radiotelephone Service
RSS-129	800 MHz Dual-Mode CDMA Cellular Telephones
RSS-132	800 MHz Cellular Telephones Employing New Technologies
RSS-212	Test Facilities and Test Methods for Radio Equipment, Industry Canada (Provisional)
RSP-100	Radio Equipment Certification Procedure

Note: Unless otherwise stated, (by reference to a version number and a publication date), the latest version of the above documents applies.

Deviations:

Not Applicable.

3. LIST OF ABBREVIATIONS, ACRONYMS AND TERMS

3.1 Abbreviations

- dB – decibel
- dBc – decibels from carrier
- dBm – decibels per milliwatt (absolute measurement)
- GHz – gigahertz or 1000000000 hertz
- kHz – kilohertz or 1000 hertz
- MHz – megahertz or 1000000 hertz

3.2 Acronyms

- AMPS – Advanced Mobile Phone System
- BSS – Base Station Simulator
- CDMA – Code Division Multiple Access
- EDRP – Effective Dipole Radiated Power
- EIRP – Effective Isotropic Radiated Power
- EMC – Electromagnetic Compatibility
- EMI – Electromagnetic Interference
- ERP – Effective Radiated Power
- EUT – Equipment under Test
- GSM – Global System for Mobile communications
- PCS – Personal Communications Services
- RF – Radio Frequency
- TDMA – Time Division Multiple Access

3.3 Terms

Base Station Simulator (BSS) – simulates all the necessary signals that a phone would experience while on a live network. There are many types of base station simulators catering for all current protocols, i.e., GSM, AMPS, TDMA, and CDMA.

Cellular – refers to a frequency in the 800MHz band.

PCS – refers to a frequency in the 1900MHz band.

4. EQUIPMENT-UNDER-TEST (EUT)

The results in this report relate only to the items listed below:

4.1 Description of Tested Device(s):

Test Performed	Mode of Operation	Date of Receipt	Condition of Sample	Item	Identifying Information
FCC Part 2.1047(a)(b) FCC Part 2. 1049	AMPS	11-Jan-06	Working	Phone	FCC ID: QNMNR-124 Type: RM-124 HW: 3201 SW: VR125_05w21_21.nbr ESN: 033/14216072
FCC Part 2.1047(a)(b) FCC Part 2. 1049	AMPS	11-Jan-06	Working	Battery	Type: BL-6C

4.2 Photograph of Tested Device(s):

Refer to attached EXHIBITS

5. TEST EQUIPMENT LIST

The listing below indicates the test equipment utilized for the test (s). Calibration interval on all items listed can be obtained from the Engineering Services Group within NMP, Product Creation – Dallas. Where relevant, measuring equipment is subjected to in-service checks between testing. TCC – Dallas shall notify clients promptly, in writing, of identification of defective measuring equipment that casts doubt on the validity of results given in this report.

Section of Report	NMP#	Test Equipment	Mfr. #	Model #	Calibration Due Date	Calibration Interval
6,7,8	N/A	30dB Attenuator	Weinshcel	Model 2	09 Feb 06	12 months
6,7,8	02666	Base Station	R&S	CMU200	25 May 06	12 months
6,7,8	00087	Signal Generator	HP	3324A	03 Mar 06	12Months
6,7,8	02679	EMC Analyzer	HP	E7405E	01-Jun-06	12 Months

6. TX AUDIO FREQUENCY/LOW PASS FILTER RESPONSE

Specification: FCC Part 2.1047(a)

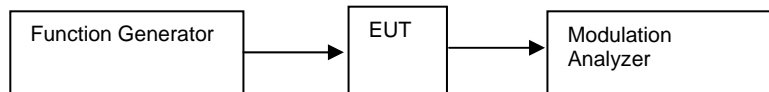
6.1 Setup

The audio signal generator was connected to the audio input circuit/microphone of the EUT.

The audio signal input was adjusted to obtain 20% modulation at 1 kHz, and this point was taken as the 0dB reference level.

With input levels held constant and below limiting at all frequencies, the audio generator was varied from 100Hz to 50 kHz.

The response in dB relative to 1 kHz was then measured, using the HP 8901B modulation analyzer.



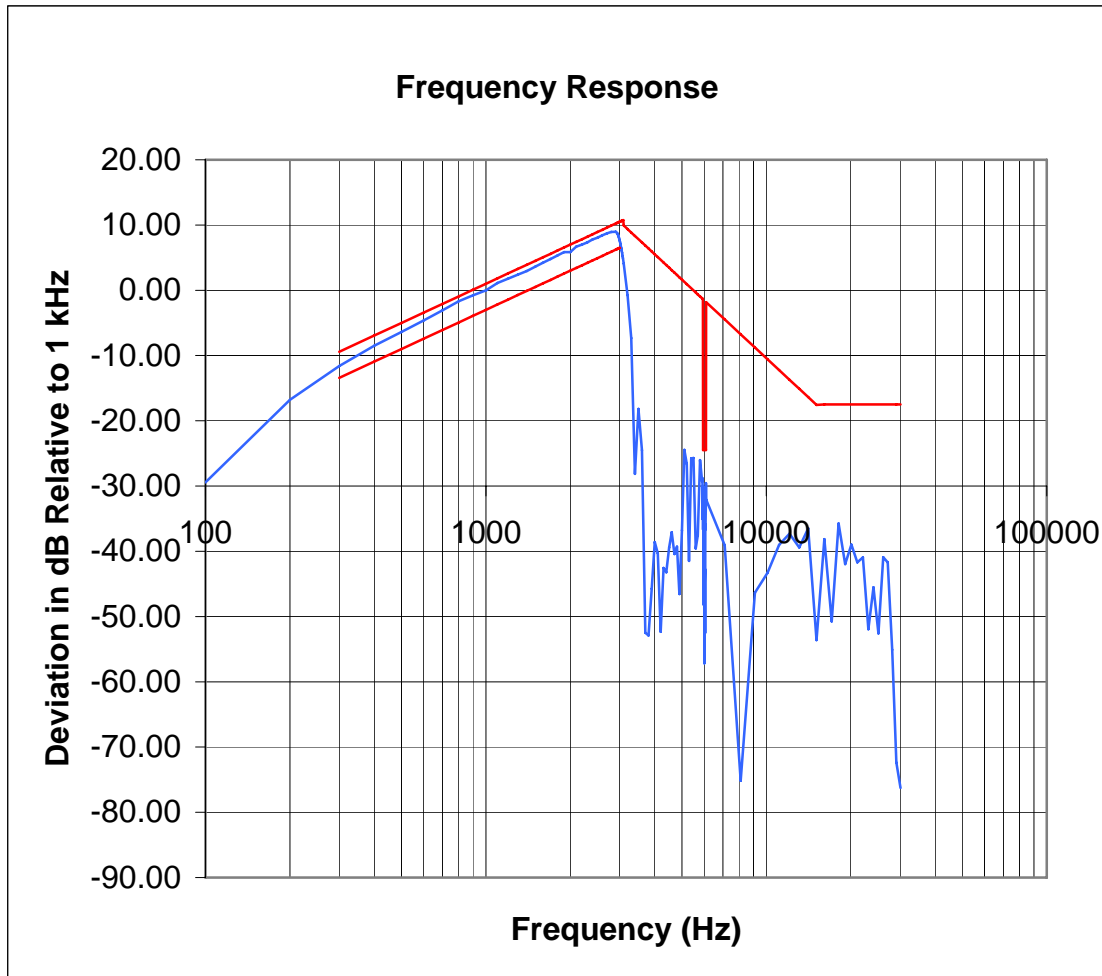
6.2 Pass/Fail Criteria

Emissions mask.

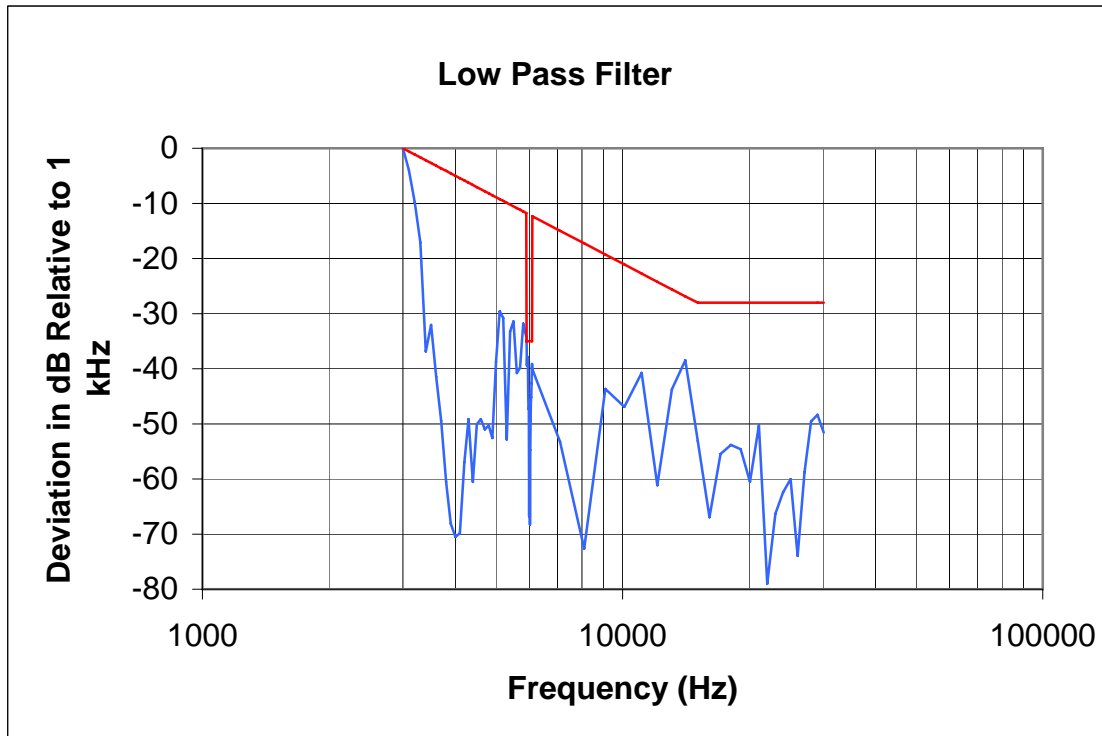
6.3 Detailed Test Results

Test Technician / Engineer	Hai To
Date of Measurement	11-Jan-06
Temperature	22°C
Humidity	29%RH
Test Result	Was tested in accordance with FCC Part 2.1047(a)

Frequency Response



Low Pass Filter



7. MODULATION LIMITING

Specification: FCC Part 2.1047(b)

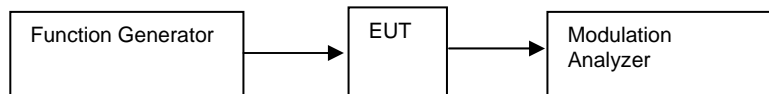
7.1 Setup

The audio signal generator was connected to the audio input circuit/microphone of the EUT.

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 the HP 8901B modulation analyzer.

The audio input level was varied from 30% modulation (+/-3.6 kHz deviation) to at least 20dB higher than the saturation point.

Measurements were performed for both negative and positive modulation and the respective results were recorded.



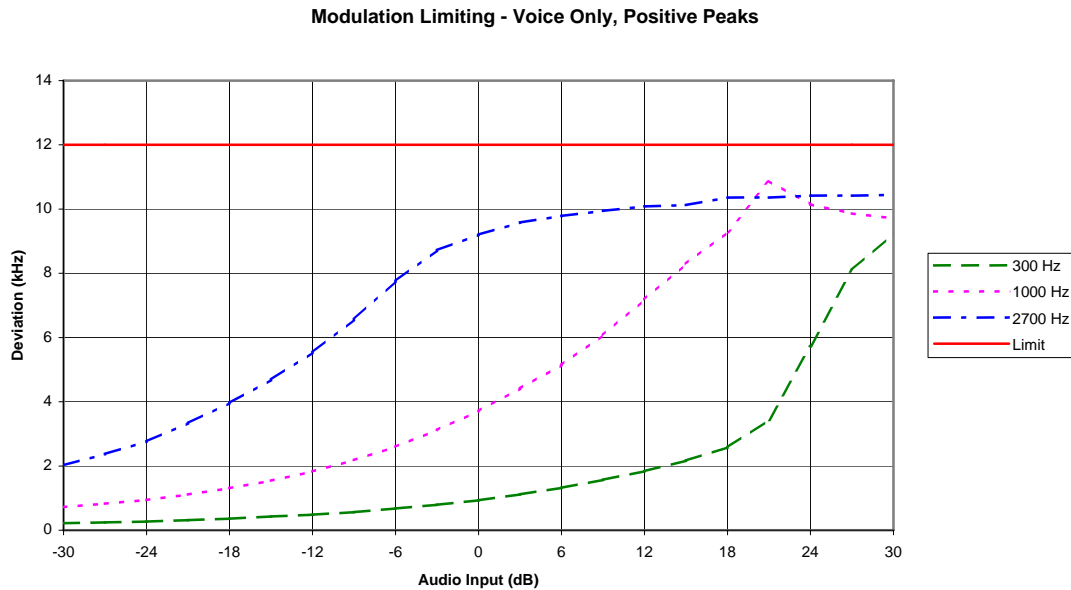
7.2 Pass/Fail Criteria

No pass/fail criteria

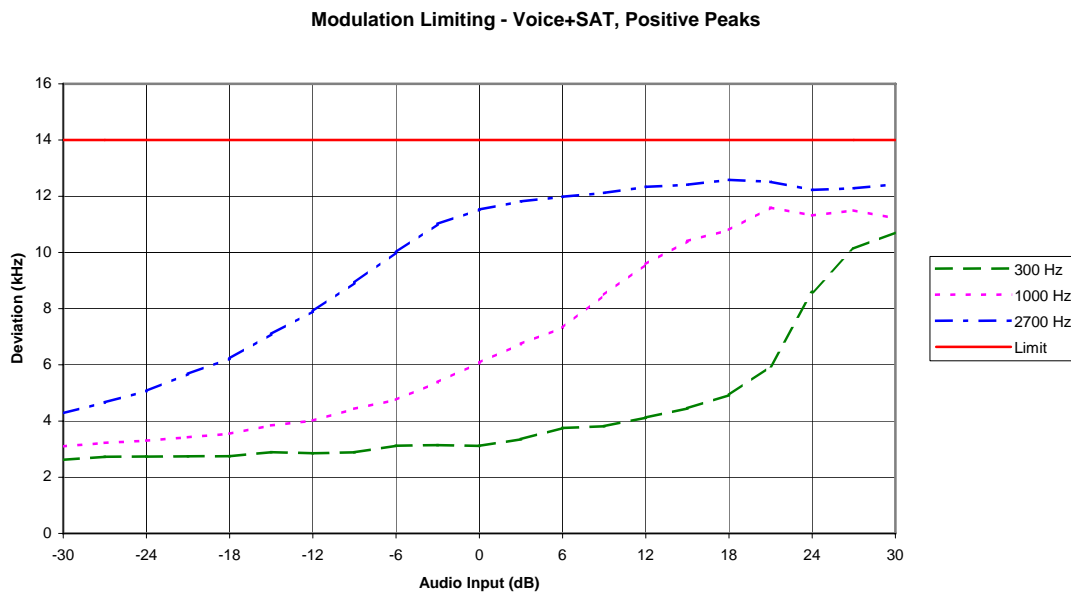
7.3 Detailed Test Results

Test Technician / Engineer	Hai To
Date of Measurement	11-Jan-06
Temperature	22°C
Humidity	29%RH
Test Result	Was tested in accordance with FCC Part 2.1047(b)

Modulation Limiting – Voice Only, Positive Peaks



Modulation Limiting – Voice + SAT, Positive Peaks



8. OCCUPIED BANDWIDTH (TRANSMITTER CONDUCTED MEASUREMENTS)

Specification: FCC Part 2.1049

8.1 Setup

Testing was performed with the EUT connected to a 6dB attenuator, 6dB splitter, filter bank and then to the EMI receiver. The base station simulator was connected to the other port of the splitter to establish a call.

8.2 Pass/Fail Criteria

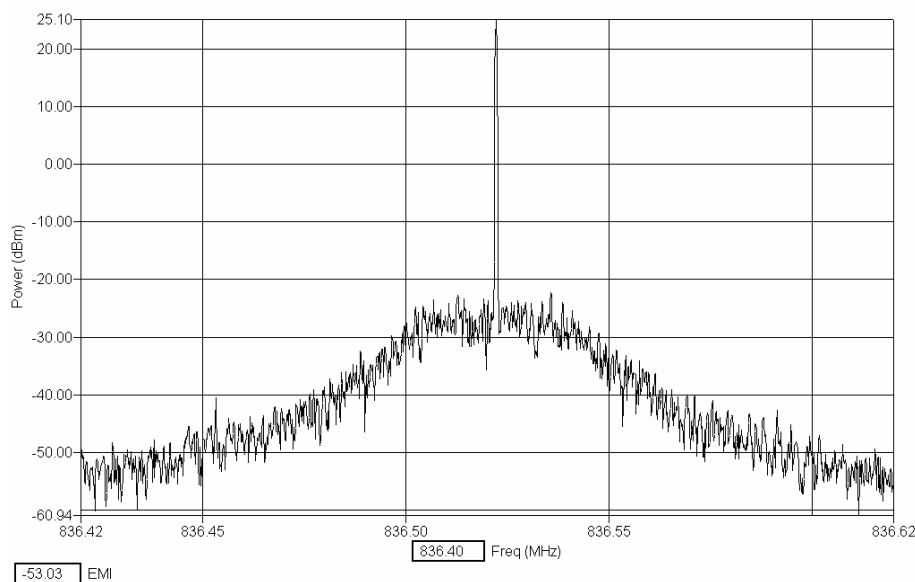
Occupied Bandwidth, In Band

No pass/fail, these plots are used to determine the emission designators.

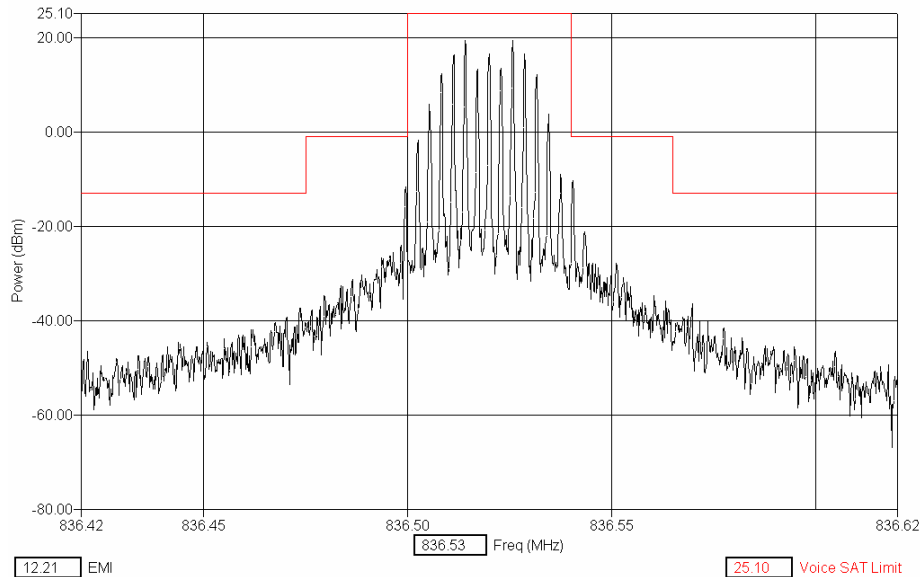
8.3 Detailed Test Results

Test Technician / Engineer	Hai To
Date of Measurement	12-Jan-06
Temperature	23 °C
Humidity	35 %RH
Test Result	Complies with FCC Part 2.1049(c)(1), 24.238(a)(b)

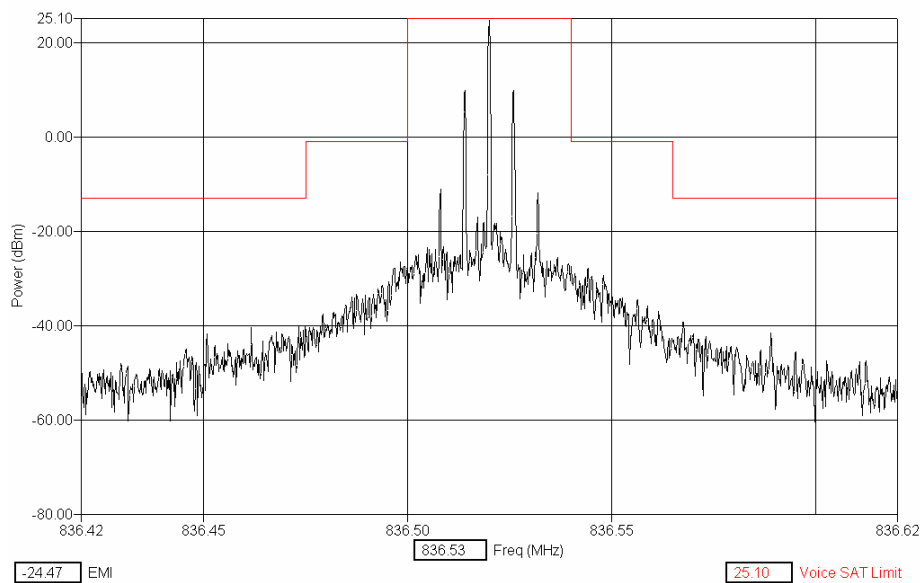
AMPS Channel 384, CW:



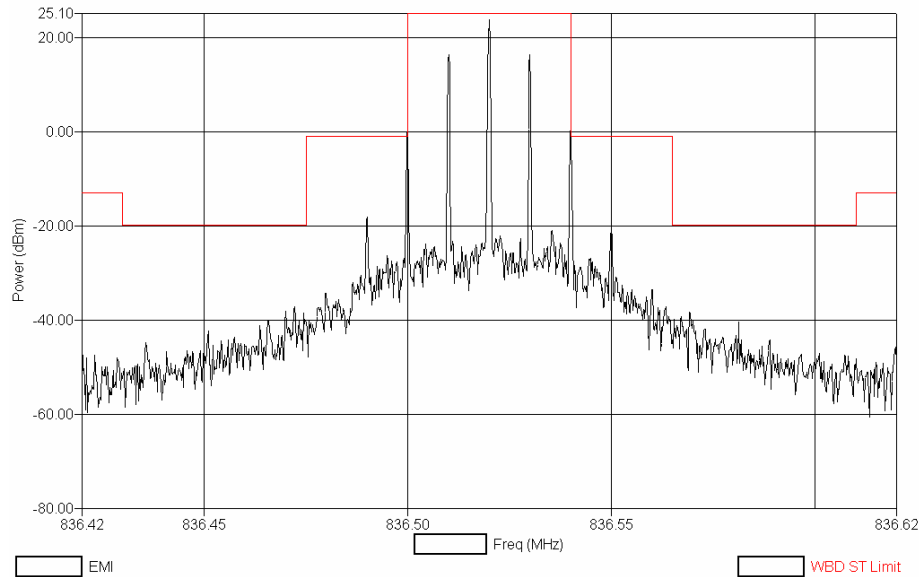
AMPS Channel 384, Voice + SAT:



AMPS Channel 384, SAT:



AMPS Channel 384, ST:



AMPS Channel 384, WBD:

