Report No.:990715
Client: Listen Technologies Co.
FCC ID : OMD700-216

October 19, 1999

TEST REPORT

According to FCC Part 95 Subparts E,G

for

LOW POWER RADIO SERVICES (LPRS)

TRANSMITTING SYSTEMS

MODEL: LT-700

Prepared for:

LISTEN TECHNOLOGIES Corporation
1762A Prospector Avenue
Park City, Utah 84060

Prepared by

JMR Compliance Engineering
20400 Plummer Street
Chatsworth, CA 91311
Phone: 818-993-4801

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PREFACE

This report describes the results of measurements made on the Low Power Radio Service (LPRS) STATIONARY TRANSMITTERS which falls under the class of intentional radiator by the FCC Part 95 Rules and Regulations.

This EUT is designated:	**LPRS Transmitter - Assistive Listening System**
Model:	**LT-700**

The LT-700 is designed and manufactured by Listen Technologies Corporation.

The EUT was tested in full compliance with the FCC Regulations using the methods of FCC Part 95 and Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations". The results of the testing indicate that the LPRS STATIONARY TRANSMITTER LT-700 met the Part 95 limits and requirements.

1.0 CERTIFICATION OF TEST DATA

Certification

The data, data evaluation and equipment configuration represented herein are a true and accurate representation of the test sample (EUT), and measurements obtained as of the dates and the times of the test under the conditions specified and to the methods of FCC Part 95 and Part 2 "Frequency Allocations and Radio Treaty Matters; General Rules and Regulations".

All measurements are traceable to the National Institute of Standards and Technology (NIST).

The test results provided with this report, indicate that the equipment tested:
Model: LT-700 is compliant with the following Rules and Regulations:

A. 47 Code of Federal Regulations, Part 95, Subpart E and G : 10-1-98 Edition
B. 47 Code of Federal Regulations, Part 2, LPRS transmitters: 10-1-98 Edition

Tests performed by:

_____
Vlad Shapiro
EMC Technician

Report approved by:

_____
Leon Kogan
Technical Director,
JMR Compliance Engineering

2.0 GENERAL INFORMATION

2.1 Client Information

Company Name:	Listen Technologies Co.
Contact:	Keldon Paxman
Company Address:	1762A Prospector Avenue Park City, Utah 84060
Phone:	(435) 647-0318

2.2 Administrative Data

Device tested:	LPRS Transmitter
Model:	LT-700
Accessories:	N/A
Expository Statement:	This device is designed to operate as LPRS transmitter
Purpose of test:	Demonstrate compliance with FCC Rules, Part 95, Subparts E and G
Date of test:	10/20/99
Place of the test:	JMR Electronics, Inc. Compliance Engineering Laboratory 20400 Plummer Street Chatsworth, CA 91311 Phone: 818-993-4801

3.0 EQUIPMENT UNDER TEST (EUT)

3.1 EUT Nomenclature

Manufacturer:	Listen Technologies Co.
Model No. (type)	LT-700
Serial No.	N/A
Equipment category	LPRS Transmitter

3.2 Brief Description of EUT

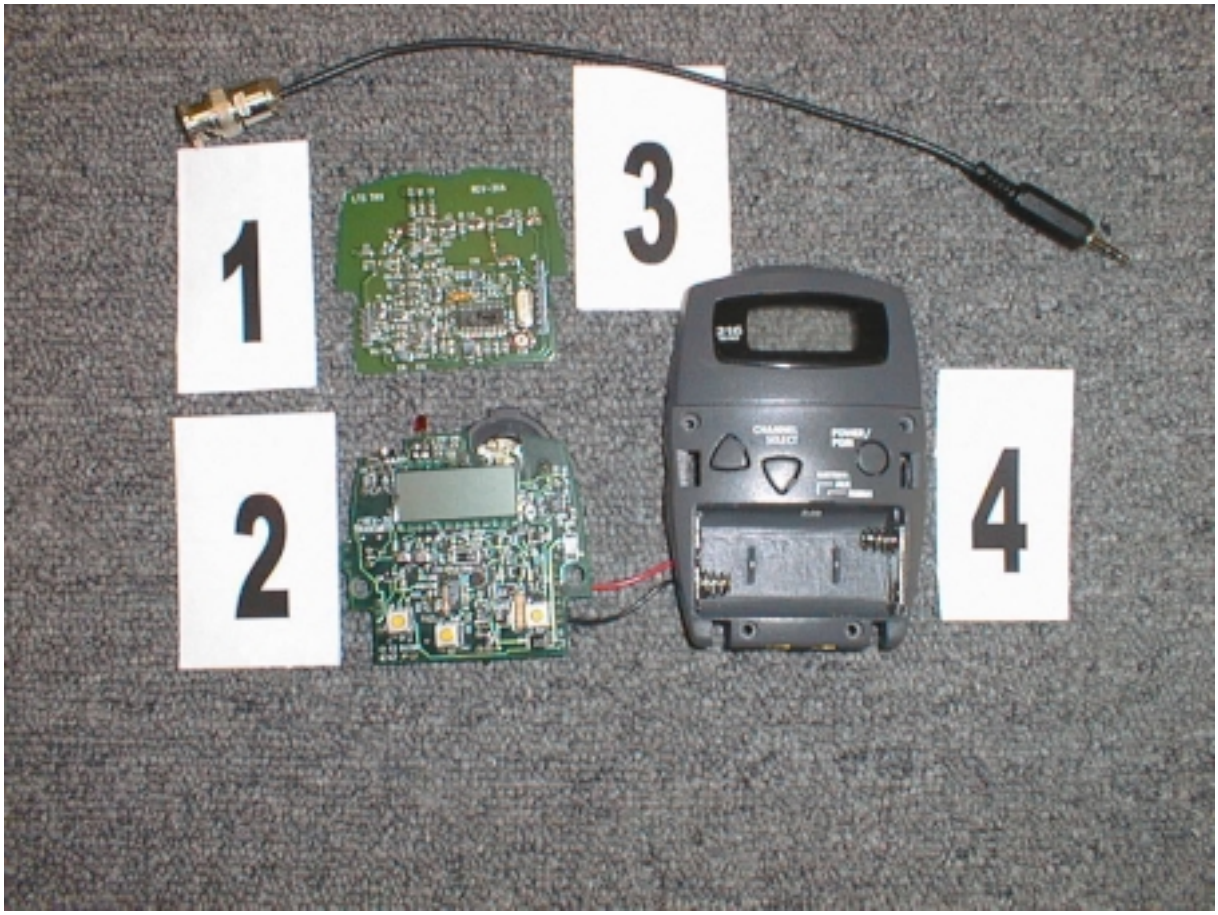
The LT-700 is the LPRS Transmitter with RF frequency range 216.025 – 216.975 MHz designed to help enhance the ability to hear for hard of hearing people and to use for many other applications including tour group communications and language translation.

The LT-700 was configured as an independent module and was tested with Microphone cable with BNC connector as Antenna and Directional Antenna. The modulation frequency was provided by external Test Oscillator

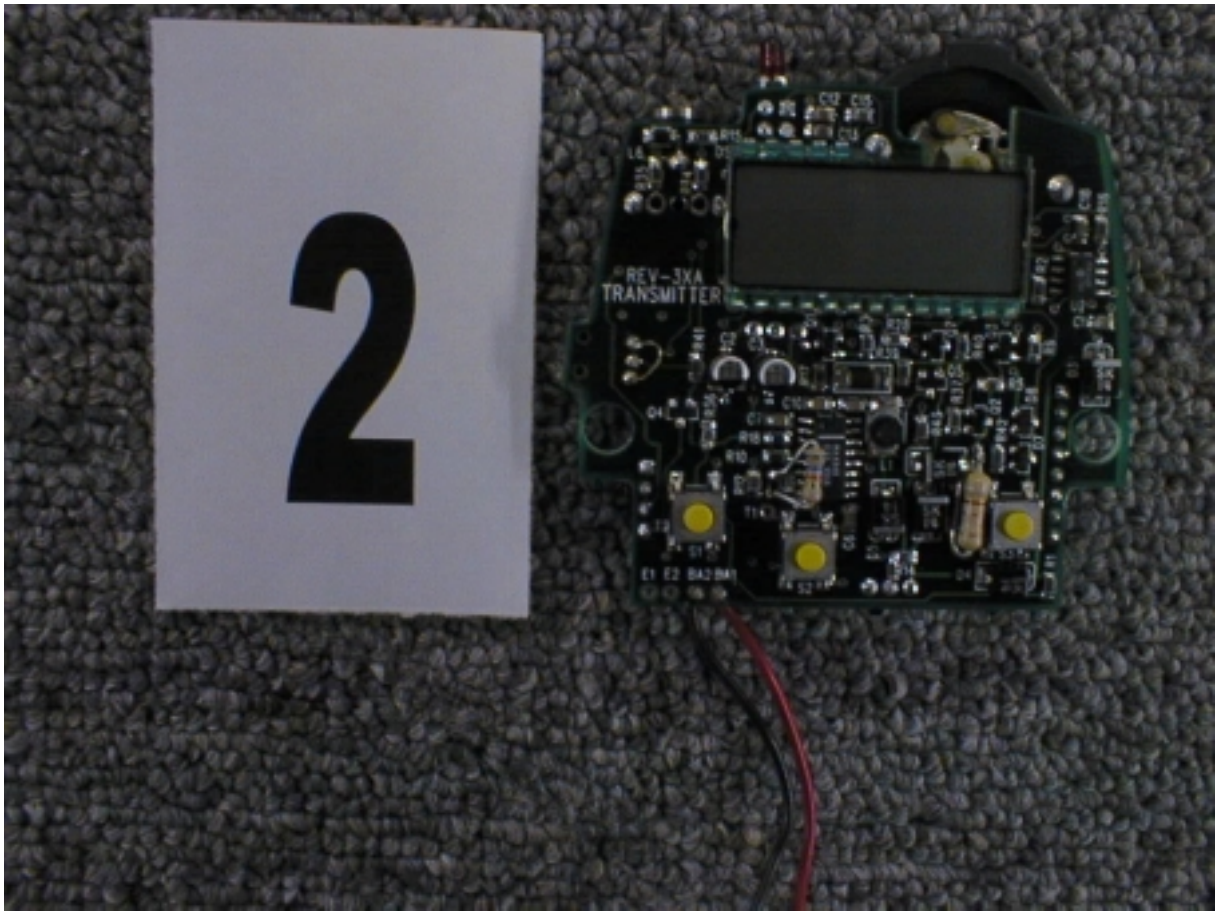
Operating Frequency: 216.025 – 216.975 MHz

Power Supply: External, 9VDC 500 mA
Radio Shack AC Adapter, Cat.No : 273-1651D

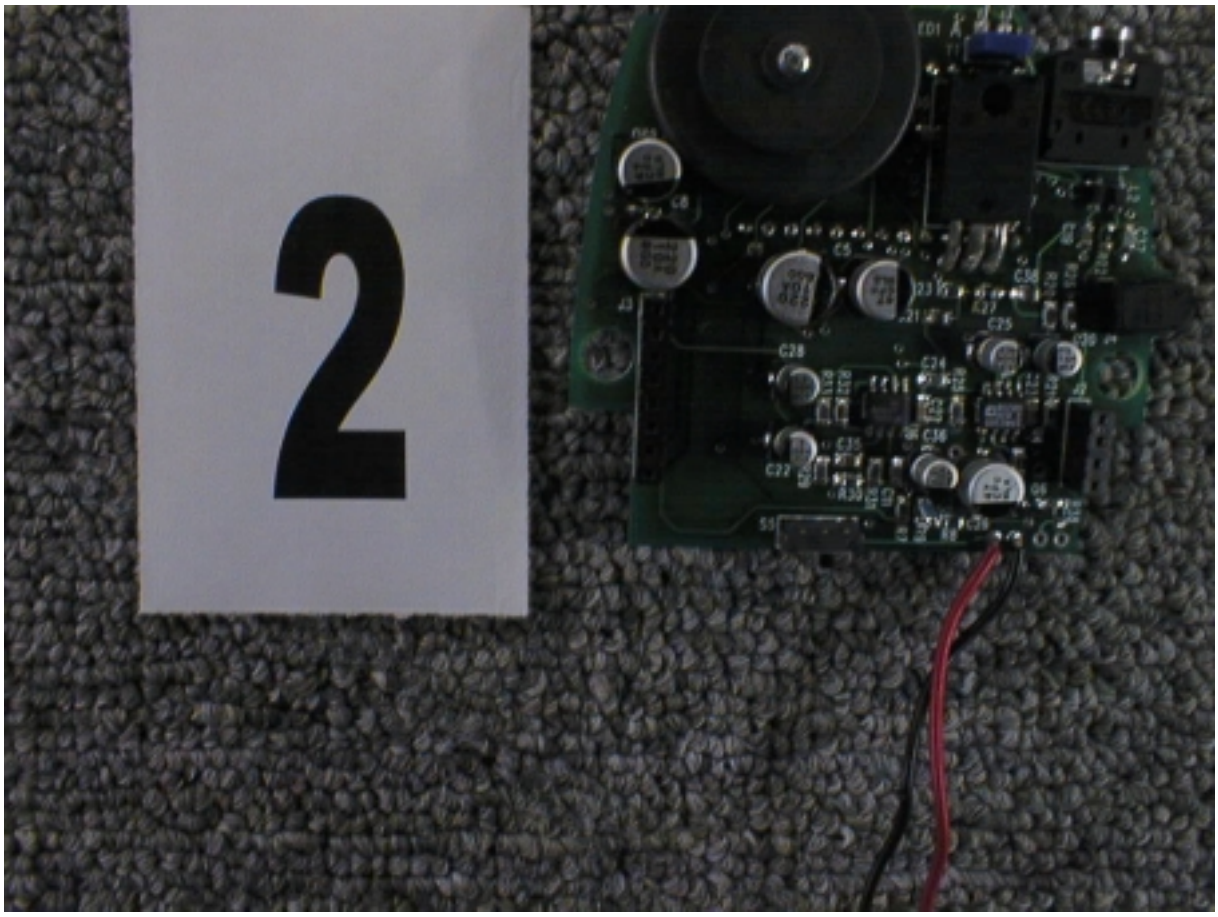
3.3 Photographs of EUT



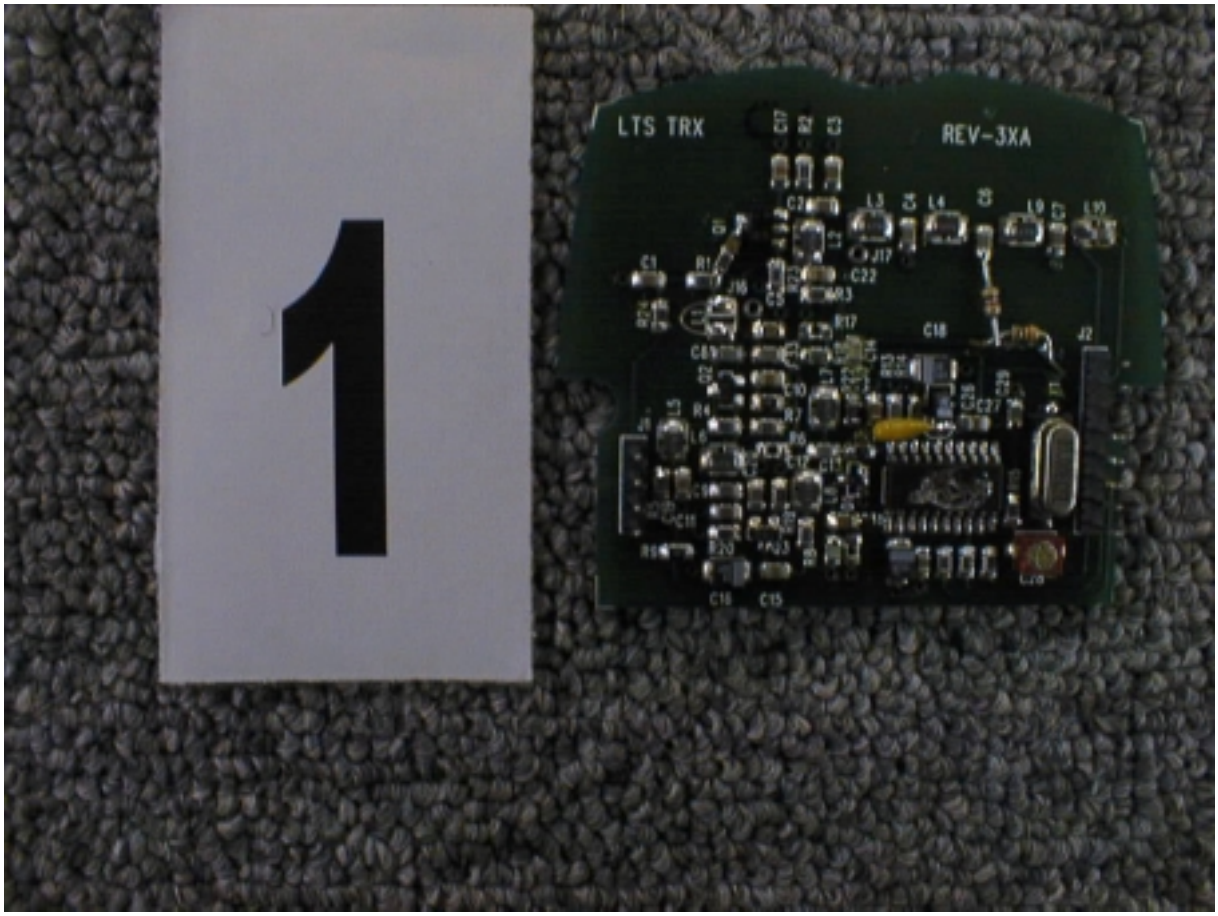
1 - Transmitter module
2 - Control module
3 - Microphone cable with BNC connector as Antenna
4 - Housing



2 - Component side of the control module



2 - Solder side of the control module



1 - Component side of the transmitter module

1 - Solder side of transmitter module PCB

3.4 Support Equipment List

Equipment	Radio Shack AC Adapter
Cat. No.	273-1651D
Serial No.	N/A

Equipment	Test Oscillator
Model No.	651B Test Oscillator, Hewlett Packard
Serial No.	1230AO8435

3.5 Cabling Configuration

Power Cords:

Unit	AC Adapter to LT-700
MFG	Generic
Shielded?	No
Length	1.9 m

Unit	651B Test Oscillator
MFG	Generic
Shielded?	No
Length	2 m

I / O Cables External:

Connection	LT-700 to 651B Test Oscillator
MFG	RG-174U
Shielded?	Yes
Connector	BNC
Length	0.36 m

3.6 EUT Modifications

None

3.7 Photographs of EUT Modification

N/A

3.8 EUT Labeling per FCC Requirements

Each LPRS transmitting device shall bear the following statement in a conspicuous location on the device :

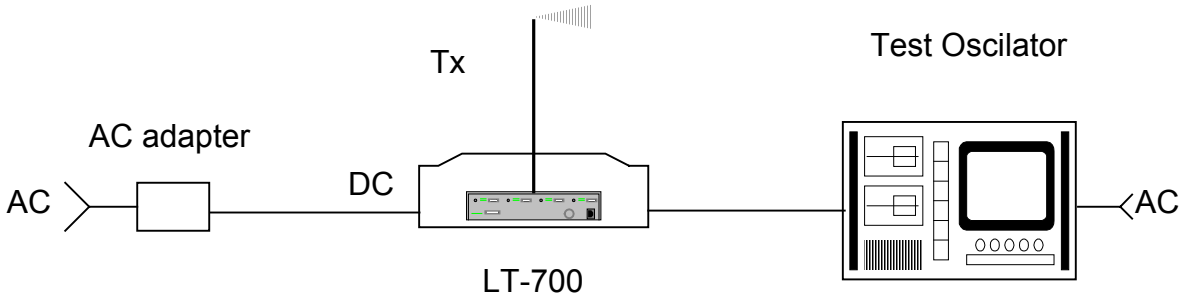
"This device may not interfere with TV reception or federal government radar, and must accept any interference received, including interference that may cause undesired operation"

4.0 TEST PROCEDURE AND CONFIGURATION

4.1 Test Specifications

Specification:	FCC 47 CFR, FCC Part 95
Title:	Code of Federal Regulations, Telecommunications Part 95 : Personal Radio Services
Specification:	FCC 47 CFR, FCC Part 2
Title	Code of Federal Regulations, Telecommunications Part 2 : Frequency Allocations and Radio Treaty Matters; General Rules and Regulations

4.2 Block Diagram of EUT Set-up for the Test



4.3. Procedure of RF Power Output, Unwanted radiation, Radiated Emission, Modulation Characteristics, Spurious Emissions, Field Strength of Spurious Radiation, Occupied Bandwidth , Frequency Stability Tests

The EMC test facility consists of a shielded semi-anechoic chamber with attached shielded control room. The semi-anechoic chamber is approximately 18 feet wide by 28 feet long by 19 feet high. A hybrid absorber combines high performance anechoic polyurethane foam with a ferrite tile base to achieve high levels of absorption and power dissipation capability.

The test site is designed according to the ANSI 63.4 -1992 requirements and the anechoic treatment of the chamber is sufficient to achieve the requirements of CISPR 22 and ANSI C63.4. The test site description along with the site attenuation data has been filed with the FCC and a letter of compliance with the requirements of Section 2.948 of the FCC Rules was issued on August 20,1998 by the FCC.

The EUT was tested in compliance with FCC Part 95 Subparts E and G requirements. All data was obtained via the HP 85876A EMI measurement software package using the HP 85462A Receiver.

The LT-700 was configured as an independent module and was tested with Microphone cable with BNC connector as Antenna and Directional Antenna. The modulation frequency was provided by external Test Oscillator (for all tests except RF Power Output and Unwanted Radiation).

EUT operated as a Stationary LPRS Transmitters on the frequencies of the selected channels. Standard band 1A, 1K, 1V and extra band 2A, 2K, 2V channels were chosen as the testing channels.

For all tests except Field Strength of Spurious Radiation the LT-700 was connected directly to the HP 85462A Receiver. Field Strength of Spurious Radiation and Spurious Radiation tests were monitored from the EUT over a frequency range of 30 MHz to 2900 MHz.

The above mentioned set-up allowed the article to perform sufficiently for the test purposes and required time.

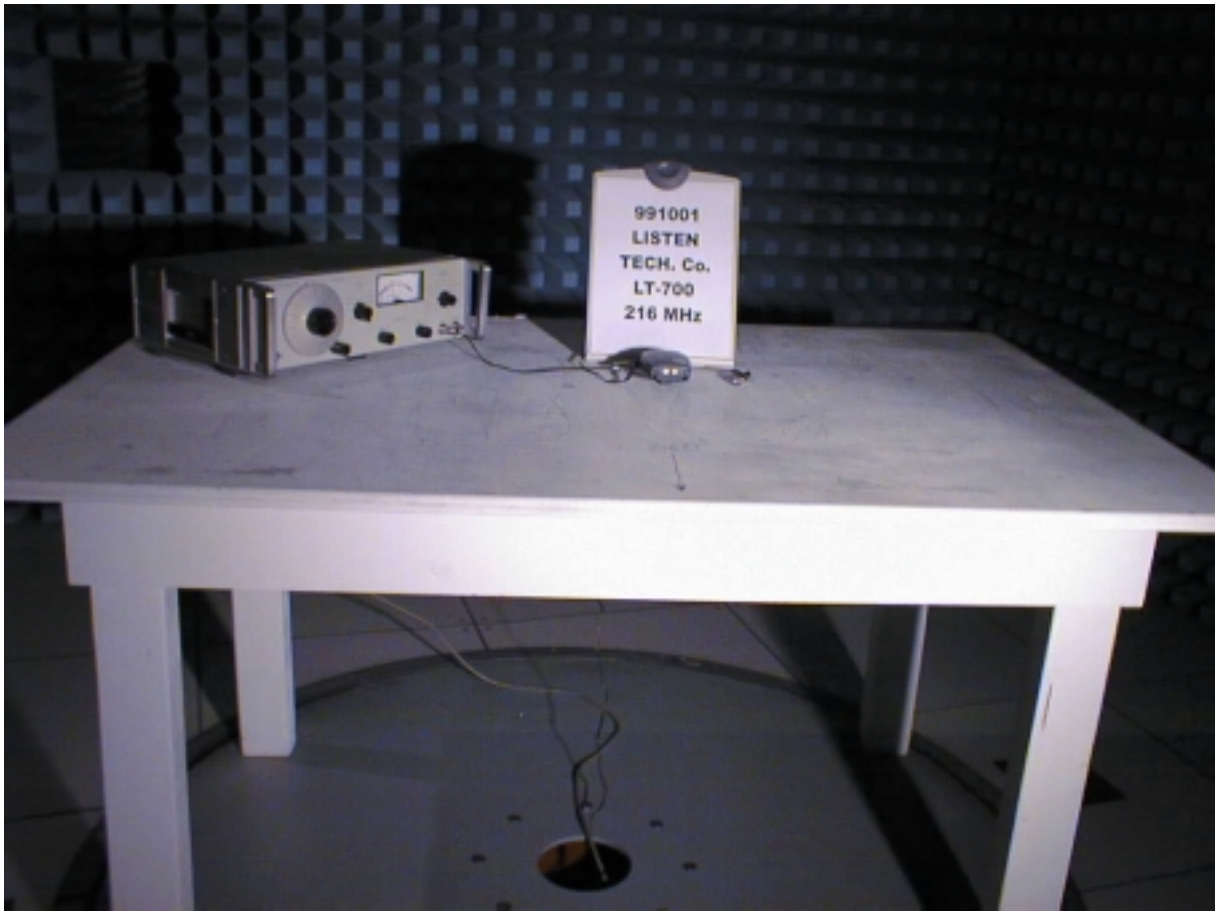
Field Strength of Spurious Radiation test were monitored from the EUT over a frequency range of 30 MHz to 2900 MHz in horizontal polarization with the scanning antenna repeatedly moving from 1 to 4 meters in elevation while the turntable rotated through a 360 degree arc. This procedure was then repeated in vertical polarization to confirm the strongest signals and polarization orientation.

Frequency stability test was done with variation of ambient temperature from 0° to +50° centigrade and with variation primary supply voltage from 85 to 115 percent of the nominal AC value for the selected standard band channel 1V and extra band channel 2A.

4.4 TEST EQUIPMENT USED

Device	Model No.	Serial No.	Last Cal.	Next Cal
Cable 1	8214	CBL-006	6/21/99	6/21/00
Analyzer	HP85462A	3325A00120	4/01/99	4/01/00
Cable 2	8268	CBL-002	6/21/99	6/21/00
Preselector	HP85460A	3330A00117	4/01/99	4/01/00
Qpeak Adapter	HP85462 Internal	Internal	4/01/99	4/01/00
Pre-Amplifier	None			
Tower 1	EMCO 1050	9310-1786	N/A	N/A
Turntable 1	EMCO 1060	9409-1753	N/A	N/A
Bilog Antenna	11966P 30-1000 MHz	1167	8/20/99	8/20/00
DRG Horn Antenna	SAS-200/571 1-18 GHz	175	8/20/99	8/20/00
Shielded Semi-Anechoic Chamber	RANTEC	N/A	9/10/99	9/10/00
Attenuator	Attenuator 10dB WEINSCHEL MODEL 33-10-34	10 dB Attenuator	08/18/99	08/18/00
Temperature and Humidity Recorder	Dickson TH8-24C	5097755	9/27/99	3/27/00
Power Analysis System	Xitron 2503 AHF	25035921001	12/17/98	12/17/99
AC Power Source	Behlman ACP3000-100	N/A	N/A	N/A
16 Channel Thermocouple Monitor	Stanford Research Systems Sr630	34202	12/17/98	12/17/00

4.5 Photographs of Test Setup



5 TEST RESULTS

The measurements expanded uncertainty equals 2.2. dB with 95% confidence level.
Room Ambient Temperature: 21°C±1°C
Relative Humidity: 47%±5%

5.1 RF POWER OUTPUT TEST

This test was performed in compliance with FCC Regulations using the methods of 2.1046 FCC Part 2.

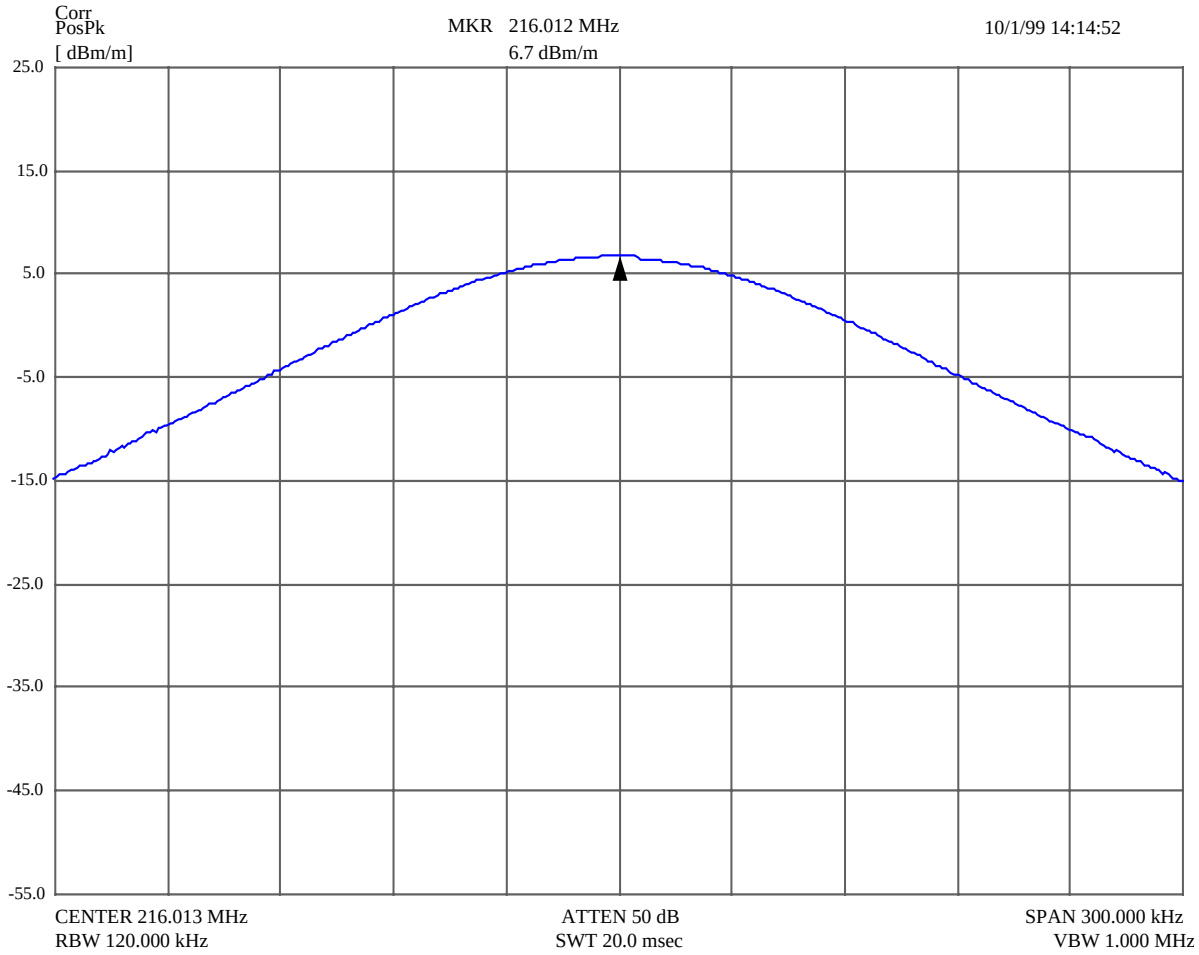
Below is the Peak measurements of the highest value RF POWER OUTPUT signals observed at the frequency of the selected channels.

Channel 1A

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.012496	6.71	21.01	-14.30	PASS	

Receiver (Graphic)

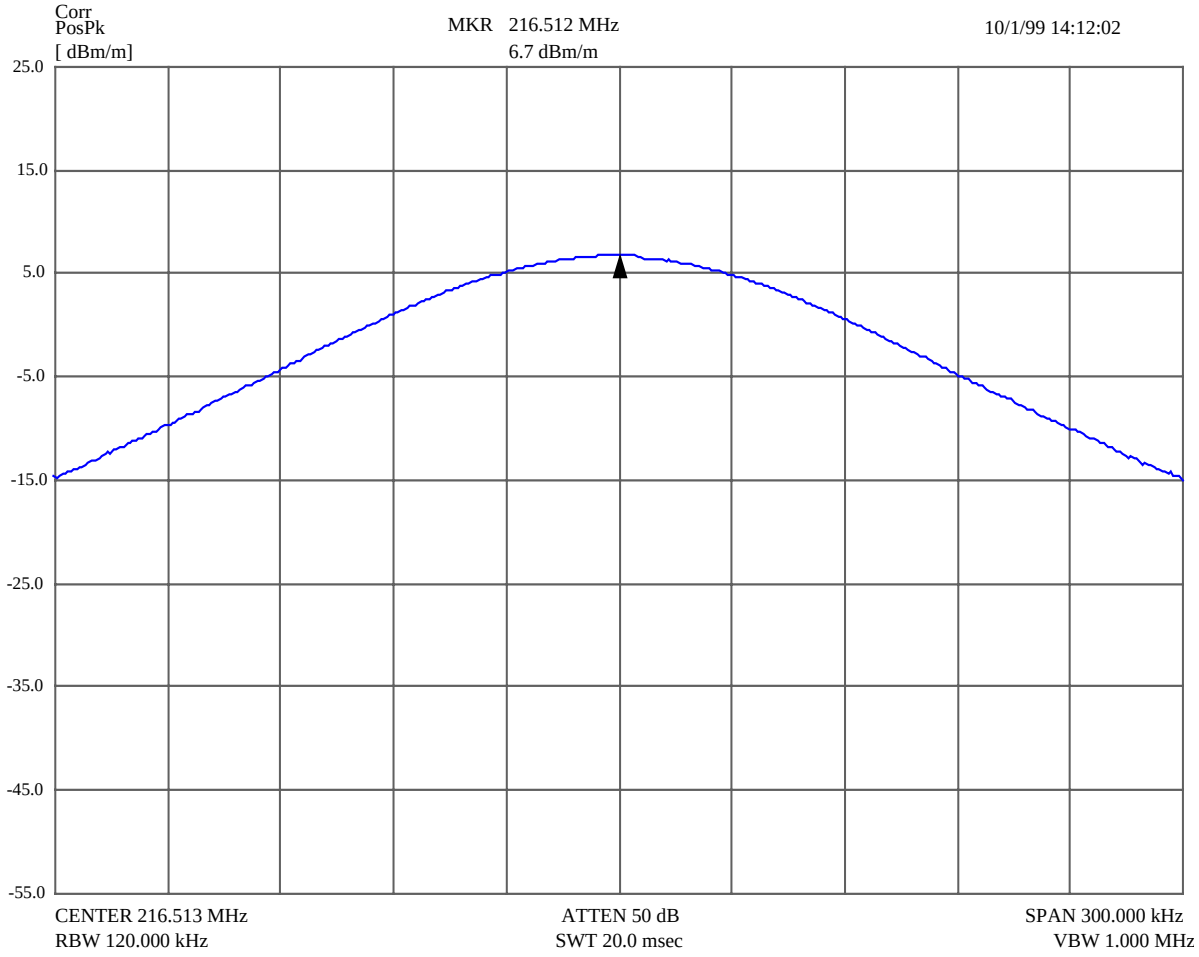


Channel 1K

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.512496	6.73	21.01	-14.28	PASS	

Receiver (Graphic)

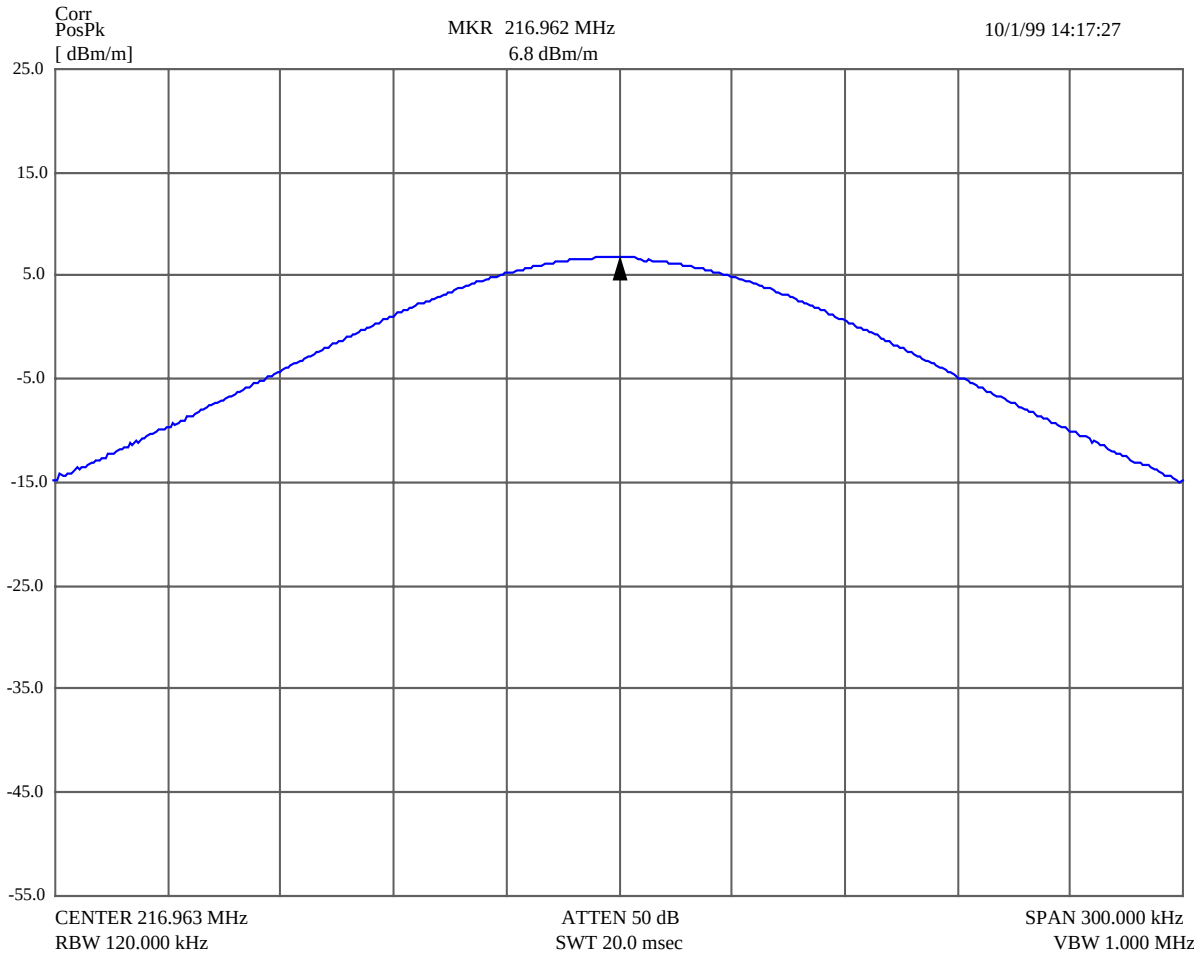


Channel 1V

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.962496	6.77	21.01	-14.24	PASS	

Receiver (Graphic)

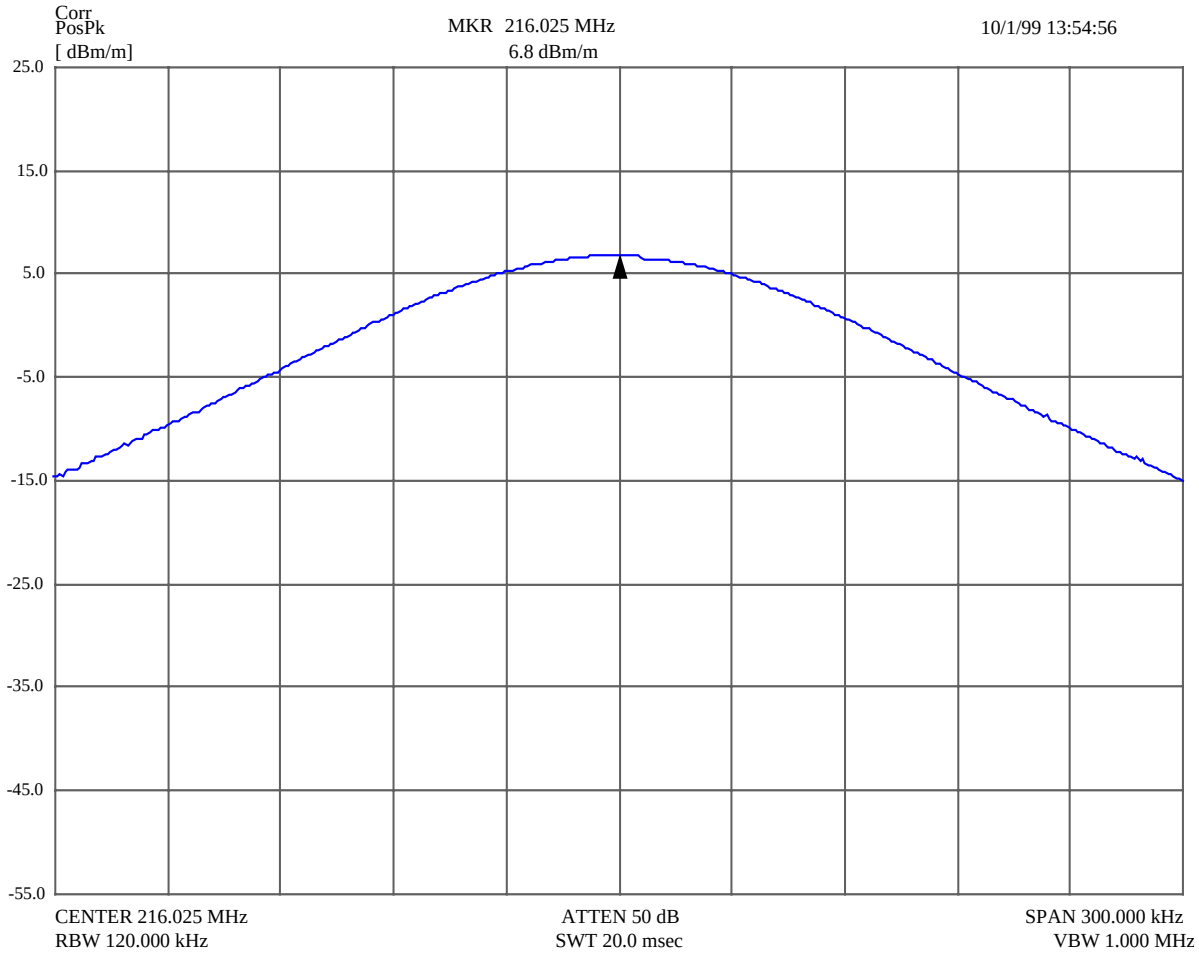


Channel 2A

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.024992	6.79	21.01	-14.22	PASS	

Receiver (Graphic)

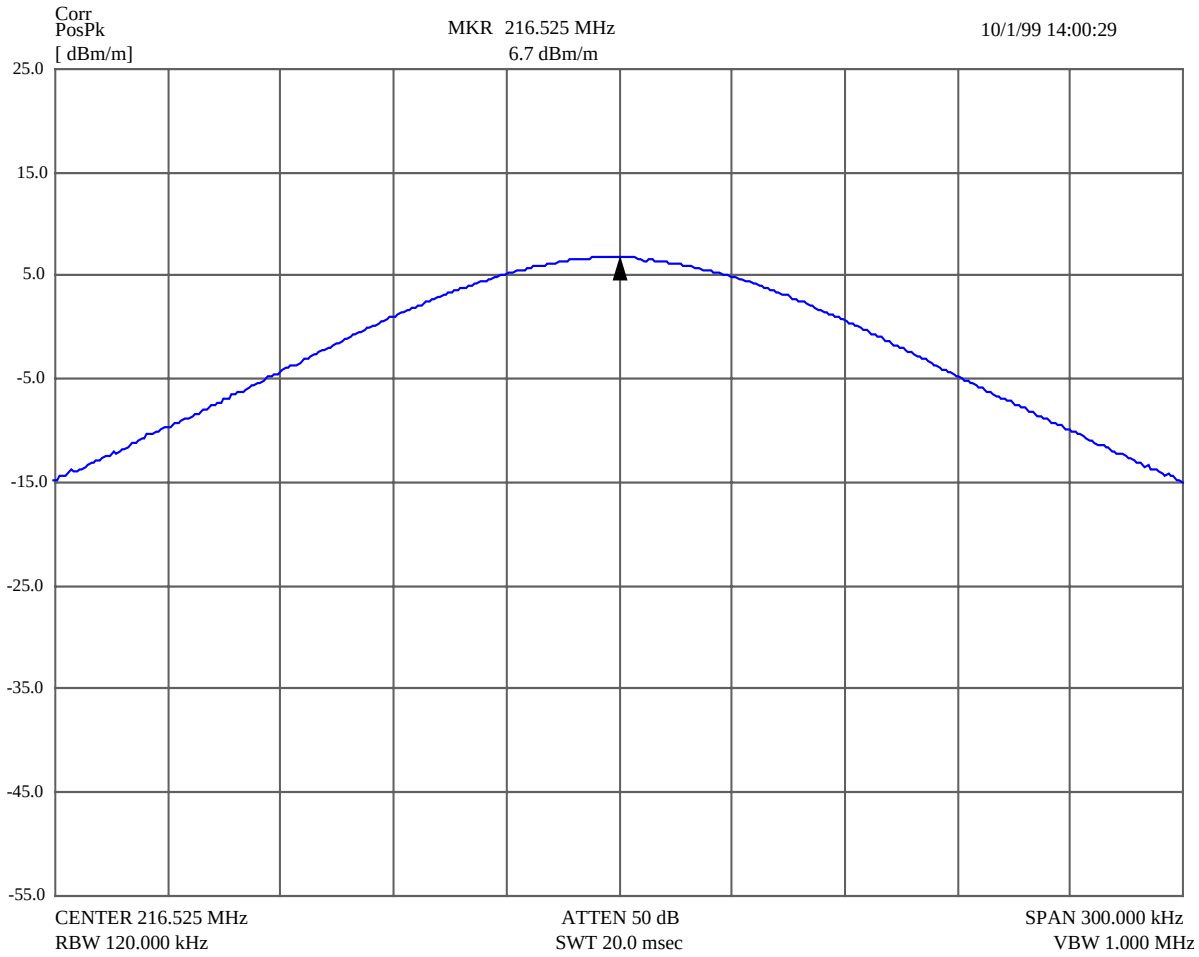


Channel 2K

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.524992	6.73	21.01	-14.28	PASS	

Receiver (Graphic)

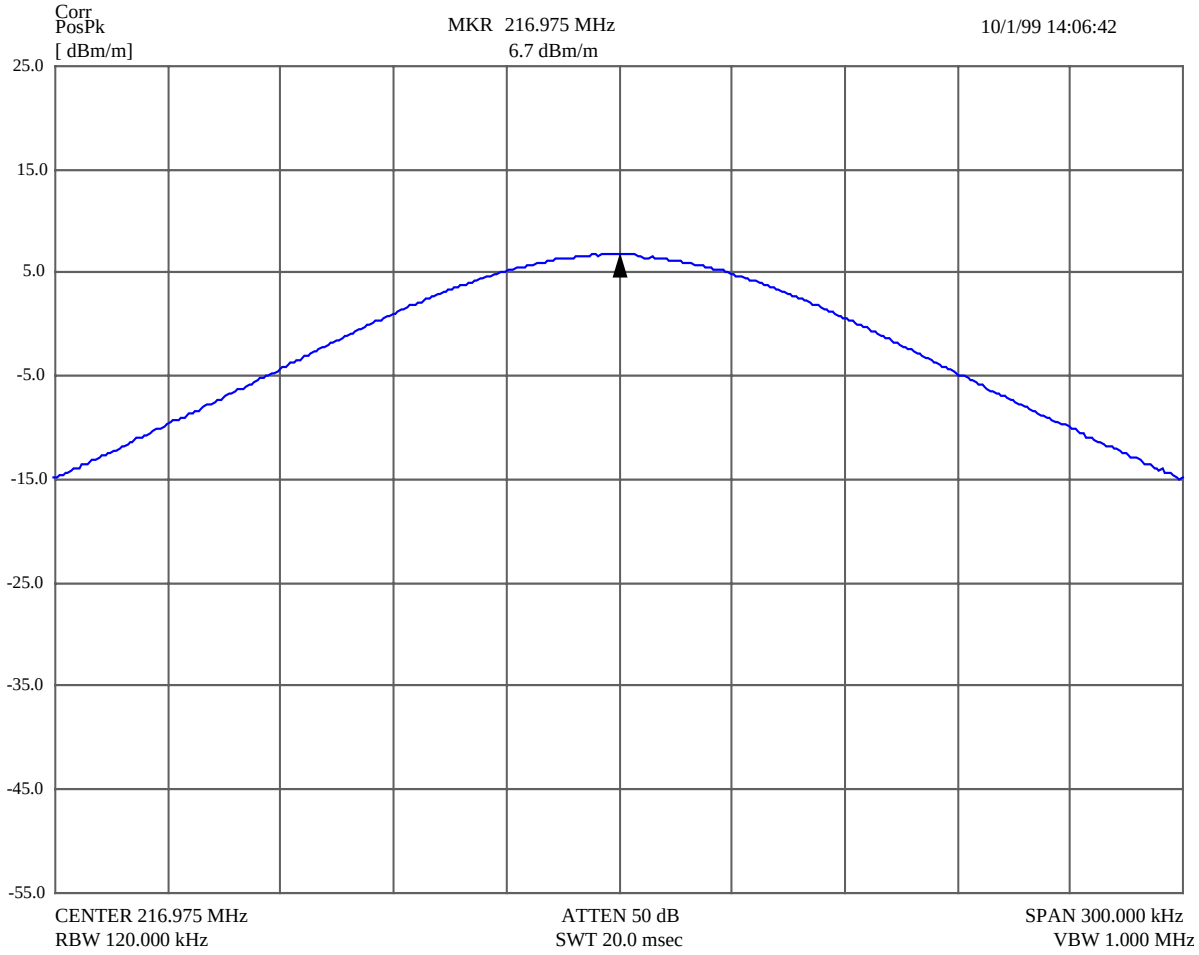


Channel 2V

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.975008	6.73	21.01	-14.28	PASS	

Receiver (Graphic)



5.2. UNWANTED RADIATION TEST

This test was performed in compliance with FCC Regulations using the methods of 95.635 FCC Part 95.

Below is the Peak measurements of the emission value UNWANTED RADIATION signals observed at the frequency carrier of the selected channels.

Channel 1A

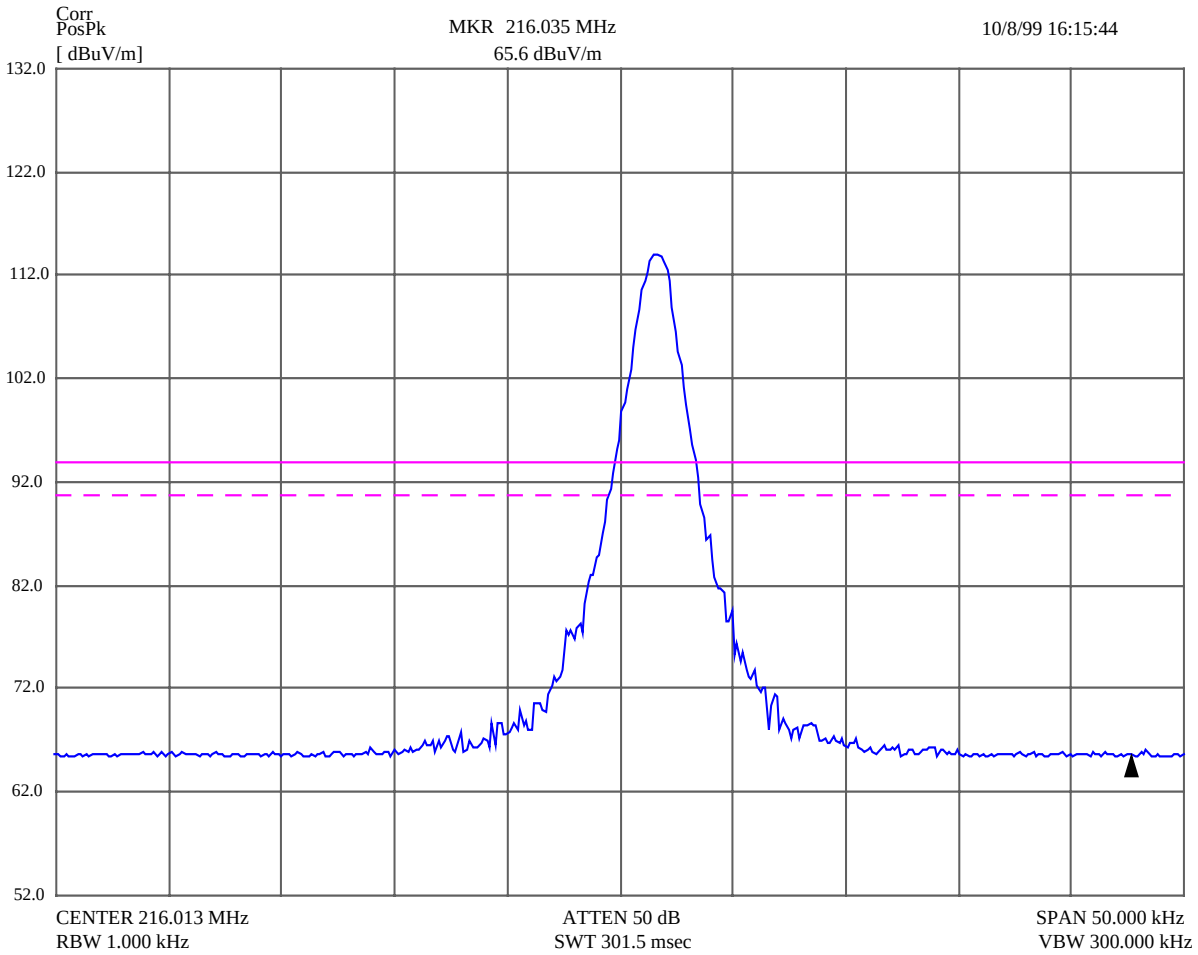
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
215.988992	65.37	94	-28.63	PASS	-(12.5…22.5) kHz
215.999248	65.49	94	-28.51	PASS	> -22.5 kHz
216.025504	65.91	94	-28.09	PASS	+(12.5…22.5) kHz
216.035120	65.60	94	-28.40	PASS	> +22.5 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.014128	113.97	127	-13.03	PASS	Fcarrier

Receiver (Graphic)



Channel 1K

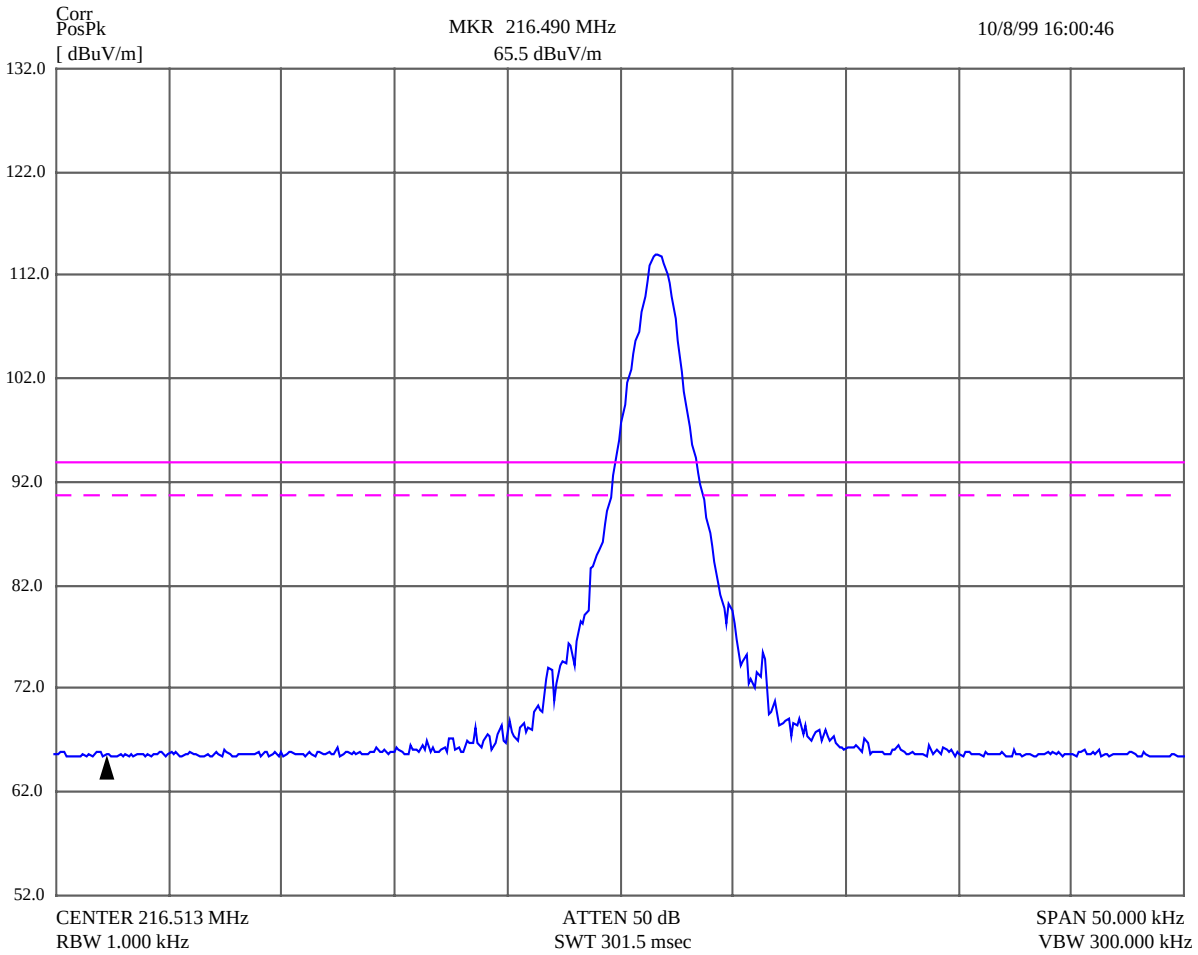
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.489120	65.41	94	-28.59	PASS	-(12.5…22.5) kHz
216.499376	65.65	94	-28.35	PASS	> -22.5 kHz
216.524992	66.02	94	-27.98	PASS	+(12.5…22.5) kHz
216.535120	65.74	94	-28.26	PASS	> +22.5 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.514128	113.92	127	-13.08	PASS	Fcarrier

Receiver (Graphic)



Channel 1V

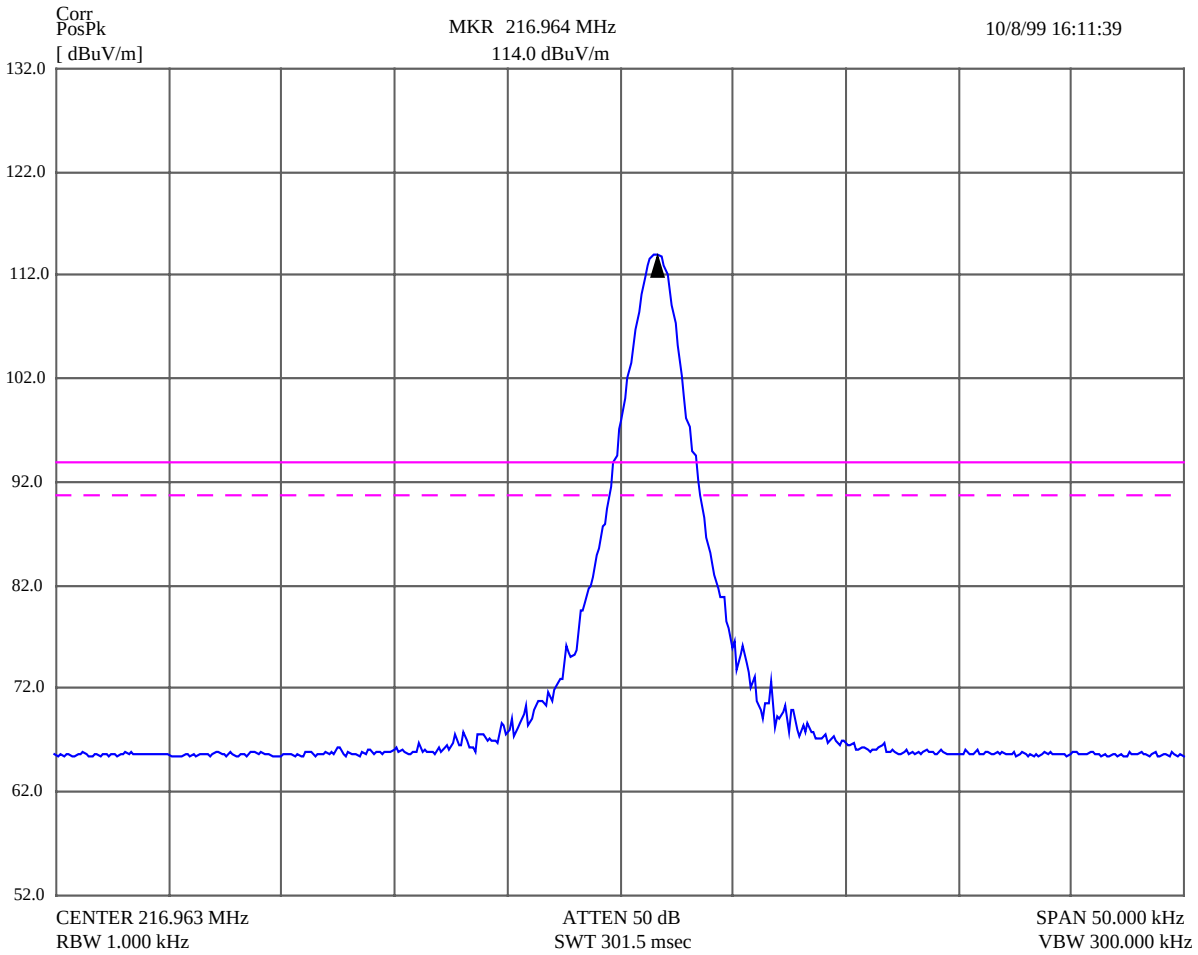
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.939744	65.51	94	-28.49	PASS	-(12.5…22.5) kHz
216.949120	65.53	94	-28.47	PASS	> -22.5 kHz
216.975376	65.67	94	-28.33	PASS	+(12.5…22.5) kHz
216.985248	65.58	94	-28.42	PASS	> +22.5 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.964128	113.99	127	-13.01	PASS	Fcarrier

Receiver (Graphic)



Channel 2A

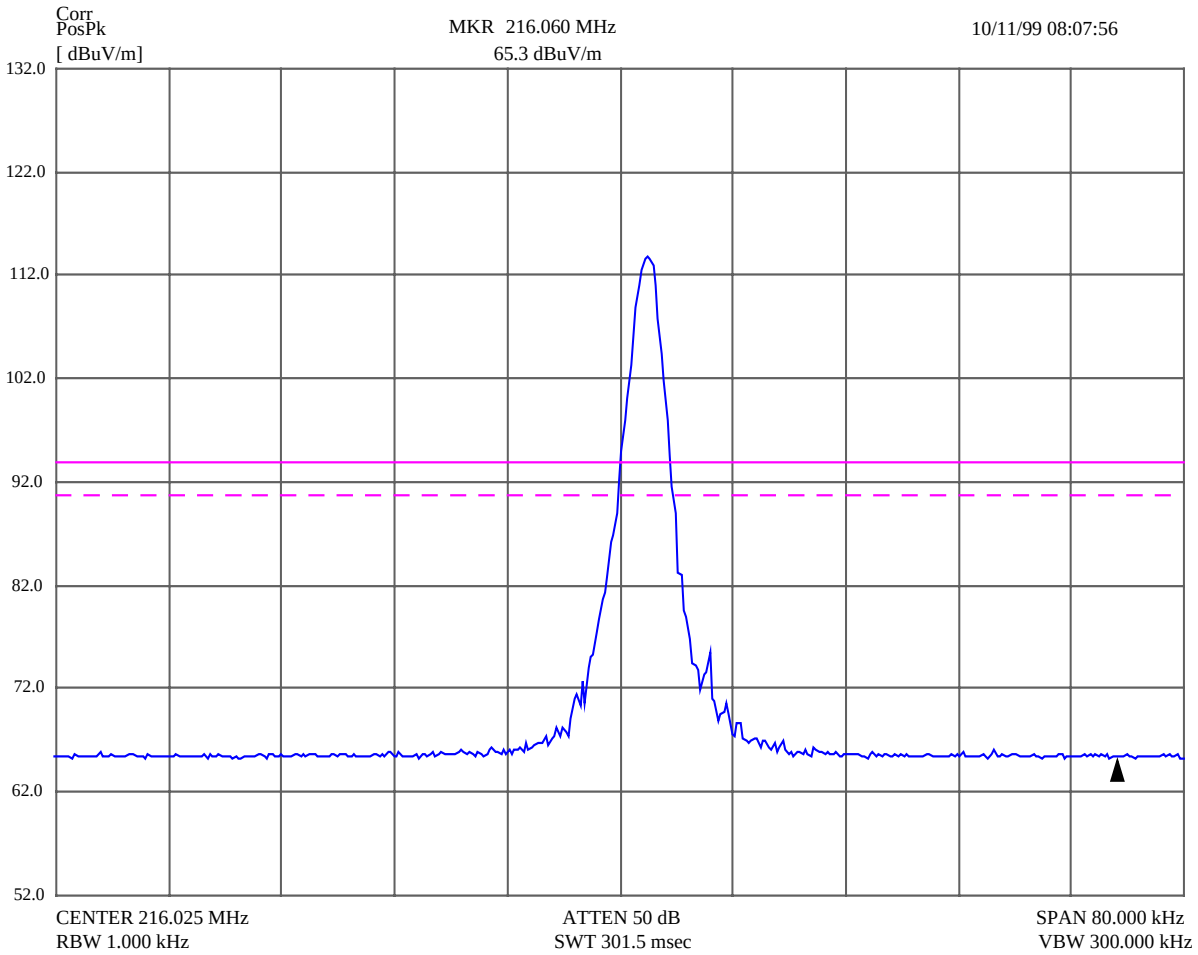
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
215.988800	65.30	94	-28.70	PASS	-(25…35) kHz
215.999008	65.39	94	-28.61	PASS	> -35 kHz
216.050000	65.42	94	-28.58	PASS	+(25…35) kHz
216.060192	65.30	94	-28.70	PASS	> +35 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.027008	113.62	127	-13.38	PASS	Fcarrier

Receiver (Graphic)



Channel 2K

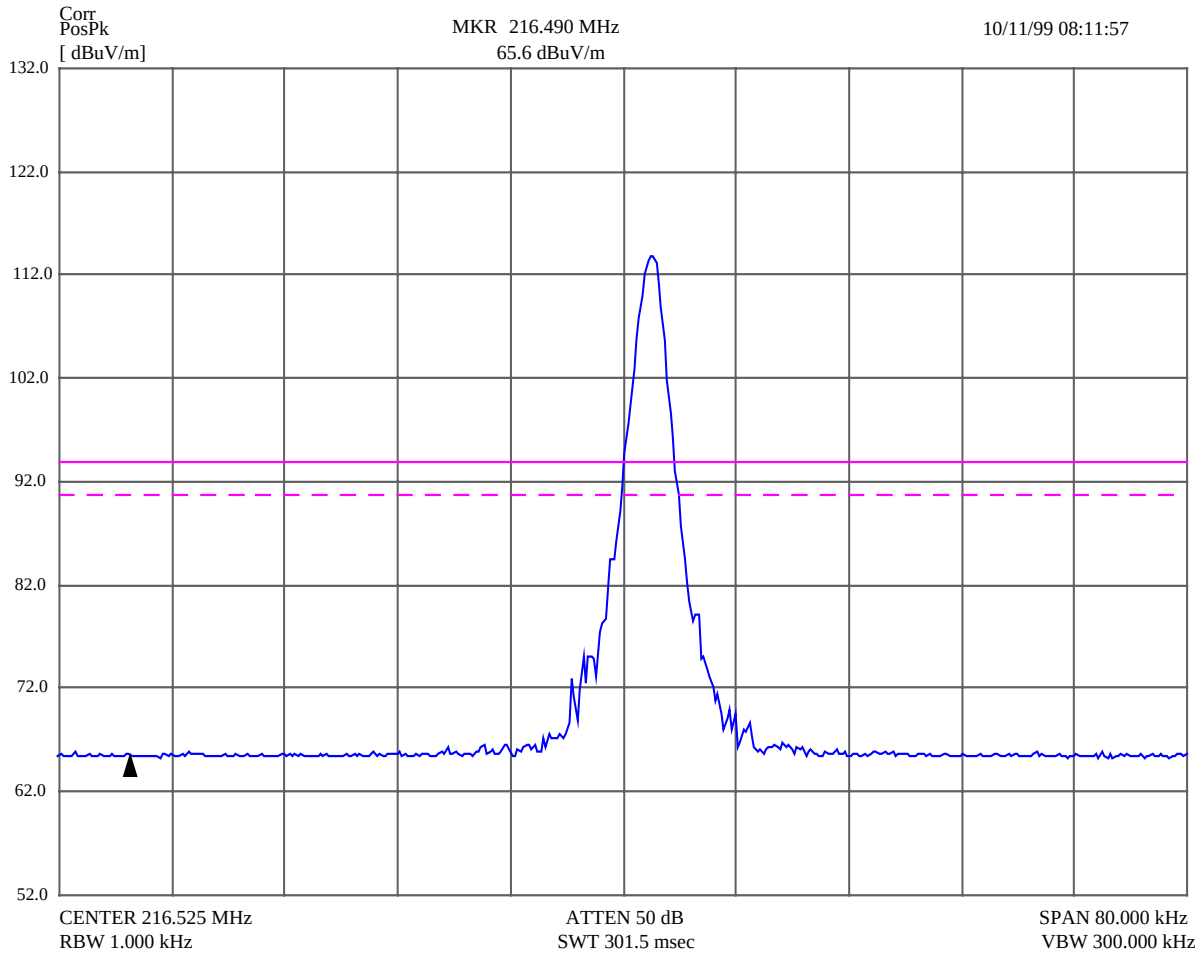
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.490000	65.62	94	-28.38	PASS	-(25…35) kHz
216.499392	65.51	94	-28.49	PASS	> -35 kHz
216.550208	65.37	94	-28.63	PASS	+(25…35) kHz
216.560192	65.46	94	-28.54	PASS	> +35 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk DB	Status	Comment
216.527008	113.76	127	-13.24	PASS	Fcarrier

Receiver (Graphic)



Channel 2V

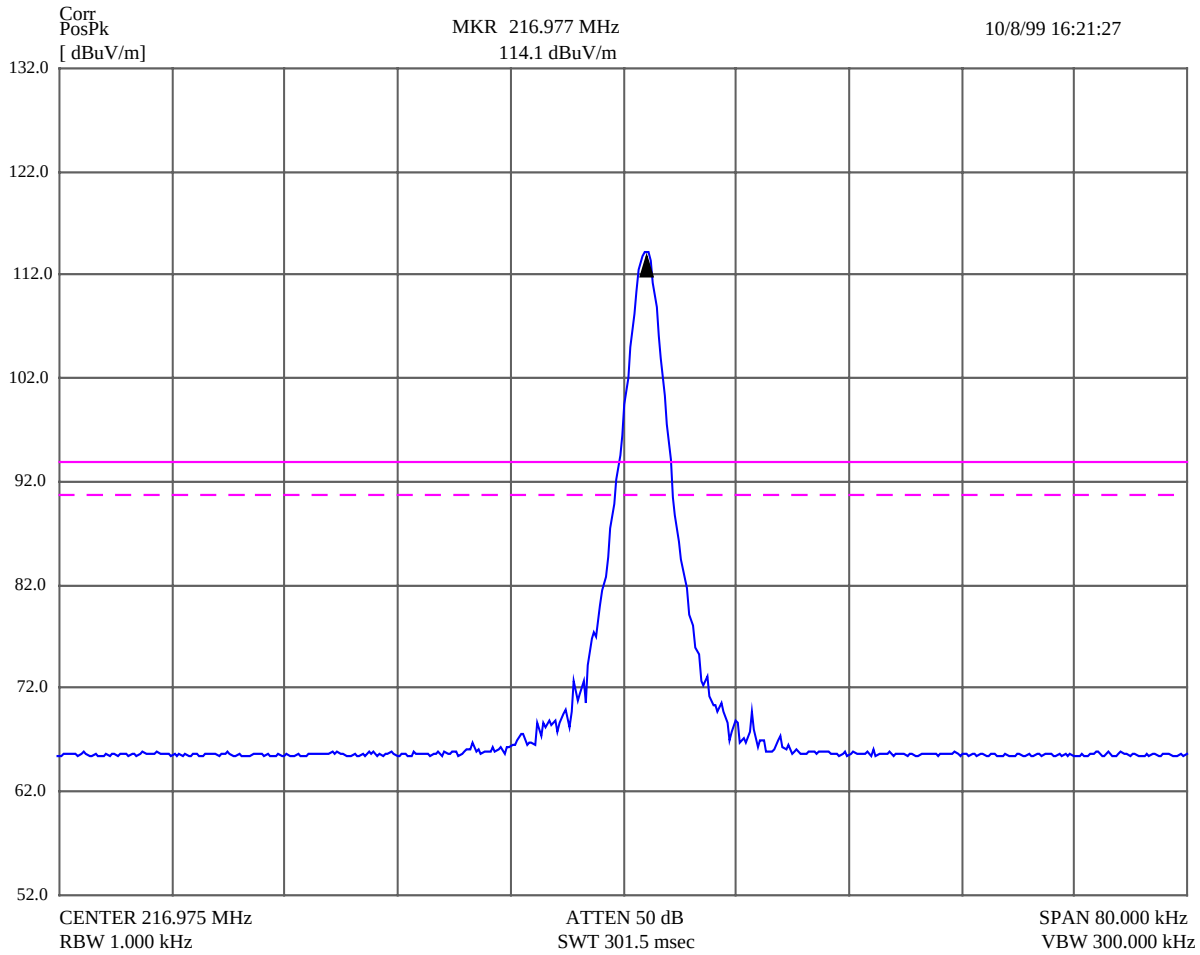
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.938800	65.48	94	-28.52	PASS	-(25…35) kHz
216.948608	65.37	94	-28.63	PASS	> -35 kHz
217.000400	65.55	94	-28.45	PASS	+(25…35) kHz
217.010400	65.69	94	-28.31	PASS	> +35 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk DB	Status	Comment
216.976608	114.05	127	-12.95	PASS	Fcarrier

Receiver (Graphic)



5.3. MODULATION CHARACTERISTICS TEST

This test was performed in compliance with FCC Regulations using the methods of 2.1047 FCC Part 2.

Below is the table of the Tx Peak measurements of the emission value at 3 dB level below Fpeak of the Tx (transmitter).

MODULATION CHARACTERISTICS was tested on the Standard band channel 1V and Extra band channel 2A.

1) Channel 1V, Fc = 216.9625 MHz, RBW = 3 kHz

The modulation Frequency F mod Hz	The modulation Amplitude MV	Tx frequency F_{3dB} at 3dB below Fpeak MHz	Tx peak level at 3dB below Fpeak dBuV	Deviation Fc - F_{3dB} kHz
1000	50	216.9565	107.6	6.0
1500	50	216.9576	107.9	4.9
2000	50	216.9572	108.7	4.9
2500	50	216.9564	107.6	6.1
3000	50	216.9553	106.6	7.2
4000	50	216.9550	105.4	7.5
5000	**50**	**216.9537**	**105.3**	**8.8**
6000	50	216.9569	105.4	5.6
7000	50	216.9559	105.2	6.6
8000	50	216.9552	105.5	7.3
9000	50	216.9552	106.6	7.3
10000	50	216.9537	105.3	8.8

The frequency Fmod =5000 Hz that had the highest deviation was chosen to define the amplitude for the Occupied Bandwidth Test.

2) Channel 2A, Fc = 216.025 MHz, RBW = 3 kHz

The modulation Frequency F mod Hz	The modulation amplitude mV	Tx frequency F_{3dB} at 3dB below Fpeak MHz	Tx peak level at 3dB below Fpeak dBuV	Deviation Fc - F_{3dB} kHz
1000	50	216.0210	108.7	4.0
1500	50	216.0201	108.5	4.9
2000	50	216.0194	108.1	5.6
2500	50	216.0191	108.3	5.9
3000	50	216.0182	107.8	6.8
4000	50	216.0175	105.2	7.5
5000	**50**	**216.0166**	**105.7**	**8.4**
6000	50	216.0174	105.0	7.6
7000	50	216.0180	104.7	7.0

The frequency Fmod =5000 Hz that had the highest deviation was chosen to define the amplitude for the Occupied Bandwidth Test.

5.4. OCCUPIED BANDWIDTH TEST

This test was performed in compliance with FCC Regulations using the methods of 2.1049 FCC Part 2. The OCCUPIED BANDWIDTH was measured at the level equal 99% of the frequency peak value.

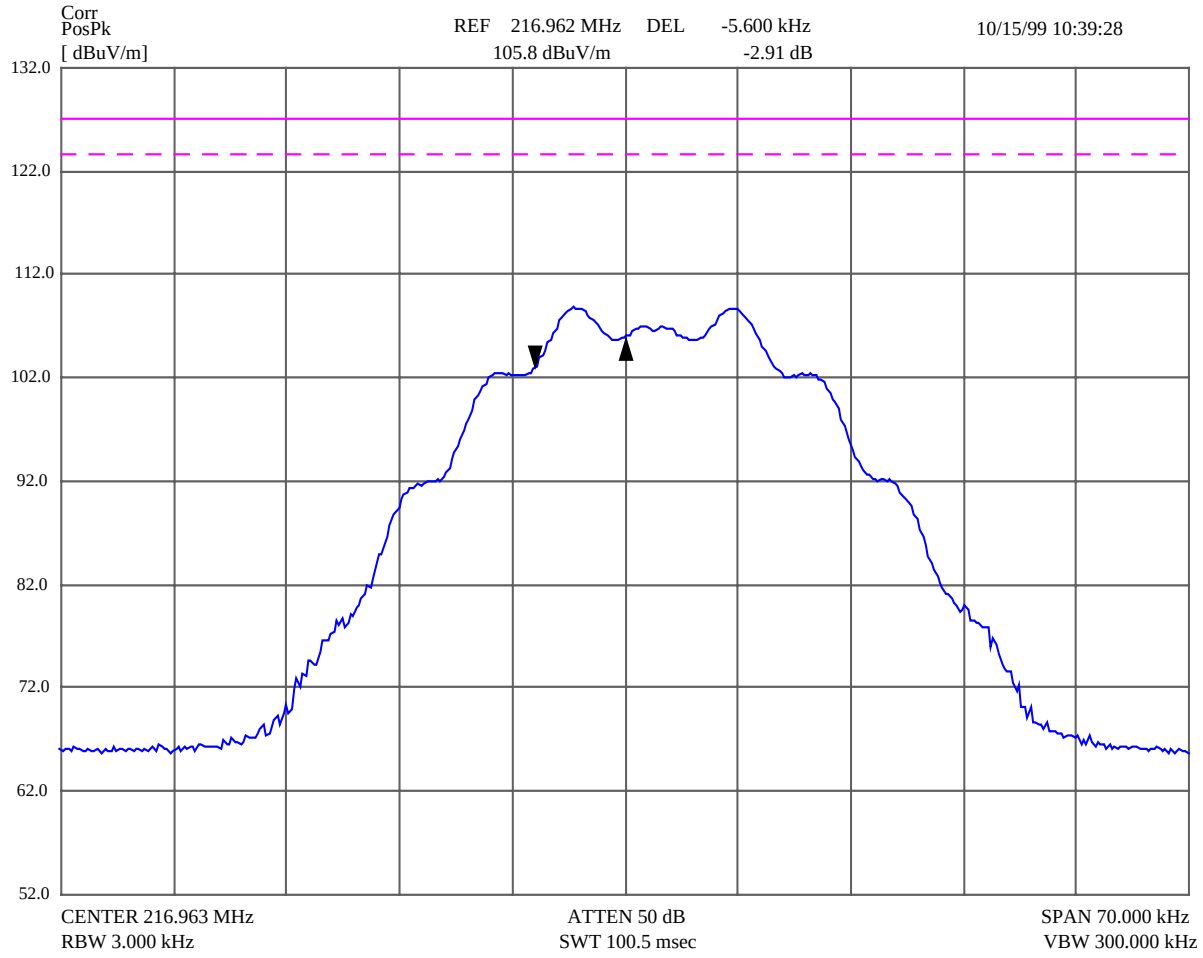
OCCUPIED BANDWIDTH TEST was performed on the selected Standard band channel 1V and Extra band channel 2A.

5.4.1. Channel 1V

1) The following is the data of the modulation frequency amplitude definition.

Frequency F_{3dB} at 3 dB below Fc MHz	Frequency F_{3dB} peak level dBuV	Occupied bandwidth at~50% modulation kHz	Comment
216.956896	102.9	11.2	At the Fmod=5000Hz and ampl. V=17.5 mV

Receiver (Graphic)



In according to procedure 2.1049 :

a) the amplitude 17.5 mV at the Fmod=5000 Hz converts to dBuV,
it comes to 84.86 dBuV;
b) the value of a) increases by 16 dB, it comes to 100.86 dBuV;
c) then the value of b) converts to "V", it comes to 0.110 V;
d) Thus, the occupied BW measures at the modulation amplitude =0.110 V
And frequency = 2500 Hz

2) The following is the data of the Occupied Bandwidth Channel 1V. The measurement was performed at Fmod=2500 Hz and Vmod=0.110 V

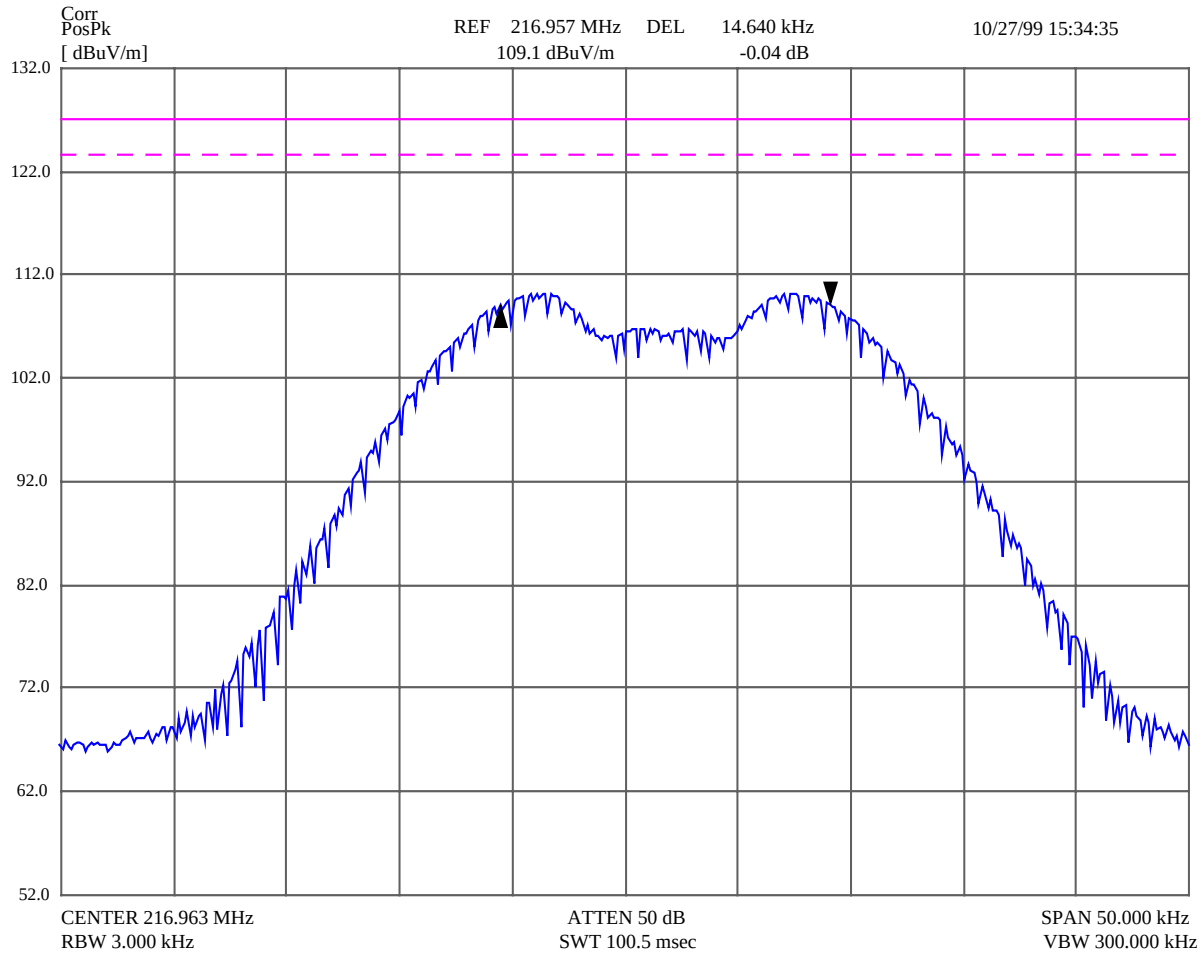
The frequency Peak level

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.958880	110.10	127	-16.90	PASS	

Occupied bandwidth

Freq. Flow At level 99% of Fpeak MHz	Peak value Flow dBuV	Freq. Fhigh at level 99% of Fpeak MHz	Peak Value Fhigh DBuV	Occupied bandwidth BW kHz	Occupied bandwidth LIMIT BWlim kHz	Status
216.956992	109.09	216.971632	109.05	14.640	25	PASS

Receiver (Graphic)

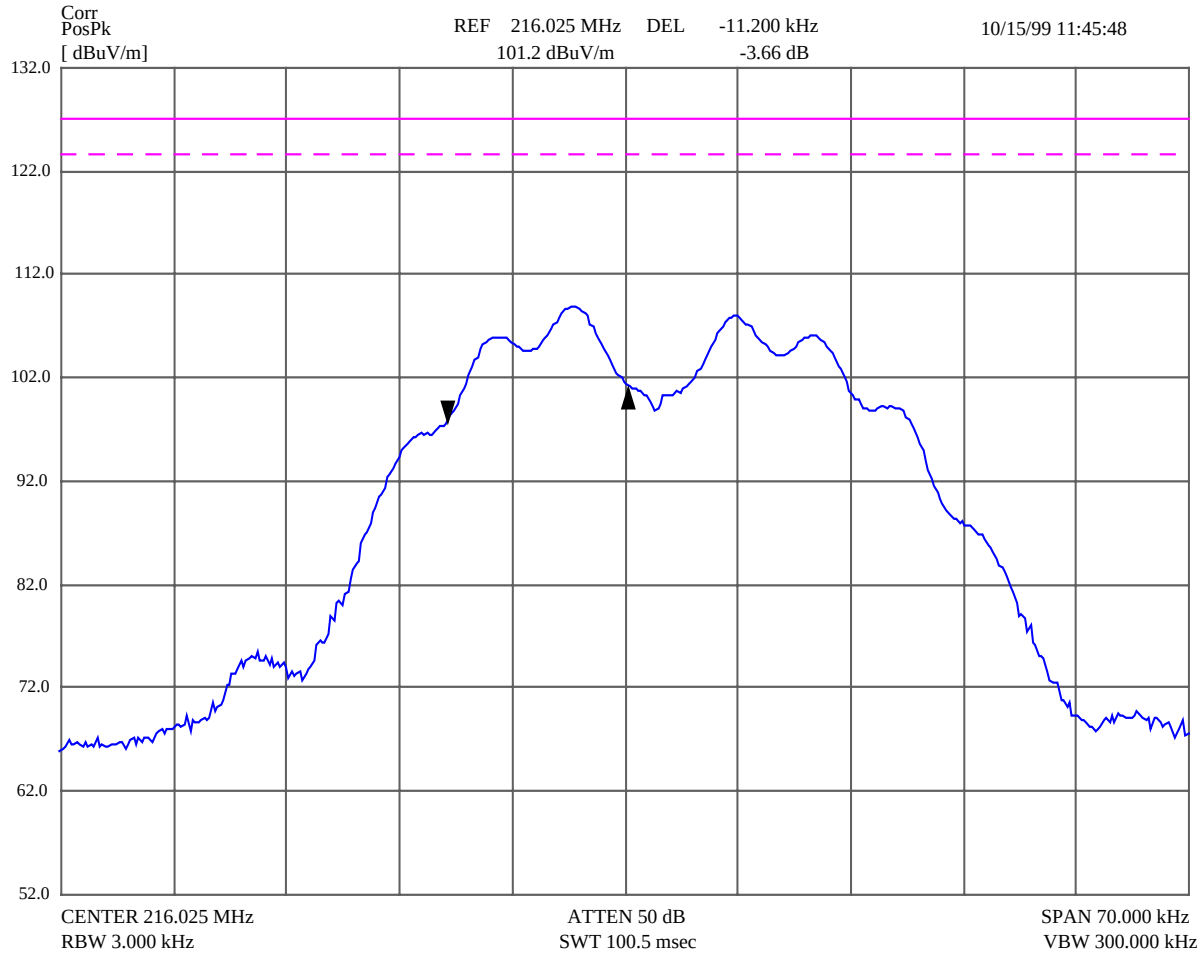


5.4.2. Channel 2A

1) The following is the data of the modulation frequency amplitude definition.

Frequency F_{3dB} at 3 dB below Fc MHz	Frequency F_{3dB} peak level dBuV	Occupied bandwidth at~50% modulation kHz	Comment
216.013968	97.54	22.4	At the Fmod=5000Hz and ampl. V=60 mV

Receiver (Graphic)



In according to procedure 2.1049 :

a) the amplitude 11 mV at the Fmod=5000 Hz converts to dBuV, it comes to 95.56 dBuV;
b) the value of a) increases by 16 dB, it comes to 111.56 dBuV;
c) then the value of b) converts to "V", it comes to 0.378 V;
d) Thus, the occupied BW measures at the modulation amplitude =0.378 V and frequency = 2500 Hz

2) The following is the data of the Occupied Bandwidth Channel 2A. The measurement was performed at Fmod=2500 Hz and Vmod=0.378 V

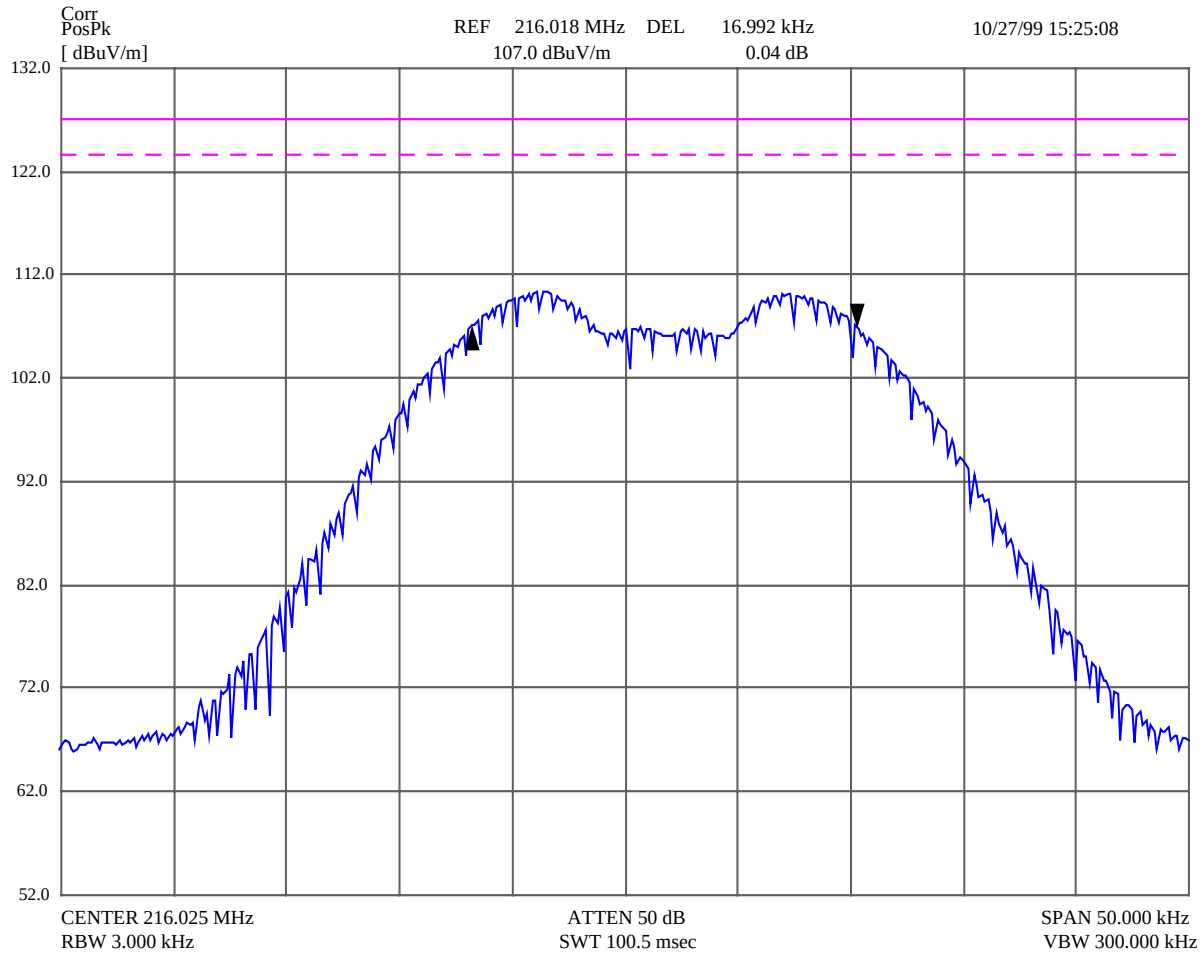
The frequency Peak level

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.021376	110.31	127	-16.69	PASS	

Occupied bandwidth

Freq. Flow at level 99% of Fpeak MHz	Peak value Flow dBuV	Freq. Fhigh at level 99% of Fpeak MHz	Peak value Fhigh dBuV	Occupied Bandwidth BW kHz	Occupied bandwidth LIMIT BWlim kHz	Status
216.018256	107.04	216.035248	107.08	16.992	50	PASS

Receiver (Graphic)



5.5. SPURIOUS EMISSIONS at antenna terminals

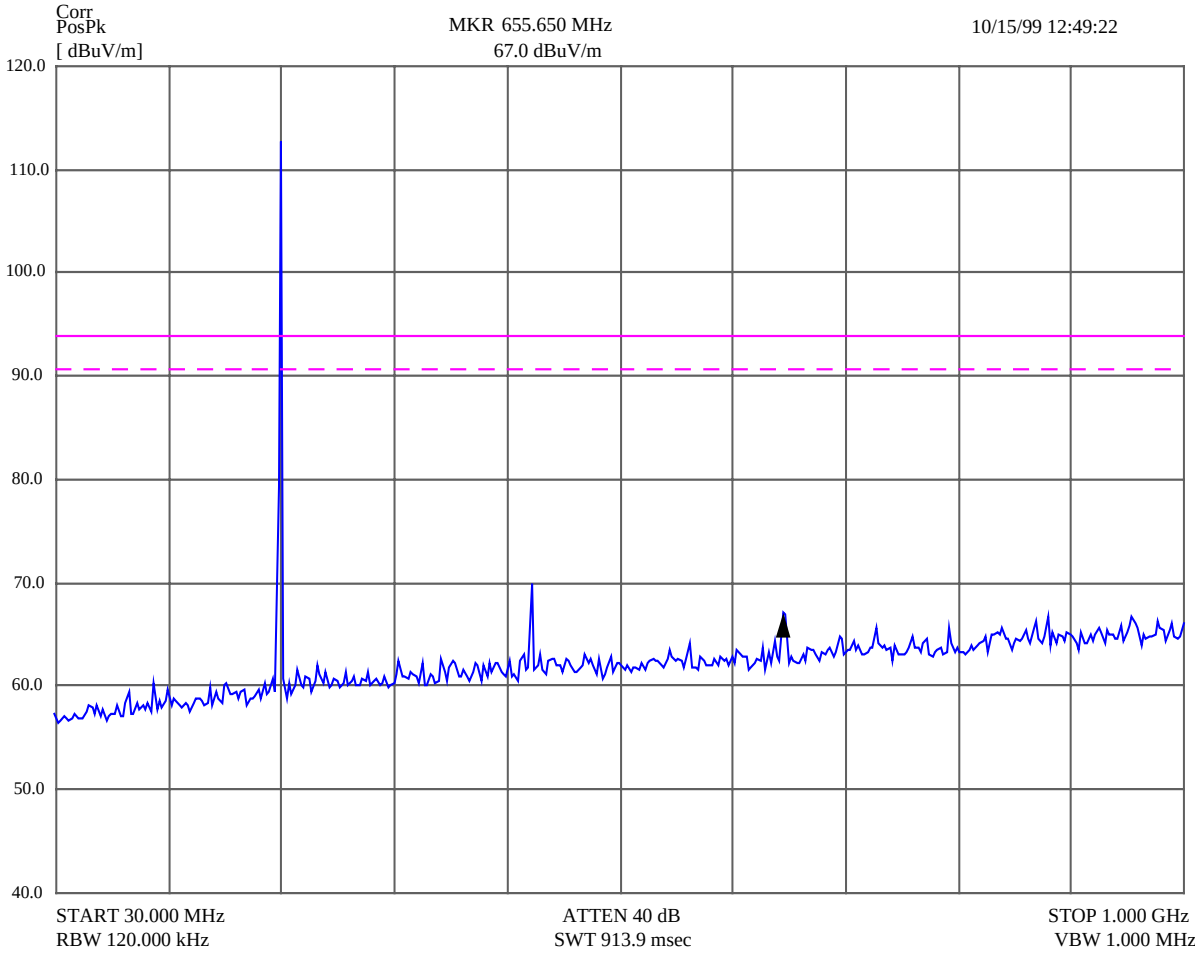
This test was performed in compliance with FCC Regulations using the methods of 2.1051 and 2.1057 FCC Part 2.

SPURIOUS EMISSIONS at antenna terminals were performed on the selected Standard band channel 1A, 1K, 1V at the modulation frequency 2500 Hz, amplitude 0.110V and Extra band channel 2A, 2K, 2V at the modulation frequency 2500 Hz, amplitude 0.378V in the frequency range from 30 MHz to 2900 MHz.

Channel 1A

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
439.824992	69.87	94	-24.13	PASS	
655.649984	66.96	94	-27.04	PASS	

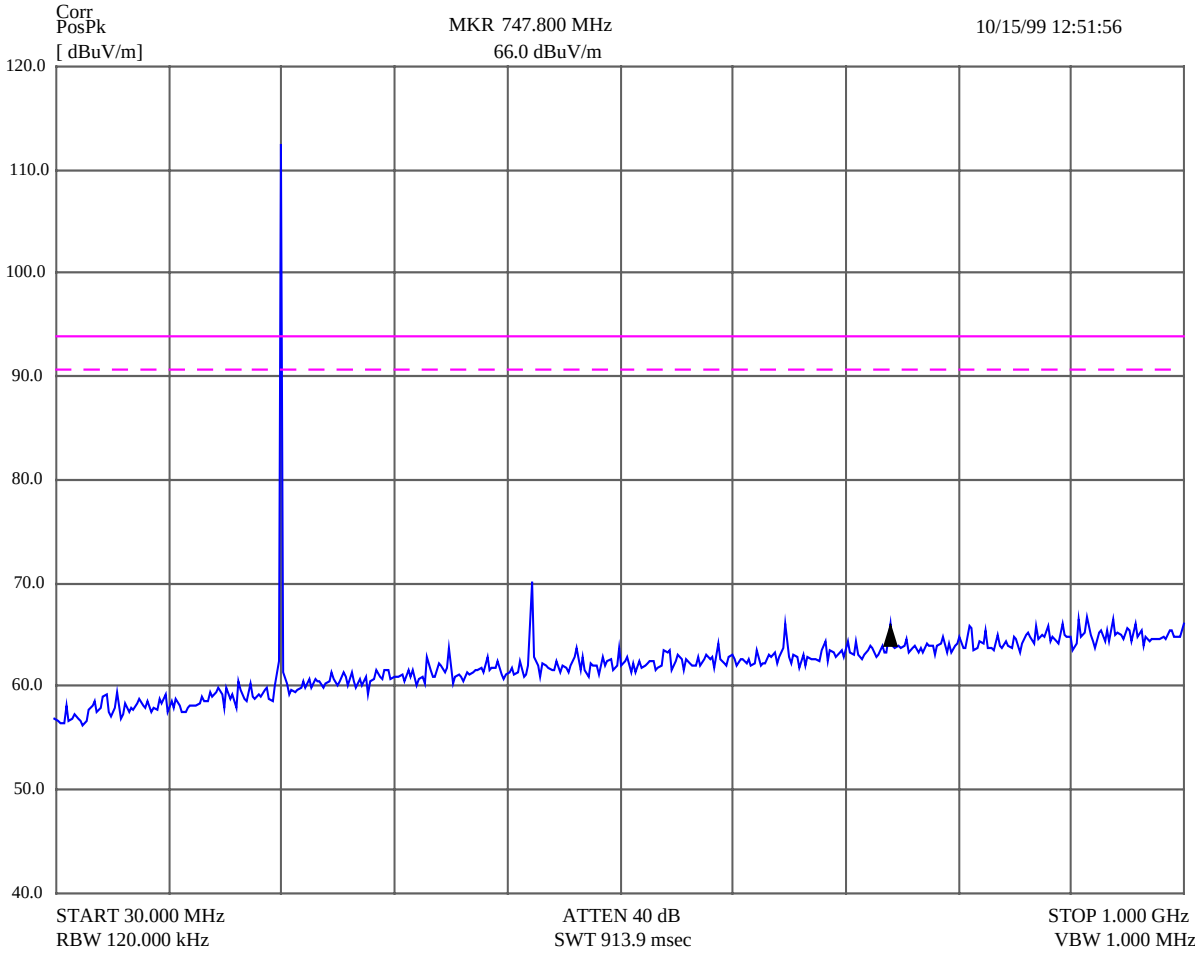
Receiver (Graphic)



Channel 1K

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
439.824992	70.06	94	-23.94	PASS	
658.075008	66.09	94	-27.91	PASS	
747.800000	66.02	94	-27.98	PASS	

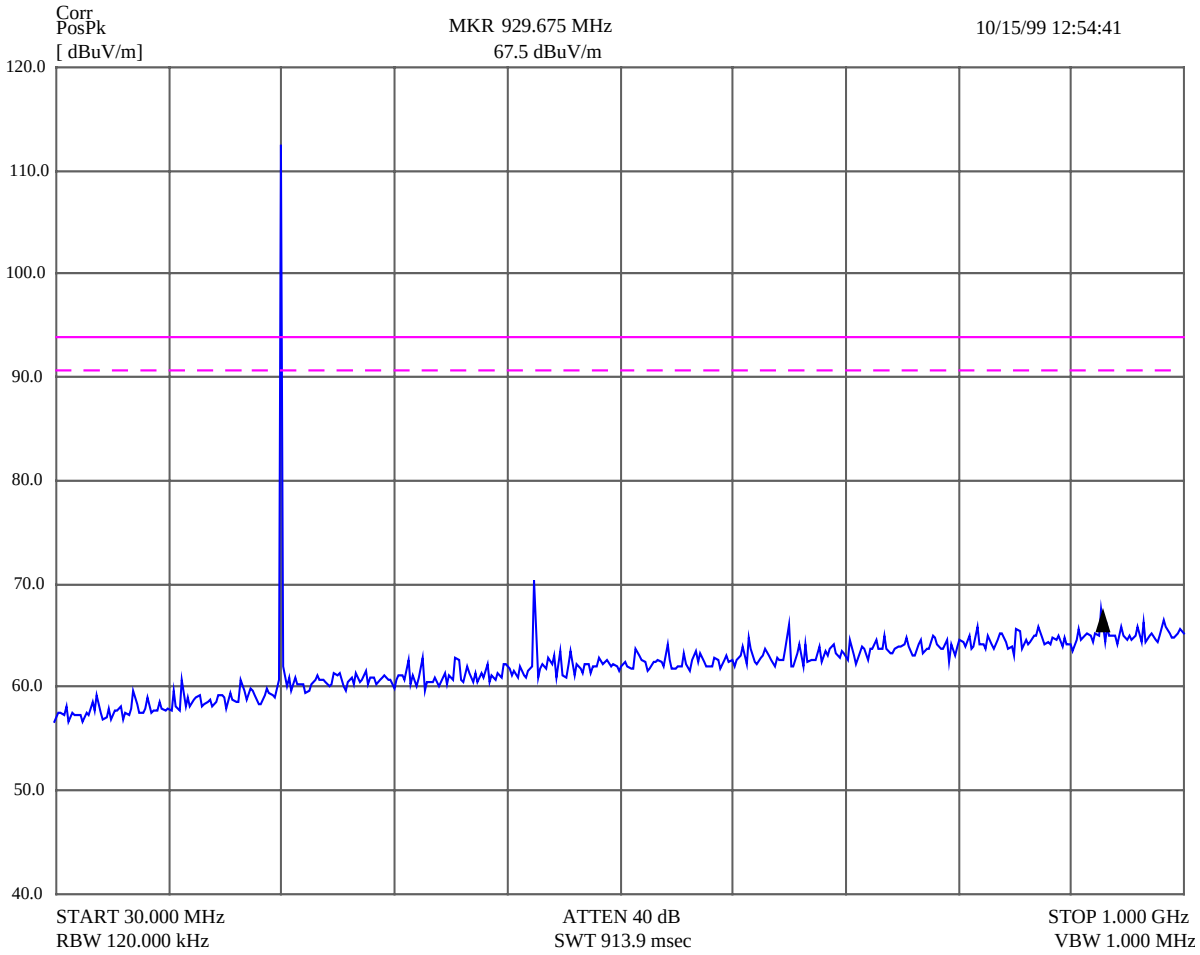
Receiver (Graphic)



Channel 1V

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
442.249984	70.36	94	-23.64	PASS	
660.499968	66.03	94	-27.97	PASS	
929.675008	67.52	94	-26.48	PASS	

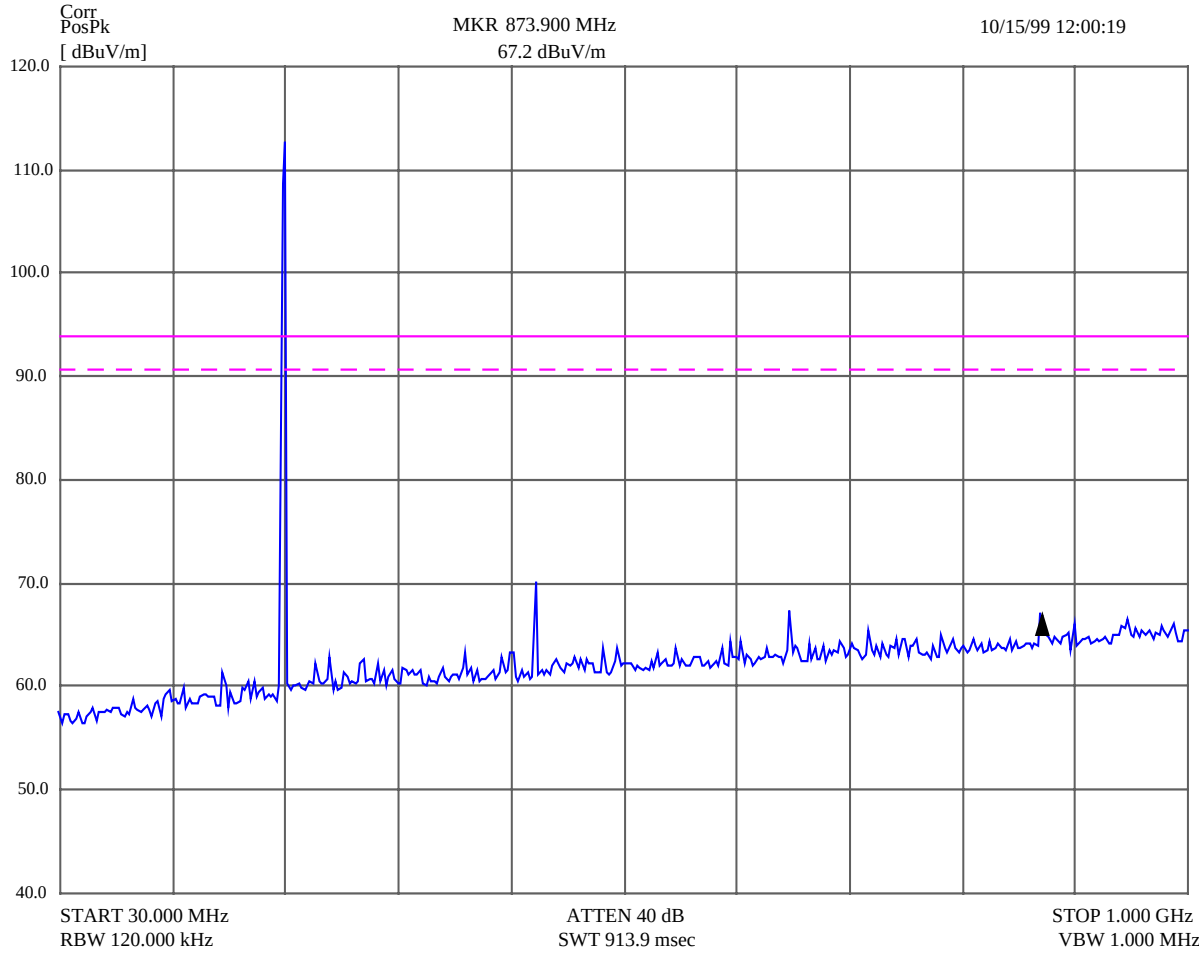
Receiver (Graphic)



Channel 2A

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk DB	Status	Comment
439.824992	70.12	94	-23.88	PASS	
658.075008	67.33	94	-26.67	PASS	
873.900032	67.16	94	-26.84	PASS	

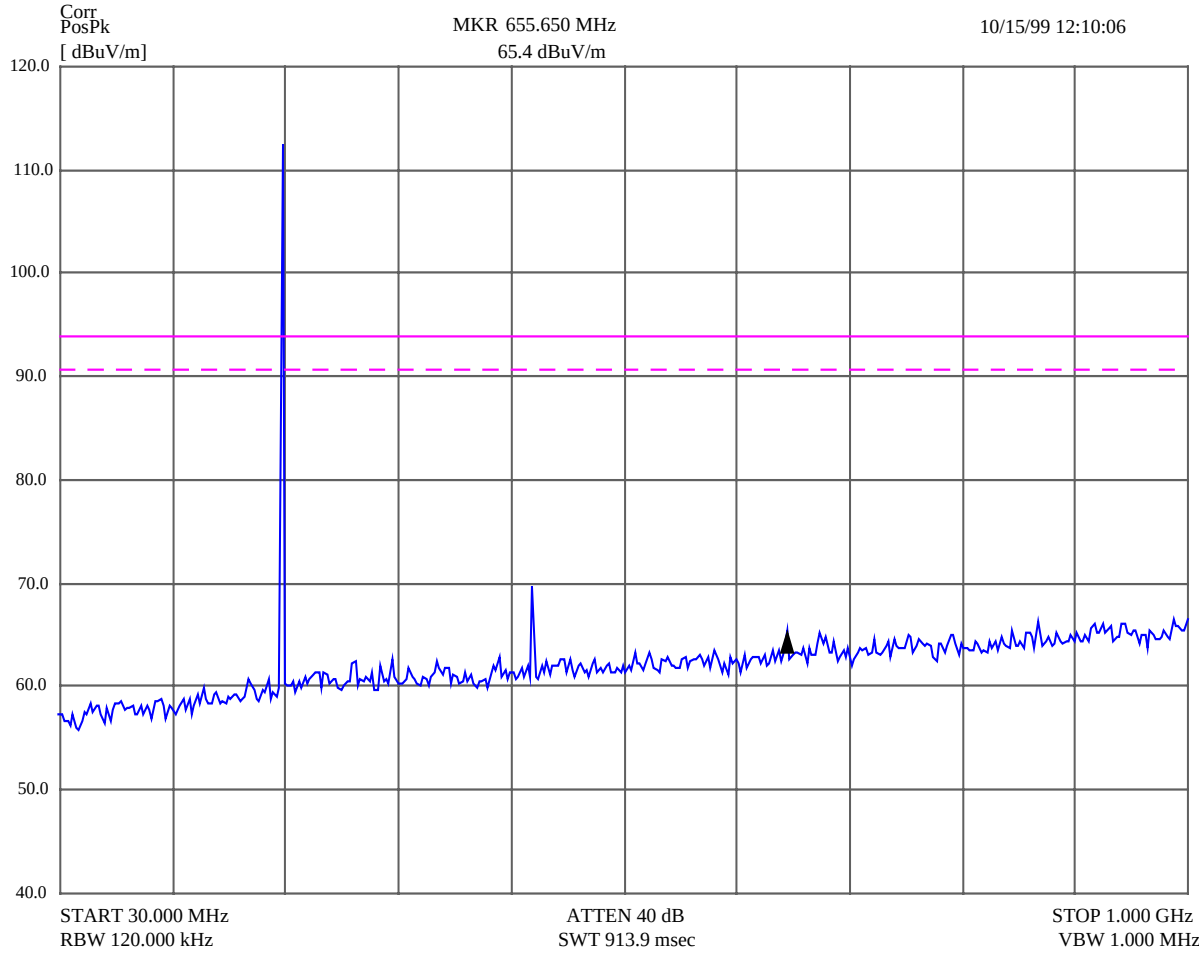
Receiver (Graphic)



Channel 2K

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
437.400000	69.67	94	-24.33	PASS	
655.649984	65.37	94	-28.63	PASS	

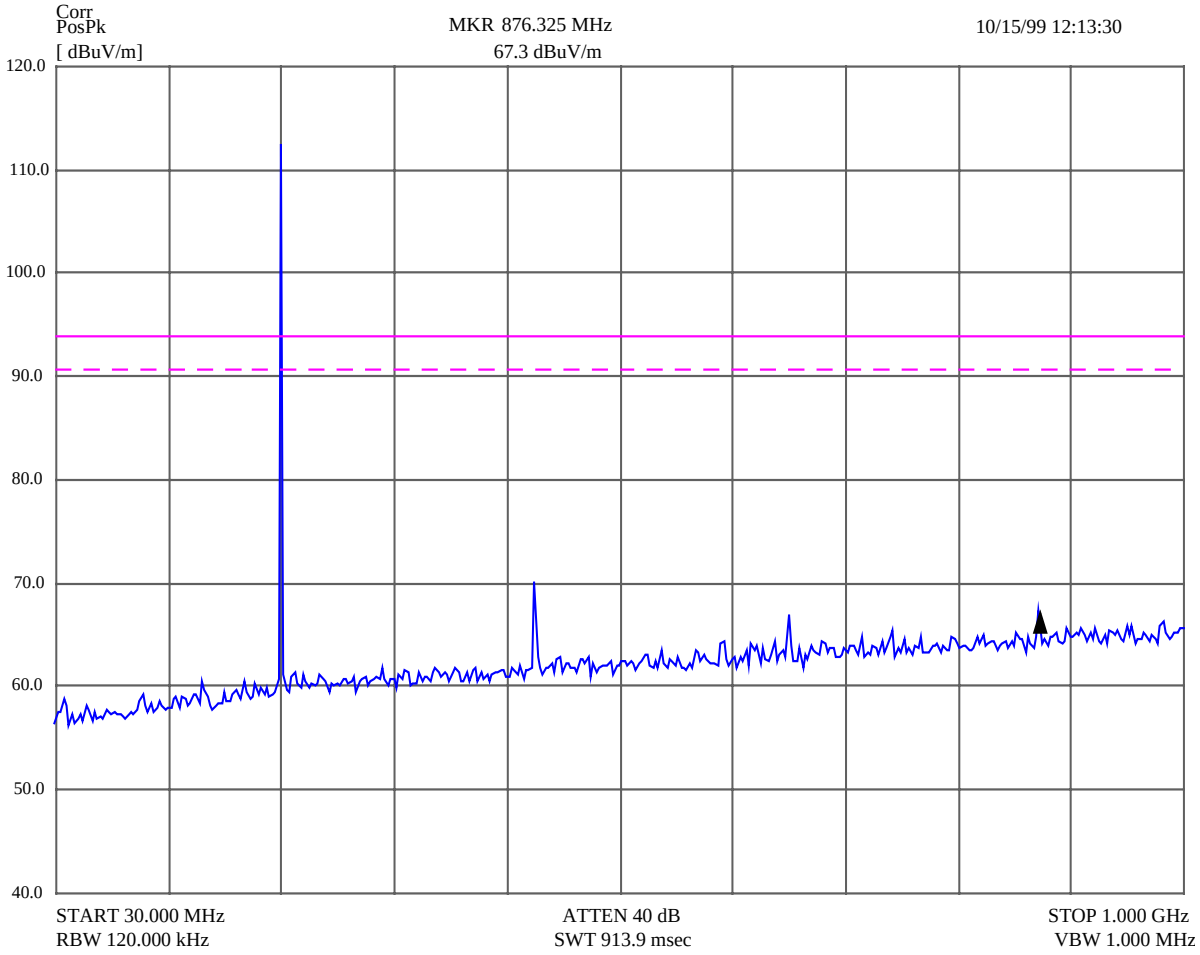
Receiver (Graphic)



Channel 2V

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
442.249984	70.04	94	-23.96	PASS	
660.499968	66.87	94	-27.13	PASS	
876.324992	67.29	94	-26.71	PASS	

Receiver (Graphic)



5.6. FIELD STRENGTH of SPURIOUS RADIATION

This test was performed in compliance with FCC Regulations using the methods of 2.1053 and 2.1057 FCC Part 2.

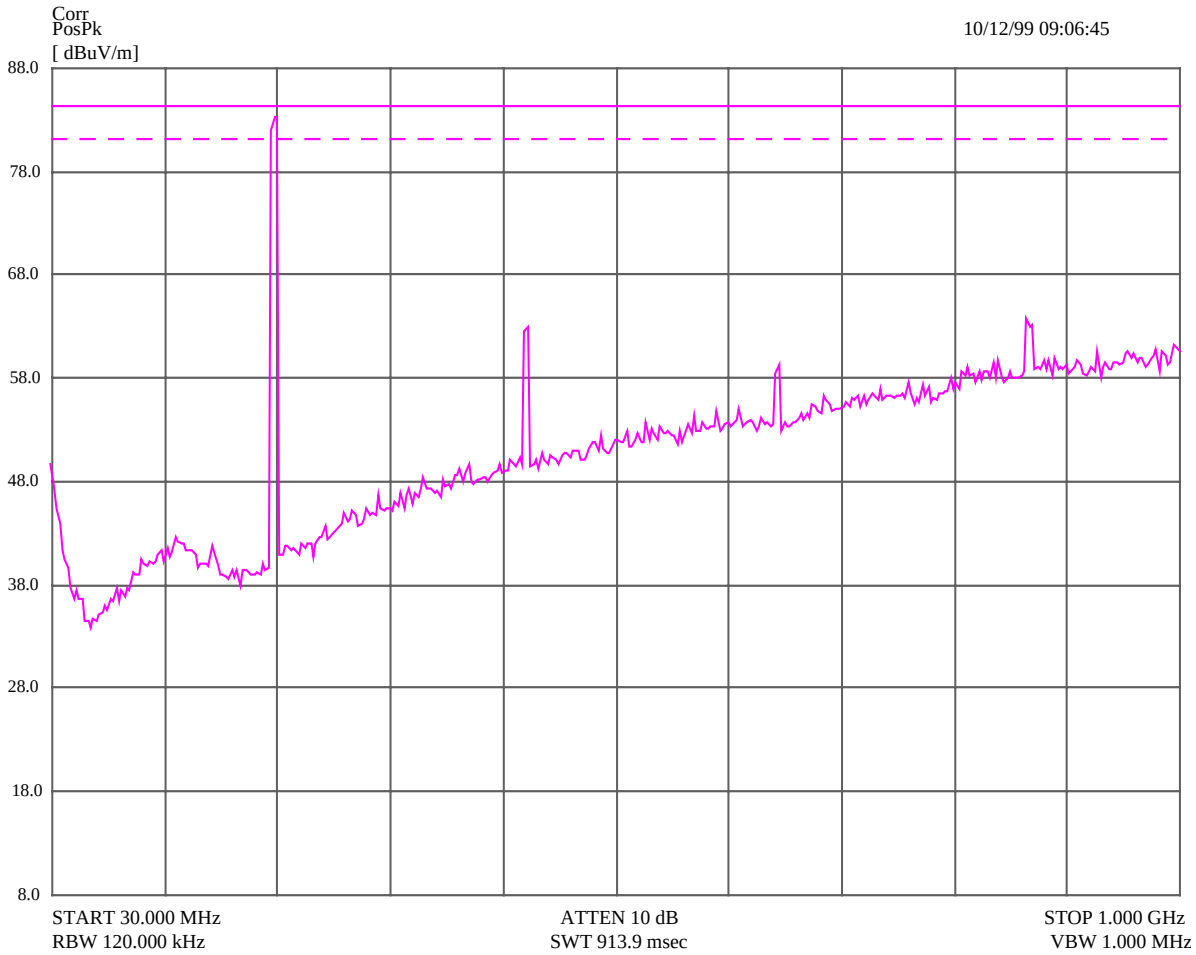
FIELD STRENGTH of SPURIOUS RADIATION were performed on the selected Standard band channel 1A, 1K, 1V at the modulation frequency 2500 Hz, amplitude 0.378V and Extra band channel 2A, 2K, 2V at the modulation frequency 2500 Hz, amplitude 0.110V in the frequency range from 30 MHz to 2900 MHz. A receiver (that is both horizontal and vertical polarization) spectrum trace of the magnitude of all the signals throughout the band may be seen below. In these graphics the magnitude of the largest signal measured with Peak Detector is plotted for the configuration that produced the largest signal.

1) Channel 1A

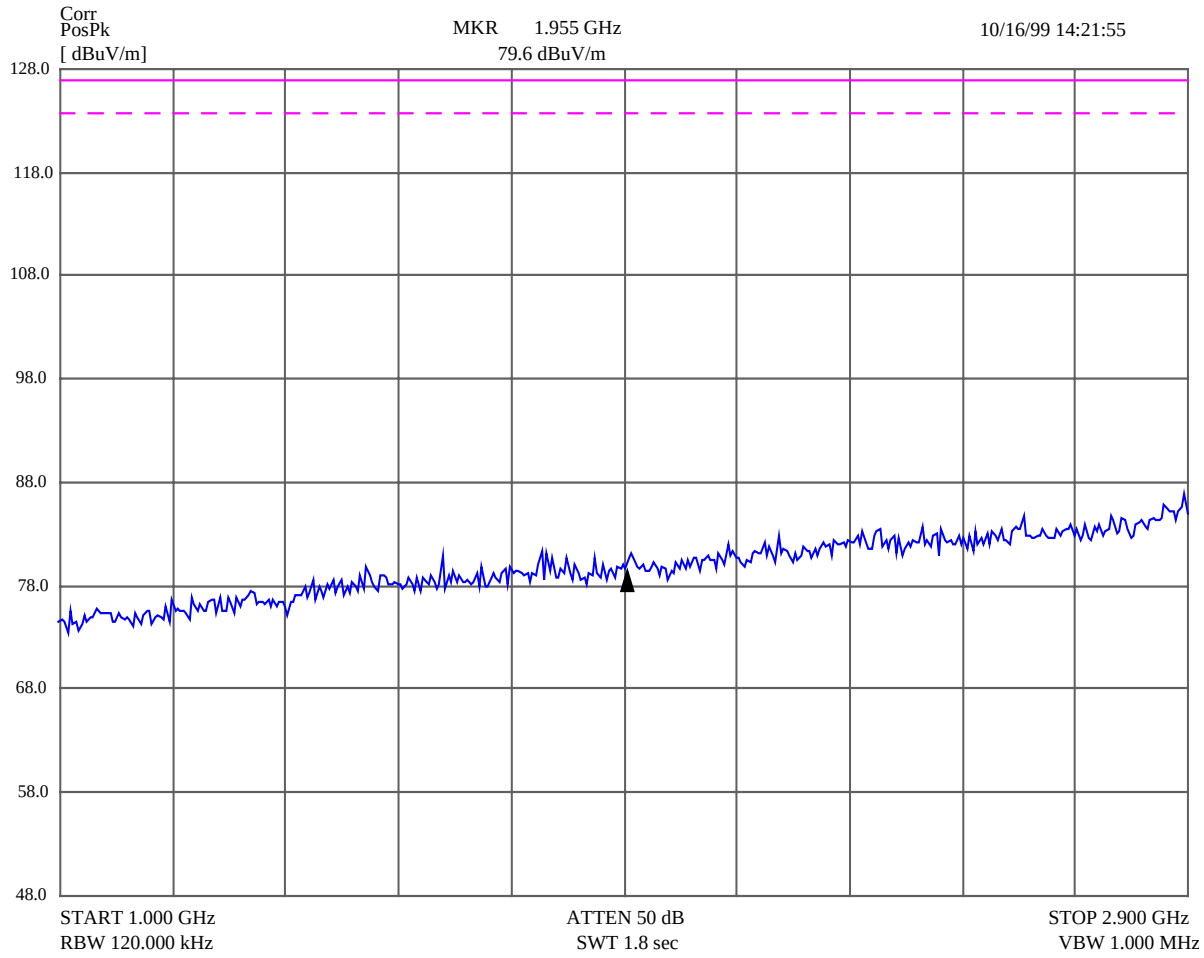
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
432.037504	65.79	84.46	-18.67	Horz	354	114	PASS	
864.067520	67.37	84.46	-17.09	Horz	205	114	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt Cm	Status	Comment
216.012496	82.94	127	-44.06	Horz	145	120	PASS	F carrier

Receiver (Graphic) 1



Receiver (Graphic) 2

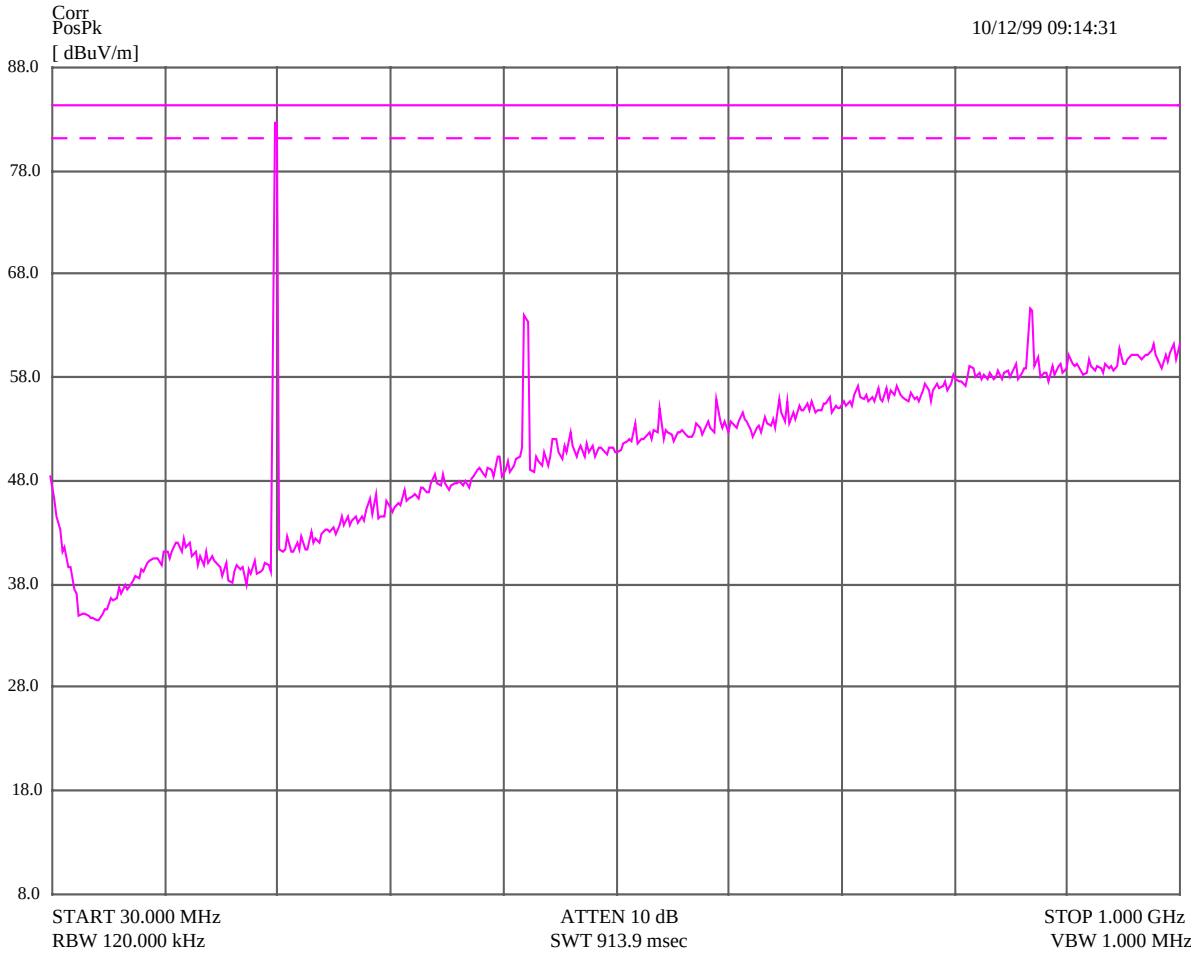


2) Channel 1K

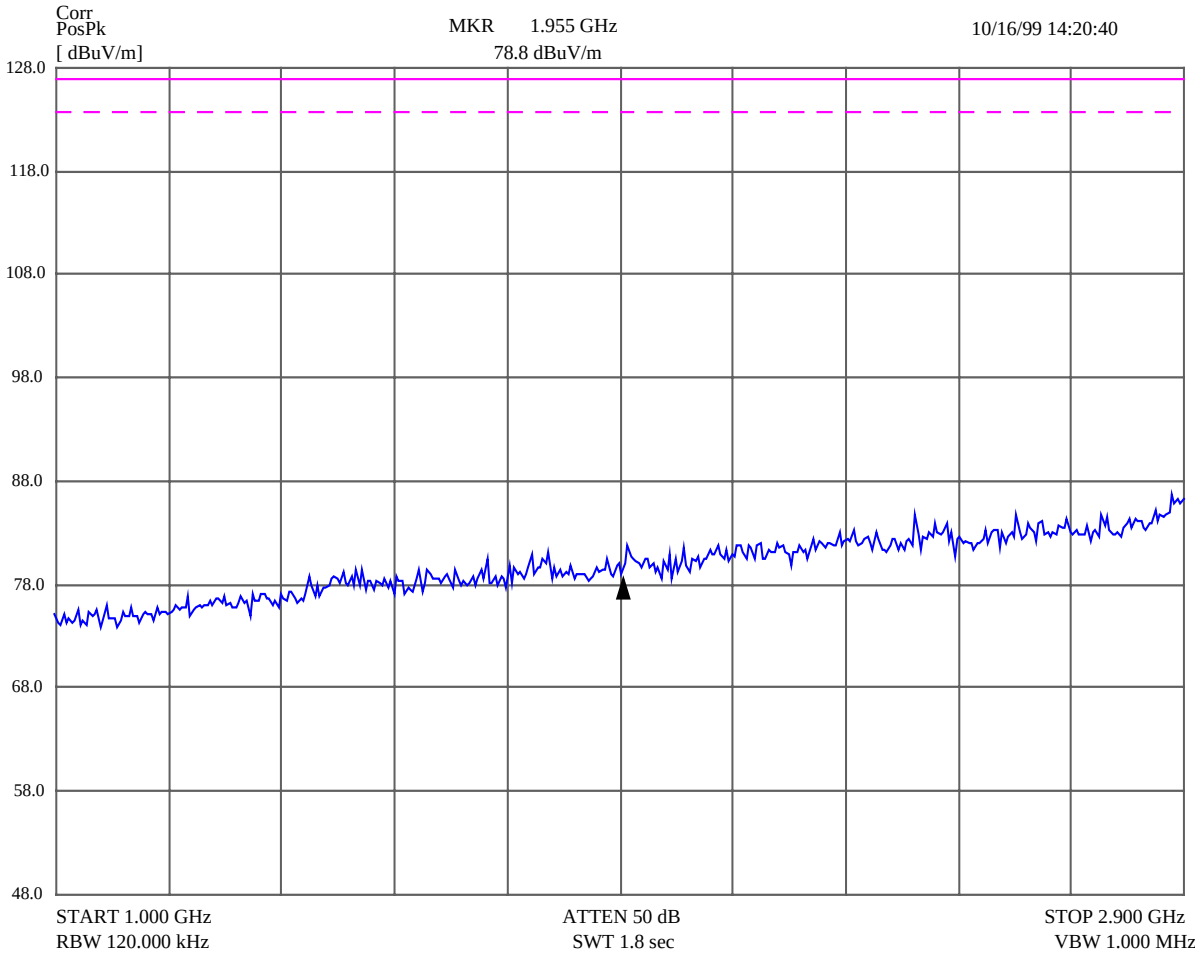
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
433.024992	67.79	84.46	-16.67	Horz	355	100	PASS	
866.075008	66.39	84.46	-18.07	Horz	210	100	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.512496	82.31	127	-44.69	Horz	145	100	PASS	Fcarrier

Receiver (Graphic) 1



Receiver (Graphic) 2

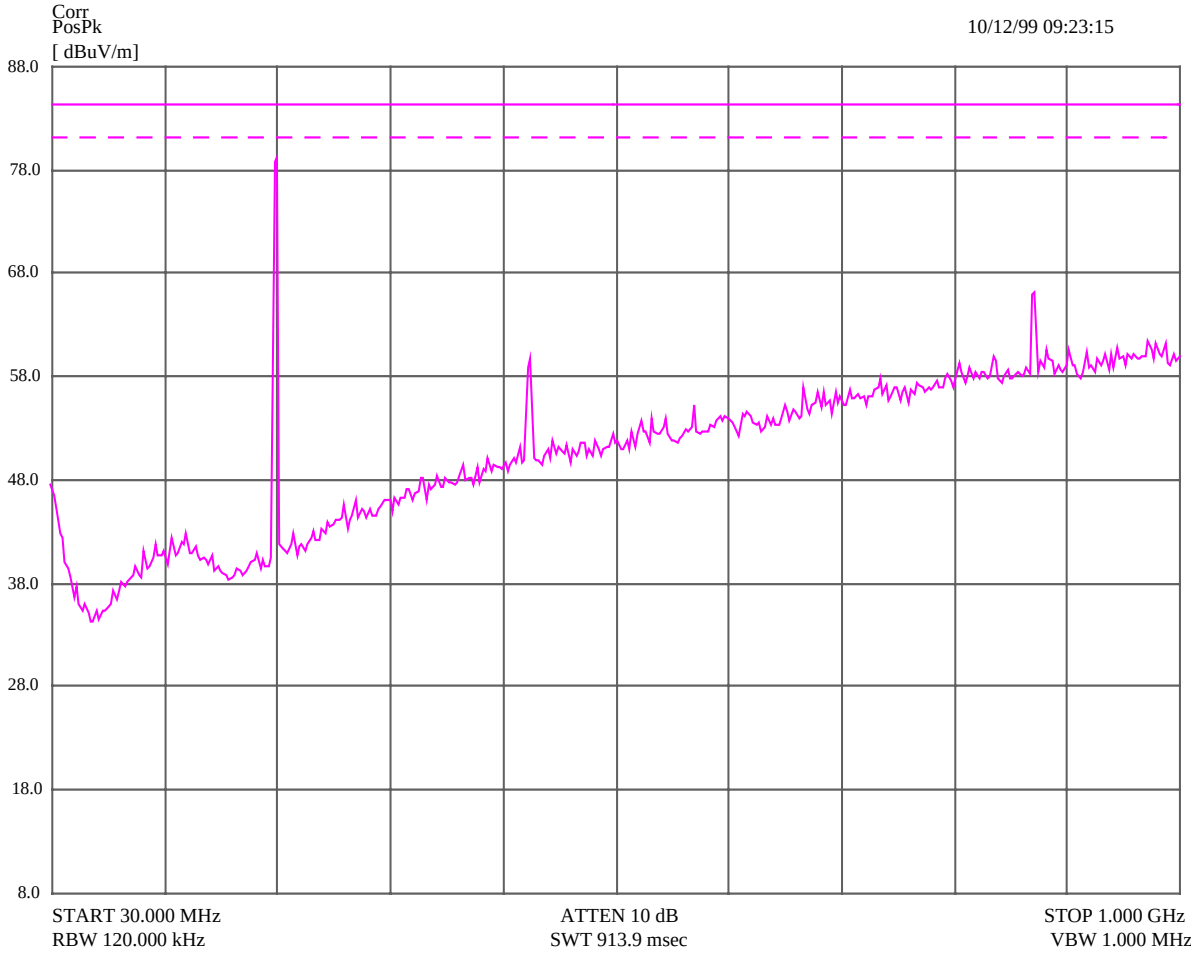


3) Channel 1V

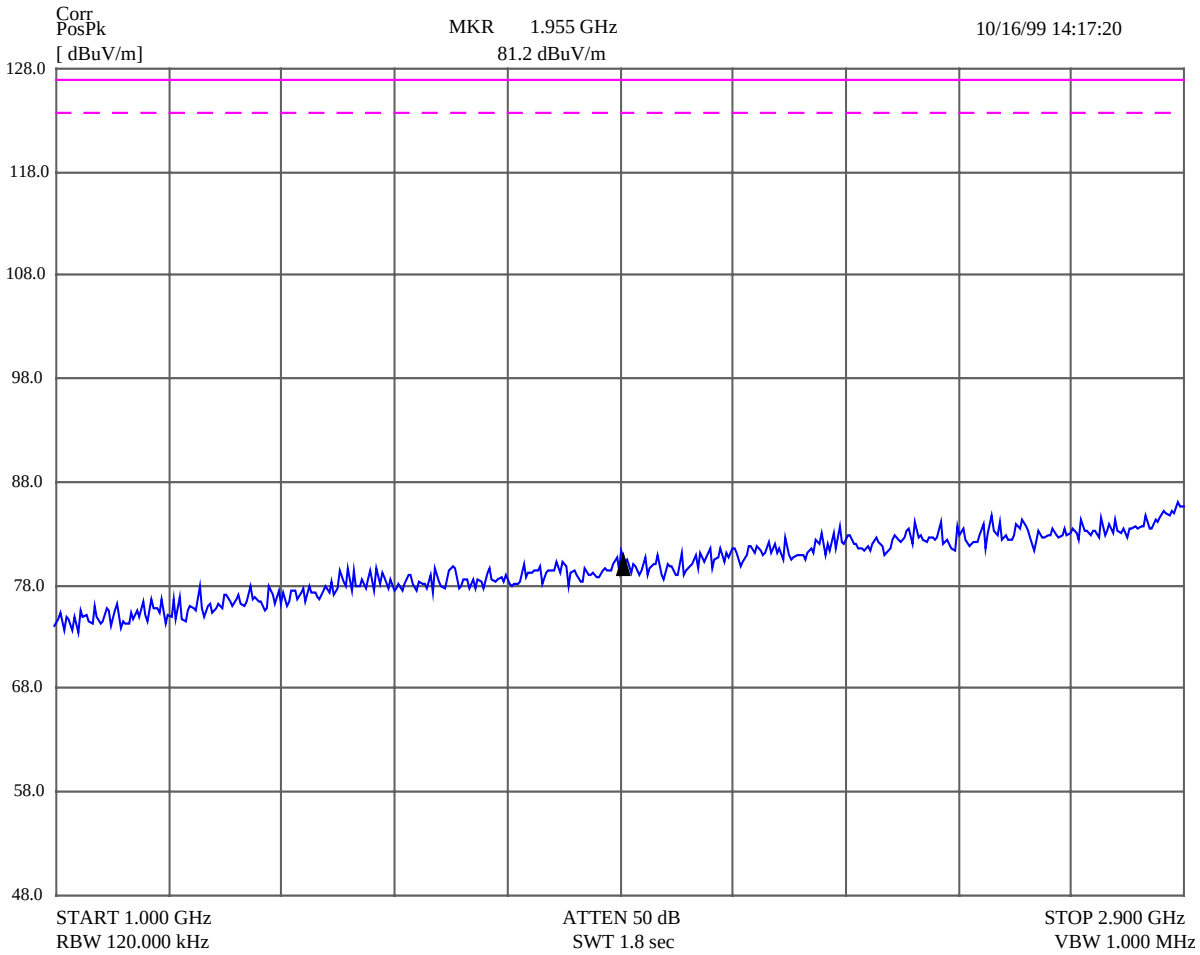
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
433.937504	68.55	84.46	-15.91	Horz	354	94	PASS	
867.862528	65.84	84.46	-18.62	Horz	209	105	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.962496	82.60	127	-44.40	Horz	145	105	PASS	Fcarrier

Receiver (Graphic) 1



Receiver (Graphic) 2

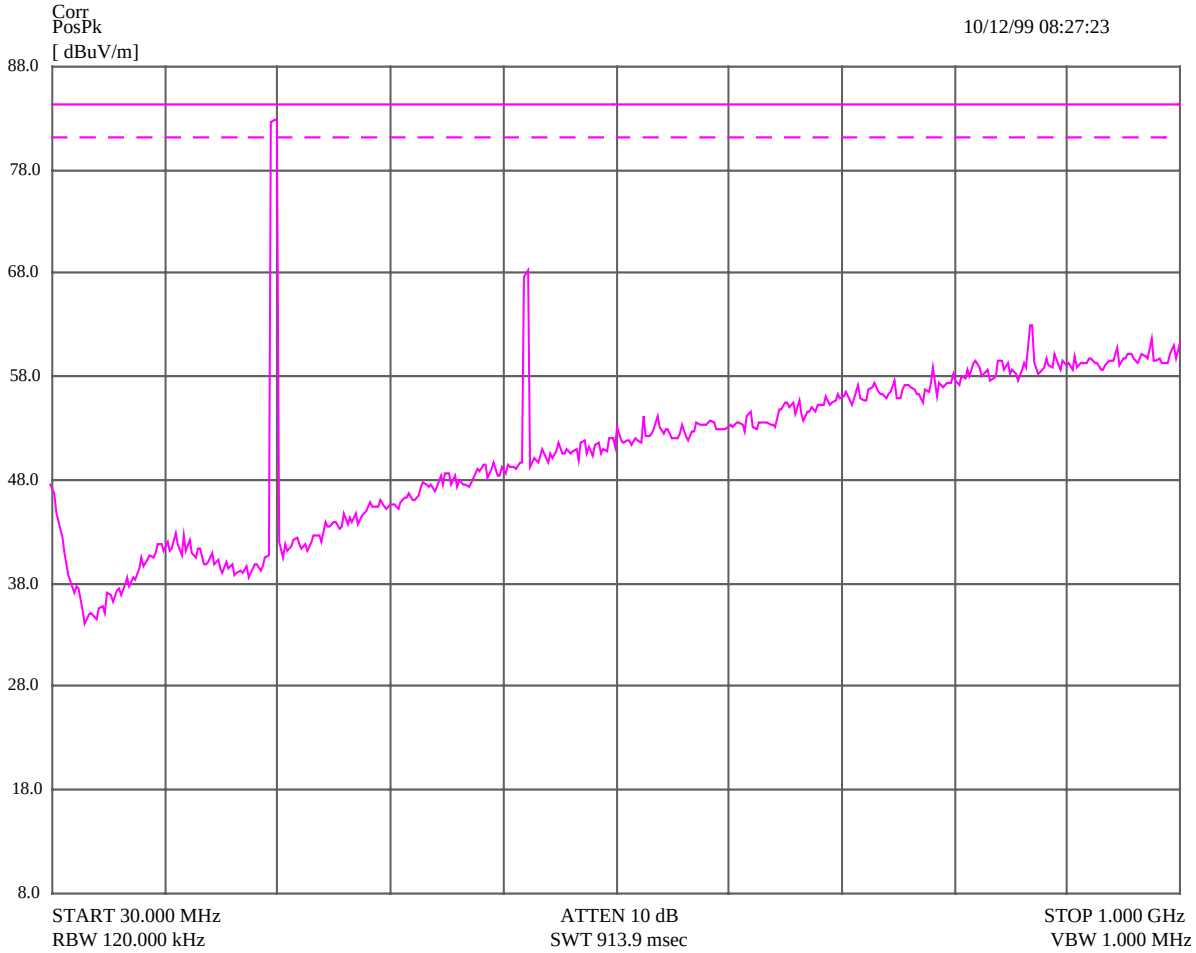


4) Channel 2A

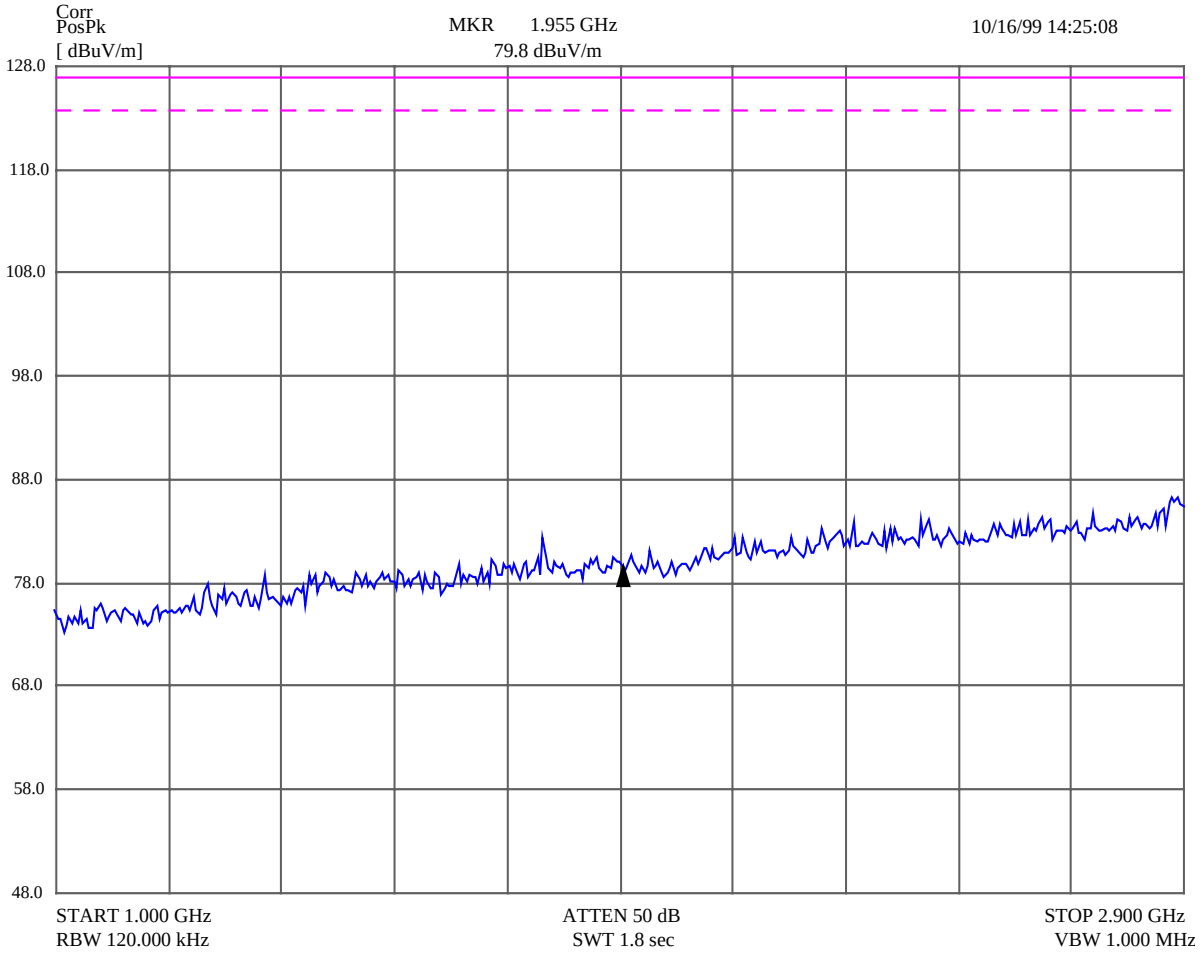
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
432.055008	69.37	84.46	-15.09	Horz	44	95	PASS	
864.105024	65.64	84.46	-18.82	Horz	215	95	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.030000	82.52	127	-44.48	Horz	165	95	PASS	Fcarrier

Receiver (Graphic) 1



Receiver (Graphic) 2

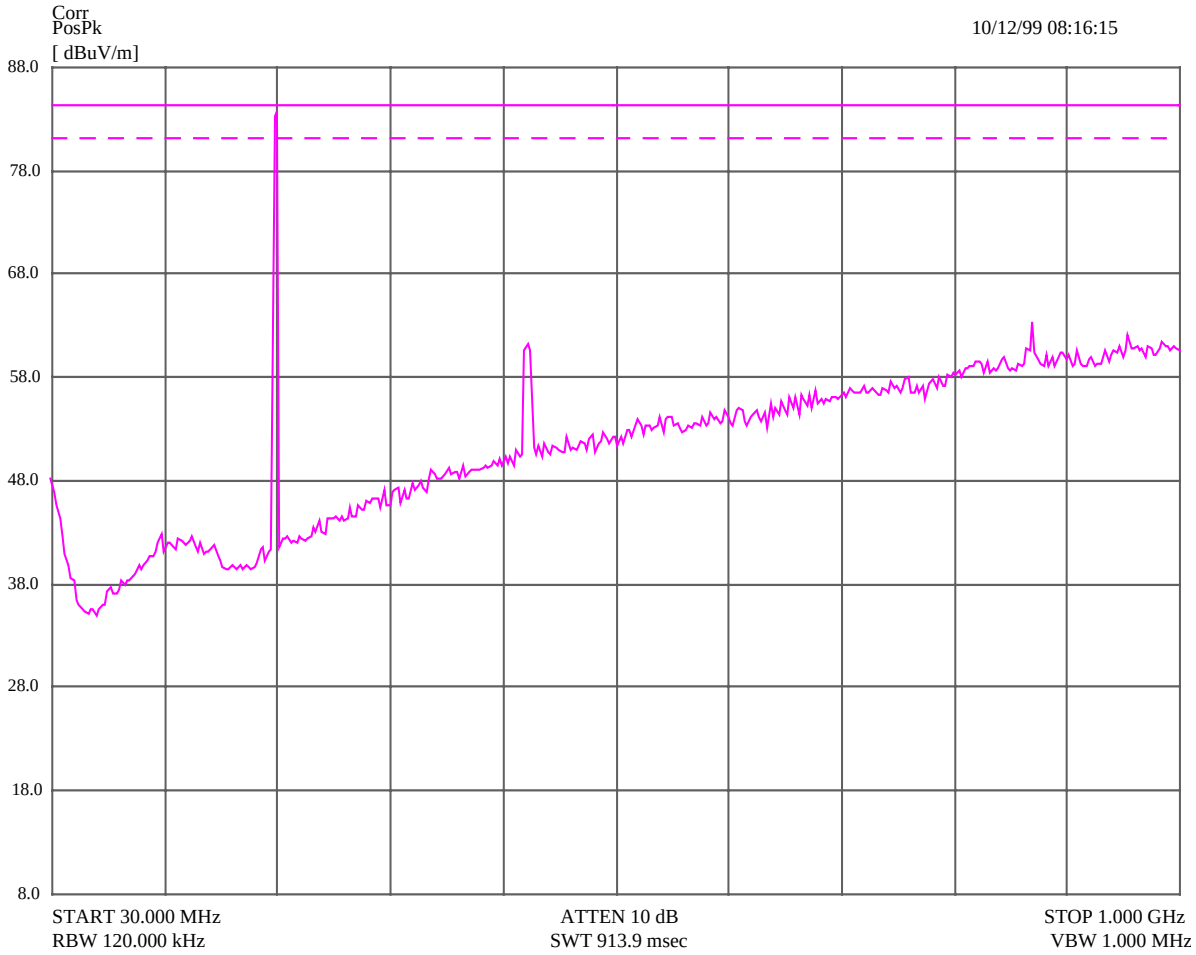


5) Channel 2K

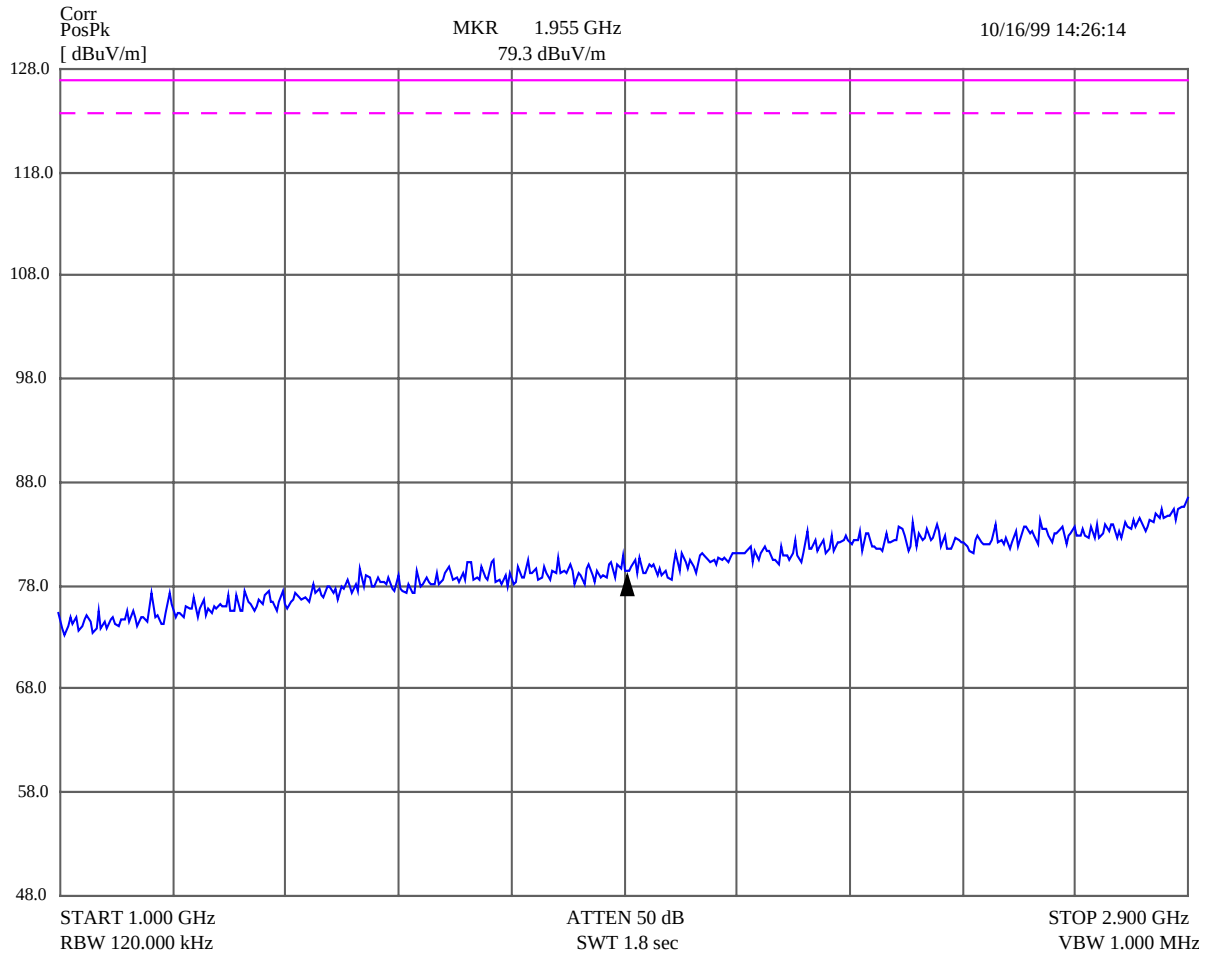
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
433.055008	69.24	84.46	-15.22	Horz	35	100	PASS	
866.124992	67.44	84.46	-17.02	Horz	214	115	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.530000	83.17	127	-43.83	Horz	147	115	PASS	Fcarrier

Receiver (Graphic) 1



Receiver (Graphic) 2

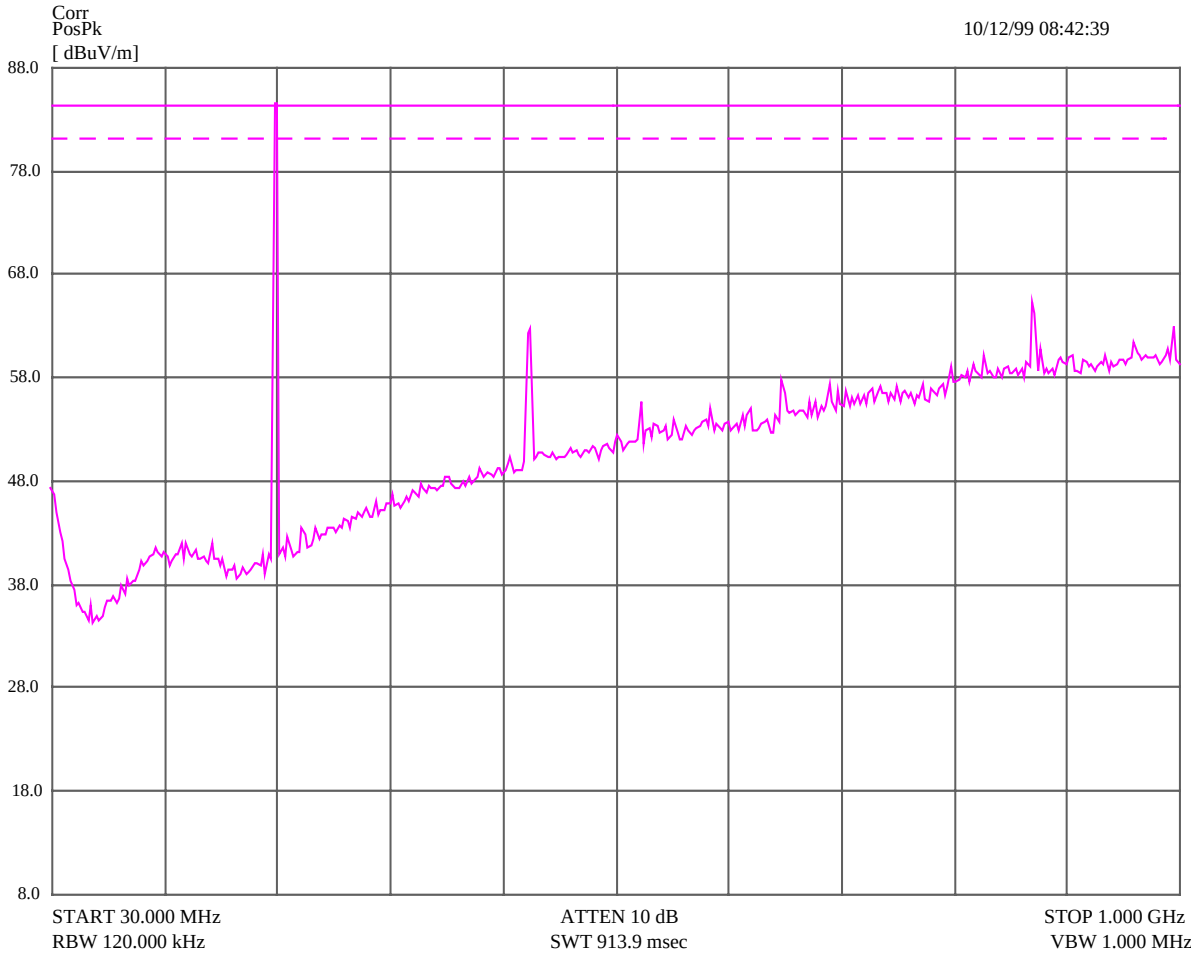


6) Channel 2V

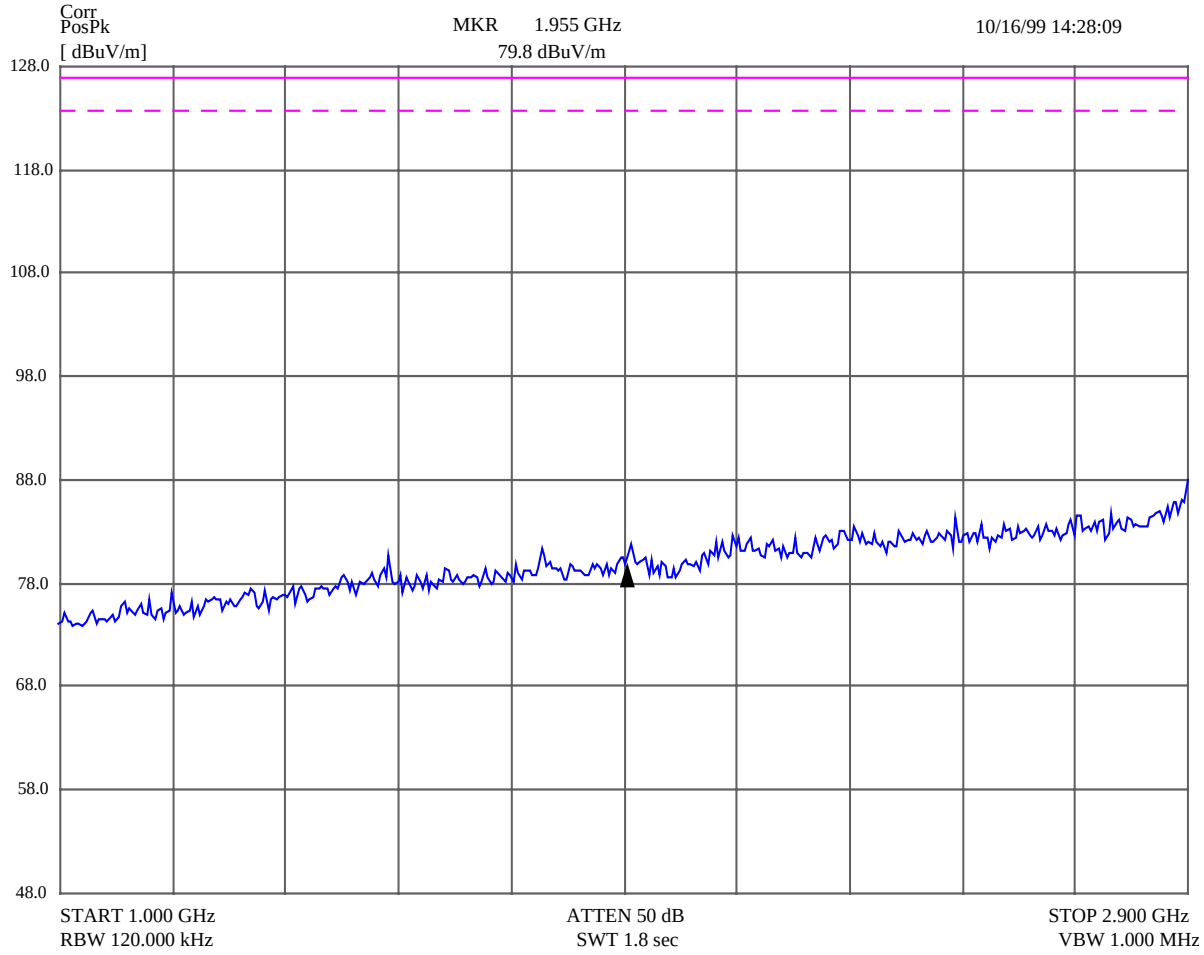
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
433.967488	67.13	84.46	-17.33	Horz	355	94	PASS	
867.910016	66.53	84.46	-17.93	Horz	215	94	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.984992	84.37	127	-42.63	Horz	147	114	PASS	Fcarrier

Receiver (Graphic) 1



Receiver (Graphic) 2



5.7. FREQUENCY STABILITY

The **FREQUENCY STABILITY TEST** was done :

- with variation of ambient temperature from 0° to +50° centigrade ;
- with variation primary supply voltage from 85 to 115 percent of the nominal AC value for the selected standard channel 1V and extra channel 2A;

Room Ambient Temperature: 21°C±1°C.
Relative Humidity: 47%±5%.
The termocouple was installed on the MC14519 transmitter chip.

1) Channel 1V , Fcarrier (Fc) = 216.9625 MHz

Temperature measured ° C	Frequency measured Fm MHz	Frequency tolerance ΔF=Fm-Fc kHz	Frequency Stability Limit,Flim KHz	Status
0	216.964144	1.644	10.85	PASS
10	216.964400	1.900	10.85	PASS
20	216.964400	1.900	10.85	PASS
30	216.964256	1.756	10.85	PASS
40	216.964096	1.596	10.85	PASS
50	216.964000	1.500	10.85	PASS

Primary suply voltage V	Frequency measured Fm MHz	Frequency tolerance ΔF=Fm-Fc kHz	Frequency stability Limit,Flim kHz	Status
102	216.963956	1.456	10.85	PASS
120	216.964820	2.320	10.85	PASS
138	216.965056	2.556	10.85	PASS

2) Channel 2A , Fcarrier (Fc) = 216.025 MHz

Temperature measured ° C	Frequency measured Fm MHz	Frequency Tolerance ΔF=Fm-Fc kHz	Frequency stability Limit,Flim kHz	Status
0	216.026592	1.592	10.8	PASS
10	216.026400	1.400	10.8	PASS
20	216.026048	1.048	10.8	PASS
30	216.025504	0.504	10.8	PASS
40	216.025152	0.152	10.8	PASS
50	216.024656	-0.344	10.8	PASS

Primary suply voltage V	Frequency measured Fm MHz	Frequency tolerance ΔF=Fm-Fc kHz	Frequency stability Limit,Flim kHz	Status
102	216.024300	-0.700	10.8	PASS
120	216.025504	0.504	10.8	PASS
138	216.023100	-1.900	10.8	PASS