Report No.:990715
Client: Listen Technologies Co.
FCC ID : OMD800-216

October 19, 1999

TEST REPORT

According to FCC Part 95 Subparts E,G

for

LOW POWER RADIO SERVICES (LPRS)

STATIONARY TRANSMITTING SYSTEMS

MODEL: LT-800

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 Stationary Transmitter - Assistive Listening System**
Model:	**LT-800**

The LT-800 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-800 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-800 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 Stationary Transmitter
Model:	LT-800
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-800
Serial No.	N/A
Equipment category	LPRS Stationary Transmitter

3.2 Brief Description of EUT

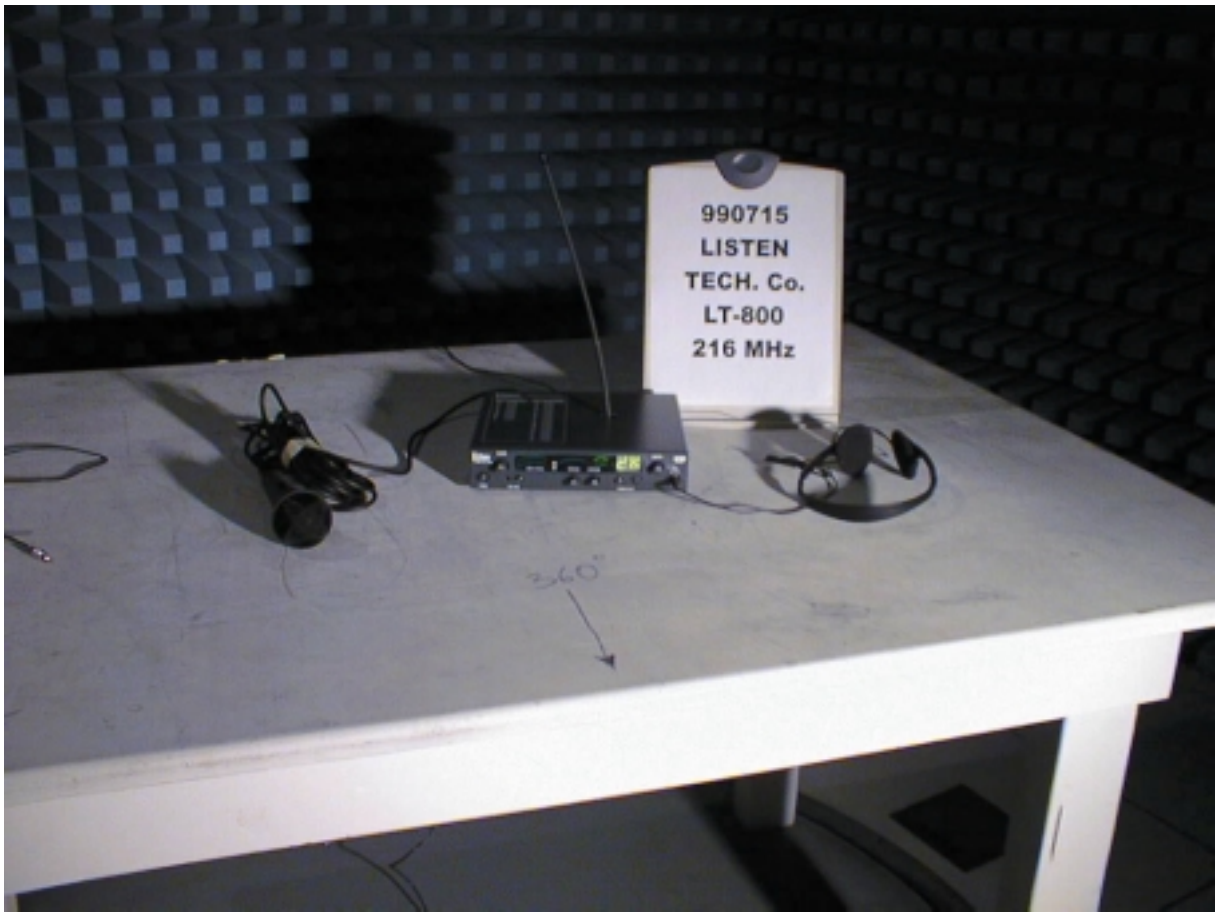
The LT-800 is the LPRS Stationary Transmitter with RF frequency range 216.025 – 216.975 MHz designed to help enhance the ability to hear for hard of hearing people and to use for many other applications including tour group communications and language translation.

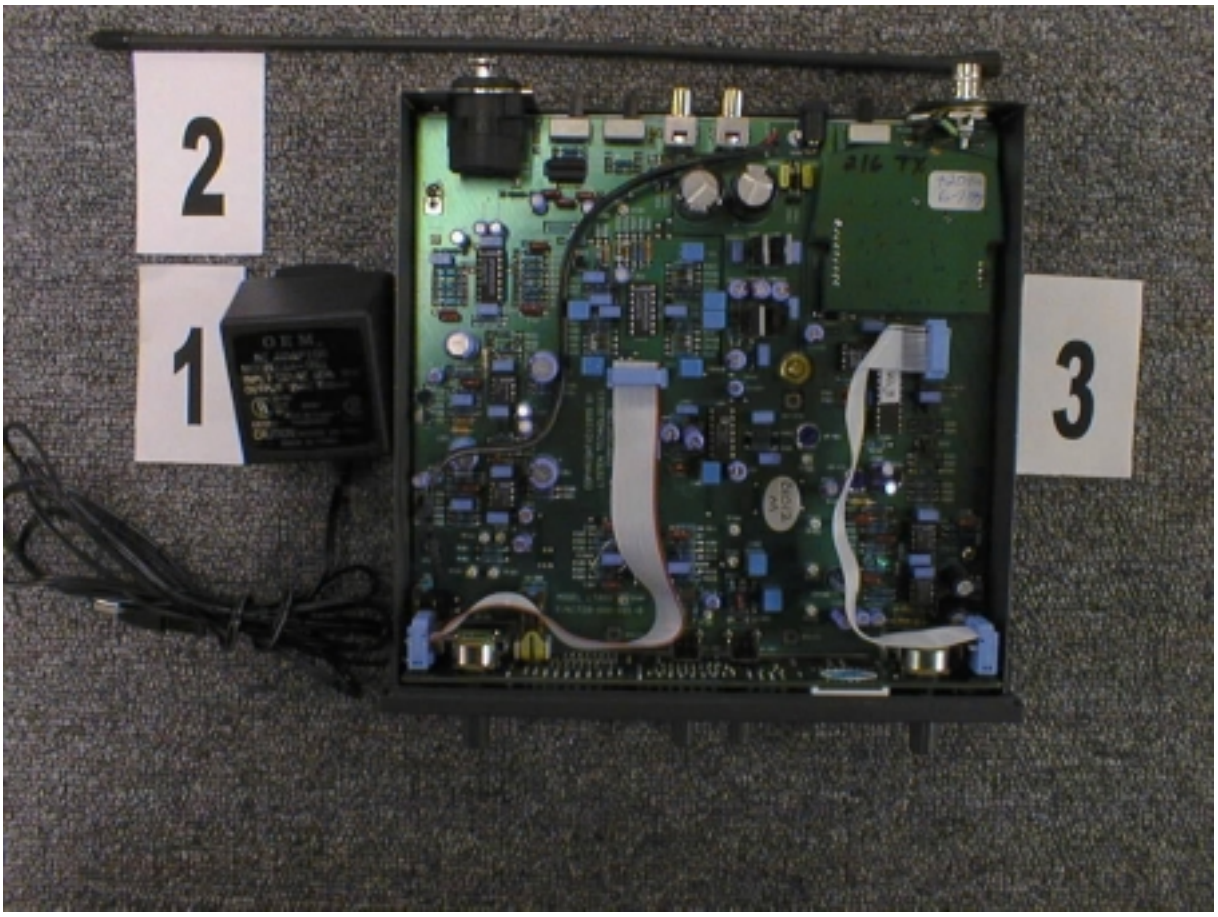
The LT-800 was configurated as an independent module and was tested with Rubber Ducky, Directional Antenna and Micriphone, Speaker connected. The modulation frequency was provided by external Test Oscilator

Operating Frequency: 216.025 – 216.975 MHz

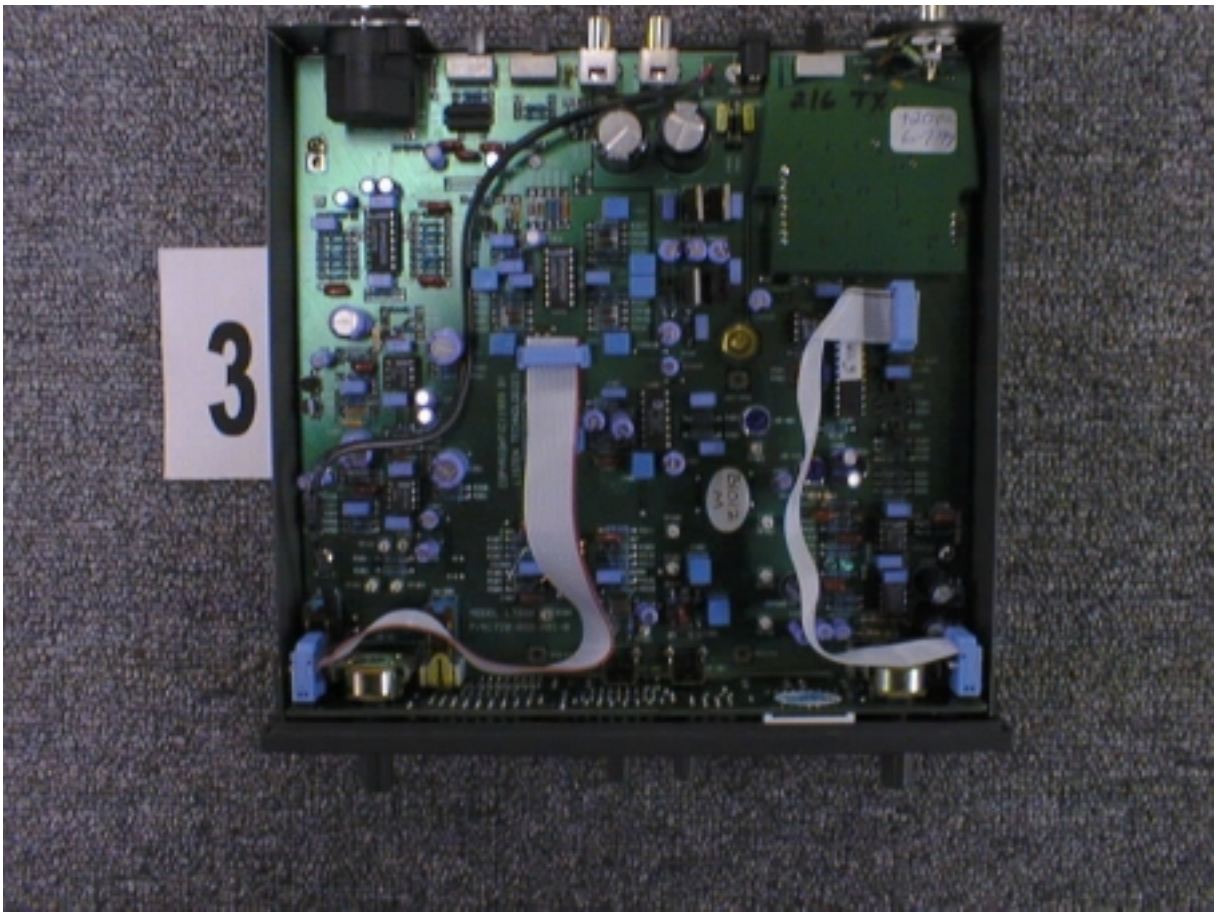
Power Supply: External, 12VDC 830 mA
OEM, AC Adapter, Model : AA-1283

3.3 Photographs of EUT





1 - AC-DC OEM Power Adaptor
2 - Rubber Ducky antenna
3 - LT-800 unit without cover



3 - LT-800 unit without cover

3.4 Support Equipment List

Equipment	OEM , AC Adapter
Model No.	AA-1283
Serial No.	N/A

Equipment	Microphone
Model No.	33-3018 OPTIMUS
Serial No.	N/A

Equipment	Speaker
Model No.	Broadcast Vision
Serial No.	N/A

Equipment	Test Oscilator
Model No.	651B Test Oscilator, Hewlett Pakard
Serial No.	1230AO8435

3.5 Cabling Configuration

Power Cords:

Unit	AC Adapter to LT-800
MFG	Generic
Shielded?	No
Length	1.9 m

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

I / O Cables External:

Connection	LT-800 to Microphone
MFG	Generic
Shielded?	No
Length	6.1 m

Connection	LT-800 to Speaker
MFG	Generic
Shielded?	No
Length	1.3 m

Connection	LT-800 to 651B Test Oscilator
MFG	RG-174U
Shielded?	Yes
Connector	BNC
Length	0.6 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 :

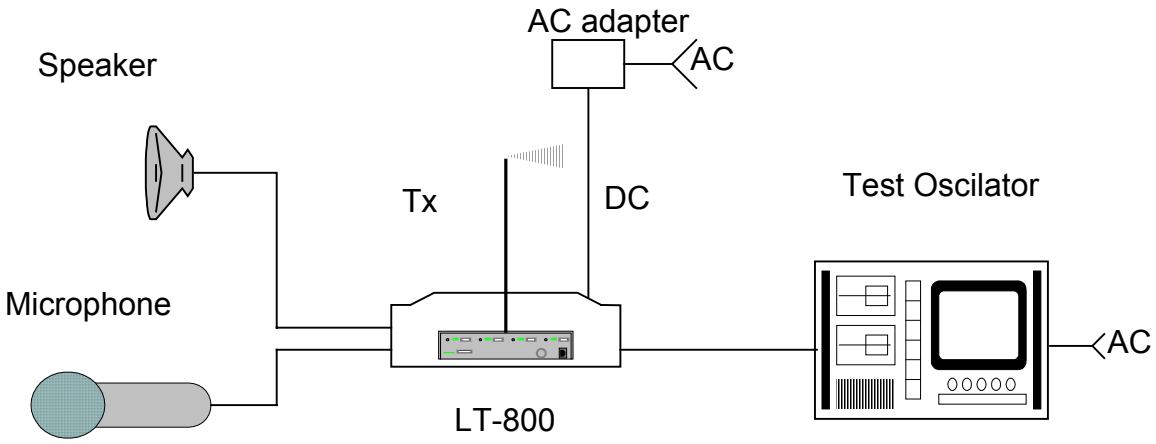
"This device may not interfere with TV reception or federal government radar, and must accept any interference received, including interference that may cause undesired operation"

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-800 was configured as an independent module and was tested with Rubber Ducky, Directional Antenna and Microphone, Speaker connected. The modulation frequency was provided by external Test Oscilator (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-800 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. This part of the test

sequence the spectrum check is done in a manual mode.

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 1A 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.

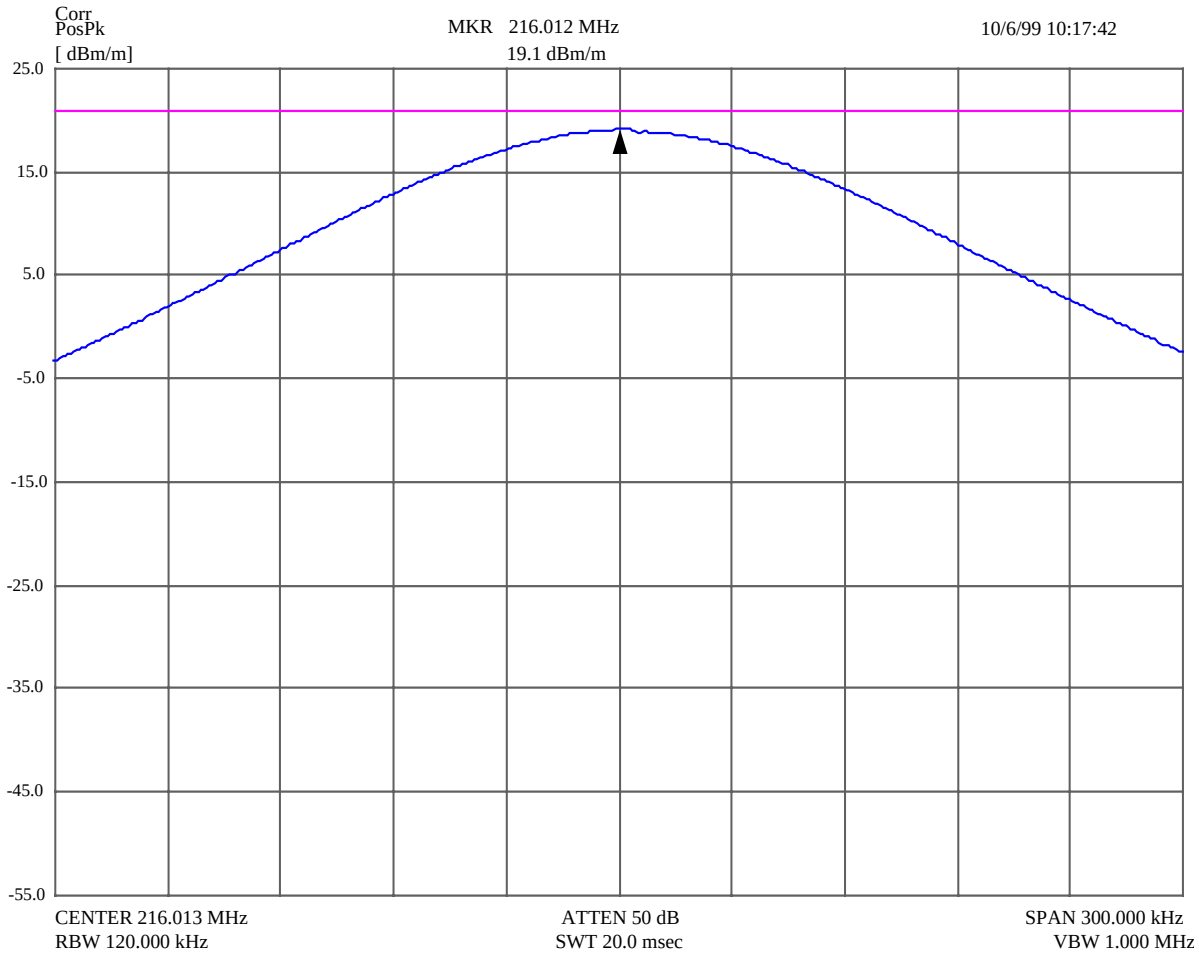
Below is the Peak measurements of the highest value RF POWER OUTPUT signals observed at the frequency of the selected channels.

Channel 1A

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.0125	19.13	21.01	-1.88	PASS	

Receiver (Graphic)

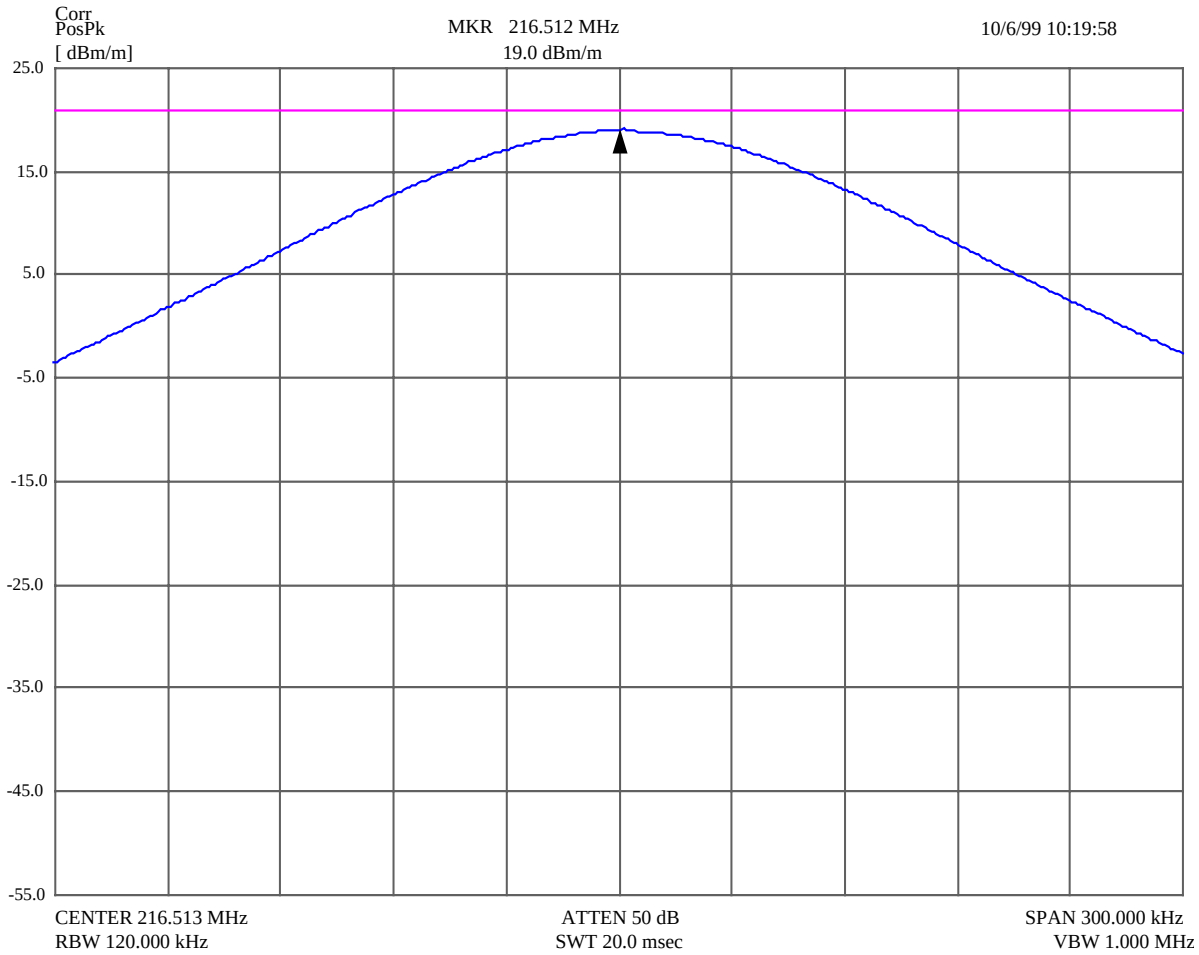


Channel 1K

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.5125	19.02	21.01	-1.99	PASS	

Receiver (Graphic)

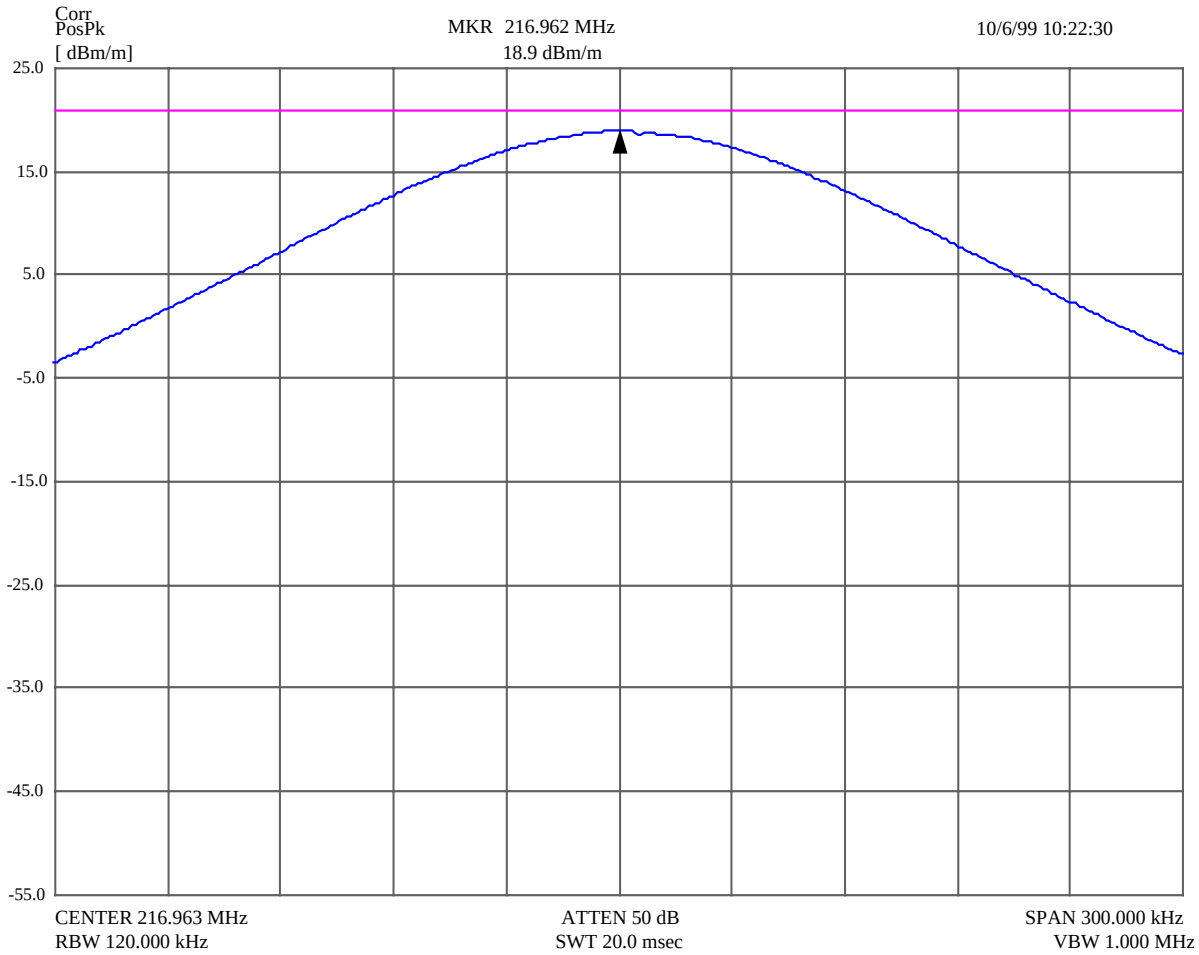


Channel 1V

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.962496	18.95	21.01	-2.06	PASS	

Receiver (Graphic)

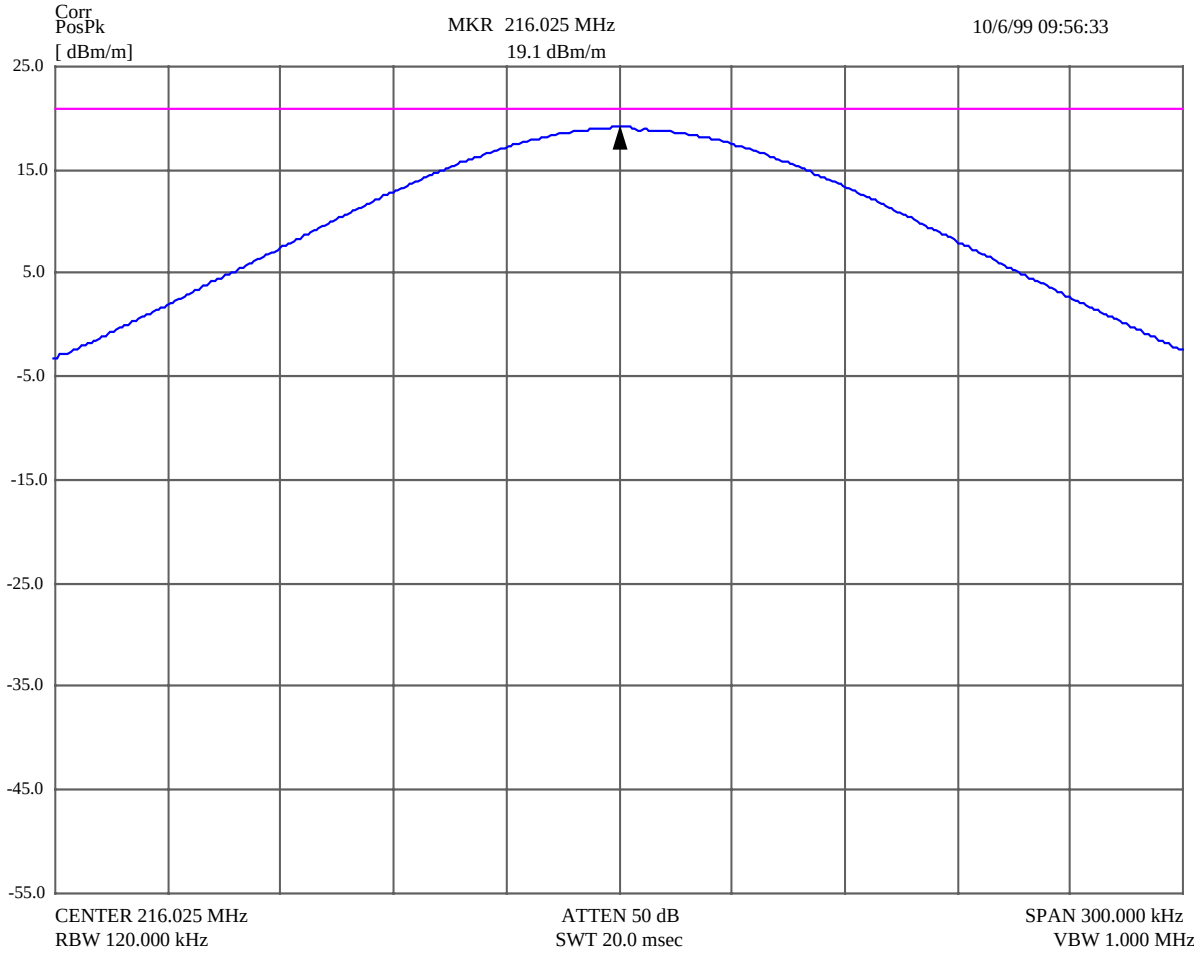


Channel 2A

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.024992	19.13	21.01	-1.88	PASS	

Receiver (Graphic)

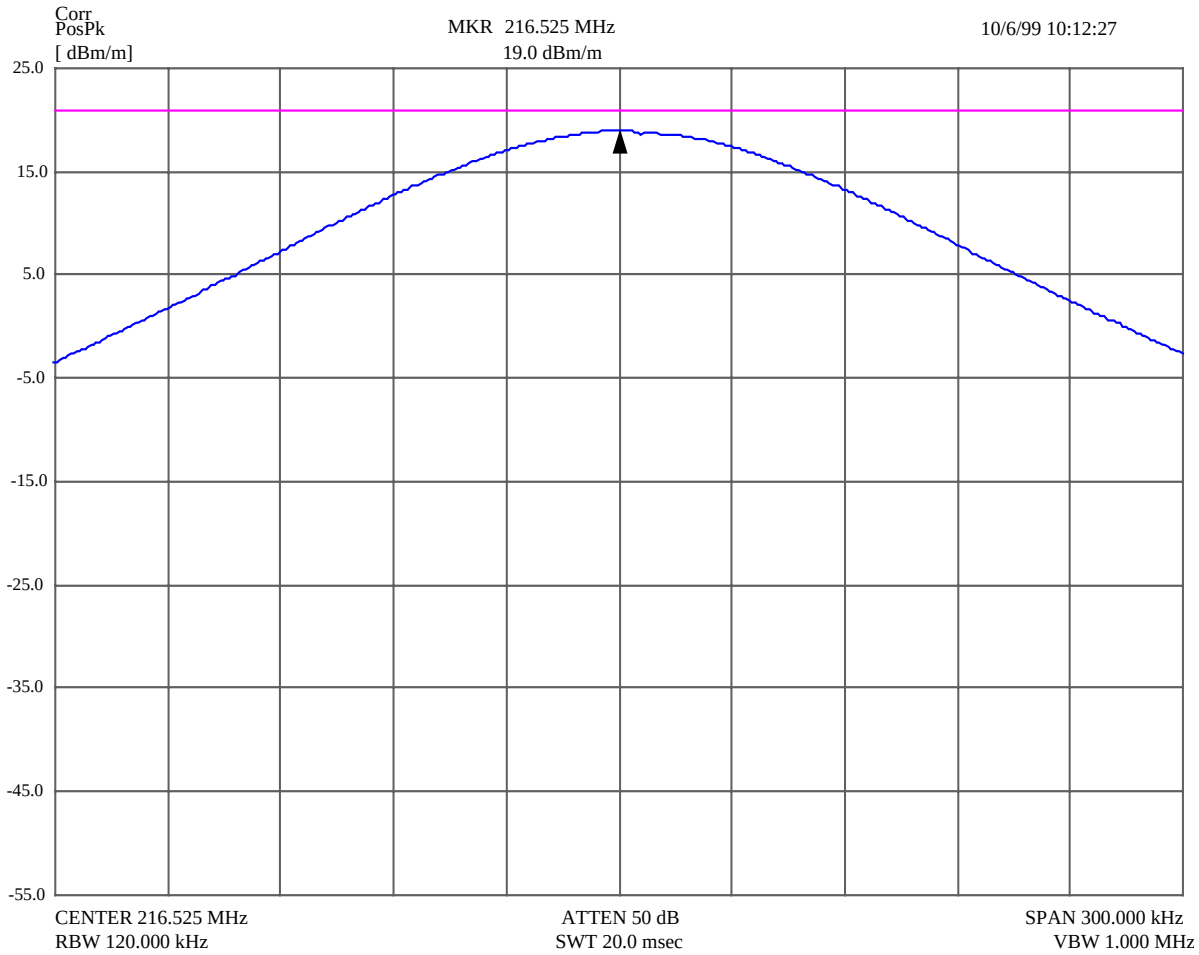


Channel 2K

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.524992	18.99	21.01	-2.02	PASS	

Receiver (Graphic)

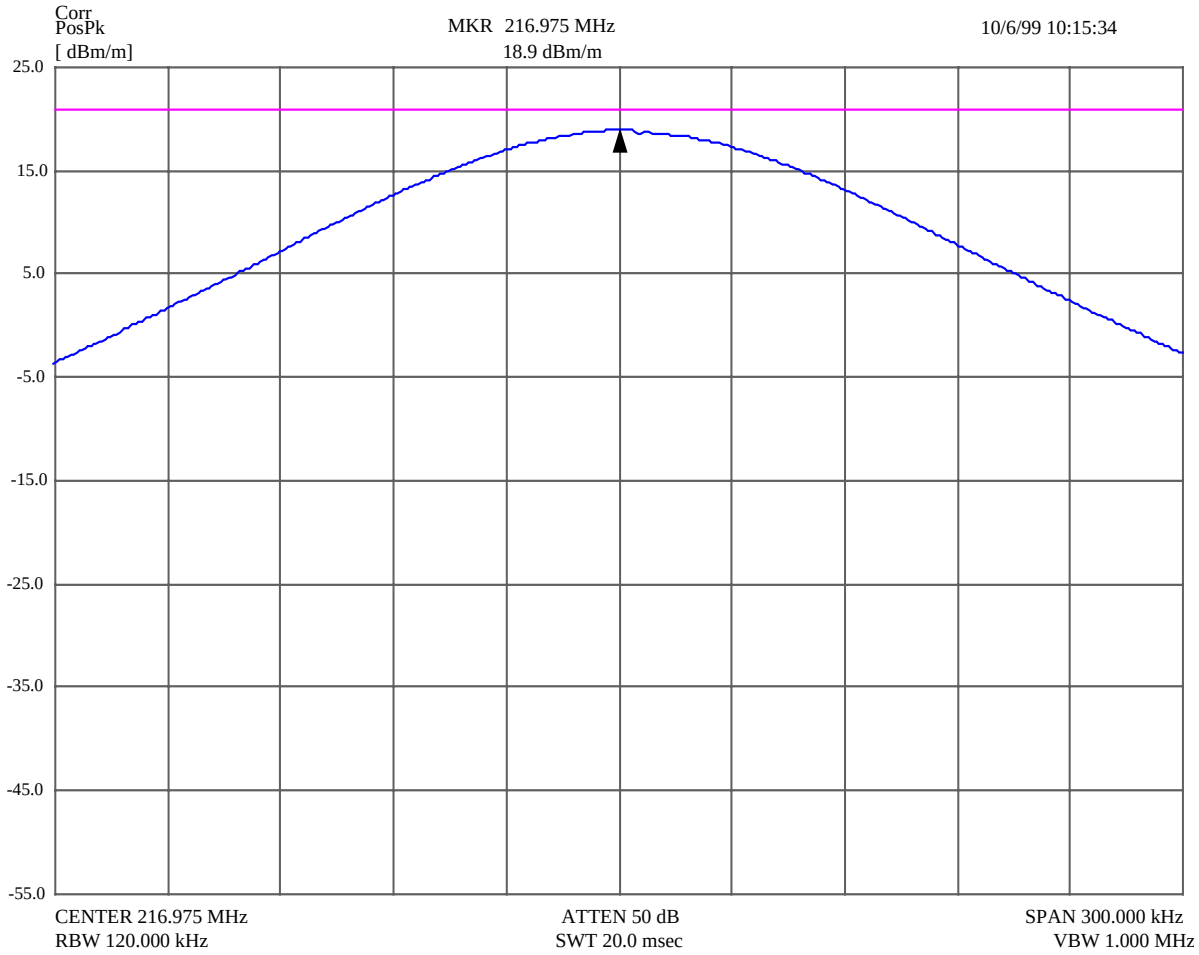


Channel 2V

Peak value

Frequency MHz	Peak dBm	Peak Lmt dBm	DelLim-Pk dB	Status	Comment
216.975008	18.92	21.01	-2.09	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

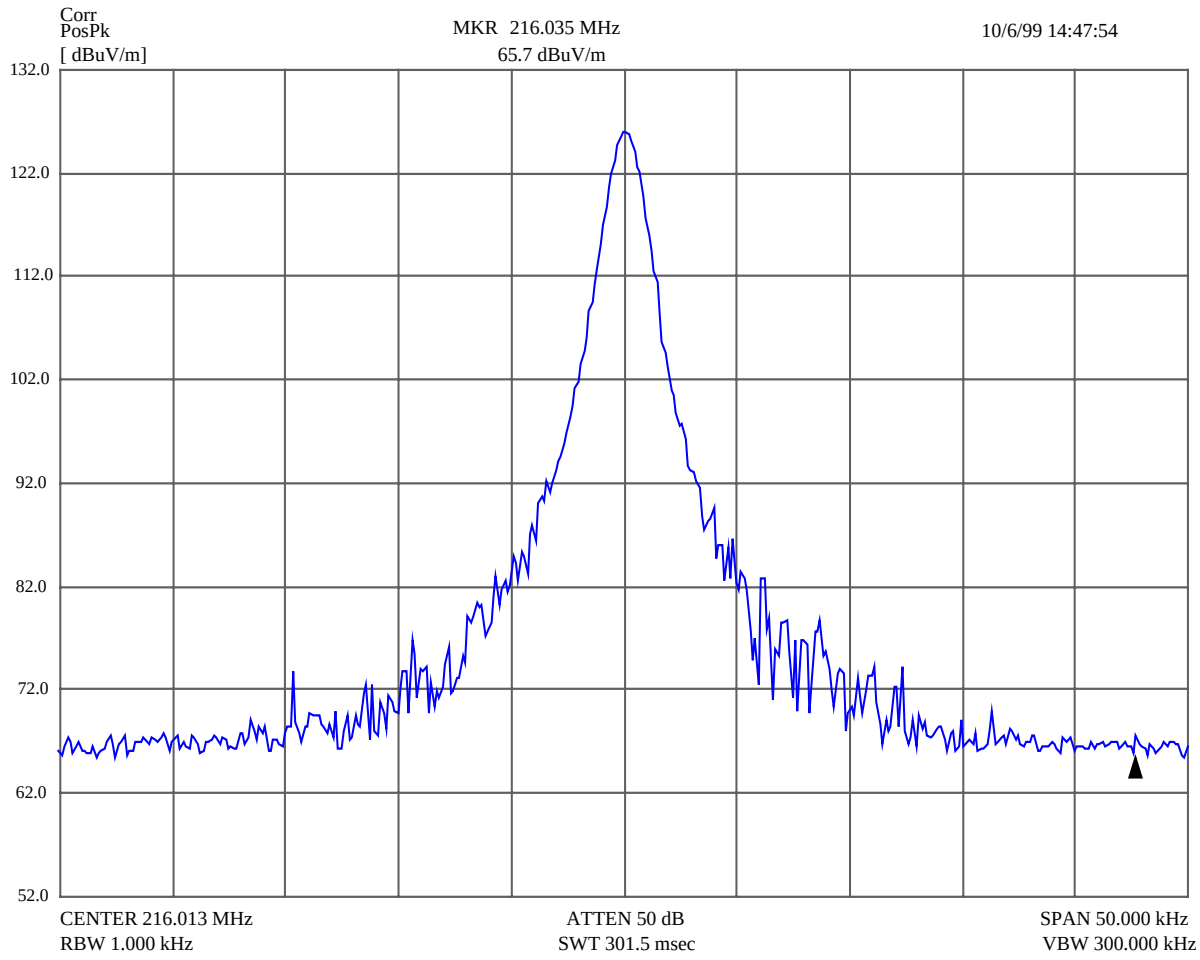
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
215.989396	65.91	94	-28.09	PASS	-(12.5…22.5) kHz
215.999120	68.56	94	-25.44	PASS	> -22.5 kHz
216.025248	67.37	94	-26.63	PASS	+(12.5…22.5) kHz
216.035120	65.72	94	-28.28	PASS	> +22.5 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.012624	125.91	127	-1.09	PASS	Fcarrier

Receiver (Graphic)



Channel 1K

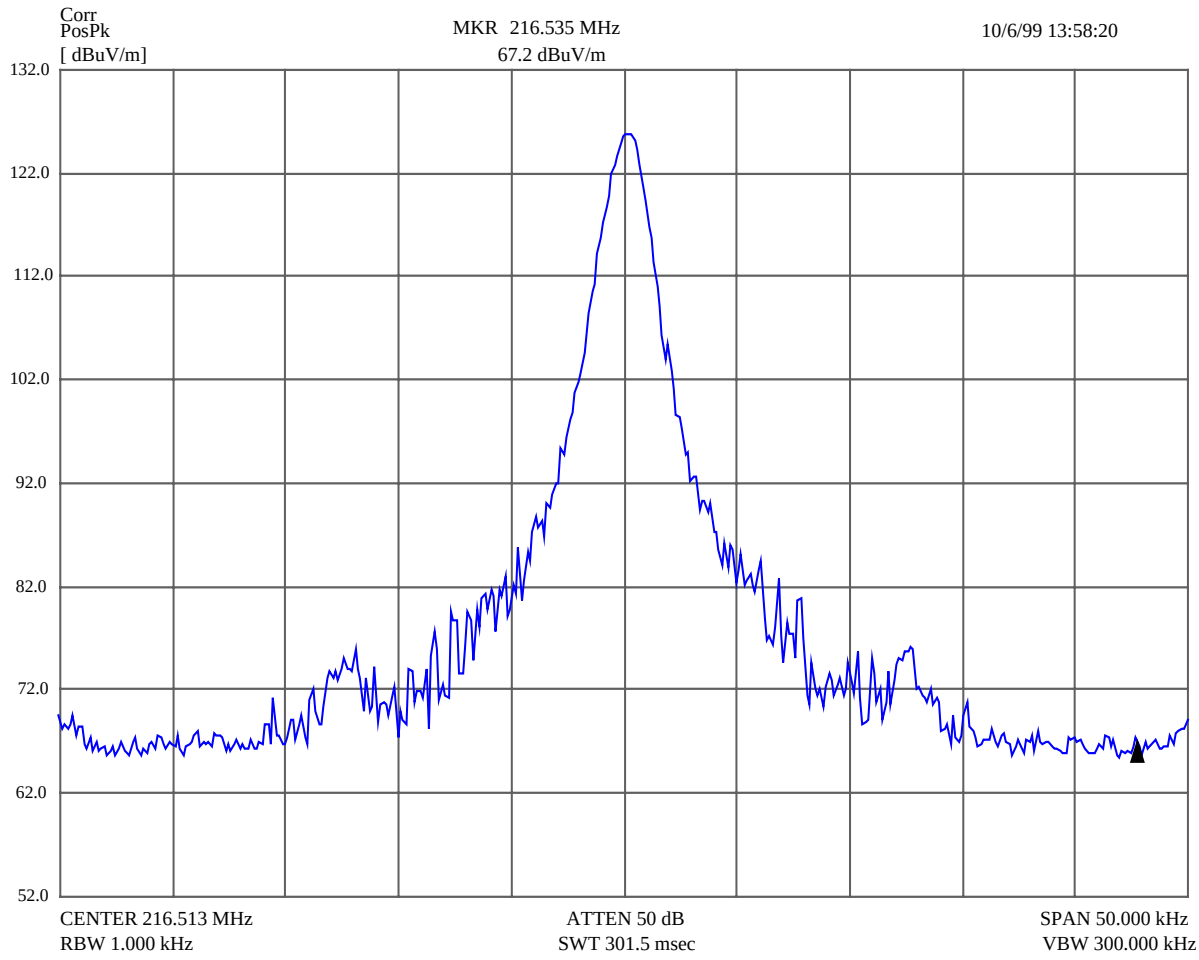
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
215.489744	65.97	94	-28.03	PASS	-(12.5…22.5) kHz
215.499744	73.72	94	-20.28	PASS	> -22.5 kHz
216.524992	75.69	94	-18.31	PASS	+(12.5…22.5) kHz
216.535248	67.21	94	-26.79	PASS	> +22.5 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.512624	125.79	127	-1.21	PASS	Fcarrier

Receiver (Graphic)



Channel 1V

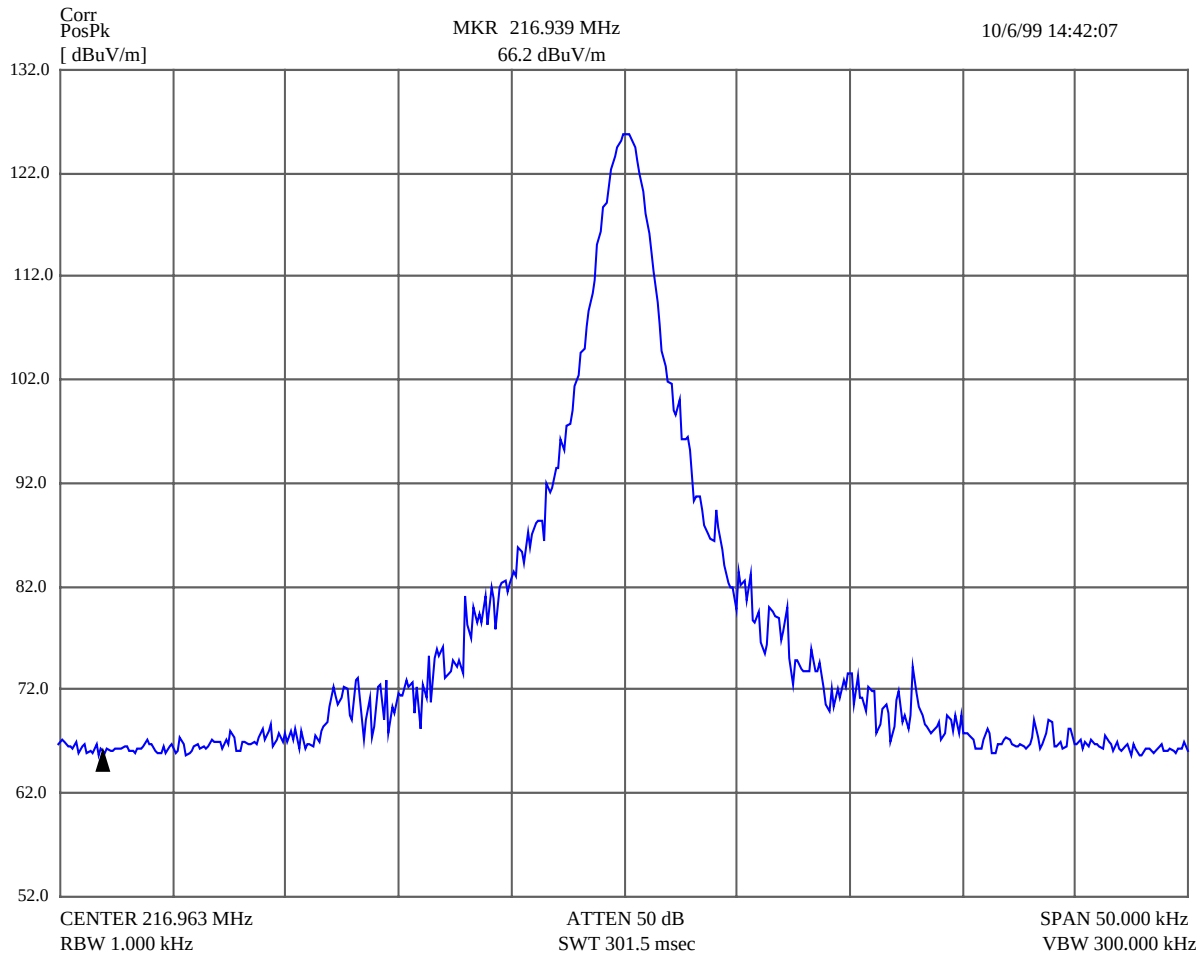
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.939376	66.23	94	-27.77	PASS	-(12.5…22.5) kHz
216.949872	70.58	94	-23.42	PASS	> -22.5 kHz
216.975376	74.23	94	-19.77	PASS	+(12.5…22.5) kHz
216.985248	66.25	94	-27.75	PASS	> +22.5 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.962624	125.72	127	-1.28	PASS	Fcarrier

Receiver (Graphic)



Channel 2A

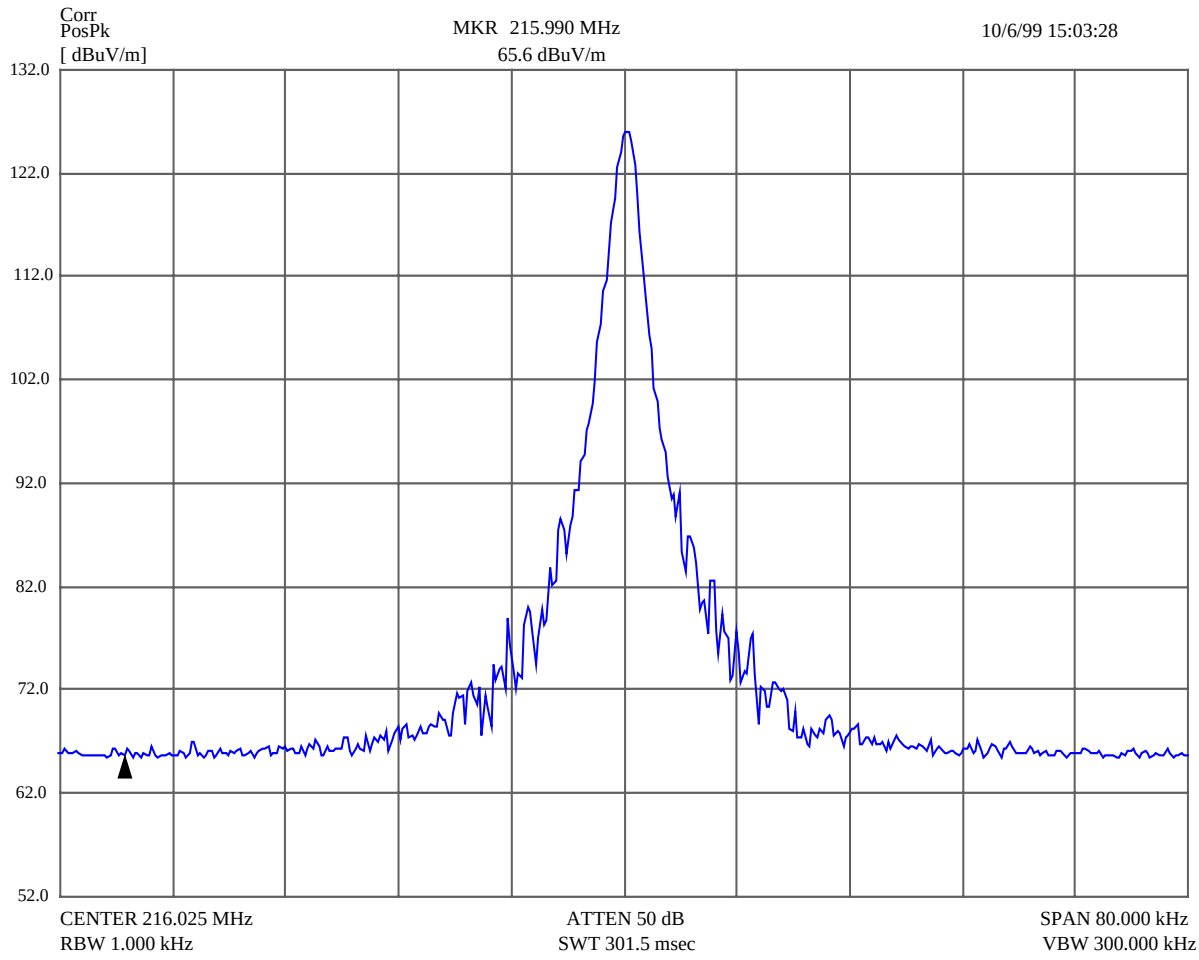
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
215.989600	65.63	94	-28.37	PASS	-(25…35) kHz
215.999200	65.98	94	-28.02	PASS	> -35 kHz
216.050400	66.00	94	-28.00	PASS	+(25…35) kHz
216.060192	65.42	94	-28.58	PASS	> +35 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.025200	125.87	127	-1.13	PASS	Fcarrier

Receiver (Graphic)



Channel 2K

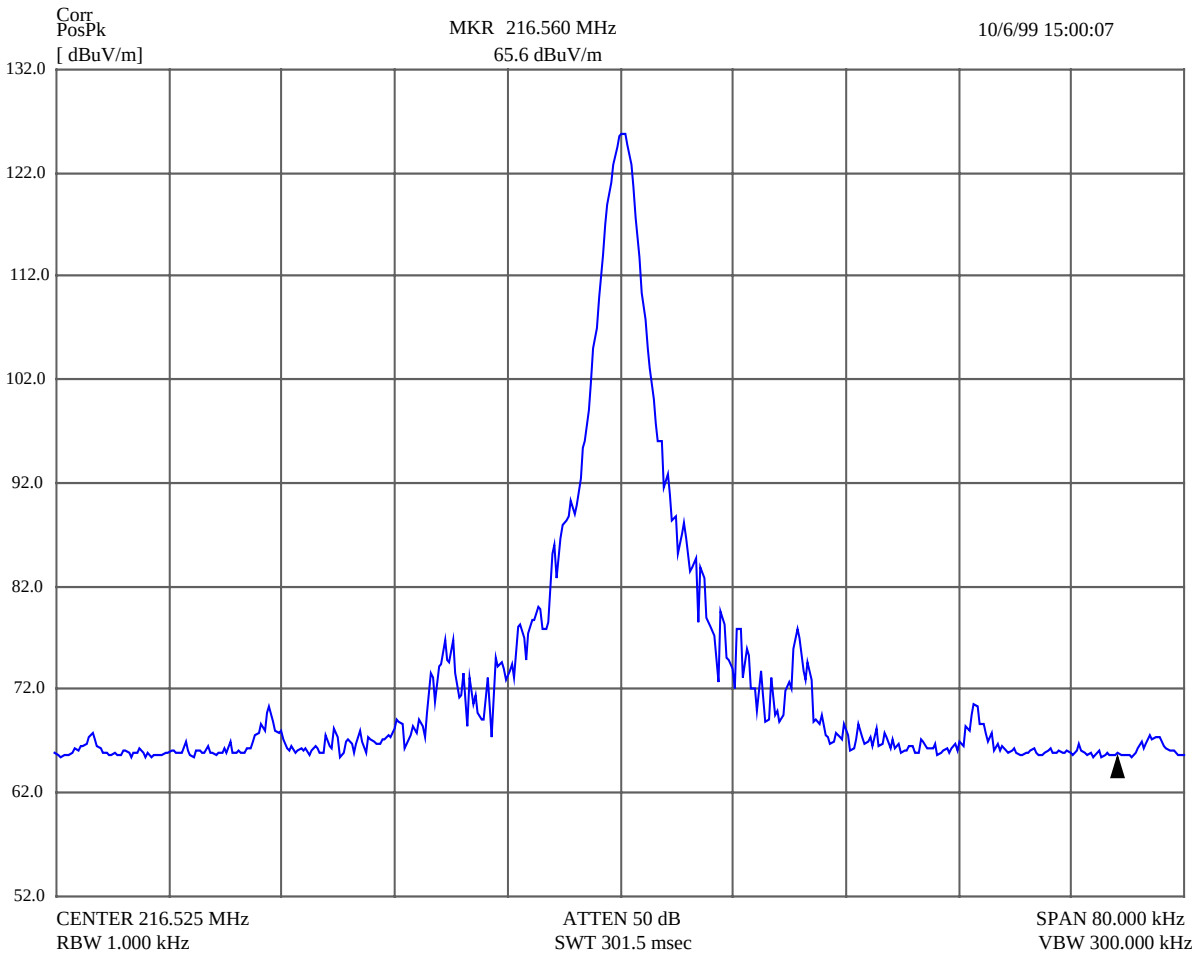
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.488000	66.48	94	-27.52	PASS	-(25…35) kHz
216.499008	67.32	94	-26.68	PASS	> -35 kHz
216.550208	70.60	94	-23.40	PASS	+(25…35) kHz
216.560192	65.60	94	-28.40	PASS	> +35 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk DB	Status	Comment
216.525200	125.77	127	-1.23	PASS	Fcarrier

Receiver (Graphic)



Channel 2V

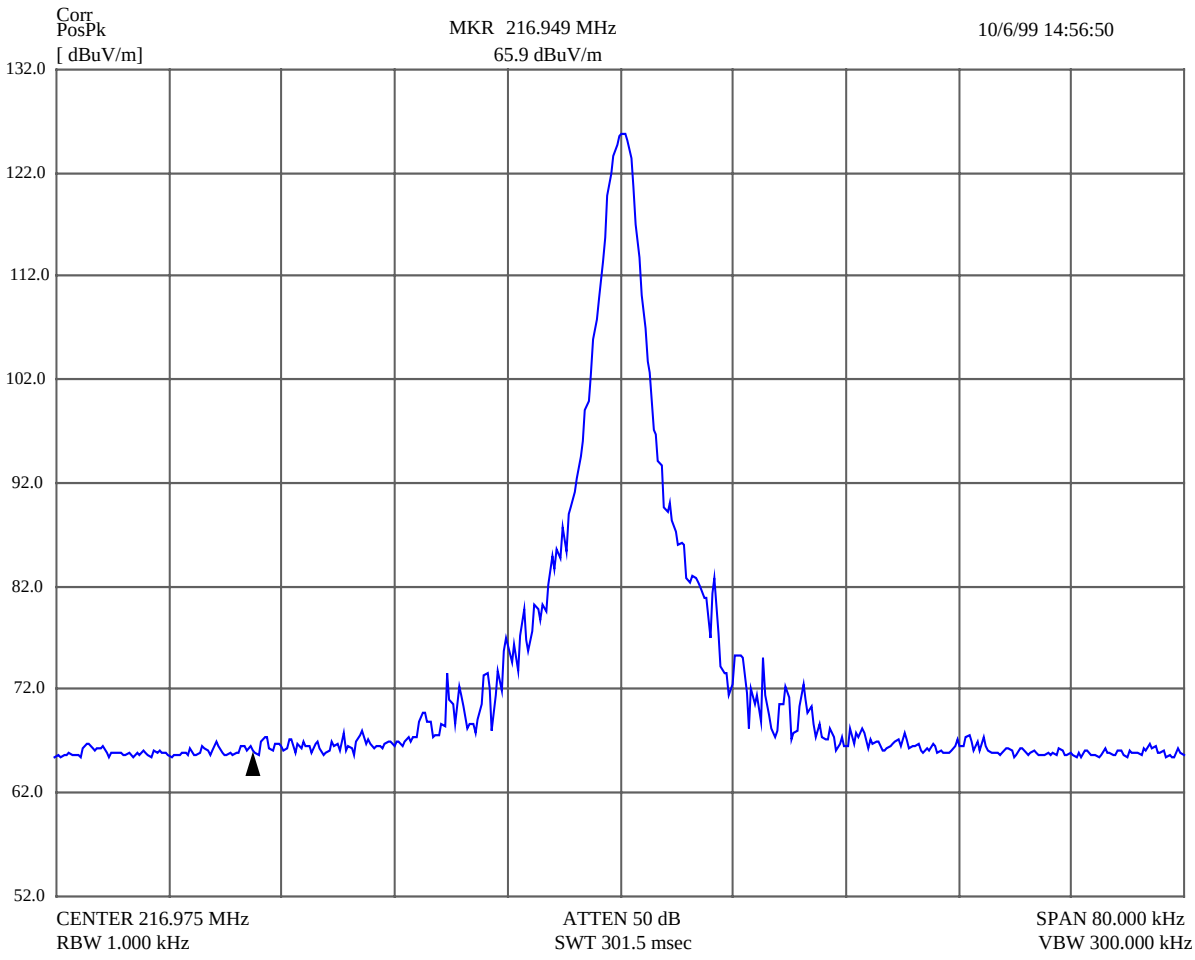
Emission values of the unwanted frequencies

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.939392	65.83	94	-28.17	PASS	-(25…35) kHz
216.948992	65.93	94	-28.06	PASS	> -35 kHz
217.000368	65.93	94	-28.07	PASS	+(25…35) kHz
217.010000	65.74	94	-28.26	PASS	> +35 kHz

Emission value of the frequency carrier

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk DB	Status	Comment
216.975120	125.72	127	-1.28	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 1A and Extra band channel 2A.

1) Channel 1A, Fc = 216.0125 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	15	216.008	123	4.5
1500	15	216.008	122	4.5
2000	15	216.007	121.7	5.5
2500	15	216.007	121.4	5.5
3000	15	216.006	120.8	6.5
4000	15	216.007	120	5.5
5000	15	216.006	119.1	6.5
6000	15	216.005	118.4	7.5
7000	**15**	**216.005**	**119.4**	**7.5**
8000	15	216.005	119.8	7.5
9000	15	216.006	120.8	6.5
10000	15	216.007	121.3	5.5

The frequency Fmod =7000 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	216.013	121.5	12
1500	50	216.011	120.7	14
2000	50	216.009	119.8	16
2500	50	216.007	118.5	18
3000	50	216.004	117.4	21
4000	50	216	116.2	25
5000	50	215.999	115.3	26
6000	**50**	**215.996**	**115.7**	**29**
7000	50	215.998	115.6	27
8000	50	216	115.8	25
9000	50	215.998	115.7	27
10000	50	215.998	115.7	27

The frequency Fmod =6000 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.

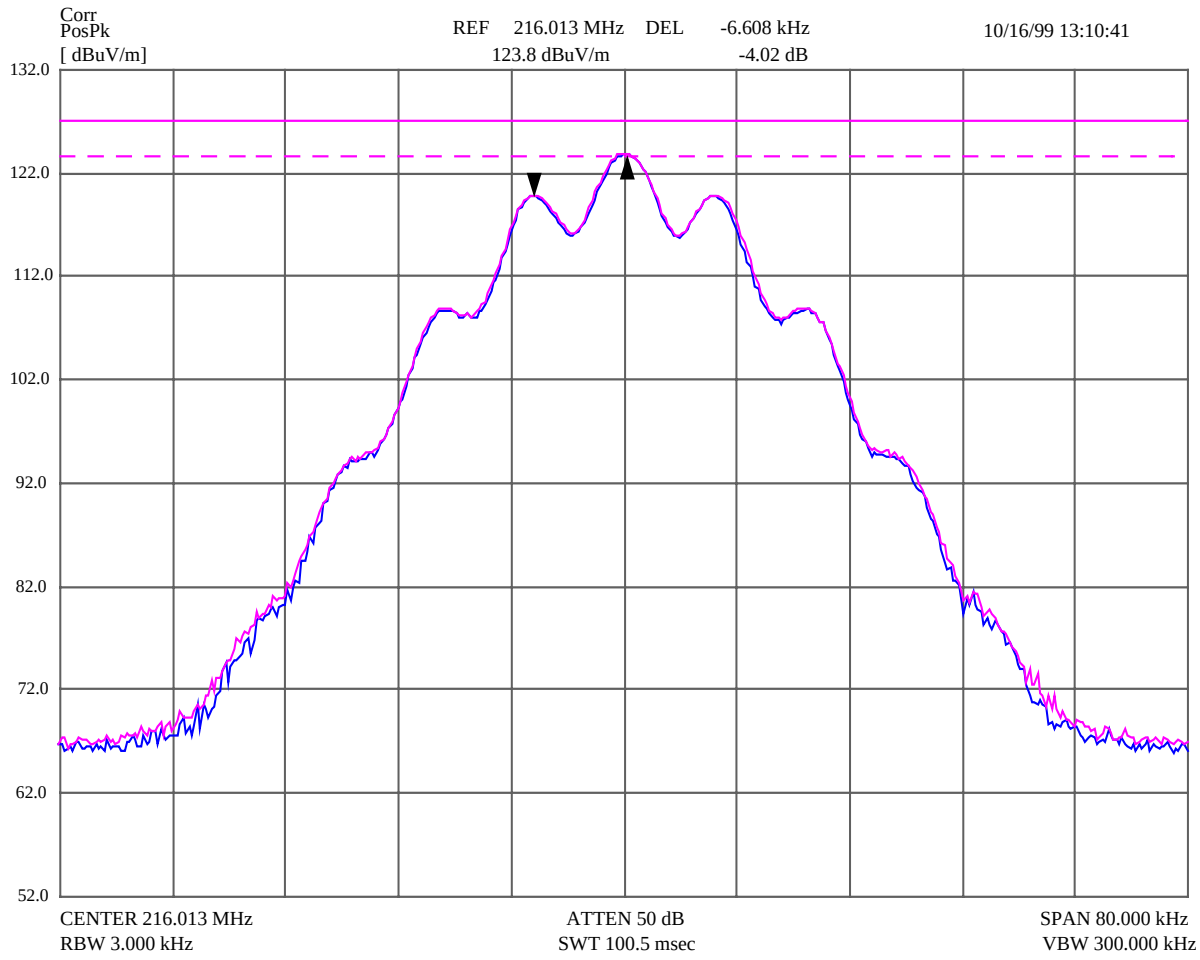
OCCUPIED BANDWIDTH TEST was performed on the selected Standard band channel 1A and Extra band channel 2A.

5.4.1. Channel 1A

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
216.006096	119.73	13.2	At the Fmod=7000Hz and ampl. V=10 mV

Receiver (Graphic)



In according to procedure 2.1049 :

a) the amplitude 10 mV at the Fmod=7000 Hz converts to dBuV, it comes to 96 dBuV;
b) the value of a) increases by 16 dB, it comes to 96 dBuV;
c) then the value of b) converts to "V", it comes to 0.063 V;
d) Thus, the occupied BW measures at the modulation amplitude =0.063 V and frequency = 2500 Hz

2) The following is the data of the Occupied Bandwidth Channel 1A. The measurement was performed at Fmod=2500 Hz and Vmod=0.063 V

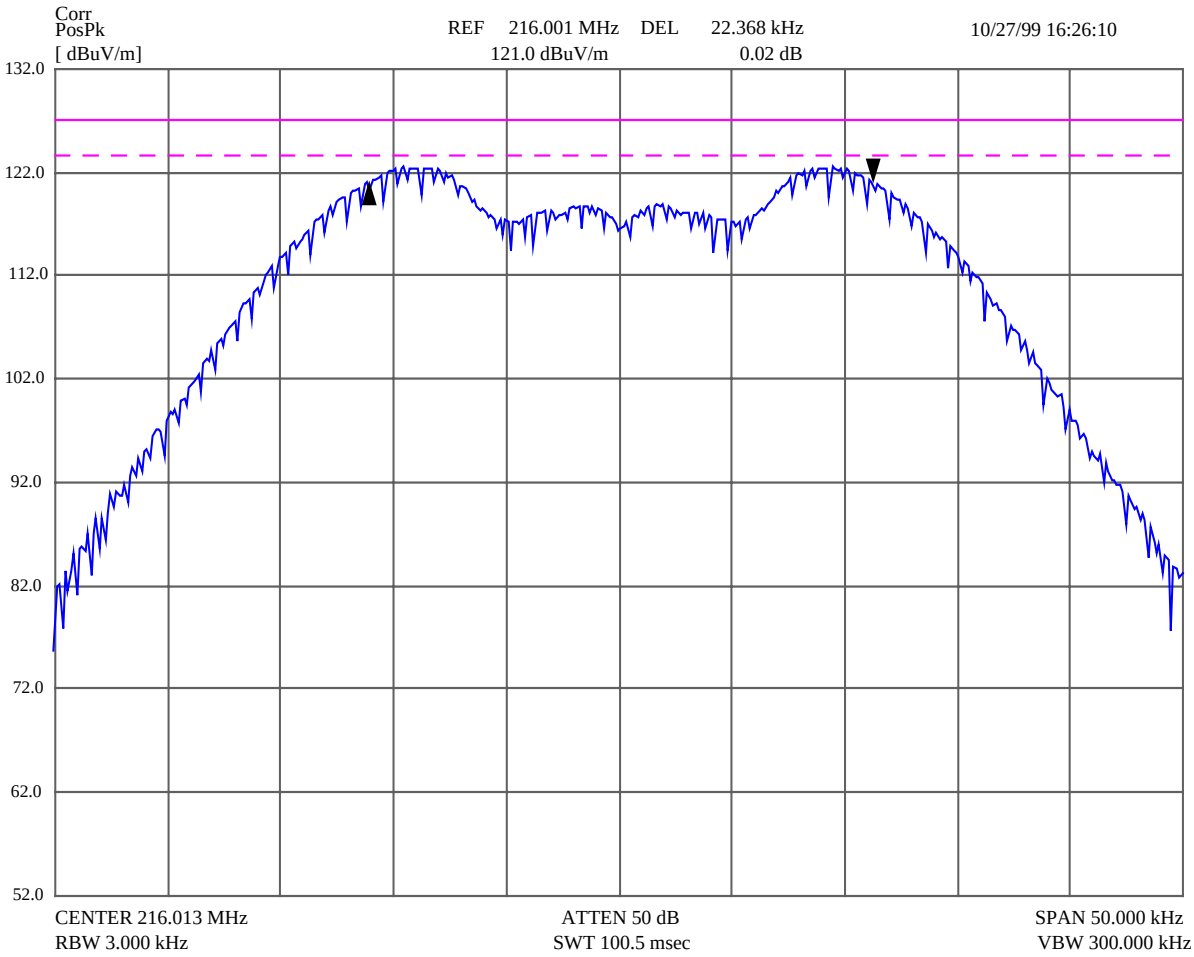
The frequency Peak level

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.00288	122.36	127	-4.64	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
216.001376	120.99	216.023744	121.01	22.368	25	PASS

Receiver (Graphic)

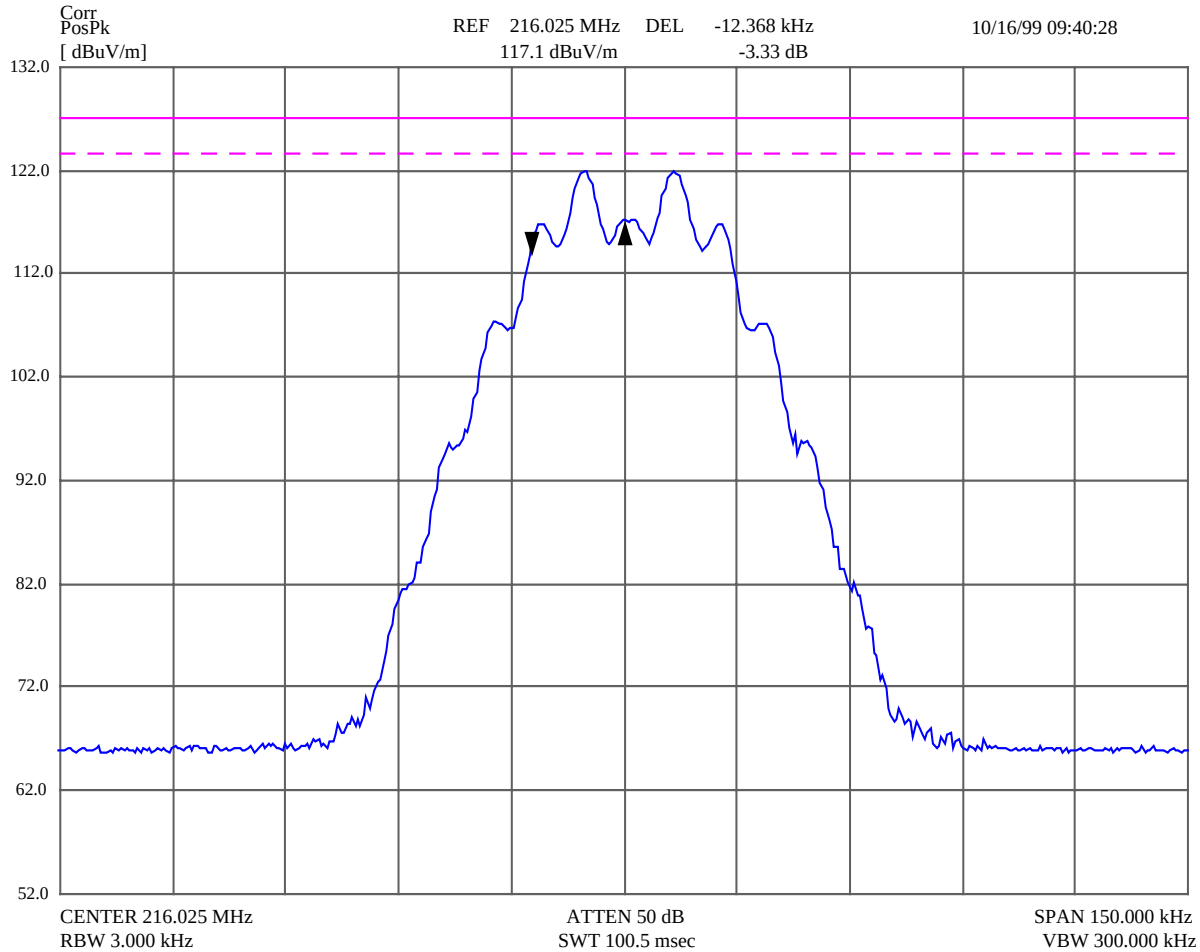


5.4.2. Channel 2A

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
216.012624	113.72	24.74	At the Fmod=6000Hz and ampl. V=11 mV

Receiver (Graphic)



In according to procedure 2.1049 :

a) the amplitude 11 mV at the Fmod=6000 Hz converts to dBuV, it comes to 80.82 dBuV;
b) the value of a) increases by 16 dB, it comes to 96.82 dBuV;
c) then the value of b) converts to "V", it comes to 0.069 V;
d) Thus, the occupied BW measures at the modulation amplitude =0.069 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=0.069 V

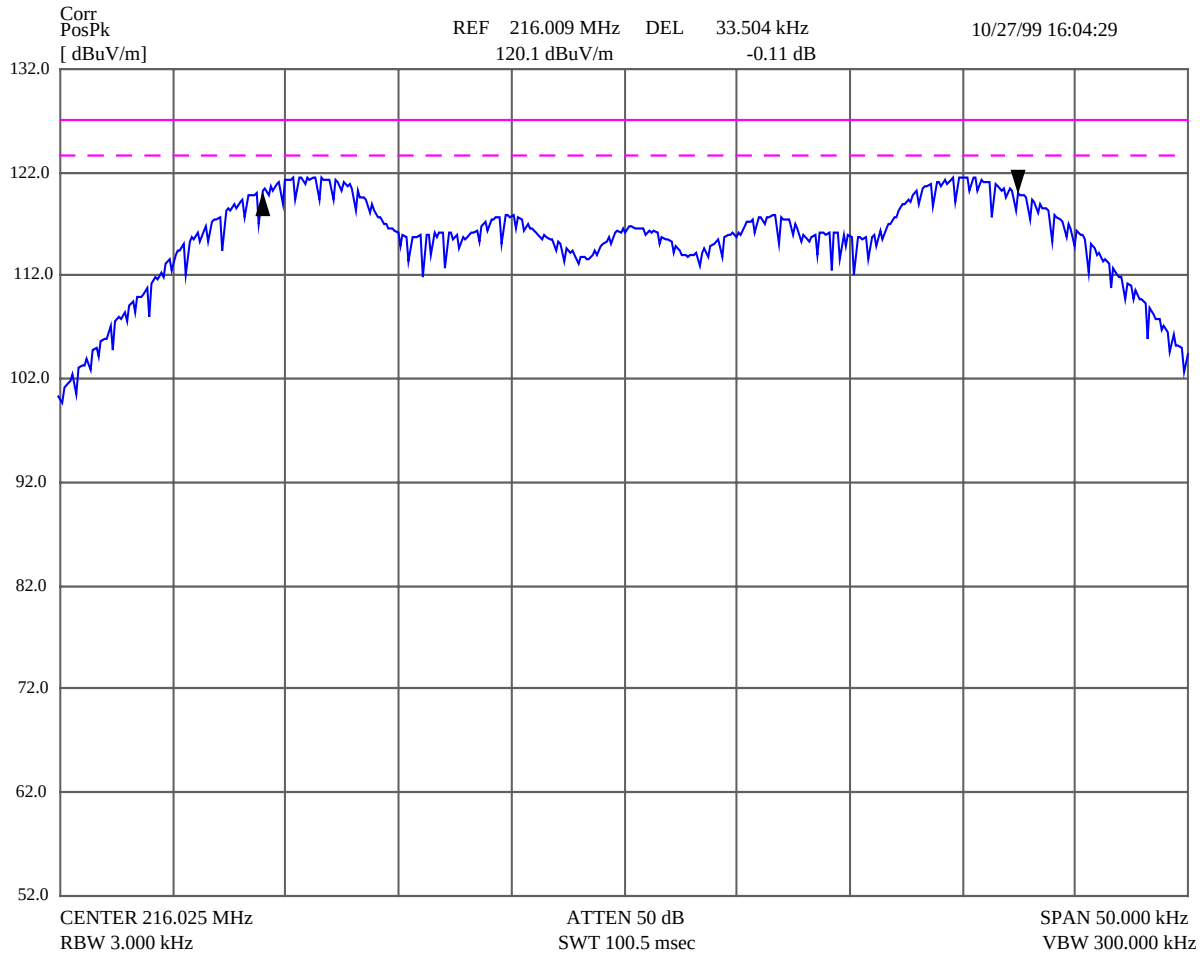
The frequency Peak level

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
216.011248	121.44	127	-5.56	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
216.008992	120.12	216.042496	120.01	33.504	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.

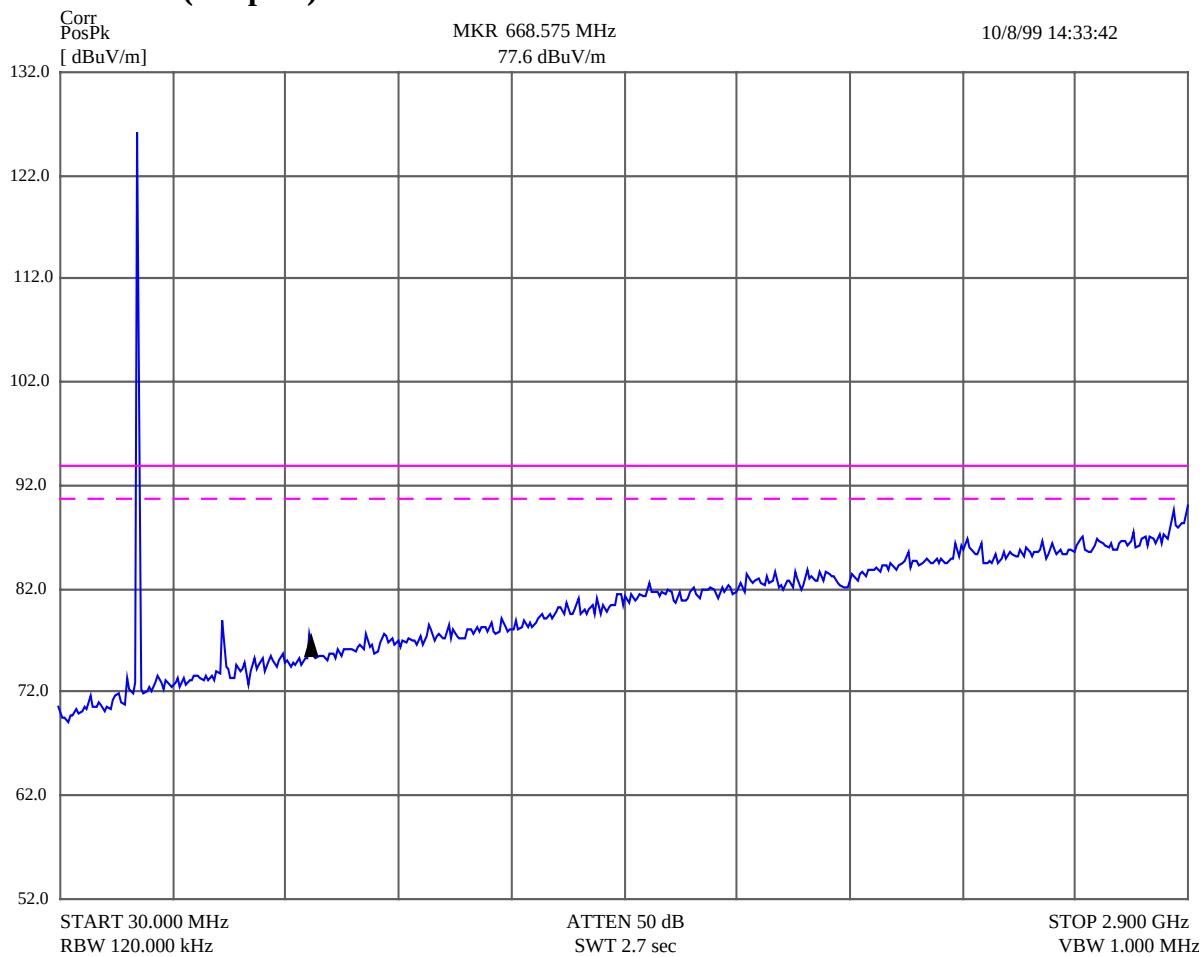
SPURIOUS EMISSIONS at antenna terminals were performed on the selected Standard band channel 1A, 1K, 1V at the modulation frequency 2500 Hz, amplitude 0.063V and Extra band channel 2A, 2K, 2V at the modulation frequency 2500 Hz, amplitude 0.069V in the

frequency range from 30 MHz to 2900 MHz.

Channel 1A

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
446.150016	78.89	94	-15.11	PASS	
668.574976	77.61	94	-16.39	PASS	

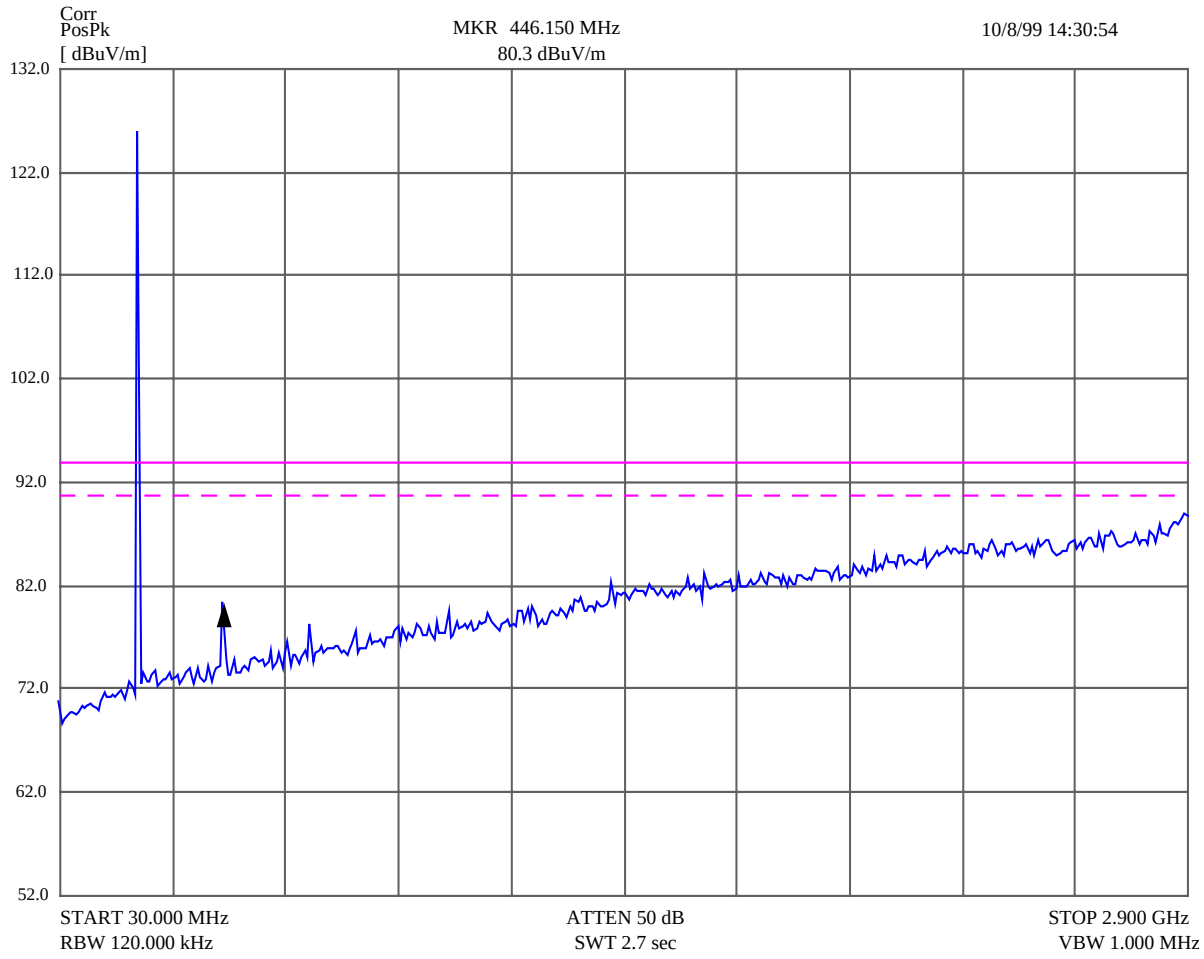
Receiver (Graphic)



Channel 1K

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
446.150016	80.27	94	-13.73	PASS	

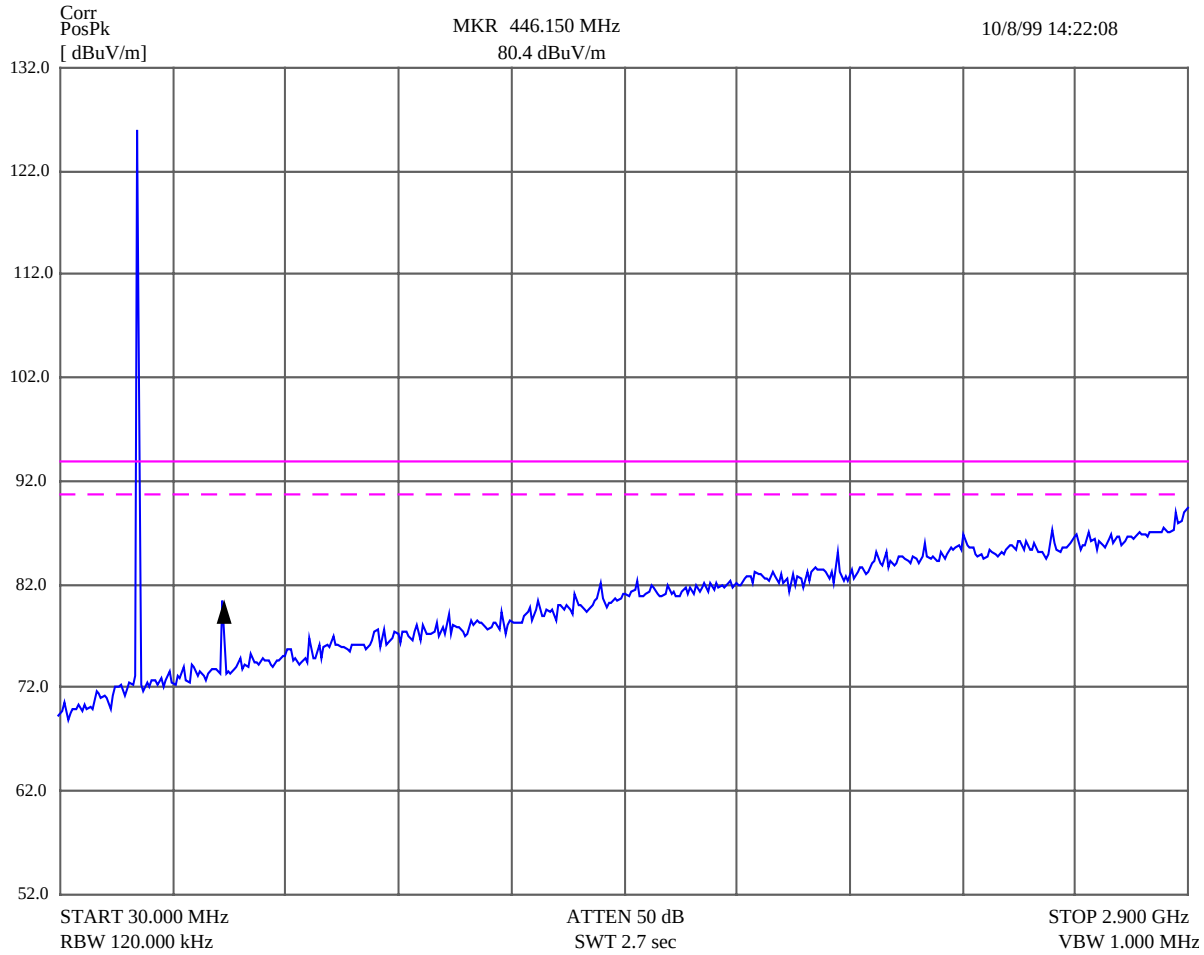
Receiver (Graphic)



Channel 1V

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
446.150016	80.43	94	-13.57	PASS	

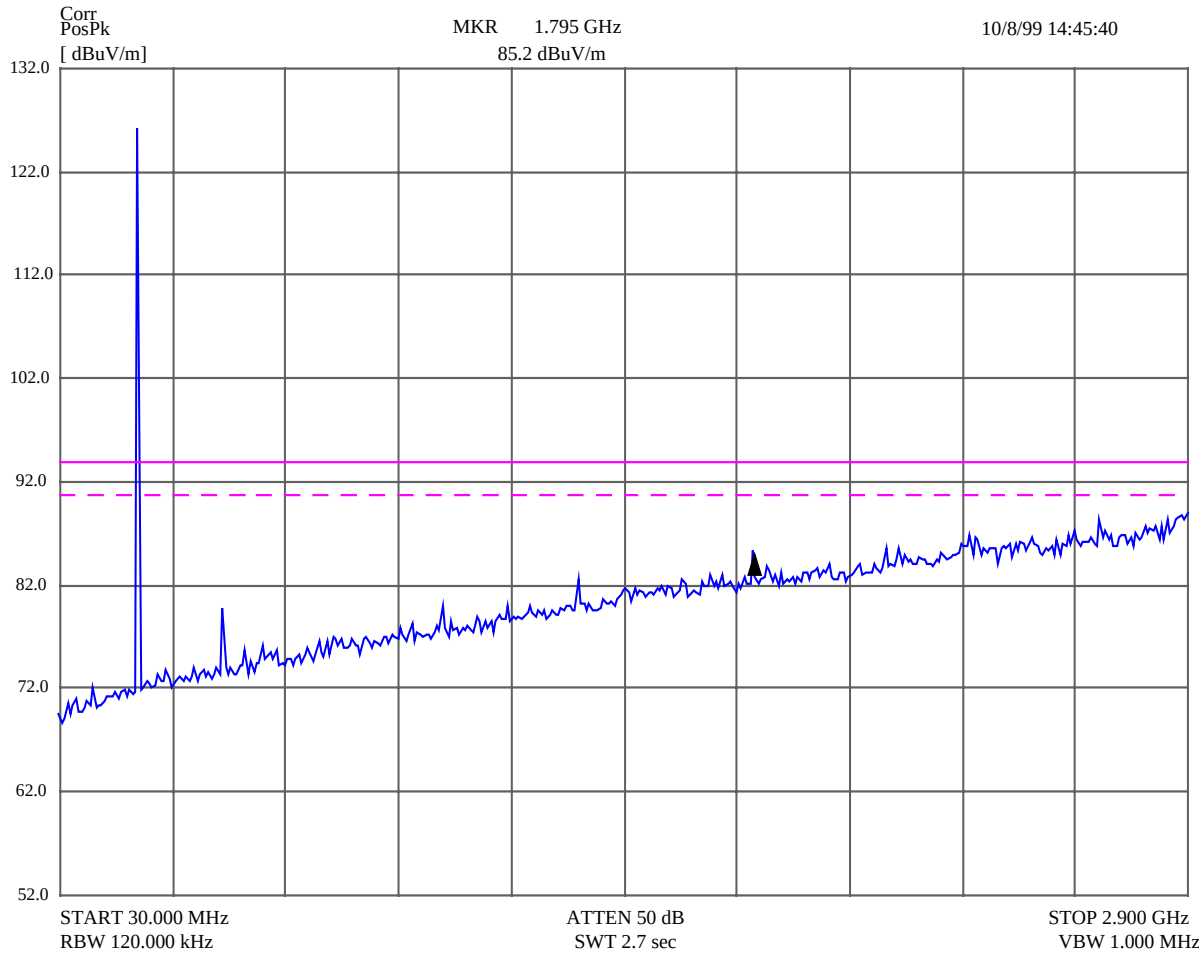
Receiver (Graphic)



Channel 2A

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
446.15	79.76	94	-14.24	PASS	
1005.8	79.93	94	-14.07	PASS	
1350.2	82.38	94	-11.62	PASS	
1795.05	85.19	94	-8.81	PASS	

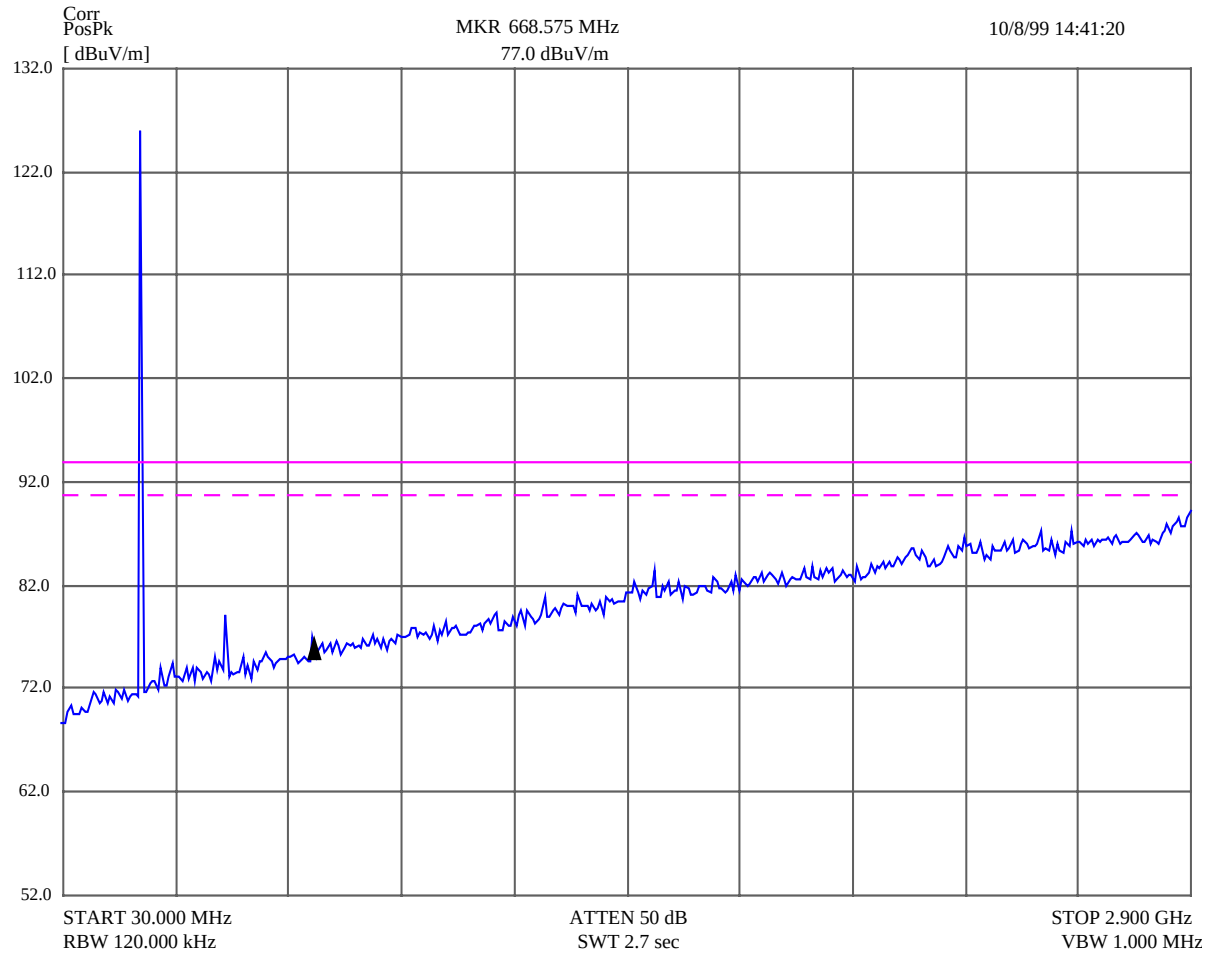
Receiver (Graphic)



Channel 2K

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
446.15	79.15	94	-14.85	PASS	
668.575	76.98	94	-17.02	PASS	

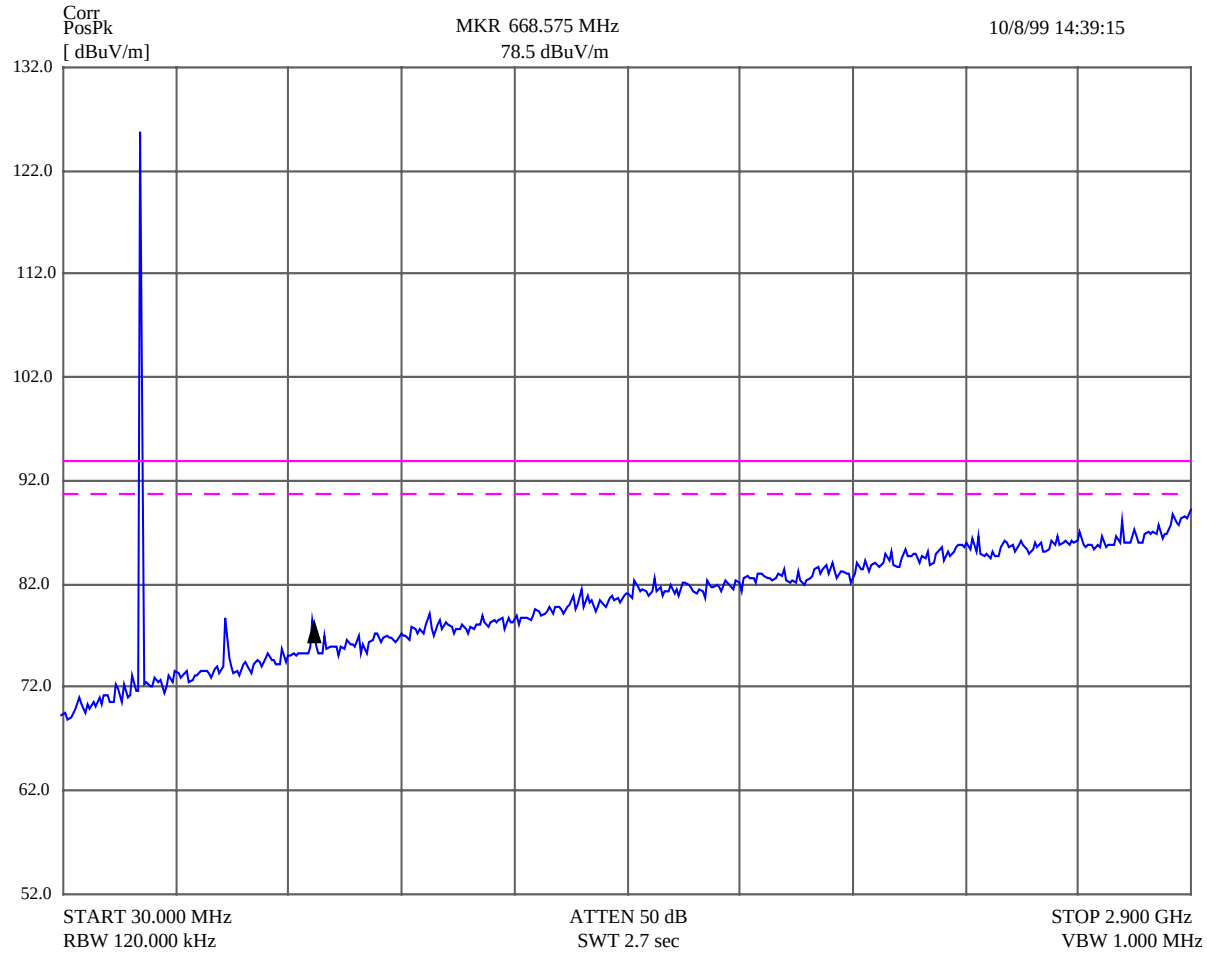
Receiver (Graphic)



Channel 2V

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Status	Comment
446.15	78.59	94	-15.41	PASS	
668.575	78.46	94	-15.54	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.

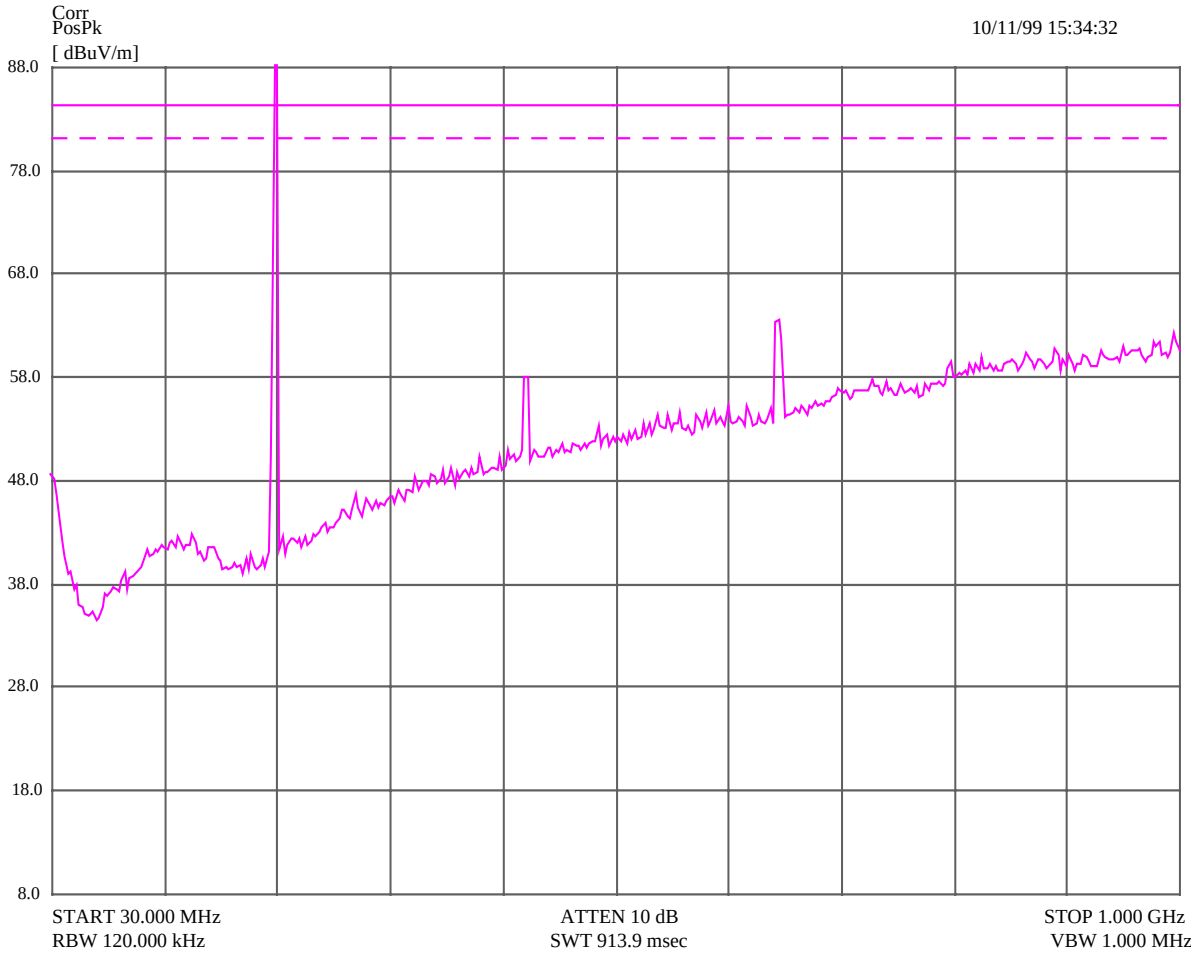
FIELD STRENGTH of SPURIOUS RADIATION were performed on the selected Standard band channel 1A, 1K, 1V at the modulation frequency 2500 Hz, amplitude 0.063V and Extra band channel 2A, 2K, 2V at the modulation frequency 2500 Hz, amplitude 0.069V in the frequency range from 30 MHz to 2900 MHz. A receiver (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

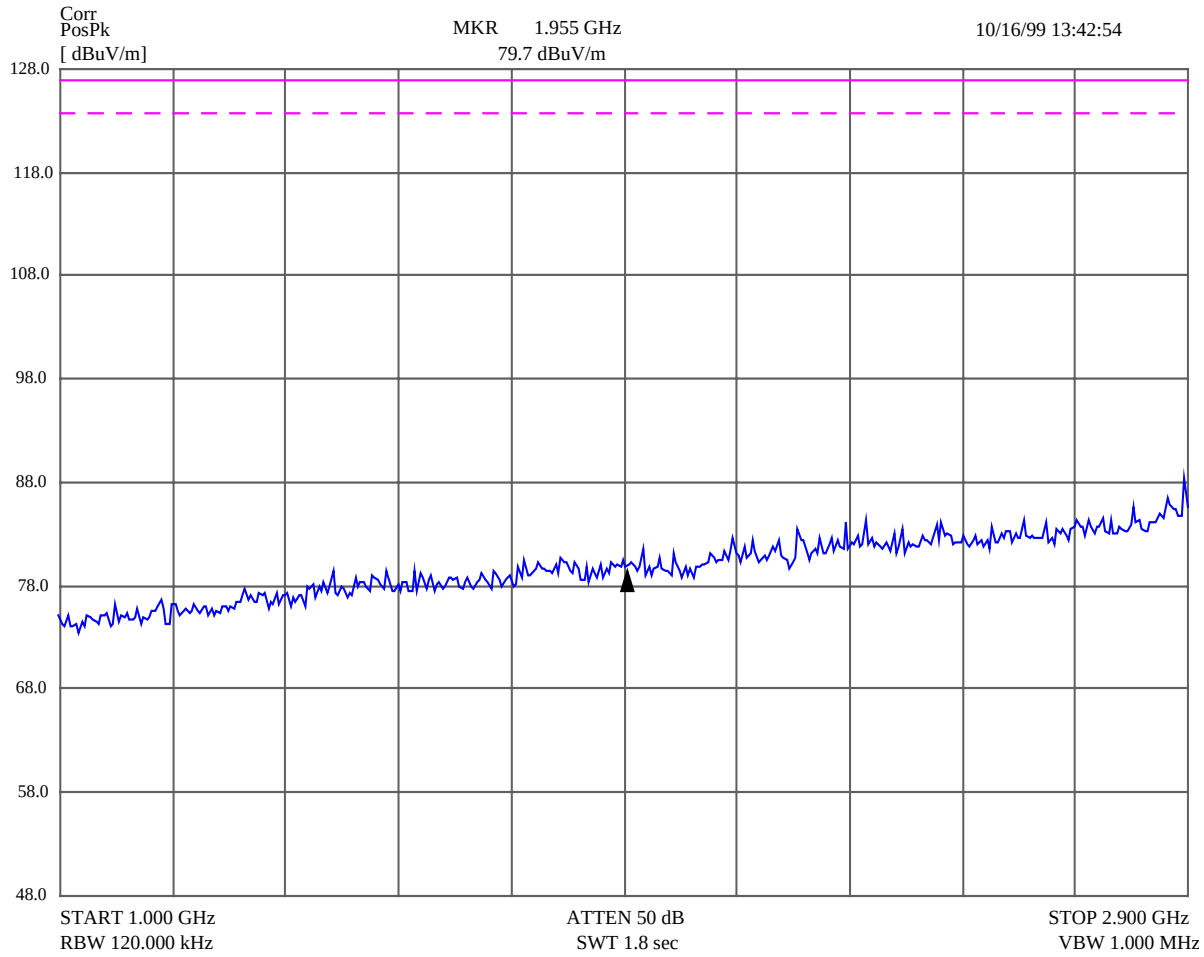
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
432.075008	60.22	84.46	-24.24	Vert	146	124	PASS	
648.037504	68.87	84.46	-15.59	Vert	310	124	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.024992	89.63	127	-37.37	Vert	267	95	PASS	F carrier

Receiver (Graphic) 1



Receiver (Graphic) 2

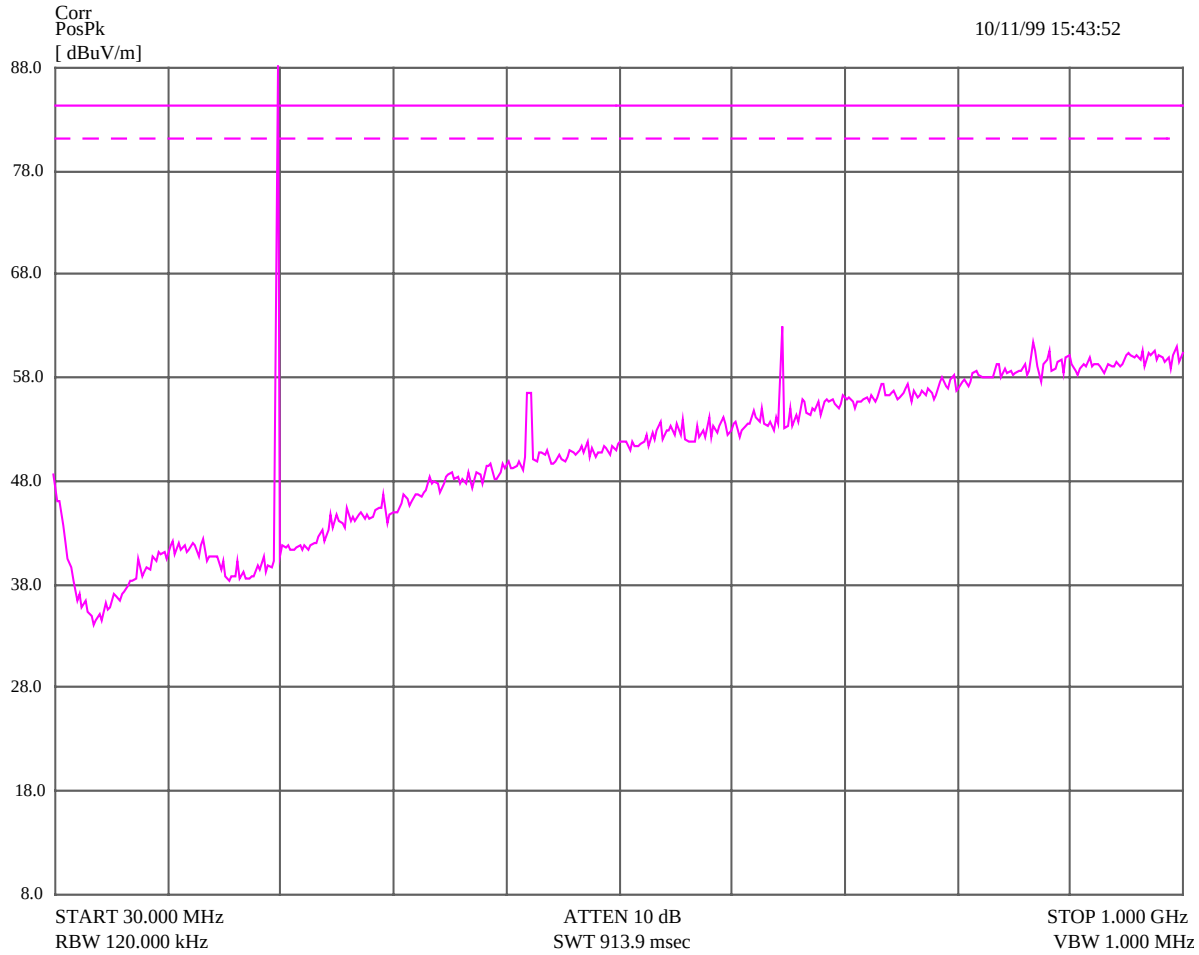


2) Channel 1K

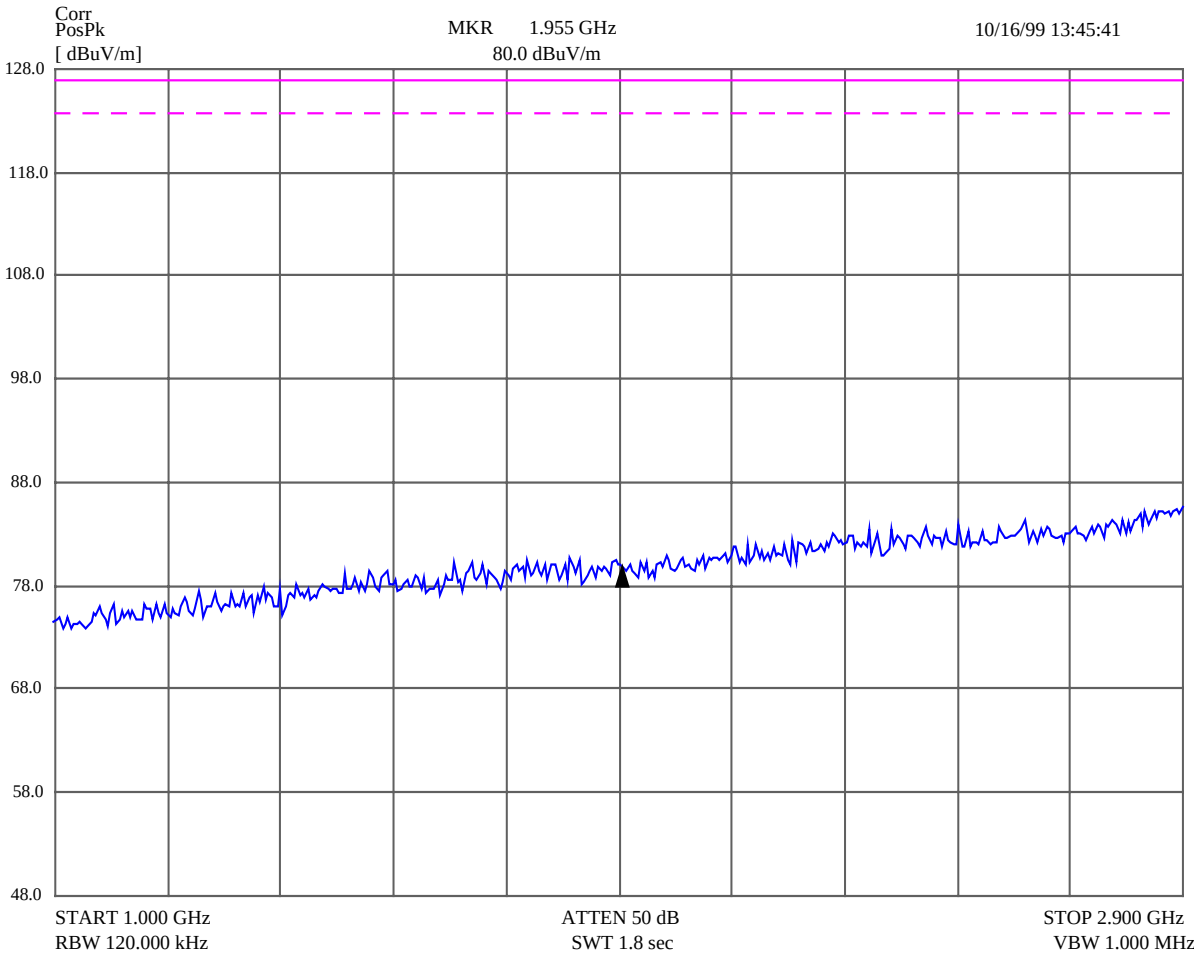
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
433.049984	59.13	84.46	-25.33	Vert	140	95	PASS	
649.574976	69.63	84.46	-14.83	Vert	220	95	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.512624	89.38	127	-37.62	Vert	284	95	PASS	Fcarrier

Receiver (Graphic) 1



Receiver (Graphic) 2

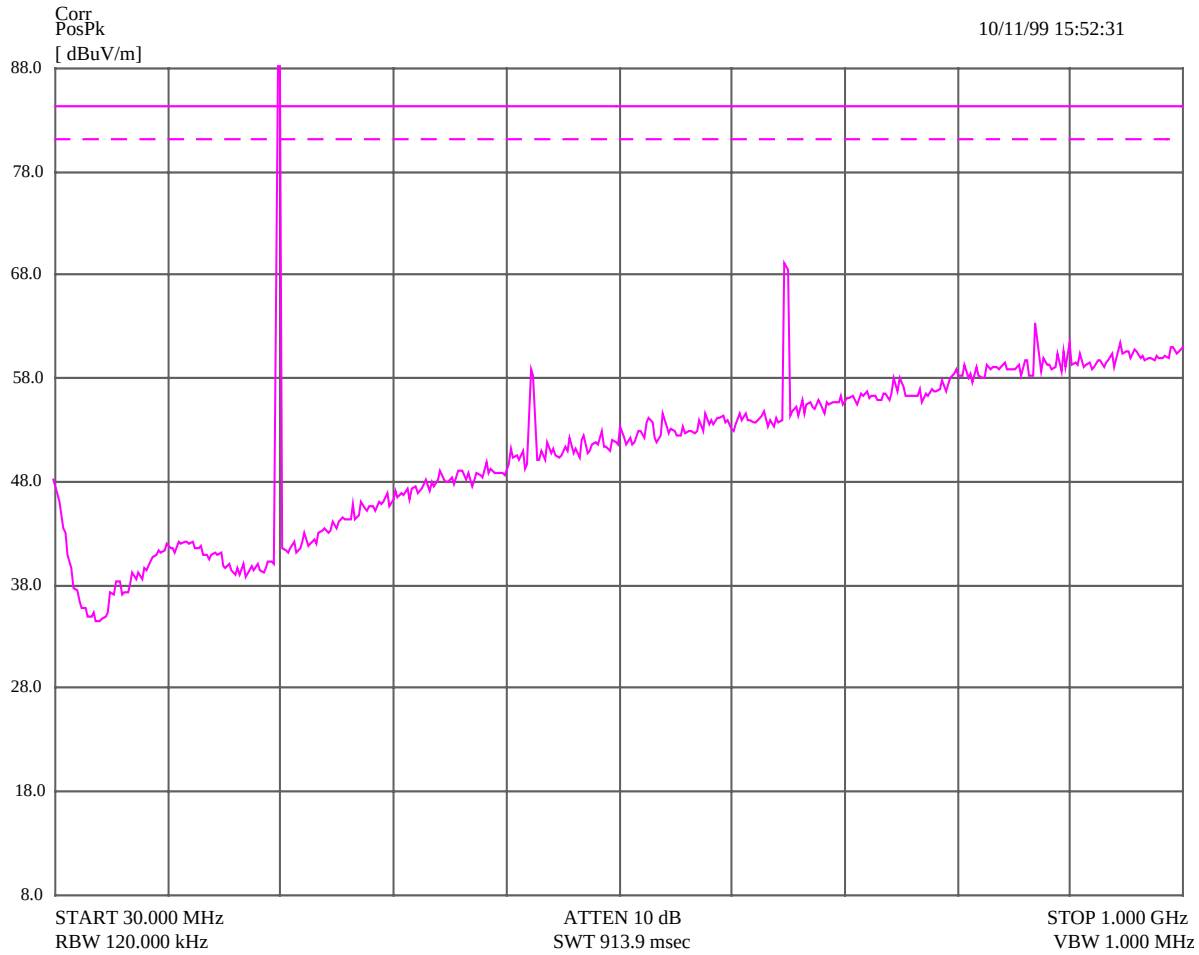


3) Channel 1V

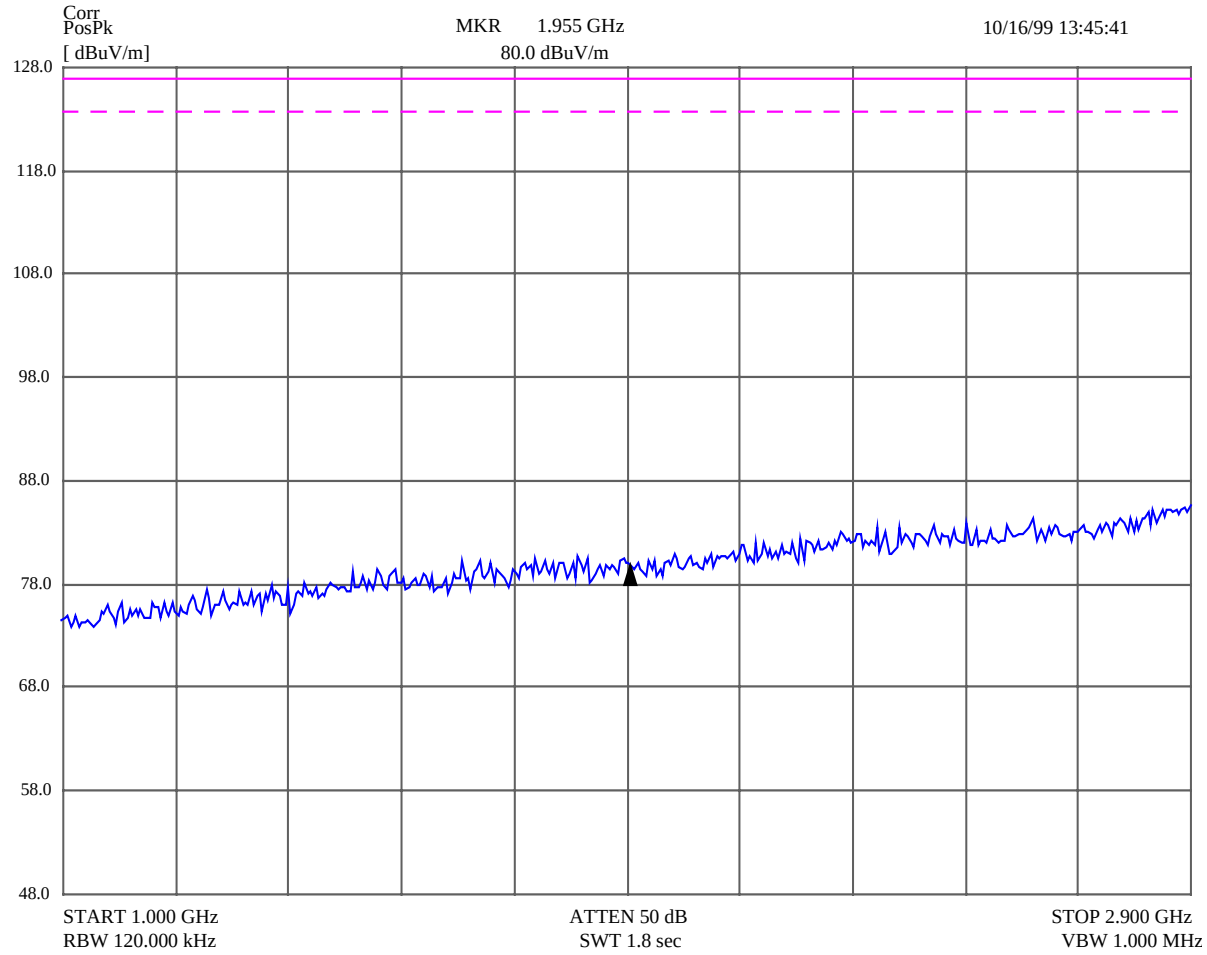
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
433.9	59.09	84.46	-25.37	Vert	145	95	PASS	
650.875008	70.32	84.46	-14.14	Vert	212	95	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.962496	88.95	127	-38.05	Vert	293	95	PASS	Fcarrier

Receiver (Graphic) 1



Receiver (Graphic) 2

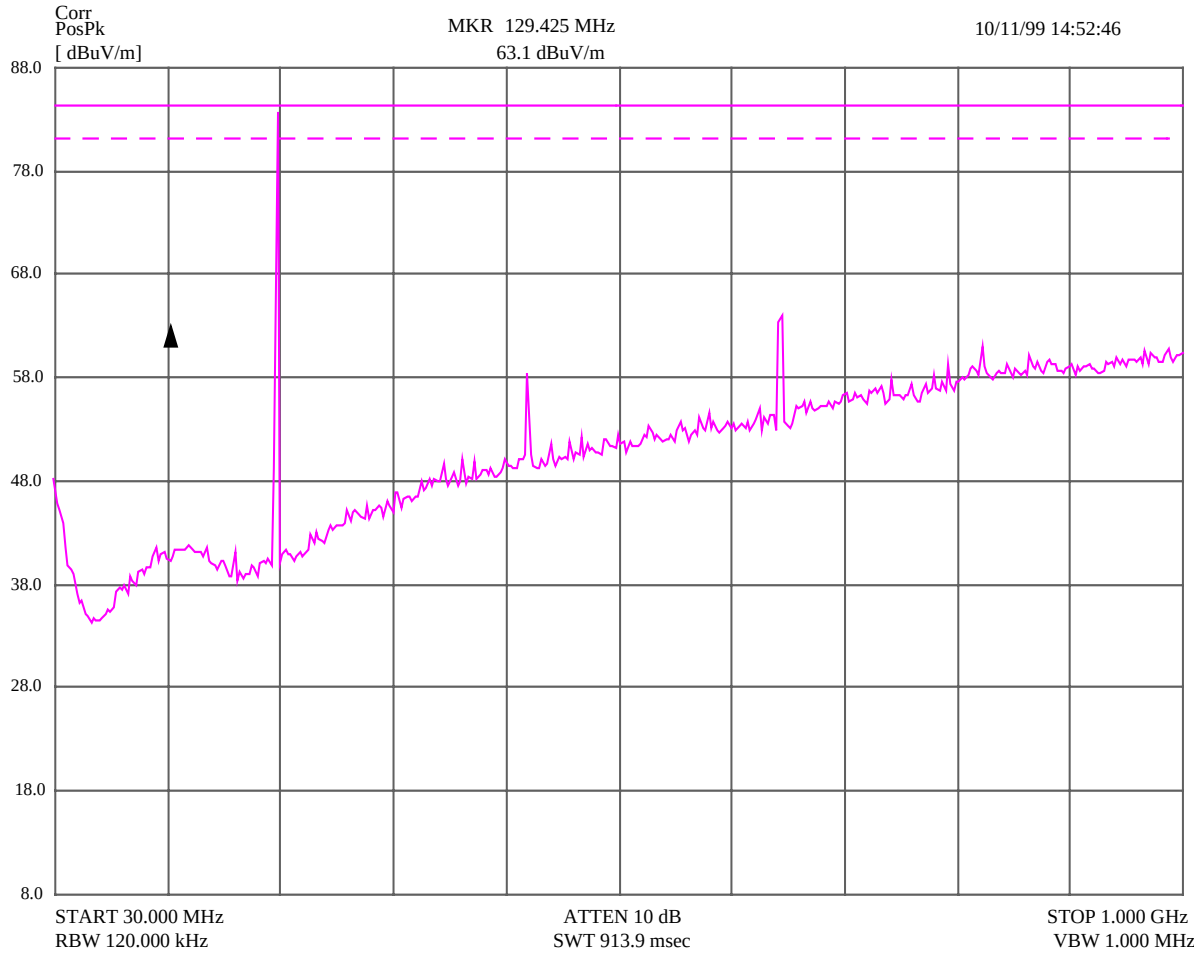


4) Channel 2A

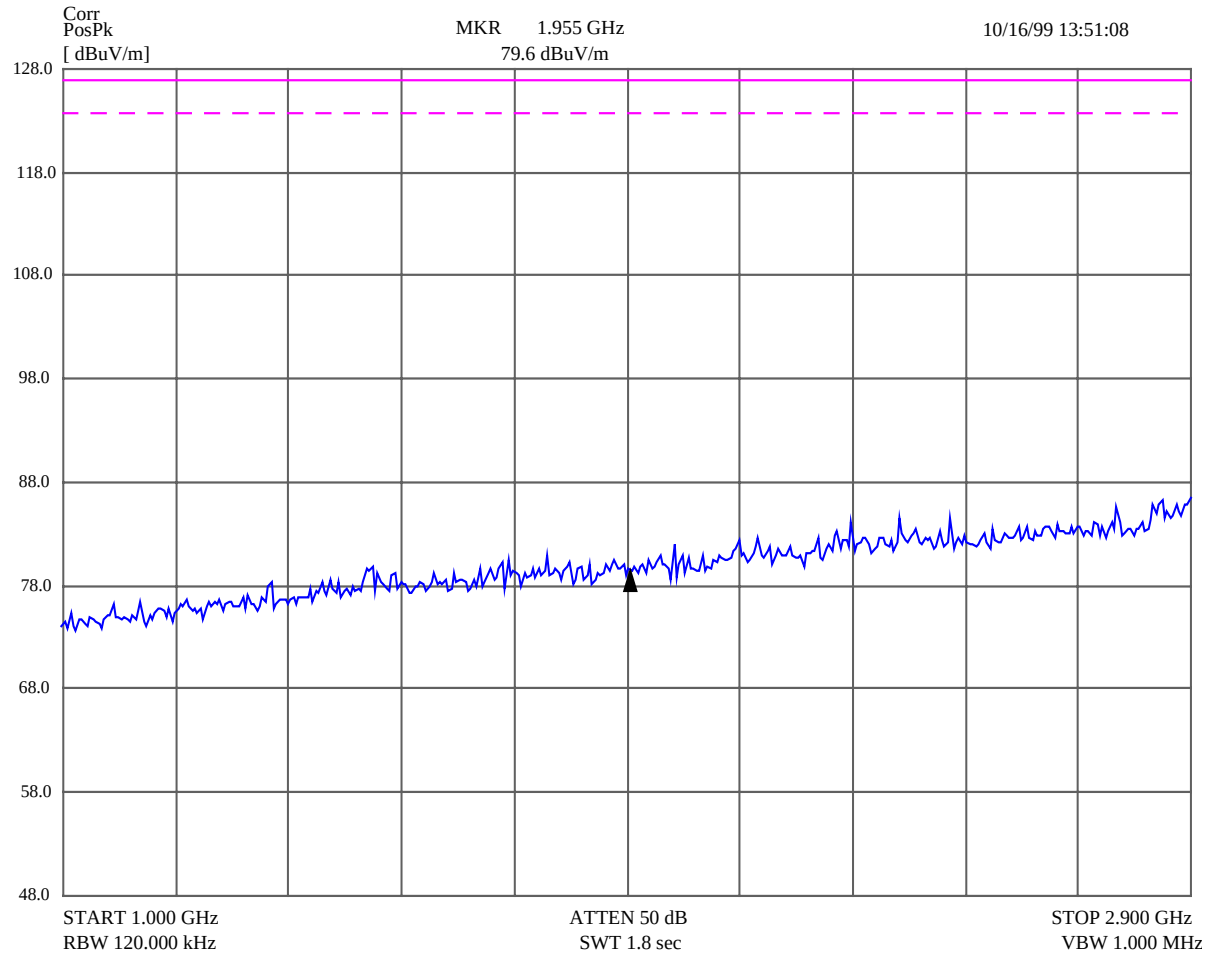
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
432.015008	63.41	84.46	-21.05	Horz	195	100	PASS	
648.049984	63.13	84.46	-21.33	Horz	45	100	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.047504	89.58	127	-37.42	Vert	270	100	PASS	Fcarrier

Receiver (Graphic) 1



Receiver (Graphic) 2

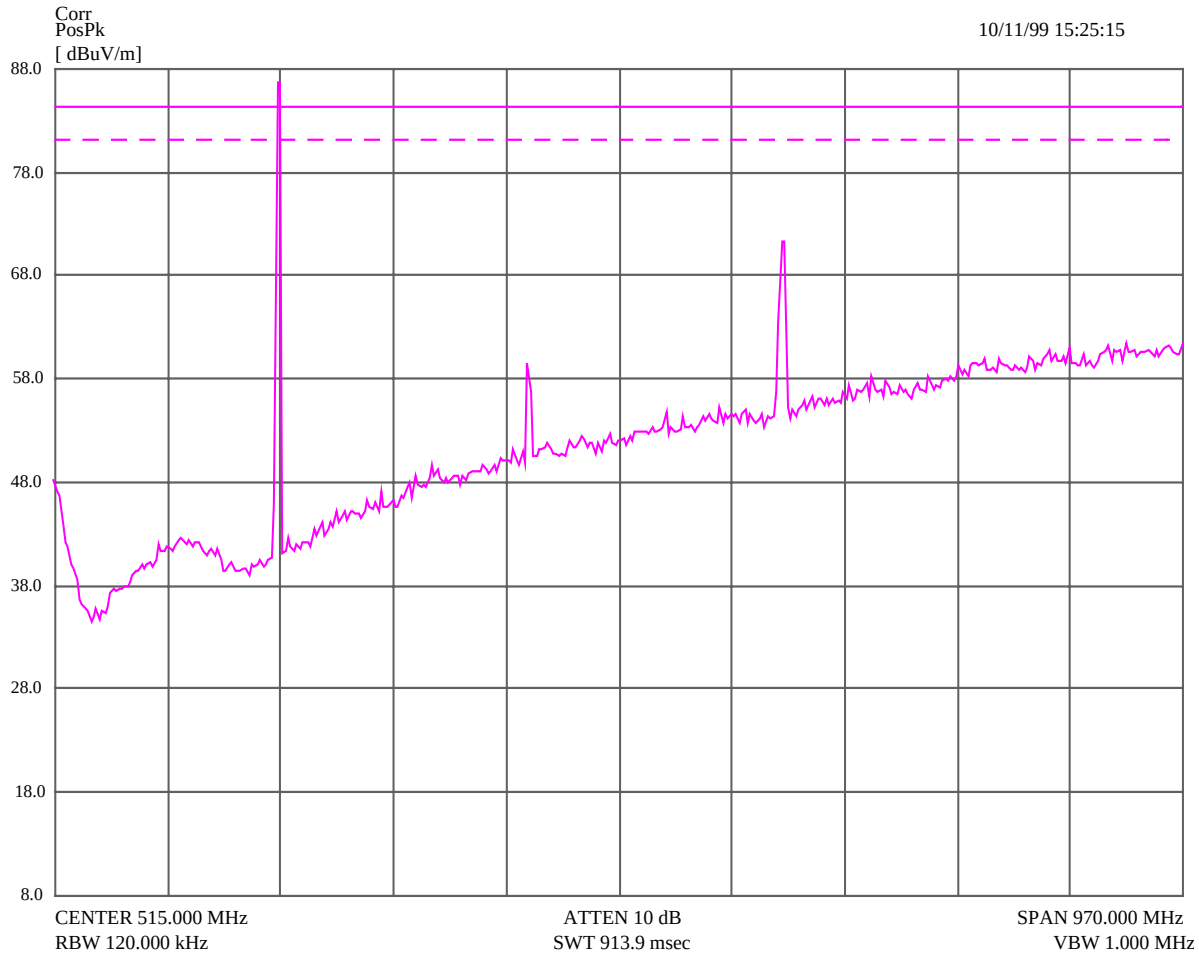


5) Channel 2K

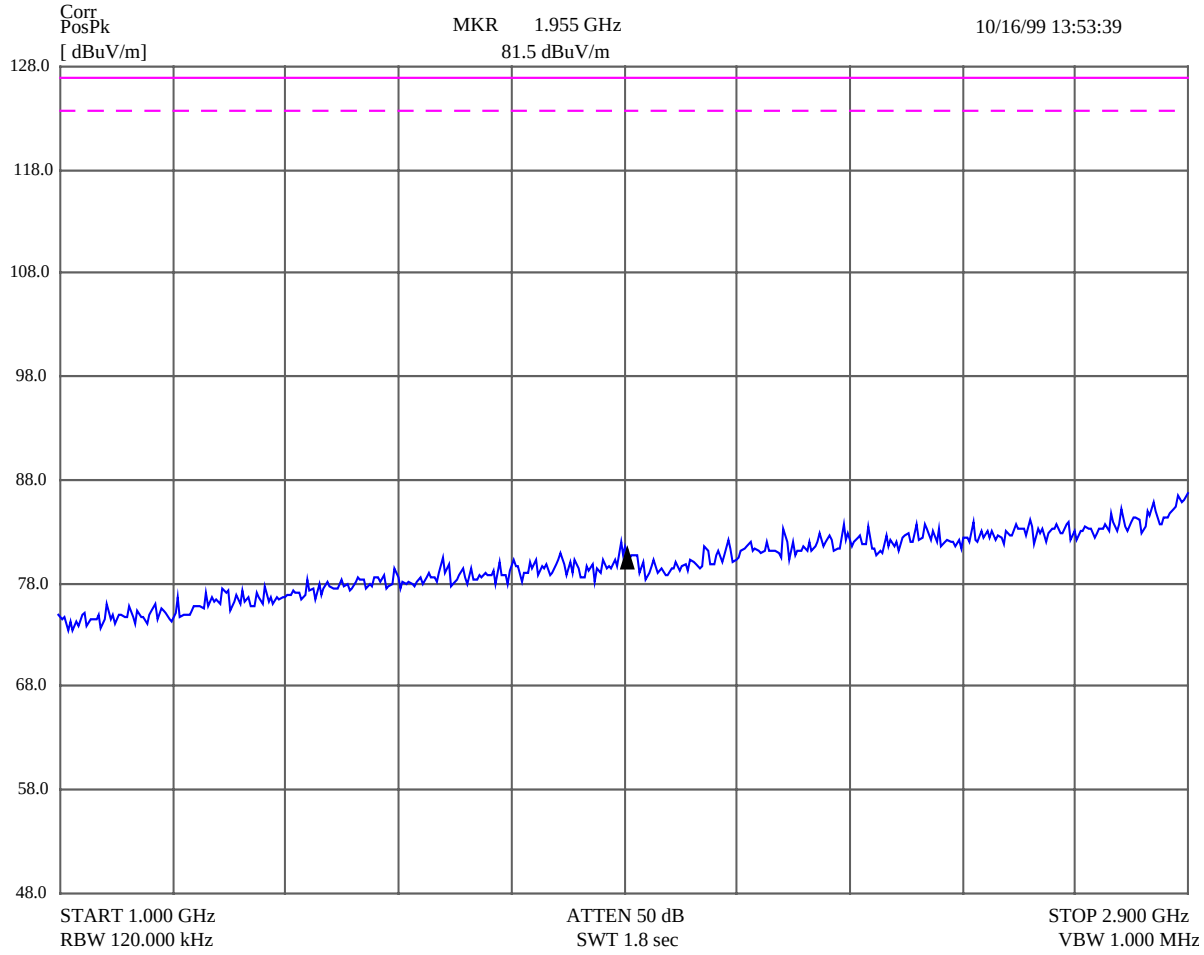
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
433.044992	61.05	84.46	-23.41	Horz	190	100	PASS	
649.574976	70.99	84.46	-13.47	Vert	61	124	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.544992	89.12	127	-37.88	Vert	286	100	PASS	Fcarrier

Receiver (Graphic) 1



Receiver (Graphic) 2

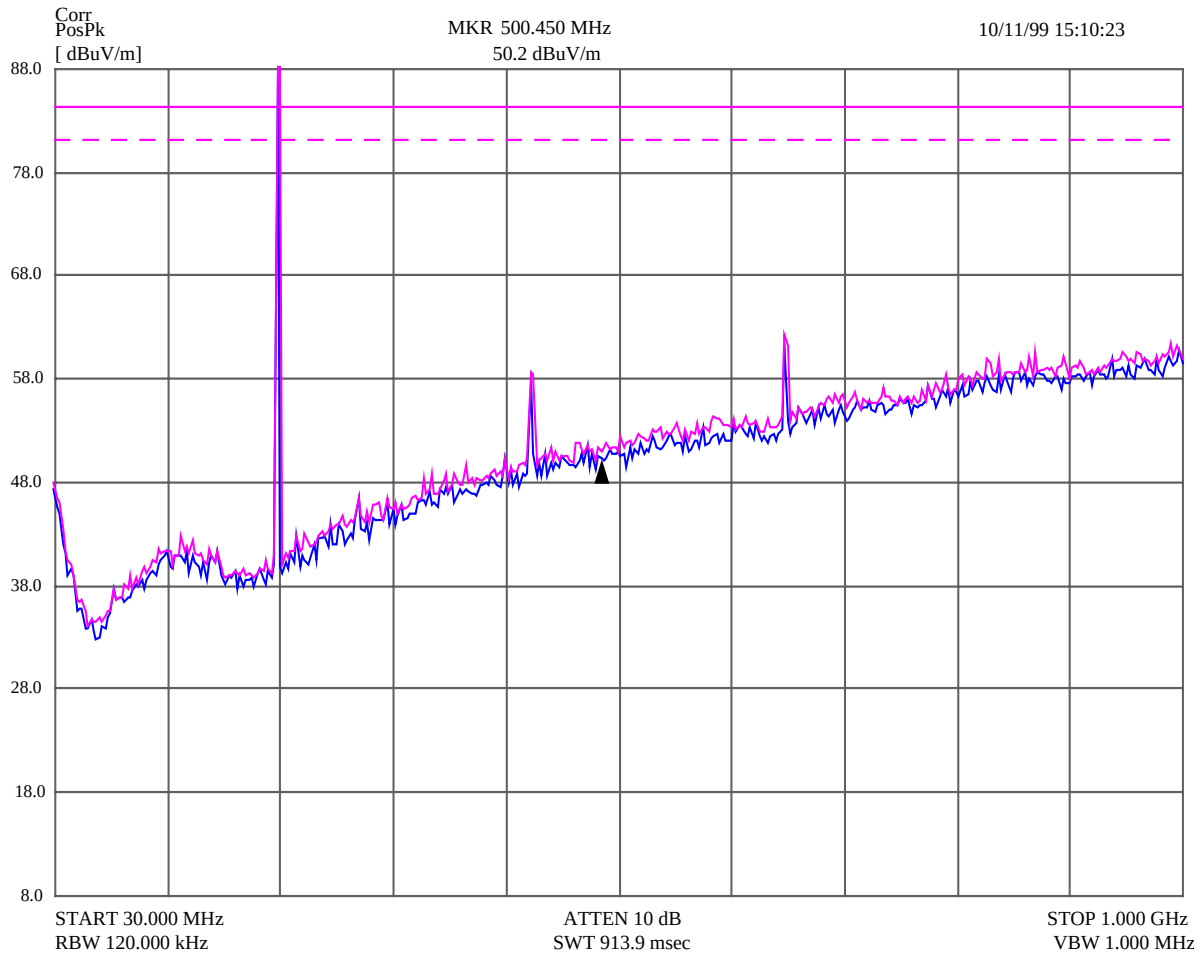


6) Channel 2V

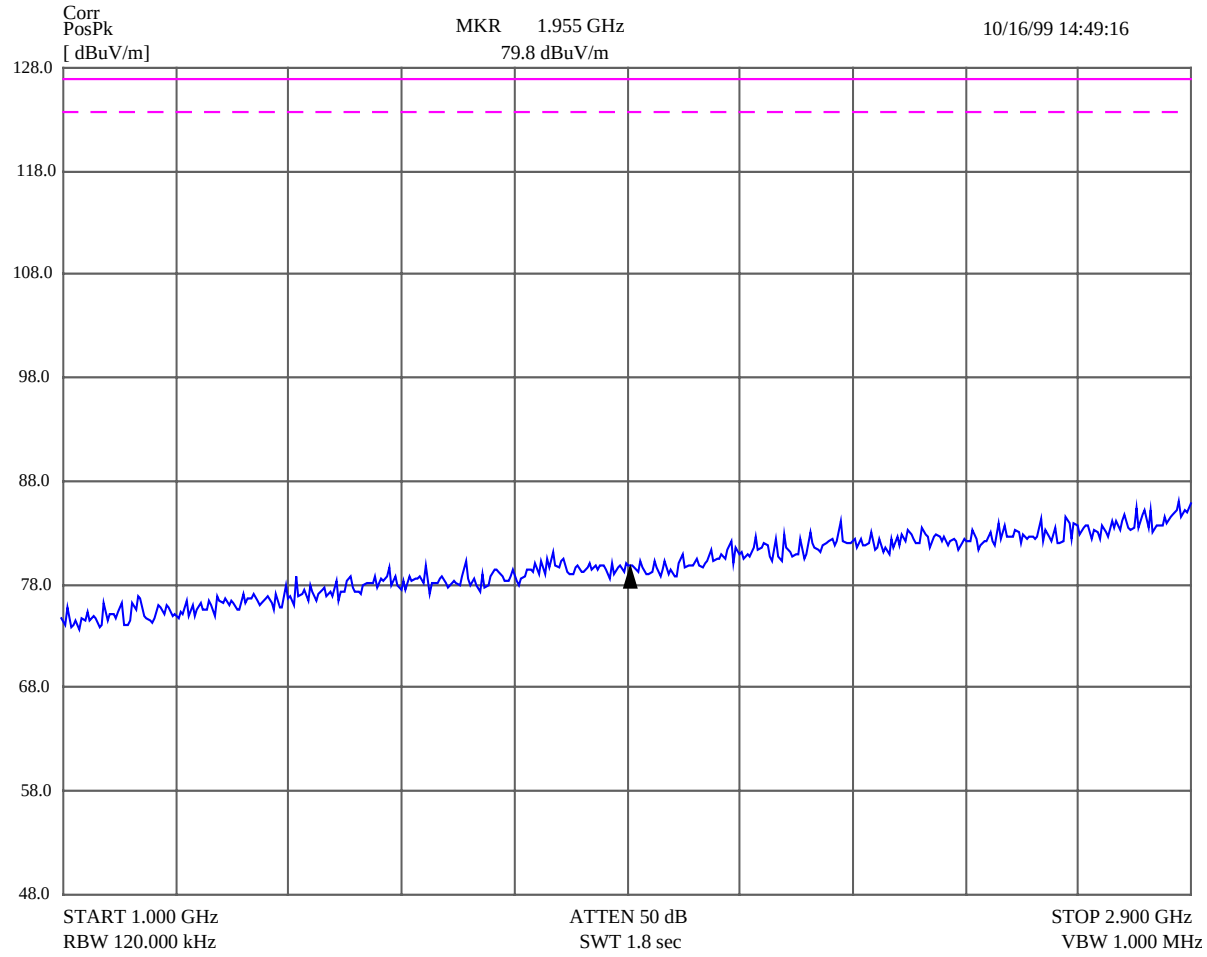
Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
433.964992	61.57	84.46	-22.89	Horz	196	99	PASS	
650.830016	66.52	84.46	-17.94	Horz	61	120	PASS	

Frequency MHz	Peak dBuV/m	Peak Lmt dBuV/m	DelLim-Pk dB	Pol	Angle deg	Hgt cm	Status	Comment
216.944992	89.13	127	-37.87	Vert	265	100	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 1A and extra channel 2A;

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

1) Channel 1A , Fcarrier (Fc) = 216.0125 MHz

Temperature measured ° C	Frequency measured Fm MHz	Frequency tolerance ΔF=Fm-Fc kHz	Frequency stability Limit,Flim kHz	Status
0	216.013952	1.056	10.8	PASS
10	216.013942	1.442	10.8	PASS
20	216.013504	1.004	10.8	PASS
30	216.013248	0.748	10.8	PASS
40	216.012544	0.044	10.8	PASS
50	216.012256	-0.244	10.8	PASS

Primary suply voltage V	Frequency measured Fm MHz	Frequency tolerance ΔF=Fm-Fc kHz	Frequency stability Limit,Flim kHz	Status
102	216.012896	0.396	10.8	PASS
120	216.011768	-0.732	10.8	PASS
138	216.011245	-1.255	10.8	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