



TEST REPORT nr. R12157601

Federal Communication Commission (FCC)

Test item

Description.....: Wideband bodypack transmitter

Trademark.....: WISYCOM

Model/Type.....: MTP 40

Test Specification

Standard: FCC Rules & Regulations, Title 47 - Part 74.861 (2011)

Client's name.....: WISYCOM SRL

Address: Via Spin,156 – 36060 Romano d'Ezzelino (VI) - Italy

Manufacturer's name.: Same ad client

Address

Report

Tested by.....: A. Bertezolo - *Technician*

Approved by.....: R. Beghetto – *Laboratory Manager*

Date of issue.....: 11.06.13

Contents: 58 pages

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The test results presented in this report relate only to the item tested.



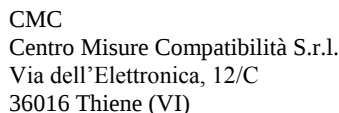
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1. Summary			
Standard: FCC Rules & Regulations, Title 47 part 74			
Test specifications	Environmental Phenomena	Tests sequence	Result
FCC – Title 47 Part 74.861	Peak Output Power	1	Complies
FCC – Title 47 Part 74.861	Frequency Error vs. Voltage	2	Complies
FCC – Title 47 Part 74.861	Frequency Error vs. Temperature	3	Complies
FCC – Title 47 Part 74.861	Characteristic of the Audio Modulation	4	Complies
FCC – Title 47 Part 74.861	Occupied Bandwidth	5	Complies
FCC – Title 47 Part 74.861	Attenuation Power	6	Complies
FCC – Title 47 Part 74.861	Radiated Spurious	7	Complies

The Test Report was given to the Client representatives for necessary documentation of ratification of the tested equipment and it is valid for the FCC certification.



Power supply..... : 3 Vdc from battery

Type of equipment : ☒ Transmitter Unit ☐ Receiver Unit
 ☐ Fixed station ☒ Portable station ☐ Mobile station

Alignment range..... : 470 - 698 MHz

Switching frequency : 470 - 698 MHz

Modulation : Wideband FM, with 50 µs pre-emphasis

Information on antenna..... : ☐ Integrated
 ☒ Extern
 ☐ Other: Dedicated

Gain of ANT 507: 1 dBi (used for frequency 470,25MHz)

Gain of ANT 590: 1 dBi (used for frequency 607,75MHz and 614,25MHz)

Gain of ANT 616: 1 dBi (used for frequency 638,00MHz and 668,MHz)

Gain of ANT 772: 1 dBi (used for frequency 697,925MHz)

SAR evaluation : For standalone transmission, 1-g and 10-g SAR test exclusions may be applied in conjunction with the published RF exposure KDB 447498

- 100 MHz – 6 GHz and test separation distance ≤ 50mm

$[(\text{max power of channel, including tolerance, mW}) / (\text{min test separation distance, mm})] \times [\sqrt{f_{(\text{GHz})}}] \leq 3,0$ for 1-g and 7,5 for 10-g SAR

max power of channel, including tolerance = 48,6mW

min distance: 25mm

Fmax: 0,698 GHz

$48,6/25 \times \sqrt{0,698} = 1,6$

$1,6 \leq 3,0$ for 1-g and 7,5 for 10-g SAR

FCC ID : POUMTP40

Company: CMC Centro Misure Compatibilità S.r.l.
Address: Via dell'Elettronica, 12/C – 36016 Thiene (VI) – ITALY



3. Testing and sampling

Date of receipt of test item : 15.10.12

Testing start date : 15.10.12

Testing end date : 25.10.12

Samples tested nr. : 1

Sampling procedure. : Equipment used for testing was picked up by the manufacturer, at the end of the production process with random criterion

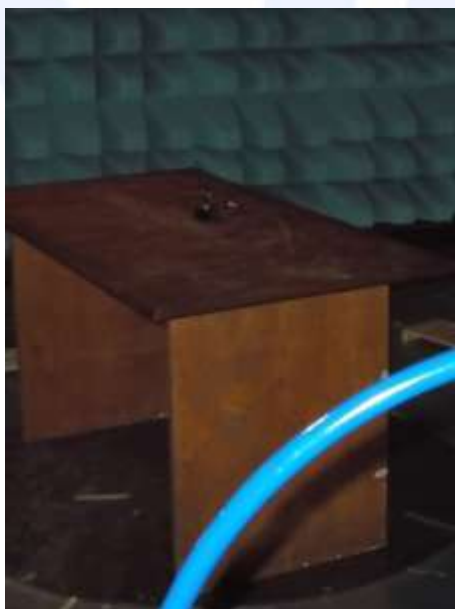
Internal identification..... : adhesive label with the product number P121074

4. Operative conditions

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5. Photograph(s) of EUT





CMC
Centro Misure Compatibilità S.r.l.
Via dell'Elettronica, 12/C
36016 Thiene (VI)





6. Equipment list

<i>Id. number</i>	<i>Manufacturer</i>	<i>Model</i>	<i>Description</i>	<i>Serial number</i>	<i>Last calibration</i>	<i>Due date calibration</i>
CMC S108	Emco	3115	Horn antenna	9811-5622	April '10	April '13
CMC S124	Spin	AMTP42-20	Horn Antenna 18-26GHz	103	May '10	May '13
CMC S127	SCHAFFNER	HLA6120	Loop Antenna	1191	January '10	January '13
CMC S136	Schwarzbeck	VULB 9163	Broadband Antenna	9136-205	May '10	May '13
CMC S164	Rohde & Schwarz	ESU 26	EMC interference receiver	100052	January '12	January '13
CMC S206	Rohde & Schwarz	ESCI 7	EMC interference receiver	100781	March '12	March '13
CMC B026	Angelantoni	UY 245 IU	Climatic chamber	1059.78	June '12	June '13
CMC A201	Audio Precision System	Two 272	Audio analyzer	SYS2-32408	June '12	June '15



7. Measurement uncertainty

Test	Expanded Uncertainty	note
Conducted Emission		
(50Ω/50μH AMN) - (9 kHz – 150 kHz)	±3.8 dB	1
(50Ω/50μH AMN) - (150 kHz – 30 MHz)	±3.4 dB	1
(Voltage probe) - (150 kHz – 30 MHz)	±3.0 dB	1
(50Ω/5μH AMN) - (150 kHz – 108 MHz)	±3.2 dB	1
Discontinuous Conducted Emission		
Conducted Emission (50Ω/50μH AMN) - (9 kHz – 150 kHz)	±3.8 dB	1
Conducted Emission (50Ω/50μH AMN) - (150 kHz – 30 MHz)	±3.4 dB	1
Disturbance Power (30 MHz – 300 MHz)		
	±3.2 dB	1
Radiated Emission		
(0,150 MHz – 30 MHz)	±4.5 dB	1
(30 MHz – 1000 MHz)	±4.8 dB	1
(1 GHz – 6 GHz)	±4.4 dB	1
Electromagnetic field EMF		
	±18.8 dB	1
Harmonic current emissions test		
	±2.4 %	1
Voltage fluctuation and flicker test		
	±6.0 %	1
Insertion loss test		
	±2.6 %	1
Radiated electromagnetic disturbance test (loop antenna)		
	±2.5 %	1
Radiated electromagnetic field immunity test		
	0.9 V/m at 3V/m	1
Pulse modulated radiated electromagnetic field immunity test		
	0.9 V/m at 3V/m	1
Injected currents immunity test		
	0.6 V at 3V	1
Bulk current		
	9 mA at 60 mA	1
Power frequency magnetic field immunity test		
	0.3 A/m at 3 A/m	1
Electrostatic discharge immunity test		
		2
Electrical fast transients / burst immunity test		
		2
Surge immunity test		
		2
Short interruption immunity test		
		2
Voltage transient emission test		
	±5 %	1
Transient immunity test		
		2

Notes

Note 1:

The expanded uncertainty reported according to EN55016-4-2(2004-10) is based on a standard uncertainty multiplied by a coverage factor of $k=2$, providing a level of confidence of $p = 95\%$

Note 2:

It has been demonstrated that the used test equipment meets the specified requirements in the standard with at least a 95% confidence, covering factor $k = 2$.



8. Reference documents

Reference no.	Description
FCC Rules and Regulation Title 47 part 74 (2011)	--
Internal Procedure PM001 rev. 2.0 (Quality Manual)	Measure Procedure
Internal procedure INC_M rev. 8.1 (Quality Manual)	Measurement uncertainty calculation





9. Deviation from test specification

In agreement with the client, emission tests were performed with peak detector .
At the frequencies where the measures exceed the limit or within 6dB from it, the test was repeated with quasi-peak detector and/or average detector.

10. Test case verdicts

Test case does not apply to the test object..... : N / N.A.

Test item does meet the requirement..... : P / Pass / Complies

Test item does not meet the requirement..... : F / Fail / Does not comply

Test not performed : NE / Not Executed

11. Results

In this clause tests results are reported.

Measurement uncertainty is in accordance with document CMC INC_M rev. 8.1.



11.1 Peak Output Power (Conducted)

Test configuration and test method

Test site

Laboratory

Auxiliary equipment

See clause 4 of this test report

Environmental conditions

Temperature 20 °C Atmospheric pressure 98 kPa Relative humidity 49 %

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 74.861 (e)(1)(ii)
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Antenna;

EUT exercising

See clause 4 of this test report

Acceptance limits

Frequency range	RF power output
470 - 608 MHz 614 – 698 MHz	250 mW



Result

Frequency (MHz)	Mod. Antenna	Graphs	Peak Output Power (dBm)	Peak Output Power (mW)	Remark
470,25	ANT 507	G12157684	15,87	38,6	--
607,75	ANT 590	G12157685	15,89	38,8	--
614,25	ANT 590	G12157681	15,47	35,2	--
638,00	ANT 616	G12157680	15,58	36,1	--
668,00	ANT 616	G12157682	15,33	34,1	--
697,925	ANT 772	G12157683	15,21	33,2	--
Measurement uncertainty: $\pm 1\text{dBm}$					

Remarks

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Reference documents

See clause 8 of this test report

Test equipment used (Id number – see clause 6 of this test report)

CMC S206

Result

The requirements are met



11.2 Frequency Error vs. Voltage

Test configuration and test method

Test site

Laboratory

Auxiliary equipment

See clause 4 of this test report

Environmental conditions

Temperature 19 °C Atmospheric pressure 98 kPa Relative humidity 48 %

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 74.861 (e)(4)
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Antenna;

EUT exercising

See clause 4 of this test report

Acceptance limits

The frequency tolerance of the transmitter shall be 0,005 percent

Result

Frequency (MHz)	Mod. Antenna	Voltage (V)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
470,25	ANT 507	1,8	260	0,000055	0,55
470,25	ANT 507	2,0	260	0,000055	0,55
470,25	ANT 507	2,2	280	0,000060	0,60
470,25	ANT 507	2,4	260	0,000055	0,55
470,25	ANT 507	2,6	260	0,000055	0,55
470,25	ANT 507	2,8	240	0,000051	0,51
470,25	ANT 507	3,0	240	0,000051	0,51
470,25	ANT 507	3,1	260	0,000055	0,55
470,25	ANT 507	3,3	260	0,000055	0,55
470,25	ANT 507	3,5	240	0,000051	0,51



<i>Frequency (MHz)</i>	<i>Mod. Antenna</i>	<i>Voltage (V)</i>	<i>Frequency Error (Hz)</i>	<i>Frequency Error (%)</i>	<i>Frequency Error (ppm)</i>
607,75	ANT 590	1,8	340	0,000056	0,56
607,75	ANT 590	2,0	360	0,000059	0,59
607,75	ANT 590	2,2	300	0,000049	0,49
607,75	ANT 590	2,4	340	0,000056	0,56
607,75	ANT 590	2,6	320	0,000053	0,53
607,75	ANT 590	2,8	340	0,000056	0,56
607,75	ANT 590	3,0	340	0,000056	0,56
607,75	ANT 590	3,1	320	0,000053	0,53
607,75	ANT 590	3,3	320	0,000053	0,53
607,75	ANT 590	3,5	300	0,000049	0,49

<i>Frequency (MHz)</i>	<i>Mod. Antenna</i>	<i>Voltage (V)</i>	<i>Frequency Error (Hz)</i>	<i>Frequency Error (%)</i>	<i>Frequency Error (ppm)</i>
614,25	ANT 590	1,8	340	0,000055	0,55
614,25	ANT 590	2,0	300	0,000049	0,49
614,25	ANT 590	2,2	340	0,000055	0,55
614,25	ANT 590	2,4	360	0,000059	0,59
614,25	ANT 590	2,6	340	0,000055	0,55
614,25	ANT 590	2,8	380	0,000062	0,62
614,25	ANT 590	3,0	340	0,000055	0,55
614,25	ANT 590	3,1	320	0,000052	0,52
614,25	ANT 590	3,3	340	0,000055	0,55
614,25	ANT 590	3,5	320	0,000052	0,52

<i>Frequency (MHz)</i>	<i>Mod. Antenna</i>	<i>Voltage (V)</i>	<i>Frequency Error (Hz)</i>	<i>Frequency Error (%)</i>	<i>Frequency Error (ppm)</i>
638,00	ANT 616	1,8	340	0,000053	0,53
638,00	ANT 616	2,0	340	0,000053	0,53
638,00	ANT 616	2,2	380	0,000060	0,60
638,00	ANT 616	2,4	340	0,000053	0,53
638,00	ANT 616	2,6	340	0,000053	0,53
638,00	ANT 616	2,8	360	0,000056	0,56
638,00	ANT 616	3,0	340	0,000053	0,53
638,00	ANT 616	3,1	360	0,000056	0,56
638,00	ANT 616	3,3	360	0,000056	0,56
638,00	ANT 616	3,5	340	0,000053	0,53



<i>Frequency (MHz)</i>	<i>Mod. Antenna</i>	<i>Voltage (V)</i>	<i>Frequency Error (Hz)</i>	<i>Frequency Error (%)</i>	<i>Frequency Error (ppm)</i>
668,00	ANT 616	1,8	60	0,000009	0,09
668,00	ANT 616	2,0	80	0,000012	0,12
668,00	ANT 616	2,2	100	0,000015	0,15
668,00	ANT 616	2,4	60	0,000009	0,09
668,00	ANT 616	2,6	80	0,000012	0,12
668,00	ANT 616	2,8	80	0,000012	0,12
668,00	ANT 616	3,0	80	0,000012	0,12
668,00	ANT 616	3,1	80	0,000012	0,12
668,00	ANT 616	3,3	60	0,000009	0,09
668,00	ANT 616	3,5	100	0,000015	0,15

<i>Frequency (MHz)</i>	<i>Mod. Antenna</i>	<i>Voltage (V)</i>	<i>Frequency Error (Hz)</i>	<i>Frequency Error (%)</i>	<i>Frequency Error (ppm)</i>
697,925	ANT 772	1,8	60	0,000009	0,09
697,925	ANT 772	2,0	100	0,000014	0,14
697,925	ANT 772	2,2	60	0,000009	0,09
697,925	ANT 772	2,4	80	0,000011	0,11
697,925	ANT 772	2,6	80	0,000011	0,11
697,925	ANT 772	2,8	100	0,000014	0,14
697,925	ANT 772	3,0	100	0,000014	0,14
697,925	ANT 772	3,1	100	0,000014	0,14
697,925	ANT 772	3,3	100	0,000014	0,14
697,925	ANT 772	3,5	80	0,000011	0,11

Remarks

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Reference documents

See clause 8 of this test report

Test equipment used (Id number – see clause 6 of this test report)

CMC S206

Result

The requirements are met



11.3 Frequency Error vs. Temperature

Test configuration and test method

Test site

Laboratory

Auxiliary equipment

See clause 4 of this test report

Environmental conditions

Temperature 19 °C Atmospheric pressure 98 kPa Relative humidity 48 %

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 74.861 (e)(4)
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Antenna;

EUT exercising

See clause 4 of this test report

Acceptance limits

The frequency tolerance of the transmitter shall be 0,005 percent

Result

Frequency (MHz)	Mod. Antenna	Temperature (°C)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
470,25	ANT 507	-10	278	0,000059	0,59
470,25	ANT 507	0	280	0,000060	0,60
470,25	ANT 507	+10	280	0,000060	0,60
470,25	ANT 507	+20	280	0,000060	0,60
470,25	ANT 507	+30	280	0,000060	0,60
470,25	ANT 507	+40	280	0,000060	0,60
470,25	ANT 507	+50	280	0,000060	0,60
470,25	ANT 507	+55	280	0,000060	0,60



Frequency (MHz)	Mod. Antenna	Temperature (°C)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
607,75	ANT 590	-10	400	0,000066	0,66
607,75	ANT 590	0	400	0,000066	0,66
607,75	ANT 590	+10	400	0,000066	0,66
607,75	ANT 590	+20	400	0,000066	0,66
607,75	ANT 590	+30	400	0,000066	0,66
607,75	ANT 590	+40	400	0,000066	0,66
607,75	ANT 590	+50	400	0,000066	0,66
607,75	ANT 590	+55	400	0,000066	0,66

0

Frequency (MHz)	Mod. Antenna	Temperature (°C)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
614,25	ANT 590	-10	400	0,000065	0,65
614,25	ANT 590	0	400	0,000065	0,65
614,25	ANT 590	+10	400	0,000065	0,65
614,25	ANT 590	+20	400	0,000065	0,65
614,25	ANT 590	+30	400	0,000065	0,65
614,25	ANT 590	+40	400	0,000065	0,65
614,25	ANT 590	+50	400	0,000065	0,65
614,25	ANT 590	+55	400	0,000065	0,65

Frequency (MHz)	Mod. Antenna	Temperature (°C)	Frequency Error (Hz)	Frequency Error (%)	Frequency Error (ppm)
638,00	ANT 616	-10	400	0,000063	0,63
638,00	ANT 616	0	400	0,000063	0,63
638,00	ANT 616	+10	400	0,000063	0,63
638,00	ANT 616	+20	400	0,000063	0,63
638,00	ANT 616	+30	400	0,000063	0,63
638,00	ANT 616	+40	400	0,000063	0,63
638,00	ANT 616	+50	400	0,000063	0,63
638,00	ANT 616	+55	400	0,000063	0,63



<i>Frequency (MHz)</i>	<i>Mod. Antenna</i>	<i>Temperature (°C)</i>	<i>Frequency Error (Hz)</i>	<i>Frequency Error (%)</i>	<i>Frequency Error (ppm)</i>
668,00	ANT 616	-10	0	0,000000	0
668,00	ANT 616	0	0	0,000000	0
668,00	ANT 616	+10	0	0,000000	0
668,00	ANT 616	+20	0	0,000000	0
668,00	ANT 616	+30	0	0,000000	0
668,00	ANT 616	+40	0	0,000000	0
668,00	ANT 616	+50	0	0,000000	0
668,00	ANT 616	+55	0	0,000000	0

<i>Frequency (MHz)</i>	<i>Mod. Antenna</i>	<i>Temperature (°C)</i>	<i>Frequency Error (Hz)</i>	<i>Frequency Error (%)</i>	<i>Frequency Error (ppm)</i>
697,925	ANT 772	-10	400	0,000057	0,57
697,925	ANT 772	0	0	0,000000	0
697,925	ANT 772	+10	0	0,000000	0
697,925	ANT 772	+20	0	0,000000	0
697,925	ANT 772	+30	0	0,000000	0
697,925	ANT 772	+40	0	0,000000	0
697,925	ANT 772	+50	0	0,000000	0
697,925	ANT 772	+55	0	0,000000	0

Remarks

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Reference documents

See clause 8 of this test report

Test equipment used (Id number – see clause 6 of this test report)

CMC S206, CMC B026

Result

The requirements are met



11.4 Characteristic of the Audio Modulation Circuitry

Test configuration and test method

Test site

Auxiliary equipment

Laboratory

See clause 4 of this test report

Environmental conditions

Temperature 19 °C Atmospheric pressure 98 kPa Relative humidity 48 %

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 74.861 (e3)
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Antenna;

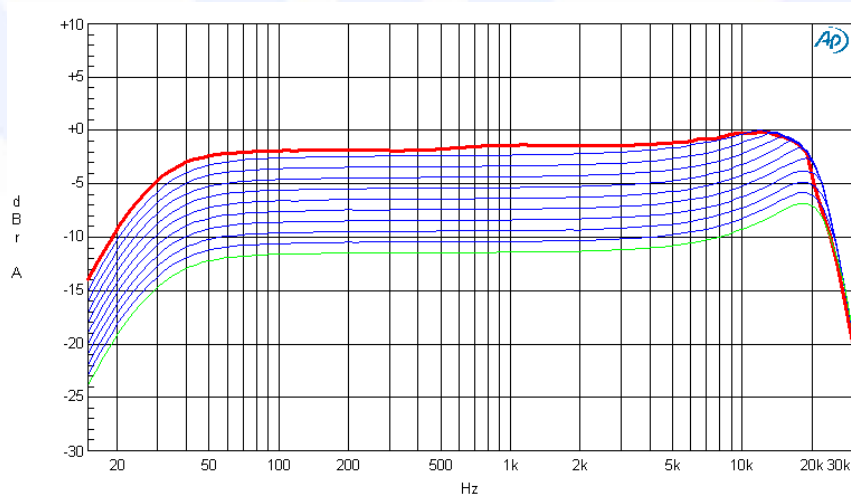
EUT exercising

See clause 4 of this test report

Acceptance limits

Max deviation ± 75 kHz

Result



Sweep	Trace	Color	Line Style	Thick	Data	Axis	Comment
1	1	Red	Solid	3	Anlr.Ampl	Left	30% max mod + 20dB
2	1	Blue	Solid	1	Anlr.Ampl	Left	30% max mod + 18dB
3	1	Blue	Solid	1	Anlr.Ampl	Left	30% max mod + 16dB
4	1	Blue	Solid	1	Anlr.Ampl	Left	30% max mod + 14dB
5	1	Blue	Solid	1	Anlr.Ampl	Left	30% max mod + 12dB
6	1	Blue	Solid	1	Anlr.Ampl	Left	30% max mod + 10dB
7	1	Blue	Solid	1	Anlr.Ampl	Left	30% max mod + 8dB
8	1	Blue	Solid	1	Anlr.Ampl	Left	30% max mod + 6dB
9	1	Blue	Solid	1	Anlr.Ampl	Left	30% max mod + 4dB
10	1	Blue	Solid	1	Anlr.Ampl	Left	30% max mod + 2dB
11	1	Green	Solid	1	Anlr.Ampl	Left	30% max mod



CMC
Centro Misure Compatibilità S.r.l.
Via dell'Elettronica, 12/C
36016 Thiene (VI)

Remarks

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Reference documents

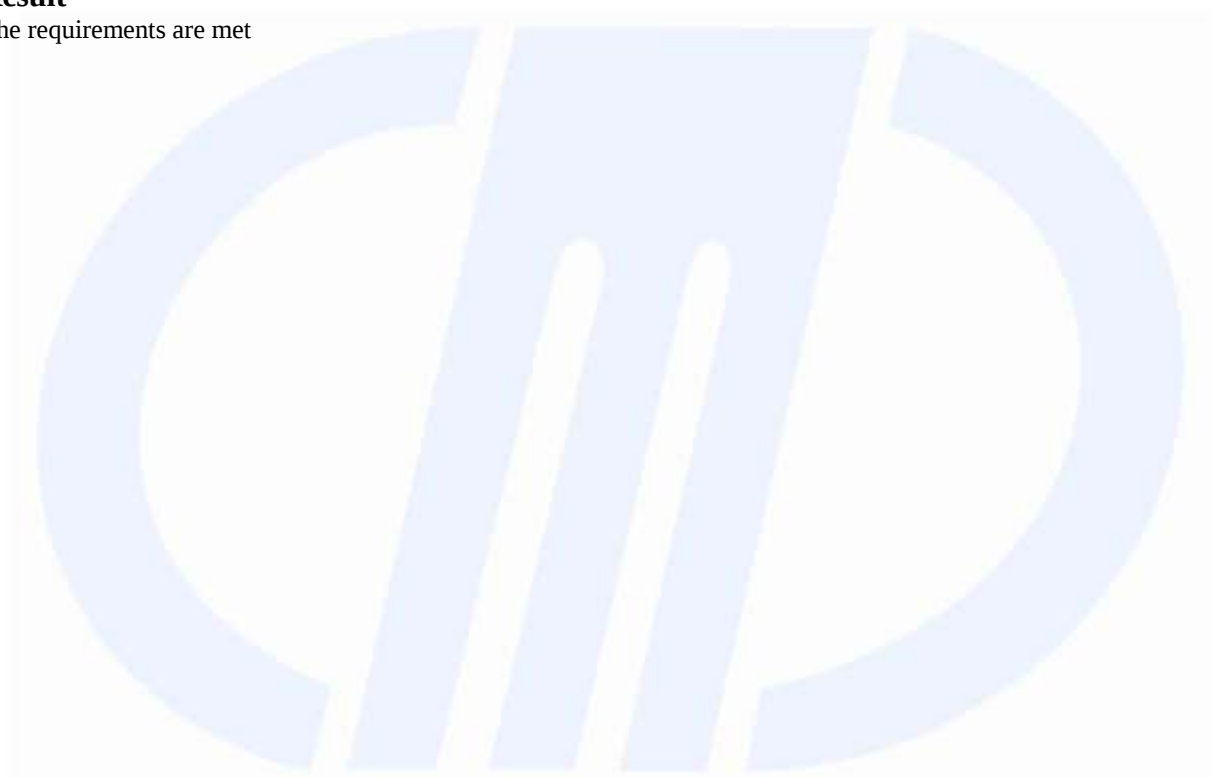
See clause 8 of this test report

Test equipment used (Id number – see clause 6 of this test report)

CMC A201

Result

The requirements are met



CMC Centro Misure Compatibilità S.r.l.



11.5 Occupied Bandwidth

Test configuration and test method

Test site Semi-Anechoic chamber
Auxiliary equipment See clause 4 of this test report

Environmental conditions

Temperature 20 °C Atmospheric pressure 98 kPa Relative humidity 46 %

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 74.861 (e)(5)
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Antenna;

EUT exercising

See clause 4 of this test report

Acceptance limits

The operating bandwidth shall not exceed 200kHz

Result

Frequency (MHz)	Mod. Antenna	Graph(s)	Bandwidth	Remark
470,250	ANT 507	G12157671	151 kHz	--
607,750	ANT 590	G12157652	150 kHz	--
614,250	ANT 590	G12157654	150 kHz	--
638,000	ANT 616	G12157658	152 kHz	--
668,000	ANT 616	G12157663	152 kHz	--
697,925	ANT 772	G12157666	151 kHz	--

Measurement uncertainty: ± 1 kHz

Remarks

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Reference documents

See clause 8 of this test report

Test equipment used (Id number – see clause 6 of this test report)

CMC S206

Result

The requirements are met



11.6 Attenuation Power

Test configuration and test method

Test site

Semi-Anechoic chamber

Auxiliary equipment

See clause 4 of this test report

Environmental conditions

Temperature 20 °C

Atmospheric pressure 98 kPa

Relative humidity 46 %

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 74.861 (e)(6)
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Antenna;

EUT exercising

See clause 4 of this test report

Acceptance limits

$f \pm 100\text{kHz}$ to $f \pm 200\text{ kHz}$	$f \pm 200\text{kHz}$ to $f \pm 500\text{ kHz}$	$f \pm 500\text{ kHz}$
25 dBc	35dBc	$-43 + 10\log_{10}$ (mean output power in watts) dB below the mean output power

Result

Frequency (MHz)	Mod. Antenna	Graph(s)	Remark
470,250	ANT 507	G12157670	--
607,750	ANT 590	G12157653	--
614,250	ANT 590	G12157657	--
638,000	ANT 616	G12157661	--
668,000	ANT 616	G12157662	--
697,925	ANT 772	G12157669	--
Measurement uncertainty: $\pm 1\text{ kHz}$			

Remarks //

Reference documents

See clause 8 of this test report

Test equipment used (Id number – see clause 6 of this test report)

CMC S206

Result

The requirements are met



11.7 Radiated Spurious (Transmitter)

Test configuration and test method

Test site Semi-anechoic chamber
Auxiliary equipment See clause 4 of this test report

Environmental conditions

Temperature 22 °C Atmospheric pressure 99 kPa Relative humidity 48 %

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 74.861 (e)(6)
- Internal Procedure PM001
- See clause 4 of this test report

Test specification

Port: Antenna;

EUT exercising

See clause 4 of this test report

Acceptance limits

$f \pm 100\text{kHz}$ to $f \pm 200\text{ kHz}$	$f \pm 200\text{kHz}$ to $f \pm 500\text{ kHz}$	$f \pm 500\text{ kHz}$
25 dBc	35dBc	$-43 + 10\log_{10}$ (mean output power in watts) dB below the mean output power

Result

Antenna	Frequency Range (MHz)	Graph(s)	Remarks	Result
Loop Antenna	9kHz – 30MHz	G12157629	--	Complies

Frequency (MHz)	Polarization	Frequency Range (MHz)	Graph(s)	Limits (dBm)	Result
470,250	Worst case, Vert	25 – 1000	G12157617	-13,0	Complies
607,750	Worst case, Vert	25 – 1000	G12157619	-13,0	Complies
614,250	Worst case, Vert	25 – 1000	G12157621	-13,0	Complies
638,000	Worst case, Vert	25 – 1000	G12157623	-13,0	Complies
668,000	Worst case, Vert	25 – 1000	G12157625	-13,0	Complies
697,925	Worst case, Vert	25 – 1000	G12157627	-13,0	Complies

Frequency (MHz)	Polarization	Frequency Range (GHz)	Graph(s)	Limits (dBm)	Result
470,250	Worst case, Vert	1 – 12,5	G12157618	-13,0	Complies
607,750	Worst case, Vert	1 – 12,5	G12157620	-13,0	Complies
614,250	Worst case, Vert	1 – 12,5	G12157622	-13,0	Complies
638,000	Worst case, Vert	1 – 12,5	G12157624	-13,0	Complies
668,000	Worst case, Vert	1 – 12,5	G12157626	-13,0	Complies
697,925	Worst case, Vert	1 – 12,5	G12157628	-13,0	Complies



Nr.	AV level (dBμV/m)						Remark
Harmonics	470,250 MHz		607,750 MHz		614,250 MHz		
	Frequency	(dBμV/m)	Frequency	(dBμV/m)	Frequency	(dBμV/m)	
II Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
III Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
IV Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
V Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VI Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VII Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VIII Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
IX Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
X Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--

Nr. Harmonics	AV level (dBμV/m)						Remark
	638,000 MHz		668,000 MHz		697,925 MHz		
	Frequency	(dBμV/m)	Frequency	(dBμV/m)	Frequency	(dBμV/m)	
II Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
III Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
IV Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
V Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VI Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VII Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VIII Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
IX Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
X Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--



Nr.	PK level (dBμV/m)						Remark
Harmonics	470,250 MHz		607,750 MHz		614,250 MHz		
	Frequency	(dBμV/m)	Frequency	(dBμV/m)	Frequency	(dBμV/m)	
II Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
III Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
IV Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
V Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VI Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VII Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VIII Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
IX Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
X Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--

Nr.	PK level (dBμV/m)						Remark
Harmonics	638,000 MHz		668,000 MHz		697,925 MHz		
	Frequency	(dBμV/m)	Frequency	(dBμV/m)	Frequency	(dBμV/m)	
II Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
III Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
IV Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
V Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VI Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VII Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
VIII Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
IX Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--
X Harmonic	--	More than 15dB below limit	--	More than 15dB below limit	--	More than 15dB below limit	--



Remarks

EUT was tested in 3 orthogonal planes. In results table are reported the worst case.

Reference documents

See clause 8 of this test report

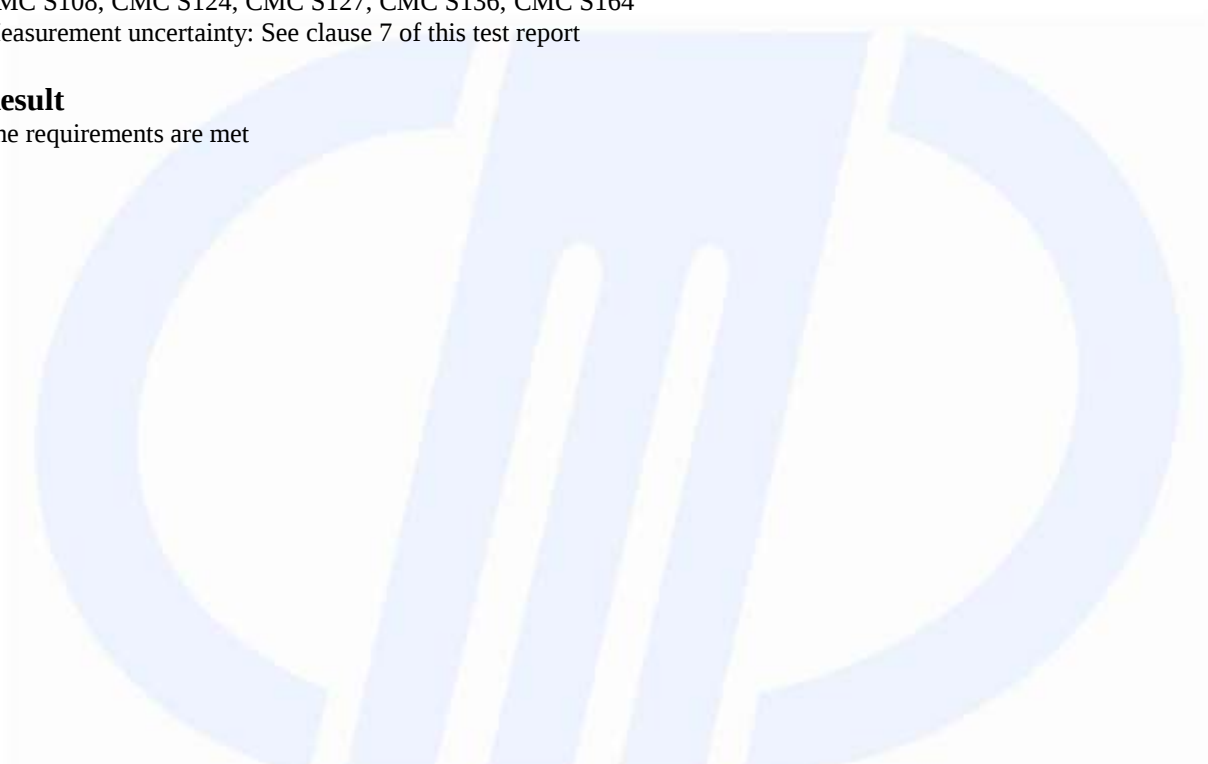
Test equipment used (Id number – see clause 6 of this test report)

CMC S108, CMC S124, CMC S127, CMC S136, CMC S164

Measurement uncertainty: See clause 7 of this test report

Result

The requirements are met

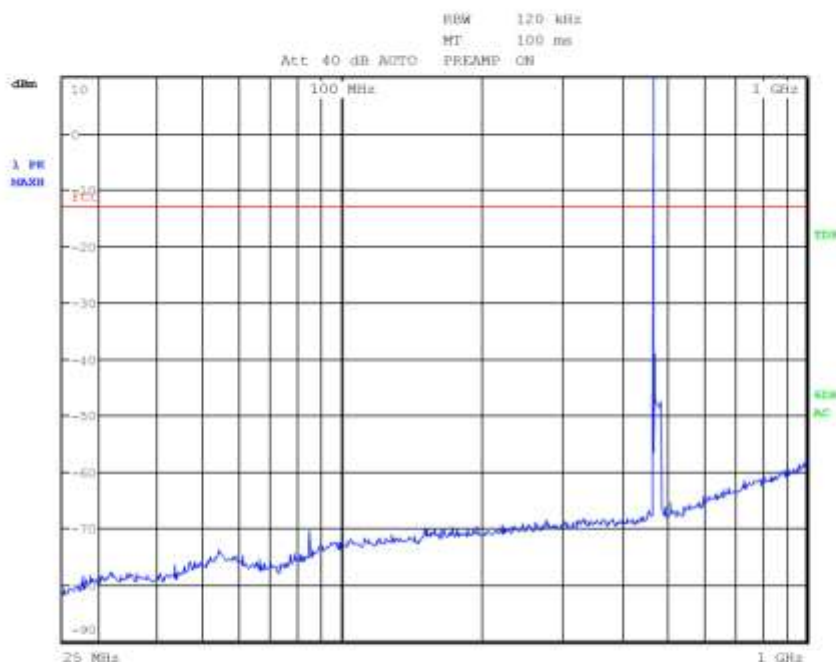




12. Graphs and Tables

G12157617

Meas Type
Equipment under Test
Manufacturer
OP Condition $f = 470.25\text{MHz}$
Operator Bertezolo 12157617
Test Spec



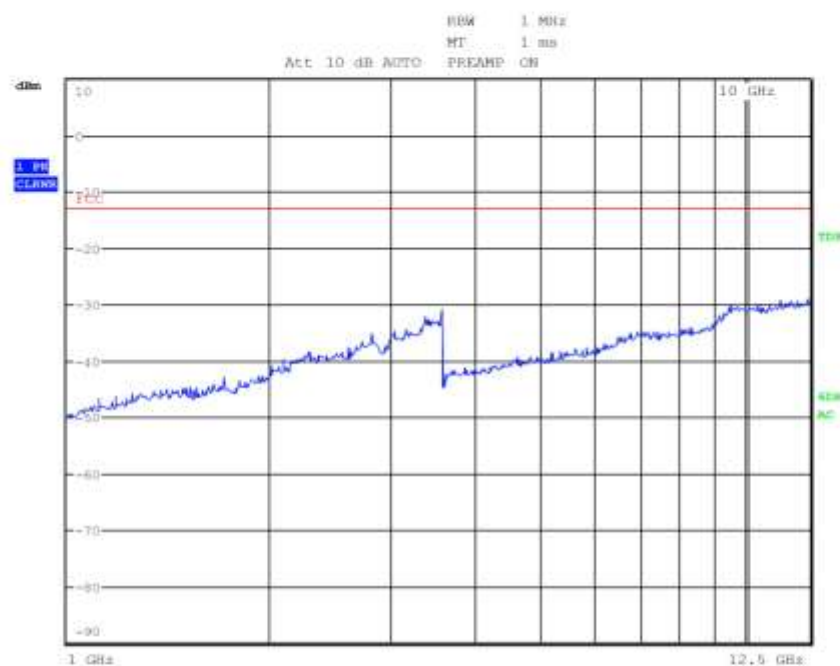
Final Measurement

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



G12157618

Meas Type
Equipment under Test
Manufacturer
OP Condition $f = 470.25\text{MHz}$
Operator Bertezolo 12157618
Test Spec



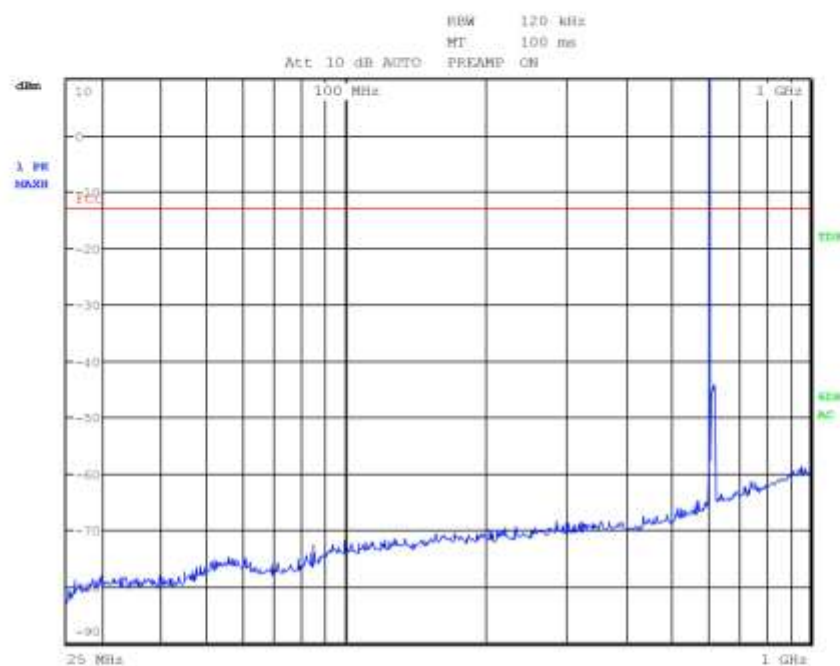
Final Measurement

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



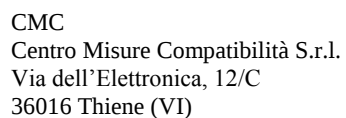
G12157619

Meas Type
Equipment under Test
Manufacturer
OP Condition $f = 607.75\text{MHz}$
Operator Bertezolo 12157619
Test Spec



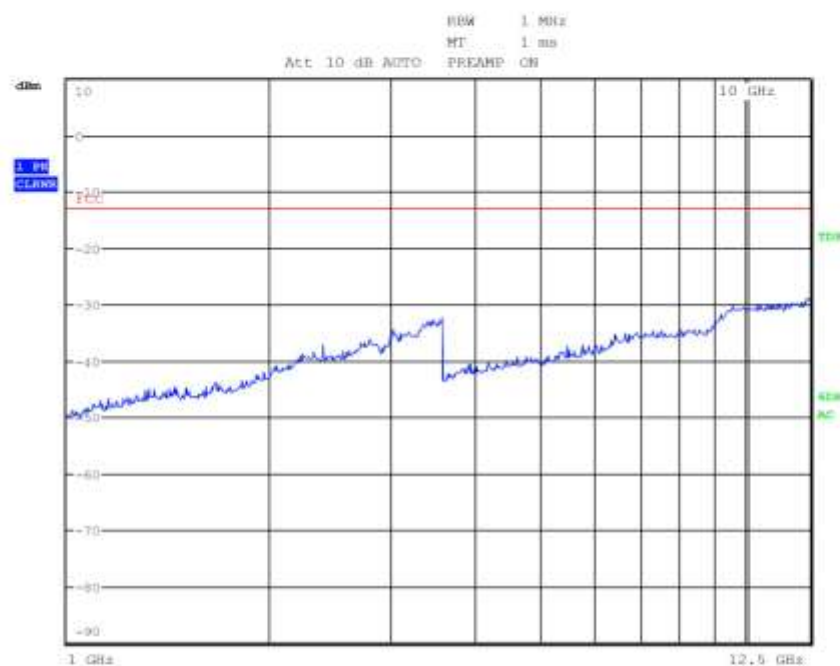
Final Measurement

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



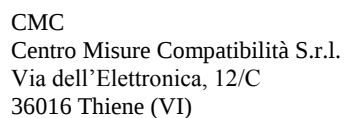
G12157620

Meas Type	
Equipment under Test	
Manufacturer	
OP Condition	f = 607.25MHz
Operator	Bertezzo 12157620
Test Spec	



Final Measurement

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



BW 120 kHz
 T 100 ms
 REAMP ON

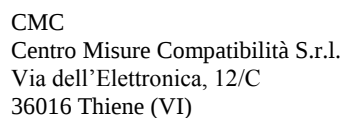
1 GHz

1 GHz

1 GHz

1 GHz

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



BW 1.80 Hz
 RT 1 ms
 PREAMP ON

10 GHz

TDR

AC

12.5 GHz

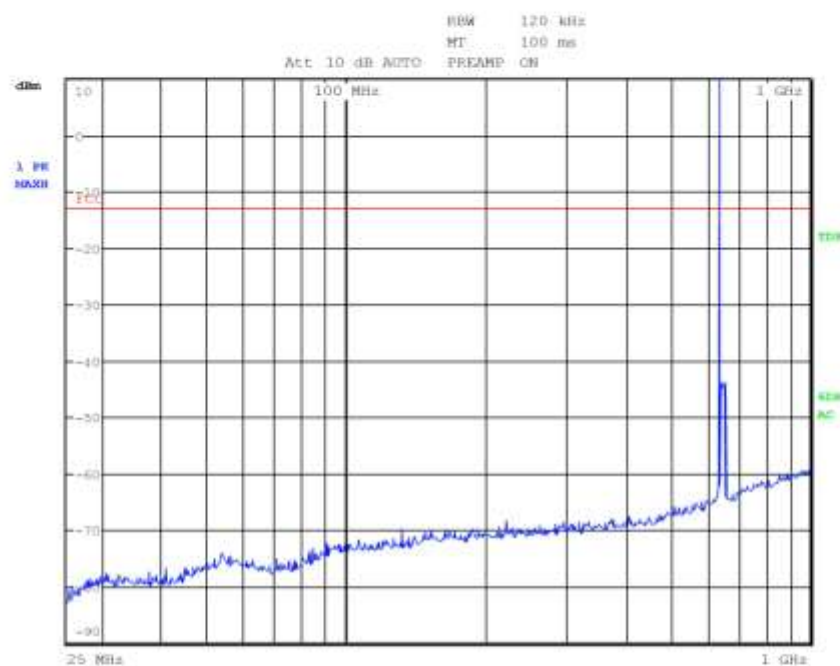
Meas Time: 1 s
Margin: 6 dB
Peaks: 0



G12157623

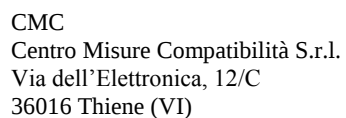
Meas Type
Equipment under Test
Manufacturer
OP Condition
Operator
Test Spec

f = 638.00MHz
Bertezolo 12157623



Final Measurement

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



BW 1.80 Hz
 RT 1 ms
 PREAMP ON

10 GHz

TDR

AC

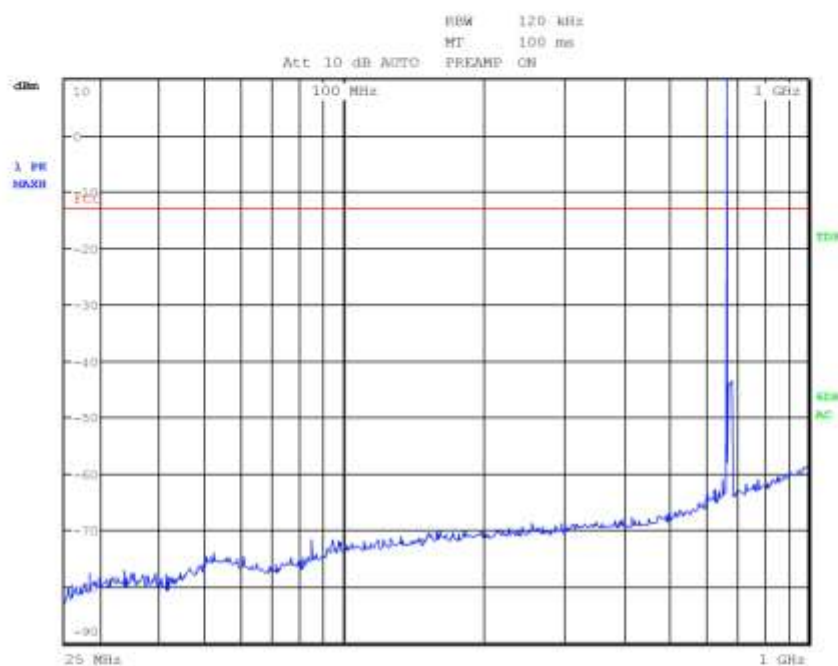
12.5 GHz

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



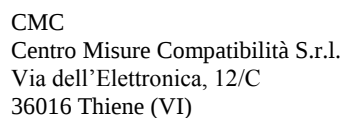
G12157625

Meas Type
Equipment under Test
Manufacturer
OP Condition $f = 668.00\text{MHz}$
Operator Bertezolo 12157625
Test Spec



Final Measurement

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



BW 1.00 Hz
 FT 1 ms
 REAMP ON

10 GHz

40 dB

AC

12.5 GHz

Att 10 dB AUTO PREAMP ON

RBW 1 MHz
MT 1 ms

10 GHz

10 dB
CLEAN

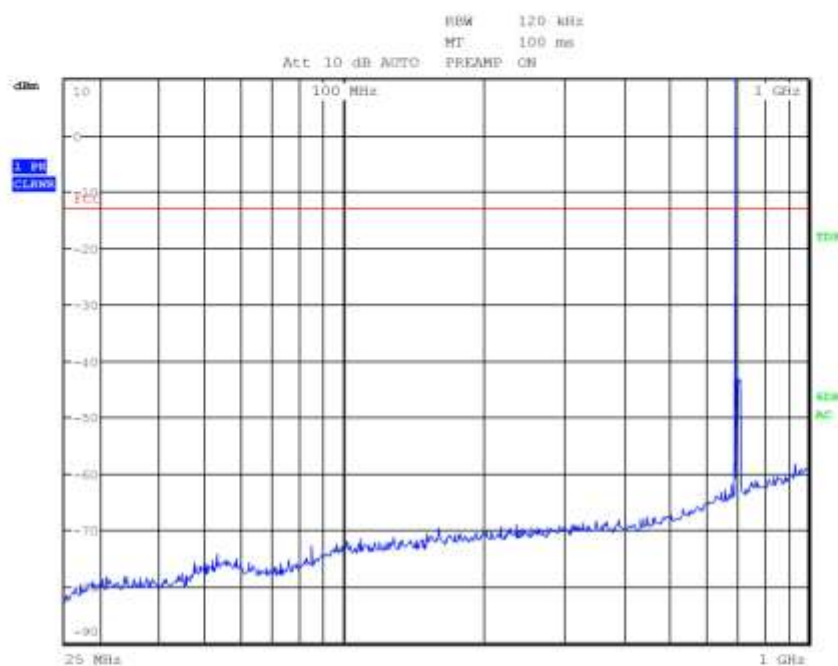
1 GHz 12.5 GHz

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



G12157627

Meas Type
Equipment under Test
Manufacturer
OP Condition $f = 697.925\text{MHz}$
Operator Bertezolo 12157627
Test Spec



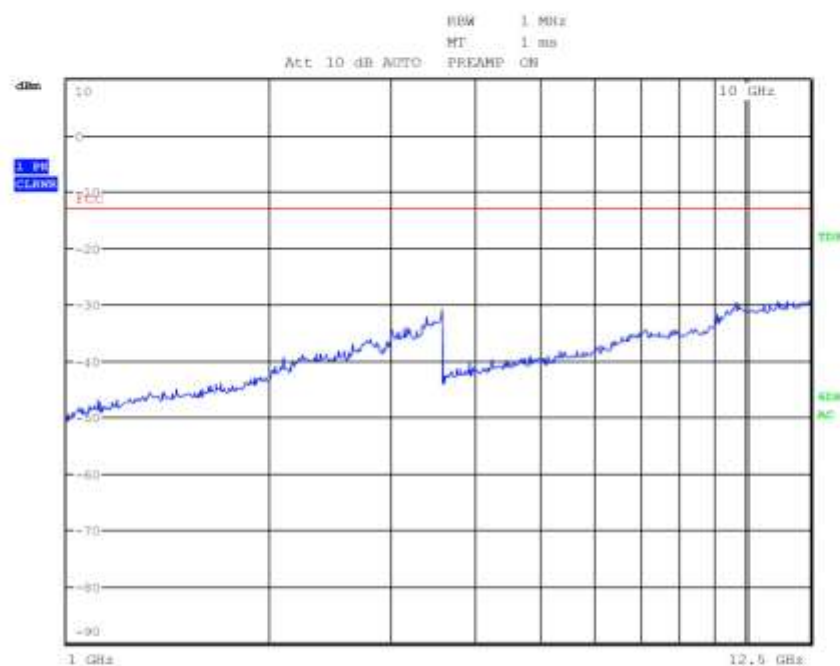
Final Measurement

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



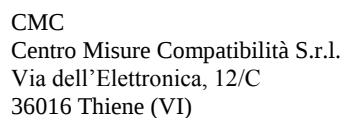
G12157628

Meas Type
Equipment under Test
Manufacturer
OP Condition $f = 697.925\text{MHz}$
Operator Bertezolo 12157628
Test Spec



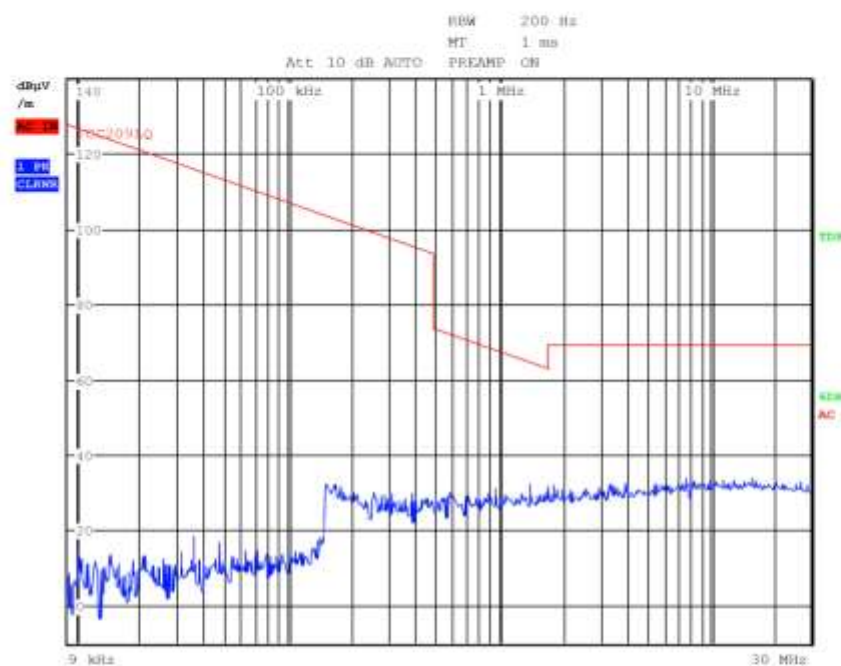
Final Measurement

Meas Time: 1 s
Margin: 6 dB
Peaks: 0



G12157629

Meas Type
Equipment under Test
Manufacturer
OP Condition
Operator Bertezzo 12157629
Test Spec



Final Measurement

Meas Time: 1 s
Margin: 6 dB
Peaks: 0

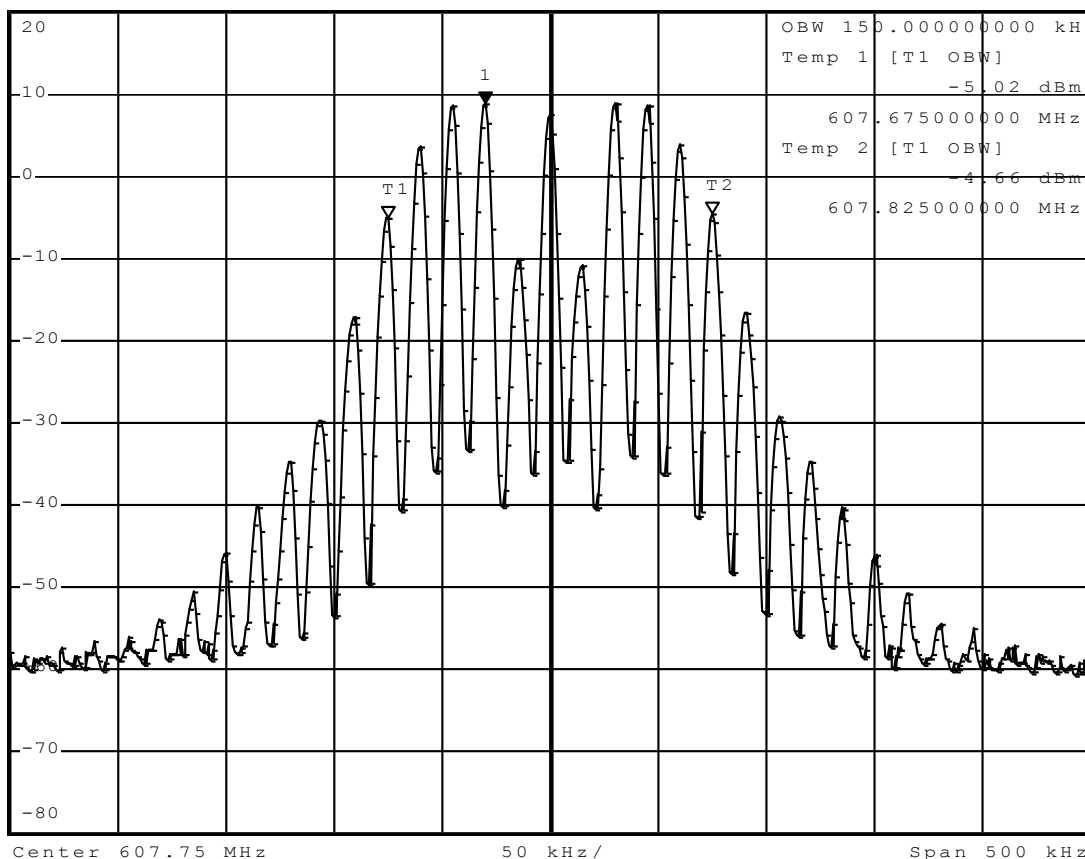


G12157652



*RBW 3 kHz Marker 1 [T1]
*VBW 3 kHz 8.90 dBm
Ref 20 dBm *Att 30 dB SWT 115 ms 607.720000000 MHz

1 PK
VIEW



PRN



G12157653



* RBW 3 kHz

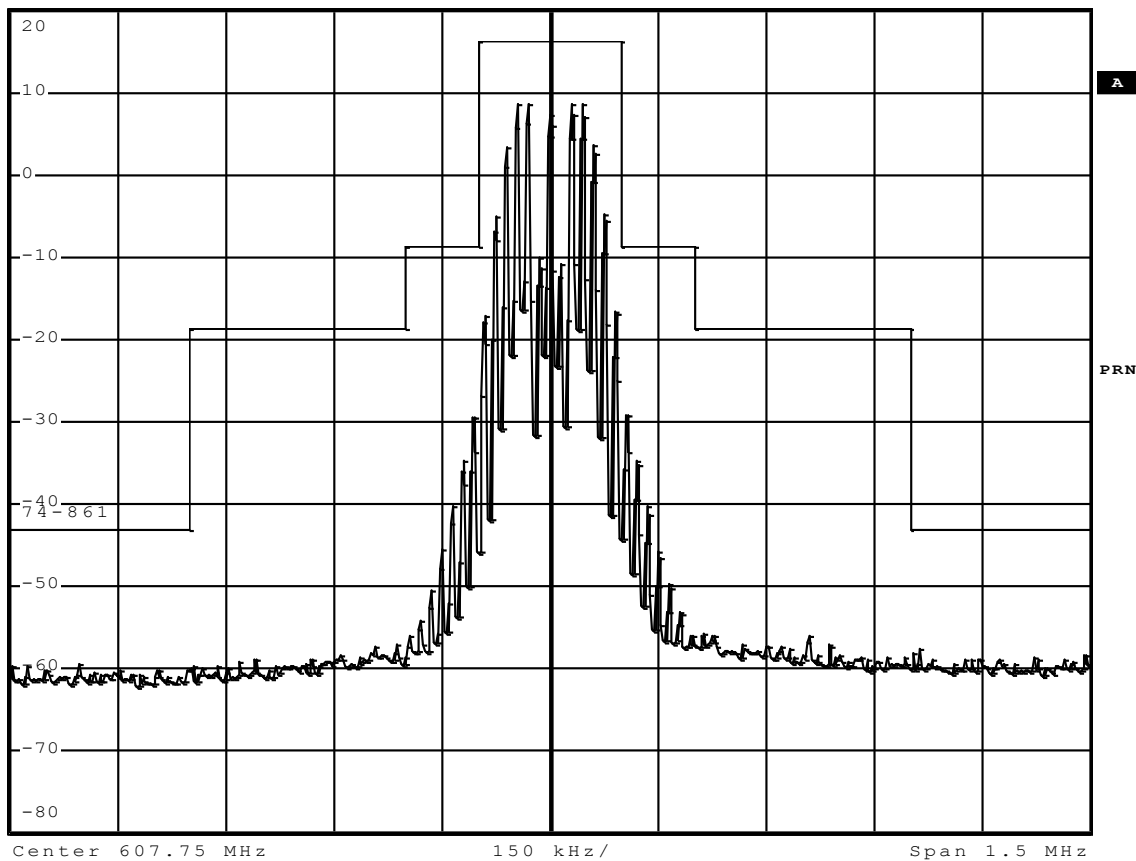
* VBW 3 kHz

Ref 20 dBm

* Att 30 dB

SWT 170 ms

1 PK
MAXH



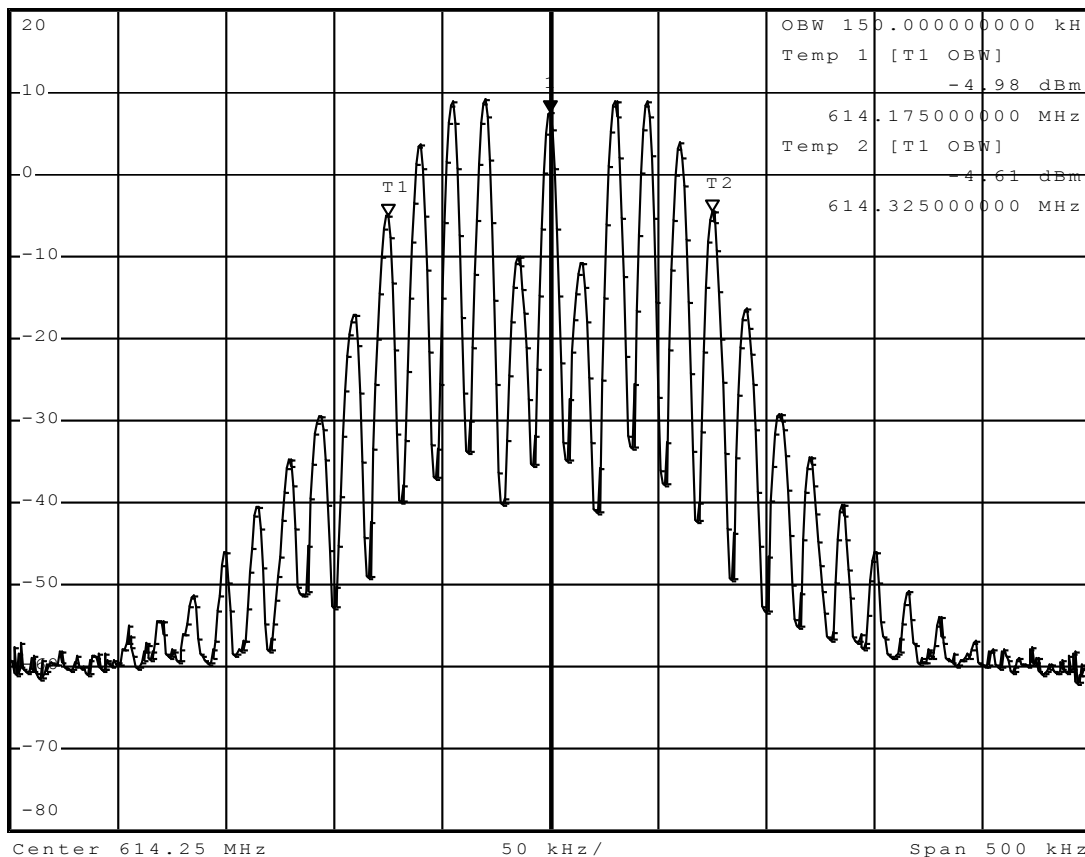


G12157654



1 PK
VIEW

Ref 20 dBm *Att 30 dB *RBW 3 kHz *VBW 3 kHz Marker 1 [T1] 7.48 dBm
SWT 115 ms 614.250000000 MHz





G12157657



* RBW 3 kHz

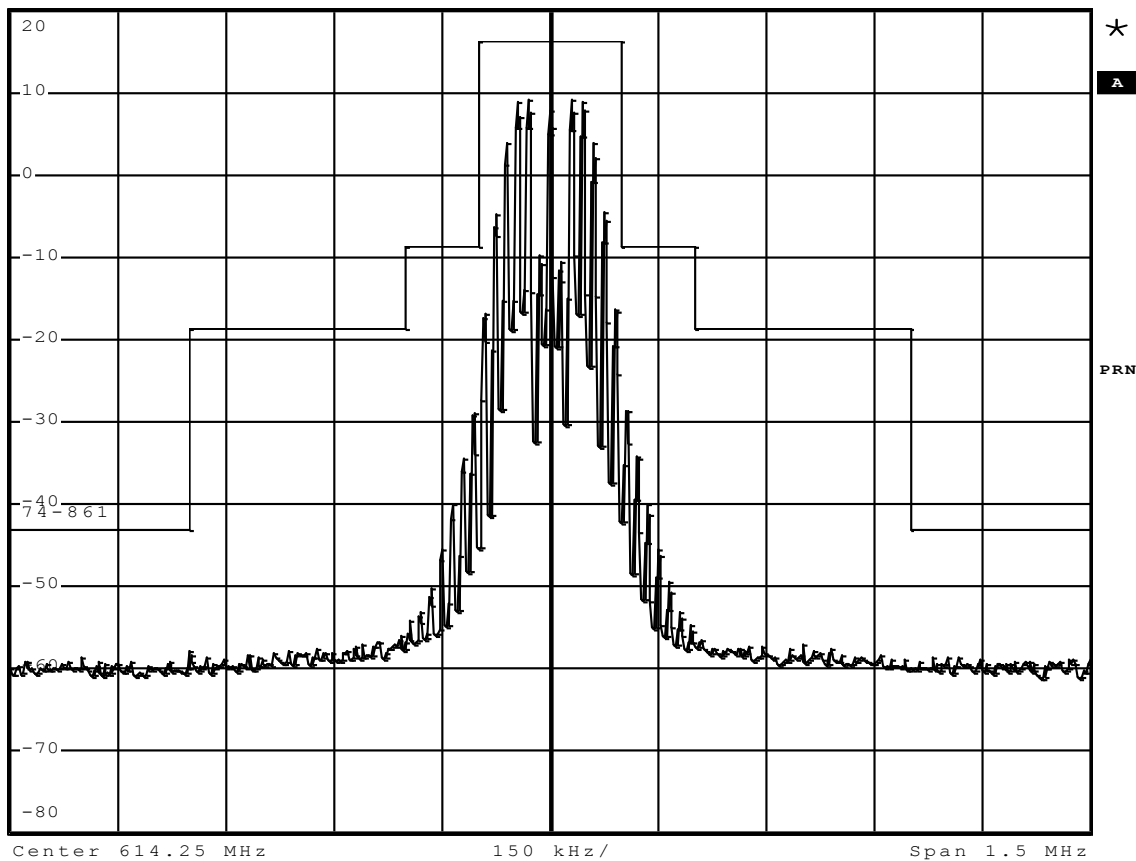
* VBW 3 kHz

Ref 20 dBm

* Att 30 dB

SWT 170 ms

1 PK
MAXH





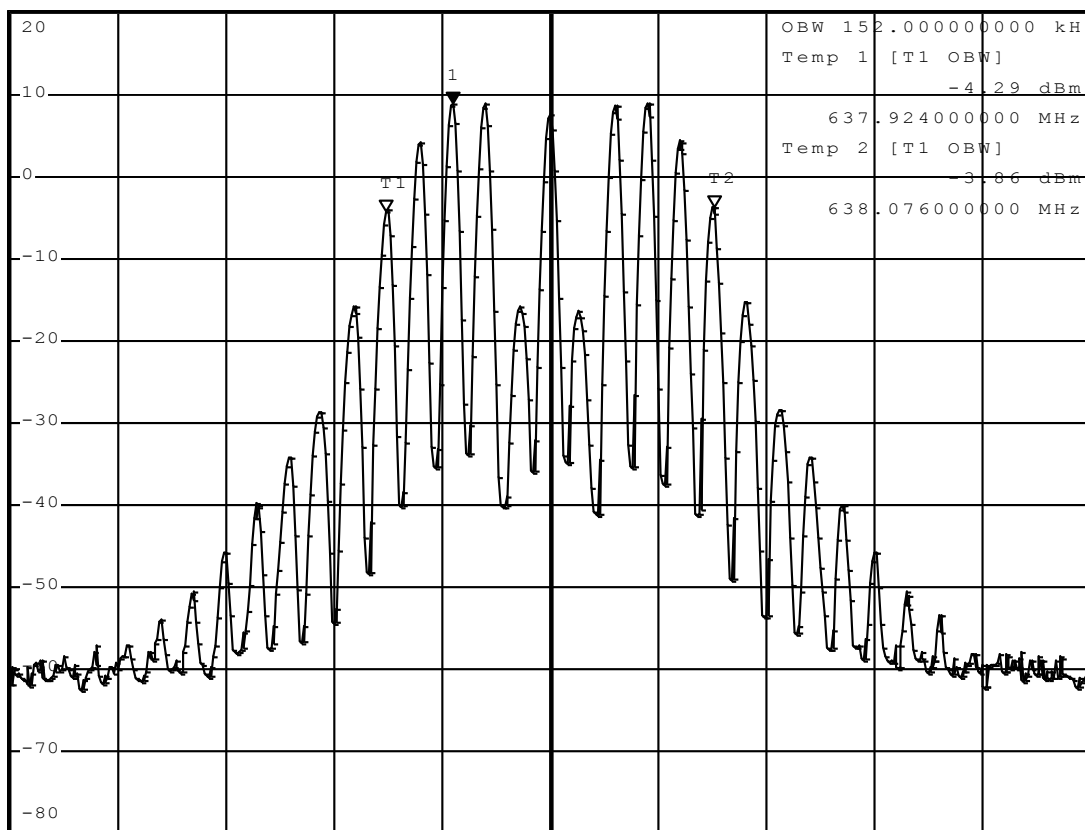
G12157658



*RBW 3 kHz Marker 1 [T1]
*VBW 3 kHz 8.93 dBm

Ref 20 dBm *Att 30 dB SWT 115 ms 637.955000000 MHz

1 PK
VIEW



Center 638 MHz 50 kHz/ Span 500 kHz



G12157661



* RBW 3 kHz

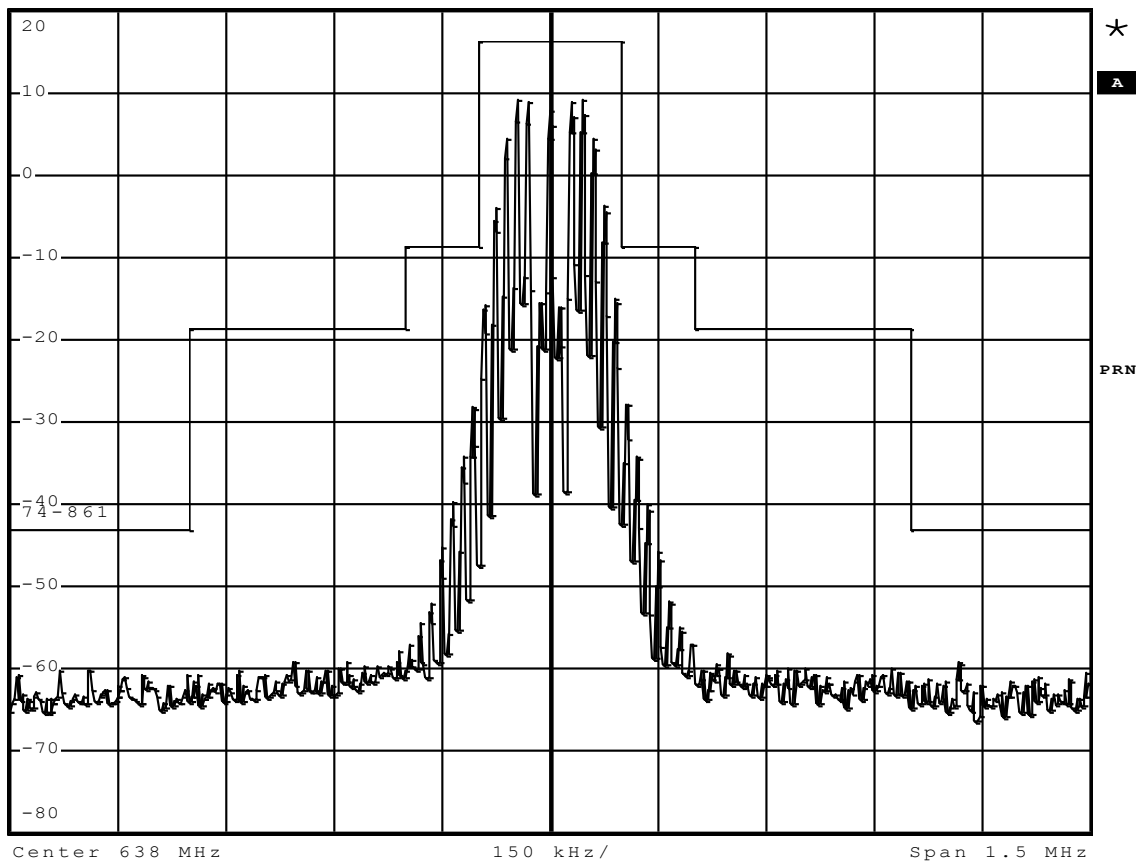
* VBW 3 kHz

Ref 20 dBm

* Att 30 dB

SWT 170 ms

1 PK
VIEW

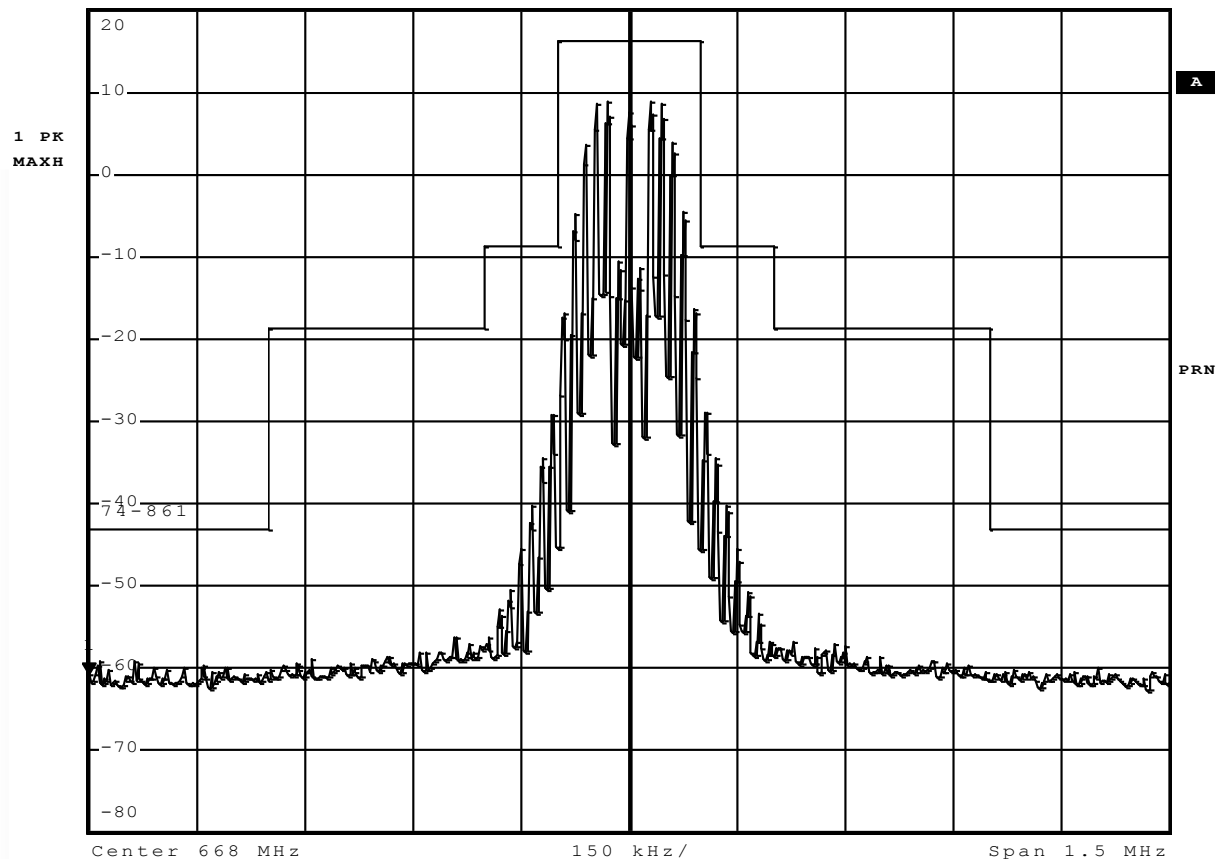




G12157662



Ref 20 dBm *Att 30 dB *RBW 3 kHz Marker 1 [T1] *VBW 3 kHz -60.80 dBm
SWT 170 ms 667.250000000 MHz



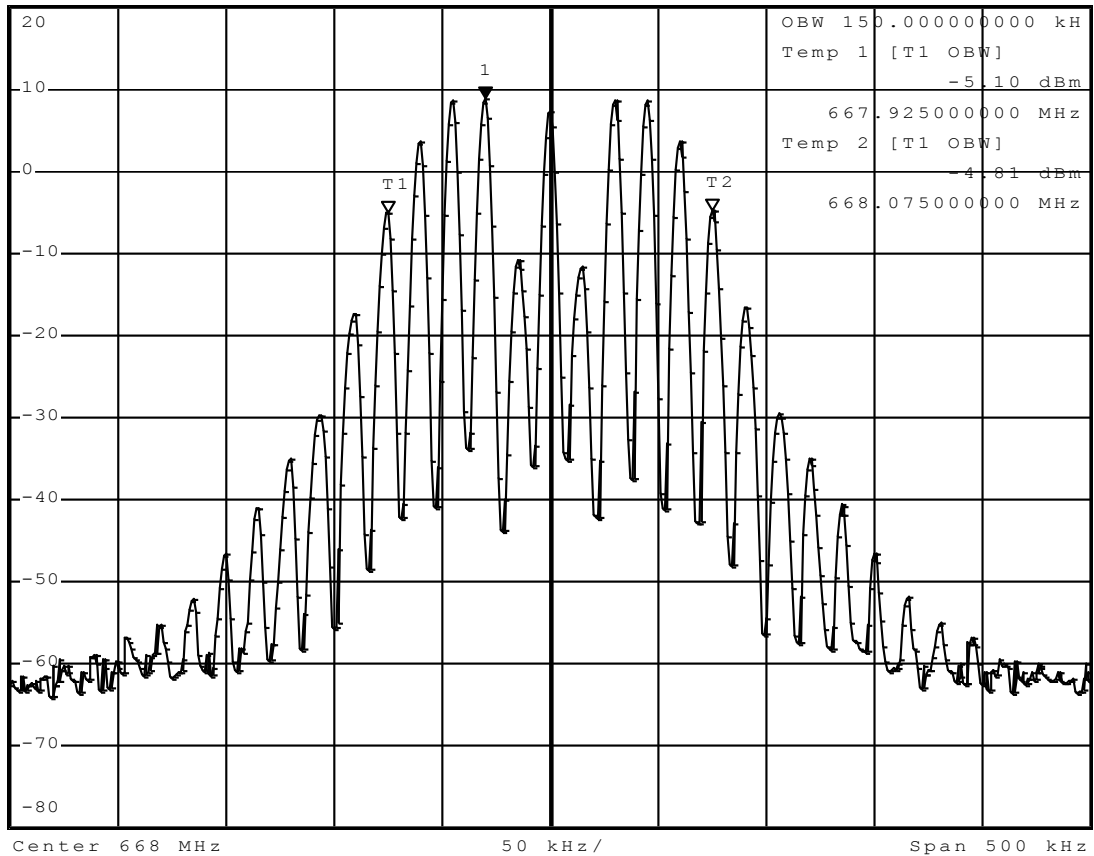


G12157663



1 PK
VIEW

*RBW 3 kHz Marker 1 [T1]
*VBW 3 kHz 8.71 dBm
Ref 20 dBm *Att 30 dB SWT 115 ms 667.970000000 MHz





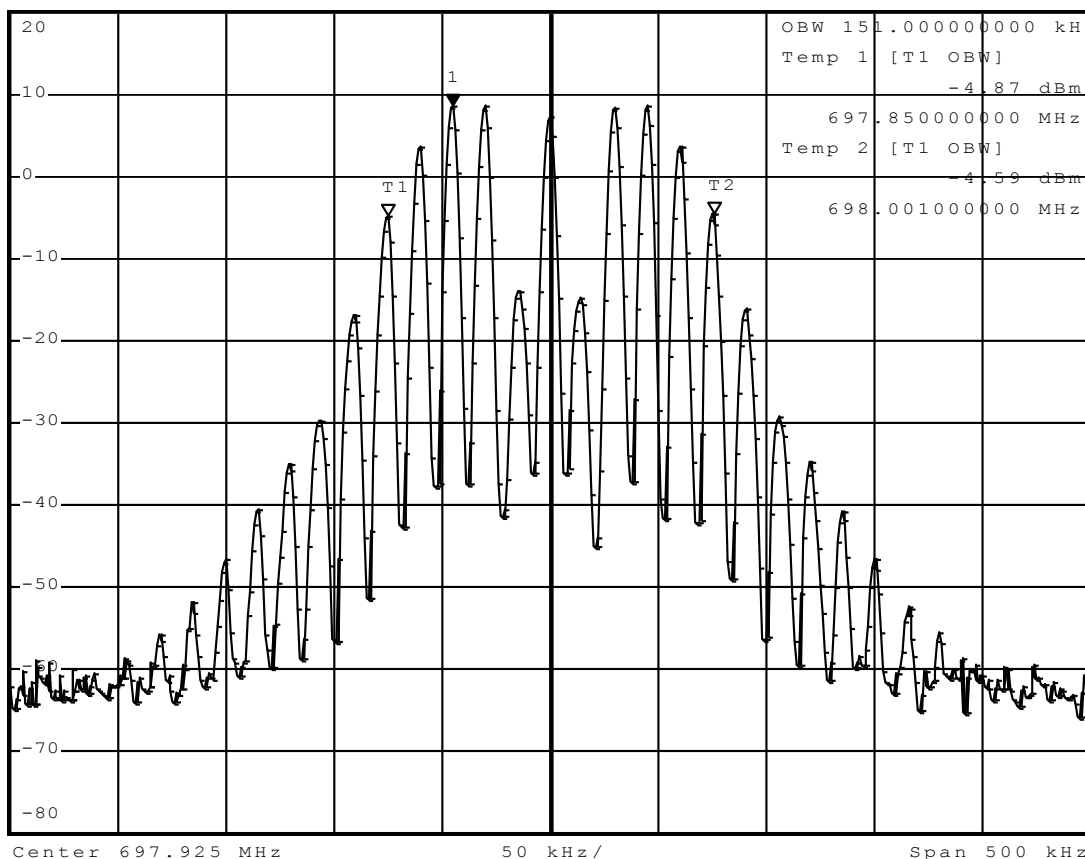
G12157666



1 PK
VIEW

*RBW 3 kHz Marker 1 [T1]
*VBW 3 kHz 8.48 dBm

Ref 20 dBm *Att 30 dB SWT 115 ms 697.880000000 MHz



PRN



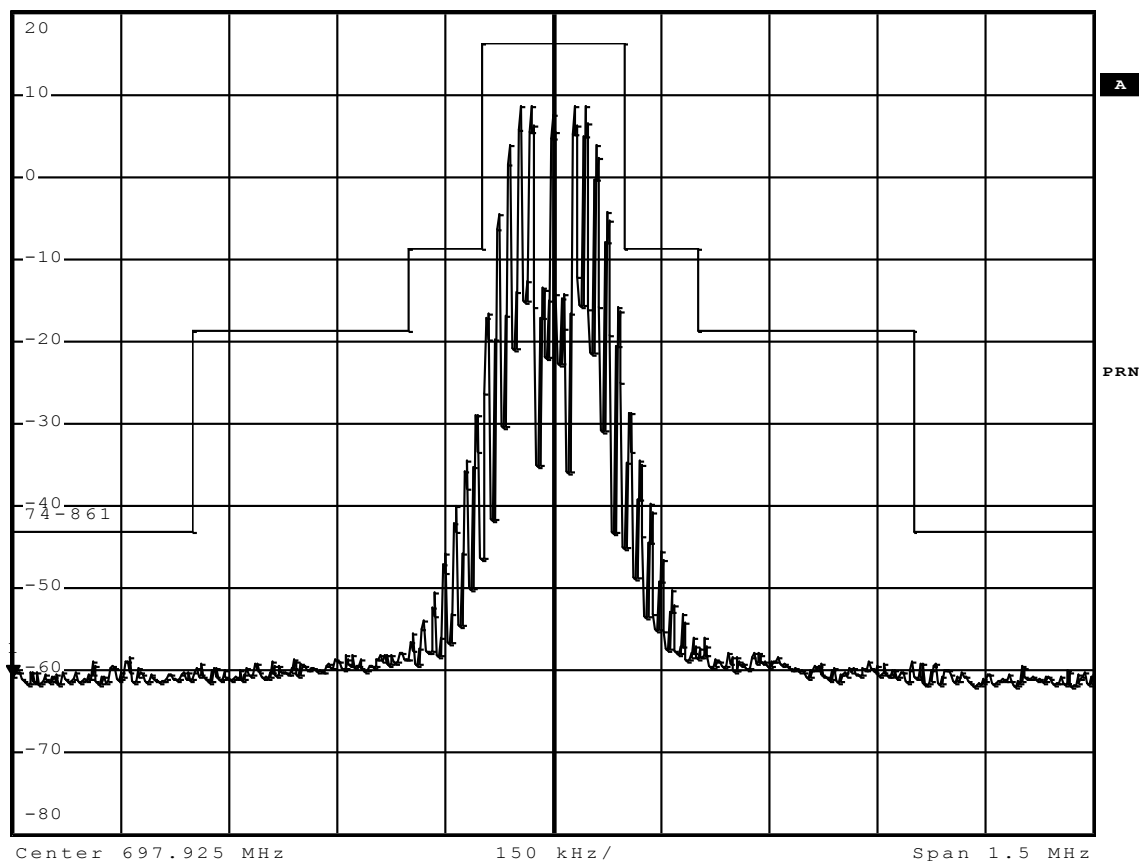
G12157669



*RBW 3 kHz Marker 1 [T1]
*VBW 3 kHz -60.64 dBm

Ref 20 dBm *Att 30 dB SWT 170 ms 697.175000000 MHz

1 PK
MAXH



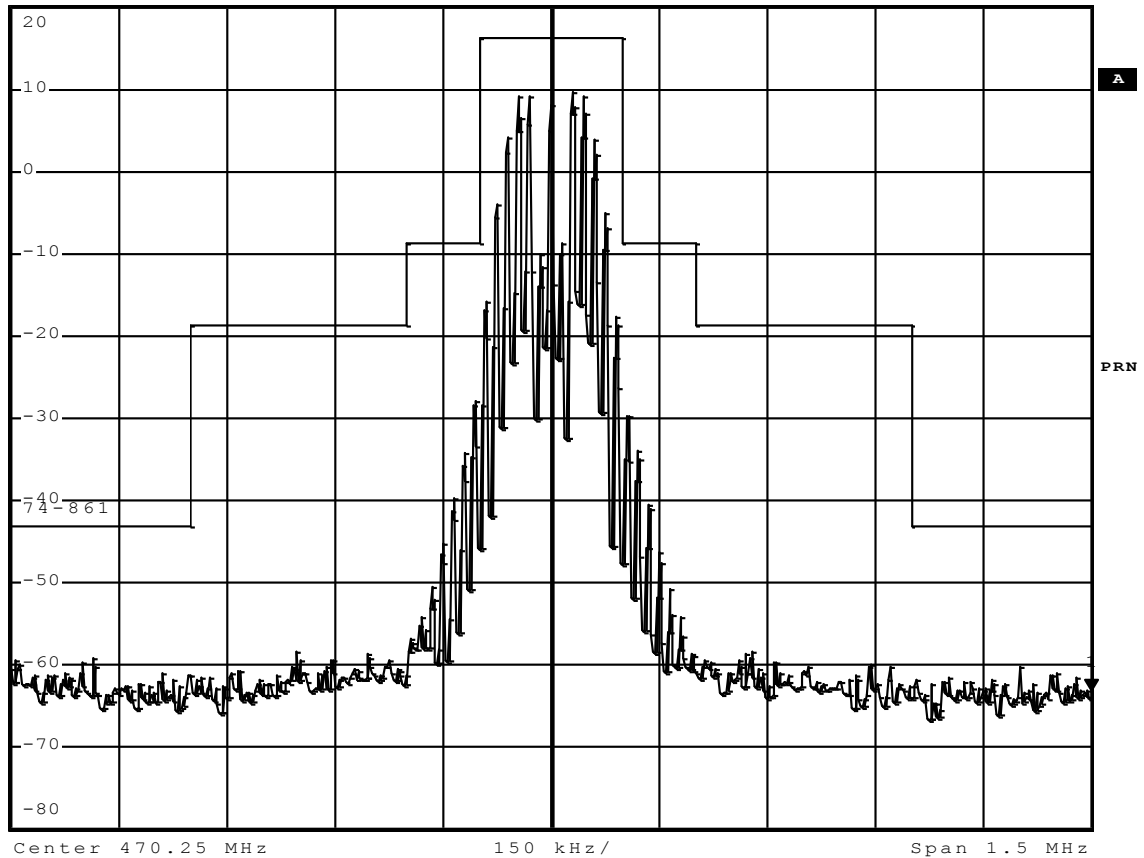


G12157670



1 PK
VIEW

*RBW 3 kHz Marker 1 [T1]
*VBW 3 kHz -63.07 dBm
Ref 20 dBm *Att 30 dB SWT 170 ms 471.000000000 MHz



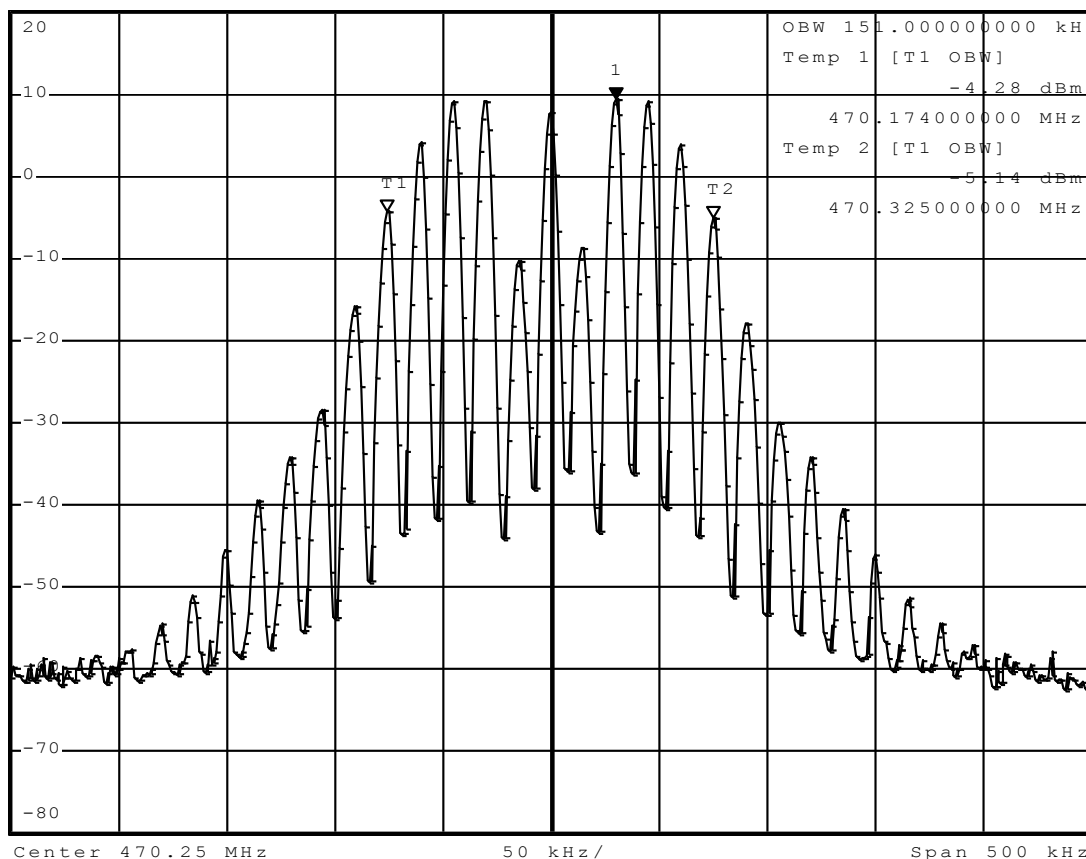


G12157671



1 PK
VIEW

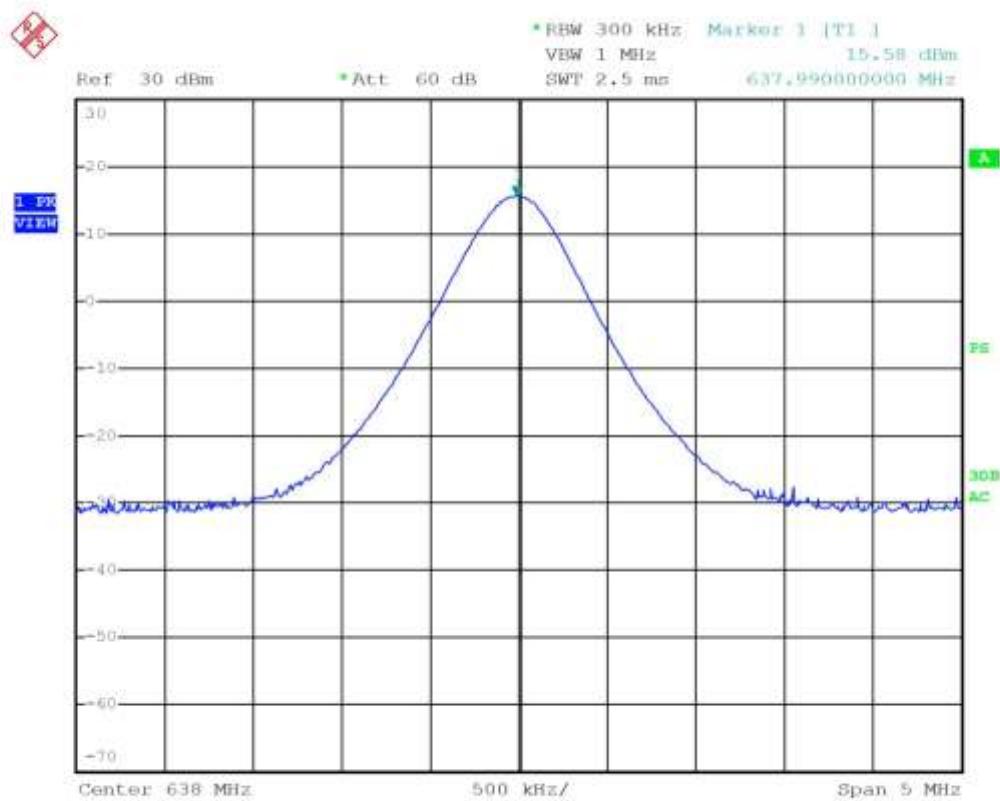
*RBW 3 kHz Marker 1 [T1]
*VBW 3 kHz 9.43 dBm
Ref 20 dBm *Att 30 dB SWT 115 ms 470.280000000 MHz



PRN



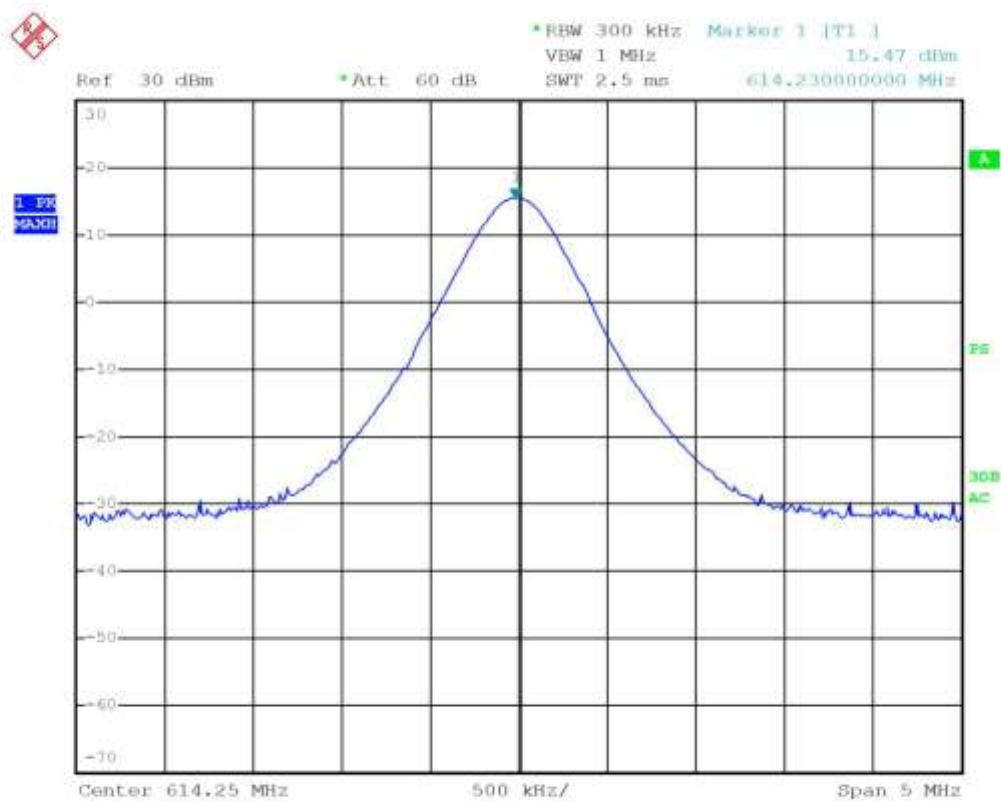
G12157680



Bertezzo 12157680 638MHz



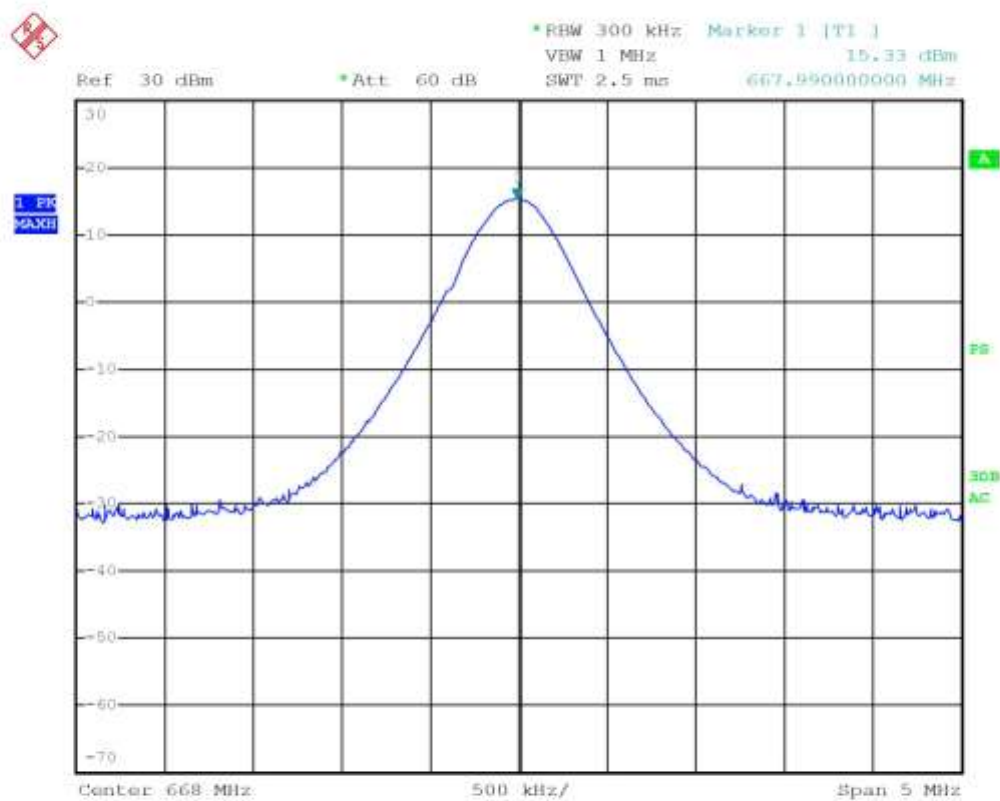
G12157681



Bertezzo 12157681 614.25MHz



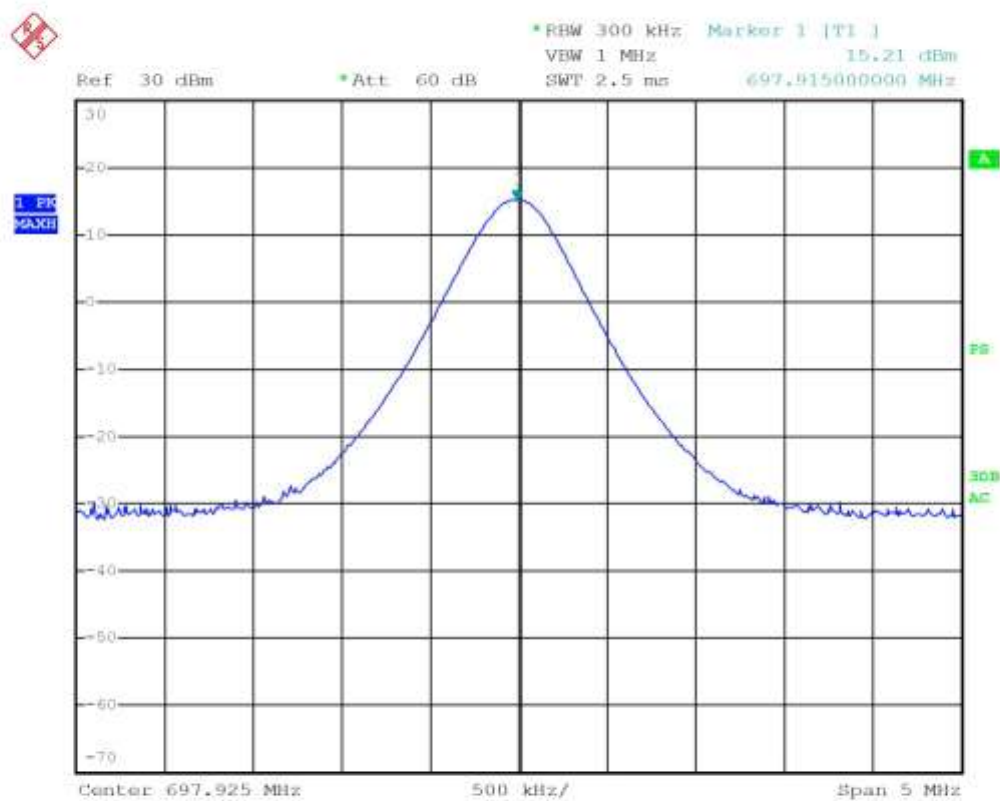
G12157682



Bertezzo 12157682 668MHz



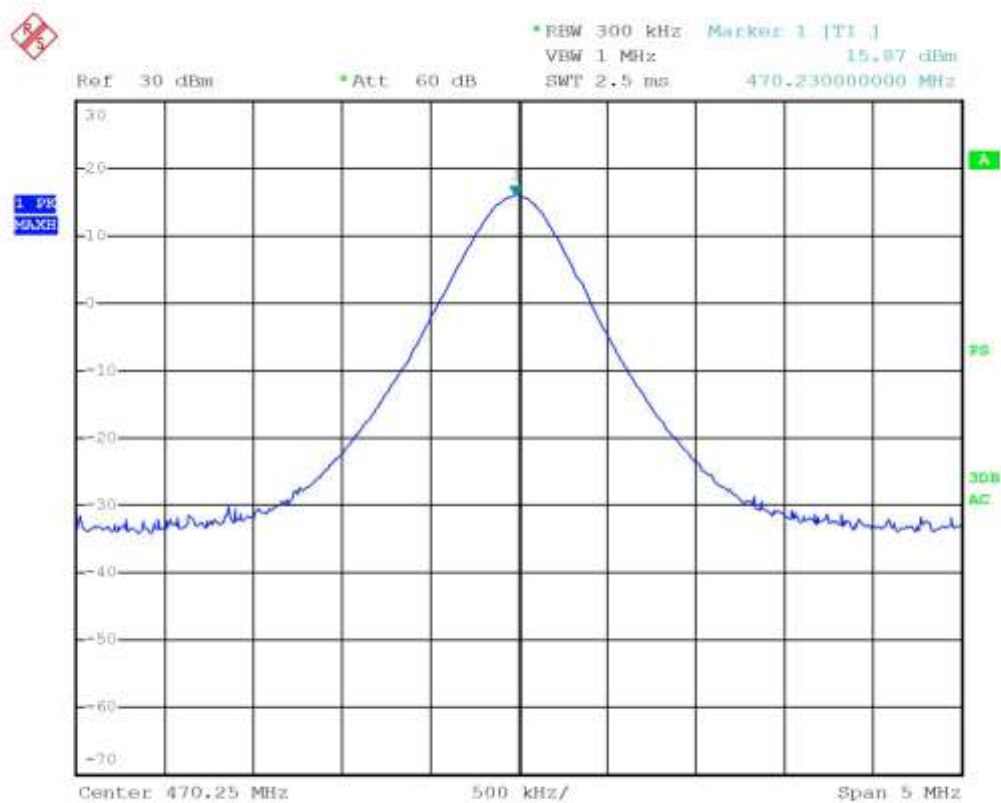
G12157683



Bertezzo 12157683 697.925MHz



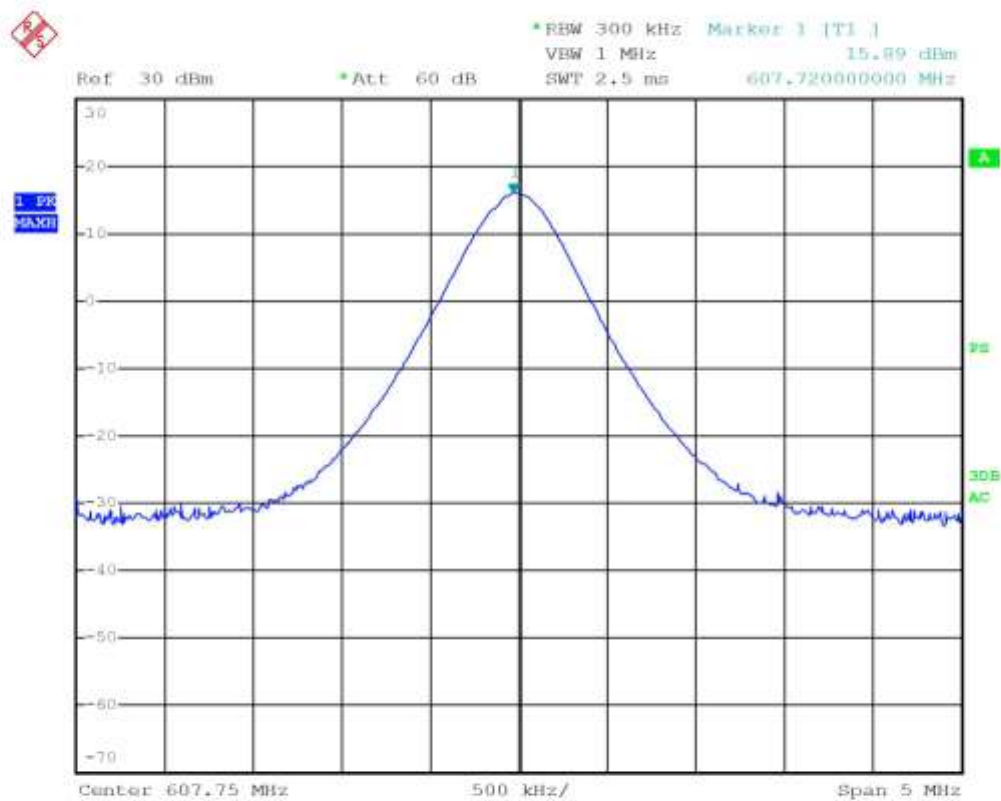
G12157684



Bertezzo 12157684 470.25MHz



G12157685



Bertezzo 12157685 607.75MHz