



11.6 Attenuation Power

Test set-up and execution

- FCC Rules and Regulation; Titles 47 Part 74.861 (e)(6)
- IC; RSS 123 cl. 5.5
- Internal procedure PM001
- See clause 4 of this test report

Test configuration and test method

Test site:
Semi-Anechoic chamber

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

CMC S227
Measurement uncertainty: See clause 7 of this test report

Test specification

Port: Antenna

Environmental conditions

Temperature (°C)	Atmospheric pressure (kPa)	Relative humidity (%)
22	101	42

Acceptance limits

FCC 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	35 dBc	$43 + 10\log_{10}$ (mean output power in watts) dB below the mean output power

IC 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	35 dBc	$55 + 10\log_{10}$ (mean output power in watts) dB below the mean output power



Result

Frequency (MHz)	Graphs	Remarks	Results
470,075	G14158739	--	Complies
539,000	G14158746	--	Complies
607,925	G14158730	--	Complies
614,075	G14158777	--	Complies
647,000	G14158768	--	Complies
697,975	G14158780	--	Complies



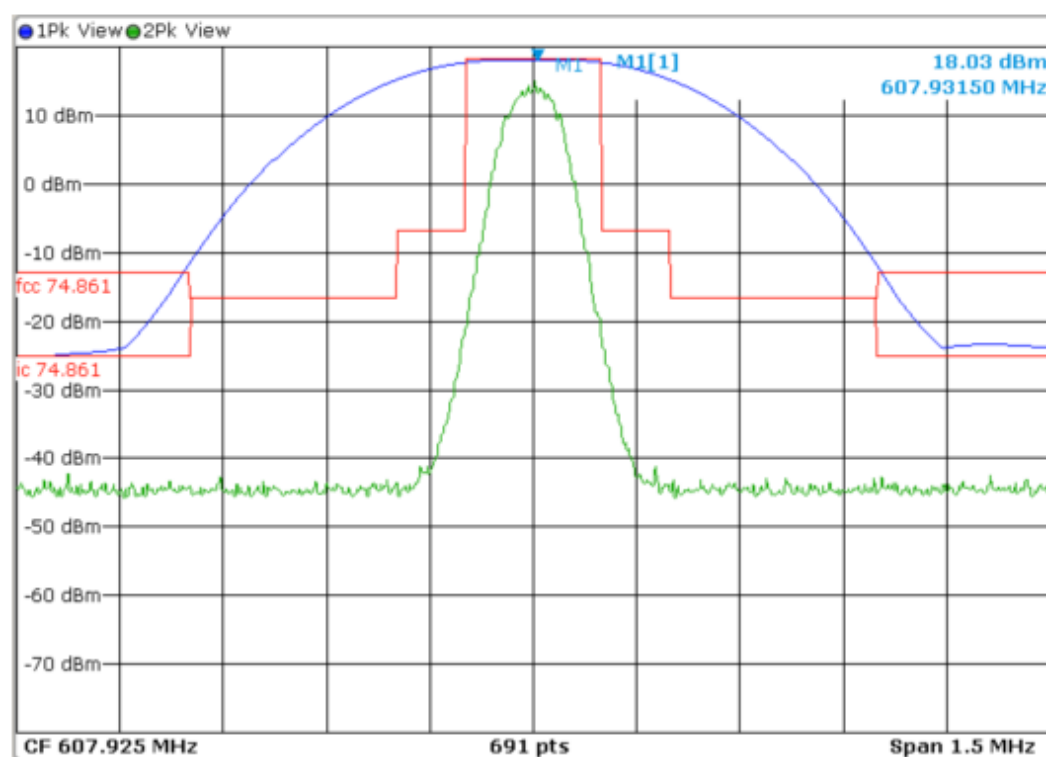


Graphs

G14158730

Meas Type	Emission
Equipment under Test	
Manufacturer	
OP Condition	Tx 607.925MHz 100mW
Operator	Bertezzo 14158730
Test Spec	
Note	BW:3kHz VBW:30kHz

Diagram

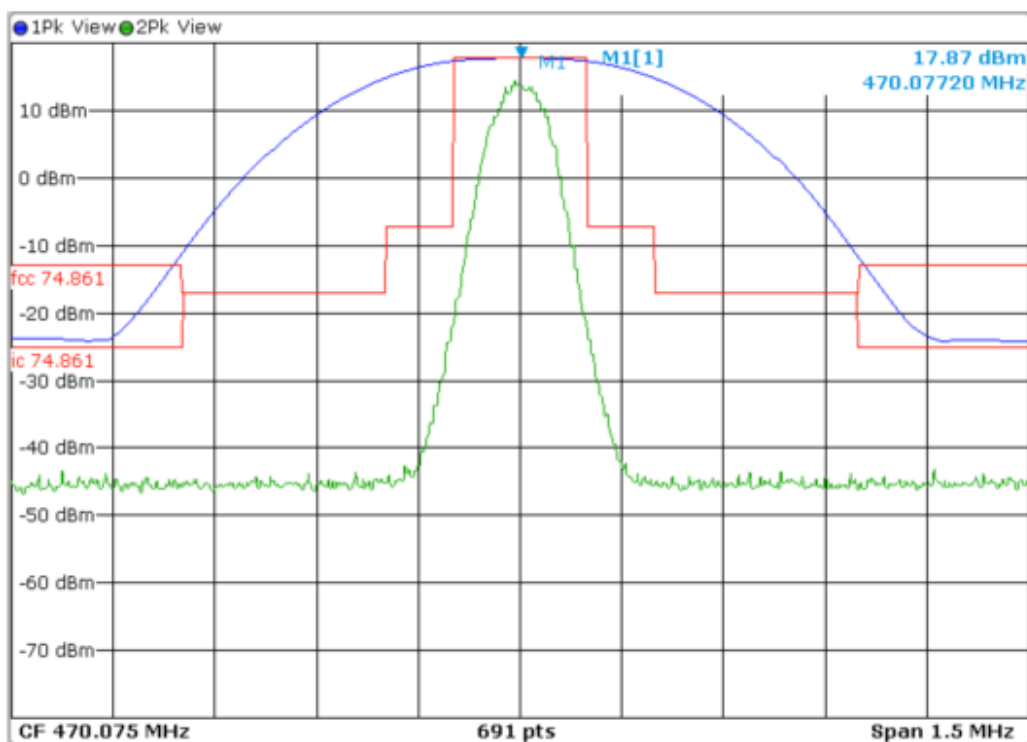




G14158739

Meas Type	Emission
Equipment under Test	
Manufacturer	
OP Condition	Tx 470.075MHz 100mW
Operator	Bertezzo 14158739
Test Spec	
Note	BW:3kHz VBW:30kHz

Diagram

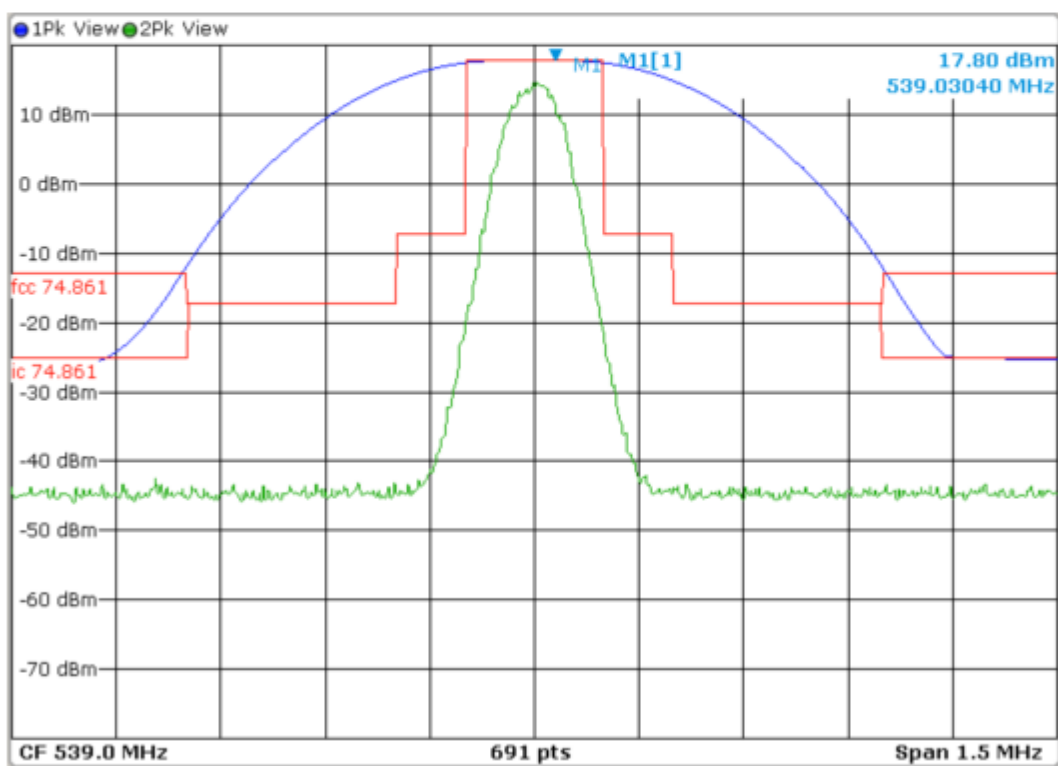




G14158746

Meas Type	Emission
Equipment under Test	
Manufacturer	
OP Condition	Tx 539.000MHz 100mW
Operator	Bertezzo 14158746
Test Spec	
Note	BW:3kHz VBW:30kHz

Diagram

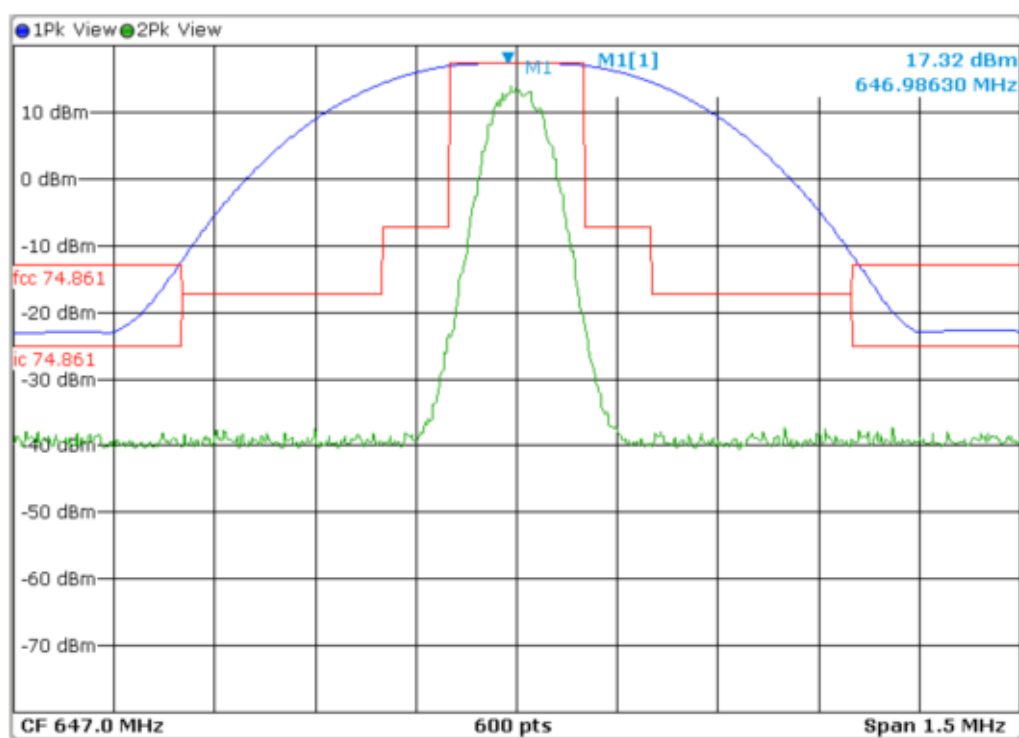




G14158768

Meas Type	Emission
Equipment under Test	
Manufacturer	
OP Condition	Tx 647.000MHz 100mW
Operator	Bertezzo 14158768
Test Spec	
Note	BW:3kHz VBW:30kHz

Diagram

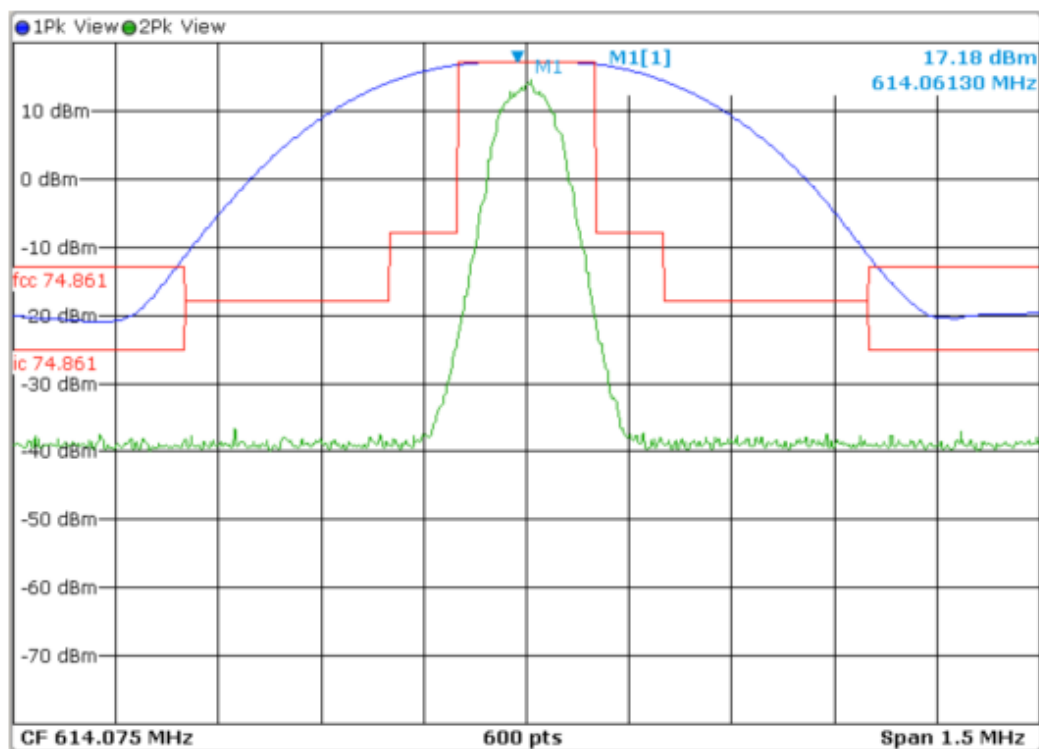




G14158777

Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 614.075MHz 100mW
Operator Bertezolo 14158777
Test Spec
Note BW:3kHz VBW:30kHz

Diagram

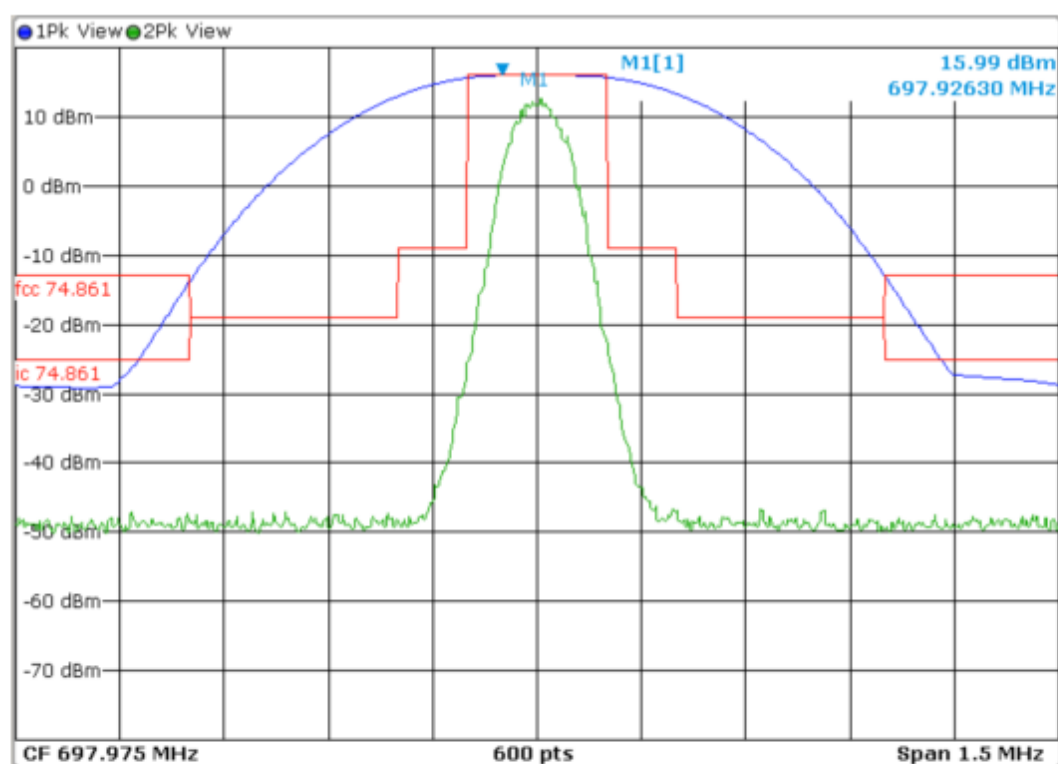




G14158780

Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 697.975MHz 100mW
Operator Bertezolo 14158780
Test Spec
Note BW:3kHz VBW:30kHz

Diagram



Result: The requirements are met



11.7 Radiated Spurious (Transmitter)

Test set-up and execution

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

Test configuration and test method

Test site:
Semi-anechoic chamber

Auxiliary equipment:
See clause 4 of this test report

EUT exercising

See clause 4 of this test report

Test equipment used

CMC S108, CMC S127, CMC S136, CMC S164
Measurement uncertainty: See clause 7 of this test report

Test specification

Port: Enclosure
Antenna polarization: Horizontal (H) – Vertical (V)
EUT – Antenna distance: 3 m
Detector AV + Peak

Environmental conditions

Temperature (°C)	Atmospheric pressure (kPa)	Relative humidity (%)
20	100	42

Acceptance limits

FCC limits:

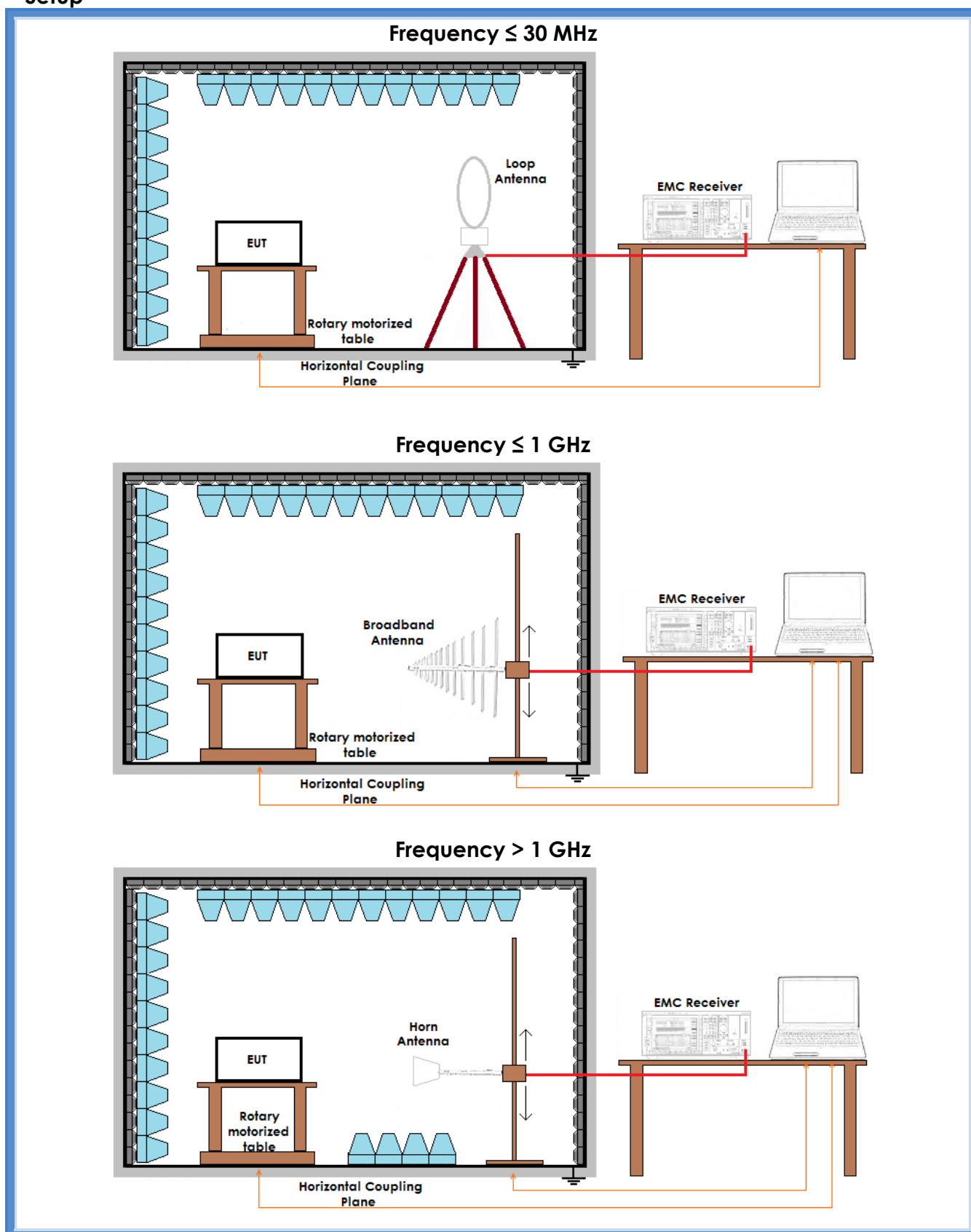
$f \pm 100 \text{ kHz to } f \pm 200 \text{ kHz}$	$f \pm 200 \text{ kHz to } f \pm 500 \text{ kHz}$	$f \pm 500 \text{ kHz}$
25 dBc	35 dBc	-43 + $10\log_{10}$ (mean output power in watts) dB below the mean output power

IC 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	35 dBc	-55 + $10\log_{10}$ (mean output power in watts) dB below the mean output power



Setup





Result

Antenna	Frequency Range (MHz)	Graph(s)	Remarks	Result
Loop Antenna	0,009 – 30	G14158786	--	Complies

Frequency (MHz)	Polarization	Frequency Range (MHz)	Graph(s)	Limits (dBm)		Result
				FCC	IC	
470,075	Vertical	30 – 1000	G141587100	-13,0	-25,0	Complies
539,000	Vertical	30 – 1000	G141587103	-13,0	-25,0	Complies
607,925	Vertical	30 – 1000	G141587104	-13,0	-25,0	Complies
614,075	Vertical	30 – 1000	G141587107	-13,0	-25,0	Complies
647,000	Vertical	30 – 1000	G141587108	-13,0	-25,0	Complies
697,975	Vertical	30 – 1000	G141587111	-13,0	-25,0	Complies
470,075	Horizontal	30 – 1000	G141587101	-13,0	-25,0	Complies
539,000	Horizontal	30 – 1000	G141587102	-13,0	-25,0	Complies
607,925	Horizontal	30 – 1000	G141587105	-13,0	-25,0	Complies
614,075	Horizontal	30 – 1000	G141587106	-13,0	-25,0	Complies
647,000	Horizontal	30 – 1000	G141587109	-13,0	-25,0	Complies
697,975	Horizontal	30 – 1000	G141587110	-13,0	-25,0	Complies

Frequency (MHz)	Polarization	Frequency Range (GHz)	Graph(s)	Limits (dBm)		Result
				FCC	IC	
470,075	Vertical	1 – 12,5	G14158788	-13,0	-25,0	Complies
539,000	Vertical	1 – 12,5	G14158791	-13,0	-25,0	Complies
607,925	Vertical	1 – 12,5	G14158792	-13,0	-25,0	Complies
614,075	Vertical	1 – 12,5	G14158795	-13,0	-25,0	Complies
647,000	Vertical	1 – 12,5	G14158796	-13,0	-25,0	Complies
697,975	Vertical	1 – 12,5	G14158799	-13,0	-25,0	Complies
470,075	Horizontal	1 – 12,5	G14158789	-13,0	-25,0	Complies
539,000	Horizontal	1 – 12,5	G14158790	-13,0	-25,0	Complies
607,925	Horizontal	1 – 12,5	G14158793	-13,0	-25,0	Complies
614,075	Horizontal	1 – 12,5	G14158794	-13,0	-25,0	Complies
647,000	Horizontal	1 – 12,5	G14158797	-13,0	-25,0	Complies
697,975	Horizontal	1 – 12,5	G14158798	-13,0	-25,0	Complies



Result

Harmonic	Limits (dB μ V/m)		470,075 MHz	Level (dB μ V/m)		Results
	FCC	IC		539,000 MHz	607,925 MHz	
II	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
III	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
IV	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
V	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
VI	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
VII	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
VIII	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
IX	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
X	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
Remarks: EUT was tested in 3 orthogonal planes. The results in this table show the highest values						



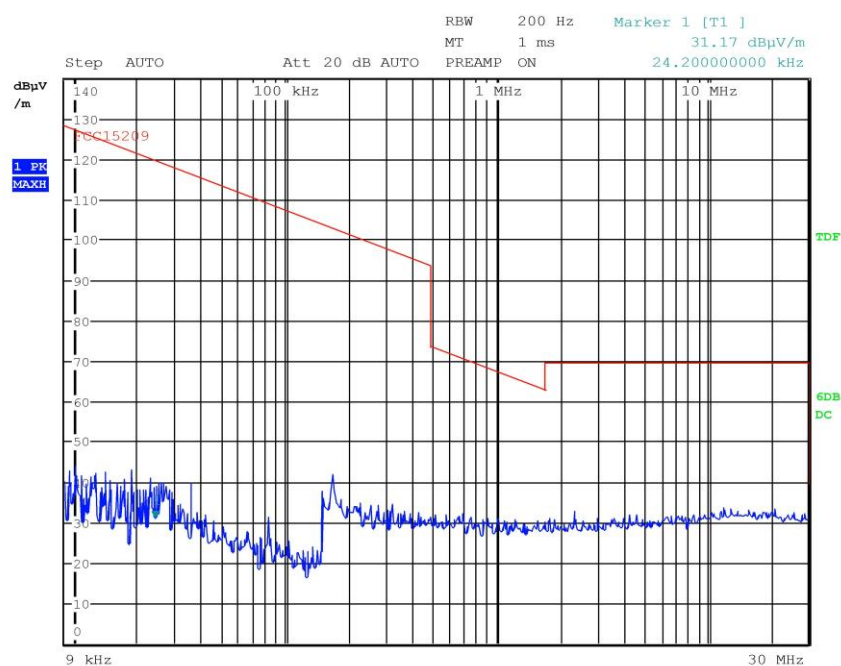
Harmonic	Limits (dB μ V/m)		Level (dB μ V/m)			Results
	FCC	IC	614,075 MHz	647,000 MHz	697,975 MHz	
II	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
III	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
IV	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
V	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
VI	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
VII	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
VIII	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
IX	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
X	-13	-25	More than 20 dB below limit	More than 20 dB below limit	More than 20 dB below limit	Complies
Remarks: EUT was tested in 3 orthogonal planes. The results in this table show the highest values						



Graphs

G14158786

Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Worst Case TX trasmission at 470MHz 100mW
Operator Bertezzolo 14158786
Test Spec
Loop



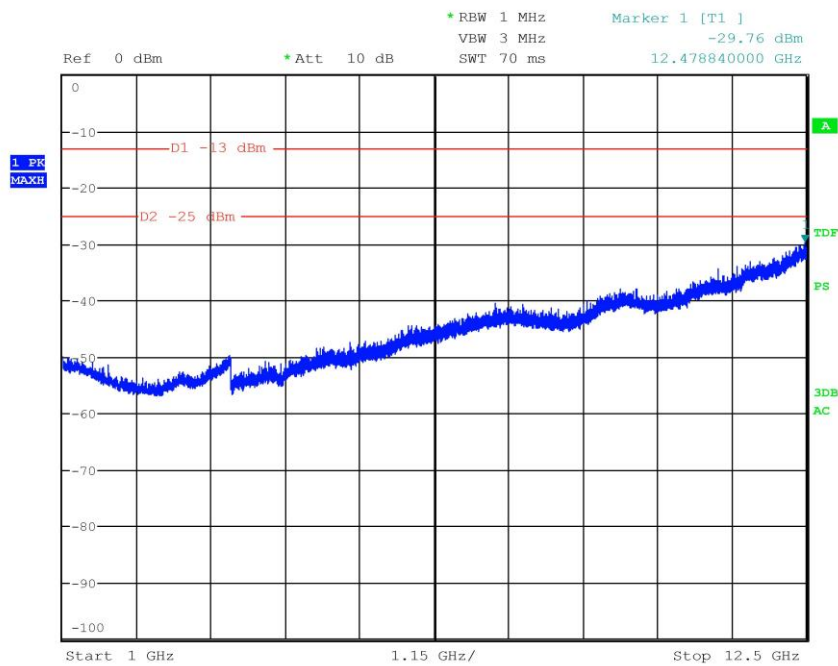
Final Measurement

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



G14158788

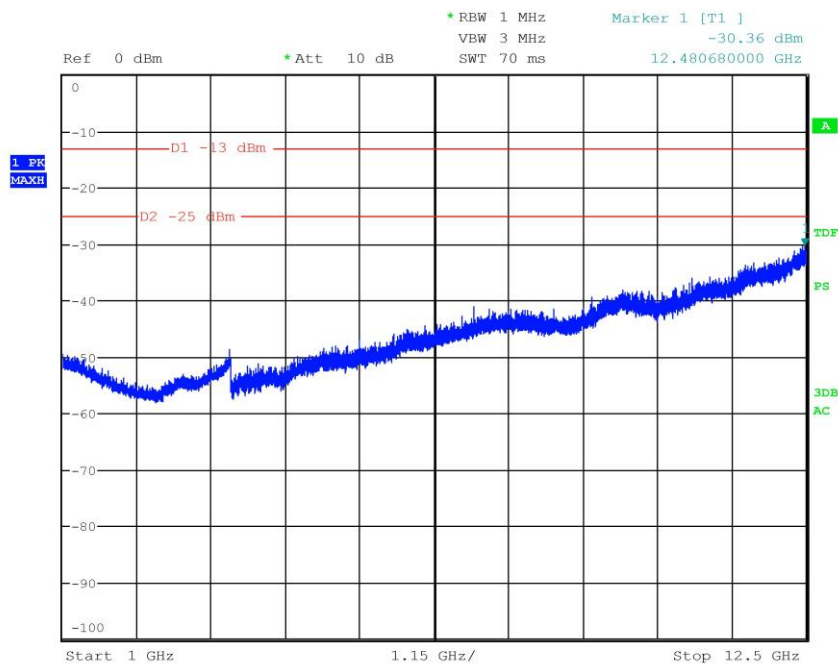
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 470.075MHz
Operator Bertezolo 14158788
Test Spec
Vert





G14158789

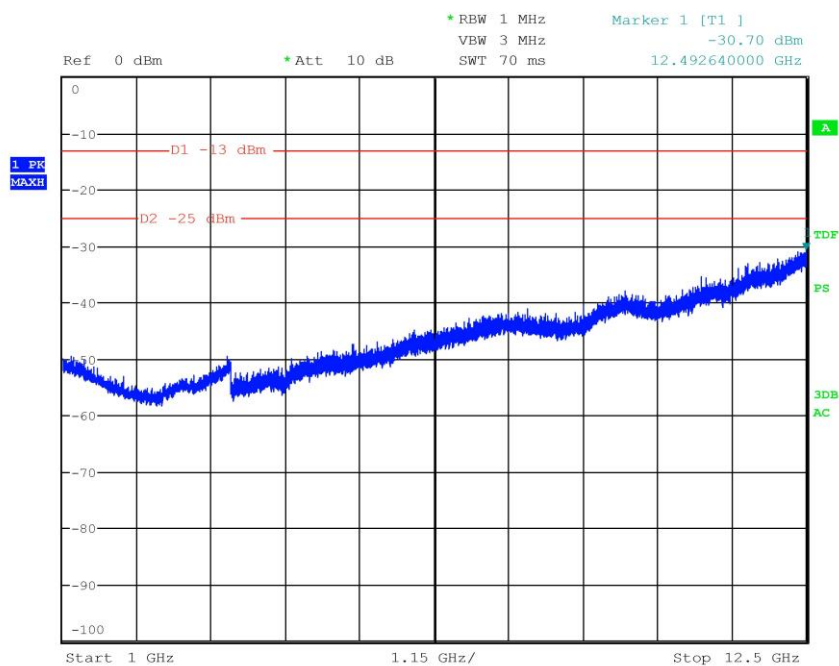
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 470.075MHz
Operator Bertezolo 14158789
Test Spec
Horiz





G14158790

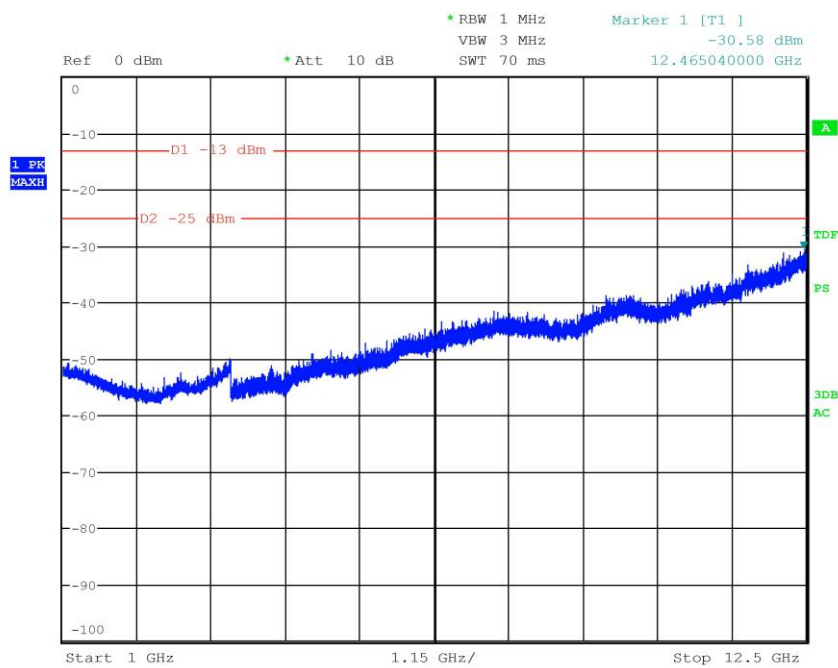
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 539.000MHz
Operator Bertezolo 14158790
Test Spec
Horiz





G14158791

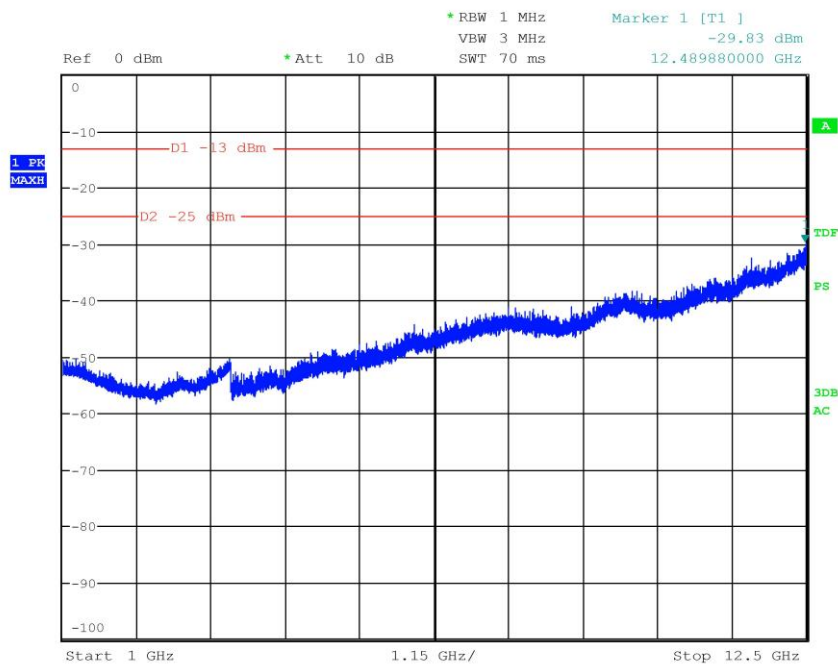
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 539.000MHz
Operator Bertezolo 14158791
Test Spec
Vert





G14158792

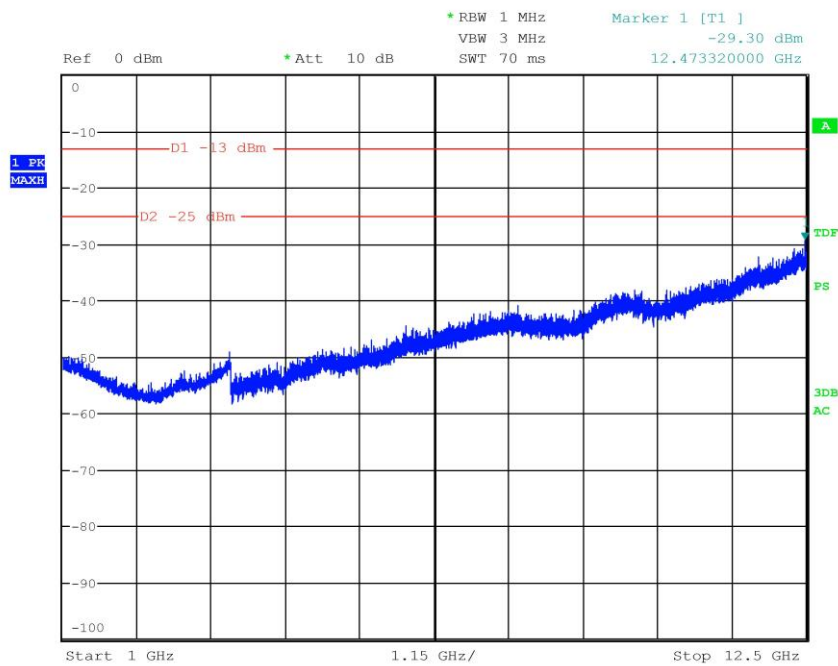
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 607.925MHz
Operator Bertezolo 14158792
Test Spec
Vert





G14158793

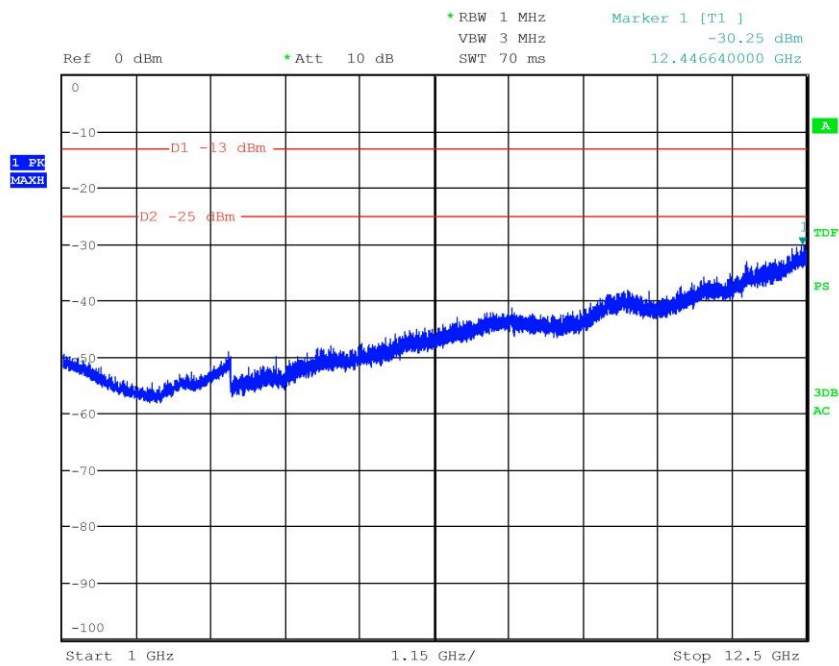
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 607.925MHz
Operator Bertezolo 14158793
Test Spec
Horiz





G14158794

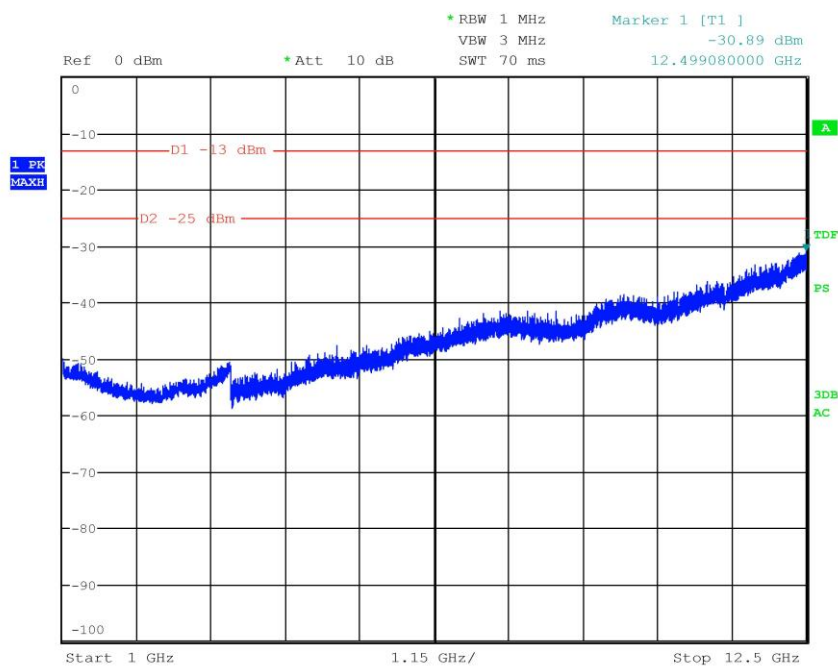
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 614.075MHz
Operator Bertezolo 14158794
Test Spec
Horiz





G14158795

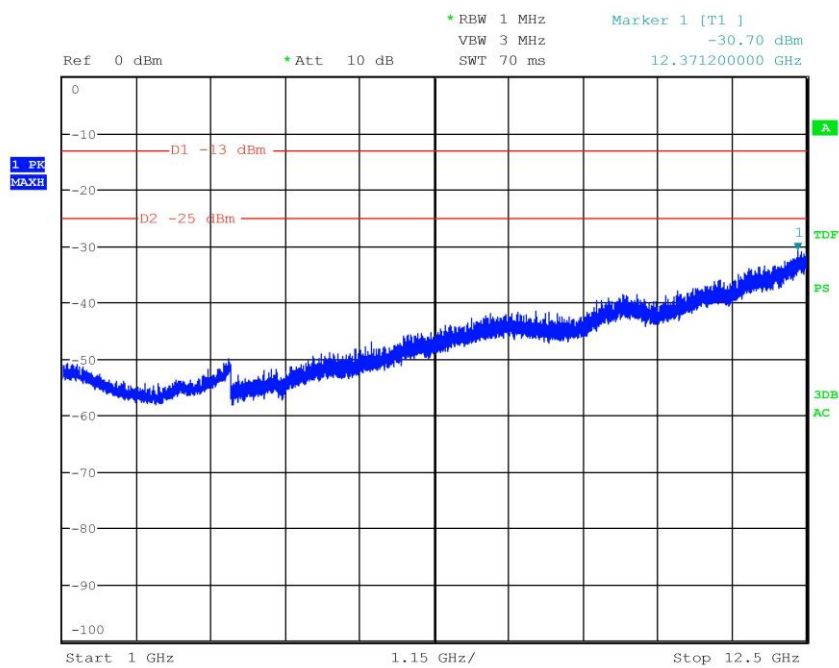
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 614.075MHz
Operator Bertezolo 14158795
Test Spec
Vert





G14158796

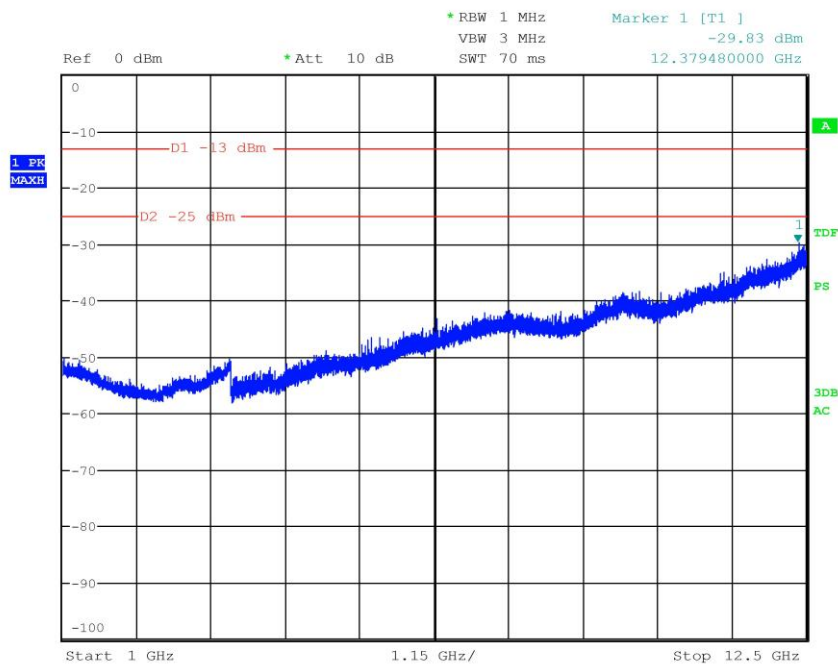
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 647.000MHz
Operator Bertezolo 14158796
Test Spec
Vert





G14158797

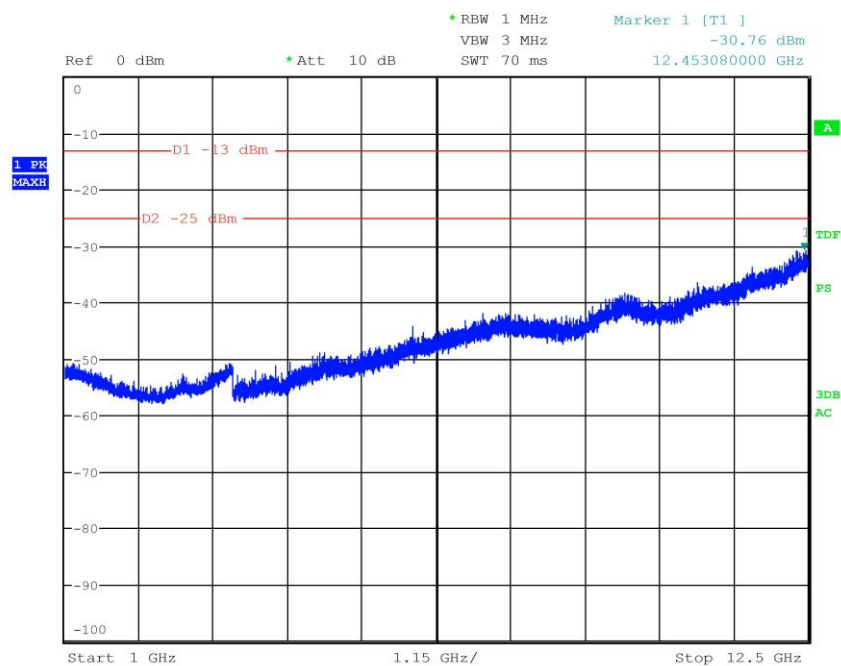
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 647.000MHz
Operator Bertezolo 14158797
Test Spec
Horiz





G14158798

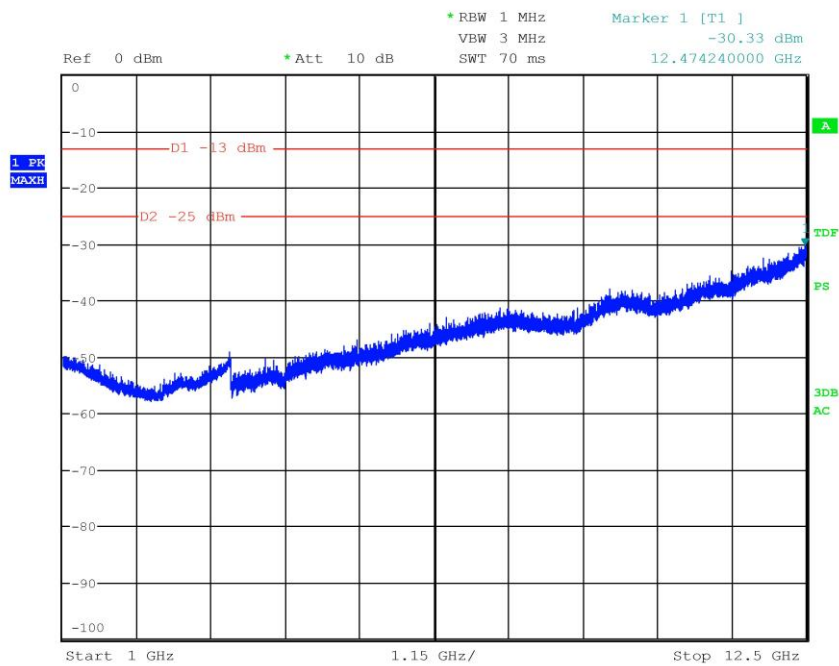
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 697.975MHz
Operator Bertezolo 14158798
Test Spec
Horiz





G14158799

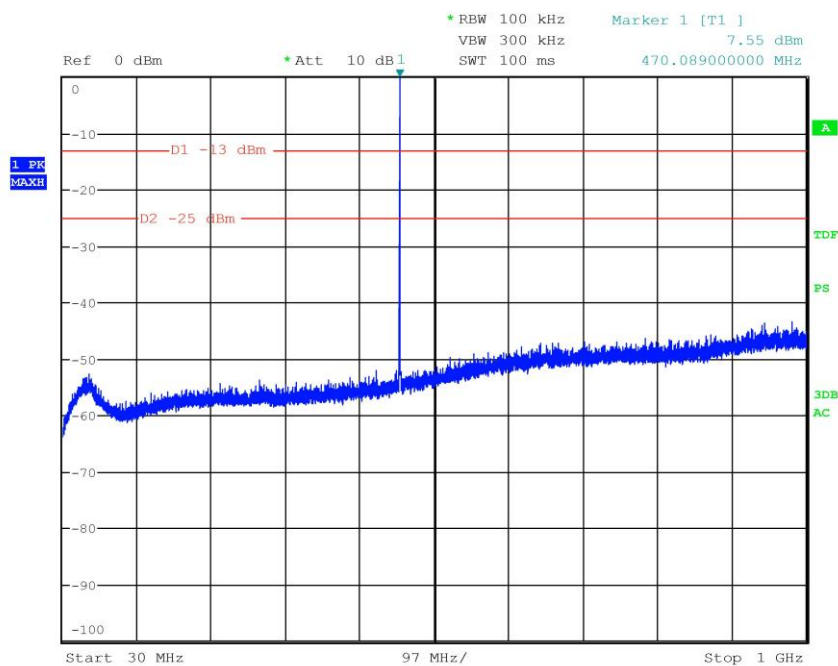
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 697.975MHz
Operator Bertezolo 14158799
Test Spec
Vert





G141587100

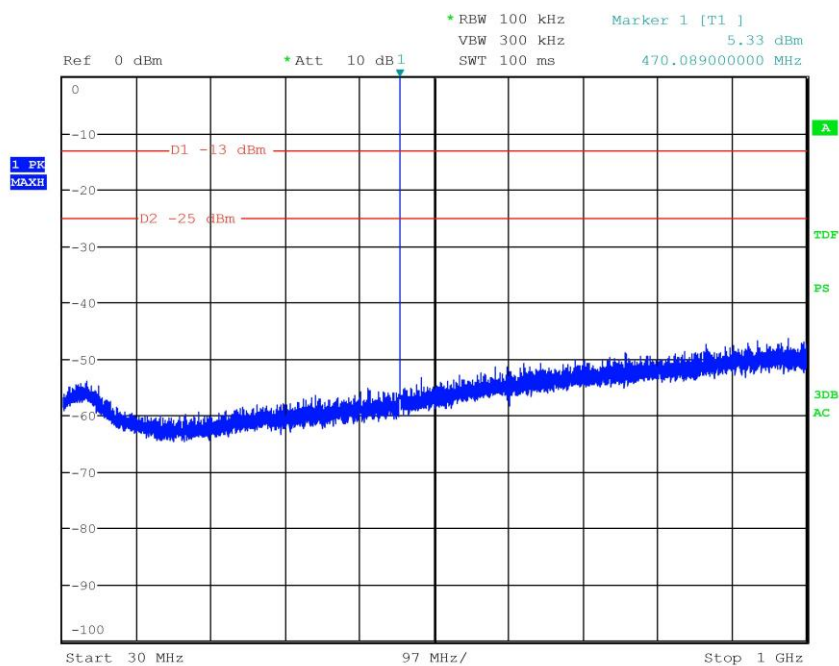
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 470.075MHz
Operator Bertezolo 141587100
Test Spec
Vert





G141587101

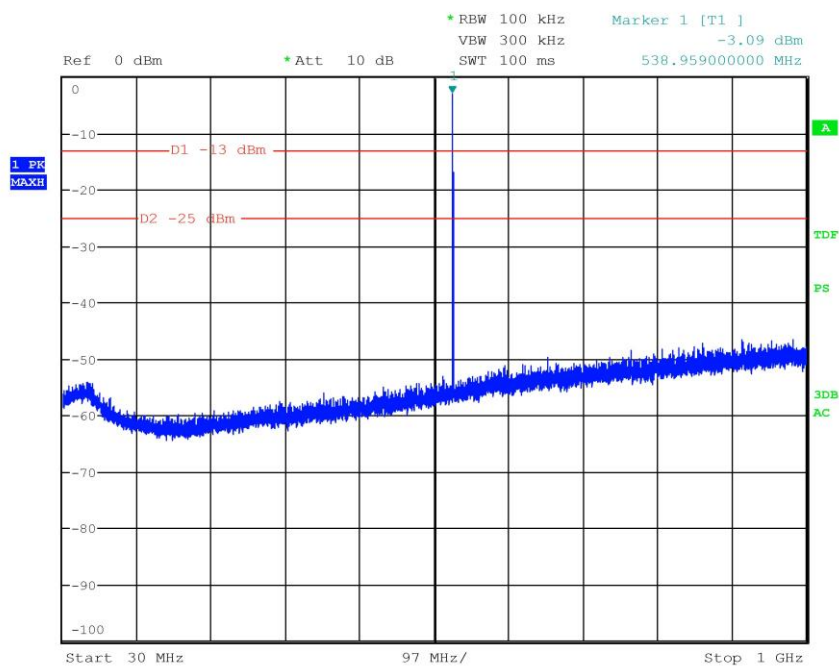
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 470.075MHz
Operator Bertezolo 141587101
Test Spec
Horiz





G141587102

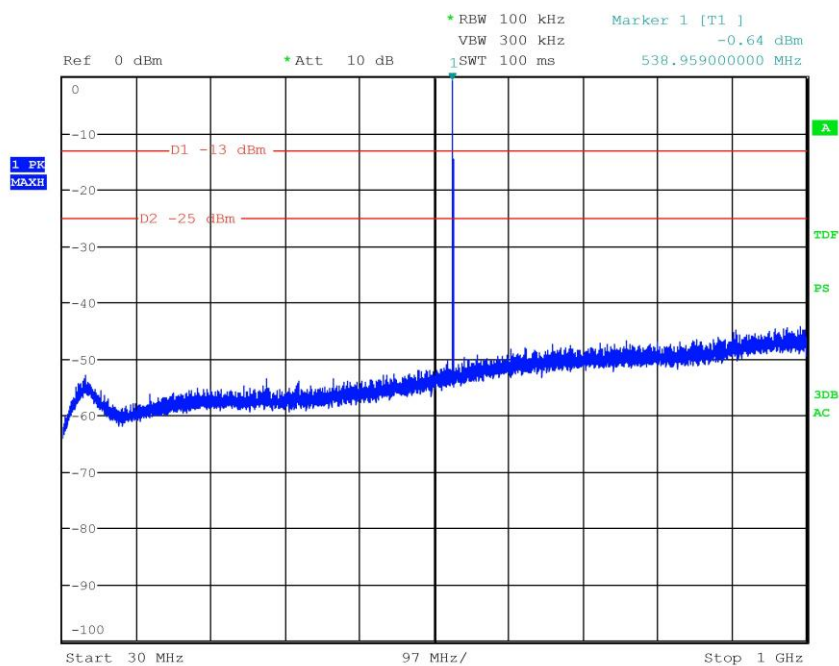
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 539.000MHz
Operator Bertezolo 141587102
Test Spec
Horiz





G141587103

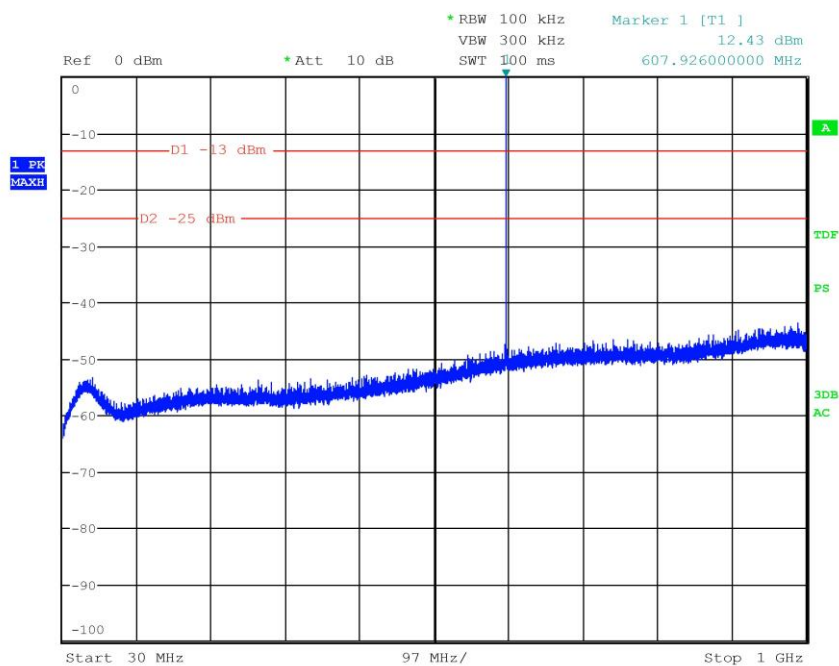
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 539.000MHz
Operator Bertezzo 141587103
Test Spec
Vert





G141587104

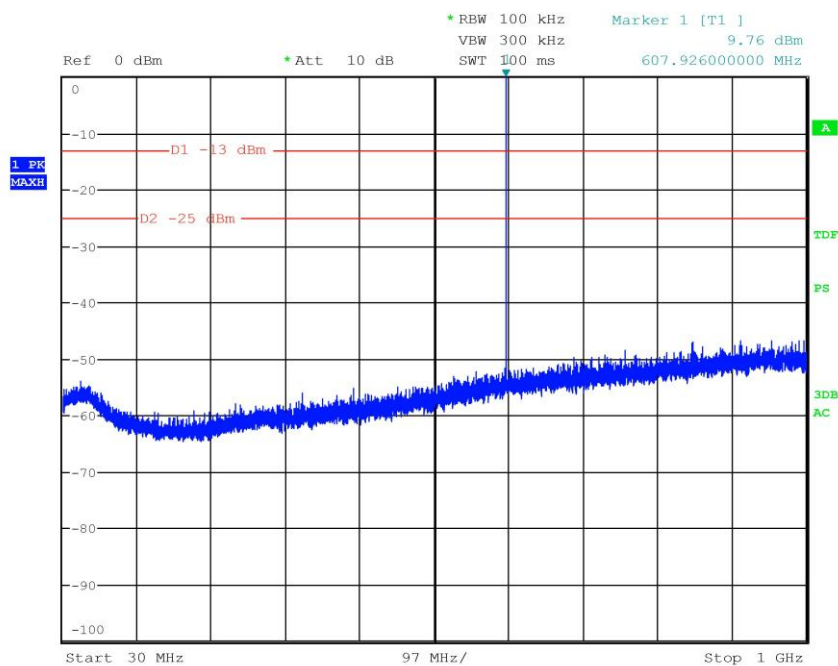
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 607.925MHz
Operator Bertezolo 141587104
Test Spec
Vert





G141587105

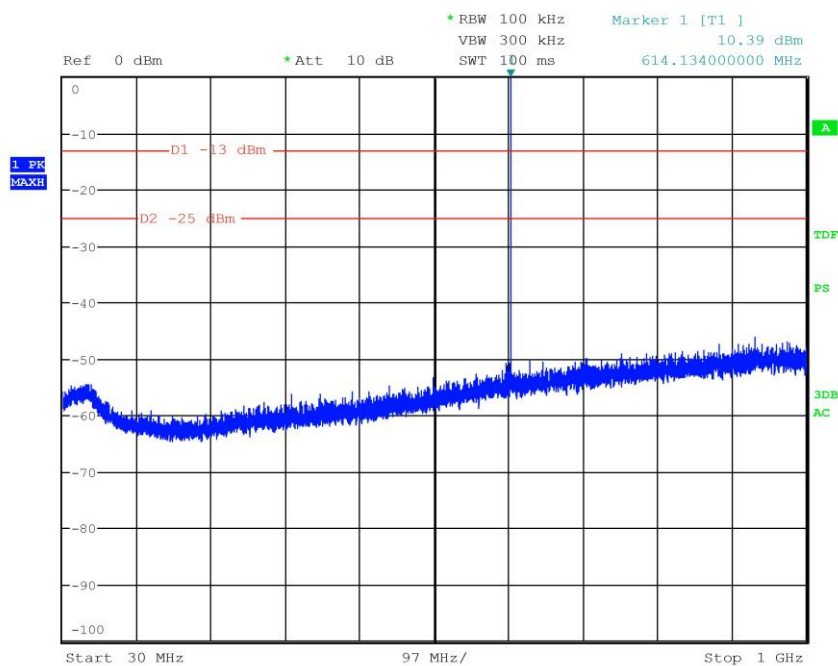
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 607.925MHz
Operator Bertezolo 141587105
Test Spec
Horiz





G141587106

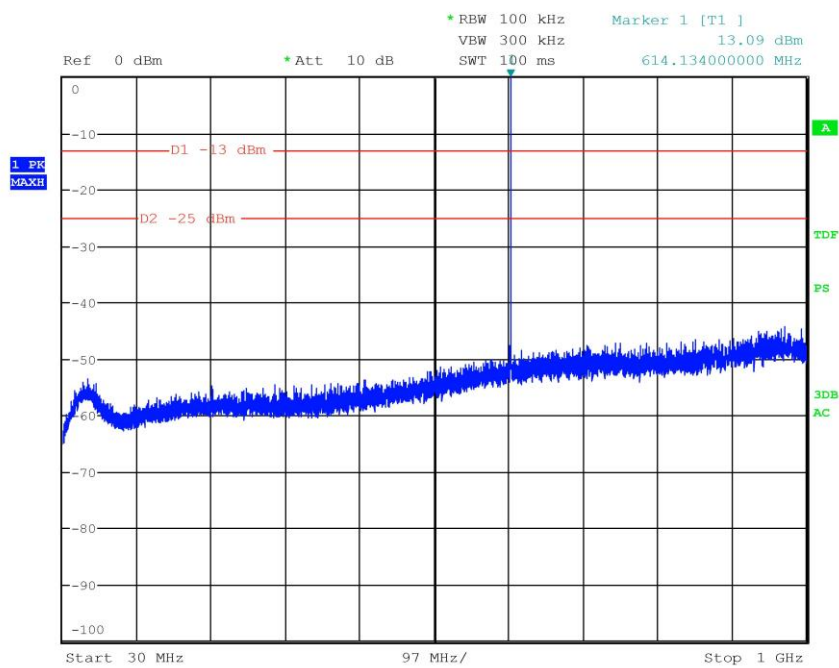
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 614.075MHz
Operator Bertezolo 141587106
Test Spec
Horiz





G141587107

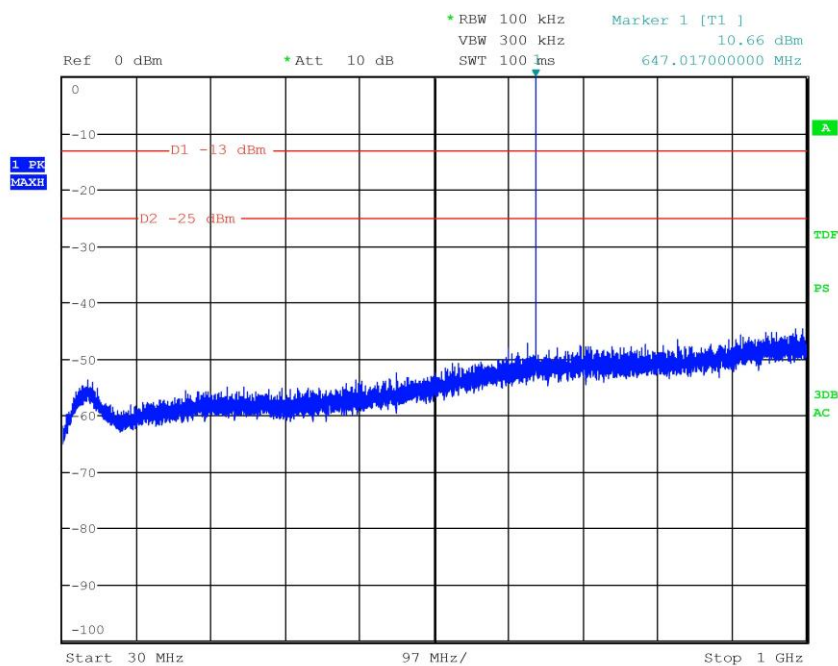
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 614.075MHz
Operator Bertezolo 141587107
Test Spec
Vert





G141587108

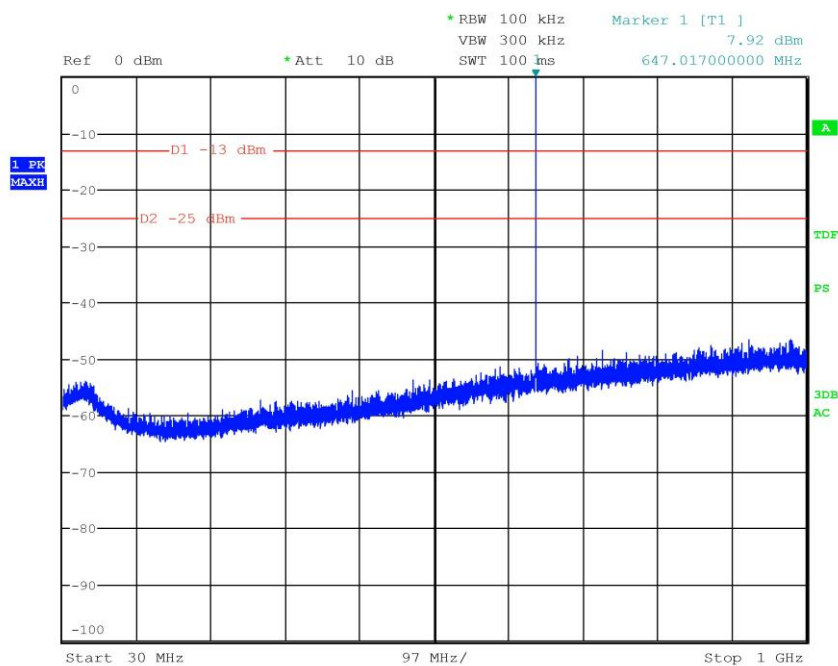
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 6147.000MHz
Operator Bertezolo 141587108
Test Spec
Vert





G141587109

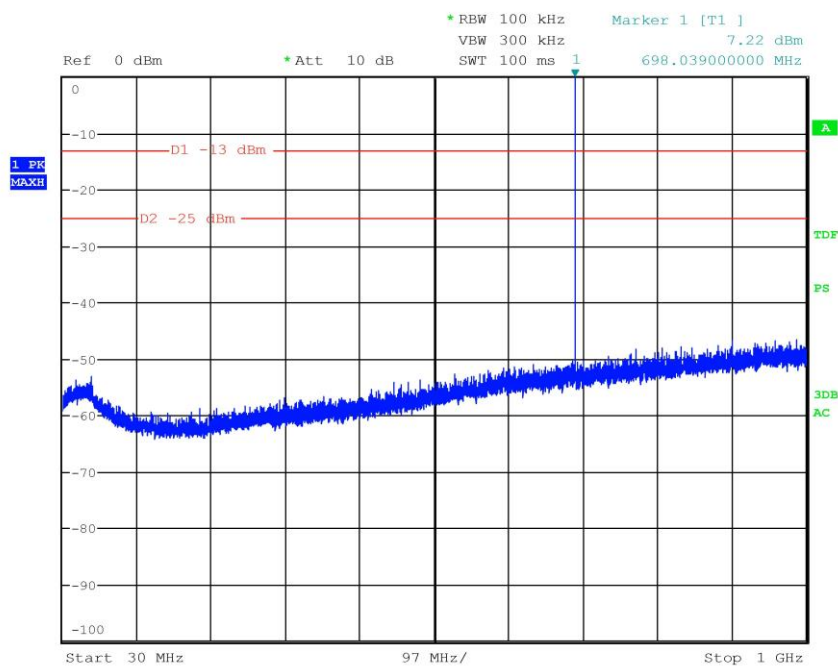
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 647.000MHz
Operator Bertezolo 141587109
Test Spec
Horiz





G141587110

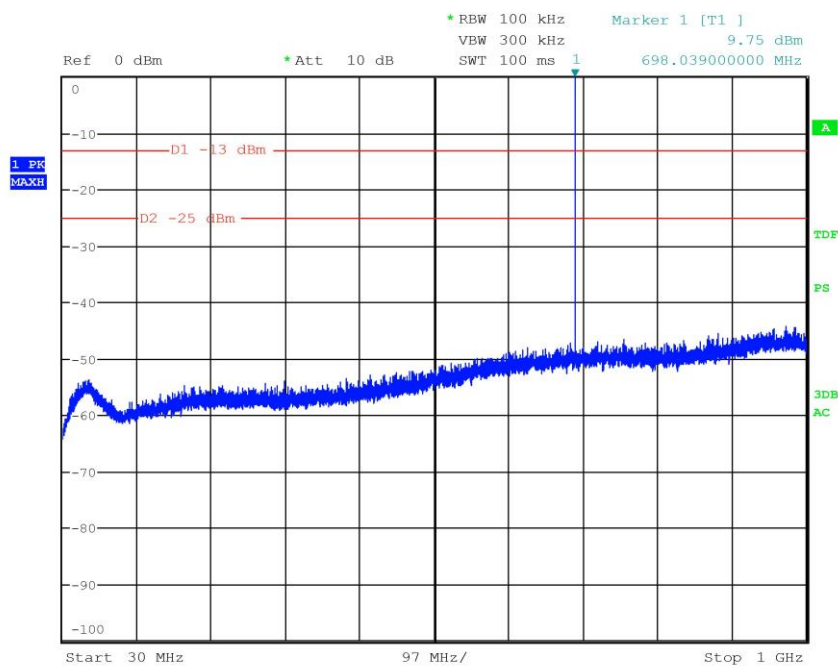
Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 697.975MHz
Operator Bertezolo 141587110
Test Spec
Horiz





G141587111

Meas Type Emission
Equipment under Test
Manufacturer
OP Condition Tx 697.975MHz
Operator Bertezolo 141587111
Test Spec
Vert



Result: The requirements are met