Test Report

47 CFR FCC Part 15 subpart C Par. 15.247
Intentional Radiators

Report reference no. .....:	28111852 007	
FCC Designation Number .....:	IT0008	Firmato da:Roberto Radice Data: 03/04/2019 13:32:17
FCC Test Firm Registration # .....:	804595	
Tested by (name + signature)…….:	Roberto Radice \ Tester	
Approved by (name + signature)……:	Giovanni Molteni \ TM	
Date of issue .....:	April 03, 2019	
Total number of pages .....:	200 Pages	
Testing Laboratory.....:	TÜV Rheinland Italia S.r.l.	
Address .....:	Via Mattei 3 - 20010 - Pogliano Milanese (MI) – Italy	
Applicant's name .....:	B Medical System S.a.r.l.	
Address .....:	17, Op der Hei - L-9809 Hosingen - Luxembourg	
Test item description .....:	Touch display with NFC card reader and Bluetooth communication for data export	
Trade Mark .....:	Premium HMI	
Manufacturer.....:	B Medical System S.a.r.l.	
Model/Type reference .....:	MR17-HMI-A	
Ratings .....:	Input: 12V DC Power / 2.6 Ampere	
FCC ID.....:	2AMU2-MR17-HMI-A	
Sample.....:		
Samples received on.....:	30/07/2018	
TUV reference samples.....:	180486 (sampled by the customer)	
Samples tested n. .....:	1	
Testing.....:		
Start Date: .....:	01/08/2018	
End Date: .....:	22/03/2019	

SUMMARY

RELEASE CONTROL RECORD		
Test report Number	**Reason of change**	**Date of Issue**
28111852 001	Original release	2018-08-31
28111852 004	Removed photographic documentation; modified RF exposure test distance evalution.	2019-01-07
28111852 007	New RF Output power test, BandEdge test, Out of band emission test	2019-04-03

1. Reference Standards

Standard	**Description**
FCC Part 15 (Subpart C)	§15.247 Operation within the bands 902-928 MHz, 2400-2483,5 MHz, and 5725-5850 MHz.
FCC Part 15 (Subpart C)	§15.207 Conducted Limits
FCC Part 15 (Subpart C)	§15.209 Radiated emission limits; general requirements
FCC Part 15 (Subpart C)	§15.203 Antenna Requirement
ANSI C63.4:2014	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI C63.10:2013	American National Standard for Testing Unlicensed Wireless Devices

2. Summary of testing		
§ 15.203 § 15.247 (b)(4)(i)	Antenna Requirements	PASS
§ 15.207 (a)	Power Line Conducted Emission	PASS
§ 15.209 (a) (f)	Radiated Emission	PASS
§ 15.215 (a) (b) (c)	Additional provisions to the general radiated emission limitations	PASS
§ 15.247 (d)	Out-of-band emissions	PASS
§ 15.247 (d)	100 kHz Bandwidth of Frequency Band Edges	PASS
§ 15.247 (a)	Frequency Hopping Spread Spectrum Specifications	
§ 15.247(a)	20 dB Bandwidth	PASS
§ 15.247(a)(1)	Carrier frequency (Hopping Channel) Separation	PASS
§ 15.247(a)(1)(iii)	Number of Hopping Channels Used	PASS
§ 15.247(a)(1)(iii)	Time occupancy (Dwell Time) of Each Ch. within a 0,4 x Nch (sec) Period	PASS
§ 15.247(a)(2)	6dB Minimum Bandwidth	N.A.[1]
§ 15.247(b)	Maximum Peak Output Power	
§ 15.247(b) (1)	Peak Output Power (conducted)	PASS
§ 15.247(b) (3)	RF power output (conducted)	N.A.[1]
§ 15.247(b) (4)	Antenna gain	
§ 15.247I	Operation with directional antenna gains greater than 6 dBi	N.A. [2]
§ 15.247 I	Power Spectral Density	N.A.[1]
§ 15.247 (f)	Hybrid systems	N.A.[1]
§ 15.247 (g)	FHSS Transmission characteristics	PASS
§ 15.247 (h)	Recognition of occupied channel and multiple transmission system	N.A
§ 15.247(i) (§ 47CFR 1.1307(b)(1))	RF humane exposure	PASS

Note 1	Not applicable for DSS equipment
Note 2	Antenna Gain <6dBi

Possible test case verdicts:

- test case does not apply to the test object ... : N/A
- test object does meet the requirement..... : PASS
- test object does not meet the requirement... : FAIL

General remarks:

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

The results contained in this report reflect the results for this particular model and serial number. It is the responsibility of the manufacturer to ensure that all production models meet the intent of the requirements detailed within this report.

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"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

3. General product information

MR17-HMI-A is a touch display with NFC card reader and Bluetooth for data export (from HMI to another device) used in Blood bank refrigerators, Plasma contact shock freezers, platelet agitators, distribution freezers.

4. General Chipset information

The TI CC256x device is a complete *Bluetooth* BR/EDR/LE HCI solution that reduces design effort and enables fast time to market. Based on TI's seventh-generation *Bluetooth* core, the CC256x device provides a product-proven solution that is *Bluetooth* 4.1 compliant. When coupled with a microcontroller unit (MCU), this HCI device offers best-in-class RF performance with a range of about 2X compared to other *Bluetooth* LE-only solutions. Furthermore, TI's power-management hardware and software algorithms provide significant power savings in all commonly used *Bluetooth* BR/EDR/LE modes of operation.
The TI Dual-Mode *Bluetooth* Stack software is certified and provided royalty free for TI's MSP430 and ARM Cortex-M3 and Cortex-M4 MCUs. Other MPUs can be supported through TI's third party. iPod (MFi) protocol is supported by add-on software packages. For more information, see TI Dual-Mode Bluetooth Stack. Some of the profiles supported include the following:
• Serial port profile (SPP)
• Advanced audio distribution profile (A2DP)
• Audio/video remote control profile (AVRCP)
• Handsfree profile (HFP)
• Human interface device (HID)
• Generic attribute profile (GATT)
• Several *Bluetooth* LE profiles and services
In addition to software, this solution consists of multiple reference designs with a low BOM cost, including a new *Bluetooth* audio sink reference design for customers to create a variety of applications for low-end, low-power audio solutions.

5. General Antennas information

General Specifications			
Part Number	2450AT18B100	**Input Power**	2W max.
Frequency Range	2400 - 2500 Mhz	**Impedance**	50 Ω
Peak Gain	0.5 dBi typ. (XZ-V)	**Operating Temperature**	-45°C to 125°C
Average Gain	-0.5 dBi typ. (XZ-V)	**Reel Quanity**	3,000
Return Loss	9.5 dB min.		

6. Parameter setting during tests

Bluetooth Tx (=Continuous Transmission Mode)

Adjustable properties:

- Modulation -> „CW“ „GFSK (BR)“ „pi/4-DQPSK (2-EDR)“ „8DPSK (3-DER)“
- Test pattern -> „PN9“ „PN15“ „5555“ „All 1“ „All 0“ „FOFO“ „FFOO“
- Frequency -> „0“ „39“ „78“
- Power level -> „0“ „1“

7. Equipment Used During Test

Use*	Product Type	Manufacturer	Model	Comments
EUT	Touch display with NFC card reader and Bluetooth communication for data export	B Medical System S.a.r.l.	MR17-HMI-A	---
AE	Power supply unit	Alpha Elettronica	BD212	Input: AC Mains 100÷240V 50/60Hz Output: 12 V dc – Used only for Conducted emission test
AE	System Power supply unit	Hewlett Packard	6038A	0-60V dc; 0-10 Ampere 200W – Used for all other tests.

Note:

* Use :

EUT - Equipment Under Test,
AE - Auxiliary/Associated Equipment, or
SIM - Simulator (Not Subjected to Test)

No other Auxiliary/Associated Equipment was connected/installed on the EUT

8. Input/Output Ports

CONNECTIONS

Port		Description	Connection	Cable lenght
1	Enclosure	Non conductive surface	Closed by metallic screws	---
2	AC Power Port	AC	Port not present	---
3	DC Power Port	DC	Input 12Vdc 2.6A (n° 2 wires)	<1mt

*Note: AC = AC Power Port DC = DC Power Port N/E = Non-Electrical
I/O = Signal Input or Output Port (Not Involved in Process Control)
WN = Wired Network

9. Power Interface

Mode #	Voltage (V)	Current (A)	Power (W)	Frequency (DC/AC-Hz)	Phases (#)	Comments
Rated	12 V dc	---	---	---	---	---

10. EUT Operation Modes	
Operation mode	**Description**
#1	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: 2402 MHz (low channel); 2440 MHz (mid channel); 2480 MHz (high channel); DH1 Packet type; Payload PBRS9; Packet data length: 27; Power Setting: 12
#2	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: 2402 MHz (low channel); 2440 MHz (mid channel); 2480 MHz (high channel); DH3 Packet type; Payload PBRS9; Packet data length: 183; Power Setting: 12
#3	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: 2402 MHz (low channel); 2440 MHz (mid channel); 2480 MHz (high channel); DH5 Packet type; Payload PBRS9; Packet data length: 339; Power Setting: 12
#4	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: 2402 MHz (low channel); 2440 MHz (mid channel); 2480 MHz (high channel); 2-DH1 Packet type; Payload PBRS9; Packet data length: 54; Power Setting: 12
#5	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: 2402 MHz (low channel); 2440 MHz (mid channel); 2480 MHz (high channel); 2-DH3 Packet type; Payload PBRS9; Packet data length: 367; Power Setting: 12
#6	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: 2402 MHz (low channel); 2440 MHz (mid channel); 2480 MHz (high channel); 2-DH5 Packet type; Payload PBRS9; Packet data length: 679; Power Setting: 12
#7	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: 2402 MHz (low channel); 2440 MHz (mid channel); 2480 MHz (high channel); 3-DH1 Packet type; Payload PBRS9; Packet data length: 87; Power Setting: 12
#8	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: 2402 MHz (low channel); 2440 MHz (mid channel); 2480 MHz (high channel); 3-DH3 Packet type; Payload PBRS9; Packet data length: 552; Power Setting: 12
#9	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: 2402 MHz (low channel); 2440 MHz (mid channel); 2480 MHz (high channel); 3-DH5 Packet type; Payload PBRS9; Packet data length: 1021; Power Setting: 12

#10	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: Hopping mode DH5 Packet type; Payload PBRS9; Packet data length: 339; Power Setting: 12
#11	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: Hopping mode 2-DH5 Packet type; Payload PBRS9; Packet data length: 679; Power Setting: 12
#12	Continuous Bluetooth Modulation RF Transmission RF setting during tests: Frequency: Hopping mode 3-DH5 Packet type; Payload PBRS9; Packet data length: 1021; Power Setting: 12

Frequency (Transmission)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	**2402 MHz**	2	2403 MHz	3	2404MHz	4	2405 MHz
5	2406 MHz	6	2407 MHz	7	2408 MHz	8	2409 MHz
9	2410 MHz	10	2411 MHz	11	2412 MHz	12	2413 MHz
13	2414 MHz	14	2415 MHz	15	2416 MHz	16	2417 MHz
17	2418 MHz	18	2419 MHz	19	2420 MHz	20	2421 MHz
21	2422 MHz	22	2423 MHz	23	2424 MHz	24	2425 MHz
25	2426 MHz	26	2427 MHz	27	2428 MHz	28	2429 MHz
29	2430 MHz	30	2431 MHz	31	2432 MHz	32	2433 MHz
33	2434 MHz	34	2435 MHz	35	2436 MHz	36	2437 MHz
37	2438 MHz	38	2439 MHz	39	**2440 MHz**	40	2441 MHz
41	2442 MHz	42	2443 MHz	43	2444 MHz	44	2445 MHz
45	2446 MHz	46	2447 MHz	47	2448 MHz	48	2449 MHz
49	2450 MHz	50	2451 MHz	51	2452 MHz	52	2453 MHz
53	2454 MHz	54	2455 MHz	55	2456 MHz	56	2457 MHz
57	2458 MHz	58	2459 MHz	59	2460 MHz	60	2461 MHz
61	2462 MHz	62	2463 MHz	63	2464 MHz	64	2465 MHz
65	2466 MHz	66	2467 MHz	67	2468 MHz	68	2469 MHz
69	2470 MHz	70	2471 MHz	71	2472 MHz	72	2473 MHz
73	2474 MHz	74	2475 MHz	75	2476 MHz	76	2477 MHz
77	2478 MHz	78	2479 MHz	79	**2480 MHz**		

11. EUT Configuration Modes

Description		
Touch display connected to DC power supply at 12V dc; continuous packets transmission		
Par.	test	EUT Operation Modes
§ 15.203 § 15.247 (b)(4)(i)	Antenna Requirements	#1 to #12
#§ 15.207 (a)	Power Line Conducted Emission	#3 #6 #9
§ 15.209 (a) (f)	Radiated Emission 9kHz-30MHz	#3 #6 #9
§ 15.209 (a) (f)	Radiated Emission 30MHz-1GHz	#3 #6 #9
§ 15.209 (a) (f)	Radiated Emission 1GHz-3GHz	#1 to #9
§ 15.209 (a) (f)	Radiated Emission 3GHz-25GHz	#3 #6 #9
§ 15.215 (a) (b) (c)	Additional provisions to the general radiated emission limitations	#1 to #9
§ 15.247 (d)	Out-of-band emissions	#3
§ 15.247 (d)	100 kHz Bandwidth of Frequency Band Edges	#3 #6 #9 #10 #11 #12
§ 15.247 (a)	Frequency Hopping Spread Spectrum Specifications	
§ 15.247(a)	20 dB Bandwidth	#1 to #9
§ 15.247(a)(1)	Carrier frequency (Hopping Channel) Separation	#10
§ 15.247(a)(1)(iii)	Number of Hopping Channels Used	#10
§ 15.247(a)(1)(iii)	Time occupancy (Dwell Time) of Each Ch. within a 0,4 x Nch (sec) Period	#10 #11 #12
§ 15.247(b) (1)	Peak Output Power (conducted)	#1 to #9
§ 15.247 (g)	FHSS Transmission characteristics	#10 #11 #12
§ 15.247(i) (§ 47CFR 1.1307(b)(1))	RF humane exposure	#1 to #9

The field strength is calculated by subtracting the Amplifier Gain and adding the Cable Loss and Antenna Correction Factor to the measured reading. The basic equation is as follows:

Field Strength (dBμV/m) = RAW - AMP + CBL + ACF

Where: RAW = Measured level before correction (dBμV)

AMP = Amplifier Gain (dB)

CBL = Cable Loss (dB)

ACF = Antenna Correction Factor (dB/m)

$$\mu V/m = 10^{\frac{dB\mu V/m}{20}}$$

Sample radiated emissions calculation @ 30 MHz

Measurement +Antenna Factor–Amplifier Gain+Cable loss=Radiated Emissions (dBuV/m)

25 dBuV/m + 17.5 dB – 20 dB + 1.0 dB = 23.5 dBuV/m

12. Test Conditions and Results

12.1 TEST: Antenna requirements			PASS
Parameters required prior to the test	Laboratory Ambient Temperature (°C)	15 to 35 °C	
	Relative Humidity (%)	30 to 60 %	
Parameters recorded during the test	Laboratory Ambient Temperature (°C)	21°C	
	Relative Humidity (%)	56%	
	Air pressure (hPa)	1020	
—	Power Supply / Frequency	Application Point	
Fully configured sample tested at the power line frequency	12 Vdc	Enclosure	
Equipment mode:	Operation mode	#1 to #12	
FCC Standard	§15.203 § 15.247 (B)(4)(I)		

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

Antenna specifications	
N° of authorized antenna types	1
Antenna type	Chip antenna 2450AT18B100 (Johanson Technology)
Maximum total gain	+0.5 dBi
External power amplifiers	Not present

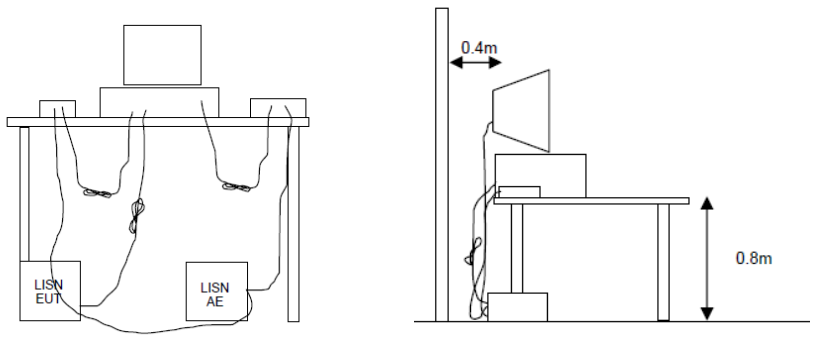
12.2 TEST: AC Power Conducted Emission			PASS
Parameters required prior to the test	Laboratory Ambient Temperature (°C)	15 to 35 °C	
	Relative Humidity (%)	30 to 60 %	
Parameters recorded during the test	Laboratory Ambient Temperature (°C)	21°C	
	Relative Humidity (%)	56%	
	Air pressure (hPa)	1020	
—	Power Supply / Frequency	Application Point	
Fully configured sample tested at the power line frequency	115V ~ 60Hz (via AC/DC adapter)	AC Mains	
Equipment mode:	Operation mode	#3 #6 #9	
FCC Standard	§15.207		

Frequency (MHz)	Quasi-peak (dBuV)	Average (dBuV)	Result
0.15-0.5	66 to 56	56 to 46	PASS
0.5-5	56	46	PASS
5-30	60	50	PASS

Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

Further information to test setup

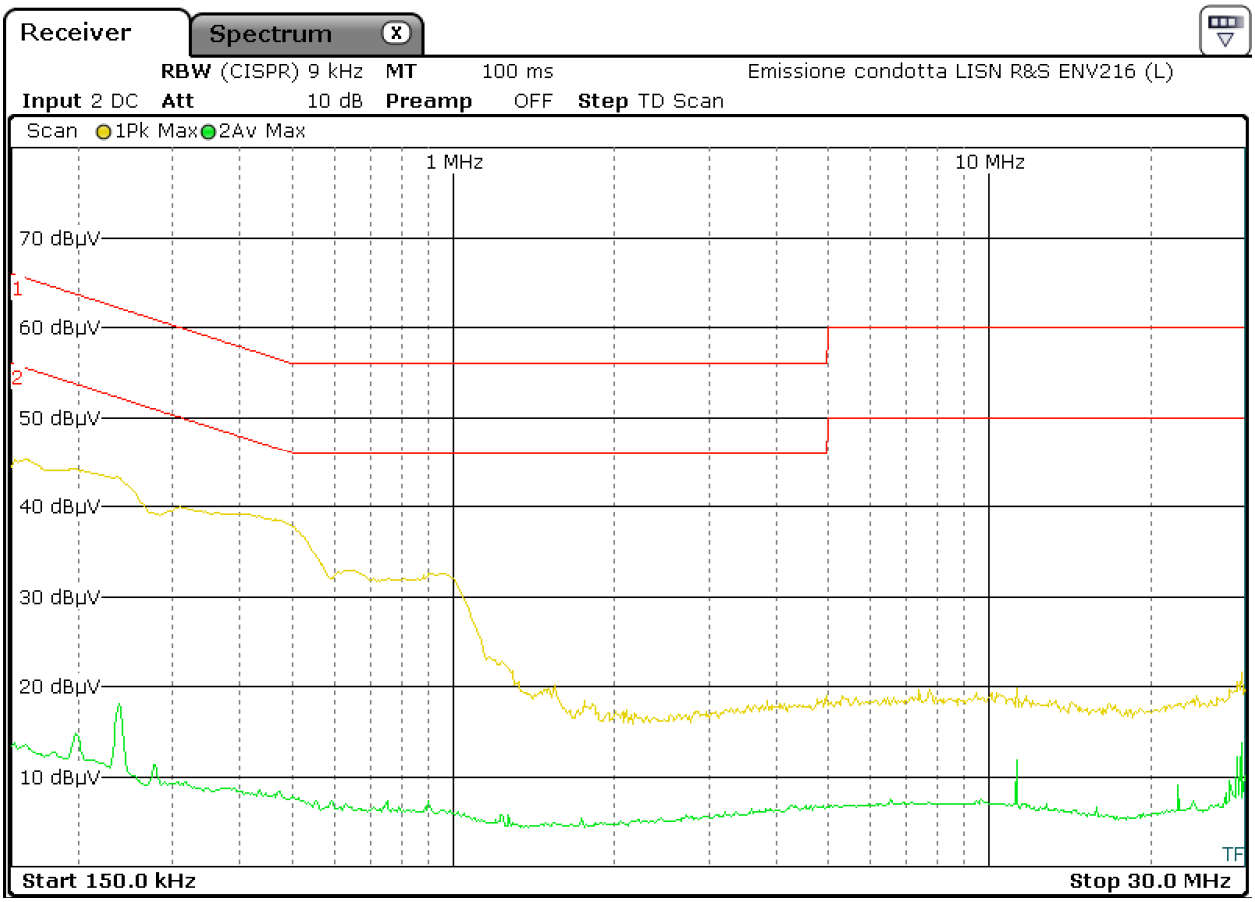


Test Equipment Used					
Description	Manufacturer	Model	TUV Identifier	Calibration date	Calibration due
EMI Test Receiver	R&S	ESR	87020864	12/2017	12/2018
Two line V-Network	R&S	ENV216	87020993	01/2018	01/2020
Stabilized Power Supply	Elettrotest	TPS T 30K60S	87020490	09/2015	09/2018

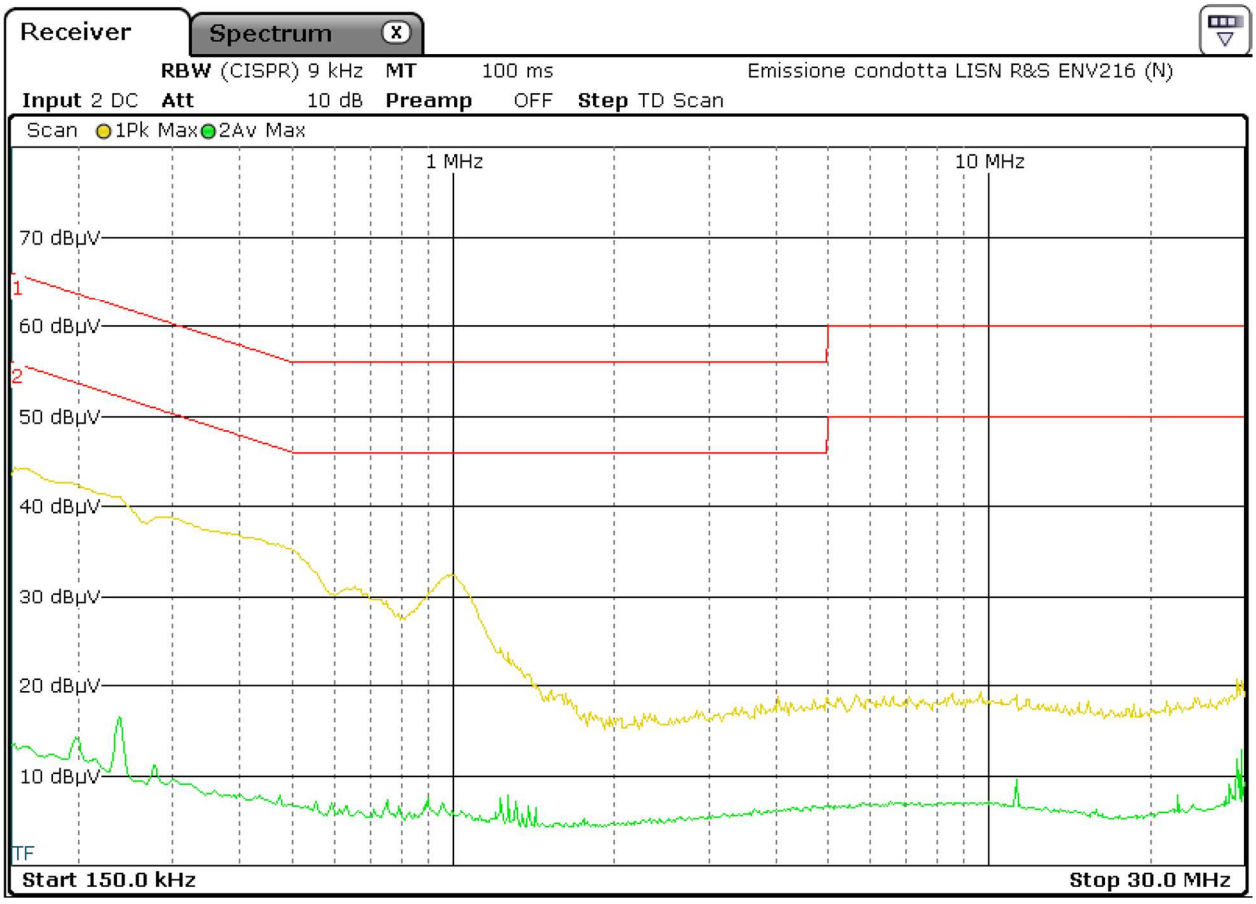
Graphical representation of Mains Terminal Disturbance Voltage Measurement

Operation Mode: #3 – Low Channel (2402 MHz)

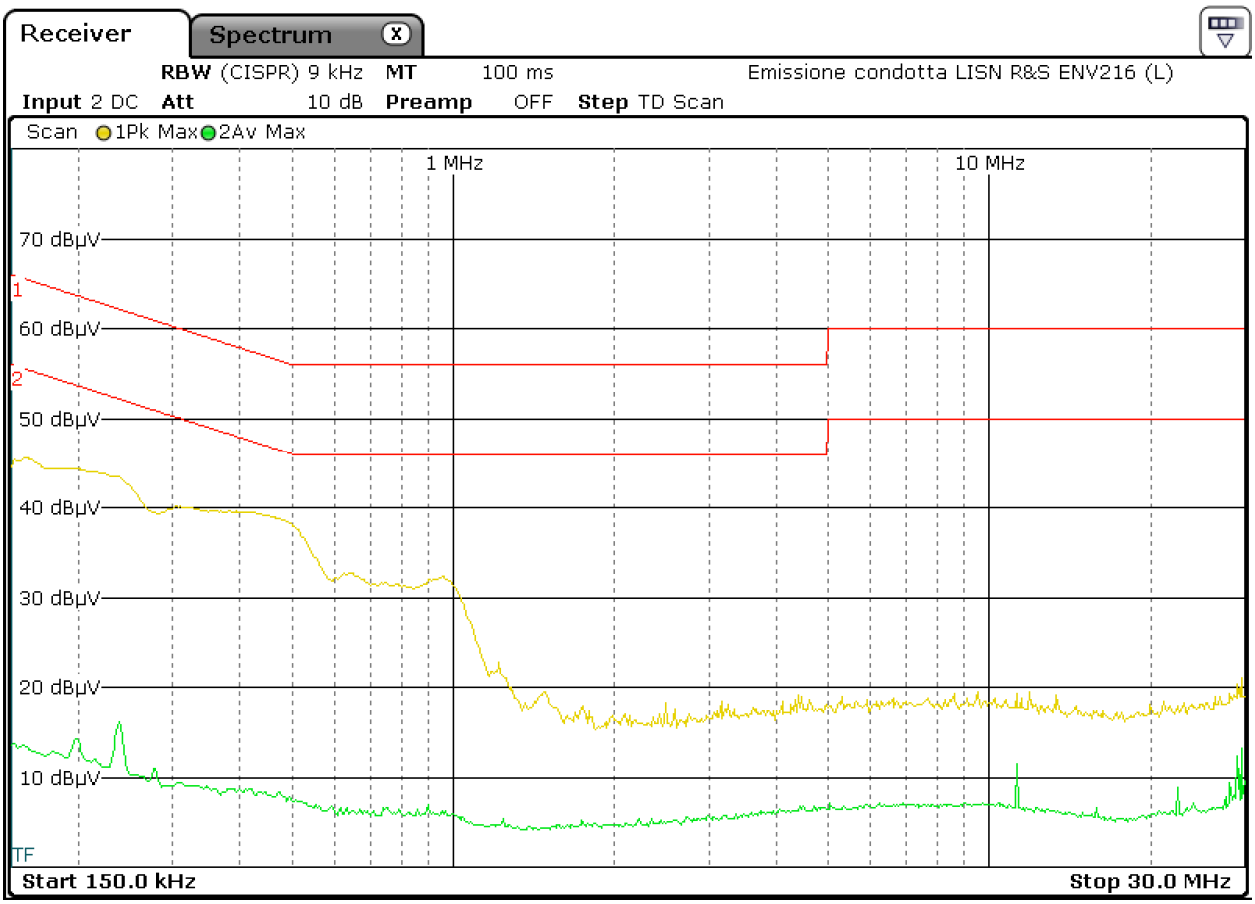
Phase



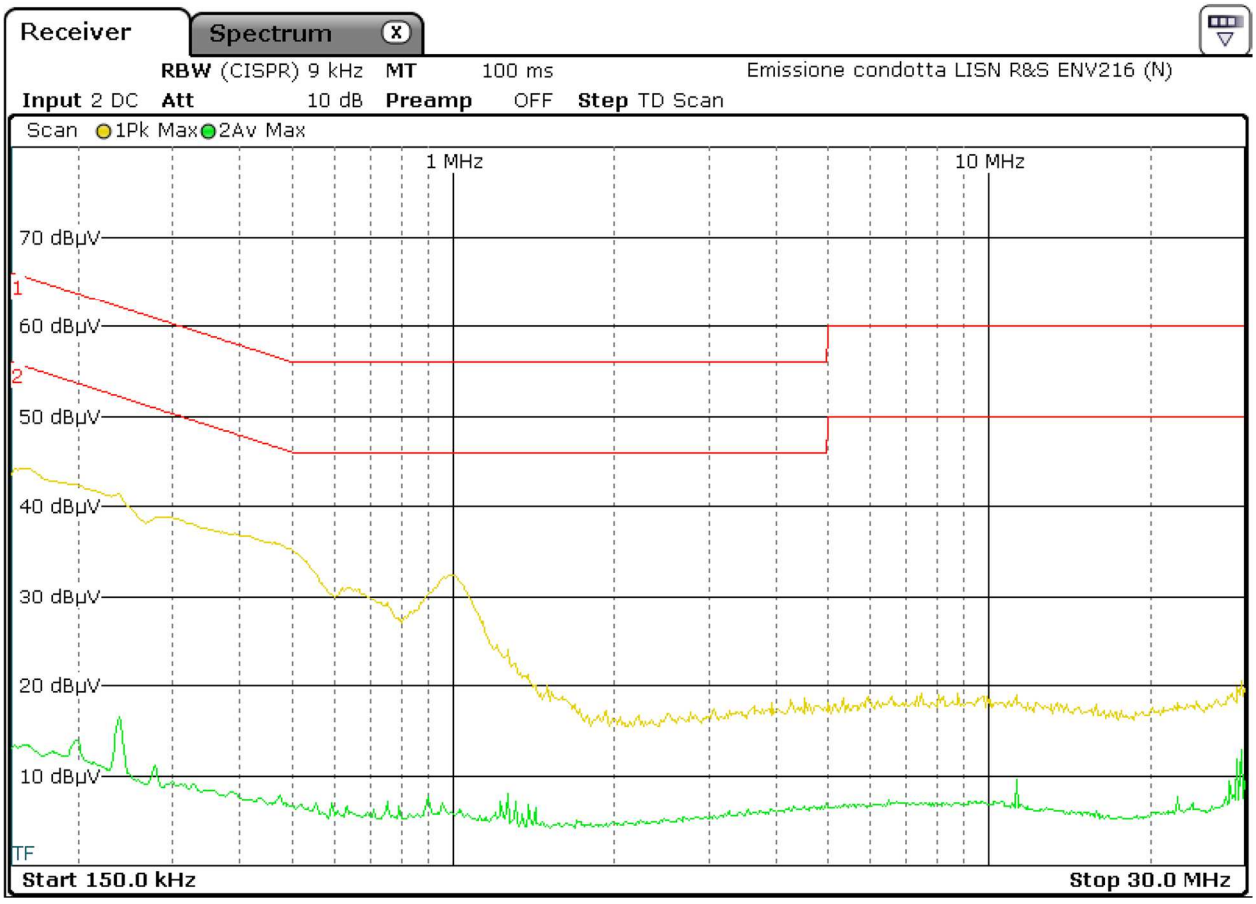
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #3 – Low Channel (2402 MHz)
Neutral



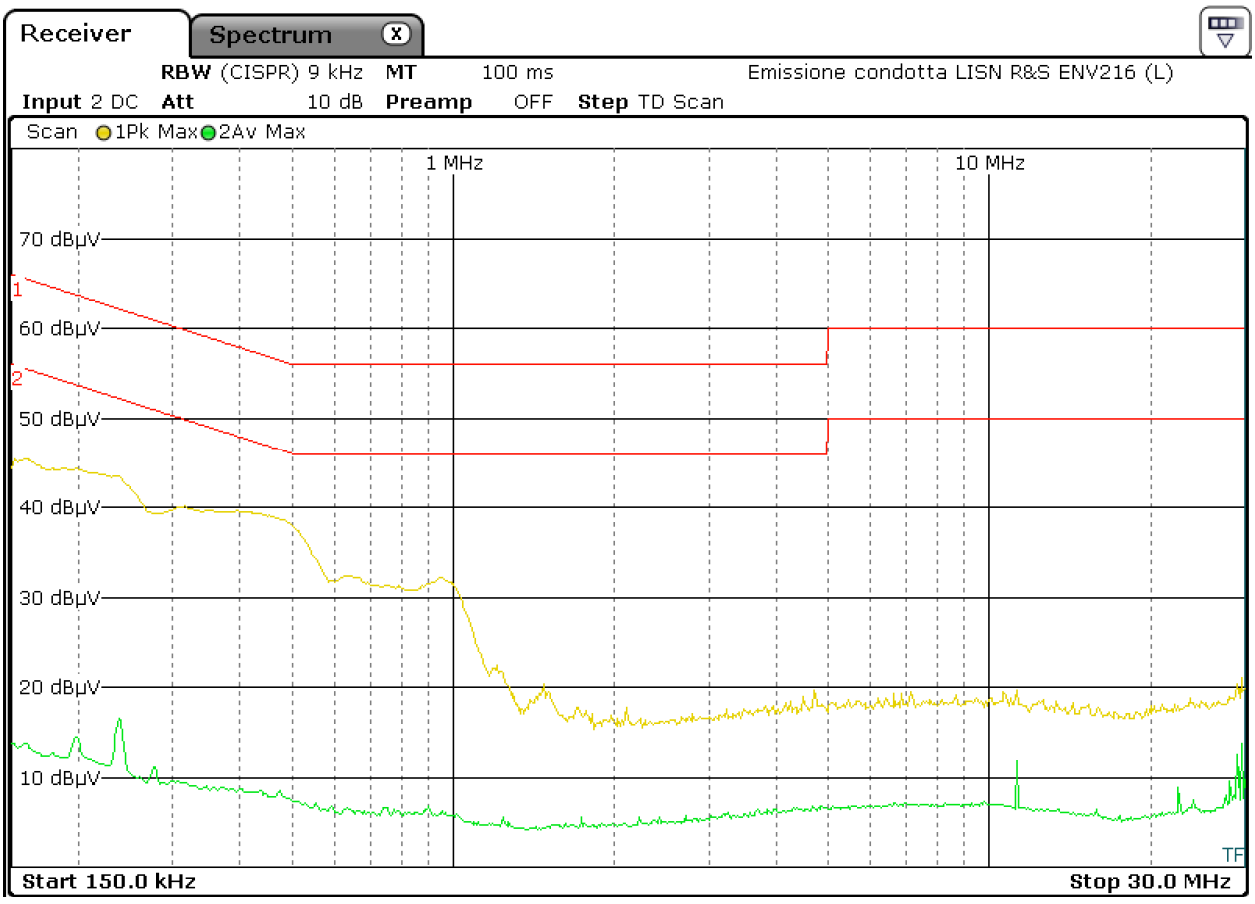
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #6 – Low Channel (2402 MHz)
Phase



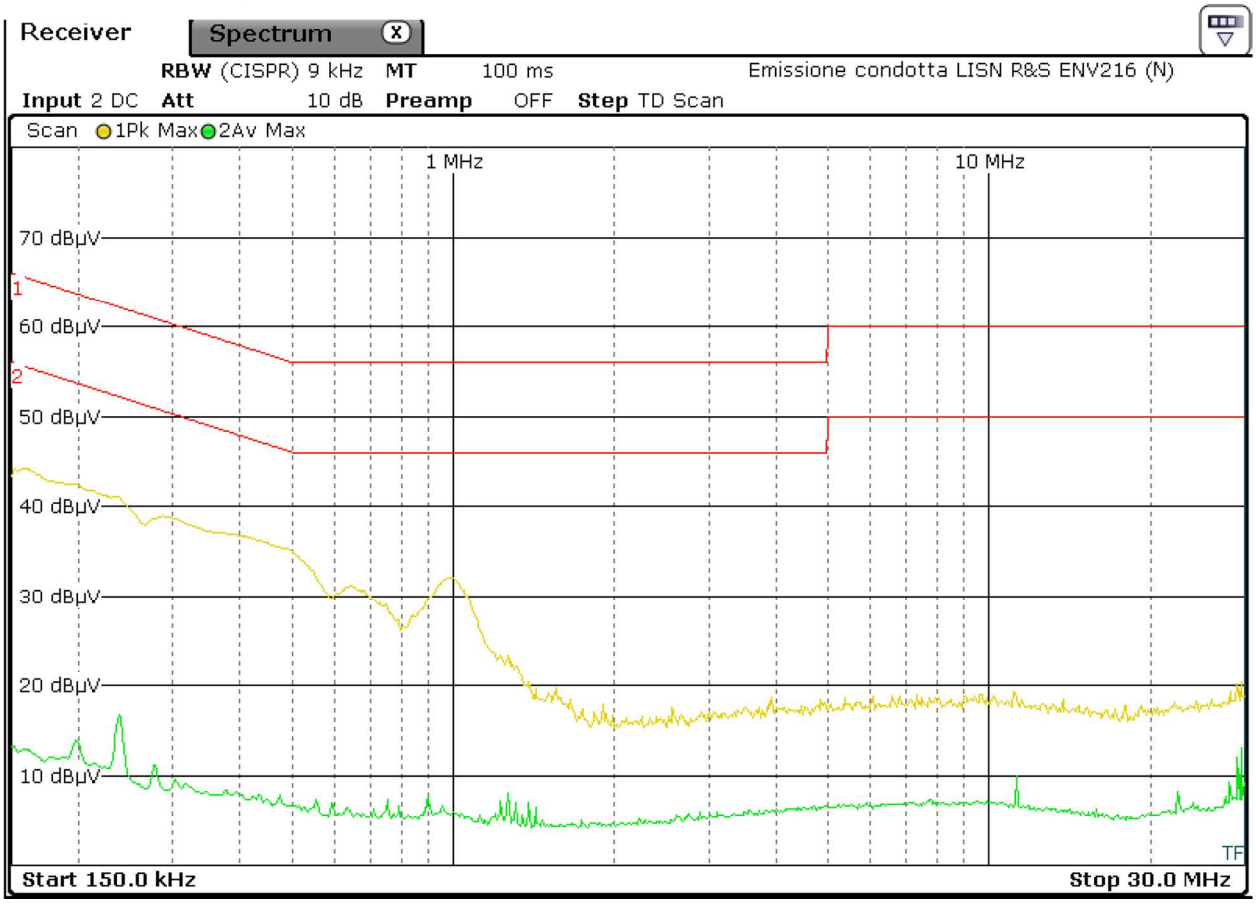
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #6 – Low Channel (2402 MHz)
Neutral



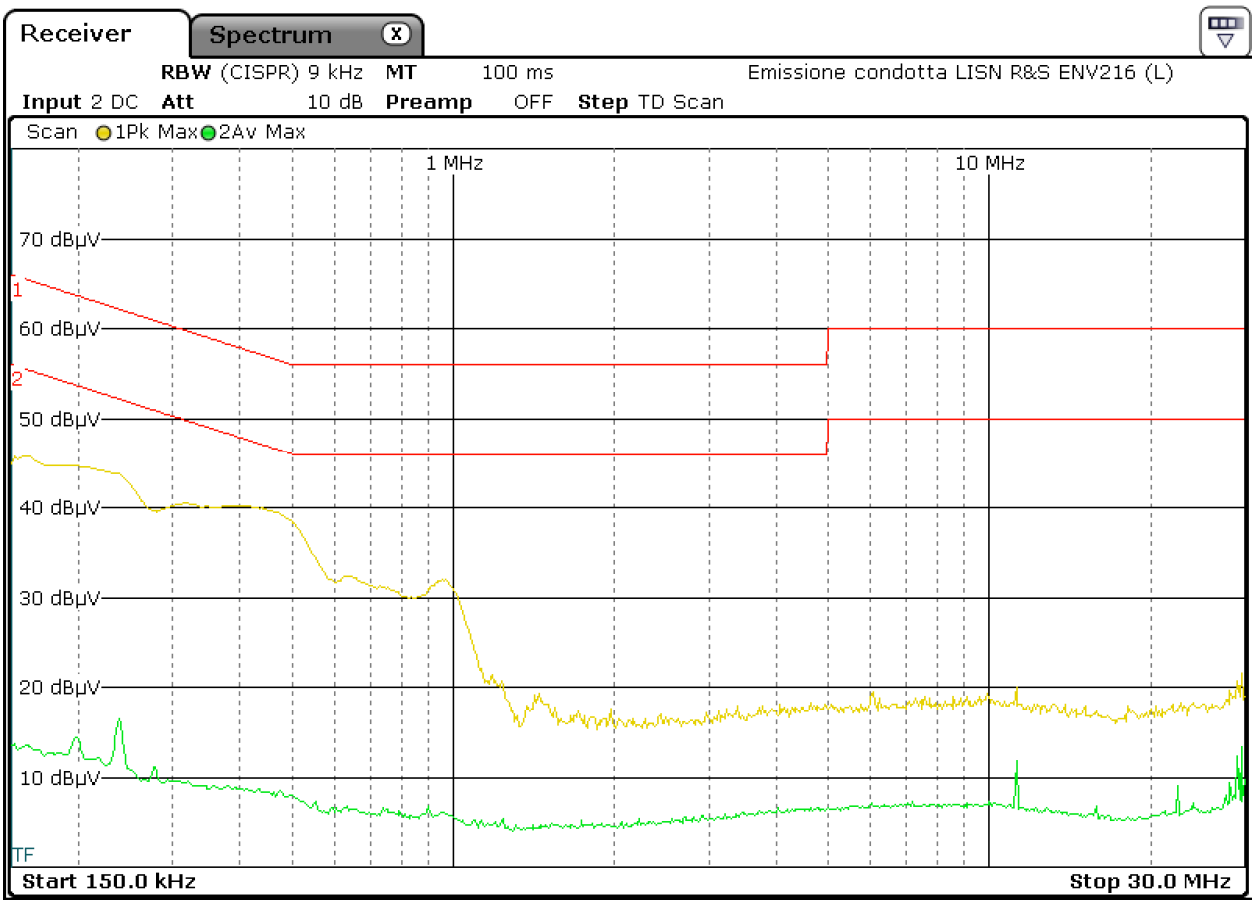
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #9 – Low Channel (2402 MHz)
Phase



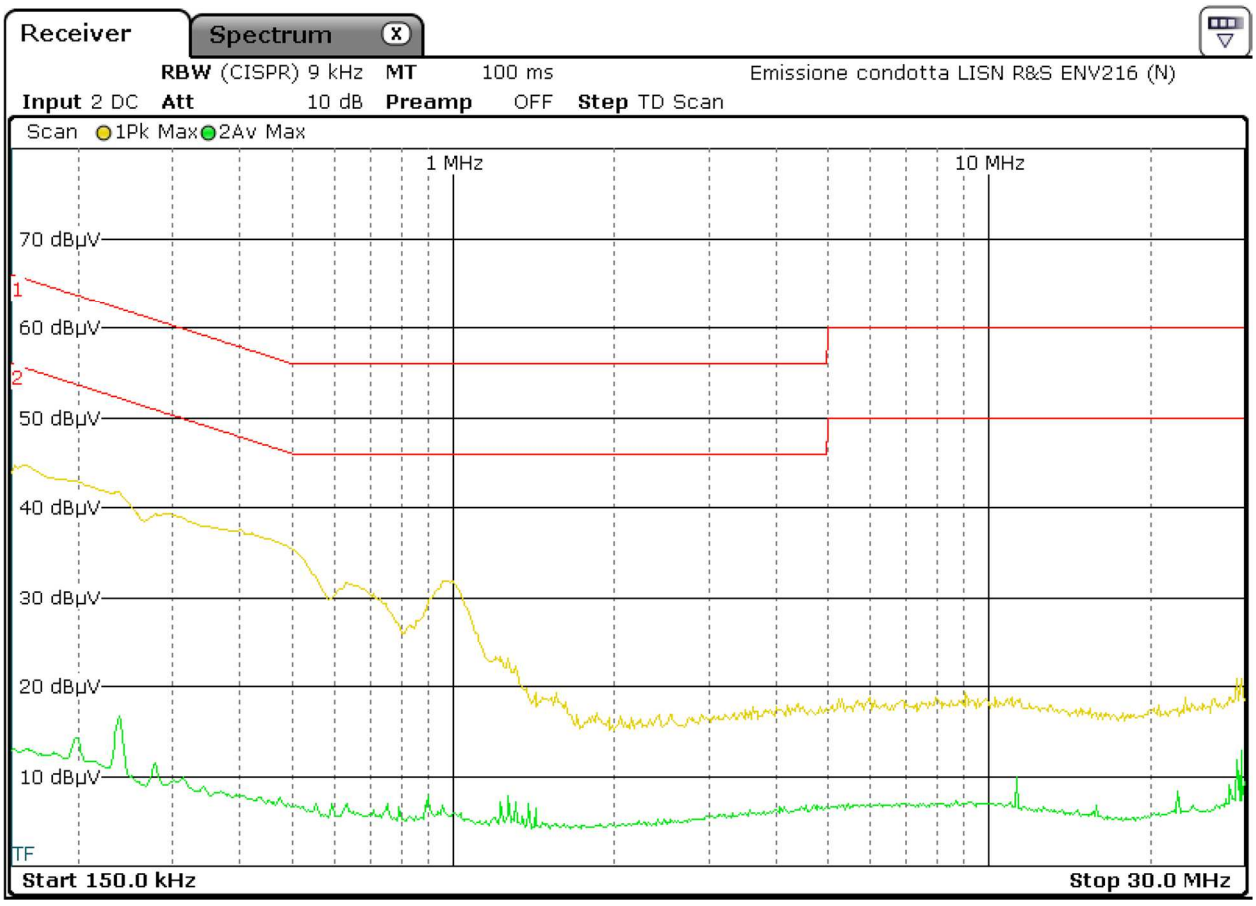
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #9 – Low Channel (2402 MHz)
Neutral



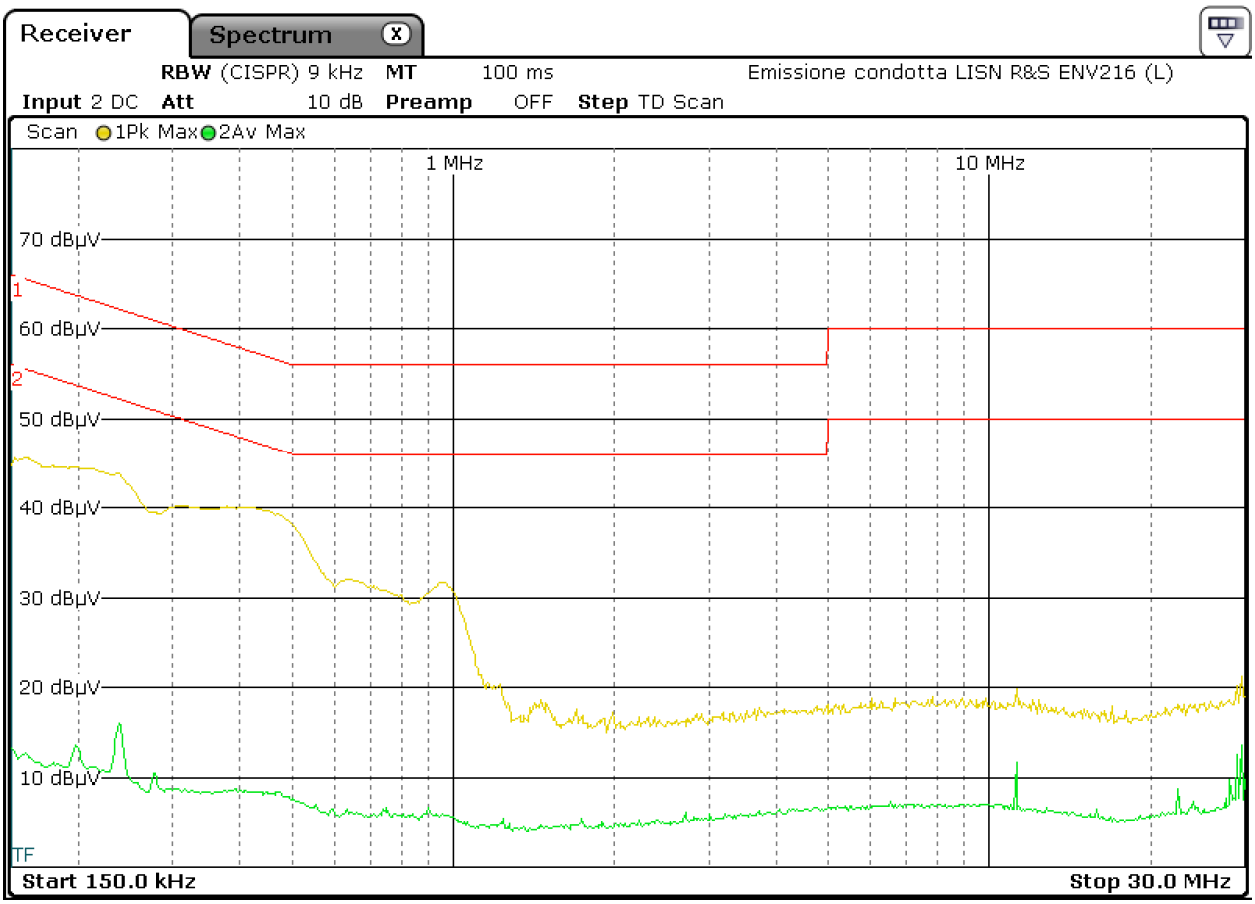
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #3 – Middle Channel (2440 MHz)
Phase



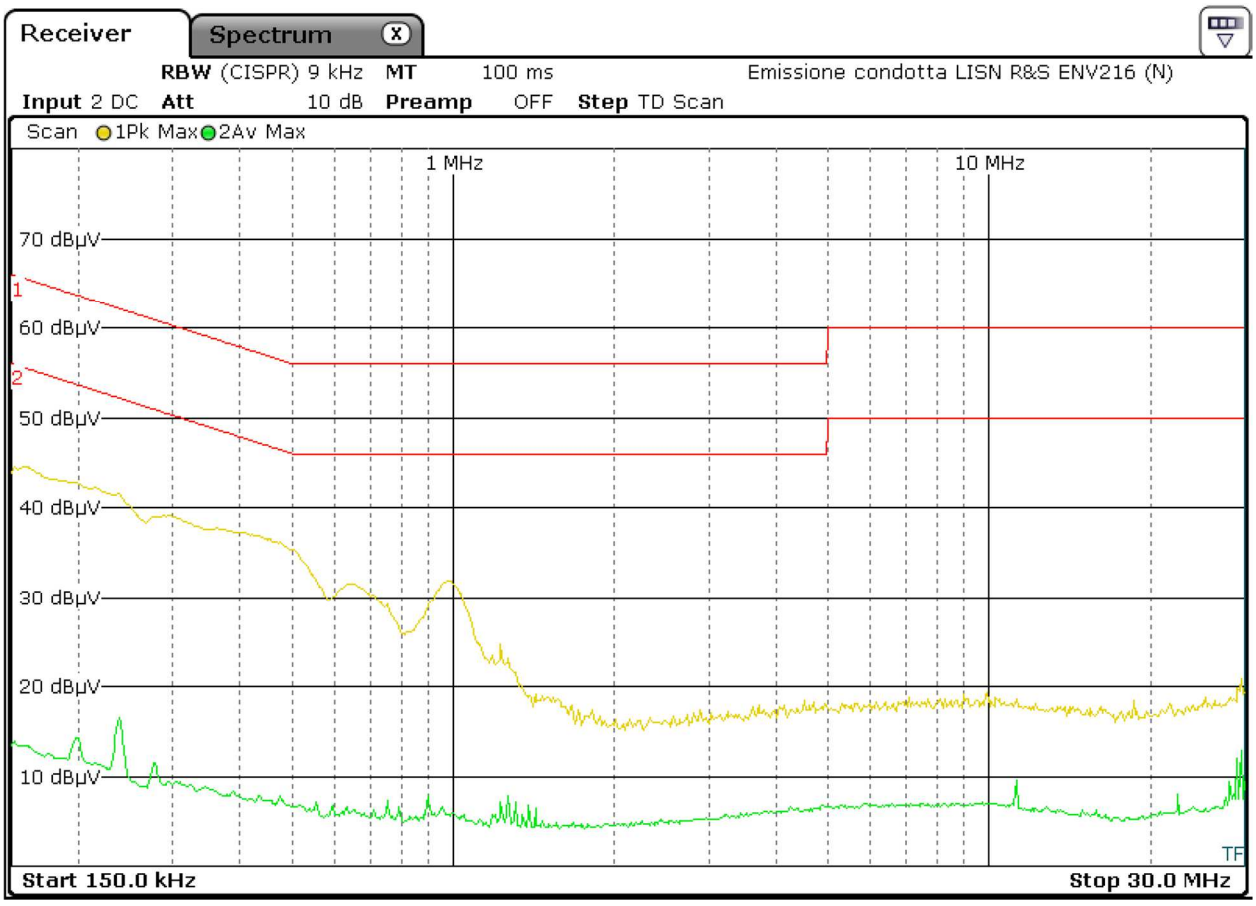
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #3 – Middle Channel (2440 MHz)
Neutral



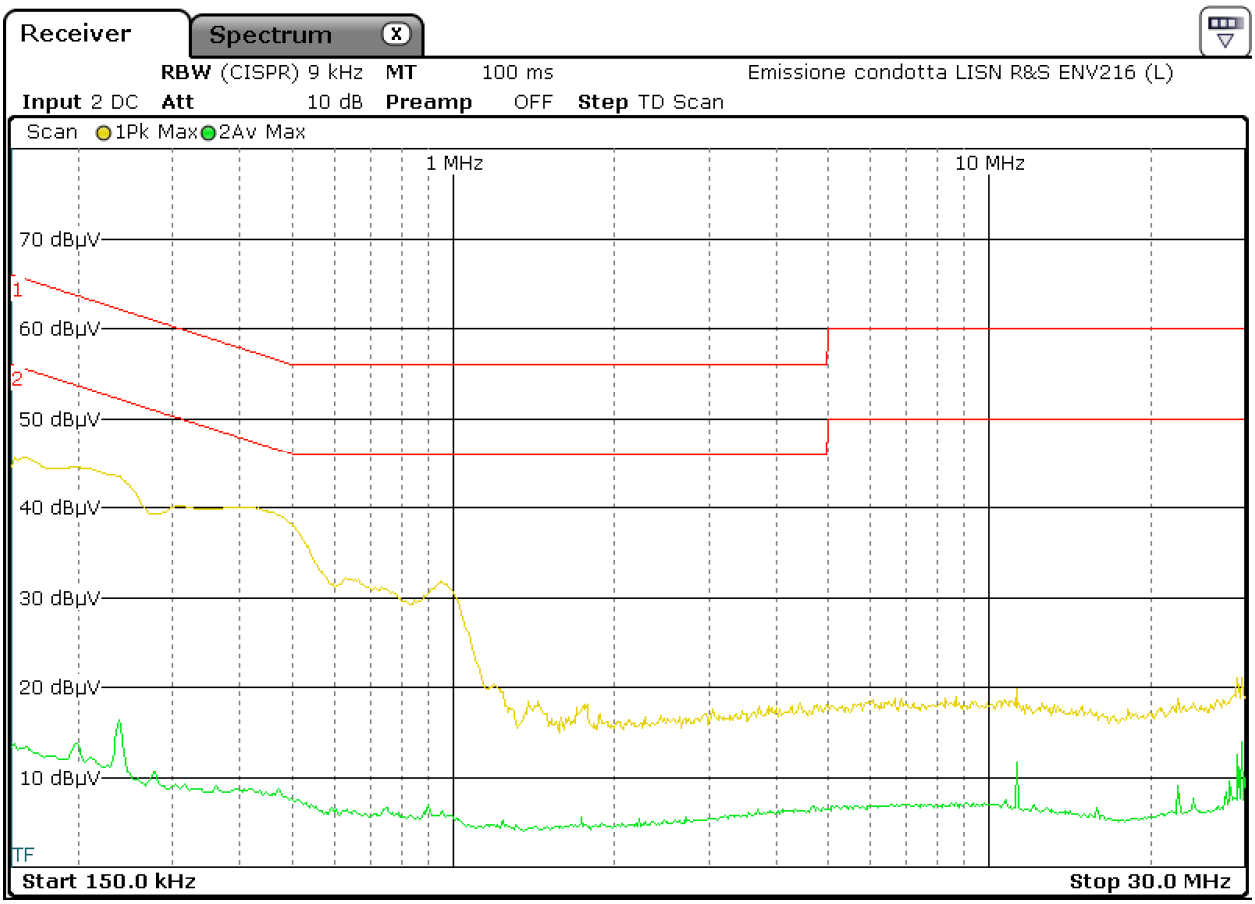
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #6 – Middle Channel (2440 MHz)
Phase



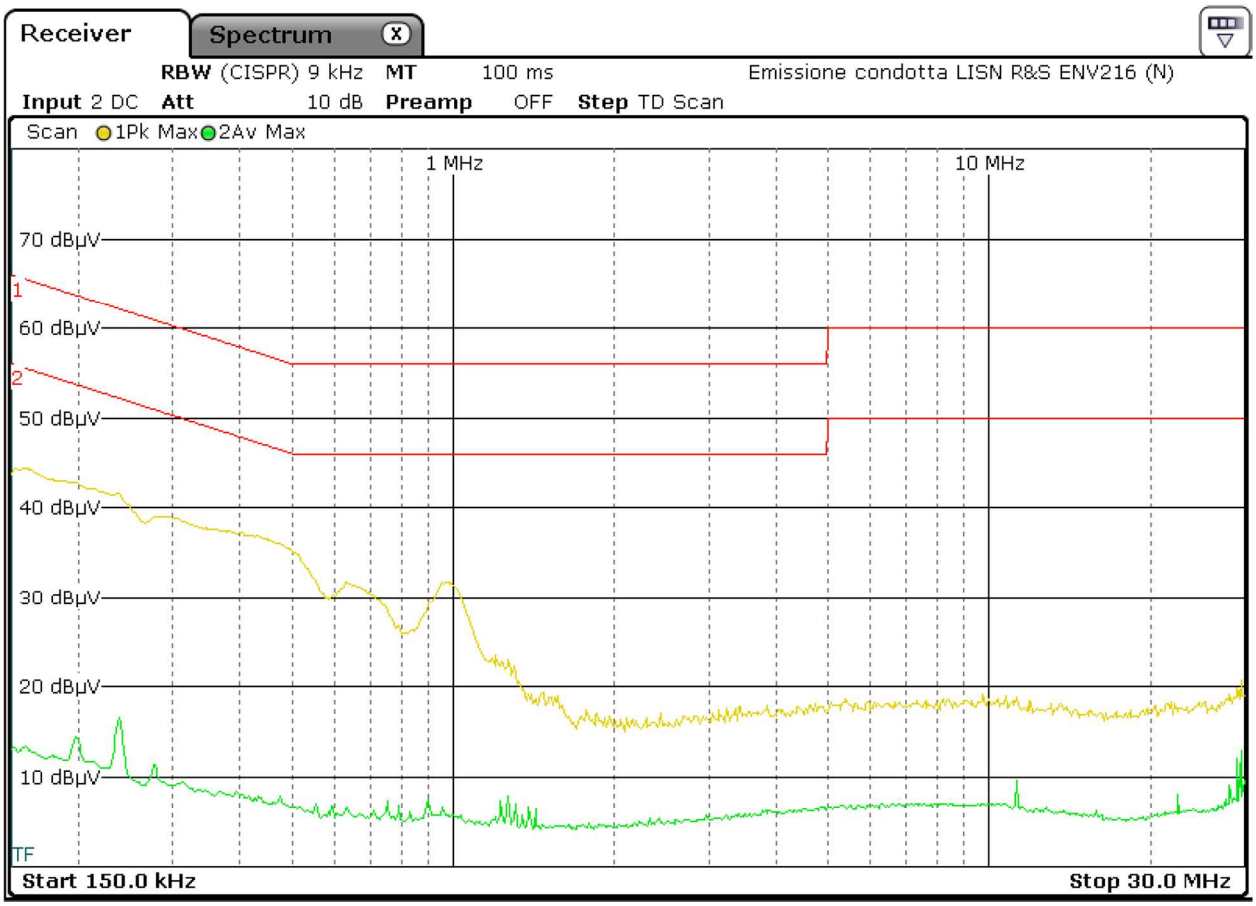
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #6 – Middle Channel (2440 MHz)
Neutral



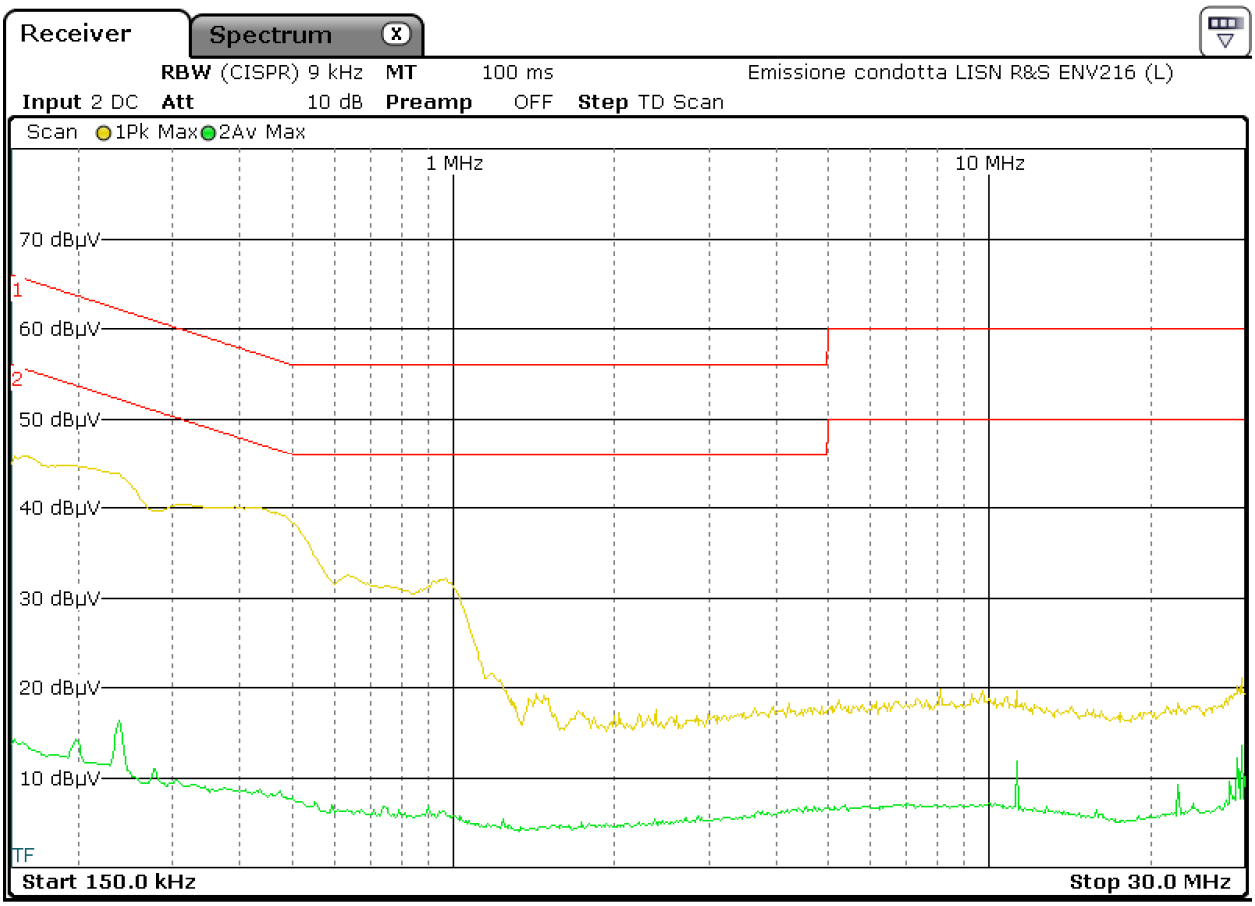
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #9 – Middle Channel (2440 MHz)
Phase



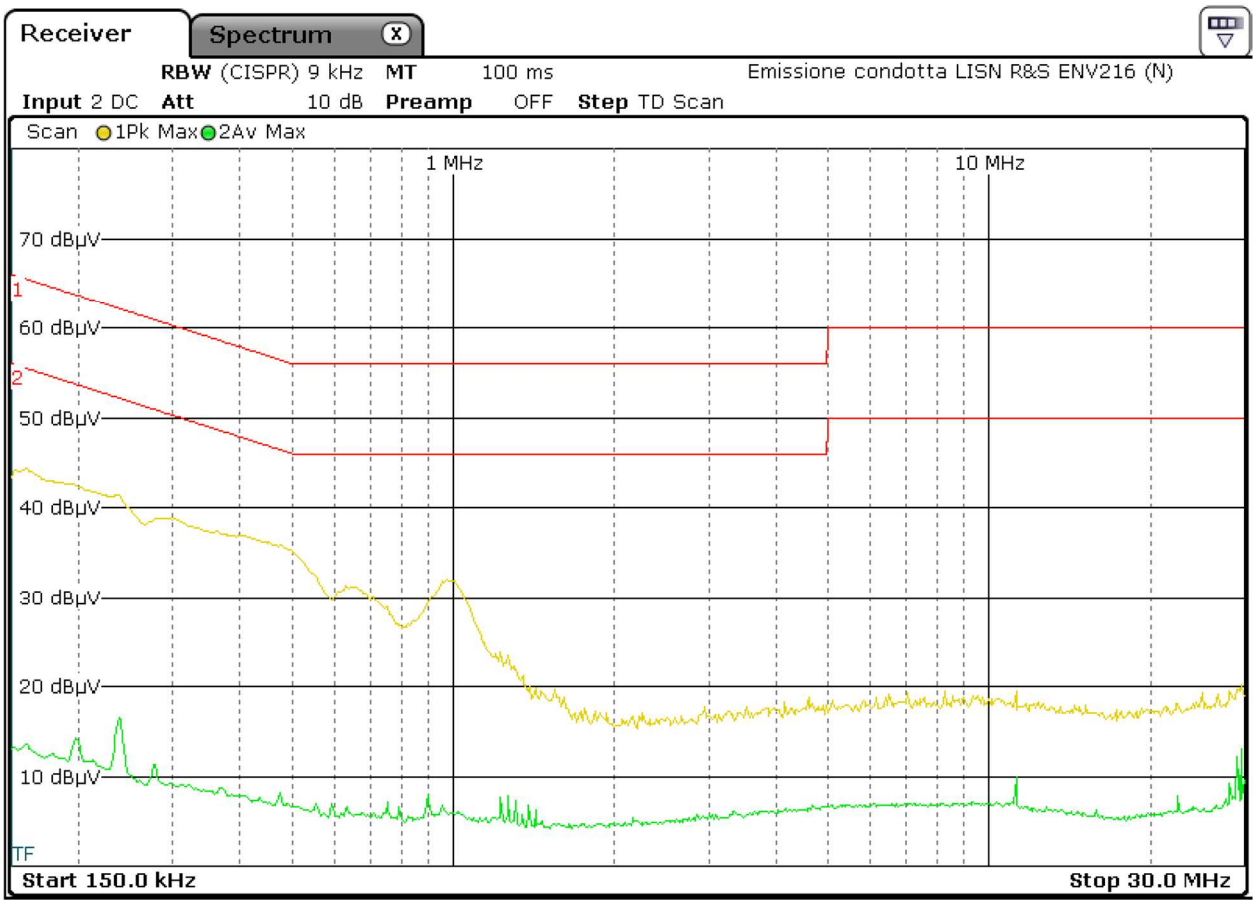
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #9 – Middle Channel (2440 MHz)
Neutral



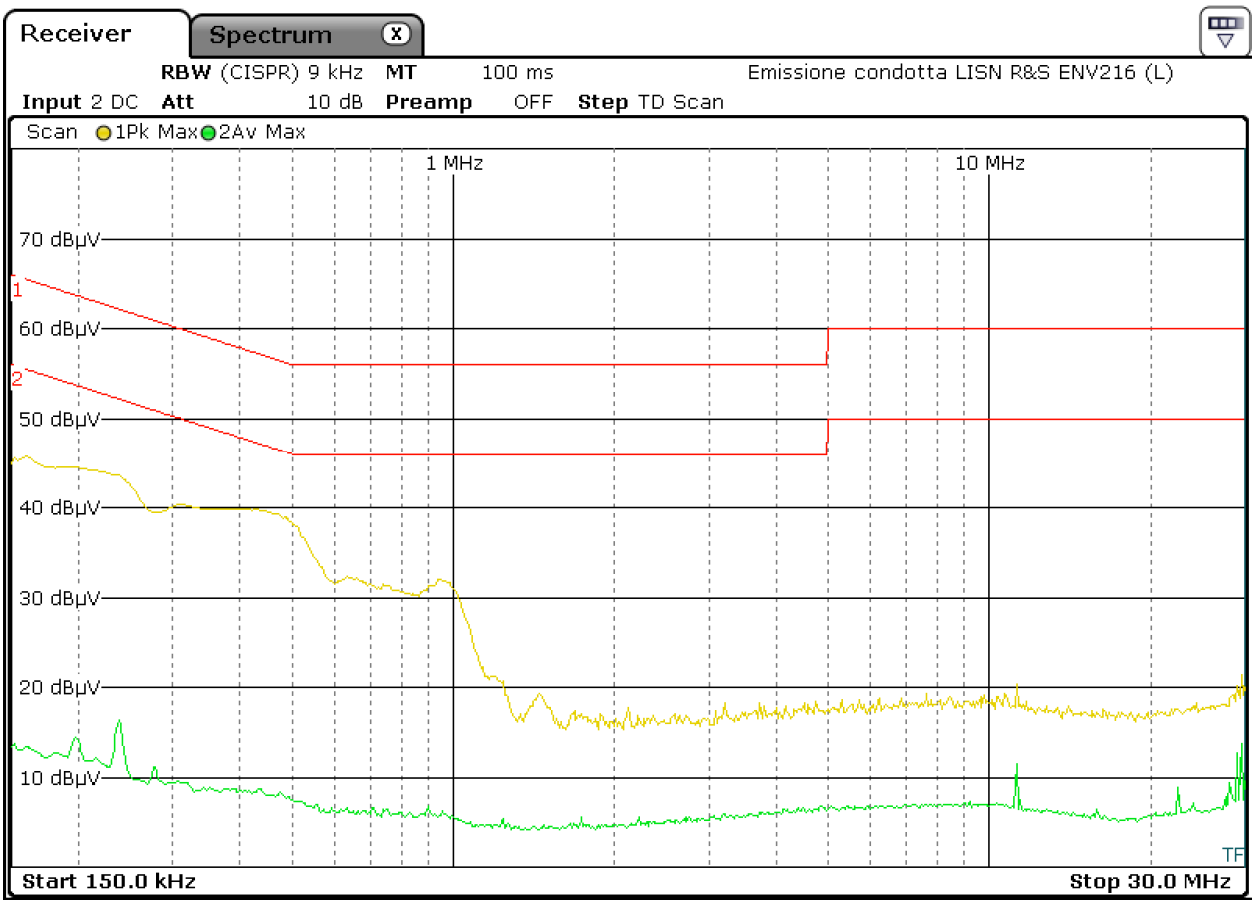
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #3 – High Channel (2480 MHz)
Phase



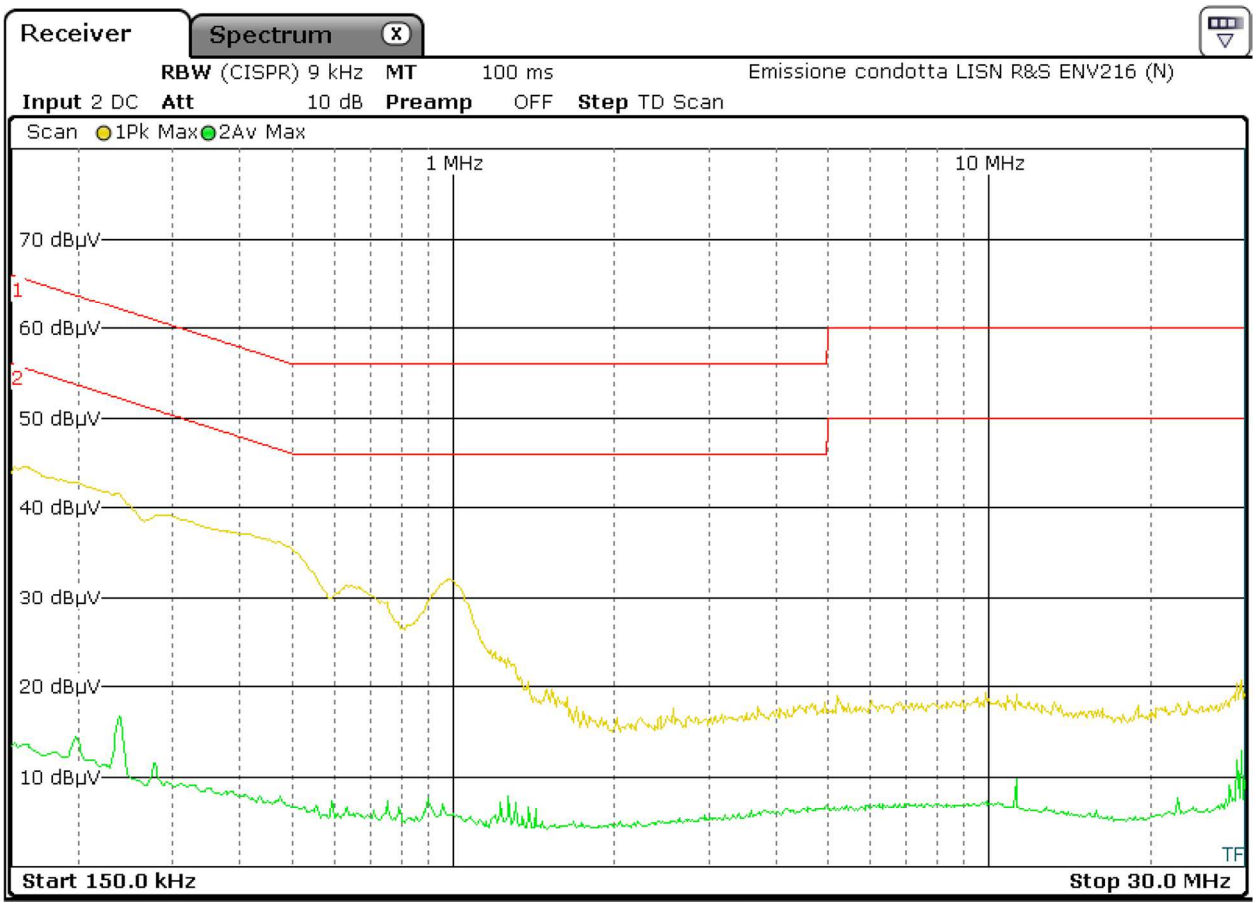
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #3 – High Channel (2480 MHz)
Neutral



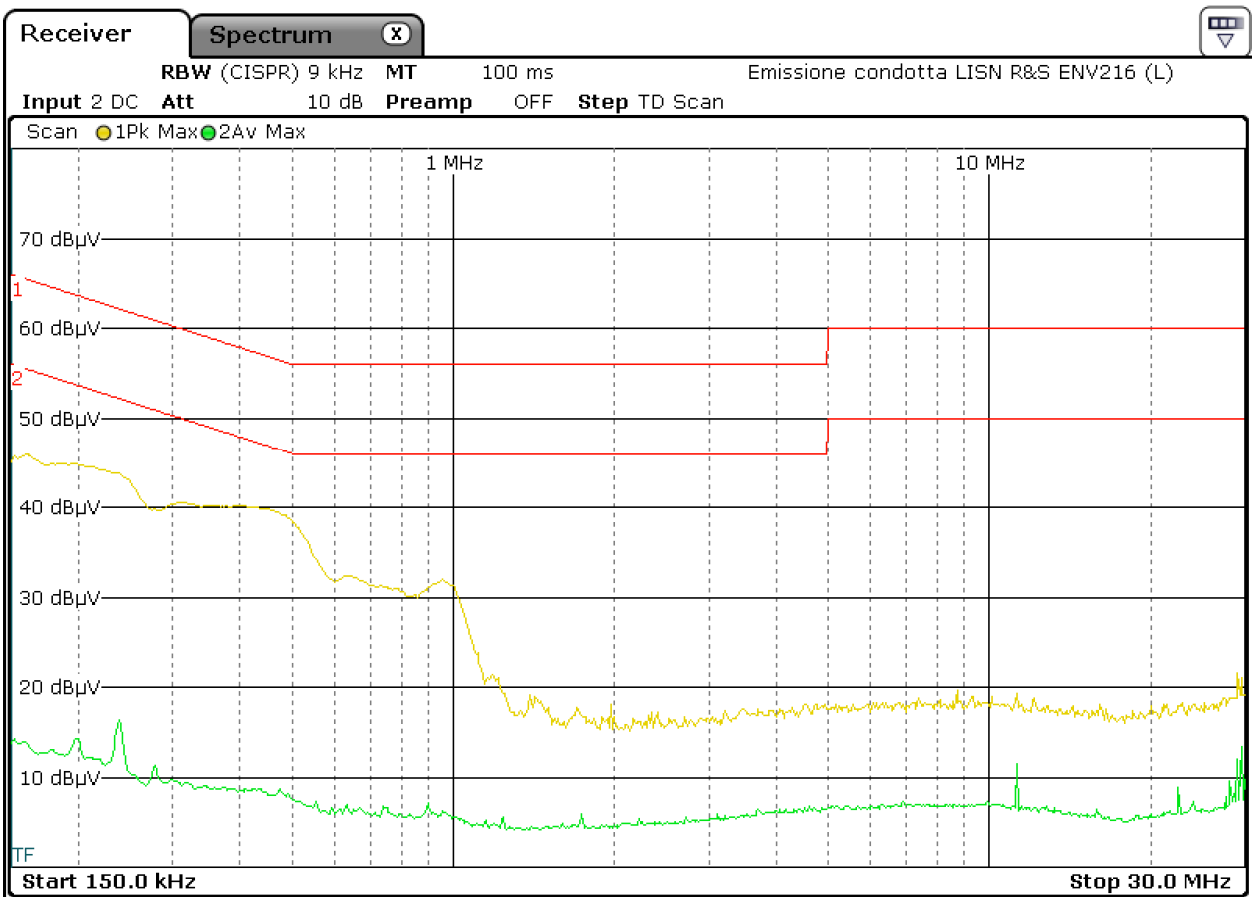
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #6 – High Channel (2480 MHz)
Phase



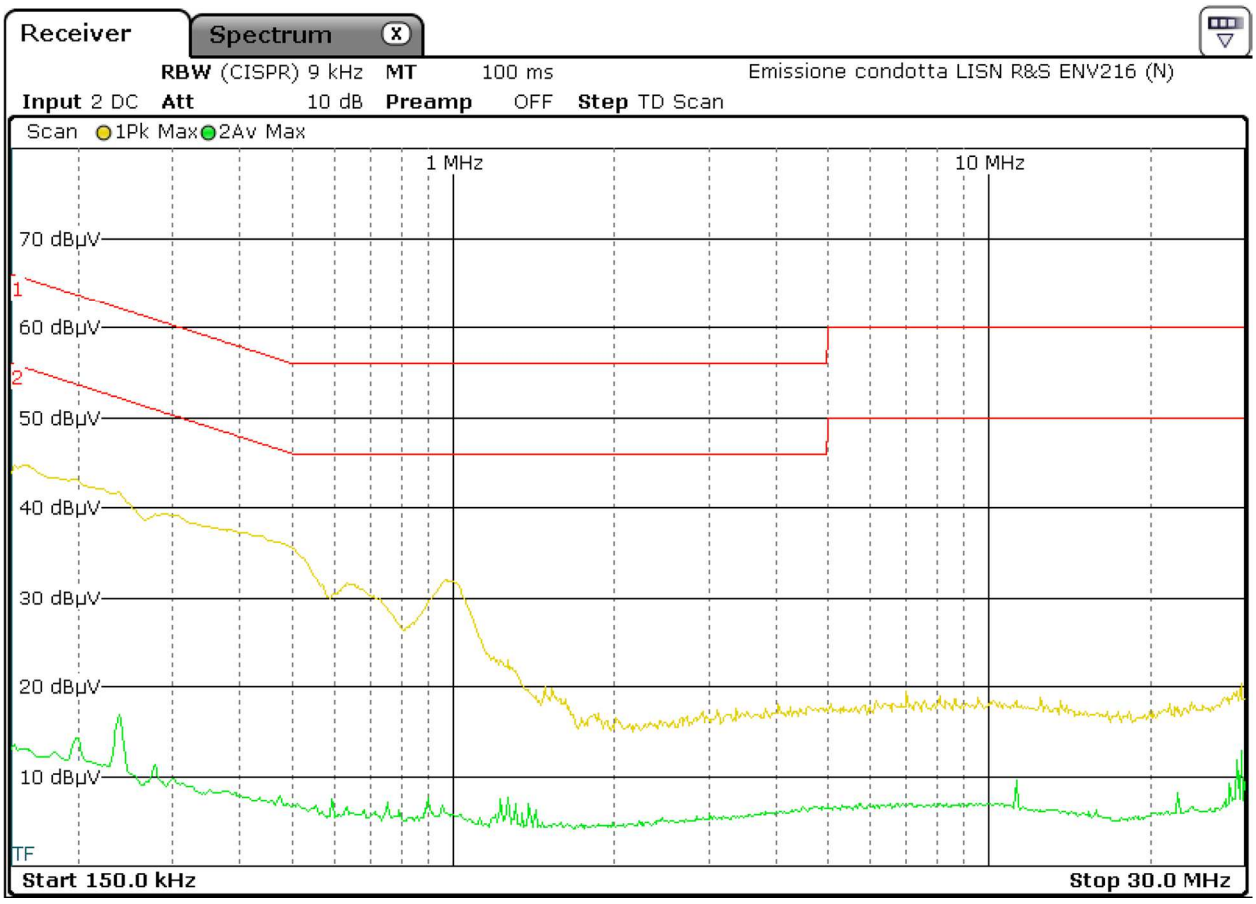
Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #6 – High Channel (2480 MHz)
Neutral



Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #9 – High Channel (2480 MHz)
Phase



Graphical representation of Mains Terminal Disturbance Voltage Measurement
Operation Mode: #9 – High Channel (2480 MHz)
Neutral



12.3 TEST: Radiated Emission			PASS
Parameters required prior to the test	Laboratory Ambient Temperature (°C)	15 to 35 °C	
	Relative Humidity (%)	30 to 60 %	
Parameters recorded during the test	Laboratory Ambient Temperature (°C)	22°C	
	Relative Humidity (%)	54%	
	Air pressure (hPa)	1020	
—	Power Supply / Frequency	Application Point	
Fully configured sample tested at the power line frequency	12 Vdc	Enclosure	
Equipment mode:	Operation mode	#1 #2 #3 #4 #5 #6 #7 #8 #9	
FCC Standard	§15.205; §15.209; §15.247		

Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table :

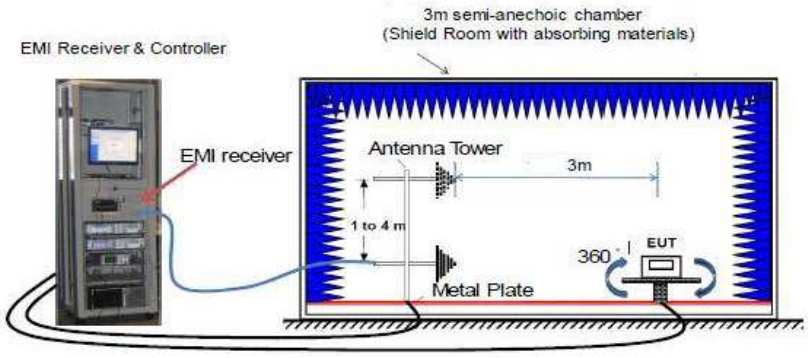
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

Remark: In accordance with part 15.31 (f) (2), where the measurement distance was specified to be 30 or 300 meters, a correction factor was applied in order to permit measurement to be performed at a separation distance. The applied formula for limits at 3 meter is:Extrapolation (dB) = 40log (300meter / 3meter) = +80db Extrapolation (dB) = 40log (30meter / 3meter) = +40db

Further information to test setup.

For frequencies above 1GHz, the anechoic material is also placed on the metallic floor between EUT and Antenna



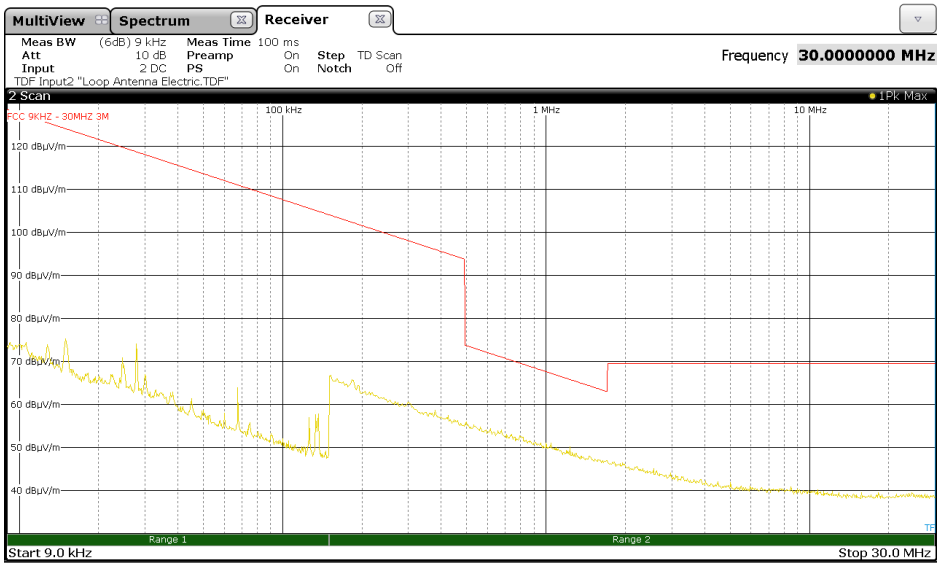
Test Equipment Used					
Description	Manufacturer	Model	Identifier	Calibration date	Calibration due
CSSA	ETS Lindgren	FACT3	87020484	10/2016	10/2018
EMI Test Receiver	R&S	ESW44	87020967	06/2018	06/2019
Loop Antenna	EMCO	6512	87020465	02/2017	02/2020
Antenna BiConiLog	ETS Lindgren	3124E-PA	87020457	04/2017	04/2020
Antenna Horn with Preamplifier	ETS Lindgren	3117-PA	87020458	04/2017	04/2020
Antenna Horn	ETS Lindgren	114514	87020459	05/2017	05/2020
Highpass Filter	Wainwright Instr.	WHKX10-2520-2800-18000-40ss	87020799	05/2018	05/2019

Graphical representation of Radiated Emission Measurement
Operation Mode: #3 (worst case) – Low Channel (2402 MHz)
Frequency: 9kHz – 30MHz

Graphical representation of Radiated Emission Measurement
Operation Mode: #6 (worst case) – Low Channel (2402 MHz)
Frequency: 9kHz – 30MHz

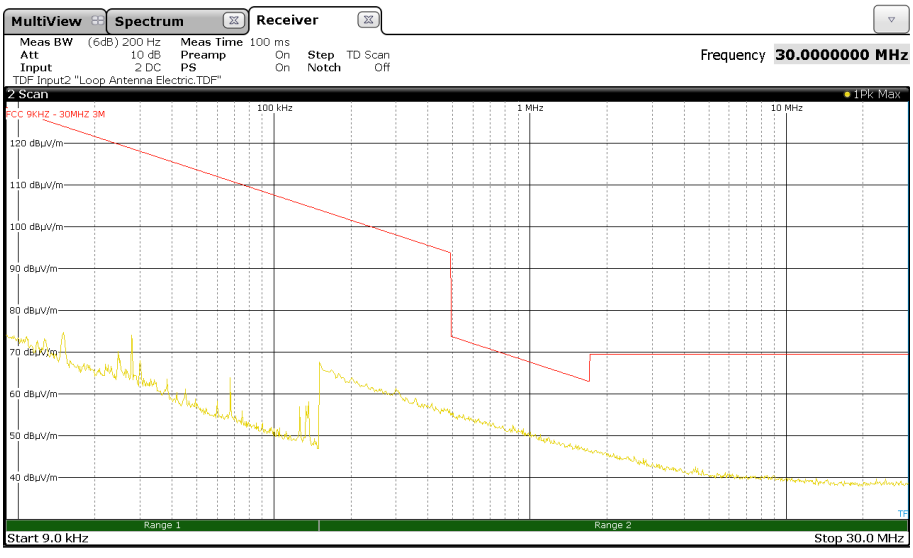
Graphical representation of Radiated Emission Measurement
Operation Mode: #9 (worst case) – Low Channel (2402 MHz)
Frequency: 9kHz – 30MHz

Graphical representation of Radiated Emission Measurement
Operation Mode: #3 (worst case) – Middle Channel (2440 MHz)
Frequency: 9kHz – 30MHz

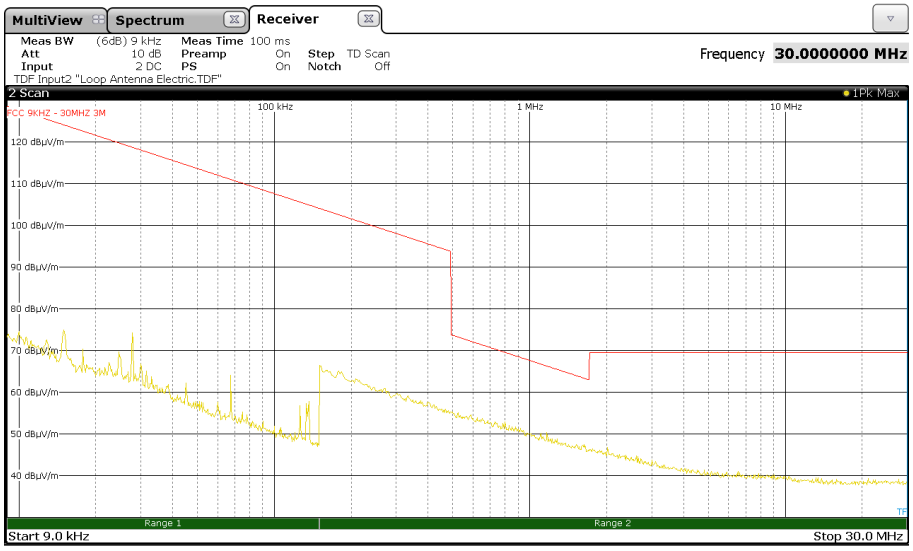


Graphical representation of Radiated Emission Measurement
Operation Mode: #6 (worst case) – Middle Channel (2440 MHz)
Frequency: 9kHz – 30MHz

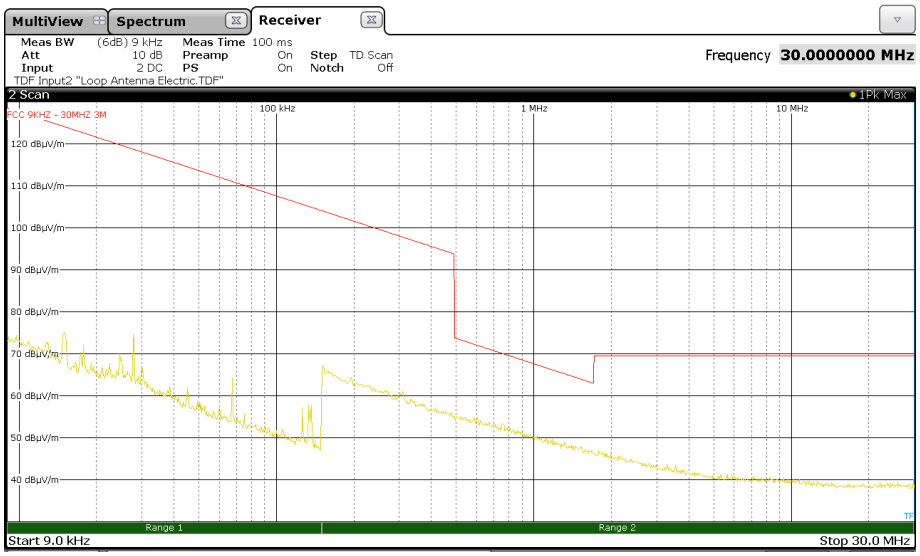
Graphical representation of Radiated Emission Measurement
Operation Mode: #9 (worst case) – Middle Channel (2440 MHz)
Frequency: 9kHz – 30MHz



Graphical representation of Radiated Emission Measurement
Operation Mode: #3 (worst case) – High Channel (2480 MHz)
Frequency: 9kHz – 30MHz

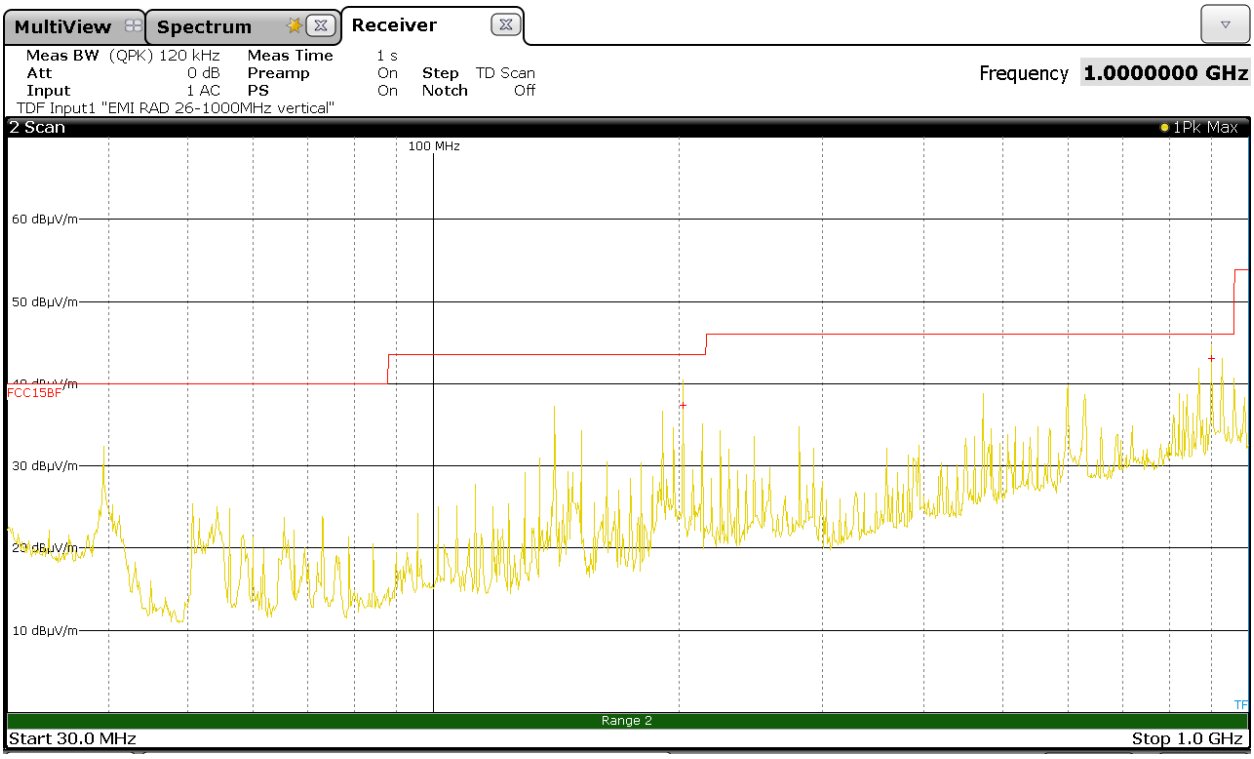


Graphical representation of Radiated Emission Measurement
Operation Mode: #6 (worst case) – High Channel (2480 MHz)
Frequency: 9kHz – 30MHz



Graphical representation of Radiated Emission Measurement
Operation Mode: #9 (worst case) – High Channel (2480 MHz)
Frequency: 9kHz – 30MHz

Graphical representation of Radiated Emission Measurement
Operation Mode: (#3) – Low Channel (2402 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Vertical

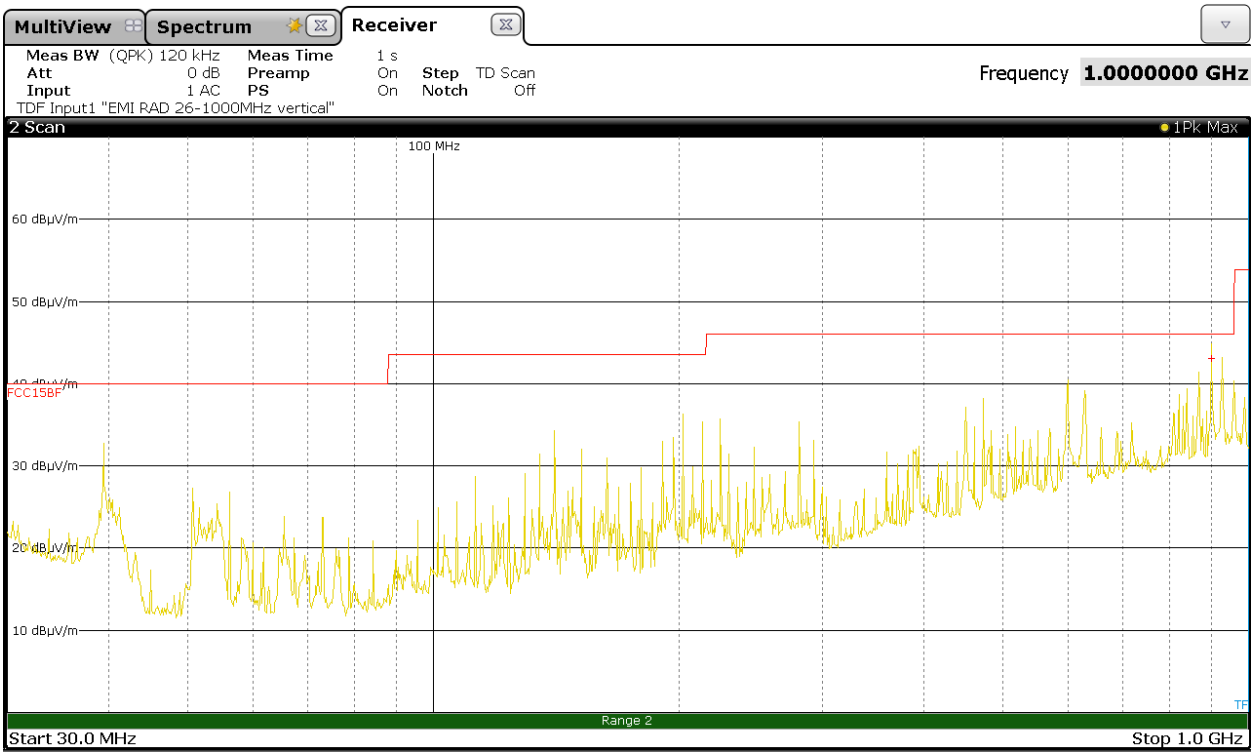


QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
202,50	24,95	10,68	1,72	Not present	**37,35**
900,00	15,77	23,66	3,61	Not present	**43,04**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#3) – Low Channel (2402 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Horizontal

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
247,50	26,37	12,29	1,88	Not present	**40,54**
630,00	16,20	22,59	3,10	Not present	**41,89**
697,50	16,28	23,22	3,17	Not present	**42,67**
821,25	13,82	23,88	3,68	Not present	**41,38**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#6) – Low Channel (2402 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Vertical



QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
900,00	15,79	23,66	3,61	Not present	**43,06**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#6) – Low Channel (2402 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Horizontal

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
247,50	26,34	12,29	1,88	Not present	**40,51**
281,25	24,27	12,41	1,97	Not present	**38,65**
630,00	15,86	22,59	3,10	Not present	**41,55**
697,50	16,71	23,22	3,17	Not present	**43,10**
821,25	13,76	23,88	3,68	Not present	**41,32**

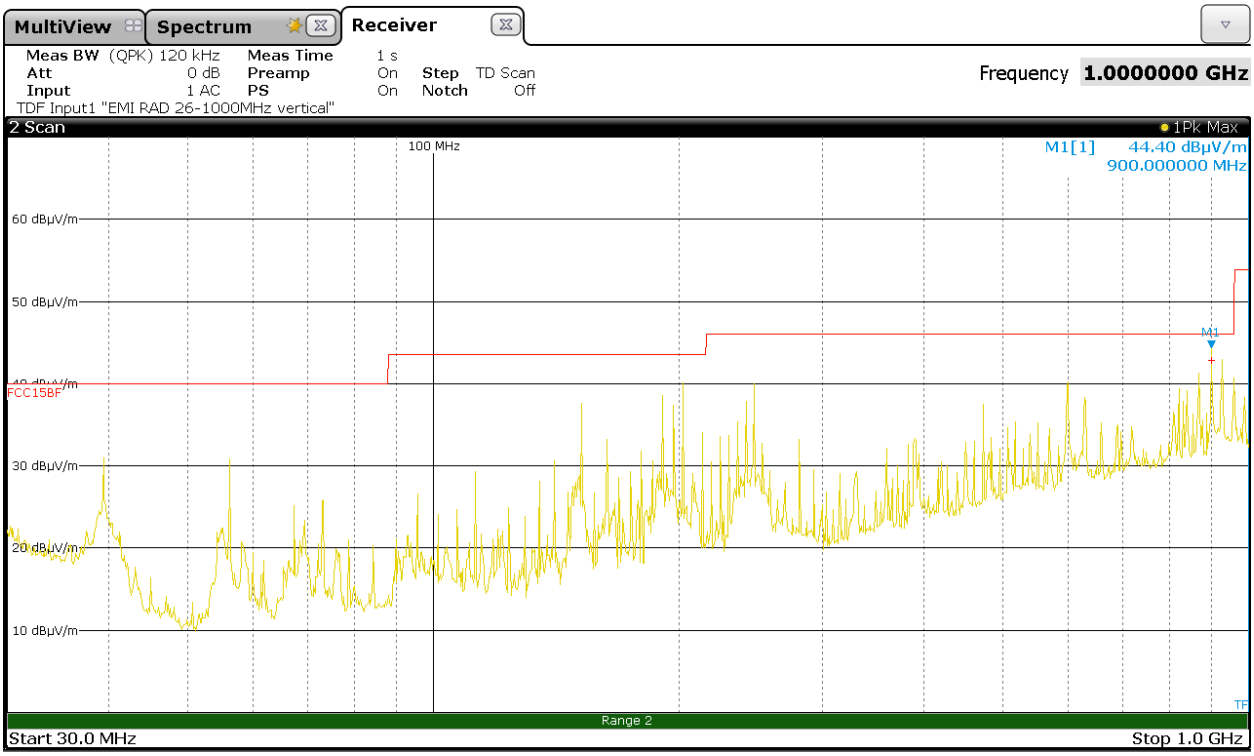
Graphical representation of Radiated Emission Measurement
Operation Mode: (#9) – Low Channel (2402 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Vertical

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
900,00	15,78	23,66	3,61	Not present	**43,05**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#9) – Low Channel (2402 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Horizontal

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
247,50	25,65	12,29	1,88	Not present	**39,82**
630,00	16,18	22,59	3,10	Not present	**41,87**
697,50	16,81	23,22	3,17	Not present	**43,20**
821,25	13,77	23,88	3,68	Not present	**41,33**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#3) – Middle Channel (2440 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Vertical

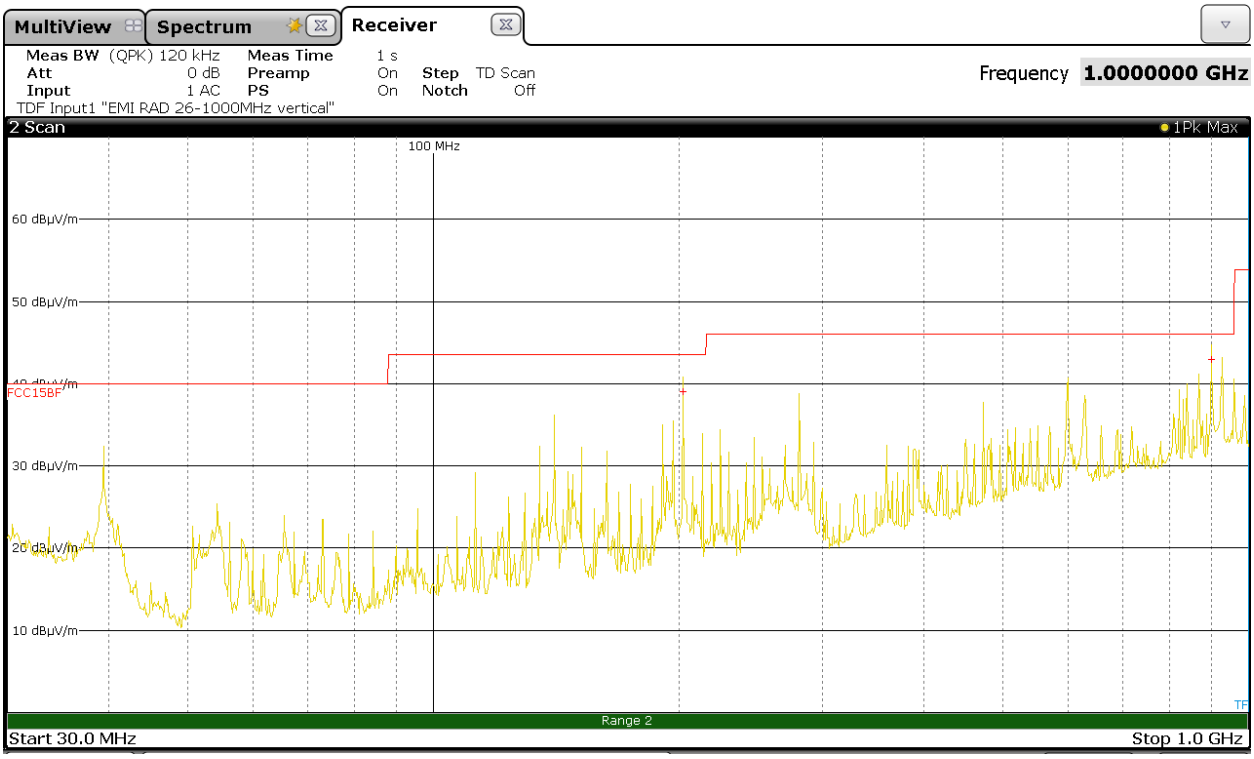


QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
900,00	15,54	23,66	3,61	Not present	**42,81**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#3) – Middle Channel (2440 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Horizontal

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
247,50	25,51	12,29	1,88	Not present	**39,68**
630,00	16,40	22,59	3,10	Not present	**42,09**
697,50	16,43	23,22	3,17	Not present	**42,82**
821,25	14,02	23,88	3,68	Not present	**41,58**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#6) – Middle Channel (2440 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Vertical



QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
202,50	26,67	10,68	1,72	Not present	**39,07**
900,00	15,73	23,66	3,61	Not present	**43,00**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#6) – Middle Channel (2440 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Horizontal

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
247,50	25,11	12,29	1,88	Not present	**39,28**
630,00	16,18	22,59	3,10	Not present	**41,87**
697,50	16,41	23,22	3,17	Not present	**42,80**
821,25	13,14	23,88	3,68	Not present	**40,70**

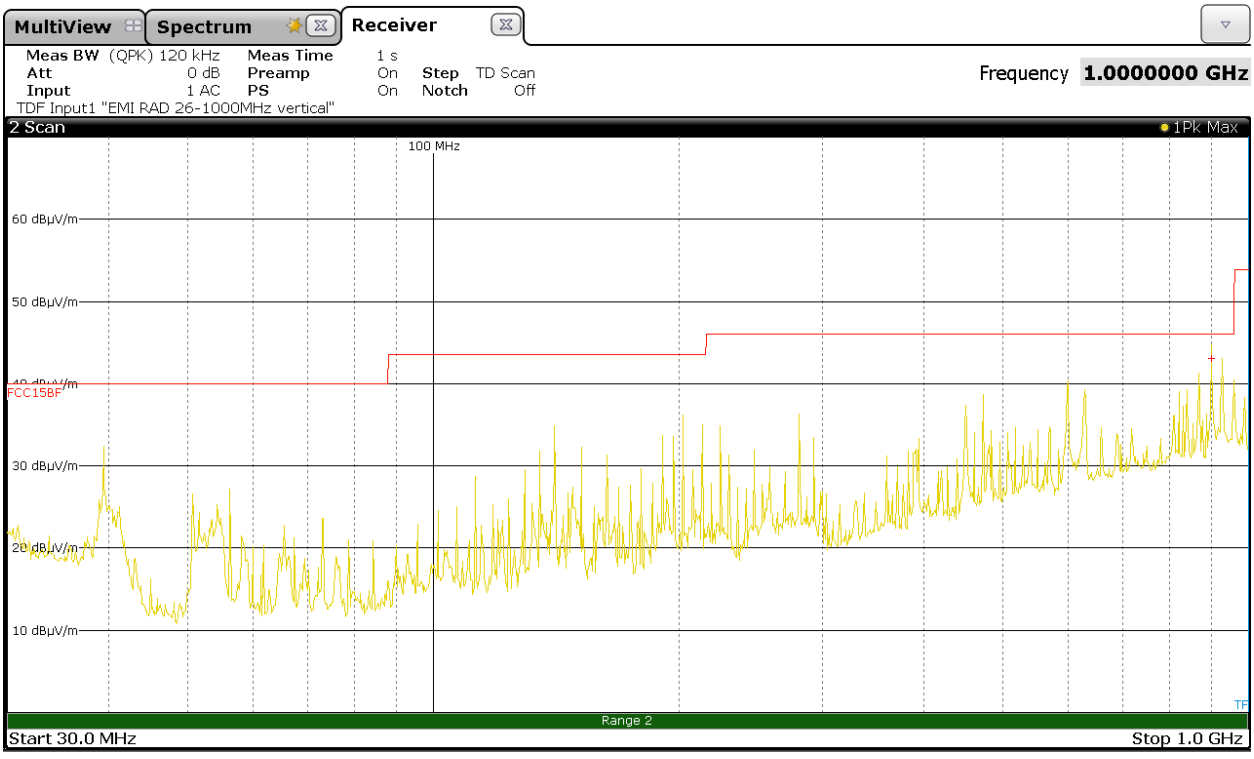
Graphical representation of Radiated Emission Measurement
Operation Mode: (#9) – Middle Channel (2440 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Vertical

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
202,50	25,92	10,68	1,72	Not present	**38,32**
900,00	15,60	23,66	3,61	Not present	**42,87**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#9) – Middle Channel (2440 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Horizontal

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
247,50	25,52	12,29	1,88	Not present	**39,69**
630,00	16,12	22,59	3,10	Not present	**41,81**
697,50	16,42	23,22	3,17	Not present	**42,81**
821,25	13,82	23,88	3,68	Not present	**41,38**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#3) – High Channel (2480 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Vertical

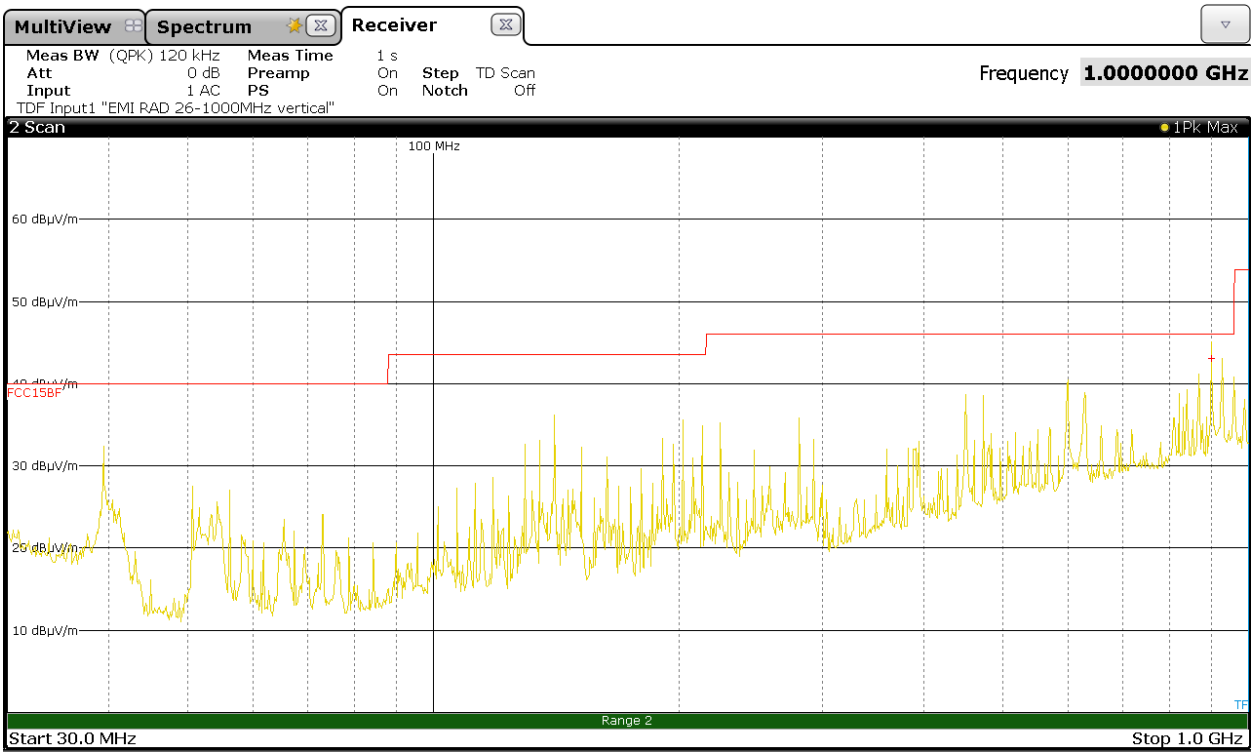


QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
900,00	15,83	23,66	3,61	Not present	**43,10**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#3) – High Channel (2480 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Horizontal

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
247,50	25,46	12,29	1,88	Not present	**39,63**
281,25	24,77	12,41	1,97	Not present	**39,15**
630,00	16,36	22,59	3,10	Not present	**42,05**
697,50	16,55	23,22	3,17	Not present	**42,94**
821,25	13,42	23,88	3,68	Not present	**40,98**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#6) – High Channel (2480 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Vertical

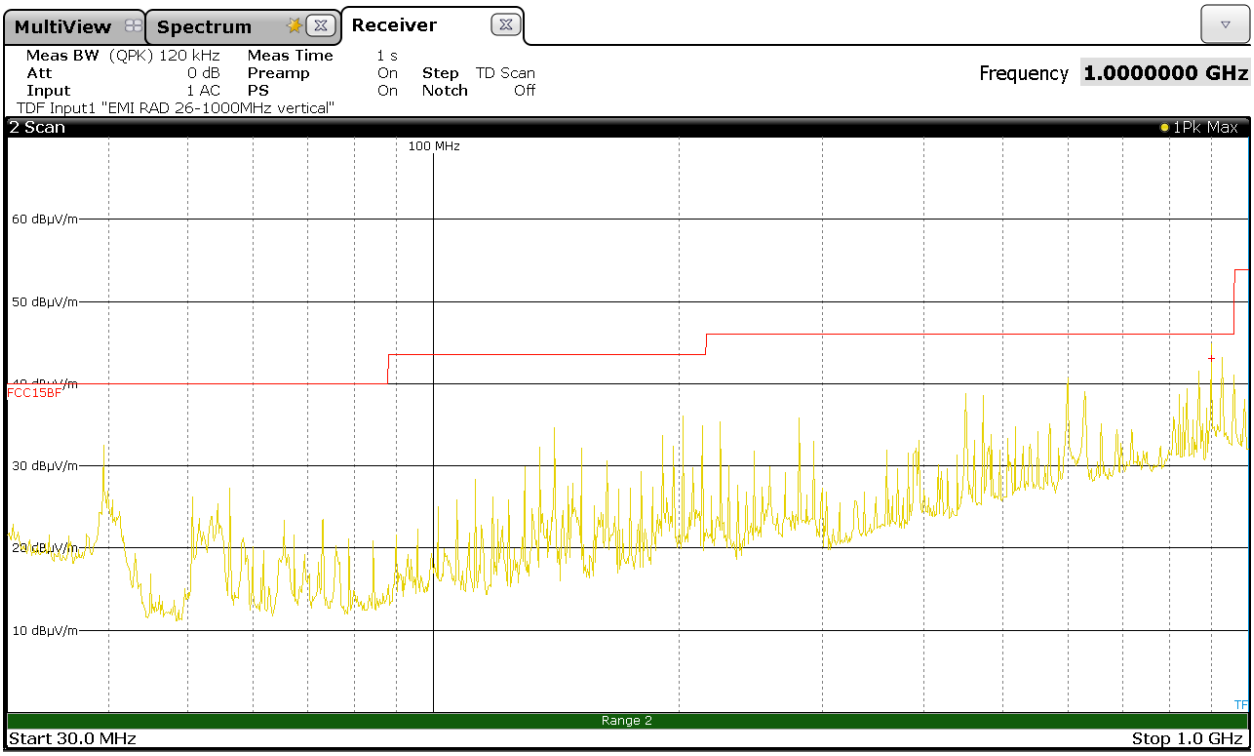


QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
900,00	15,77	23,66	3,61	Not present	**43,04**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#6) – High Channel (2480 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Horizontal

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
247,50	25,70	12,29	1,88	Not present	**39,87**
281,25	24,74	12,41	1,97	Not present	**39,12**
630,00	16,13	22,59	3,10	Not present	**41,82**
697,50	16,33	23,22	3,17	Not present	**42,72**
821,25	13,18	23,88	3,68	Not present	**40,74**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#9) – High Channel (2480 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Vertical

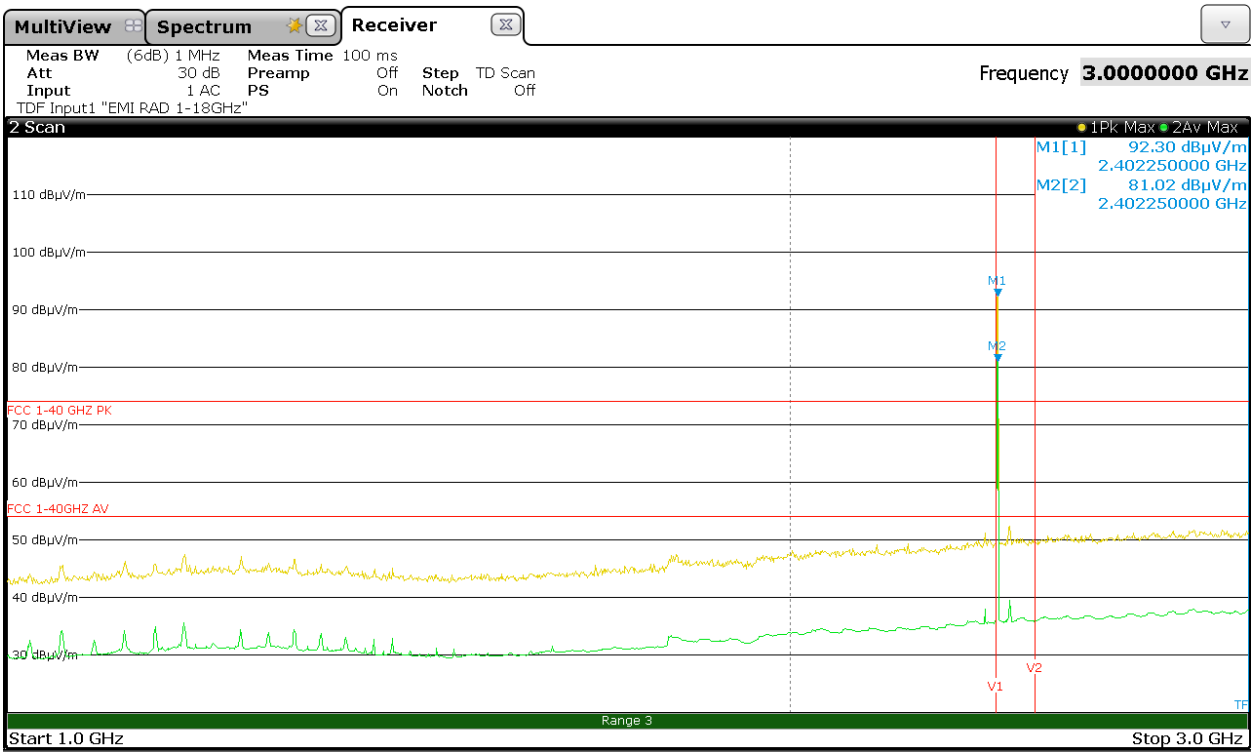


QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
900,00	15,77	23,66	3,61	Not present	**43,04**

Graphical representation of Radiated Emission Measurement
Operation Mode: (#9) – High Channel (2480 MHz)
Frequency: 30MHz – 1GHz
Antenna Polarization: Horizontal

QUASI-PEAK RESULT (RBW=120kHz)					
Frequency	**Reading value**	**Antenna Factor**	**Cable Loss**	**Pre-Amp. Gain**	**Correcting reading**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dB)**	**(dBµV/m)**
247,50	25,42	12,29	1,88	Not present	**39,59**
281,25	24,70	12,41	1,97	Not present	**39,08**
630,00	16,33	22,59	3,10	Not present	**42,02**
697,50	16,44	23,22	3,17	Not present	**42,83**
821,25	13,84	23,88	3,68	Not present	**41,40**

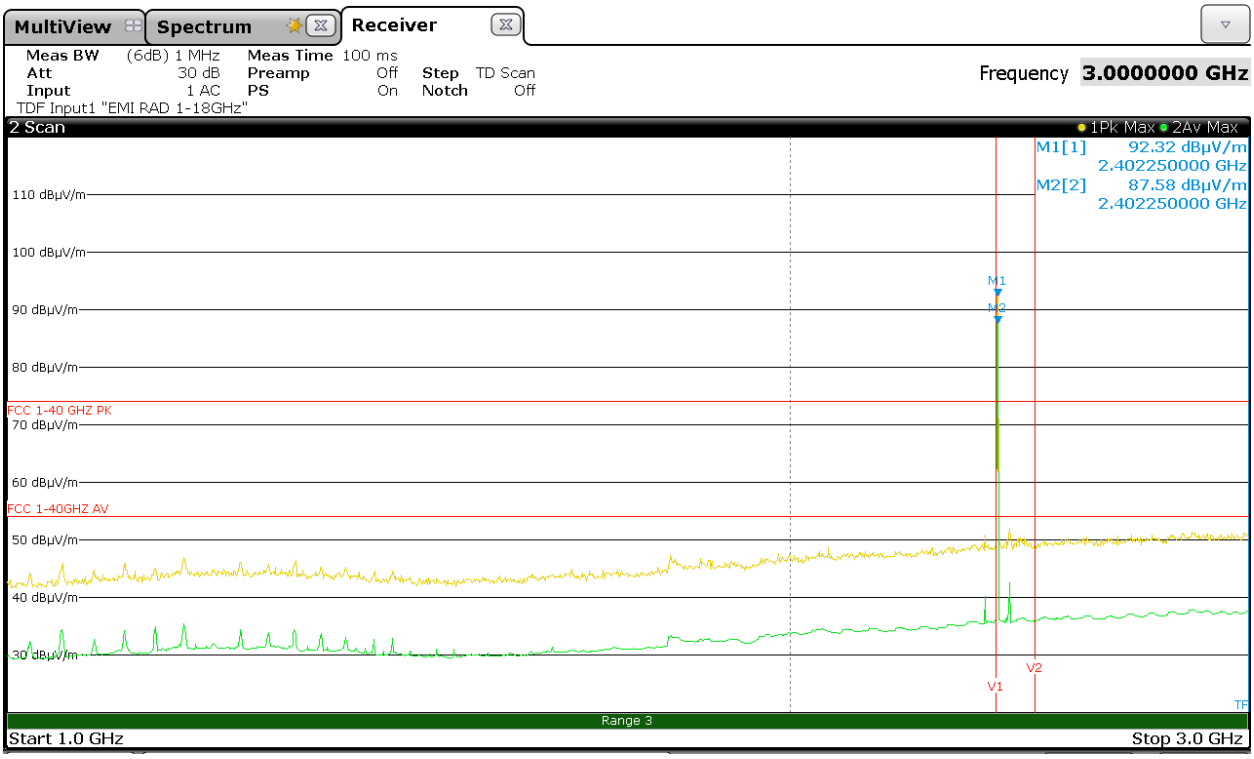
Graphical representation of Radiated Emission Measurement
Operation Mode: (#1) – Low Channel (2402 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	98,62	-12,41	6,09	**92,30**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	87,34	-12,41	6,09	**81,02**	/	/	/

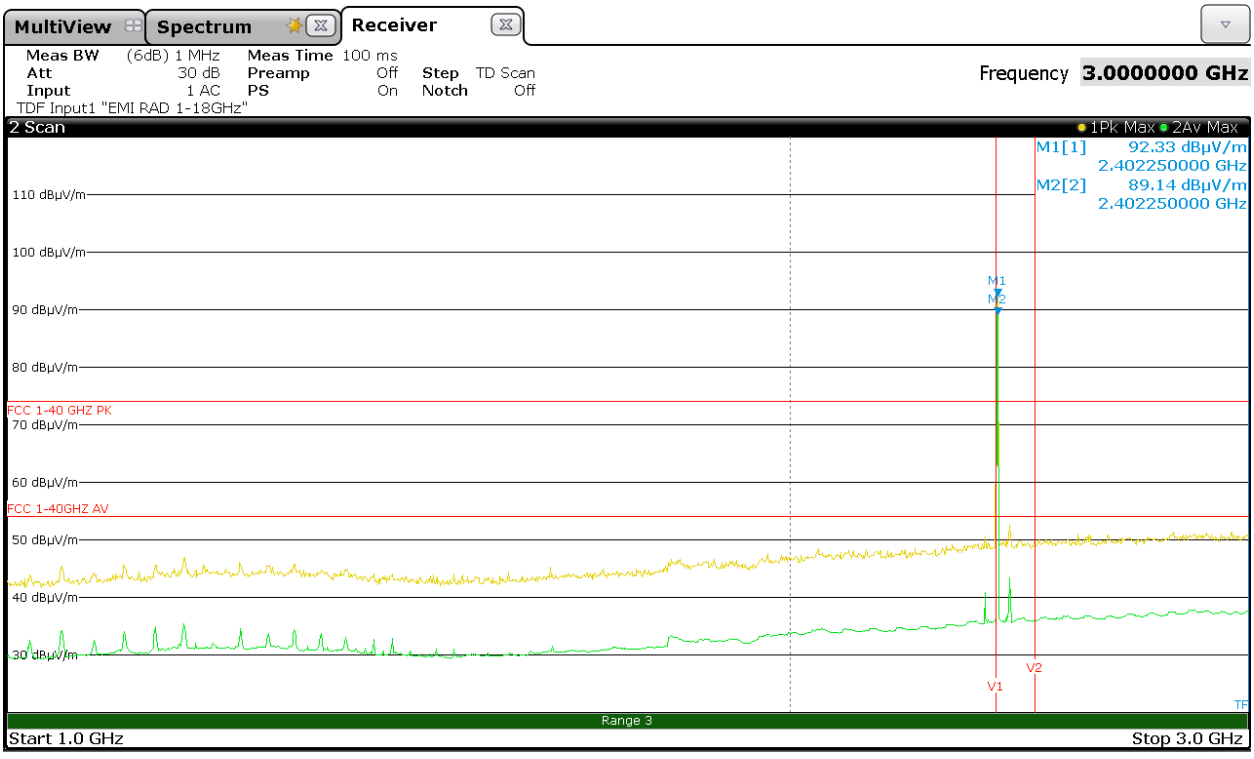
Graphical representation of Radiated Emission Measurement
Operation Mode: (#2) – Low Channel (2402 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	98,64	-12,41	6,09	**92,32**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	93,90	-12,41	6,09	**87,58**	/	/	/

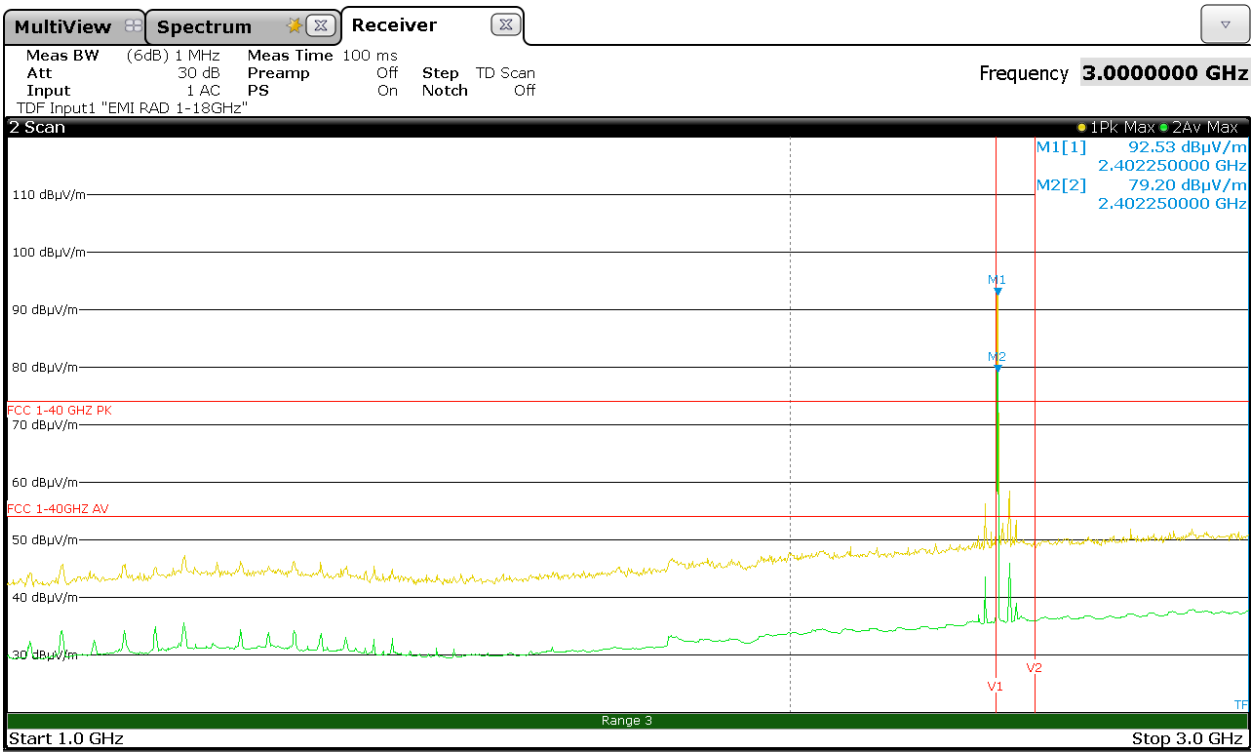
Graphical representation of Radiated Emission Measurement
Operation Mode: (#3) – Low Channel (2402 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	98,65	-12,41	6,09	**92,33**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	95,46	-12,41	6,09	**89,14**	/	/	/

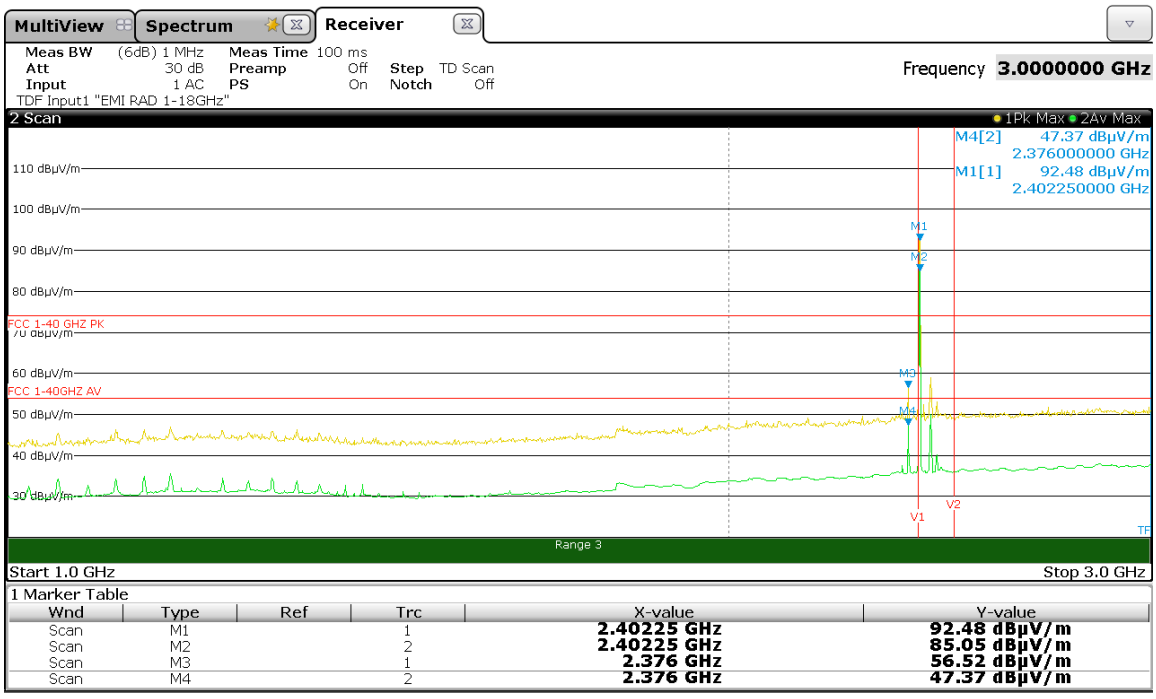
Graphical representation of Radiated Emission Measurement
Operation Mode: (#4) – Low Channel (2402 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	98,85	-12,41	6,09	**92,53**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	85,52	-12,41	6,09	**79,20**	/	/	/

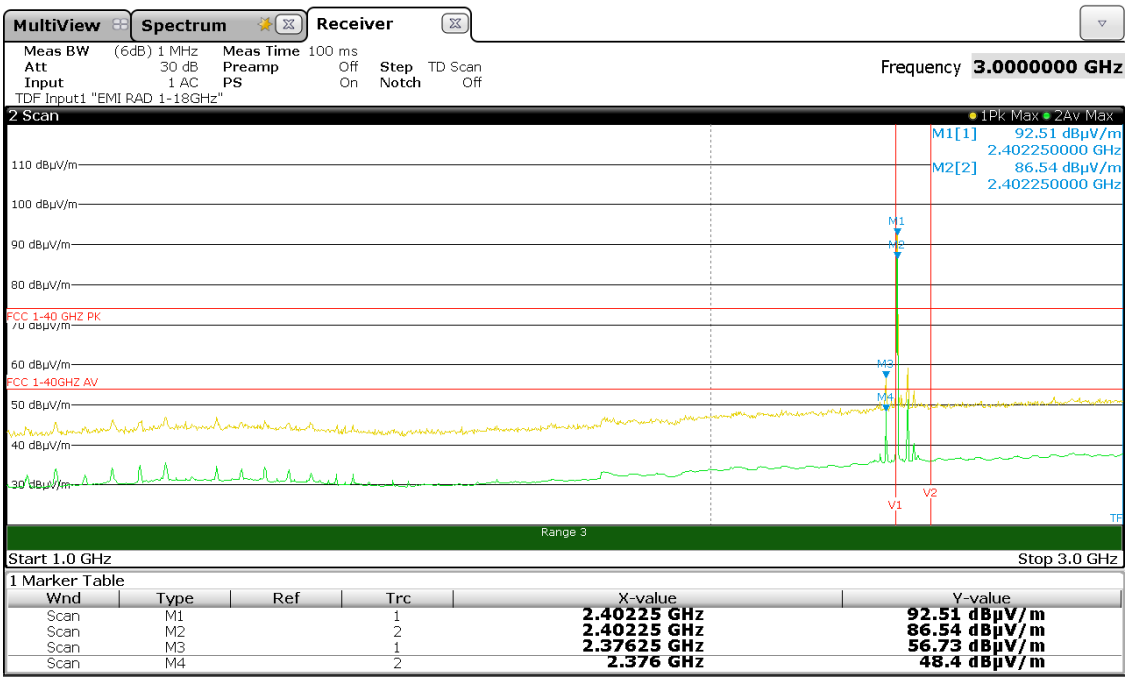
Graphical representation of Radiated Emission Measurement
Operation Mode: (#5) – Low Channel (2402 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	98,80	-12,41	6,09	**92,48**	/	/	/
2376,00	62,92	-12,49	6,09	**56,52**	yes	74	17,48

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	91,37	-12,41	6,09	**85,05**	/	/	/
2376,00	53,77	-12,49	6,09	**47,37**	yes	54	6,63

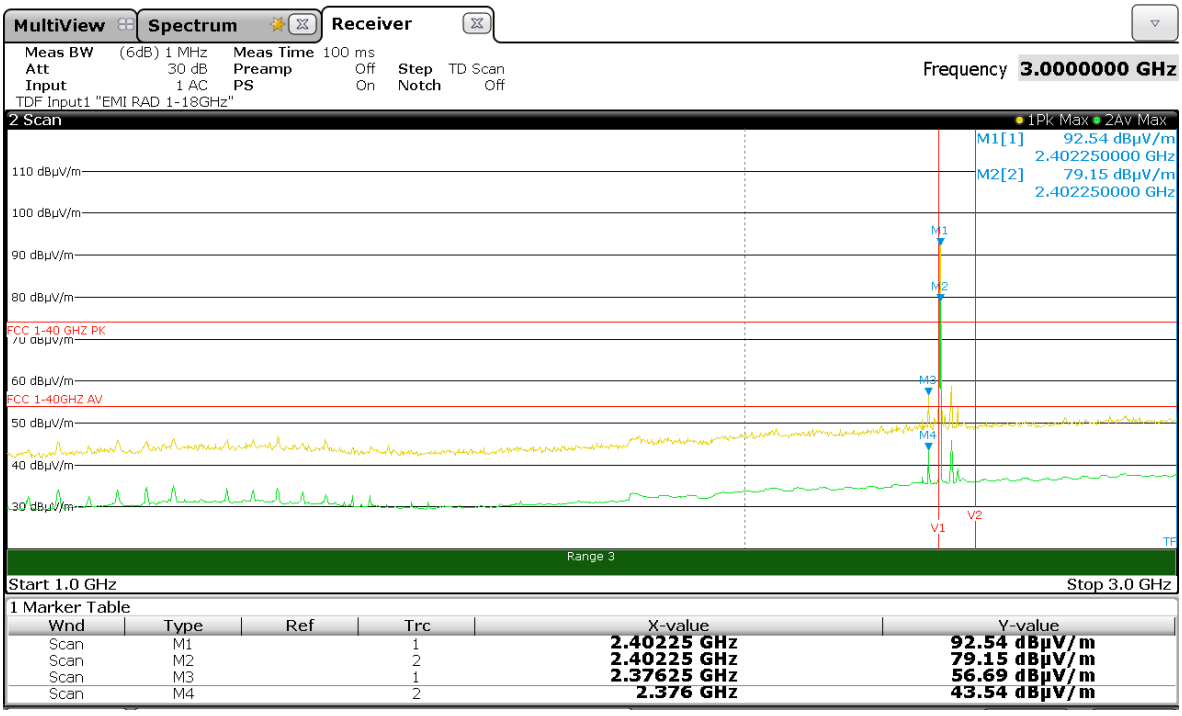
Graphical representation of Radiated Emission Measurement
Operation Mode: (#6) – Low Channel (2402 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	98,83	-12,41	6,09	**92,51**	/	/	/
2376,25	63,13	-12,49	6,09	**56,73**	yes	74	17,27

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	92,86	-12,41	6,09	**86,54**	/	/	/
2376,00	54,80	-12,49	6,09	**48,40**	yes	54	5,60

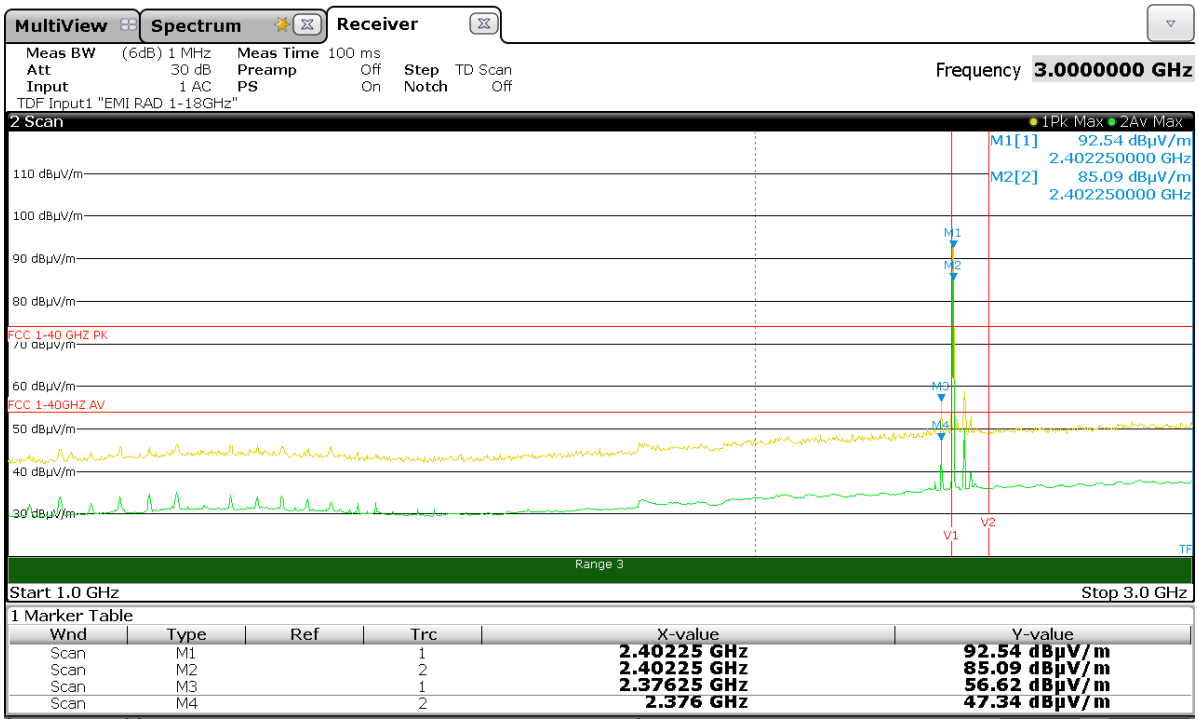
Graphical representation of Radiated Emission Measurement
Operation Mode: (#7) – Low Channel (2402 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	98,86	-12,41	6,09	**92,54**	/	/	/
2376,25	63,09	-12,49	6,09	**56,69**	yes	74	17,31

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	85,47	-12,41	6,09	**79,15**	/	/	/
2376,00	49,94	-12,49	6,09	**43,54**	yes	54	10,46

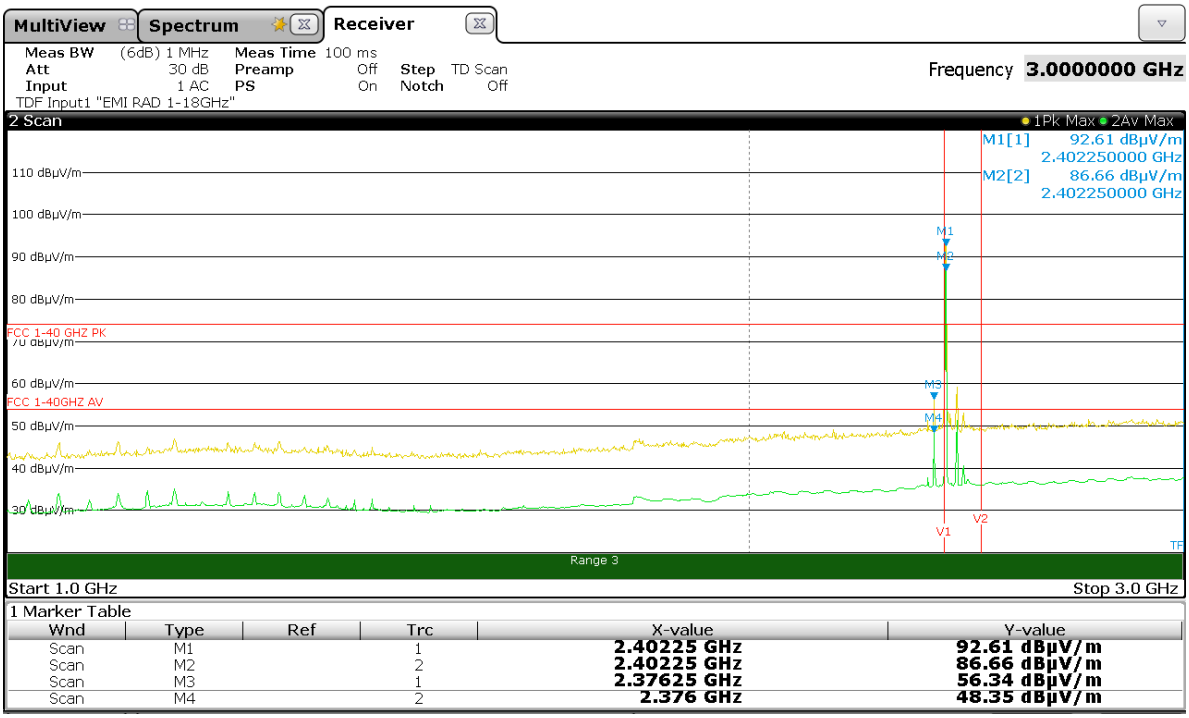
Graphical representation of Radiated Emission Measurement
Operation Mode: (#8) – Low Channel (2402 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	98,86	-12,41	6,09	**92,54**	/	/	/
2376,25	63,02	-12,49	6,09	**56,62**	yes	74	17,38

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	91,41	-12,41	6,09	**85,09**	/	/	/
2376,00	53,74	-12,49	6,09	**47,34**	yes	54	6,66

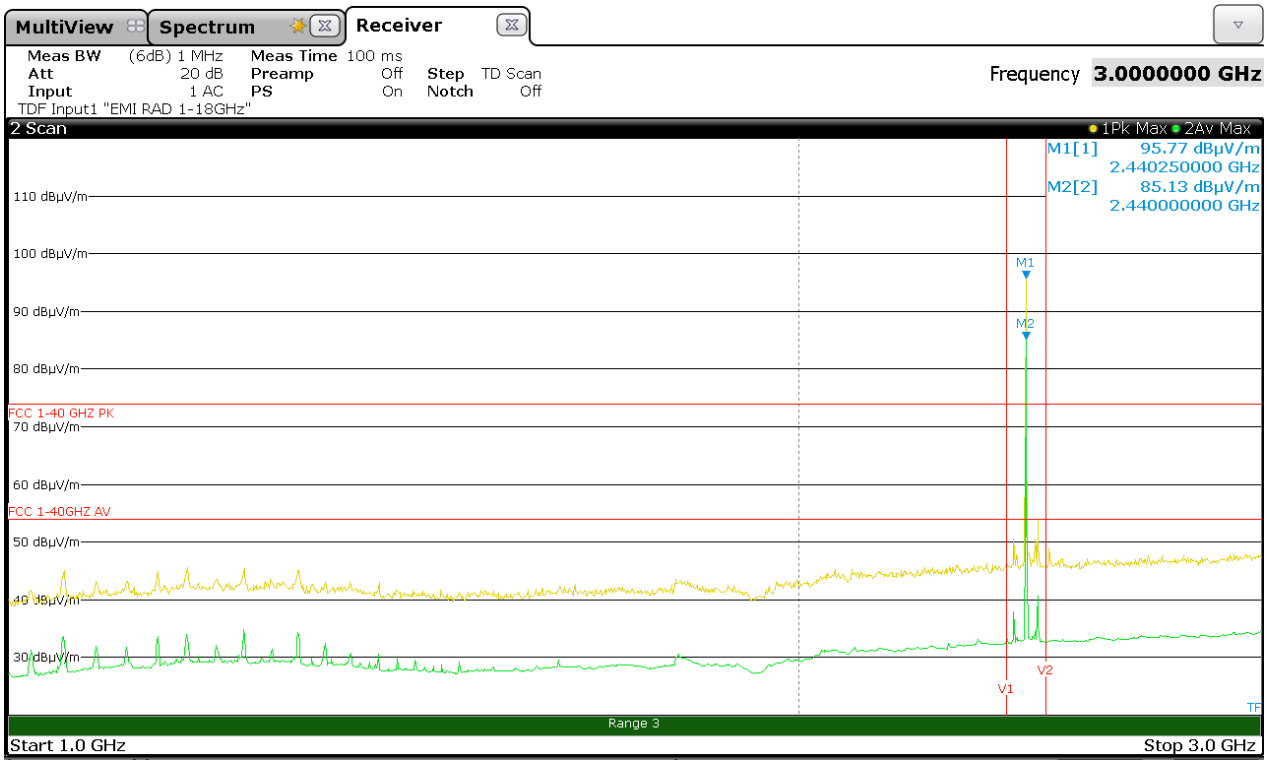
Graphical representation of Radiated Emission Measurement
Operation Mode: (#9) – Low Channel (2402 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	98,93	-12,41	6,09	**92,61**	/	/	/
2376,25	62,74	-12,49	6,09	**56,34**	yes	74	17,66

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2402,25 (fundamental)	92,98	-12,41	6,09	**86,66**	/	/	/
2376,00	54,75	-12,49	6,09	**48,35**	yes	54	5,65

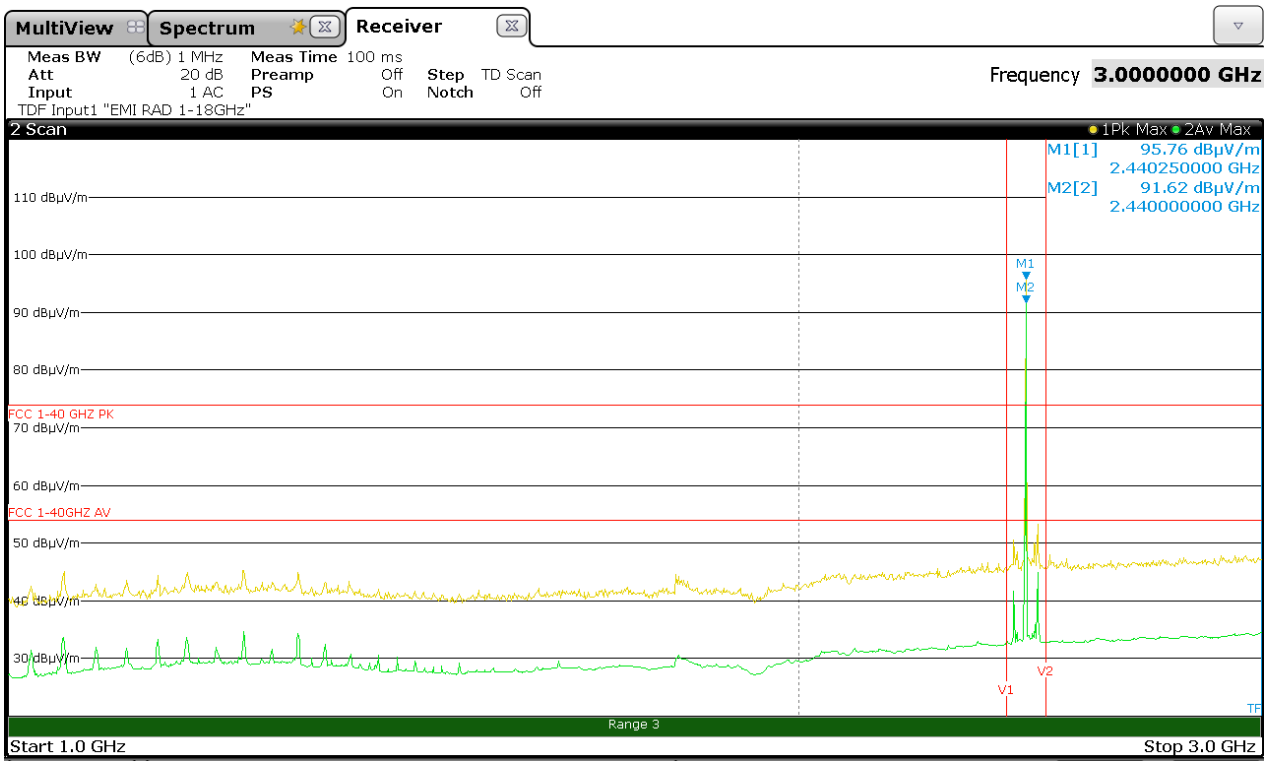
Graphical representation of Radiated Emission Measurement
Operation Mode: (#1) – Middle Channel (2440 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,25 (fundamental)	101,96	-12,28	6,09	**95,77**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	91,32	-12,28	6,09	**85,13**	/	/	/

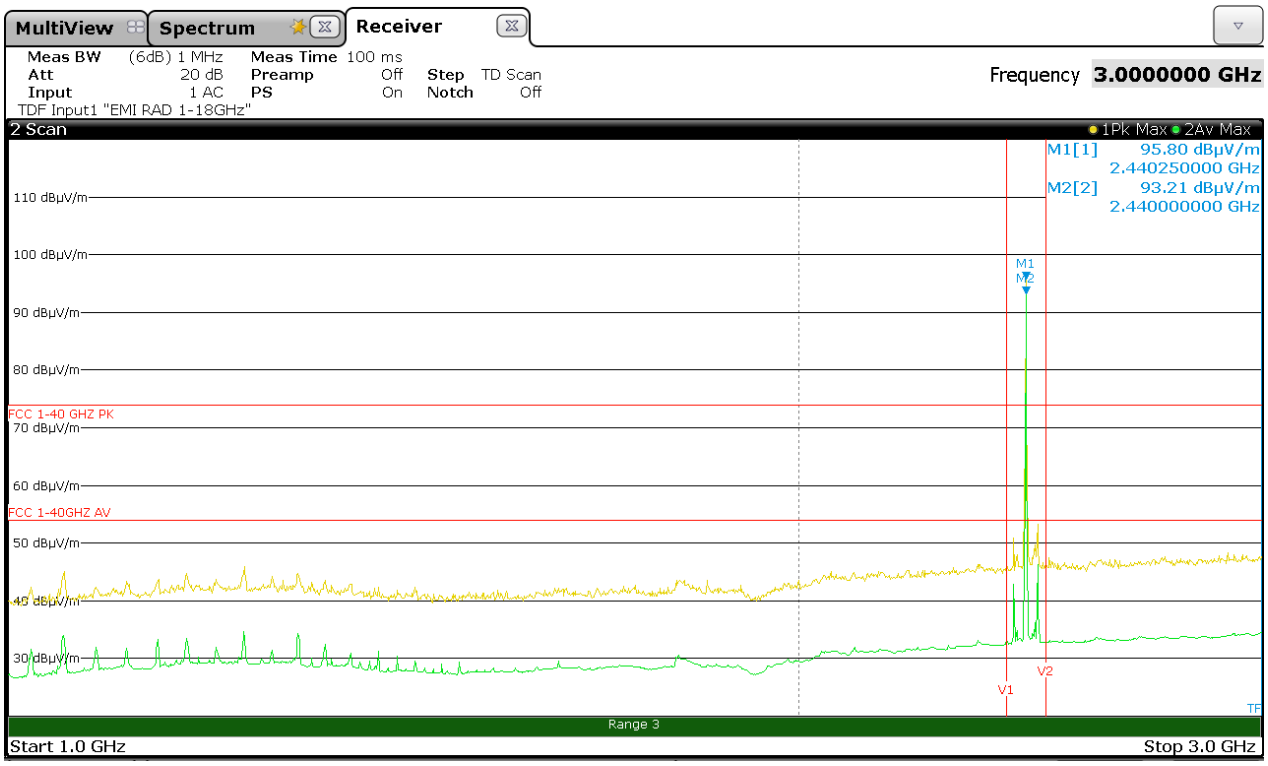
Graphical representation of Radiated Emission Measurement
Operation Mode: (#2) – Middle Channel (2440 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,25 (fundamental)	101,95	-12,28	6,09	**95,76**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	97,81	-12,28	6,09	**91,62**	/	/	/

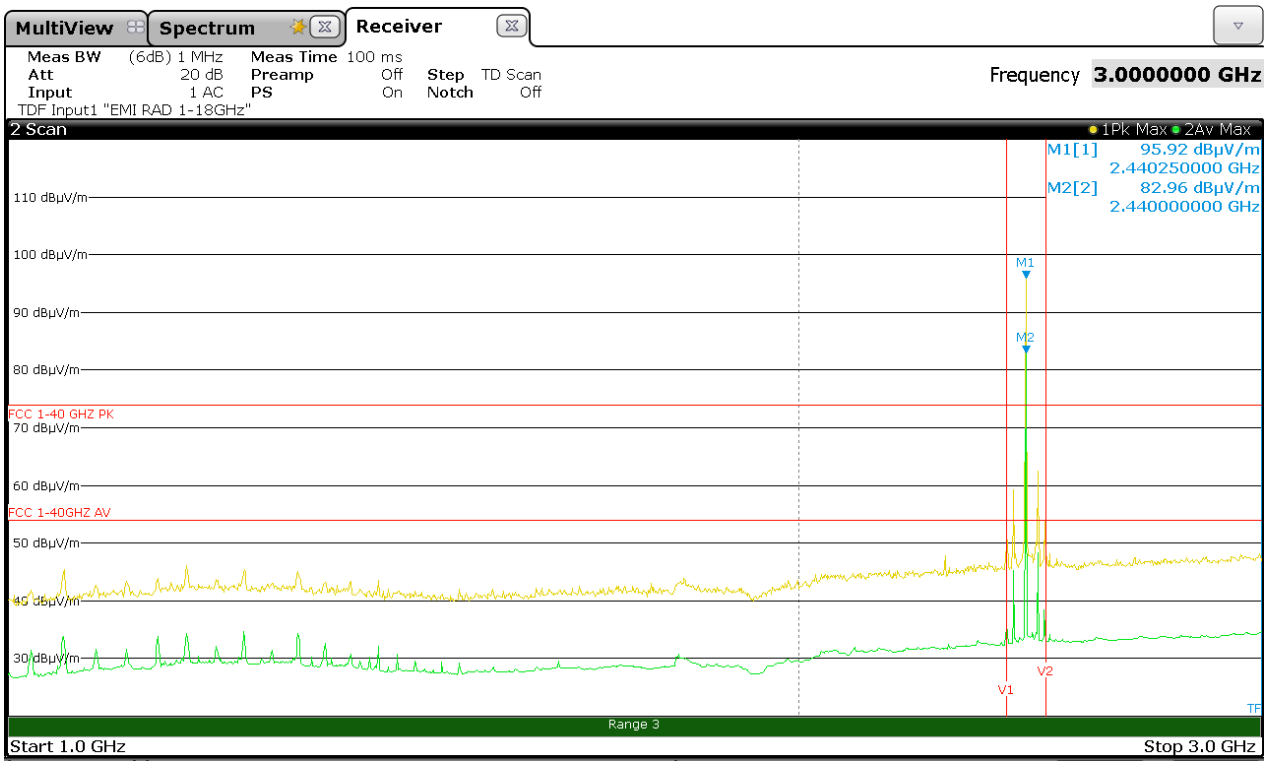
Graphical representation of Radiated Emission Measurement
Operation Mode: (#3) – Middle Channel (2440 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,25 (fundamental)	101,99	-12,28	6,09	**95,80**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	99,40	-12,28	6,09	**93,21**	/	/	/

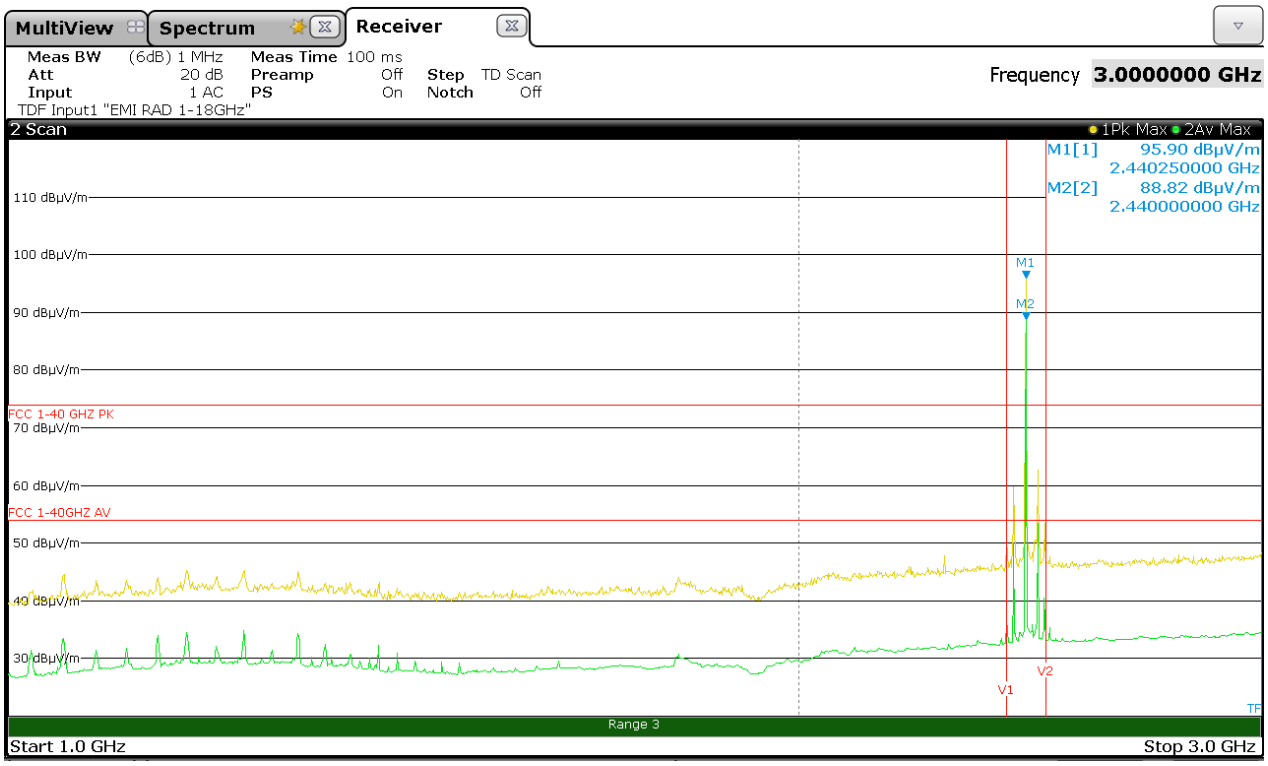
Graphical representation of Radiated Emission Measurement
Operation Mode: (#4) – Middle Channel (2440 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,25 (fundamental)	102,11	-12,28	6,09	**95,92**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	89,15	-12,28	6,09	**82,96**	/	/	/

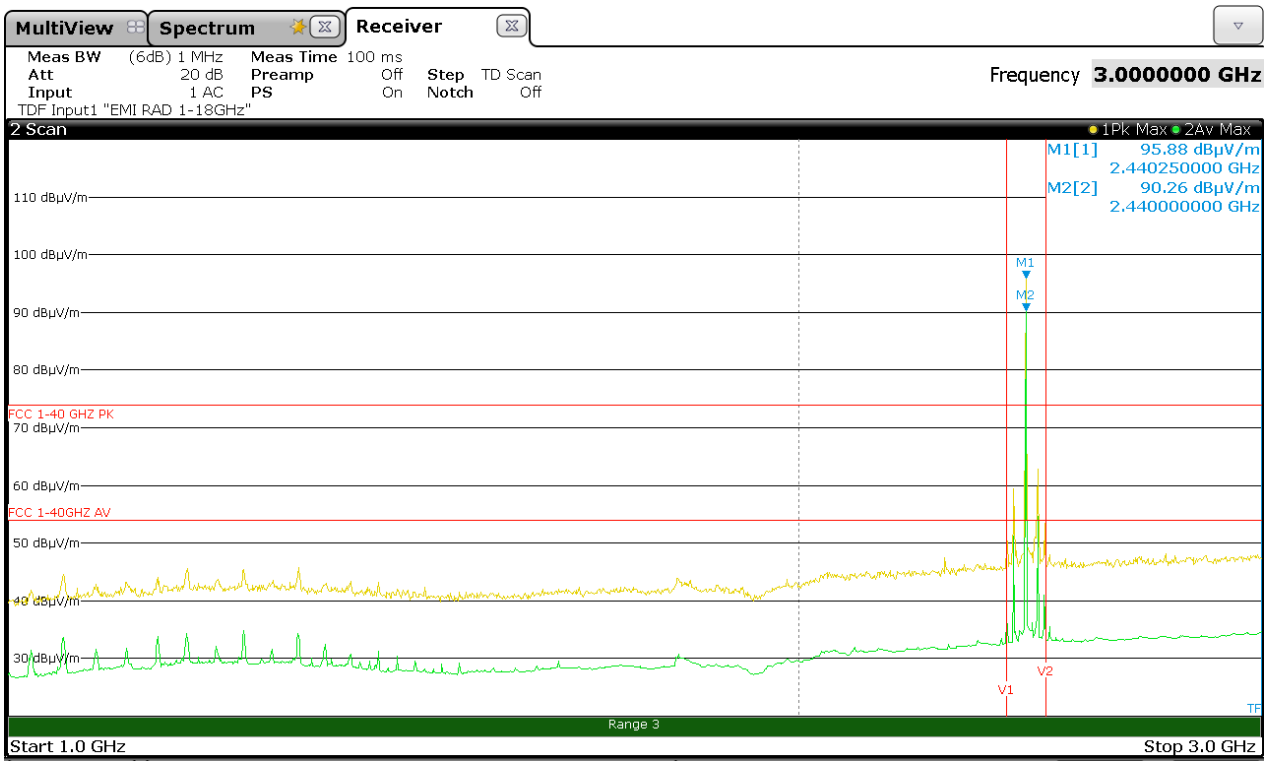
Graphical representation of Radiated Emission Measurement
Operation Mode: (#5) – Middle Channel (2440 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,25 (fundamental)	102,09	-12,28	6,09	**95,90**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	95,01	-12,28	6,09	**88,82**	/	/	/

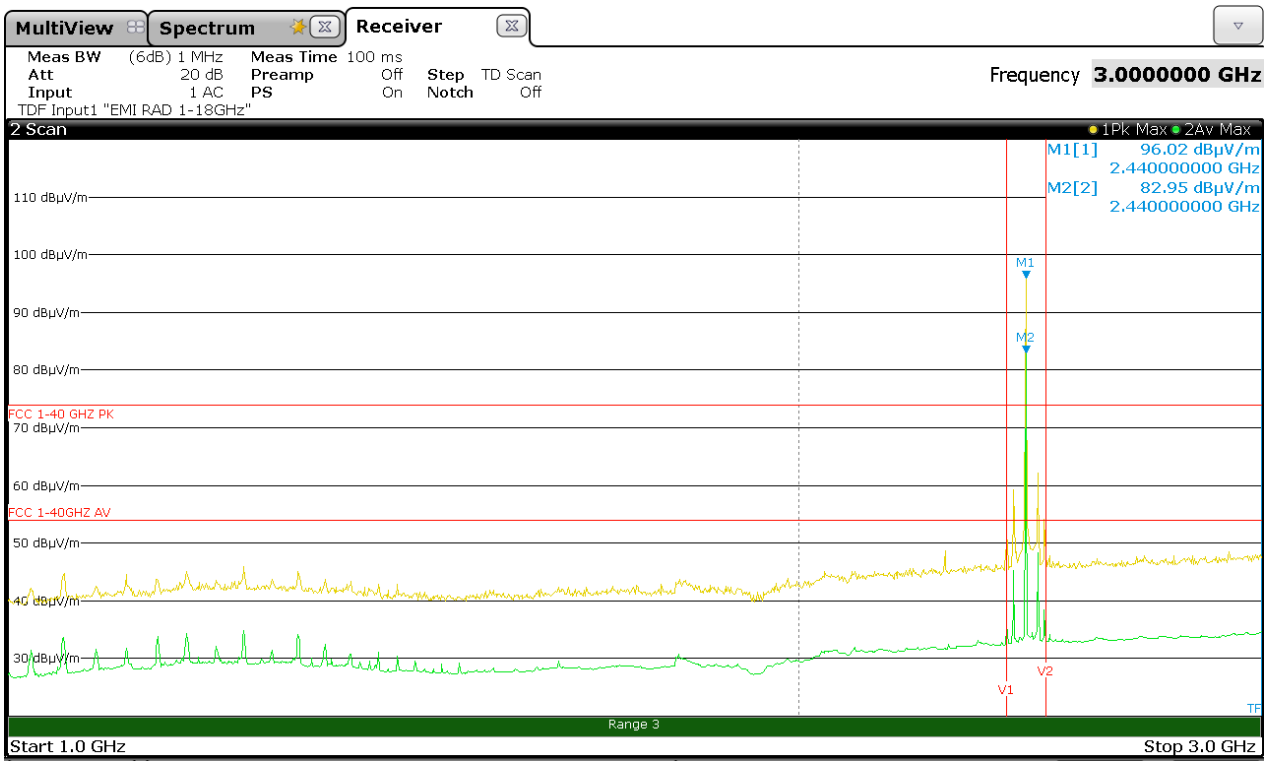
Graphical representation of Radiated Emission Measurement
Operation Mode: (#6) – Middle Channel (2440 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,25 (fundamental)	102,07	-12,28	6,09	**95,88**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	96,45	-12,28	6,09	**90,26**	/	/	/

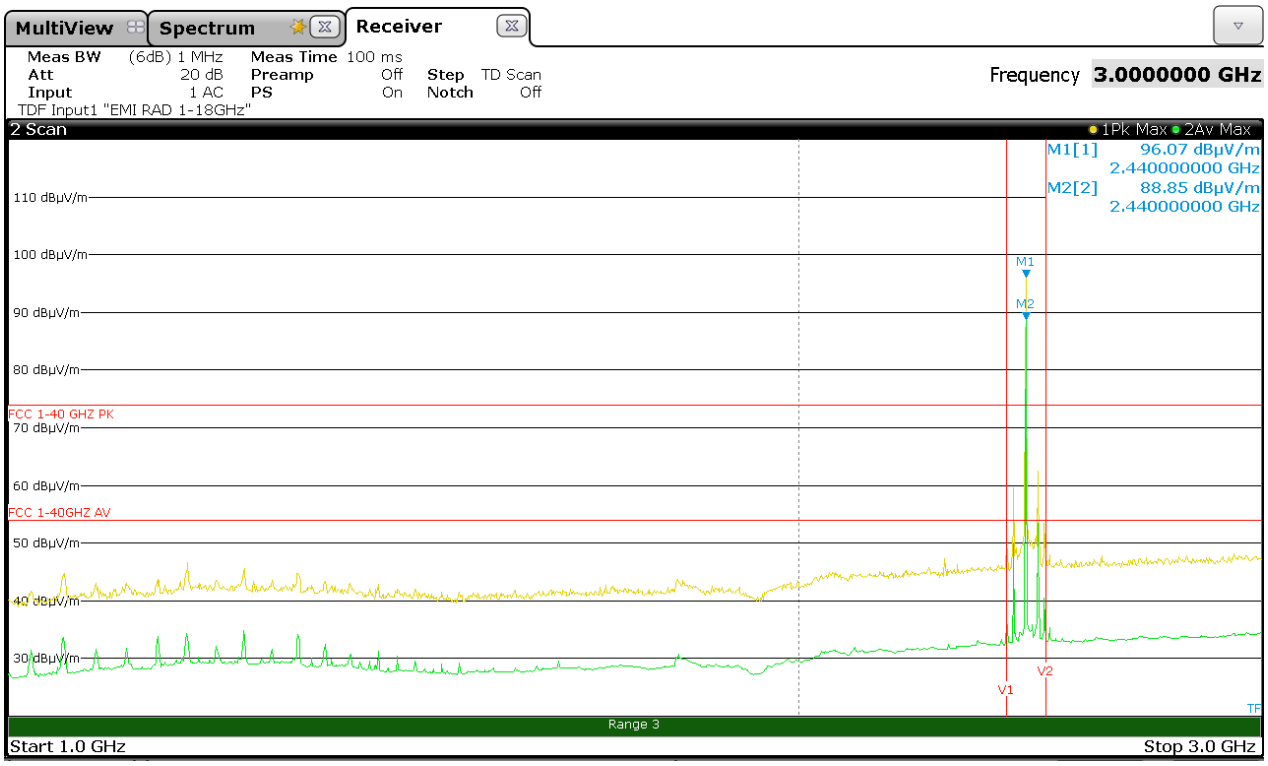
Graphical representation of Radiated Emission Measurement
Operation Mode: (#7) – Middle Channel (2440 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	102,21	-12,28	6,09	**96,02**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	89,14	-12,28	6,09	**82,95**	/	/	/

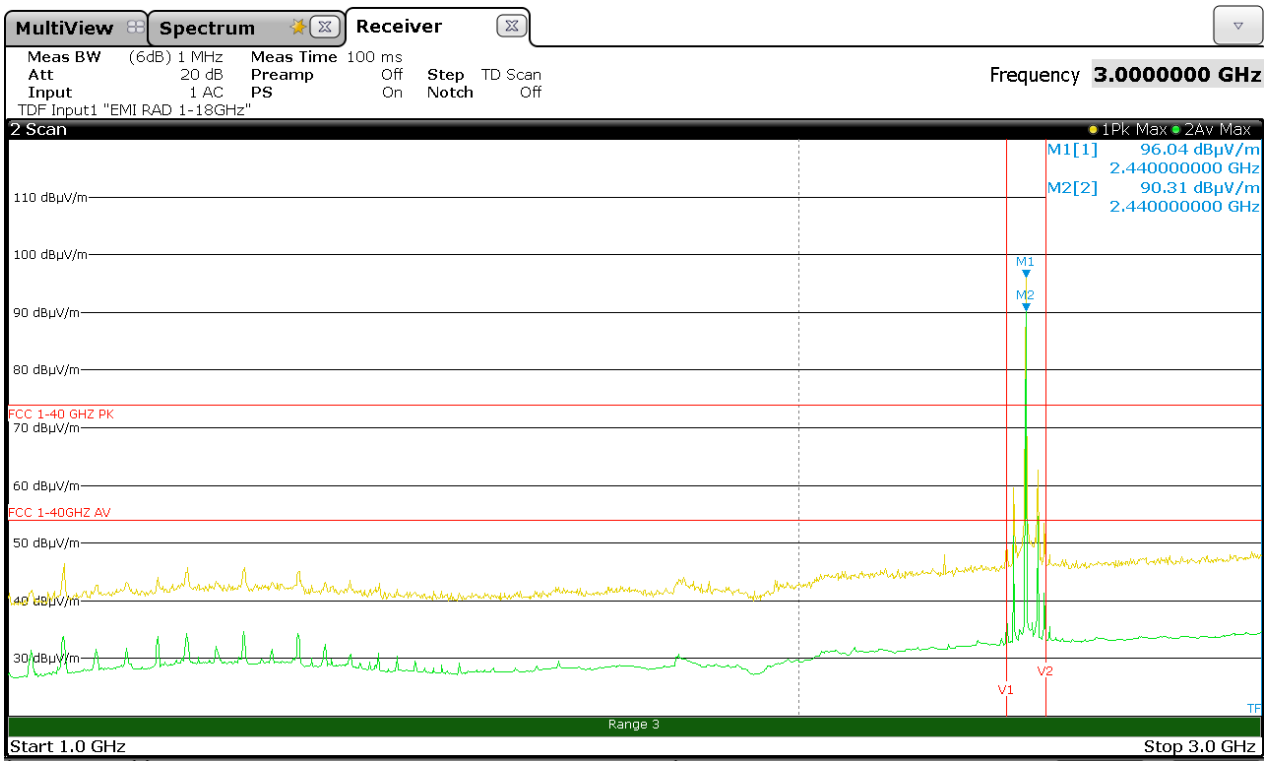
Graphical representation of Radiated Emission Measurement
Operation Mode: (#8) – Middle Channel (2440 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	102,26	-12,28	6,09	**96,07**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	95,04	-12,28	6,09	**88,85**	/	/	/

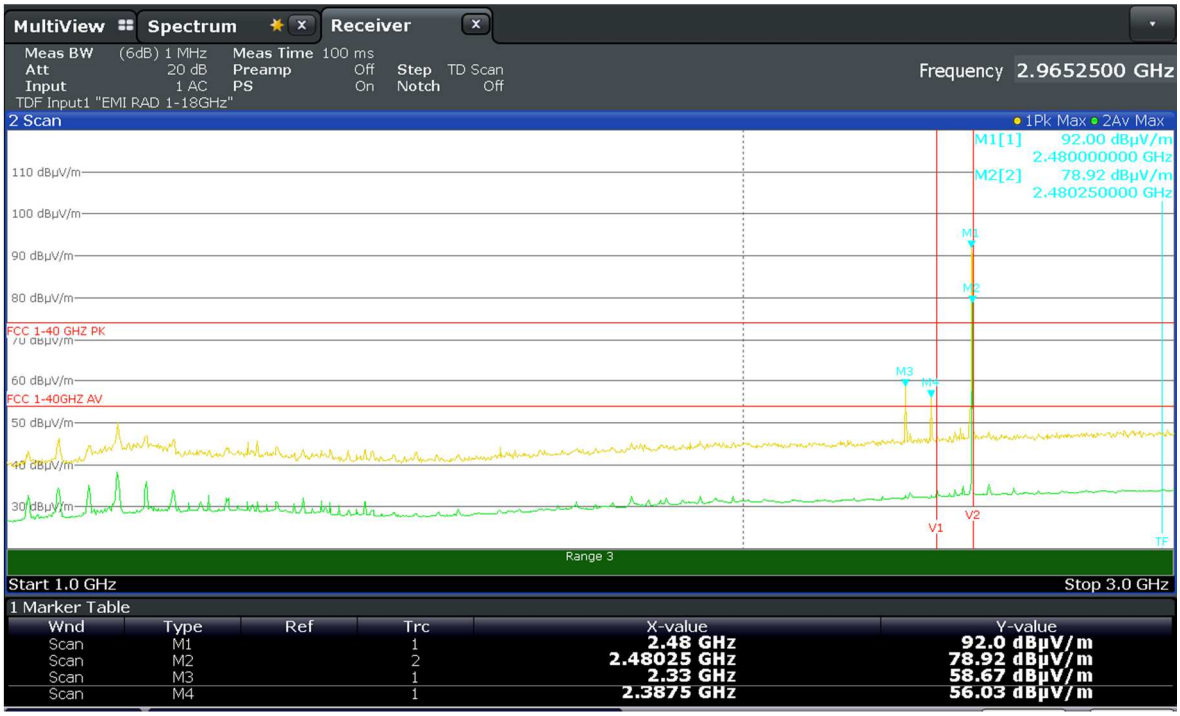
Graphical representation of Radiated Emission Measurement
Operation Mode: (#9) – Middle Channel (2440 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	102,23	-12,28	6,09	**96,04**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2440,00 (fundamental)	96,50	-12,28	6,09	**90,31**	/	/	/

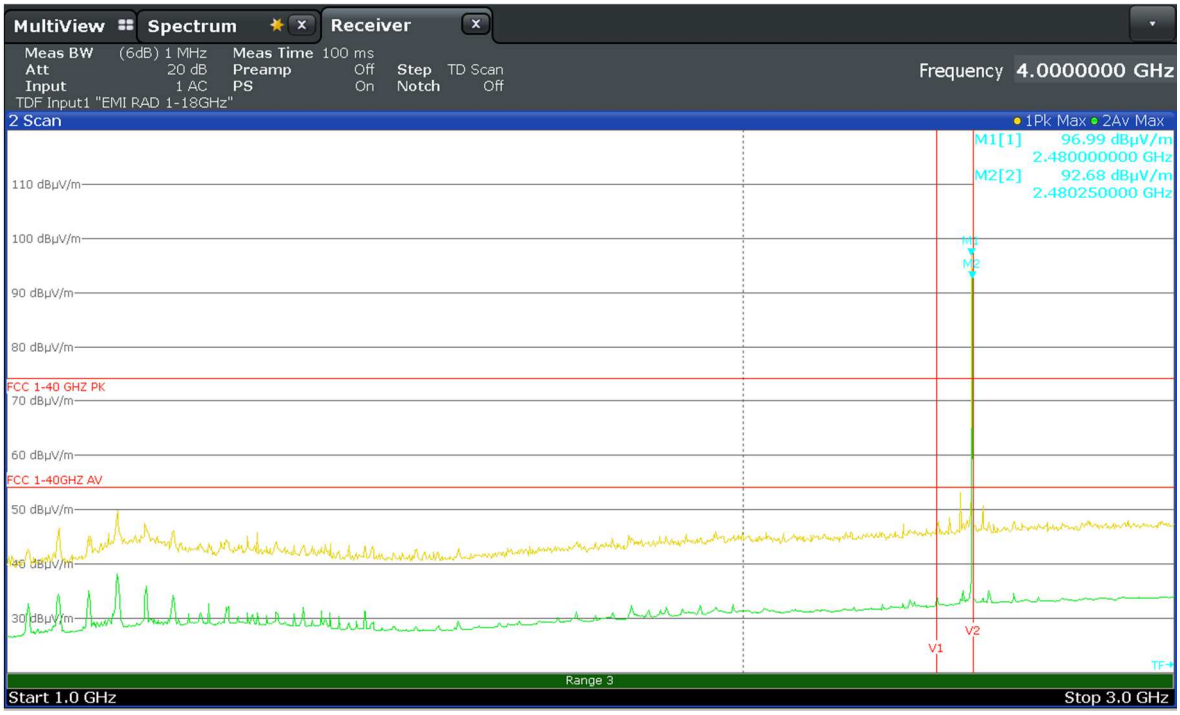
Graphical representation of Radiated Emission Measurement
Operation Mode: (#1) – High Channel (2480 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2480,00 (fundamental)	98,06	-12,15	6,09	**92,00**	/	/	/
2330,00	65,23	-12,65	6,09	**58,67**	yes	74,00	15,33
2387,50	62,39	-12,45	6,09	**56,03**	yes	74,00	17,97

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2480,25 (fundamental)	84,98	-12,15	6,09	**78,92**	/	/	/

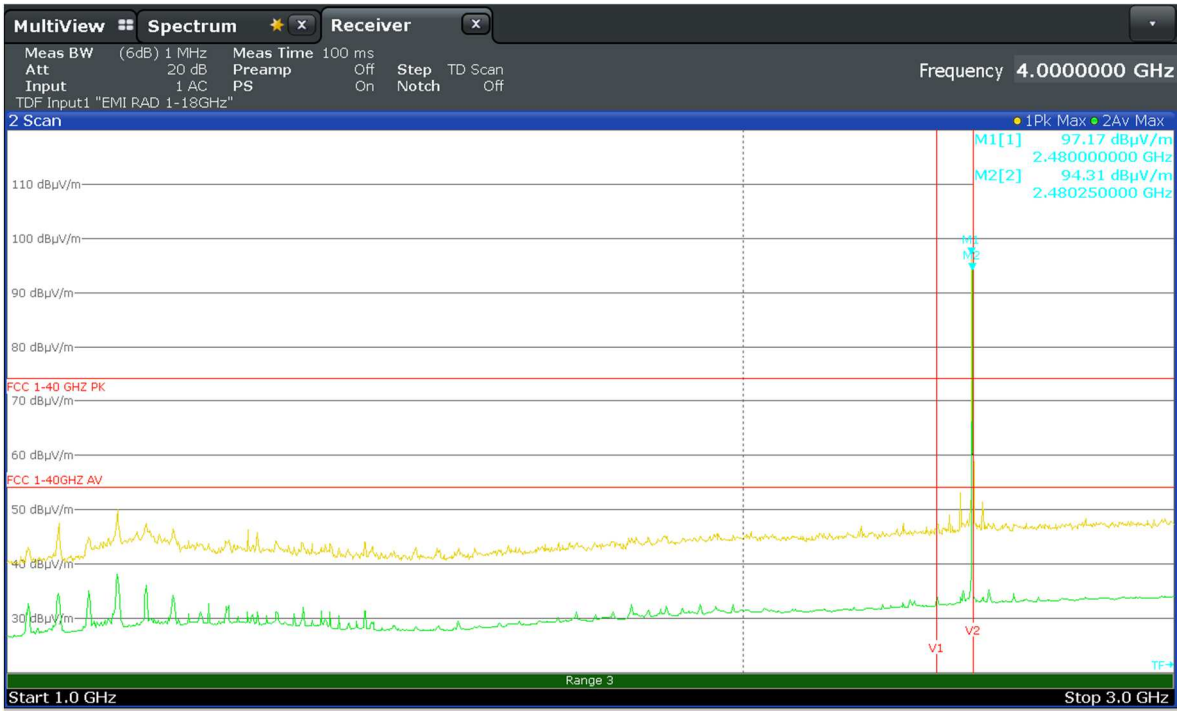
Graphical representation of Radiated Emission Measurement
Operation Mode: (#2) – High Channel (2480 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2480,00 (fundamental)	103,05	-12,15	6,09	**96,99**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2480,25 (fundamental)	98,74	-12,15	6,09	**92,68**	/	/	/

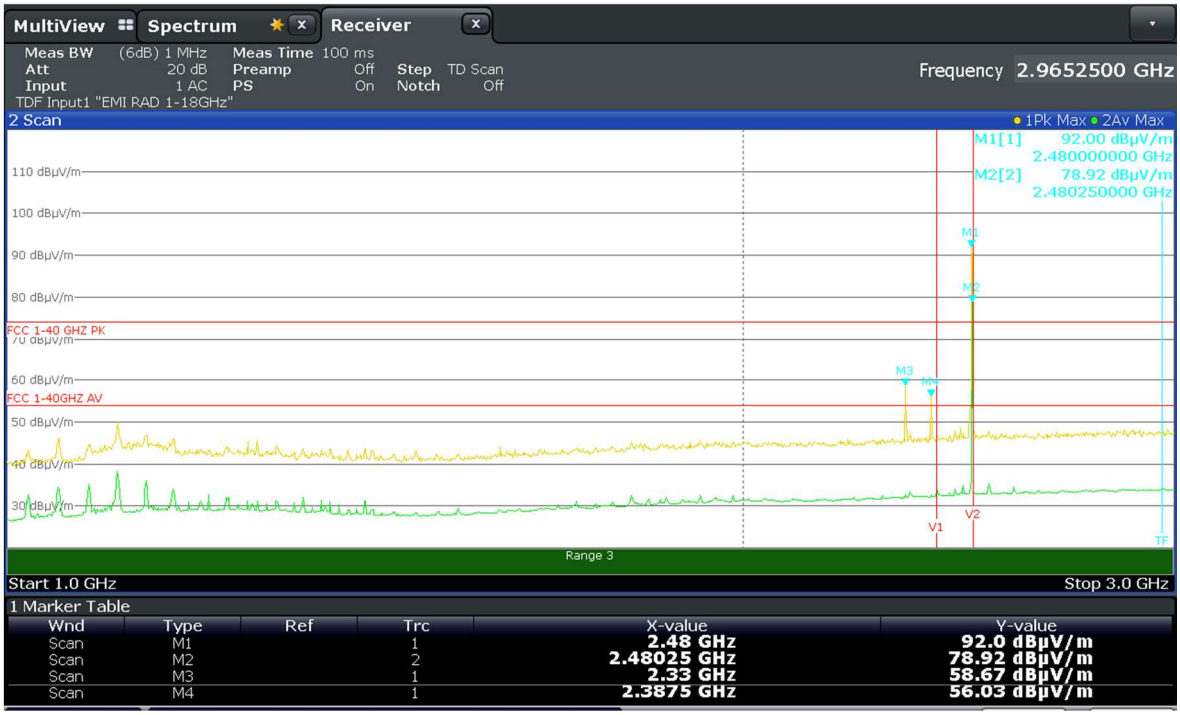
Graphical representation of Radiated Emission Measurement
Operation Mode: (#3) – High Channel (2480 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2480,00 (fundamental)	103,23	-12,15	6,09	**97,17**	/	/	/

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2480,25 (fundamental)	100,37	-12,15	6,09	**94,31**	/	/	/

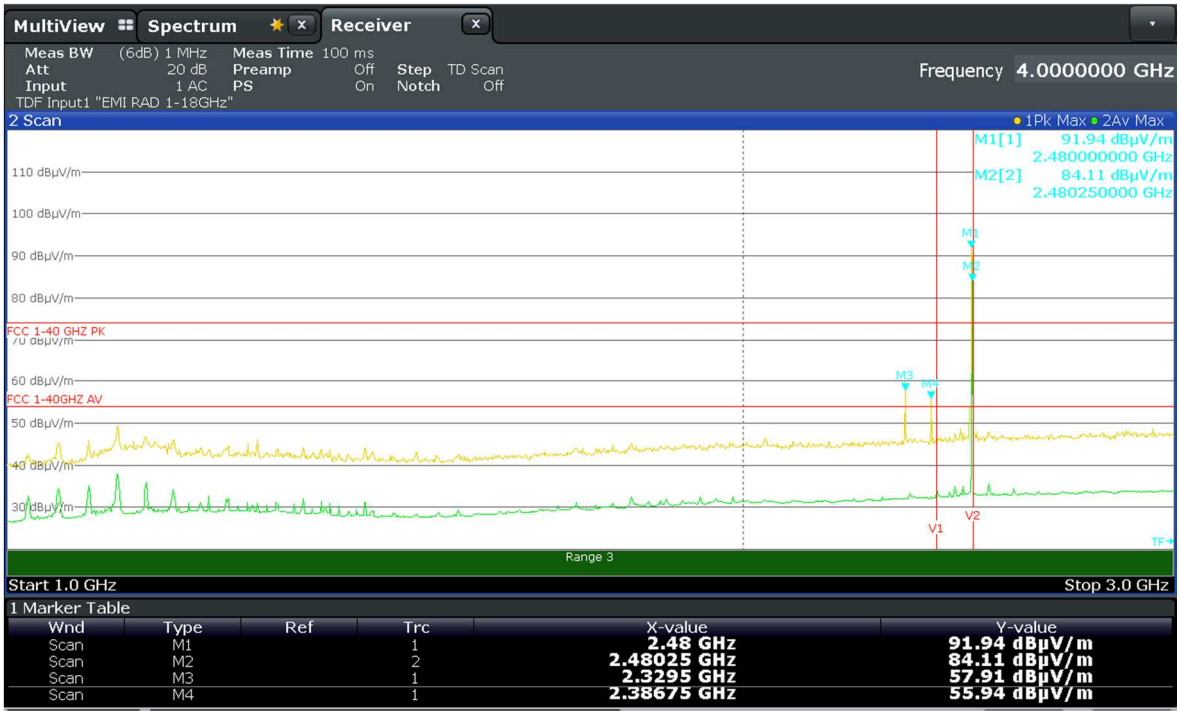
Graphical representation of Radiated Emission Measurement
Operation Mode: (#4) – High Channel (2480 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2480,00 (fundamental)	98,06	-12,15	6,09	**92,00**	/	/	/
2330,00	65,23	-12,65	6,09	**58,67**	yes	74,00	15,33
2387,50	62,39	-12,45	6,09	**56,03**	yes	74,00	17,97

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2479,00 (fundamental)	84,98	-12,15	6,09	**78,92**	/	/	/

Graphical representation of Radiated Emission Measurement
Operation Mode: (#5) – High Channel (2480 MHz)
Frequency: 1GHz – 3GHz
Antenna Polarization: worst case Vertical and Horizontal



PEAK RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**PK Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2480,00 (fundamental)	98,00	-12,15	6,09	**91,94**	/	/	/
2329,50	64,47	-12,65	6,09	**57,91**	yes	74,00	16,09
2386,75	62,30	-12,45	6,09	**55,94**	yes	74,00	18,06

AVERAGE RESULT (RBW=1MHz)							
Frequency	**Reading value**	**Antenna Factor with Pre-Amp. Gain**	**Cable Loss**	**Correcting reading**	**Restricted band**	**AV Limit**	**Margin**
(MHz)	**(dBµV)**	**(dB3/m)**	**(dB)**	**(dBµV/m)**	**/**	**(dBµV/m)**	**(dB)**
2480,25 (fundamental)	90,17	-12,15	6,09	**84,11**	/	/	/