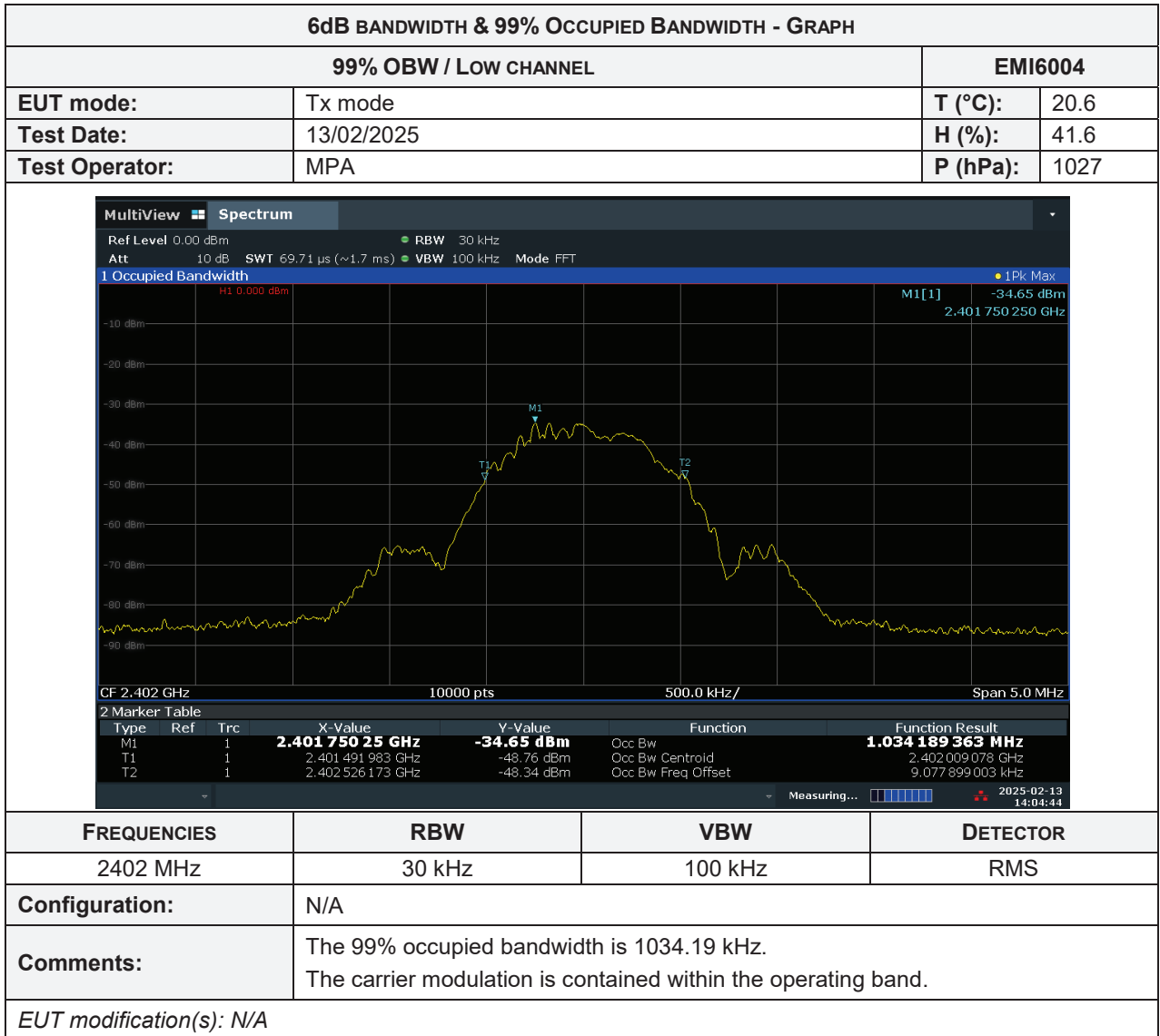
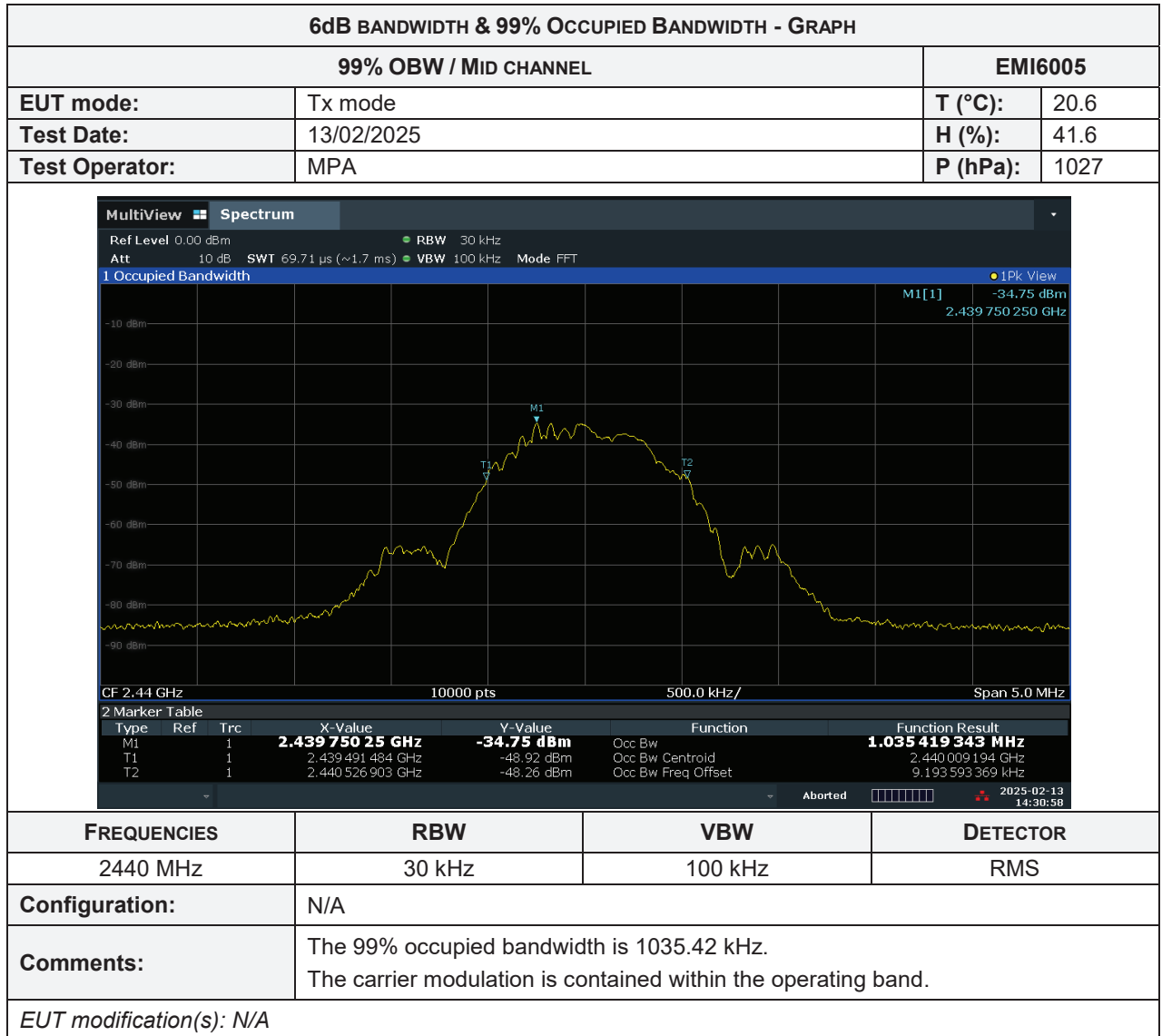
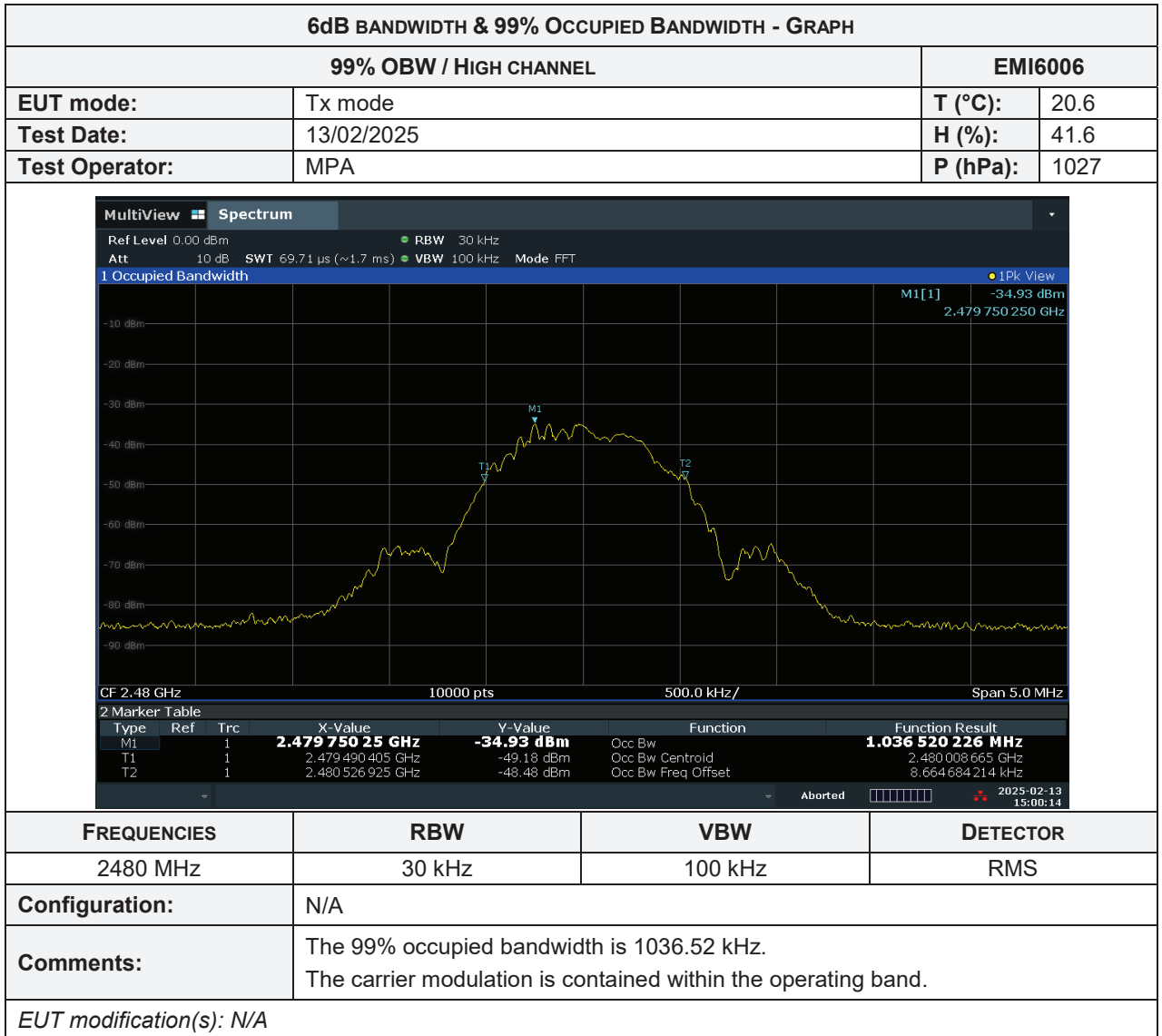








6.3. Maximum peak power of the intentional radiator

Reference standard:	FCC 47 CFR PART 15.247 RSS-247
Test method:	ANSI C63.10
Test description: b) (3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode. For EUT without dedicated or integral antenna, EUT is connected to the measuring receiver via 50Ω attenuator(s). Radiated power limit applies to the maximum measured conducted power value adjusted by the antenna gain and beamforming gain. For EUT with integral or dedicated antenna, measurements are done on a normalized test site. EUT is set on an insulating support at 150 cm above the ground reference plane. Measurement is done on a normalized test site by the substitution method. The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected. For portable equipments: - For frequencies < 1GHz a research of maximum level is done on 3 axes - For frequencies > 1GHz styrofoam wedges, precut to the 30°, 60°, and 90° angles, are used to support the EUT in the 6 different orientations. Only the highest levels are recorded.	

TESTED CONFIGURATION	PARAMETER	SEVERITY	RESULT TAB.	VERDICT
RF output power / BLE / Low channel / Position 1	2.392GHz-2.412GHz	1 W (30 dBm)	EMI4664	PASS
RF output power / BLE / Low channel / Position 2			EMI4665	PASS
RF output power / BLE / Low channel / Position 3			EMI4666	PASS
RF output power / BLE / Low channel / Position 4			EMI4667	PASS
RF output power / BLE / Low channel / Position 5			EMI4668	PASS
RF output power / BLE / Low channel / Position 6			EMI4669	PASS
RF output power / BLE / Mid channel / Position 1	2.43GHz-2.45GHz		EMI4671	PASS
RF output power / BLE / Mid channel / Position 2			EMI4672	PASS
RF output power / BLE / Mid channel / Position 3			EMI4673	PASS
RF output power / BLE / Mid channel / Position 4			EMI4674	PASS

TESTED CONFIGURATION	PARAMETER	SEVERITY	RESULT TAB.	VERDICT
RF output power / BLE / Mid channel / Position 5	2.47GHz-2.49GHz		EMI4675	PASS
RF output power / BLE / Mid channel / Position 6			EMI4676	PASS
RF output power / BLE / High channel / Position 1			EMI4678	PASS
RF output power / BLE / High channel / Position 2			EMI4679	PASS
RF output power / BLE / High channel / Position 3			EMI4680	PASS
RF output power / BLE / High channel / Position 4			EMI4681	PASS
RF output power / BLE / High channel / Position 5			EMI4682	PASS
RF output power / BLE / High channel / Position 6			EMI4683	PASS

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	15 to 35 °C	<i>See Graph(s)</i>
Relative Humidity	20 to 75 %	<i>See Graph(s)</i>
Atmospheric pressure	N/A	<i>See Graph(s)</i>
Test method deviation: N/A		
Supplementary information: N/A		

TEST EQUIPMENT USED					
CATEGORY	BRAND	TYPE	IDENTIFIER	CAL. DATE	CAL. DUE
Antenna	AARONIA	Powerlog 70180	15306	04/01/2023	04/03/2026
Attenuator	EMITECH	SUB.V4-H	18112	03/06/2024	03/08/2025
Attenuator	EMITECH	SUB.V4-V	18111	03/06/2024	03/08/2025
Cable	/	N-1m	3625	02/05/2023	02/07/2025
Cable	Techniwave	N-2.5m	18350	17/08/2023	17/10/2025
Cable	Techniwave	N-3.5m	18352	17/08/2023	17/10/2025
Receiver	Rohde & Schwarz	FSW43	14830 ⁽¹⁾	31/08/2022	31/04/2025
Shielded enclosure	COMTEST	C.V4	18014	05/11/2024	05/01/2028
Software	Nexio	BAT EMC	0000		
Thermohygrometer	Testo	608-H1	7562	28/09/2023	28/11/2025
Thermohygrometer	Bioblock Scientific	Météostar	0963	25/09/2023	25/11/2025

BAT-EMC software version: V3.18.0.26

Blank cells = Permanent validity

(1) Under derogation EQSDER000S4100139

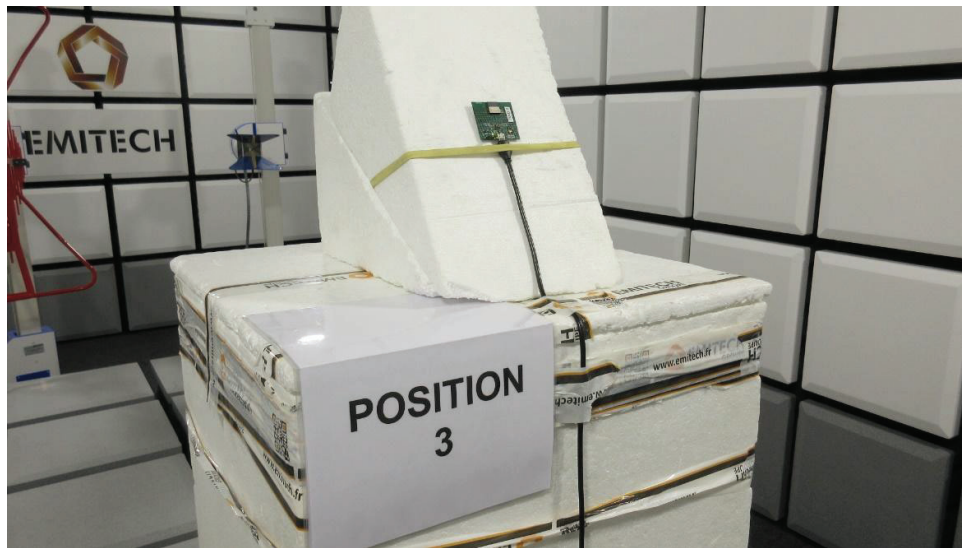
TEST SETUP PHOTO(S) – EUT POSITION 1



TEST SETUP PHOTO(S) – EUT POSITION 2



TEST SETUP PHOTO(S) – EUT POSITION 3



TEST SETUP PHOTO(S) – EUT POSITION 4



TEST SETUP PHOTO(S) – EUT POSITION 5

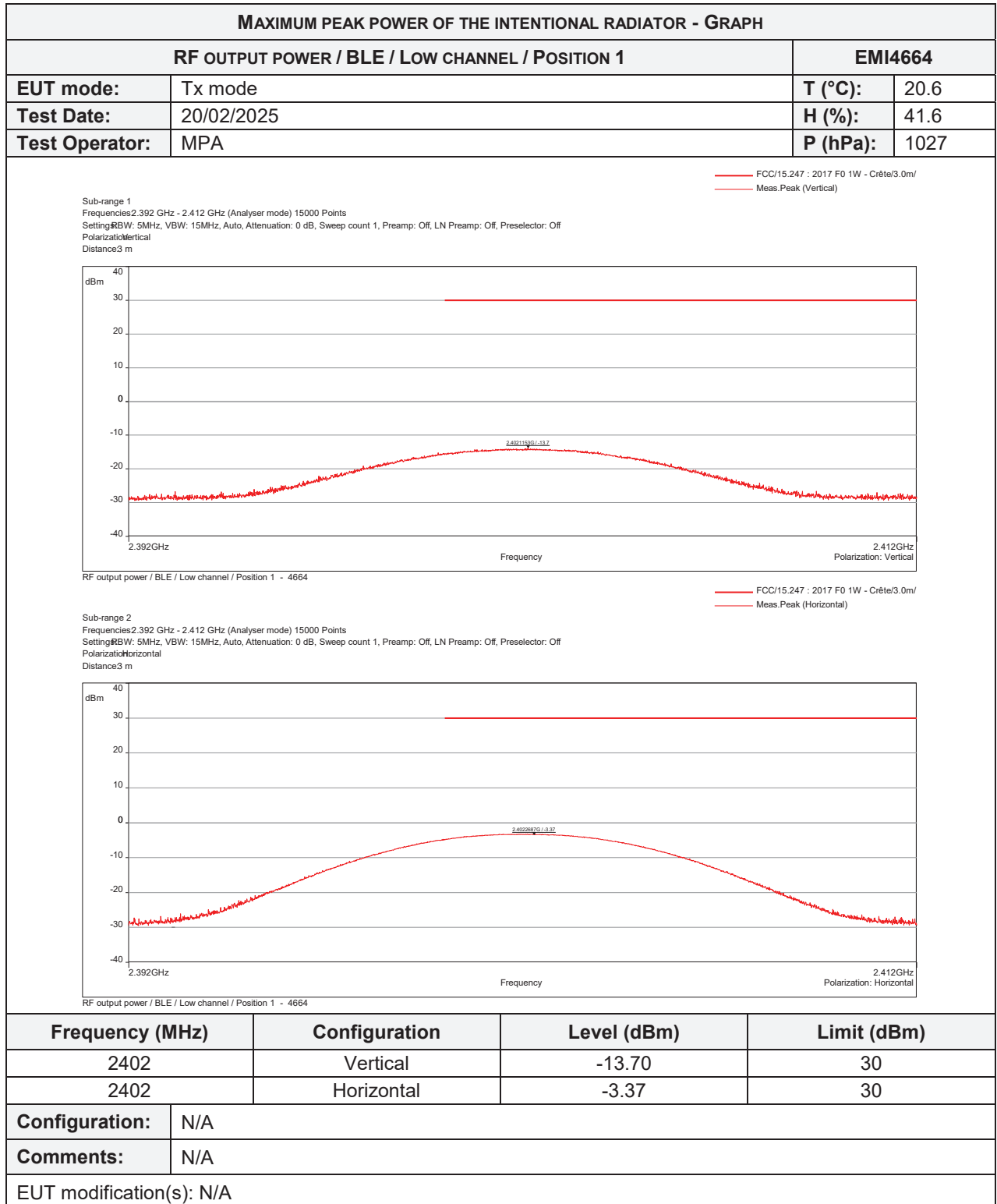


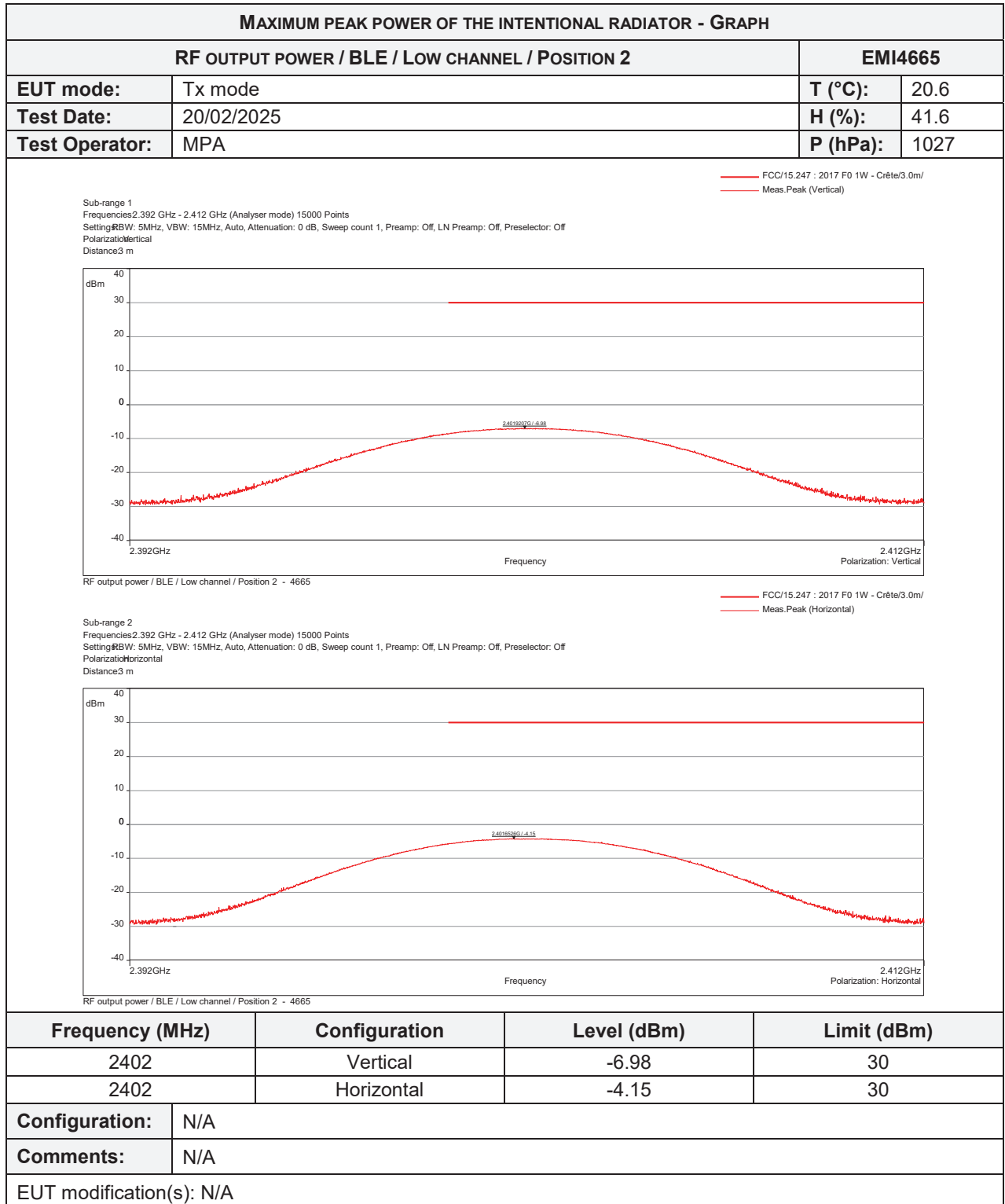
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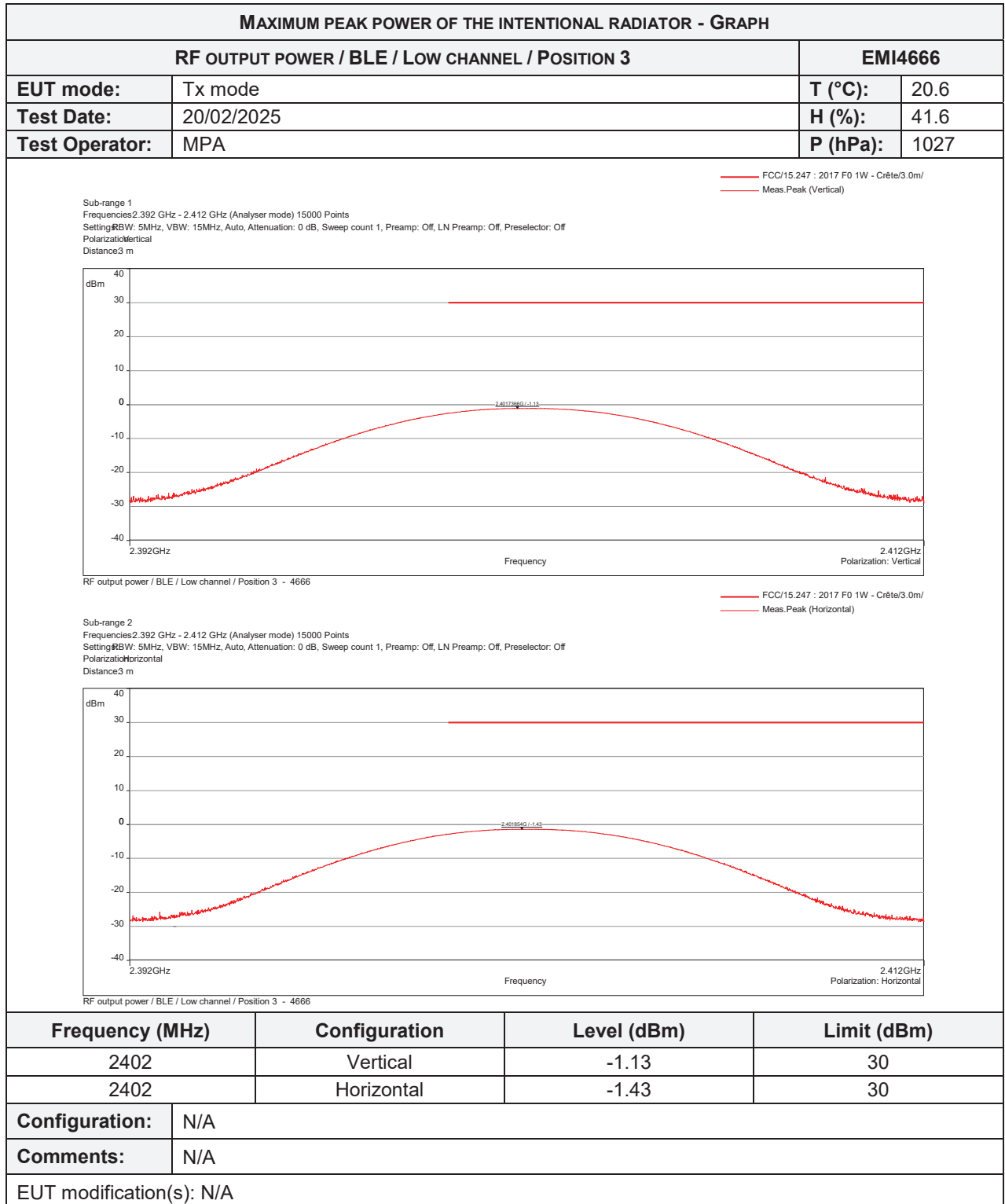


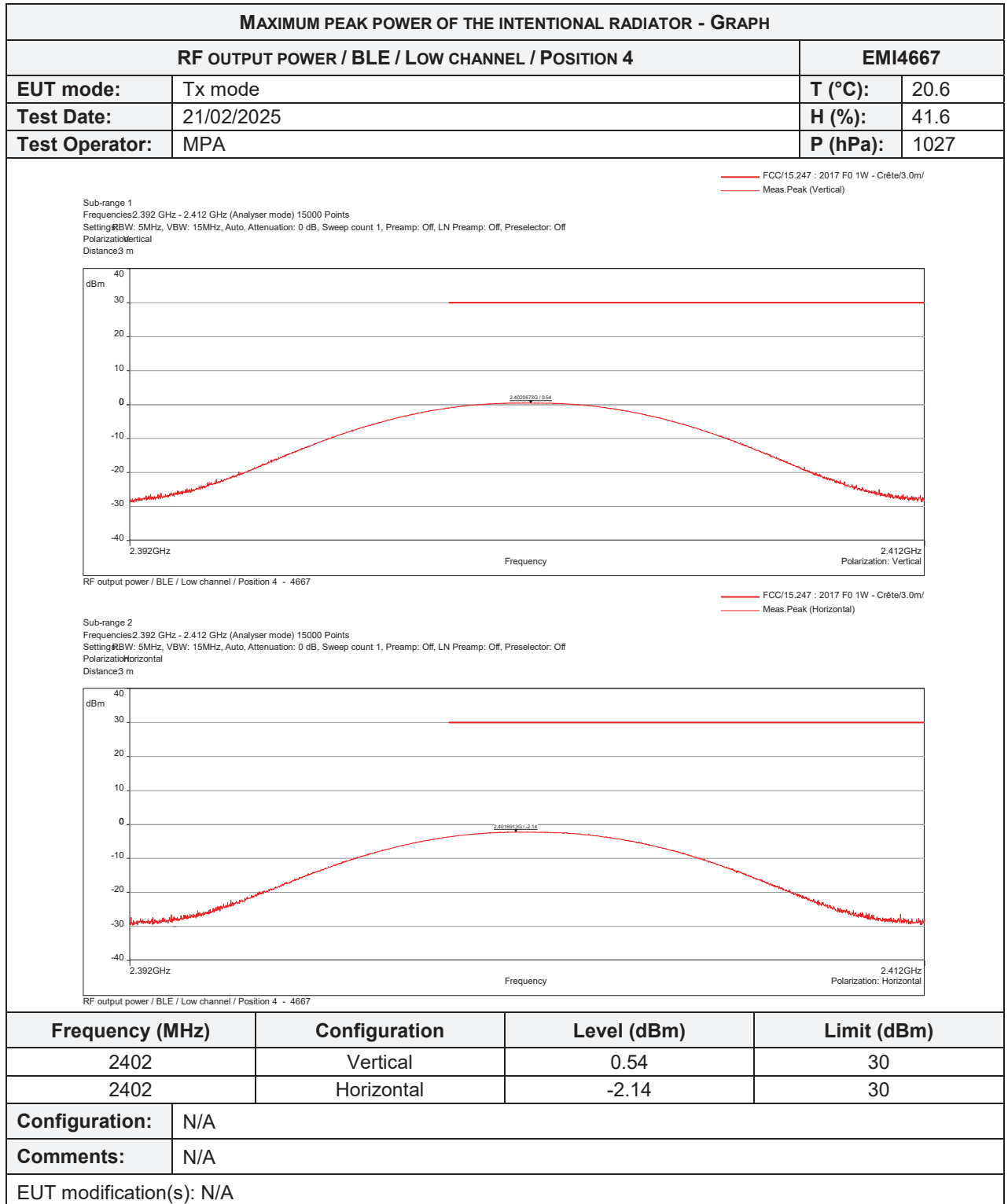
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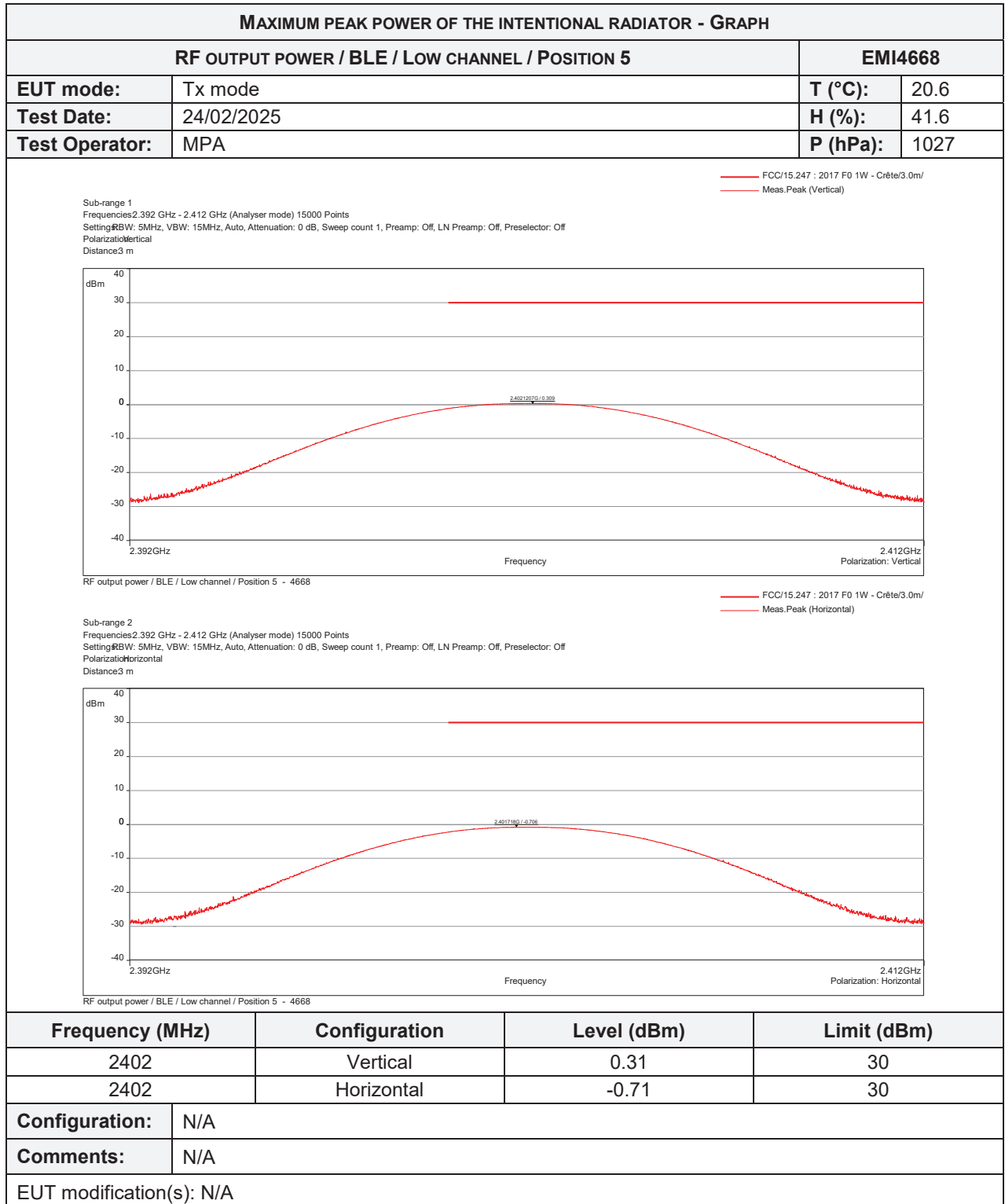


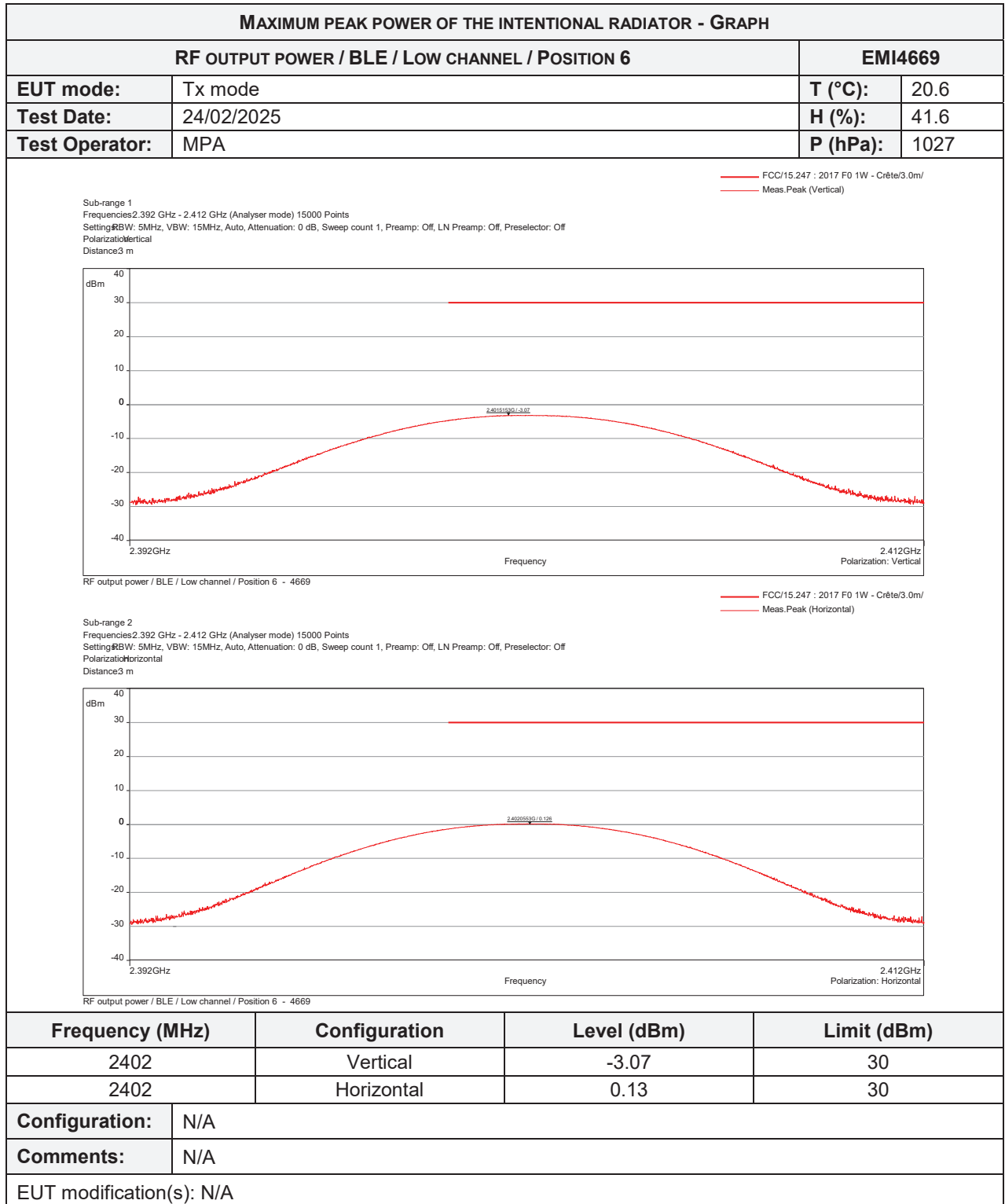


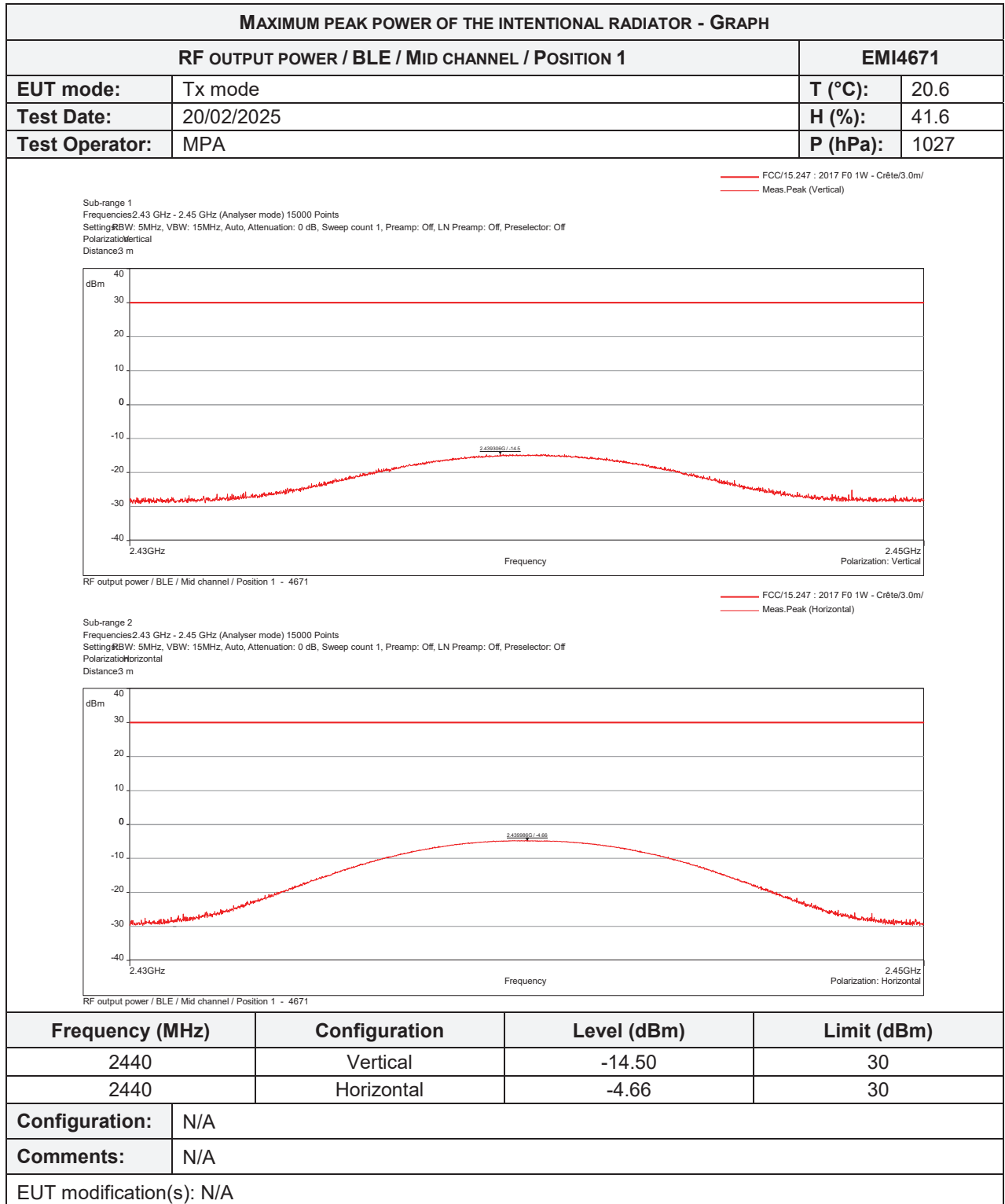


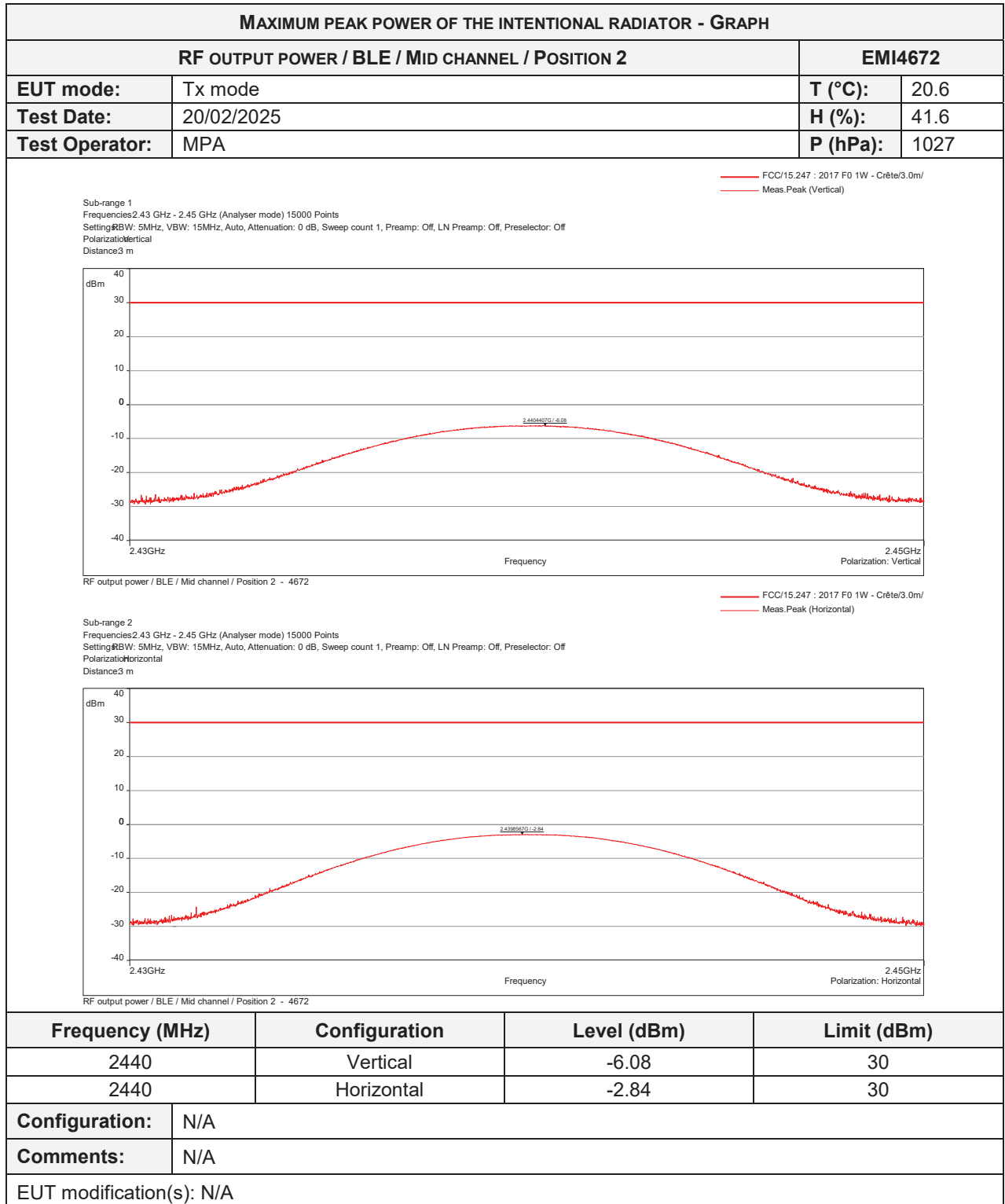


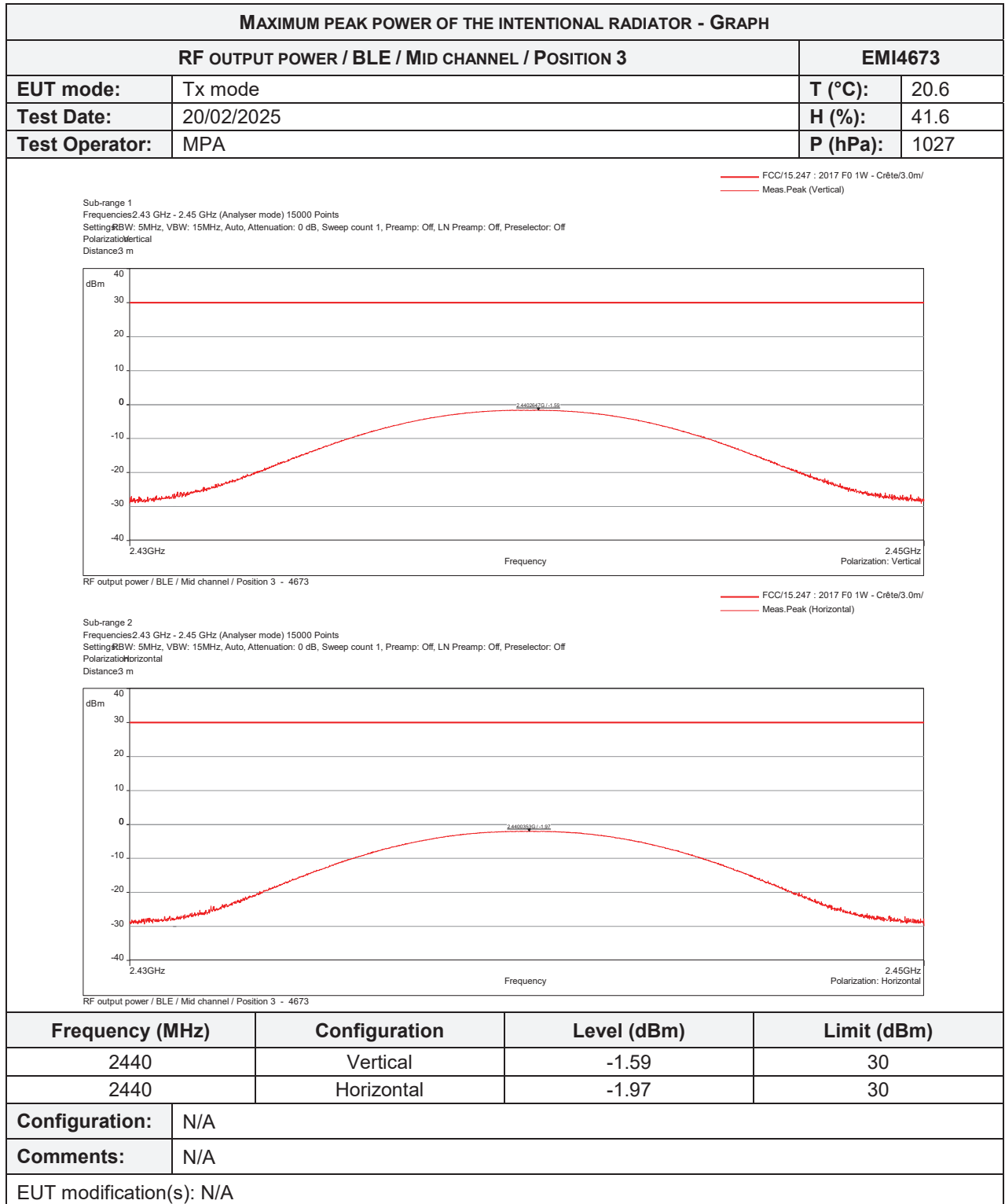


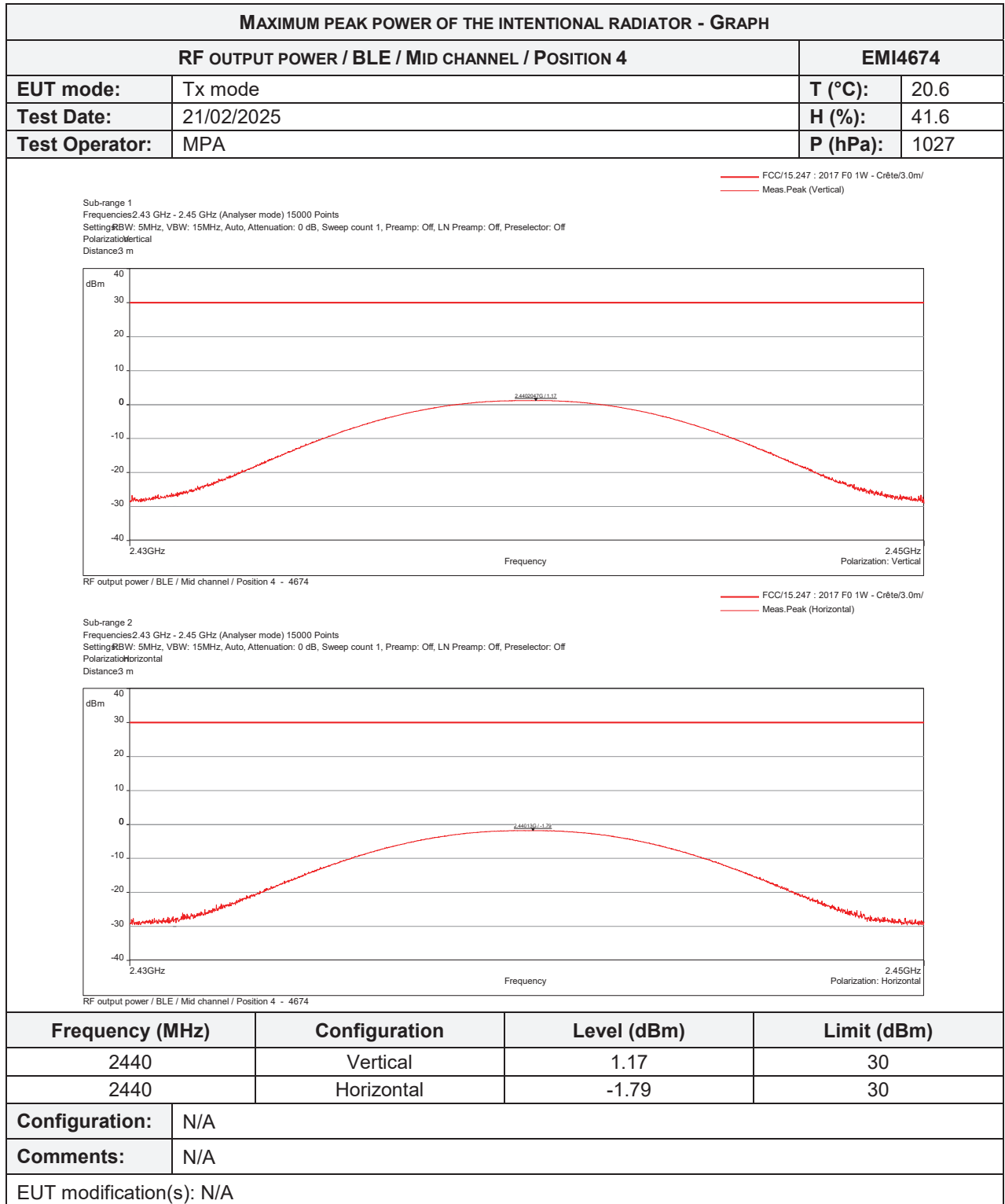


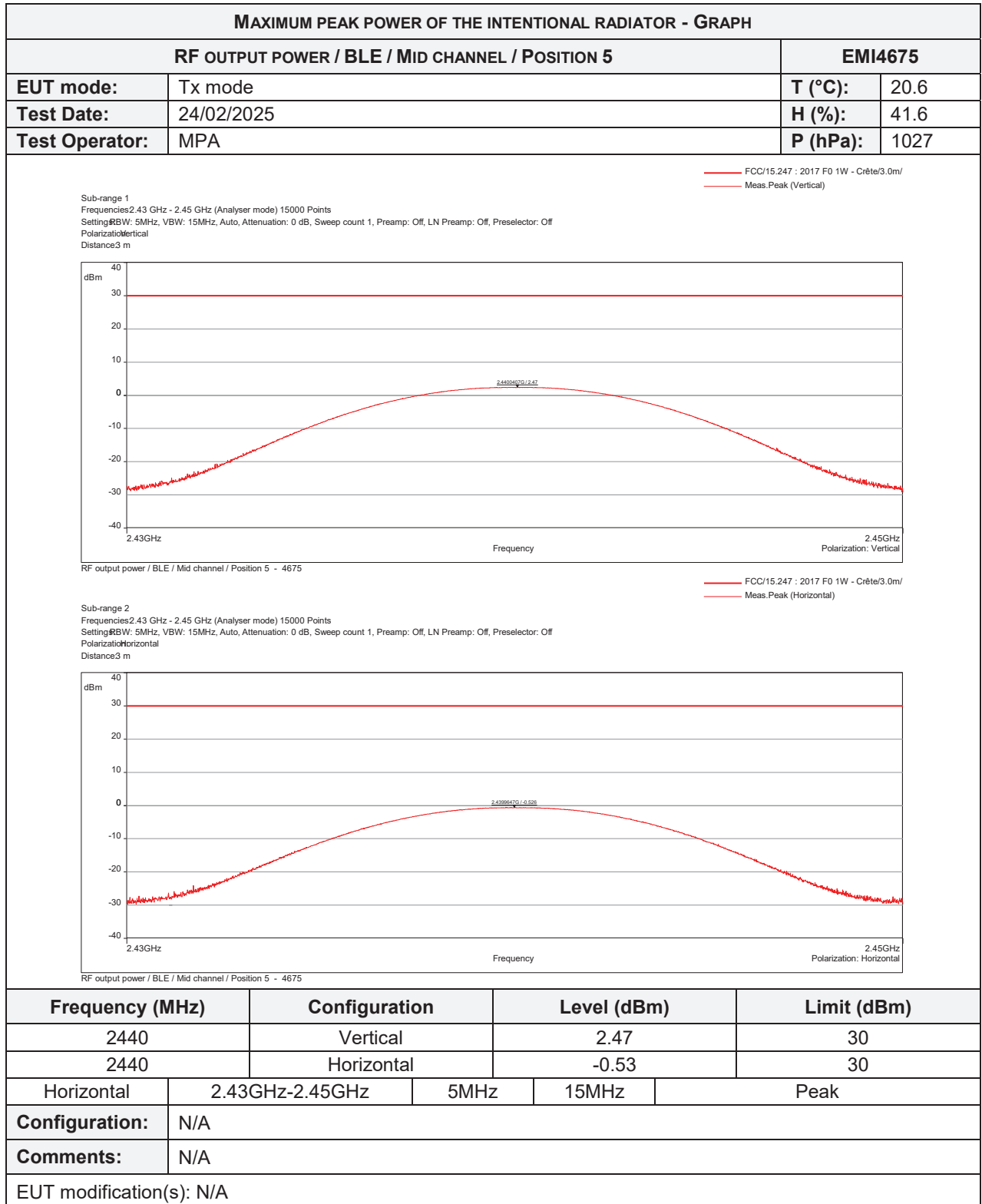


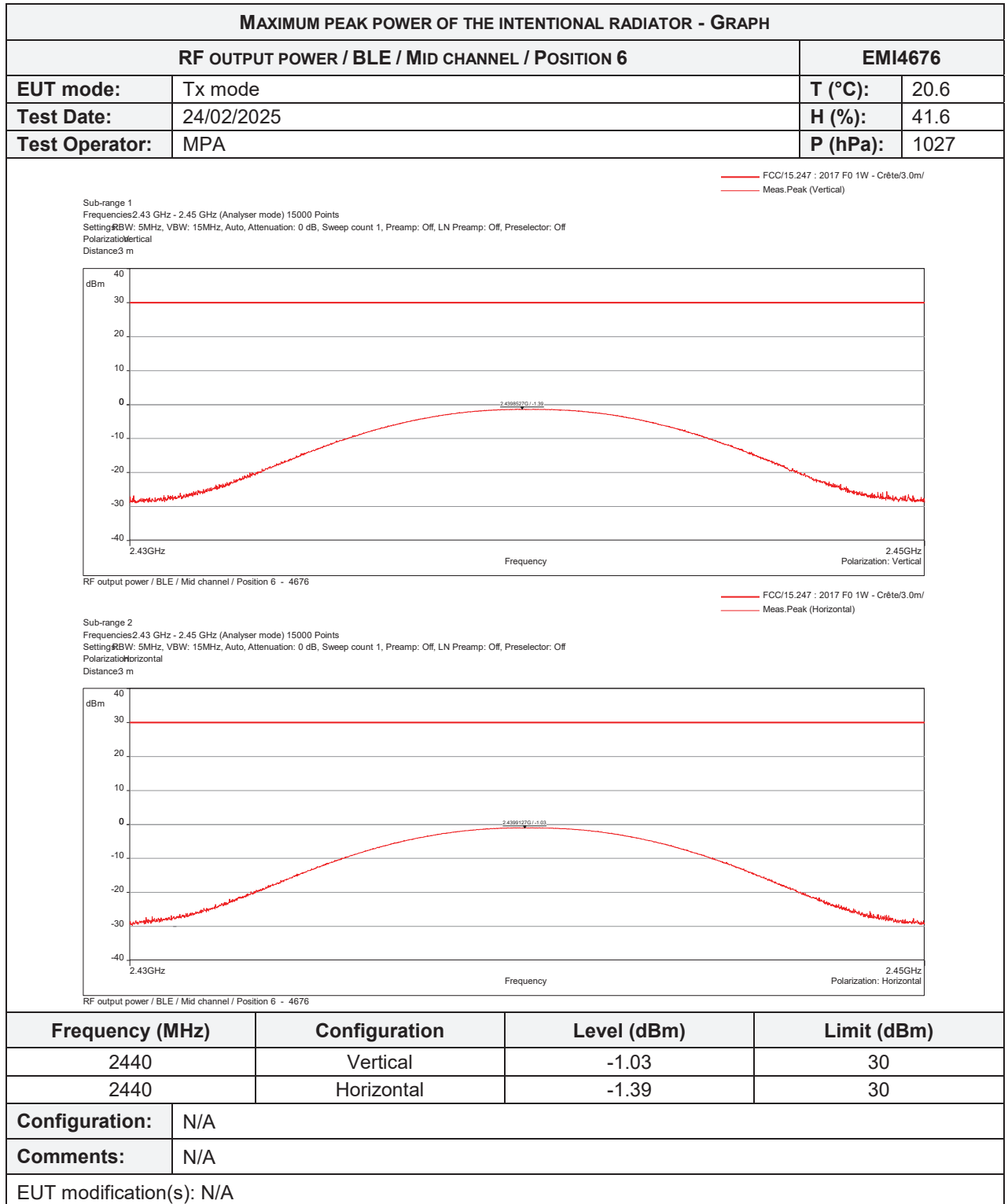


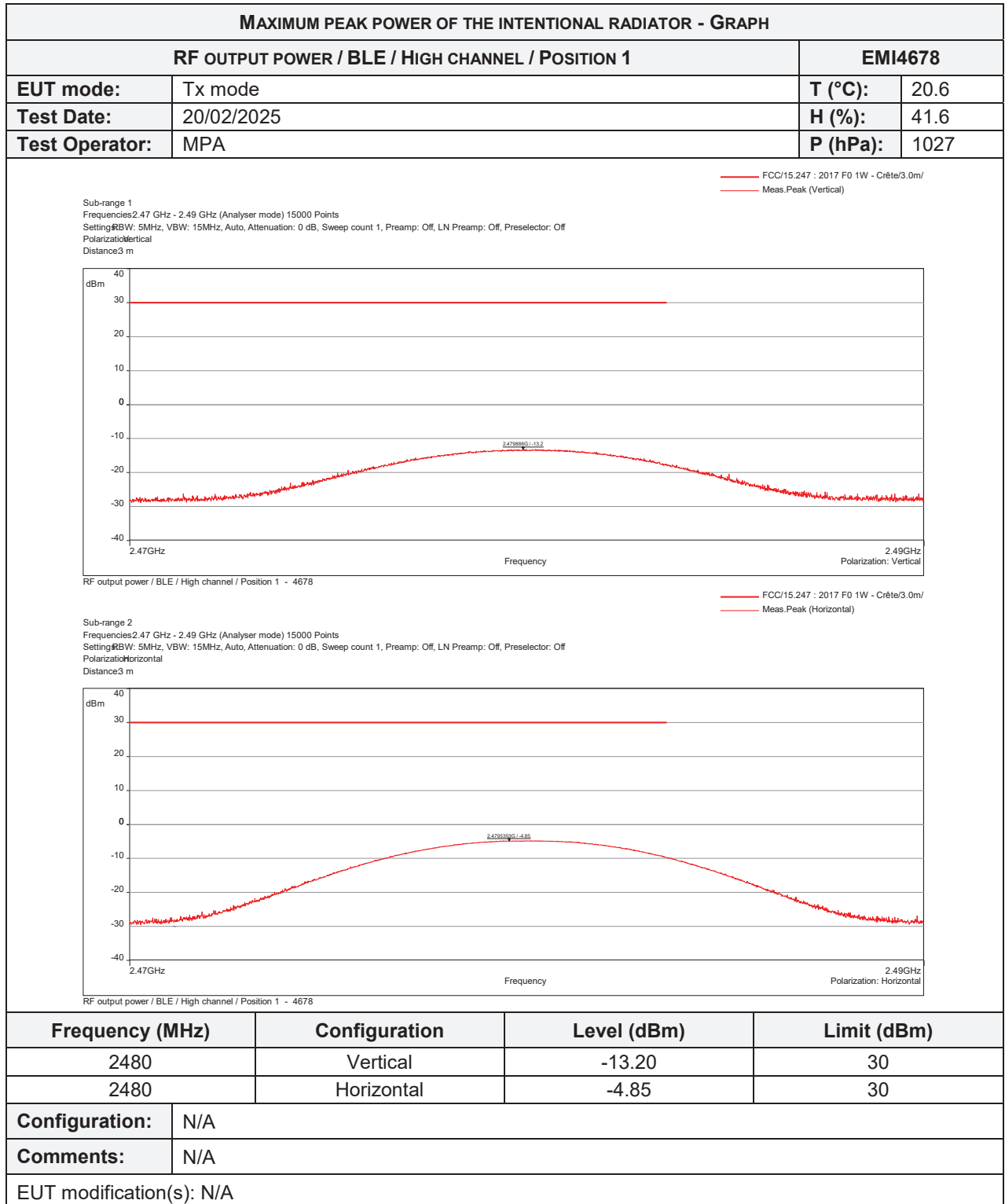


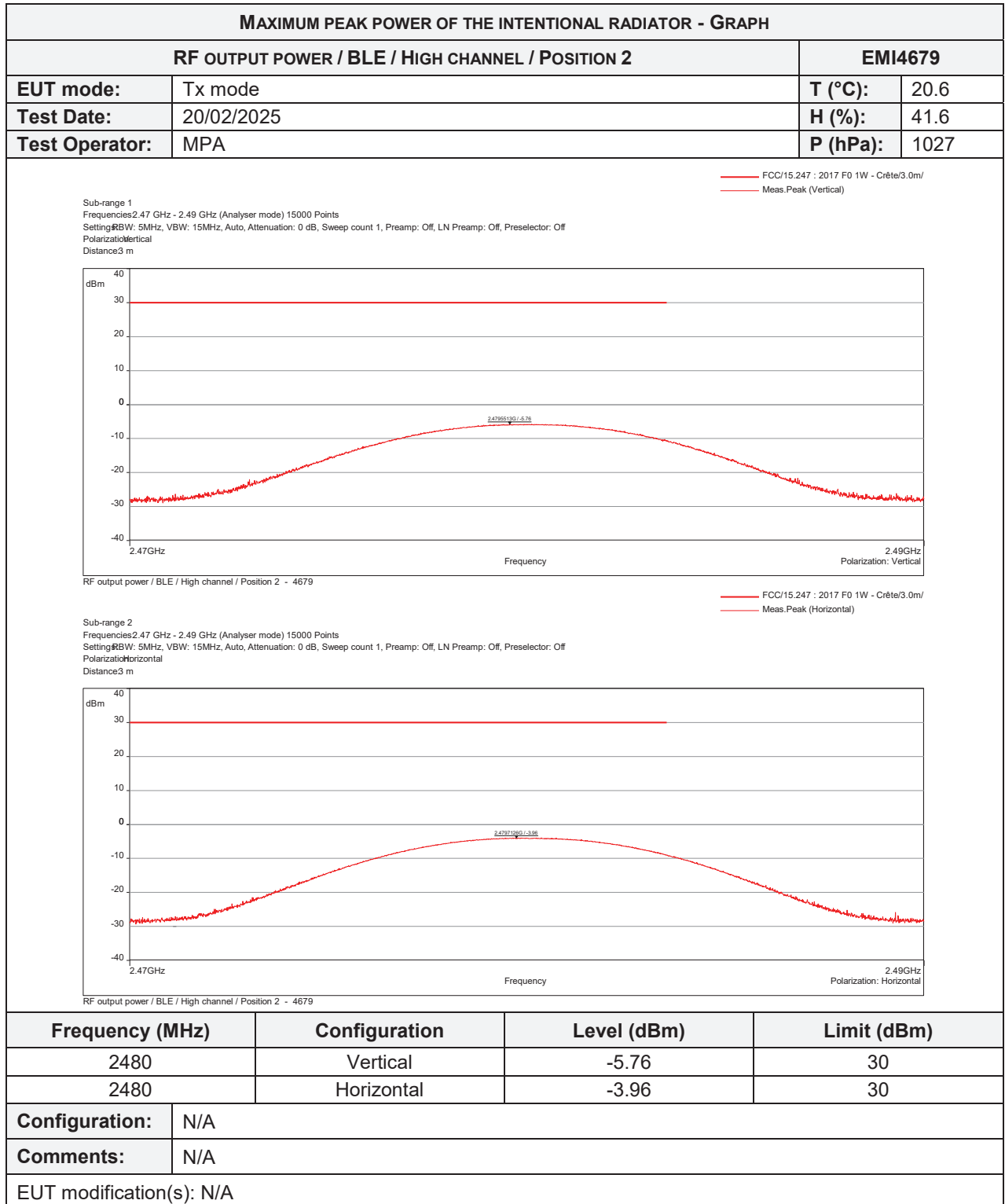


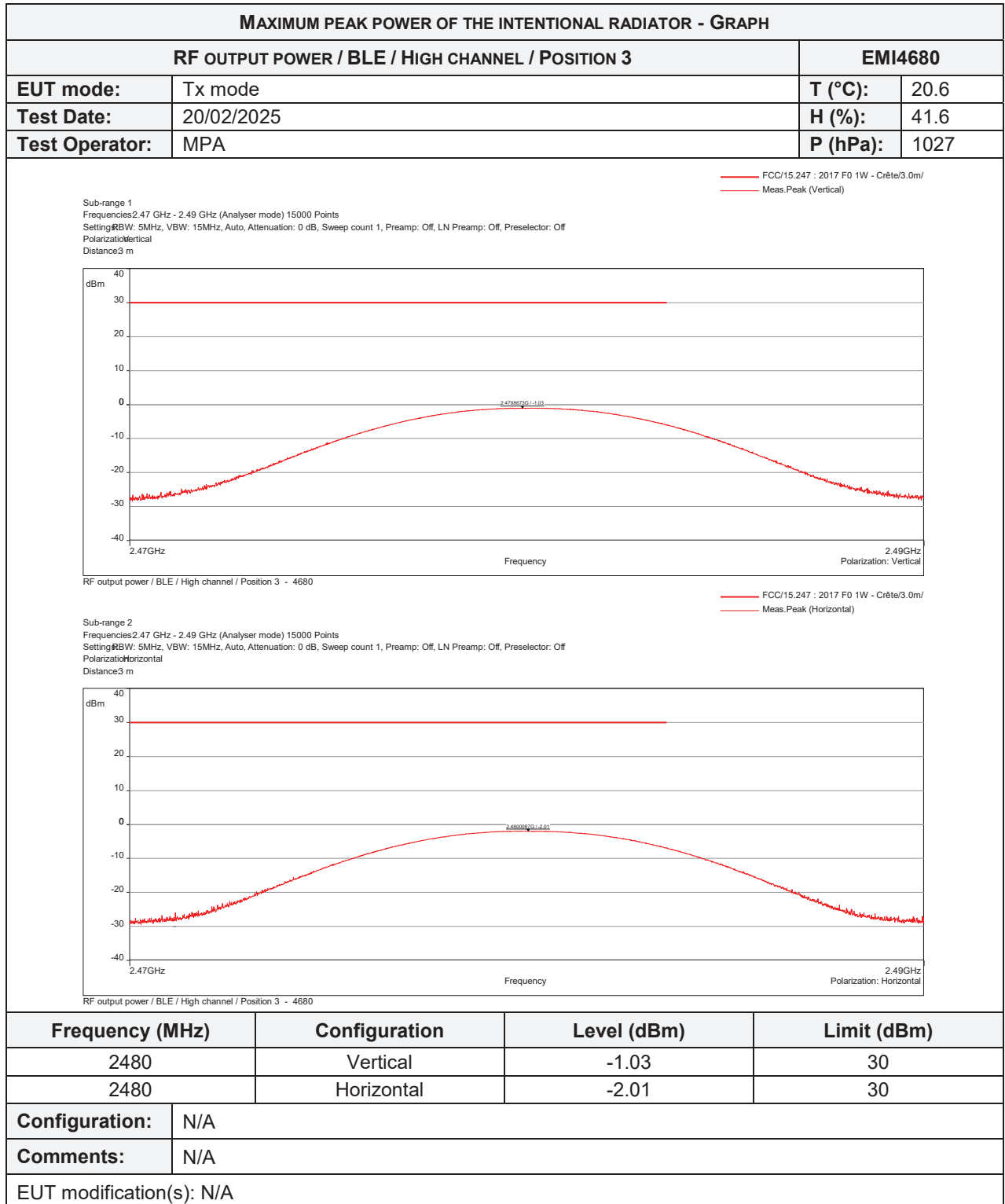


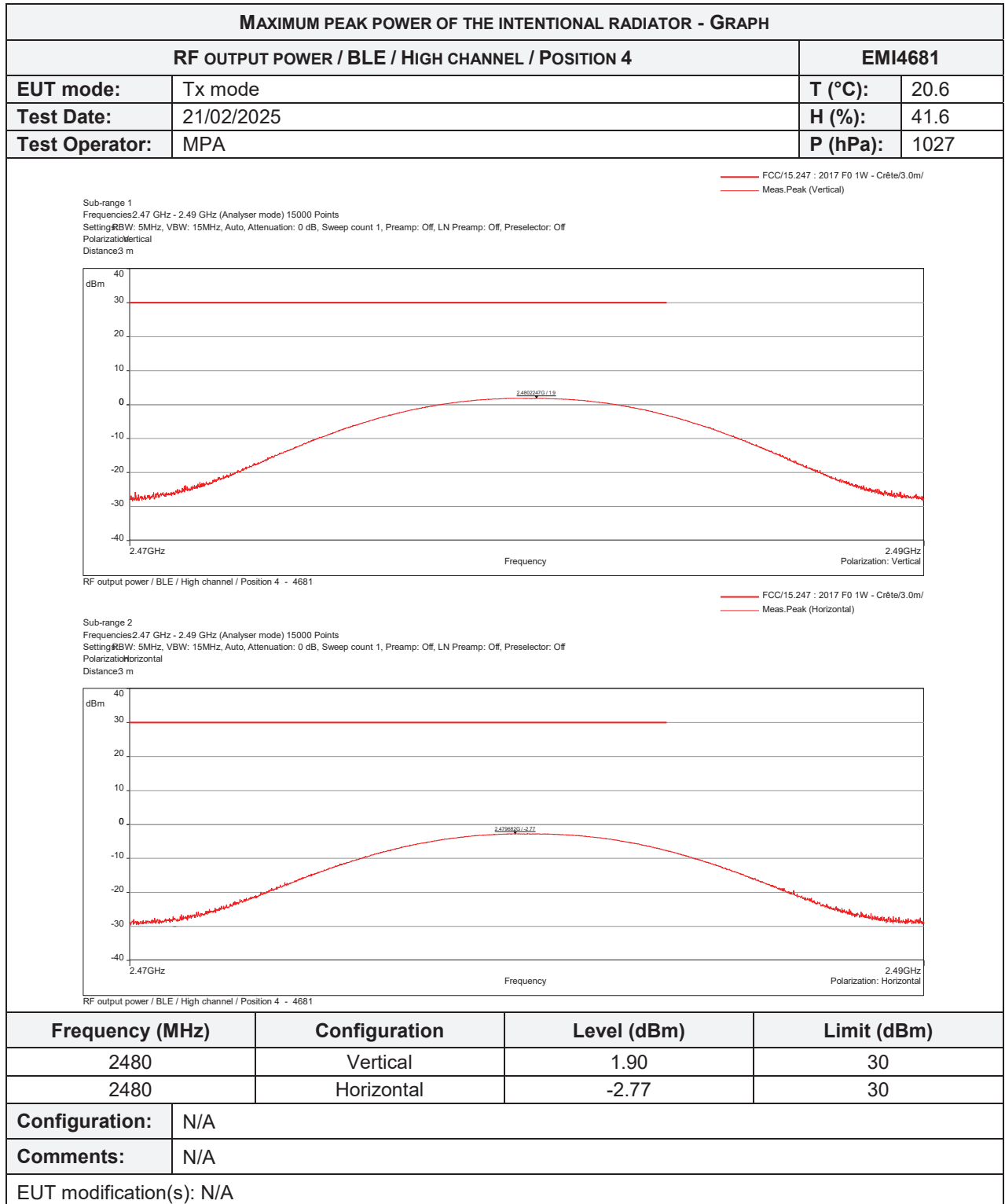


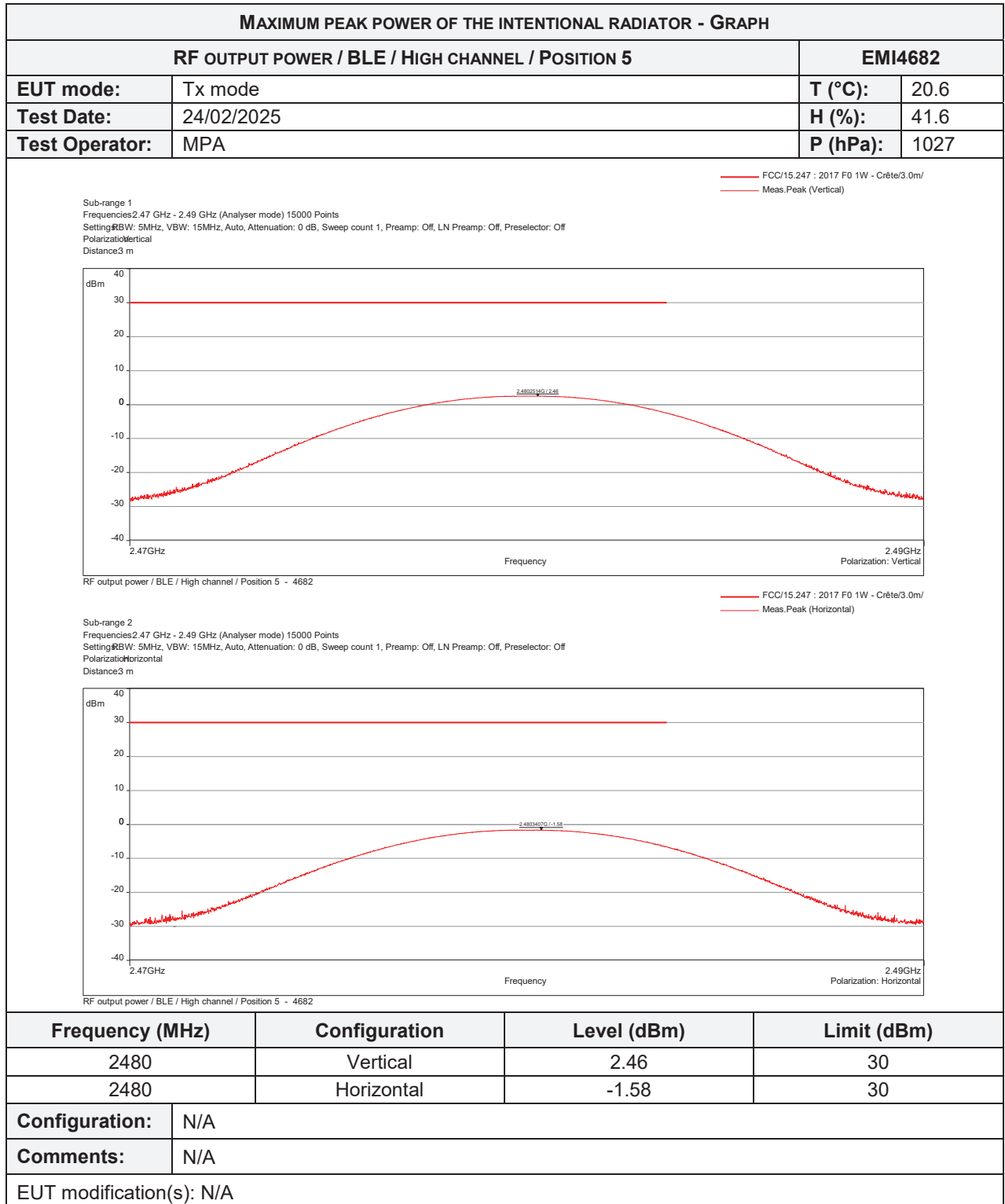


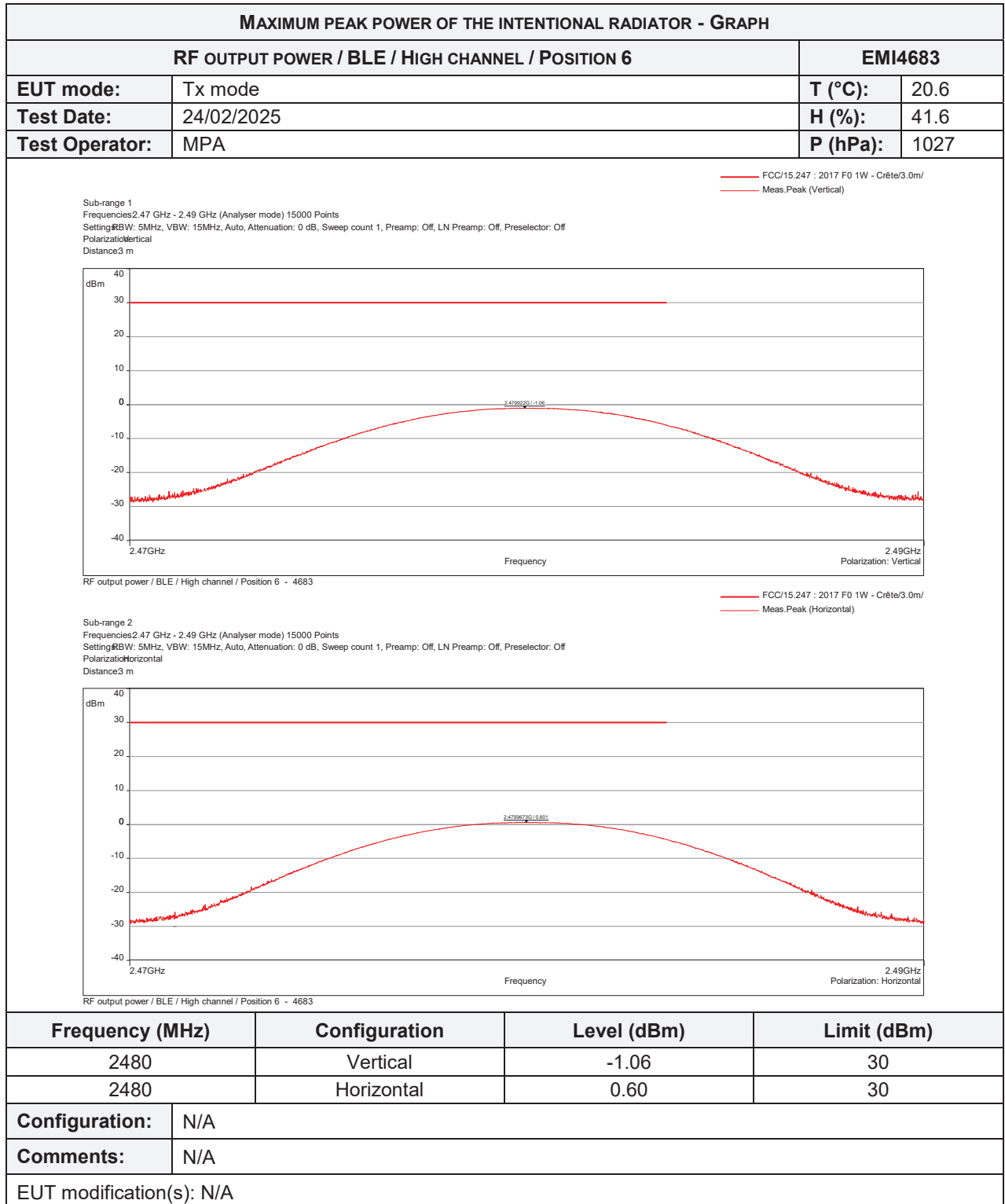












6.4. Power Spectral Density

Reference standard:	FCC part 15 Radio part 15.247 RSS-247
Test method:	ANSI C63.10
Test description: e) For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density. For EUT without dedicated or integral antenna, EUT is connected to the measuring receiver via 50Ω attenuator(s). Radiated power limit applies to the maximum measured conducted power value adjusted by the antenna gain and beamforming gain. For EUT with integral or dedicated antenna, measurements are done on a normalized test site. EUT is set on an insulating support at 150 cm above the ground reference plane. Measurement is done on a normalized test site by the substitution method. The test antenna is oriented in the two polarizations (vertical and horizontal), and the product is rotated at 360° in the horizontal plane (See photo(s) for initial position of the EUT(0°)). If applicable the test antenna was raised and lowered through the specified range of height until a maximum signal level is detected. For portable equipments: - For frequencies < 1GHz a research of maximum level is done on 3 axes - For frequencies > 1GHz styrofoam wedges, precut to the 30°, 60°, and 90° angles, are used to support the EUT in the 6 different orientations. Only the highest levels are recorded.	

TESTED CONFIGURATION	RESULT	SEVERITY	RESULT TAB.	VERDICT
PSD / Low channel	-15.48dBm/3kHz	8 dBm/3kHz	EMI4547	PASS
PSD / Mid channel	-15.97dBm/3kHz		EMI4548	PASS
PSD / High channel	-15.84dBm/3kHz		EMI4549	PASS

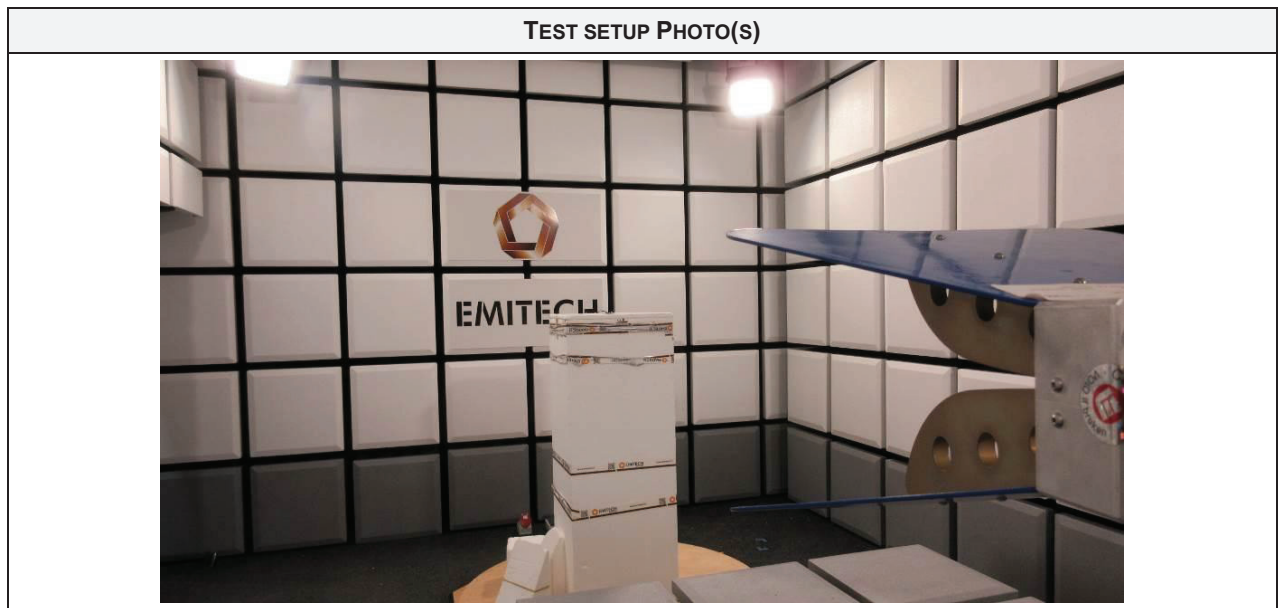
LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	15 to 35 °C	<i>See Graph(s)</i>
Relative Humidity	20 to 75 %	<i>See Graph(s)</i>
Atmospheric pressure	N/A	<i>See Graph(s)</i>
Test method deviation: N/A		
Supplementary information: N/A		

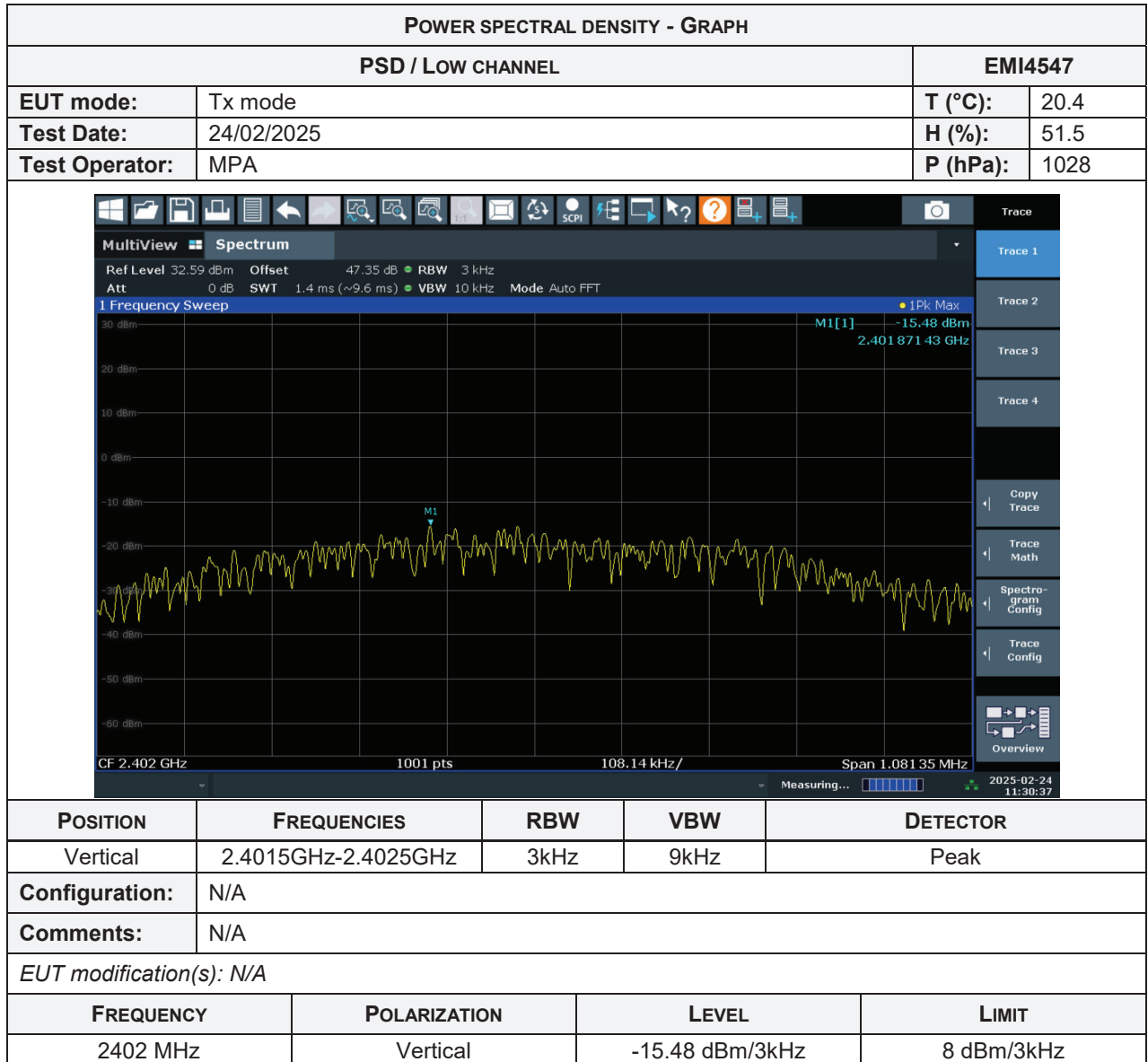
TEST EQUIPMENT USED					
CATEGORY	BRAND	TYPE	IDENTIFIER	CAL. DATE	CAL. DUE
Antenna	AARONIA	Powerlog 70180	15306	04/01/2023	04/03/2026
Attenuator	EMITECH	SUB.V4-H	18112	03/06/2024	03/08/2025
Attenuator	EMITECH	SUB.V4-V	18111	03/06/2024	03/08/2025
Cable	/	N-1m	3625	02/05/2023	02/07/2025
Cable	Techniwave	N-2.5m	18350	17/08/2023	17/10/2025
Cable	Techniwave	N-3.5m	18352	17/08/2023	17/10/2025
Receiver	Rohde & Schwarz	FSW43	14830 ⁽¹⁾	31/08/2022	31/04/2025
Shielded enclosure	COMTEST	C.V4	18014	05/11/2024	05/01/2028
Software	Nexio	BAT EMC	0000		
Thermohygrometer	Testo	608-H1	7562	28/09/2023	28/11/2025
Thermohygrometer	Bioblock Scientific	Météostar	0963	25/09/2023	25/11/2025

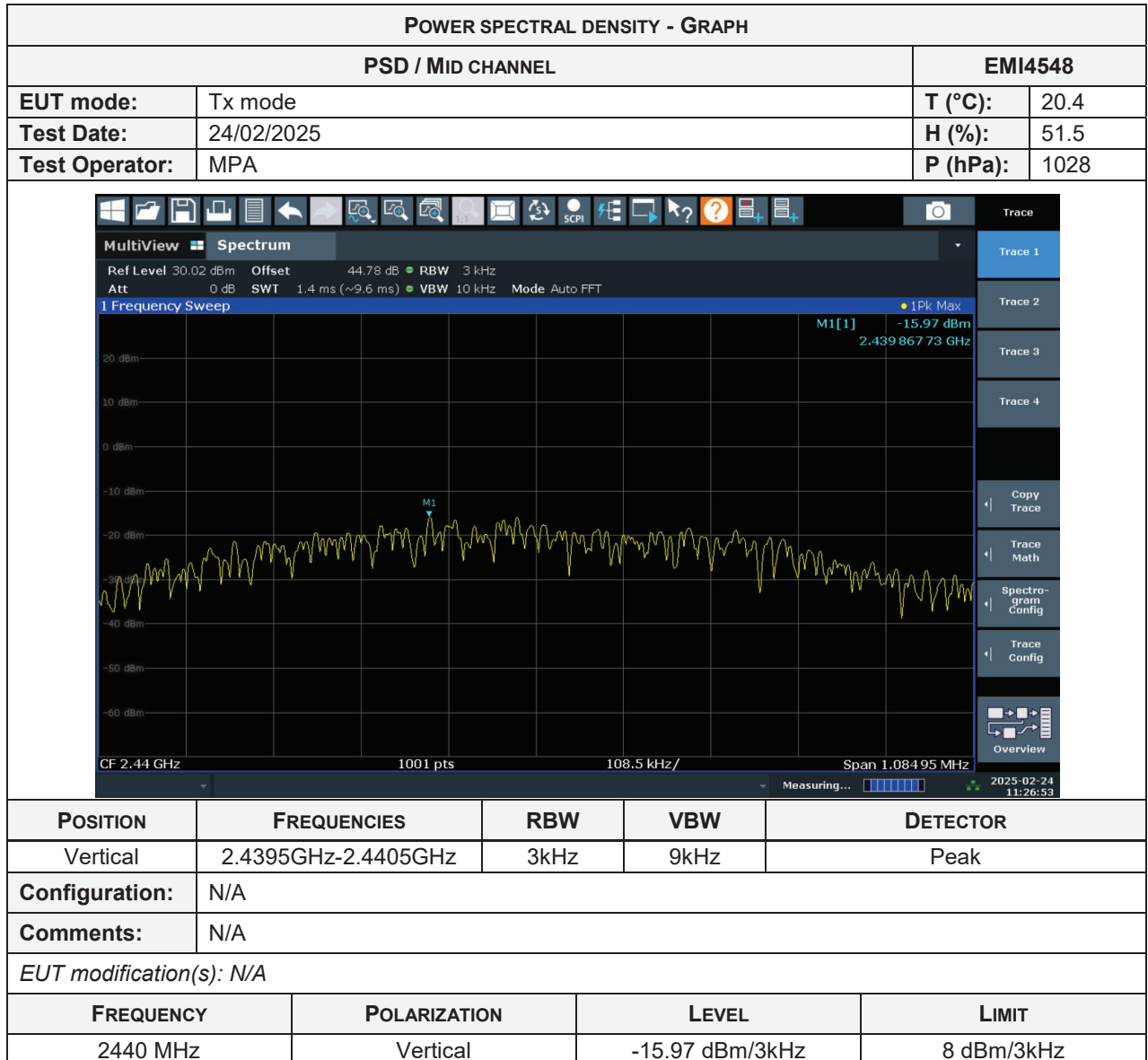
BAT-EMC software version: V3.18.0.26

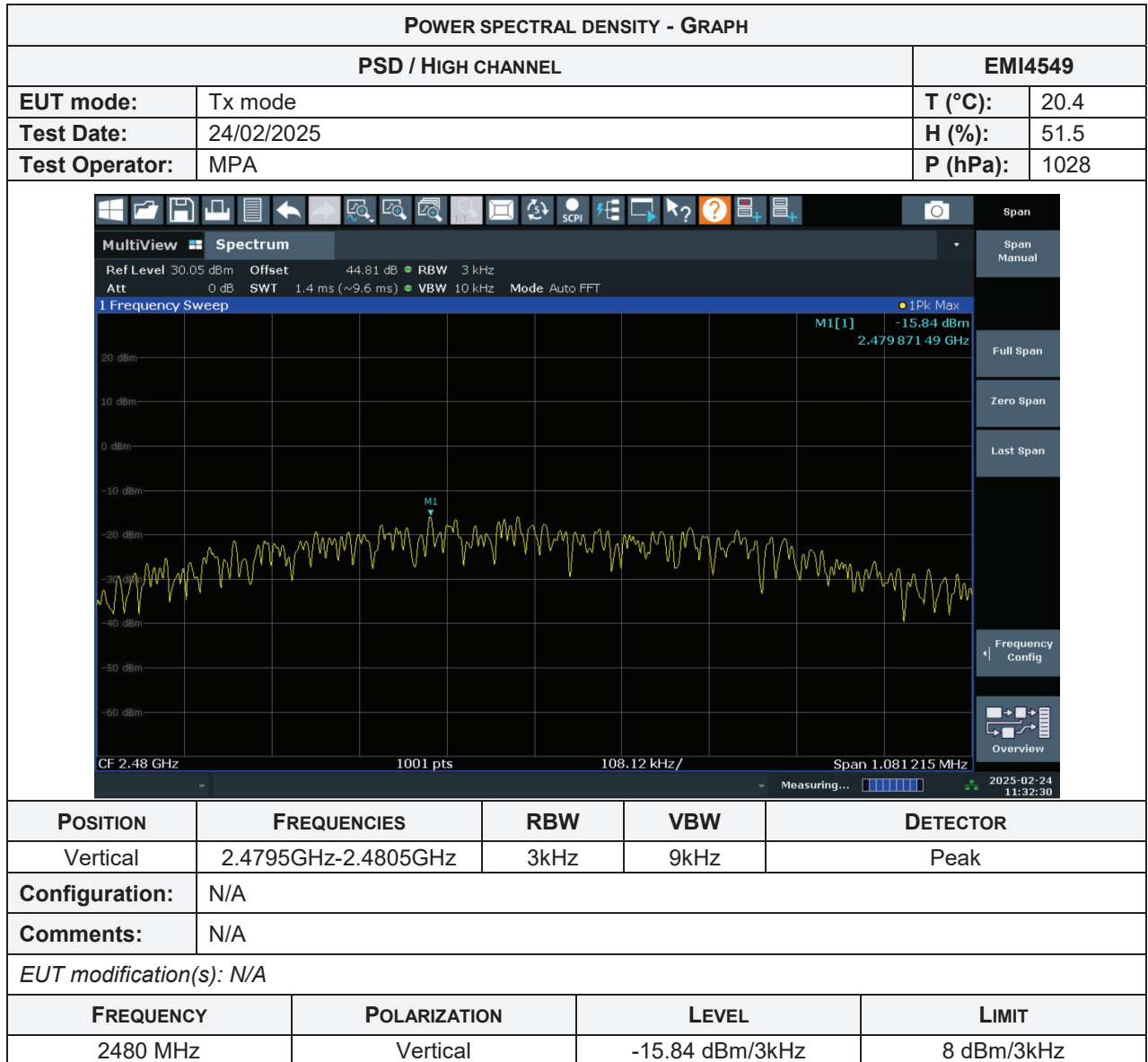
Blank cells = Permanent validity

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6.5. Band-edge compliance of emissions

Reference standard:	FCC part 15 Radio part 15.247 RSS-247
Test method:	ANSI C63.10
Test description: d) In any 100 kHz bandwidth outside the frequency band in which the intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. EUT is connected to the measuring receiver via 50Ω attenuator(s). Only the highest levels are recorded.	

TESTED CONFIGURATION	PARAMETER	SEVERITY	RESULT TAB.	VERDICT
Band edge / BLE / Low channel	2.38GHz- 2.5035GHz	Within the band	EMI4714	PASS
Band edge / BLE / Mid channel	2.38GHz- 2.5035GHz		EMI4715	PASS
Band edge / BLE / High channel	2.38GHz- 2.5035GHz		EMI4716	PASS

LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	15 to 35 °C	See Graph(s)
Relative Humidity	20 to 75 %	See Graph(s)
Atmospheric pressure	N/A	See Graph(s)
Test method deviation: N/A		
Supplementary information: N/A		

TEST EQUIPMENT USED					
CATEGORY	BRAND	TYPE	IDENTIFIER	CAL. DATE	CAL. DUE
Antenna	AARONIA	Powerlog 70180	15306	04/01/2023	04/03/2026
Cable	/	N-1m	3625	02/05/2023	02/07/2025
Cable	Techniwave	N-2.5m	18350	17/08/2023	17/10/2025
Cable	Techniwave	N-3.5m	18352	17/08/2023	17/10/2025
Receiver	Rohde & Schwarz	FSW43	14830 ⁽¹⁾	31/08/2022	31/04/2025
Shielded enclosure	COMTEST	C.V4	18014	05/11/2024	05/01/2028
Software	Nexio	BAT EMC	0000		
Thermohygrometer	Testo	608-H1	7562	28/09/2023	28/11/2025
Thermohygrometer	Bioblock Scientific	Météostar	0963	25/09/2023	25/11/2025

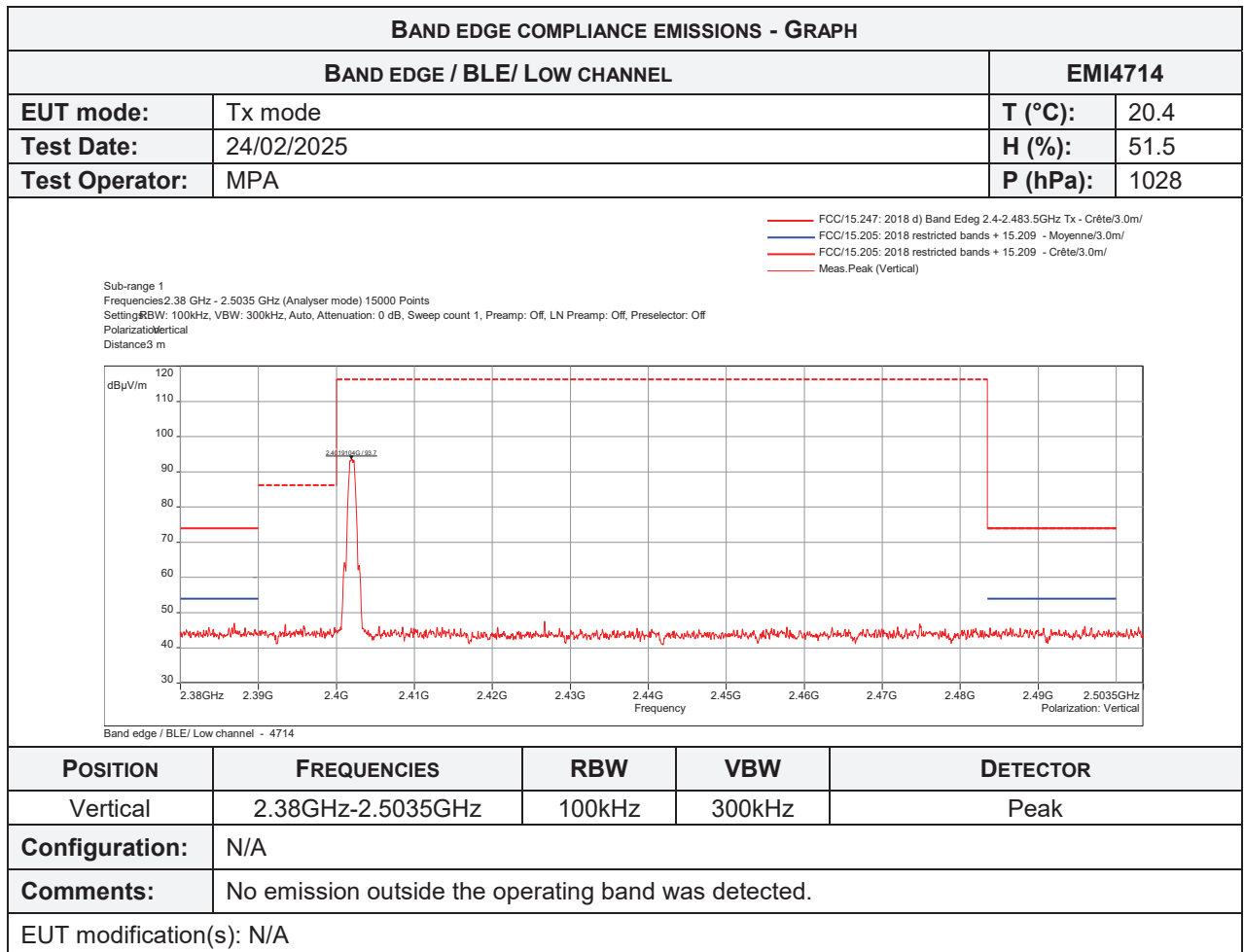
BAT-EMC software version: V3.18.0.26

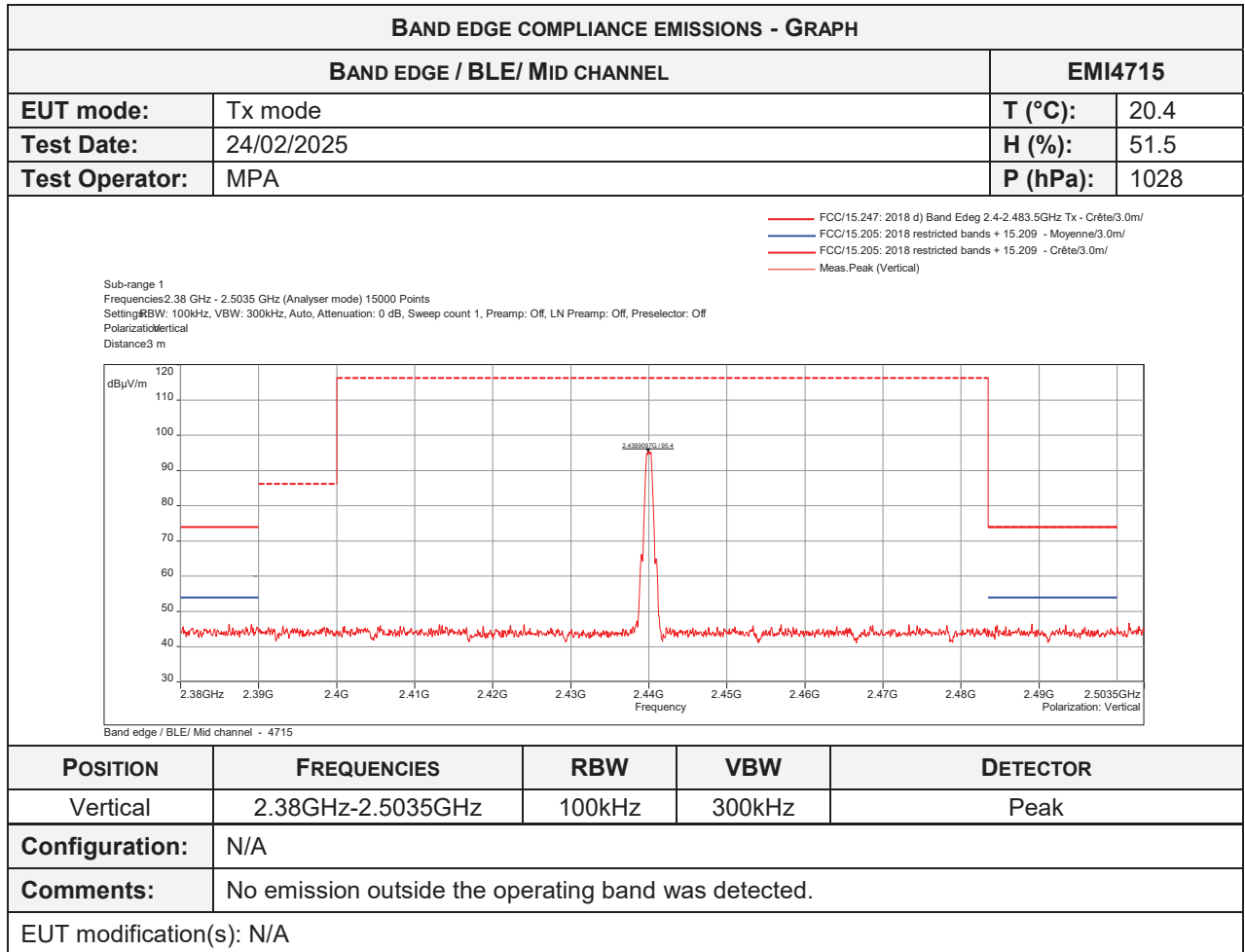
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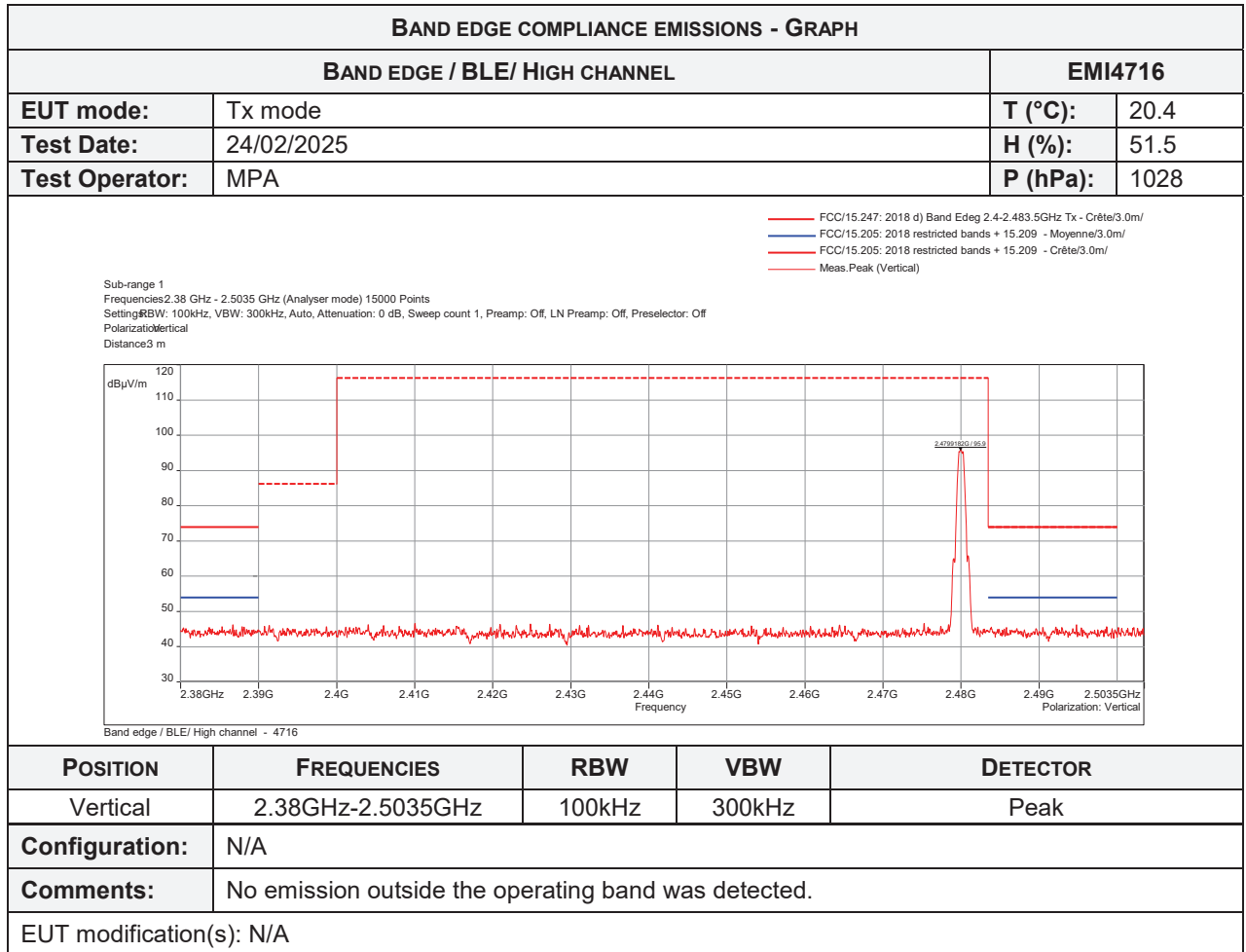
(1) Under derogation EQSDER000S4100139

TEST SETUP PHOTO(S) – BAND EDGE









6.6. Frequency Stability

Reference standard:	FCC part 15 Radio part 15.215 RSS-Gen
Test method:	ANSI C63.10
General test setup: The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage. If frequency stability is not specified in the regulations, it is recommended that the fundamental emission be kept within at least the central 80% of the permitted band in order to minimize the possibility of out-of-band operation. EUT is set inside the climatic enclosure. EUT is connected to the measuring receiver via 50Ω attenuator(s).	

TEST CASE	EUT MODE	SEVERITY	RESULT TAB.	VERDICT
Tx mode	Tx mode	2400MHz- 2483.5MHz	-	PASS

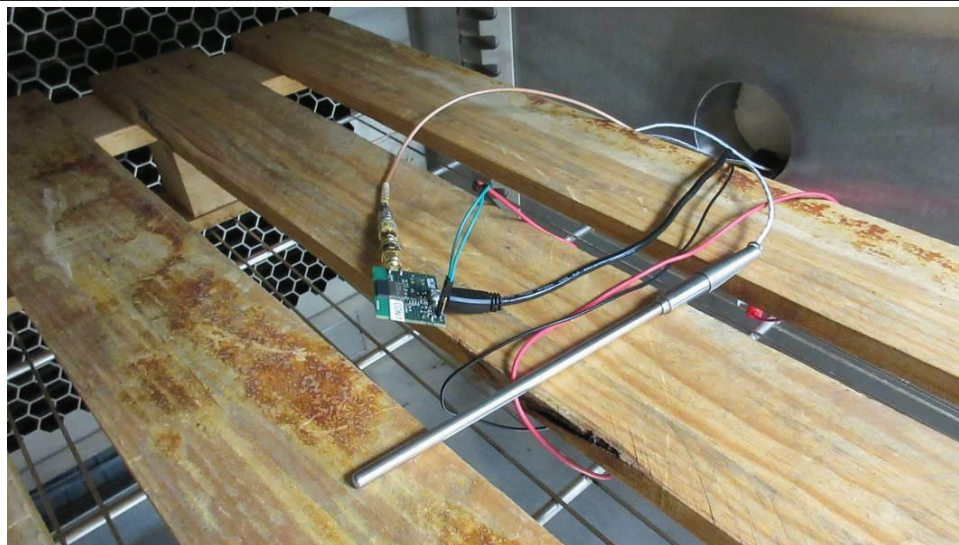
LABORATORY PARAMETERS:	REQUIRED PRIOR TO THE TEST	DURING THE TEST
Ambient Temperature	15 to 35 °C	22.5 °C
Relative Humidity	20 to 75 %	51.2 %
Atmospheric pressure	N/A	1012 hPa
Test method deviation: N/A		
Supplementary information: EUT power supply is replaced by a stabilized power supply.		

TEST EQUIPMENT USED					
CATEGORY	BRAND	TYPE	IDENTIFIER	CAL. DATE	CAL. DUE
Attenuator	Techniwave	TWSMA-10dB-18G-SMA	14673	30/01/2023	30/03/2026
Attenuator	Techniwave	TWSMA-20dB-18G-SMA	14679	07/03/2023	07/05/2026
Cable	SUCOFLEX	N-3m	14379	17/08/2023	17/10/2025
Cable	Radiall	SMA-1m	16563	16/08/2023	16/10/2025
Climatic enclosure	CLIMATS	EXCAL 7714-HA	14261	26/03/2024	26/05/2025
Power supply	TTI	PL303QMD	8496		
Spectrum analyzer	Rohde & Schwarz	FSW43	14830 ⁽¹⁾	31/08/2022	31/04/2025
Thermohygrometer	Bioblock Scientific	Météostar	0963	25/09/2023	25/11/2025
Thermohygrometer	Testo	608-H1	7561	17/12/2024	17/02/2026
Thermometer contactless	GHM Greisinger	GMH 3710	12968	28/02/2023	28/04/2025

Blank cells = Permanent validity

(1) Under derogation EQSDER000S4100139

TEST SETUP PHOTO(S)



FREQUENCY STABILITY - TABULATED RESULTS

Test Case	Temperature (°C)	Power supply (Vdc)	Frequency (MHz)	Frequency error (kHz)
Normal conditions	+25	3.3	2402.009078	-
			2440.009194	
			2480.008665	
Extremes voltage tests conditions		3.14	2402.008607	-0.471
			2440.009212	0.018
			2480.009046	0.381
		3.46	2402.009300	0.172
			2440.009200	0.015
			2480.009000	0.379
Extremes temperature tests conditions	-40	3.3	2402.010415	1.337
			2440.010270	1.076
			2480.010645	1.980
Extremes temperature tests conditions	+85		2402.047390	38.314
			2440.055270	46.074
			2480.055430	46.765

EUT MODIFICATIONS	OPERATOR	TEST DATE	RESULT TAB.
N/A	MPA	11/02/2025 12/02/2025	-

End of test report