

Test Report

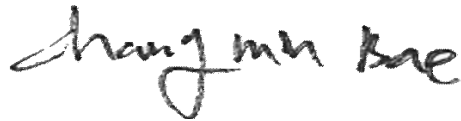
Report No. : FCC2025-00004

Company : WiTS Co., Ltd.
Representative : Eungtae, Kim
Address : 35, Hyeongje-ro, Namsa-eup, Cheoin-gu, Yongin-si, Gyeonggi-do, 999007, Korea

1. Product Name : Single Wireless Charger
-Model Name: GP-PWU025WIA
2. FCC ID : 2BMN4GPPWU025WIA
3. Date of Receipt : 2025-05-09
4. Date of test : 2025-05-09 ~ 2025-06-05
5. Testing Method : FCC Part15 Subpart C
6. Test Result : PASS

Tested by : Chang Min, Bae

Approved by : Sung Ryul, Kim



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2. The report should not be used for other intended purposes including promotional, advertising, or litigation without the prior consent of KTC.
3. The authenticity of this test report can be verified on the KTC website (www.ktc.re.kr).

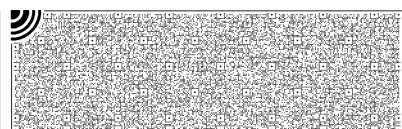
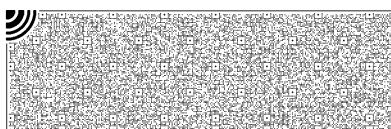
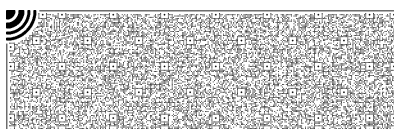
Dated 2025. 06. 05.



Korea Testing Certification institute

www.ktc.re.kr [15809] 22, Heungan-daero 27beon-gil, Gunpo-si, Gyeonggi-do, Korea

TEL : +82-1899-7654, FAX : -82-31-428-2926

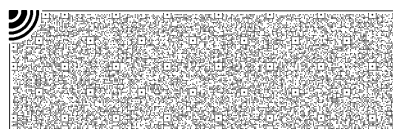
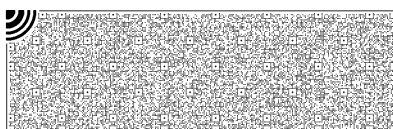
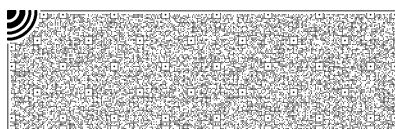


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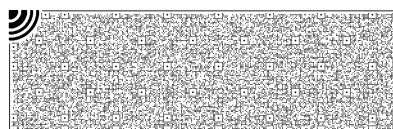
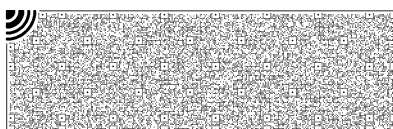
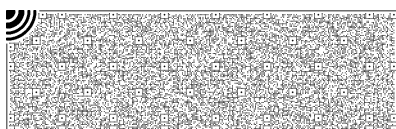
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1. General Information

1.1. Summary

Testing Laboratory	Korea Testing Certification
Testing location / address	22 Heungan-daero 27 beon-gil, Gunpo-si, Gyeonggi-Do, 15809, Republic of Korea
Designation Number	KR0006
Test Firm Registration Number	709616
Applicant	WiTS Co.,Ltd.
Address of Applicant	35, Hyeongje-ro,Namsa-eup, Cheoin-gu, Yongin-si, Gyeonggi-do, 999007, Korea
Manufacturer	Wits Vina Co., Ltd.
Address of Manufacture	Lot CN 16-1,YEN BINH IZ, DONG TIEN WARD,THAI NGUYEN PROVINCE, VIETNAM
Product Name	Single Wireless Charger
Model Name	GP-PWU025WIA
Power Supply	DC 12.0 V
Frequency Range	360 kHz
Modulation	ASK
Antenna Type	Coil Antenna
Hardware Version	Rev 07
Software Version	V1.0



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1.2. Test Information

1.2.1 Supporting Equipment Used During Test

Use	Manufacturer	Model	Comments
EUT	Wits Vina Co., Ltd.	GP-PWU025WIA	-
AE	Standard Load	-	-

Supplementary information

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

1.2.2 Report revision History

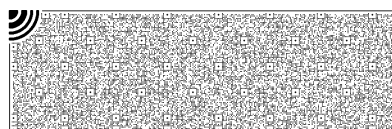
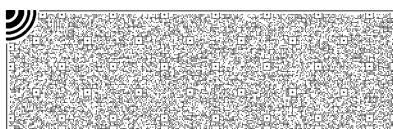
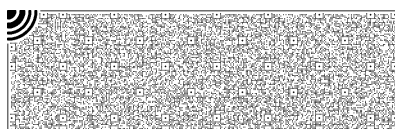
Issue date	Report No.	Reason for issue
2025-06-05	FCC2025-00004	First issued.

1.3. Result Summary

Standard Section	Requirement – Test Standard : FCC Part 15 Subpart C	Result / Comments
15.209	Radiated Emission, Spurious Emission and Field Strength of Fundamental	Complied with requirement
2.1049	20 dB Bandwidth	Complied with requirement
15.207	AC Power Line Conducted Emission	N/A ¹⁾

Note;

1) Please refer to FCC 15.207 which states, “Measurements to demonstrate compliance with the conducted limits are not required for devices employ Battery for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines”. Therefore, for this device, AC Power Line Conducted Emissions investigation is not required.

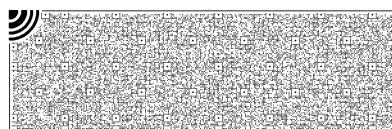
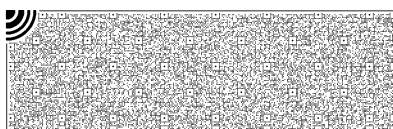
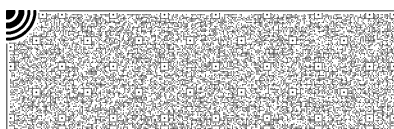


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1.4. List of Test Equipment

Test Equipment Used					
Equipment	Model	Manufacturer	Serial Number	Last Cal. Date	Cal. Due Date
Spectrum Analyzer	FSV30	Rohde & Schwarz	103924	2025-04-28	2026-04-28
DC Power Supply	E36234A	Keysight	MY6102059	2025-04-28	2026-04-28
Signal Generator	N5173B	Agilent	MY53270264	2024-12-26	2025-12-26
Loop Antenna	HFH2-Z2E	Rohde & Schwarz	100982	2024-07-15	2026-07-15
EMI test receiver	ESR	Rohde & Schwarz	101368	2024-07-08	2025-07-08
Bilog Antenna	VULB9168	Schwarzbeck	01044	2023-09-05	2025-09-05
Pre Amplifier	310	SONOMA	340215	2024-12-26	2025-12-26
Turn Table	DT3000-3t	Innco Systems	-	-	-
Antenna Mast	MA4640-XP-ET-0800	Innco Systems	-	-	-
RF Cable	Suhner Switzerland	RG223/U	-	2025-01-13	2026-01-13
RF Cable	Suhner Switzerland	RG223/U	-	2025-01-13	2026-01-13



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1.5. Measurement uncertainty

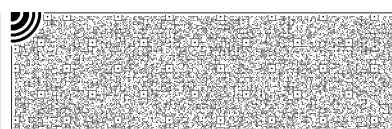
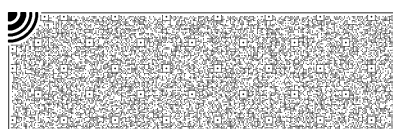
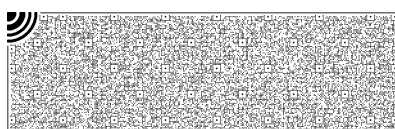
Parameter	Condition	Uncertainty
20 dB Bandwidth	Radiated	± 4.76 kHz
Spurious Emissions 9 kHz ~ 30 MHz	Radiated	± 1.69 dB
Spurious Emissions 30 MHz ~ 1 GHz	Radiated	± 2.66 dB

Note;
-This uncertainty represents an expanded uncertainty expressed at approximately 95% confidence level using a coverage factor of k=2.

1.6. Operational Scenario

Case 1	5W Charging Mode	Pre-Tested
Case 2	7.5W Charging Mode	Pre-Tested
Case 3	10W Charging Mode	Pre-Tested
Case 4	15W Charging Mode	Recorded

- The each possible operation mode has been declared by the manufacturer.
- All test cases have been pre-tested, and the worst-case test has been recorded.



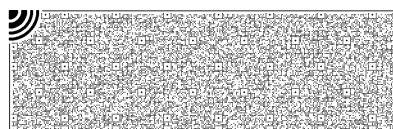
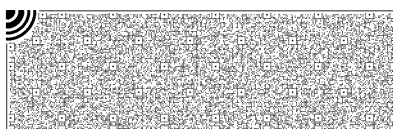
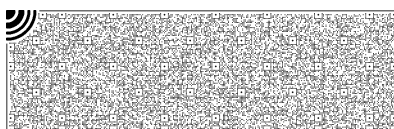
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2. Field Strength of Fundamental and Spurious Emission

2.1. Limit

47 CFR Part 15		
Section § 15.209(a)		
Except as provided elsewhere in this subpart, the emissions from an <u>intentional radiator</u> 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	2 400/F(kHz)	300
0.490-1.705	24 000/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.		

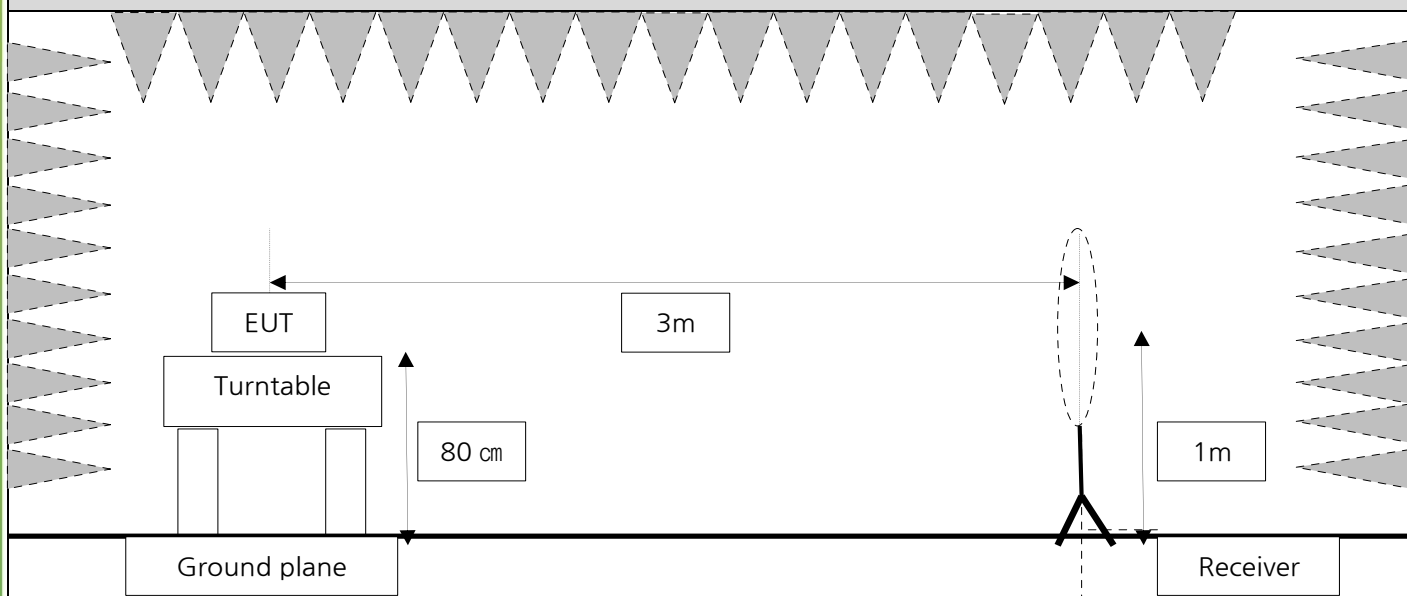


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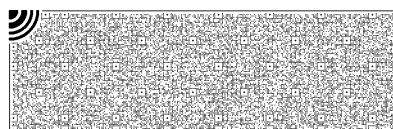
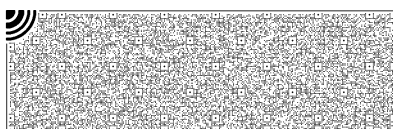
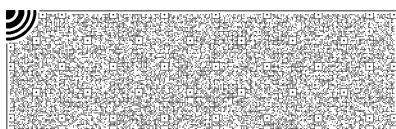
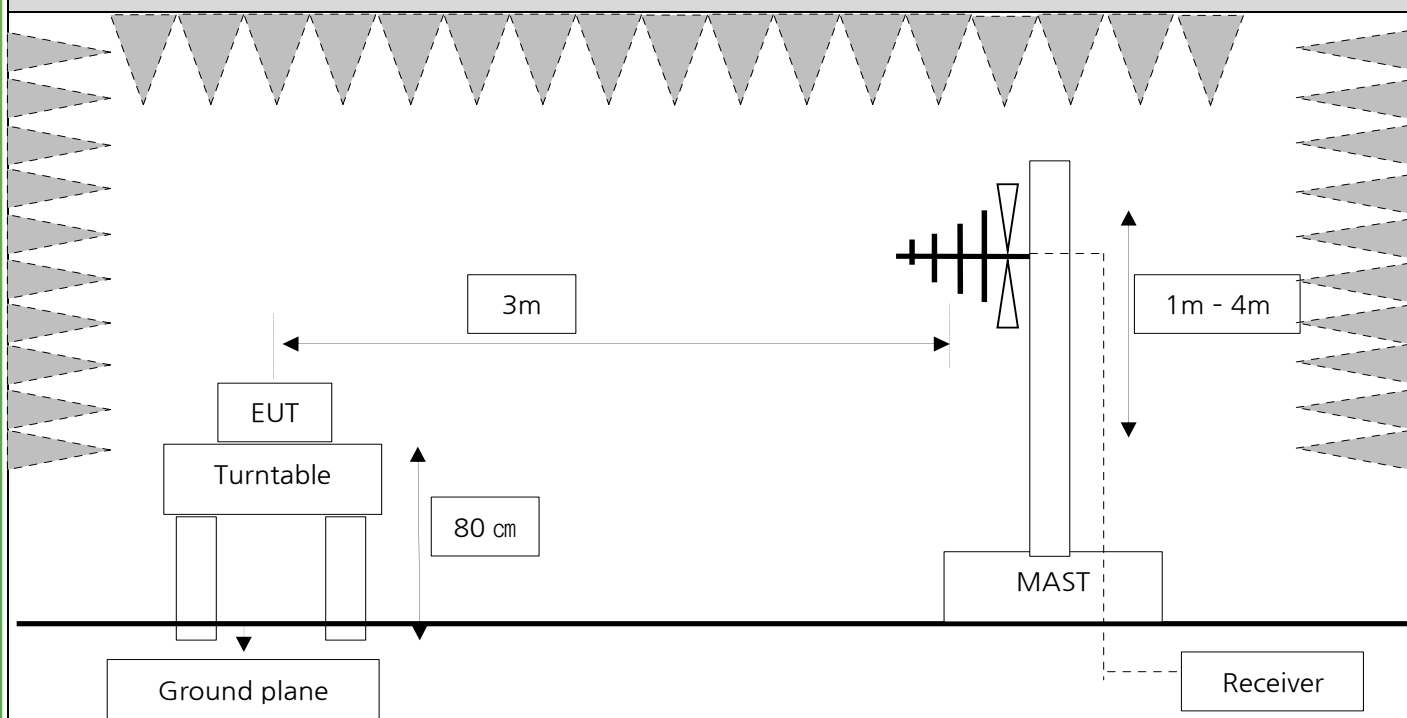
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2.2. Test Configuration

Test Setup for radiated test (Below 30 MHz)



Test Setup for radiated test (30 MHz to 1 GHz)



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2.3. Test Procedure

Radiated emissions from the EUT were measured according to the dictates in section 11.11 & 11.12 of ANSI C63.10-2013.

Test Procedure of Radiated emissions(Below 30 MHz)

1. The EUT was placed on a non-conductive rotating table 0.8 meters above the ground at semi-anechoic chamber.
2. The loop antenna was placed at a location 3 m from the EUT.
3. The loop antenna is fixed at 1 meter above the ground.
4. Find Worst condition on the X-axis, Y-axis, and Z-axis of EUT.
5. Both horizontal and vertical polarization of the antenna are set to make the measurement.
6. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

. Spectrum Setting

- Frequency Range = 9 kHz ~ 30 MHz

- Detector = Peak

- Trace = Maxhold

- RBW = 9 kHz

- VBW ≥ 3 x RBW

- Allow sweeps to continue until the trace stabilizes.

Correction Factor for measurement distance at 3m(0.009 MHz – 0.490 MHz) = $40\log(3\text{ m}/300\text{ m}) = -80\text{ dB}$

Correction Factor for measurement distance at 3m (0.490 MHz – 30 MHz) = $40\log(3\text{ m}/30\text{ m}) = -40\text{ dB}$

Actual value = Measured Value + Antenna Factor + Cable Loss + Correction Factor(Distance Factor)

Test Procedure of Radiated emissions(Below 1 GHz)

1. The EUT was placed on a non-conductive rotating table 0.8 meters above the ground at semi-anechoic chamber.
2. Find Worst condition on the X-axis, Y-axis, and Z-axis of EUT.
3. There is a bi-log antenna and a horn antenna, its height are varied from 1m to 4m to determine the maximum value of the field strength.
4. Both horizontal and vertical polarization of the antenna are set to make the measurement.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.

(1) Measurement Type(Peak):

- Measured Frequency Range : 30 MHz – 1 GHz

- Detector = Peak

- Trace = Maxhold

- RBW = 100 kHz

- VBW ≥ 3 x RBW

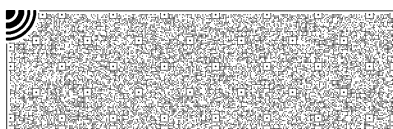
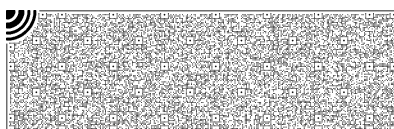
(2) Measurement Type(Quasi-peak):

- Measured Frequency Range : 30 MHz – 1 GHz

- Detector = Quasi-Peak

- RBW = 120 kHz

Actual value = Measured Value + Antenna Factor + Cable Loss



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2.4. Test Results

Ambient Temp.	23 ± 1 °C
Relative Humidity	43 %
Test Result	PASS (Refer to below)

Field Strength of Fundamental

Radiated result

Measured Frequency (MHz)	Measured Value (dB μ V)	Antenna Polarization (H/V)	Antenna Factor (dB)	(Amp + Cable Loss) (dB)	Actual Value at 3m (dB μ V/m)	Actual Value at 300m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
0.360	26.80	H	30.67	1.52	58.99	-21.01	16.48	37.49

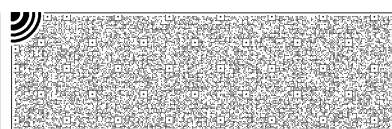
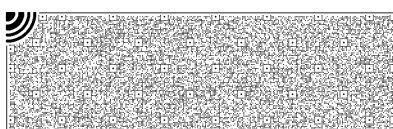
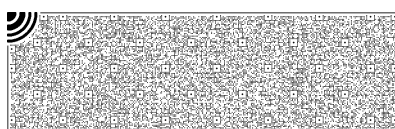
Frequency Range : 9 kHz~30 MHz

Radiated Emission results

Measured Frequency (MHz)	Measured Value (dB μ V)	Antenna Polarization (H/V)	Antenna Factor (dB)	(Amp + Cable Loss) (dB)	Actual Value at 3m (dB μ V/m)	Actual Value at 300m (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
0.042	3.91	H	30.78	1.52	36.21	-43.79	35.14	78.93
0.718	4.10	H	30.87	1.52	36.49	-43.51	30.48	73.99

Note;

- According to §15.31 (f)(2),
 - 300 m Result (dB μ V/m) = 3 m Result (dB μ V/m) - 40log (300/3) (dB μ V/m)
 - 30 m Result (dB μ V/m) = 3 m Result (dB μ V/m) - 40log (30/3) (dB μ V/m)
- According to field strength table of general requirement in §15.209 (a), field strength limits below 1.705 MHz were calculated as below.
 - 9 kHz to 490 kHz: 20log (2 400 / F (kHz)) at 300 m (dB μ V/m)
 - 490 kHz to 1.705 MHz: 20log (24 000 / F (kHz)) at 30 m (dB μ V/m)
- According to §15.209 (d), the measurements were tested by using Quasi peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1 GHz in these three bands on measurements employing an average detector.

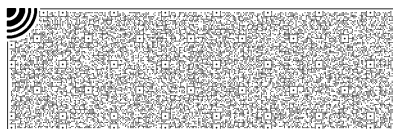
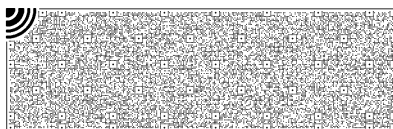
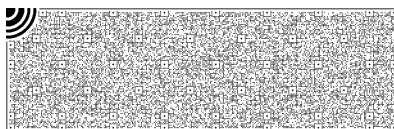


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Frequency Range : 30 MHz ~ 1 GHz

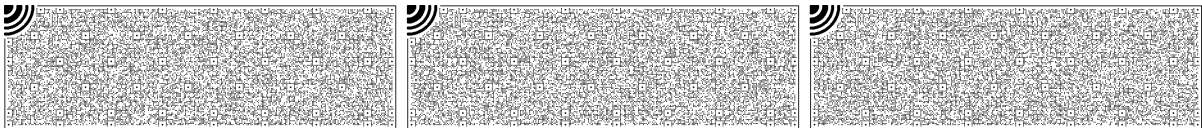
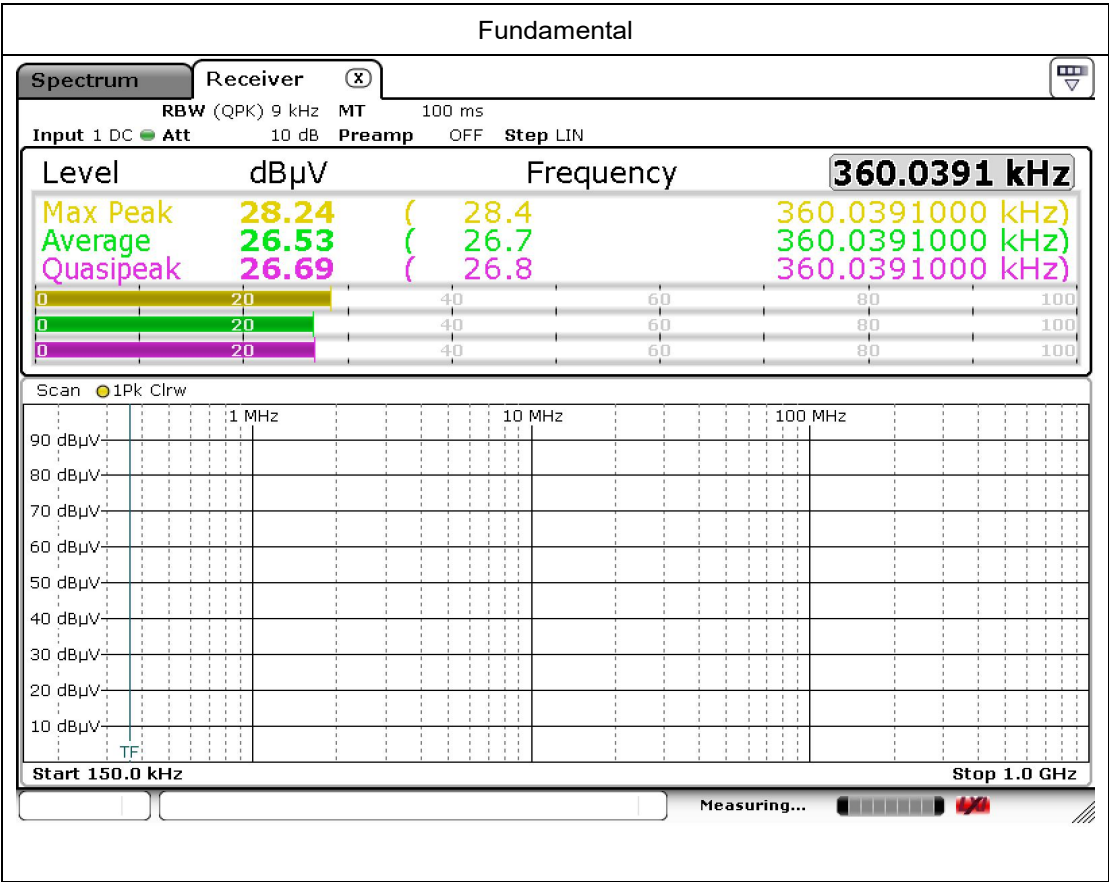
Radiated Emission results								
Measured Frequency (MHz)	Measured Value (dB μ V)	Detector	Antenna Polarization (H/V)	(Antenna Factor + Amp + Cable Loss) (dB)	Duty Factor (dB)	Actual Value (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
36.669	35.80	Peak	V	-7.64	-	28.16	53.98	25.82
62.616	39.50	Peak	V	-6.74	-	32.76	53.98	21.22
120.210	36.70	Peak	V	-8.14	-	28.56	53.98	25.42
125.060	36.40	Peak	V	-7.34	-	29.06	53.98	24.92
144.218	36.00	Peak	V	-5.24	-	30.76	53.98	23.22
316.878	27.80	Peak	V	-2.14	-	25.66	53.98	28.32



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-Test Plot



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3. 20 dB Bandwidth

3.1. Limit

- N/A

3.2. Test Procedure

- a. Span = set to capture all products of the modulation process, including the emission skirts.
RBW = 200 Hz, VBW = 200 Hz, Sweep = auto, Detector = peak, Trace = max hold.
- b. The marker-to-peak function to set the mark to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is 20 dB bandwidth of the emission.

3.3. Test Results

Ambient Temp.	23 ± 1 °C
Relative Humidity	43 %
Test Result	PASS (Refer to below)

Frequency (kHz)	EUT Status	20 dB Bandwidth (kHz)
360	<1 % battery status	0.507

- The end of test report -

