COMPLIANCE
ENGINEERING
IRELAND LTD

Compliance Engineering Ireland Ltd
Clonross Lane, Derrockstown, Dunshaughlin
Co. Meath, Ireland A85 XN59
Ph +353 1 8017000 , 8256722

Test Report

Test Report Num	24E10894-2a Part 1 of 2
Quotation	Q24-2009-1
Prepared For	Alps Electric (Ireland) Limited
Company Address	Clara Road, Mountleader, Millstreet, Co. Cork , Ireland
Contact	Donal O'Shea
Contact Email	Donal.oshea-1@alps.ie
Contact Phone	+ 353(29)70677
Prepared By	Compliance Engineering Ireland
Test Lab Address	Clonross Lane, Derrockstown, Dunshaughlin, Co. Meath, Ireland
Tested By	Michael Kirby / Joy Dalayap
Test Report By	Michael Kirby
FCC Test Firm Registration	IE0002
ISED CAB identifier:	IE0001
Date	15th Oct 2024
EUT Description	Asset Tracker
FCC ID	2AT4V-HATI
IC ID	26629-HATI
Authorised by	**Paul Reilly**
Authorised Signature:	Paul Reilly

Compliance Engineering Ireland Ltd Terms and Conditions

1. All quotations are submitted, orders are accepted and services supplied by Compliance Engineering Ireland Limited or Compliance Engineering Limited. From here on Compliance Engineering Ireland Ltd and Compliance Engineering Ltd will be referred to as CEIL, subject to and upon the following express Terms and Conditions and all other Conditions, warranties and representations express or implied and statutory or otherwise are hereby excluded insofar as it is lawful to do so. No addition thereto or variation therefrom, contained or referred to in the Customers order form or otherwise effected shall apply unless specifically agreed in writing by a duly Authorised Officer of CEIL.
2. All orders including any based on a quotation previously submitted by CEIL are subject to acceptance in writing by CEIL.

3.(a) The prices set out in any quotation are based upon current costs and if there is any variation in the said costs between the date of the order or Contract and delivery of the final report CEIL shall be entitled to adjust prices to reflect such variations.

b) In the event of any suspension or variation of work arising from the Customer's instructions or lack of instructions the price set out in any quotation may be increased to cover any extra expense incurred by CEIL.

c) All prices quoted are strictly NET. The customer shall, where applicable, in addition to the relevant price, pay a sum equal to the VAT chargeable in respect of the supply of services.

d) Accounts must be paid in full in advance or by way of an irrevocable letter of credit opened with a Bank approved by CEIL unless credit terms have been agreed by CEIL in which event accounts must be paid in full within 1 month from the date of the invoice. Time for payment is of the essence and the customer shall be liable to pay any outstanding amount from its due date until the date of payment at a rate of 2% per month or part thereof.

4. Any times quoted for the performance of services are to be treated as estimates only. CEIL shall not be liable in any manner whatsoever for failure to perform services within the time quoted, nor in such circumstances shall the Customer be entitled to cancel or terminate any order or contract.
5. The Customer is responsible for delivery to CEIL of test item(s) free of any duty, VAT, freight charges etc. unless otherwise agreed in writing by CEIL.
6. The Customer shall be responsible for collecting non-perishable samples received for testing or laboratory work upon completion of tests or laboratory work. If the Customer fails to collect such samples within 90 days from completion of the tests or laboratory work CEIL shall be entitled without further notice to dispose of the samples without liability.
7. No action or legal proceedings shall be taken (except in the case of wilful neglect or default) against CEIL by reason of or arising out of any research, investigation, test or analyses or the publication of the results thereof in the name of CEIL. Under no circumstances shall CEIL be liable to the Customer for any indirect, incidental, special or consequential damages of any nature whatsoever (including but not limited to loss of use, revenue, profit, data or business opportunity) either based upon a claim or action in Contract or in Tort, indemnity or contribution, or otherwise arising out of the Contract or performance of services by CEIL even if CEIL has been advised of the possibility of such damages. The limit of CEIL's aggregate liability (whether in Contract, Tort, strict liability in Tort or by statute or otherwise) to the Customer or to any third party for non-performance by CEIL and for any and all other claims shall not in the aggregate exceed the fees paid by the Customer to CEIL. The Customer shall indemnify CEIL against all claims made against CEIL by any third party arising from this Contract.
8. The copyright of any report is reserved to CEIL and it shall not be used either in whole or in part, for the purposes of advertising, publicity, litigation or otherwise without the prior written consent of a duly Authorised Officer of CEIL where such consent is given the Customer shall comply with any conditions attaching to the consent. In conformance with laboratory accreditation requirements reports shall only be produced in full. The test results tabulated shall relate only to the defined item(s) tested.
9. If in CEIL's judgment, the customer's financial condition is such as could adversely affect the customers ability to perform any of its obligations or if the customer is in default in any of its obligations to CEIL whether hereunder or under any other Contract CEIL may terminate this Contract and/ or any other Contract between CEIL and the Customer, cancel any uncompleted order or suspend performance of services or the delivery of any reports and if it does so the Customer shall indemnify CEIL against all costs, charges, expense and damages incurred thereby.
10. CEIL will not be liable for non-performance in whole or in part of its obligations if this is attributable to any cause beyond the control of CEIL including (without limitation) any act of god, force majeure, war, civil war, disturbance, rebellion, embargo, strike, labour dispute, illness, flood, fire, sabotage or government action or regulation. If a Contract or order or any part thereof shall become impossible of performance or otherwise frustrated CEIL shall be entitled to reasonable remuneration for any work done up to the date of such impossibility or frustration, due credit being given for any amounts in respect of the Contract or order paid by the Customer.
11. CEI agrees to keep confidential all matters relating to this contract. This includes but is not limited to products tested, methods used, results of the work and contents of any reports.
12. These Conditions and the Contract to which the document relates shall in all respects be governed by and construed in accordance with the laws of the Republic of Ireland and in accordance with the Republic of Ireland shall have exclusive jurisdiction to determine any disputes arising therefrom unless otherwise agreed FOR CEIL
13. CEIL is an accredited test laboratory and relevant test reports are denoted by use of the accreditation logo. Where sections of the report are not covered by our scope, a statement on the report will be made to reflect this.
    When the accreditation logo is not used, the report is outside our scope accreditation.
14. In IEC standards measurement uncertainty is already incorporated into the specifications. Statements of conformity in the CEIL test report follow these decision rules: Pass – Results within the stated limit, Fail – Results outside the stated limit.
15. The test results presented in this report relate only to the object tested.

Contents

Ref report “Alps 24E10894-2a Hati BLE and Cellular FCCIC Part 2 of 2” for Appendices D,E,F,G,H

1. Equipment Under Test (EUT)

1.1. Identification of EUT

Manufacturer:	Alps Electric (Ireland) Limited
Brand Name:	HATI

1.2 Description of EUT

The EUT was a tracking device which contained BLE and cellular radios.
The cellular module is pre-certified from Quectel
FCC ID: XMR2021BC660KGL IC: 10224A-2021BC660GL

There were a number of models and the only difference between them were the powering options available

a) Battery only
b) Powered from vehicle battery
c) Powered from mains adapter

The Hati product family was co-developed with partner company Sensolus. Sensolus will market Hati with their own brand called Track. The Track device is identical to the Hati device, the Hati being the parent.

Powering option =>	Battery only	Battery plus external vehicle power	Battery plus external mains adapter
Brand owner			
Alps Alpine	Hati	Hati	Hati
Sensolus	Track 1101	Track 1210	ZA3510
Sensolus	Track 1141		

All Hati variants from were tested and it was found that the fully populated pcb powered from the mains adapter gave the worst case results, which are reported here.

1.3 Operation of EUT During Testing

The main tests were carried out on one sample of the of EUT (labelled “C6MZLK”).
The EUT was powered from mains to DC power adapter from CUI INC
model: SW16-12-E.
For Cellular connectivity, the EUT was operated in normal mode where it connects to a base station simulator from Amarisoft which provided cellular connectivity to the EUT.
Measurements were performed on a separate analyser

1.4 Modifications

There were no modifications on the EUT.

1.5 Date of Test

The tests were carried out on the dates of 30th Sept and1st, 2nd, 10th, 14th Oct 2024.

1.6 Environmental Conditions

	Temperature	**Relative Humidity**
Test	°C	%
Radiated Emissions <1GHz	20	50
Radiated Emissions >1GHz	20	53
Conducted Emissions on the mains	22	52

1.7 Special Test Software

Tests were performed manually, and no special test software was used.

2. Test Results summary, Specification, Methods, and Procedures

2.1 Results Summary

The equipment complies with the requirements according to the following standards.

FCC Rule part	ISED rule part	TEST PARAMETERS	Test Result
15.247 (b)3	RSS-247 5.4d	Output power Radiated	Pass
15.205 15.209	RSS Gen 8.9 RSS Gen 8.10	Spurious Emissions	Pass
22.913	RSS-132	Output power Radiated	Pass
24.232	RSS-133	Output power Radiated	Pass
27.50	RSS-139	Output power Radiated	Pass
22.917	RSS-132	Spurious Emissions	Pass
24.238	RSS-133	Spurious Emissions	Pass
27.53	RSS-139	Spurious Emissions	Pass
15.207	RSS Gen 8.8	Conducted Emissions on the mains	Pass
15.107	RSS Gen 7.2	Conducted Emissions on the mains	Pass

RSS 247 Issue 3 Aug 2023
RSS 132 Issue 4 Jan 2023
RSS 139 Issue 4 Sept 2022
RSS Gen Issue 5 Amd 1 2019 Amd 2 (Feb 2021)

2.2 Test Specification, Methods and Procedures

Ansi C63.26 2015
American National Standard for Compliance Testing of Transmitters Used in Licenced Radio Services

Ansi C63.10 2013
American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

3. Emissions Measurements

3.1. Radiated Emissions Measurements

The EUT was centred on a motorized turntable, which allows 360-degree rotation.

Emissions below 1GHz were measured using a test antenna positioned at a distance of 3 metres from the EUT (as measured from the closest point of the EUT). The radiated emissions were maximised by configuring the EUT, by rotating the EUT, and by raising and lowering the antenna from 1 to 4 metres. In this case the resolution bandwidth was 1MHz.
Emissions in the 1GHz-18GHz range were measured using a horn antenna located at 3 metres distance from the EUT in a fully anechoic chamber.
The radiated emissions were maximised by configuring the EUT and by rotating the EUT, and by raising and lowering the test antenna from 1 to 4 metres.
Emissions above 18GHz were measured using a horn antenna located at 1 metre distance from the EUT in a fully anechoic chamber. The radiated emissions were maximised by configuring the EUT and by rotating the EUT and raising the test and antenna from 1 to 4 metres.
In this case the resolution bandwidth was 1MHz and video bandwidth was 3 MHz for peak measurements.

A pre-scan was performed to determine the worst case EUT orientation for the radiated measurements.
All radiated tests were performed with the EUT in orientation O3 for Vertical and Horizontal polarisation measurements.

Final measurements were recorded with the EUT replaced by a substitution antenna connected to a signal generator.
The input level to the substitution antenna was adjusted from the signal generator until the level at the receiver matched that recorded from the EUT.

4. Results

4.1. Radiated Power at fundamental

4.1.1 Radiated Power at fundamental for Cellular

LTE Band 2

Frequency	Substitution Antenna input level	Substitution Antenna Gain	Final Level EIRP	Emission limit Part24	Antenna Polarity	EUT orient	Δ Limit	Pass / Fail
MHz	dBm	dBi	dBm	EIRP dBm	V/H		dB	P/F
1907.5	2.58	8.1	10.68	33	Vertical	O3	22.32	Pass
1907.5	15.27	8.1	23.37	33	Horizontal	O3	9.63	Pass

Final Level EIRP (dBm) = Substitution Antenna input level (dBm) + Substitution Antenna Gain (dBi)
Calculation Example **10.68 = 2.58 + 8.1**

LTE Band 5

Frequency	Substitution Antenna input level	Substitution Antenna Gain	Final Level ERP	Emission limit Part22	Antenna Polarity	EUT orient	Δ Limit	Pass / Fail
MHz	dBm	dBd	dBm	ERP dBm	V/H		dB	P/F
836.5	8.21	5.9	14.11	38.5	Vertical	O3	24.39	Pass
836.5	16.33	5.9	22.23	38.5	Horizontal	O3	16.27	Pass

Final Level ERP (dBm) = Substitution Antenna input level (dBm) + Substitution Antenna Gain (dBd)
Calculation Example **14.11 = 8.21 + 5.9**

LTE Band 12

Frequency	Substitution Antenna input level	Substitution Antenna Gain	Final Level EIRP	Emission limit Part27	Antenna Polarity	EUT orient	Δ Limit	Pass / Fail
MHz	dBm	dBi	dBm	EIRP dBm	V/H		dB	P/F
704	8.78	8.15	16.93	34.8	Vertical	O3	20.02	Pass
704	15.24	8.15	23.39	34.8	Horizontal	O3	13.56	Pass

Final Level EIRP (dBm) = Substitution Antenna input level (dBm) + Substitution Antenna Gain (dBi)
Calculation Example **16.93 = 8.78 + 8.15**

4.1.2 Radiated Power at fundamental for BLE

Limit as per 15.247

Frequency	Reading Peak	EUT Orientation	Antenna Polarity	Antenna Factor	Preamp Gain	Cable loss	Final Field Strength Peak	Transmitted Power	Limit	Margin	Result
GHz	dBuV/m		V/H	dB	dB	dB	dBuV/m	dBm	dBm	dB	P/F
2.402	68.1	O2	Vertical	28.6	0	4.8	101.5	6.3	36.0	29.7	Pass
2.402	68.8	O1	Horizontal	28.6	0	4.8	102.2	7.0	36.0	29	Pass
2.426	69.8	O2	Vertical	28.6	0	4.8	103.2	8.0	36.0	28	Pass
2.426	70.2	O1	Horizontal	28.6	0	4.8	103.6	8.4	36.0	27.6	Pass
2.480	69.3	O2	Vertical	28.6	0	4.9	102.8	7.6	36.0	28.4	Pass
2.480	69.9	O1	Horizontal	28.6	0	4.9	103.4	8.2	36.0	27.8	Pass

Final Field Strength Peak (dBuV/m) =Reading Peak (dBuV/m) + Antenna Factor (dB)- Pre-amp Gain (dB) +Cable Loss (dB)
Calculation Example **103.4 = 69.9 + 28.6 - 0 + 4.9**

Transmitted power (dBm) = Final Field Strength Peak (dBuV/m) -95.2 dB
Calculation Example **6.3 = 101.5 - 95.2**

Test Result: Pass

4.2. Radiated Spurious Emissions

4.2.1. Results for Radiated Spurious Emissions for LTE B2 and BLE

Frequency	Substitution Antenna input level	Substitution Antenna Gain	Final level	Spurious Emission limit Part24	Antenna Polarity	EUT orient	Δ Limit	Pass / Fail
MHz	dBm	dBi	dBm	dBm	V/H		dB	P/F
2608	-55	9.5	-45.5	-13	Vertical	O3	32.5	Pass
2608	-53.3	9.5	-43.8	-13	Horizontal	O3	30.8	Pass
1335	-49.3	7.2	-42.1	-13	Horizontal	O3	29.1	Pass
2352	-50.5	9.3	-41.2	-13	Horizontal	O3	28.2	Pass
3815	-57.82	9.3	-48.52	-13	Vertical	O3	35.52	Pass
5722	-53.7	11.3	-42.4	-13	Vertical	O3	29.4	Pass
7630	-50.09	11.3	-38.79	-13	Vertical	O3	25.79	Pass
9537	-39.88	11.6	-28.28	-13	Vertical	O3	15.28	Pass
11445	-41.62	12.6	-29.02	-13	Vertical	O3	16.02	Pass
4960	-54.3	10.6	-43.7	-13	Vertical	O3	30.7	Pass
7440	-45.06	11	-34.06	-13	Vertical	O3	21.06	Pass
9920	-44.25	12	-32.25	-13	Vertical	O3	19.25	Pass
3815	-57.34	9.3	-48.04	-13	Horizontal	O3	35.04	Pass
5722	-54.89	11.3	-43.59	-13	Horizontal	O3	30.59	Pass
7630	-49.76	11.3	-38.46	-13	Horizontal	O3	25.46	Pass
9537	-39.1	11.6	-27.5	-13	Horizontal	O3	14.5	Pass
11445	-41.49	12.6	-28.89	-13	Horizontal	O3	15.89	Pass
4960	-54.12	10.6	-43.52	-13	Horizontal	O3	30.52	Pass
7440	-45.63	11	-34.63	-13	Horizontal	O3	21.63	Pass
9920	-43.78	12	-31.78	-13	Horizontal	O3	18.78	Pass

Final level(dBm) =Substitution Antenna input level(dBm) + Substitution Antenna Gain (dBi)
Calculation Example **-45.5 = -55 + 9.5**

Test Result: Pass

4.2.2. Results for Radiated Spurious Emissions for LTE B5 and BLE

Frequency	Substitution Antenna input level	Substitution Antenna Gain	Final level	Spurious Emission limit Part22	Antenna Polarity	EUT orient	Δ Limit	Pass / Fail
MHz	dBm	dBm	dBm	dBm	V/H		dB	P/F
1673	-62.4	8.8	-53.6	-13	Vertical	O3	40.6	Pass
2509.5	-53.4	9.3	-44.1	-13	Vertical	O3	31.1	Pass
2554	-54.2	9.2	-45	-13	Vertical	O3	32	Pass
3346	-53.4	9.2	-44.2	-13	Vertical	O3	31.2	Pass
1673	-59	8.8	-50.2	-13	Horizontal	O3	37.2	Pass
2509.5	-52.5	9.3	-43.2	-13	Horizontal	O3	30.2	Pass
2554	-56.7	9.2	-47.5	-13	Horizontal	O3	34.5	Pass
3346	-54.2	9.2	-45	-13	Horizontal	O3	32	Pass
4182	-59.01	10.2	-48.81	-13	Vertical	O3	35.81	Pass
5019	-57.37	10.5	-46.87	-13	Vertical	O3	33.87	Pass
5855	-53.47	11.4	-42.07	-13	Vertical	O3	29.07	Pass
6692	-50.94	11.5	-39.44	-13	Vertical	O3	26.44	Pass
4182	-54.91	10.2	-44.71	-13	Horizontal	O3	31.71	Pass
5019	-57.72	10.5	-47.22	-13	Horizontal	O3	34.22	Pass
5855	-54.76	11.4	-43.36	-13	Horizontal	O3	30.36	Pass
6692	-52.07	11.5	-40.57	-13	Horizontal	O3	27.57	Pass

Final level(dBm) =Substitution Antenna input level(dBm) + Substitution Antenna Gain (dBi)
Calculation Example **- -53.6 = -62.4 + 8.8**

Test Result: Pass

4.2.3. Results for Radiated Spurious Emissions for LTE B12 and BLE

Frequency	Substitution Antenna input level	Substitution Antenna Gain	Final level	Spurious Emission limit Part27	Antenna Polarity	EUT orient	Δ Limit	Pass / Fail
MHz	dBm	dBm	dBm	dBm	V/H		dB	P/F
1408	-61.8	7.8	-54	-13	Vertical	O3	41	Pass
2112	-53.9	8.9	-45	-13	Vertical	O3	32	Pass
2530	-52.8	9.3	-43.5	-13	Vertical	O3	30.5	Pass
2816	-57.3	10	-47.3	-13	Vertical	O3	34.3	Pass
3520	-55	9.8	-45.2	-13	Horizontal	O3	32.2	Pass
1408	-60.1	7.8	-52.3	-13	Horizontal	O3	39.3	Pass
2112	-51.5	8.9	-42.6	-13	Horizontal	O3	29.6	Pass
2530	-51.6	9.3	-42.3	-13	Horizontal	O3	29.3	Pass
2816	-58.2	10	-48.2	-13	Horizontal	O3	35.2	Pass
3520	-54.9	9.8	-45.1	-13	Horizontal	O3	32.1	Pass
4928	-55.69	10.6	-45.09	-13	Vertical	O3	32.09	Pass
7040	-52.56	11.7	-40.86	-13	Vertical	O3	27.86	Pass
4928	-55.24	10.6	-44.64	-13	Horizontal	O3	31.64	Pass
7040	-52.1	11.7	-40.4	-13	Horizontal	O3	27.4	Pass

Final level (dBuV/m) =Substitution Antenna input level(dBm) + Substitution Antenna Gain (dBm)
Calculation Example **-54 = -61.8 + 7.8**

Test Result: Pass

4.2.4. Results for Radiated Spurious Emissions for idle mode

Frequency	Quasi peak Level	EUT Orientation	Antenna Polarity	Antenna Factor	Preamp Gain	Cable loss	Final Field Strength Quasi Peak	Average Limit	Margin	Result
MHz	dBuV/m		V/H	dB	dB	dB	dBuV/m	dBuV/m	dB	P/F
401.790	-12.2	O1	Vertical	16.5	0	3.1	7.4	46.0	38.6	Pass
990.770	-11.3	O1	Vertical	24.6	0	5.5	18.8	54.0	35.2	Pass
602.640	-10.7	O2	Horizontal	19.4	0	4.2	12.9	46.0	33.1	Pass
975.980	-10.9	O1	Vertical	24.6	0	5.6	19.3	54.0	34.7	Pass

Final Field Strength Quasi Peak (dBuV/m) =Quasi peak Level (dBuV/m) + Antenna Factor (dB)- Pre-amp Gain (dB) +Cable Loss (dB)
Calculation Example **7.4 = -12.2 + 16.5 - 0 + 3.1**

Frequency	Reading Peak	EUT Orientation	Antenna Polarity	Antenna Factor	Preamp Gain	Cable loss	Final Field Strength Peak	Average Limit	Margin for Peak v Average Limit +20dB	Result
GHz	dBuV/m		V/H	dB	dB	dB	dBuV/m	dBuV/m	dB	P/F
1.539	10.8	O3	Vertical	25.6	0	3.8	40.2	54.0	33.8	Pass
3.561	14.0	O3	Vertical	31.5	0	6	51.5	54.0	22.5	Pass
1.692	11.3	O3	Horizontal	25.8	0	4	41.1	54.0	32.9	Pass
3.455	13.8	O3	Horizontal	31.3	0	6	51.1	54.0	22.9	Pass

Final Field Strength Peak (dBuV/m) =Reading Peak (dBuV/m) + Antenna Factor (dB)- Pre-amp Gain (dB) +Cable Loss (dB)
Calculation Example **40.2 = 10.8 + 25.6 - 0 + 3.8**

Test Result: Pass

4.3. Results for Conducted Emissions on the Mains

Conducted Emissions on the mains test was performed on the EUT.

The unit was powered from the LISN through a power supply (Manufacturer by Eco Power model: ICP30A-120-2000)

4.3.1 Transmit mode

Detector	**Frequency**	**Reading**	**Margin**	**Phase**
QP/ Ave	MHz	dBuV	dB	L/N
Quasi-Peak	0.1500	24.85	-41.15	Live
Average	0.5055	11.92	-34.08	Live
Quasi-Peak	0.5100	40.14	-15.86	Live
Quasi-Peak	1.6823	29.48	-26.52	Live
Quasi-Peak	2.753	27.50	-28.5	Live
Quasi-Peak	3.824	24.91	-31.09	Live
Average	28.685	13.24	-36.76	Live
Quasi-Peak	29.949	10.74	-49.26	Live

Detector	**Frequency**	**Reading**	**Margin**	**Phase**
QP/ Ave	MHz	dBuV	dB	L/N
Quasi-Peak	0.1500	24.60	-41.4	Neutral
Average	0.5055	11.76	-34.24	Neutral
Quasi-Peak	0.5100	39.79	-16.21	Neutral
Quasi-Peak	1.6823	28.93	-27.07	Neutral
Quasi-Peak	2.7533	26.90	-29.1	Neutral
Quasi-Peak	3.8243	23.66	-32.34	Neutral
Average	28.6845	13.96	-36.04	Neutral
Quasi-Peak	29.9490	12.37	-47.63	Neutral

4.3.2 Idle mode

Detector	**Frequency**	**Reading**	**Margin**	**Phase**
QP/ Ave	MHz	dBuV	dB	L/N
Quasi-Peak	0.1500	24.47	-41.53	Live
Average	0.5055	11.34	-34.66	Live
Quasi-Peak	0.5100	39.40	-16.6	Live
Quasi-Peak	1.6823	28.99	-27.01	Live
Quasi-Peak	2.753	27.59	-28.41	Live
Quasi-Peak	3.824	24.85	-31.15	Live
Average	28.685	13.10	-36.9	Live
Quasi-Peak	29.949	11.00	-49	Live

Detector	**Frequency**	**Reading**	**Margin**	**Phase**
QP/ Ave	MHz	dBuV	dB	L/N
Quasi-Peak	0.1500	24.30	-41.7	Neutral
Average	0.5055	11.71	-34.29	Neutral
Quasi-Peak	0.5100	40.26	-15.74	Neutral
Quasi-Peak	1.6823	29.01	-26.99	Neutral
Quasi-Peak	2.7533	27.06	-28.94	Neutral
Quasi-Peak	3.8243	23.80	-32.2	Neutral
Average	28.6845	13.77	-36.23	Neutral
Quasi-Peak	29.9490	12.09	-47.91	Neutral

Ref Appendix E for Scans

Test Result: Pass

5. Measurement Uncertainties

Measurement	Uncertainty
Radio Frequency	+/- $5x10^{-7}$
Maximum Frequency Deviation	+/- 1.7 %
Conducted Emissions	+/- 1 dB
Radiated Emission 30MHz-100MHz	+/- 5.3 dB
Radiated Emission 100MHz-300MHz	+/- 4.7 dB
Radiated Emission 300MHz-1GHz	+/- 3.9 dB
Radiated Emission 1GHz-40GHz	+/- 3.8 dB
Modulation bandwidth	+/- $5x10^{-7}$
Duty Cycle	+/- 5 %
Power supply	±0.1 VDC
Temperature	±0.2 °C
Frequency	±0.01 ppm

The measurement uncertainties stated were calculated with a k=2 for a confidence level of over 95% as per ETS TR100 028.

The test data can be compared directly to the specification limit to determine compliance, as the calculated measurement uncertainty meets the requirements of the applicable specification.

Appendix A: Scans for Spurious Emissions for LTE B2 and BLE

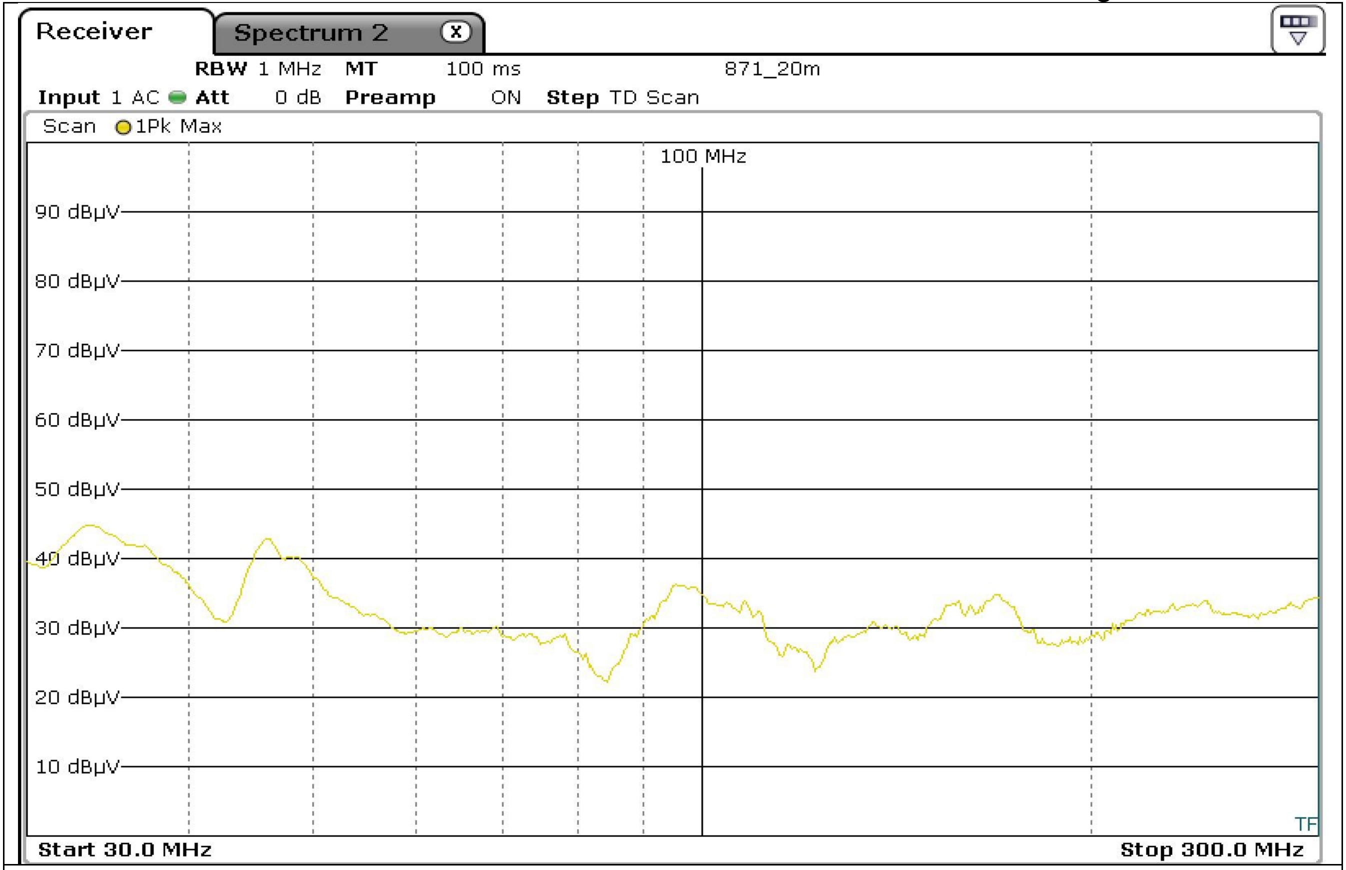


Fig A1: Radiated Emissions 30MHz - 300MHz Vertical 3metres

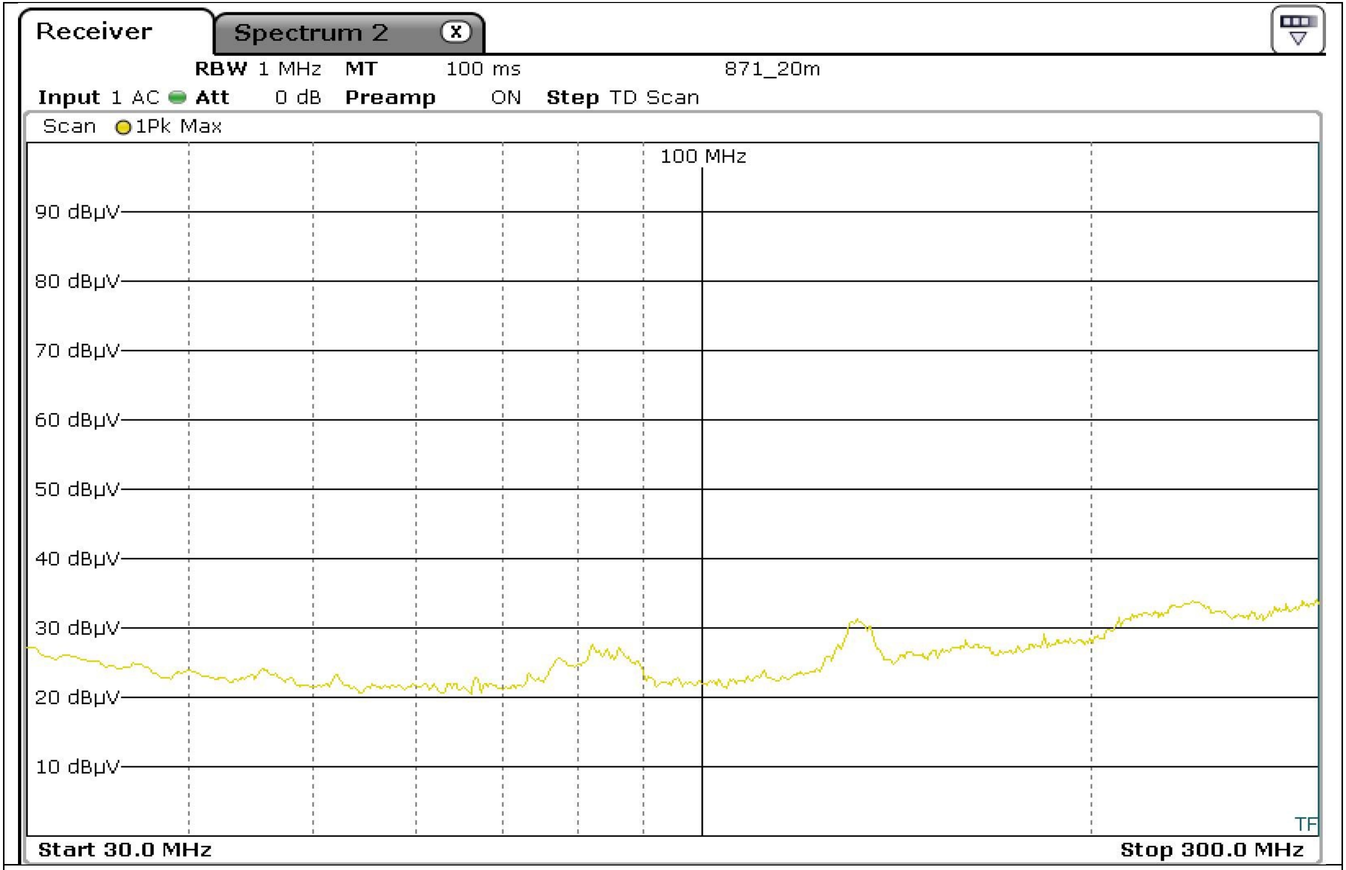


Fig A2: Radiated Emissions 30MHz - 300MHz Horizontal 3metres

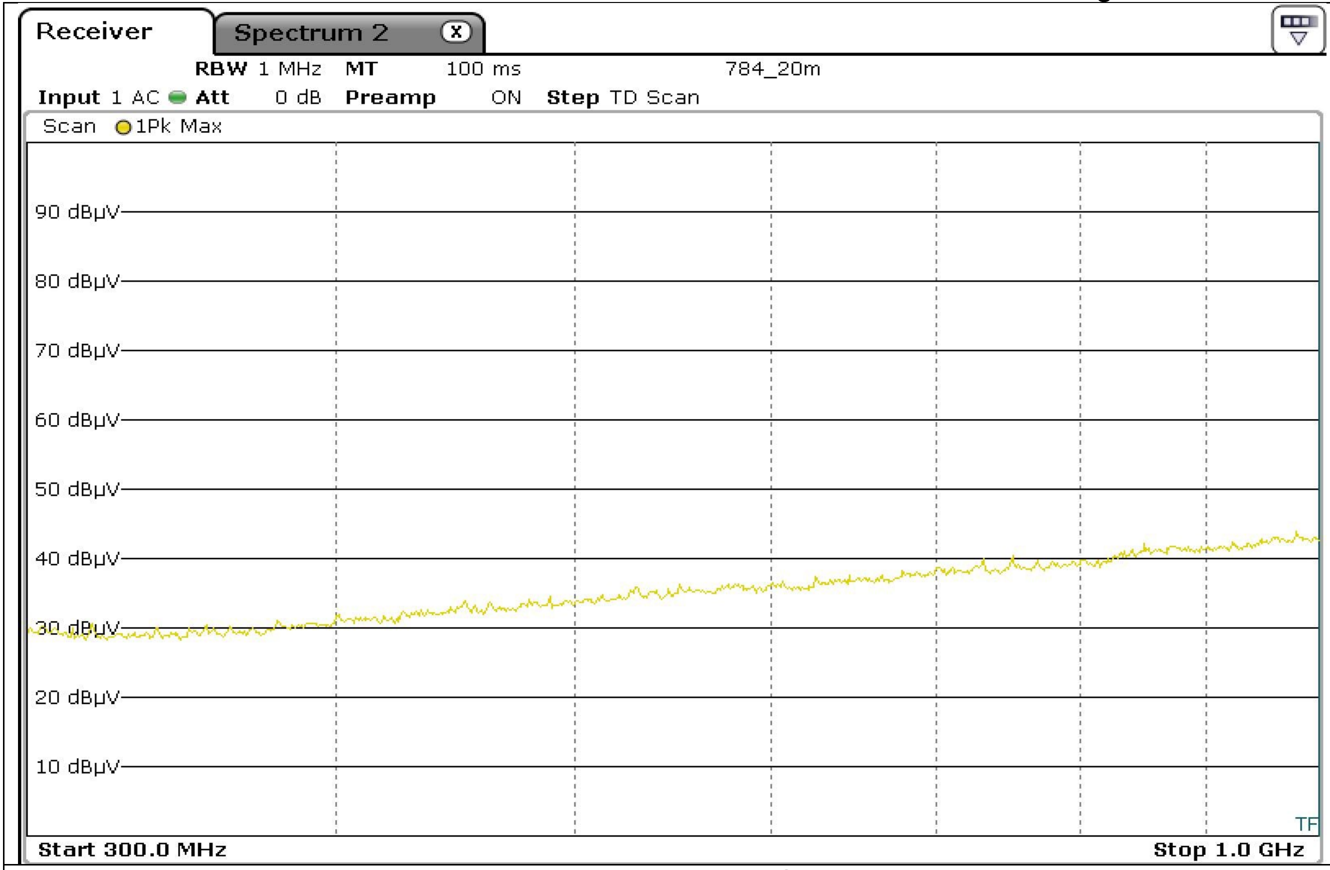


Fig A3: Radiated Emissions 300MHz - 1GHz Vertical 3metres

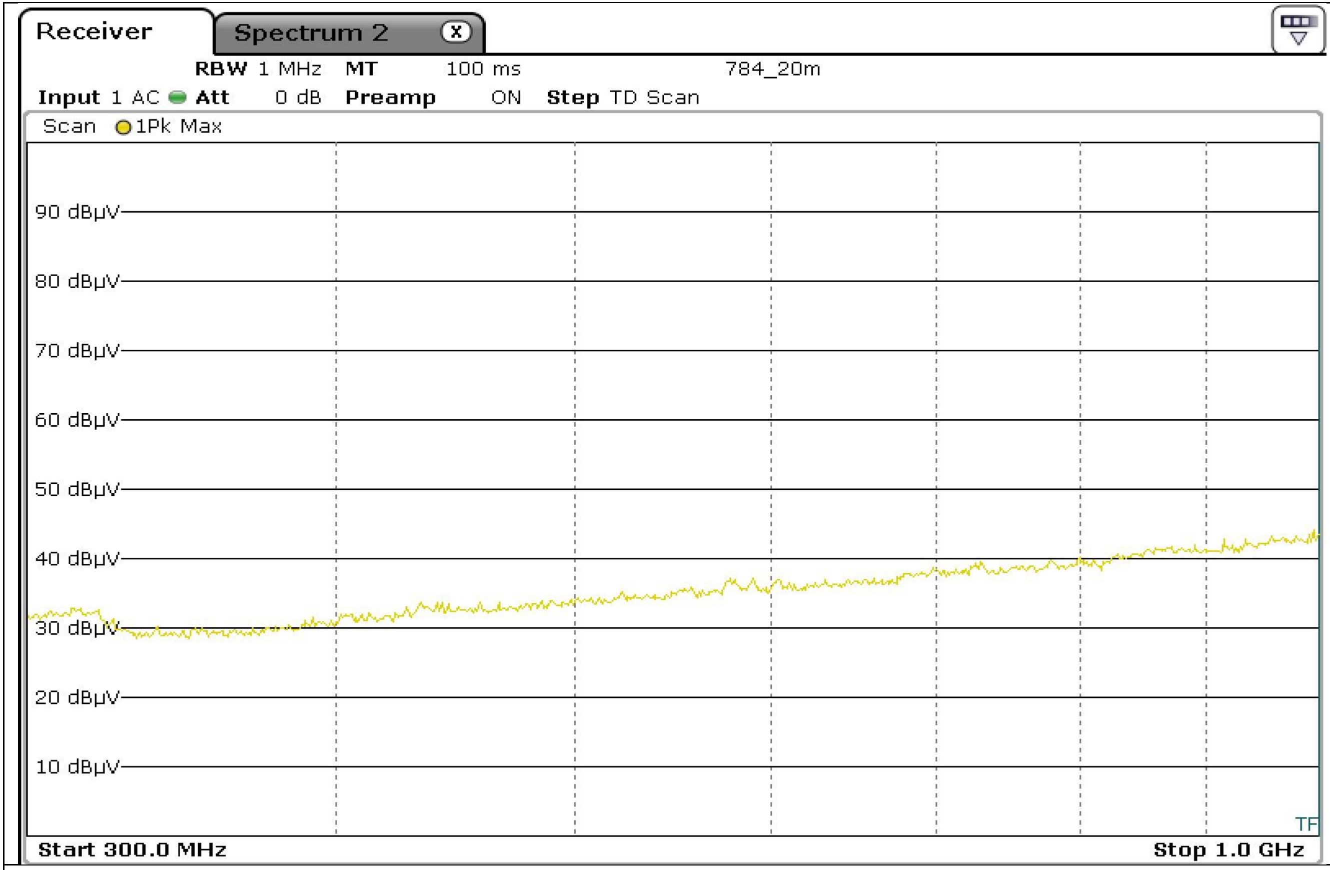


Fig A4: Radiated Emissions 300MHz - 1GHz Horizontal 3metres

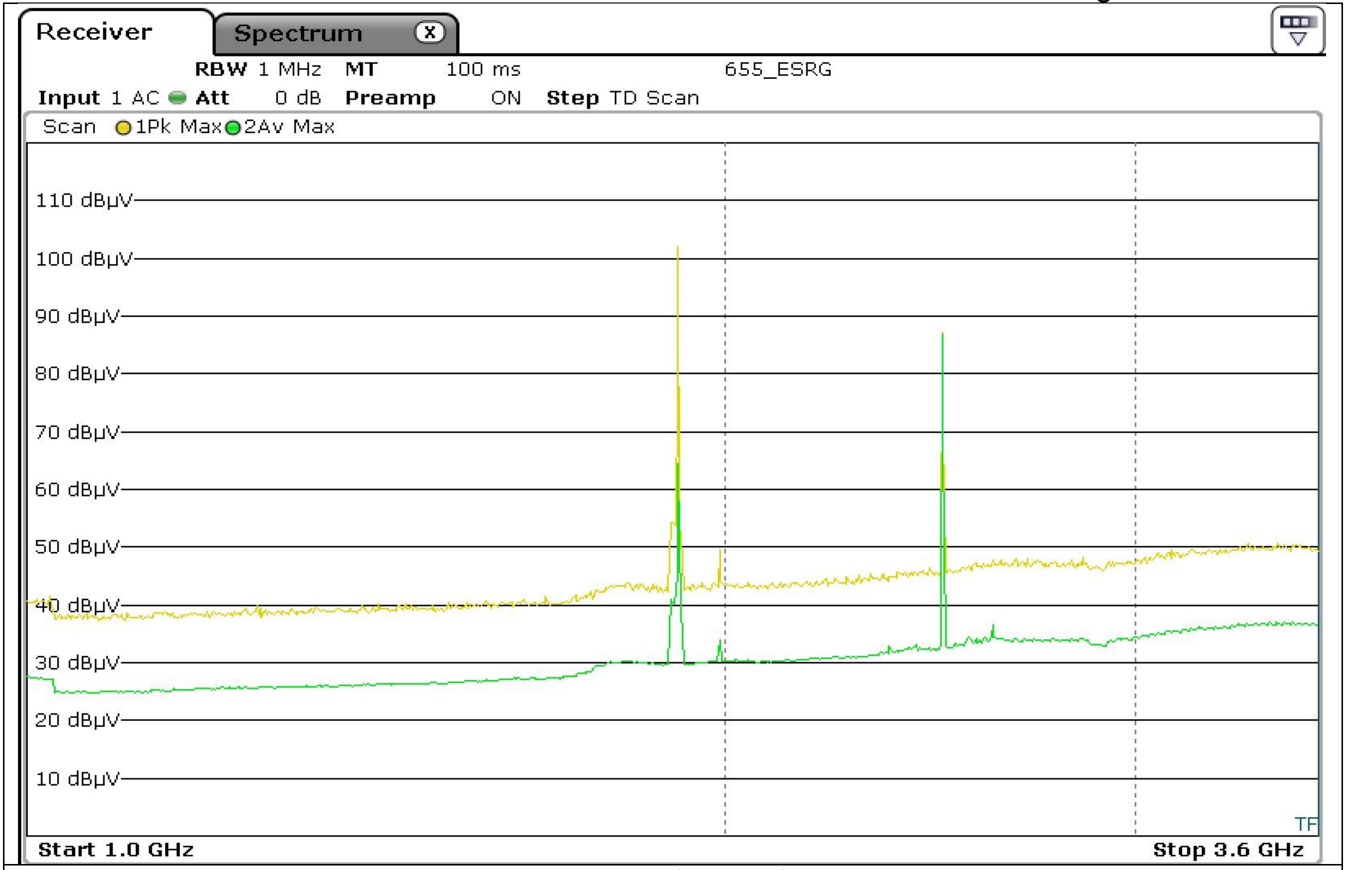


Fig A5: Radiated Emissions 1GHz - 3.6GHz Vertical 3metres

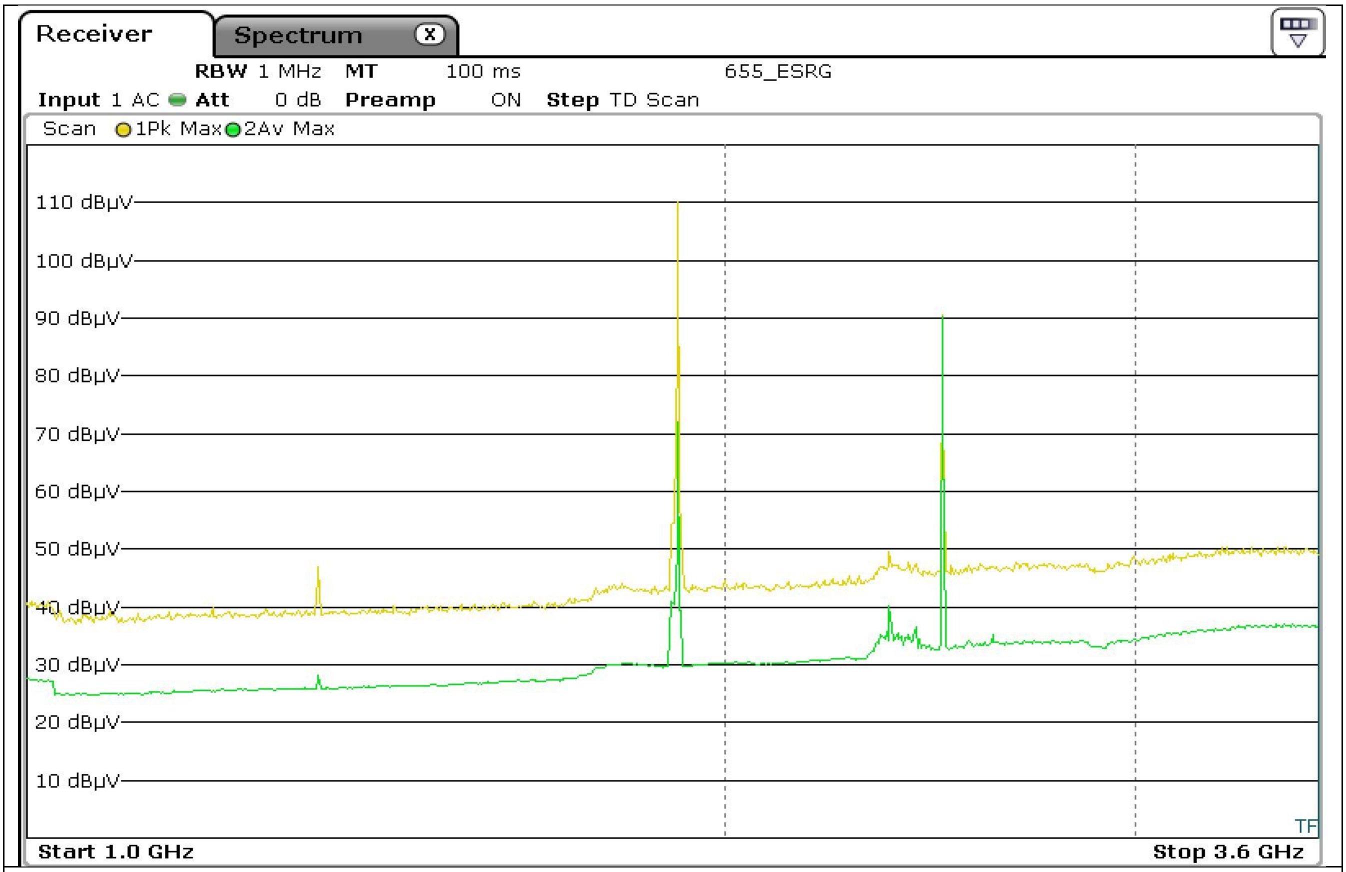
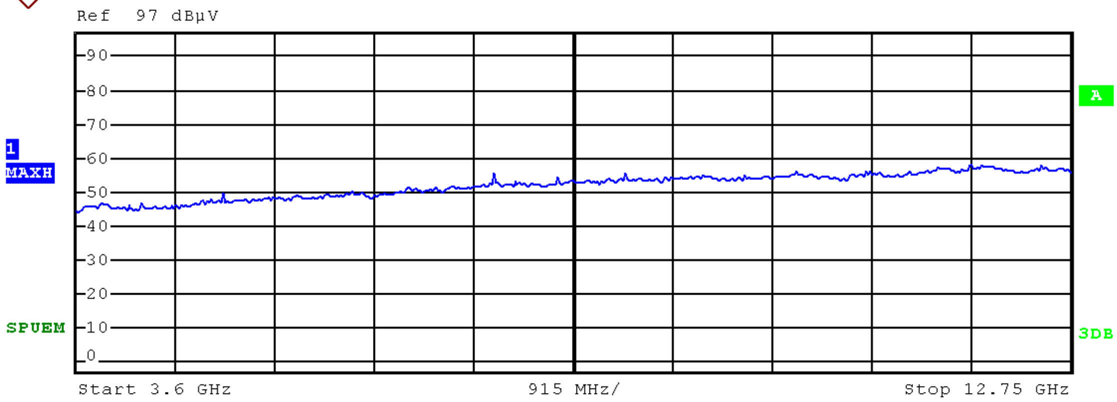
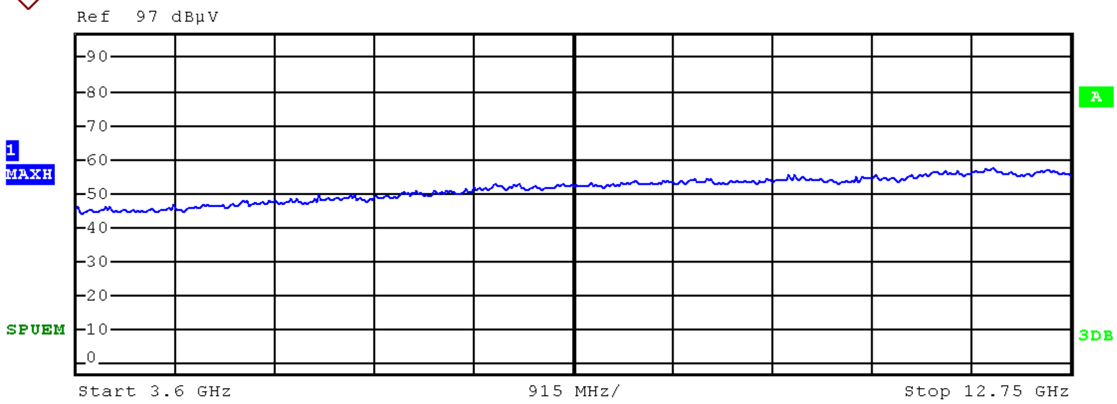


Fig A6: Radiated Emissions 1GHz - 3.6GHz Horizontal 3metres



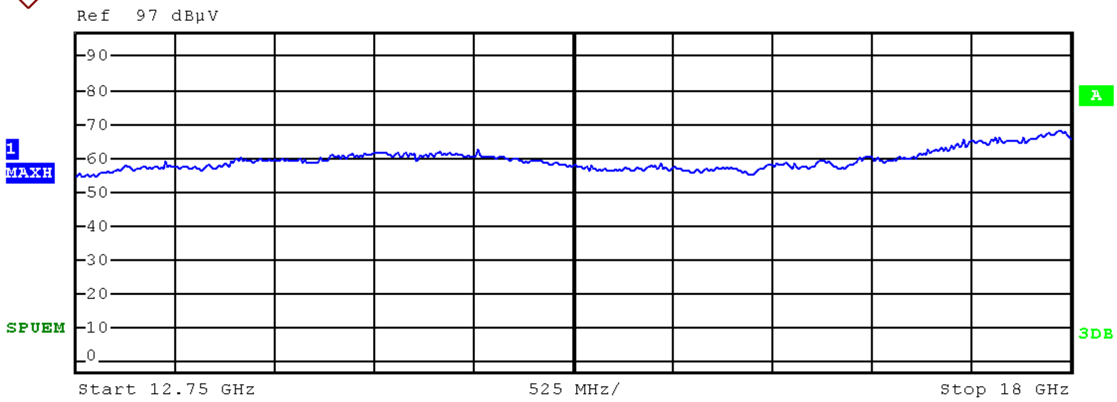
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
3.600 G	4.500 G	1.00 M	4.200863 G	-59.98	-200.00
4.500 G	5.400 G	1.00 M	4.959900 G	-57.17	-200.00
5.400 G	6.300 G	1.00 M	6.136650 G	-56.75	-200.00
6.300 G	7.200 G	1.00 M	7.068150 G	-55.14	-200.00
7.200 G	8.100 G	1.00 M	7.440188 G	-51.13	-200.00
8.100 G	9.000 G	1.00 M	8.658563 G	-51.40	-200.00
9.000 G	9.900 G	1.00 M	9.369787 G	-51.74	-200.00
9.900 G	10.800 G	1.00 M	10.218937 G	-50.90	-200.00
10.800 G	11.700 G	1.00 M	11.528662 G	-49.51	-200.00
11.700 G	12.750 G	1.00 M	12.475950 G	-48.70	-200.00

Fig A7: Radiated Emissions 3.6GHz - 12.75GHz Vertical 3metres



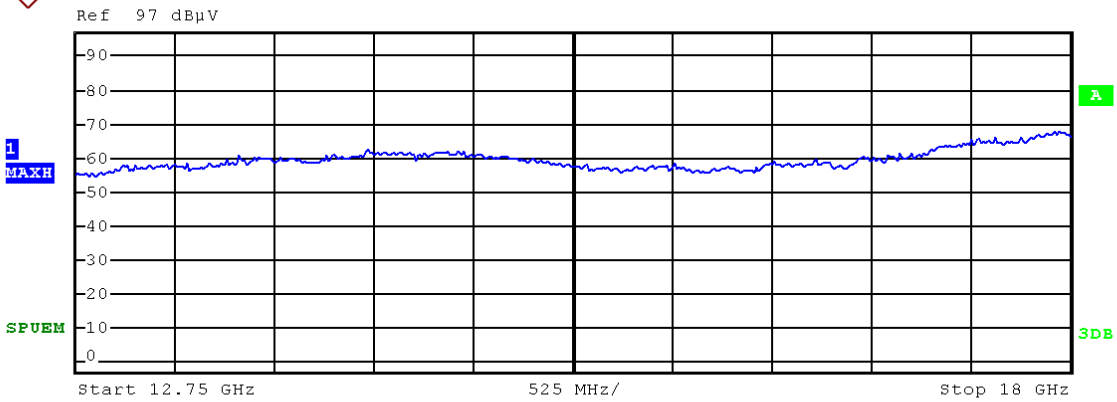
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
3.600 G	4.500 G	1.00 M	3.877088 G	-60.65	-200.00
4.500 G	5.400 G	1.00 M	5.133825 G	-58.71	-200.00
5.400 G	6.300 G	1.00 M	5.836500 G	-57.11	-200.00
6.300 G	7.200 G	1.00 M	7.192463 G	-55.61	-200.00
7.200 G	8.100 G	1.00 M	7.438725 G	-53.99	-200.00
8.100 G	9.000 G	1.00 M	8.750025 G	-53.12	-200.00
9.000 G	9.900 G	1.00 M	9.408713 G	-52.25	-200.00
9.900 G	10.800 G	1.00 M	10.202175 G	-51.11	-200.00
10.800 G	11.700 G	1.00 M	11.598300 G	-50.17	-200.00
11.700 G	12.750 G	1.00 M	11.971031 G	-49.32	-200.00

Fig A8: Radiated Emissions 3.6GHz - 12.75GHz Horizontal 3metres



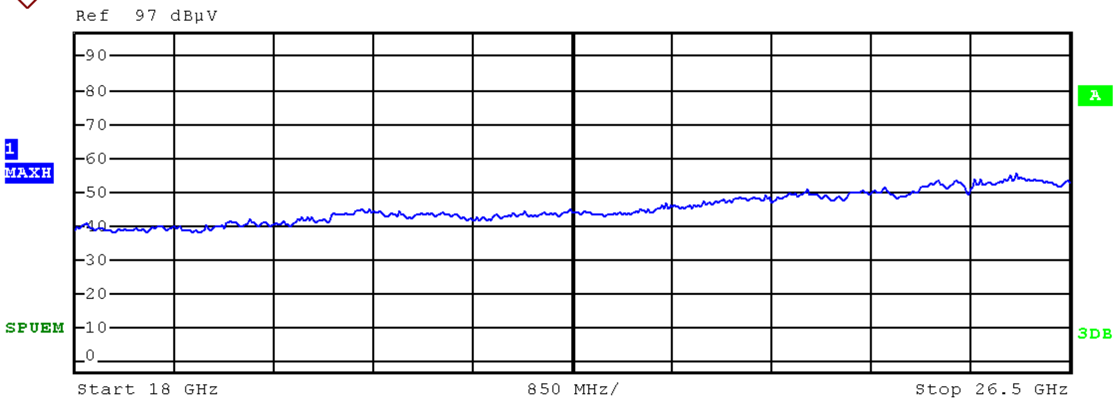
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
12.750 G	13.650 G	1.00 M	13.621200 G	-46.80	-200.00
13.650 G	14.550 G	1.00 M	14.374950 G	-45.14	-200.00
14.550 G	15.450 G	1.00 M	14.869950 G	-44.24	-200.00
15.450 G	16.350 G	1.00 M	15.834300 G	-48.47	-200.00
16.350 G	18.000 G	1.00 M	17.937300 G	-38.86	-200.00

Fig A9: Radiated Emissions 12.75GHz - 18GHz Vertical 3metres



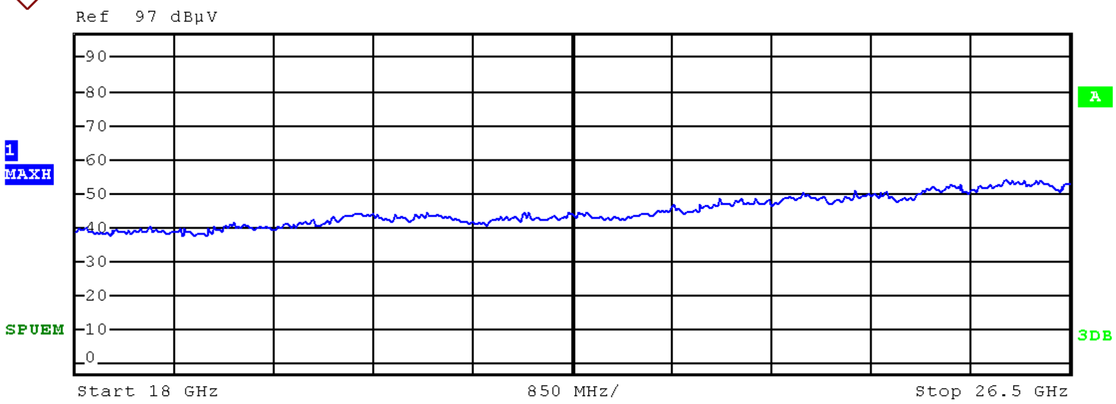
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
12.750 G	13.650 G	1.00 M	13.614788 G	-45.89	-200.00
13.650 G	14.550 G	1.00 M	14.289900 G	-44.45	-200.00
14.550 G	15.450 G	1.00 M	14.761500 G	-44.91	-200.00
15.450 G	16.350 G	1.00 M	15.909450 G	-48.08	-200.00
16.350 G	18.000 G	1.00 M	17.919975 G	-39.03	-200.00

Fig A10: Radiated Emissions 12.75GHz - 18GHz Horizontal 3metres



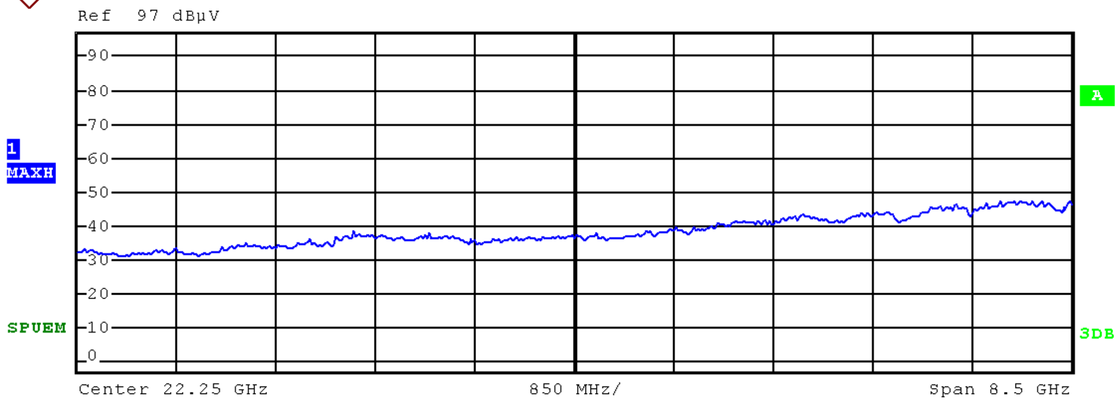
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.104338 G	-66.01	-200.00
18.850 G	19.700 G	1.00 M	19.494937 G	-64.96	-200.00
19.700 G	20.550 G	1.00 M	20.508456 G	-61.82	-200.00
20.550 G	21.400 G	1.00 M	20.771638 G	-62.21	-200.00
21.400 G	22.250 G	1.00 M	22.237781 G	-61.82	-200.00
22.250 G	23.100 G	1.00 M	23.045388 G	-60.22	-200.00
23.100 G	23.950 G	1.00 M	23.891775 G	-57.94	-200.00
23.950 G	25.650 G	1.00 M	25.513362 G	-53.50	-200.00
25.650 G	26.500 G	1.00 M	26.034731 G	-51.46	-200.00

Fig A11: Radiated Emissions 18GHz - 26.5GHz Vertical Pk 1metre



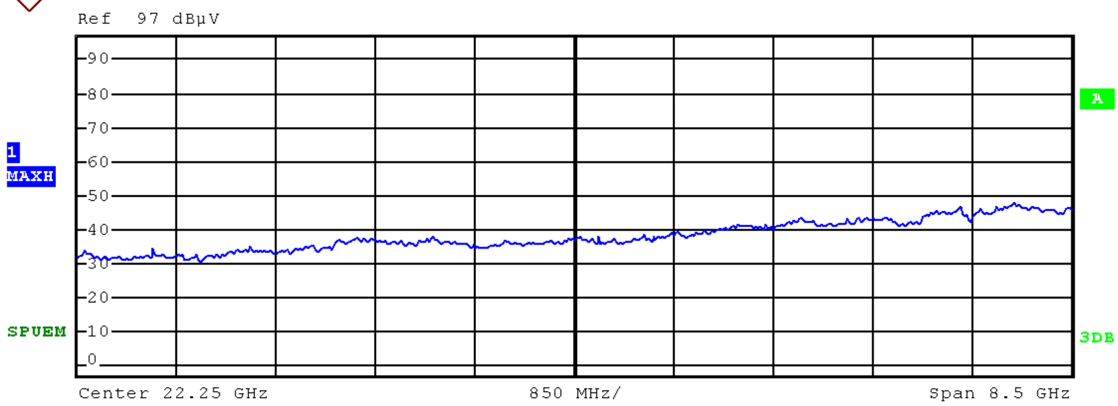
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.652694 G	-66.47	-200.00
18.850 G	19.700 G	1.00 M	19.360744 G	-65.09	-200.00
19.700 G	20.550 G	1.00 M	20.526837 G	-62.67	-200.00
20.550 G	21.400 G	1.00 M	21.001881 G	-62.54	-200.00
21.400 G	22.250 G	1.00 M	22.209094 G	-62.16	-200.00
22.250 G	23.100 G	1.00 M	23.080662 G	-61.54	-200.00
23.100 G	23.950 G	1.00 M	23.811025 G	-58.05	-200.00
23.950 G	25.650 G	1.00 M	25.564575 G	-53.88	-200.00
25.650 G	26.500 G	1.00 M	26.003812 G	-52.97	-200.00

Fig A12: Radiated Emissions 18GHz - 26.5GHz Horizontal Pk 1metre



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.074481 G	-73.56	-200.00
18.850 G	19.700 G	1.00 M	19.442238 G	-71.84	-200.00
19.700 G	20.550 G	1.00 M	20.369056 G	-68.44	-200.00
20.550 G	21.400 G	1.00 M	21.005175 G	-68.78	-200.00
21.400 G	22.250 G	1.00 M	22.237781 G	-69.40	-200.00
22.250 G	23.100 G	1.00 M	23.062281 G	-67.46	-200.00
23.100 G	23.950 G	1.00 M	23.859688 G	-65.11	-200.00
23.950 G	25.650 G	1.00 M	25.521438 G	-60.49	-200.00
25.650 G	26.500 G	1.00 M	26.244894 G	-59.16	-200.00

Fig A13: Radiated Emissions 18GHz - 26.5GHz Vertical Ave 1metre



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.651100 G	-72.23	-200.00
18.850 G	19.700 G	1.00 M	19.474431 G	-71.58	-200.00
19.700 G	20.550 G	1.00 M	20.511431 G	-69.11	-200.00
20.550 G	21.400 G	1.00 M	21.034819 G	-68.94	-200.00
21.400 G	22.250 G	1.00 M	22.199531 G	-69.28	-200.00
22.250 G	23.100 G	1.00 M	23.095219 G	-67.81	-200.00
23.100 G	23.950 G	1.00 M	23.647081 G	-65.40	-200.00
23.950 G	25.650 G	1.00 M	25.546087 G	-59.90	-200.00
25.650 G	26.500 G	1.00 M	25.999881 G	-58.87	-200.00

Fig A14: Radiated Emissions 18GHz - 26.5GHz Horizontal Ave 1metre

Appendix B: Scans for Spurious Emissions for LTE B5 and BLE

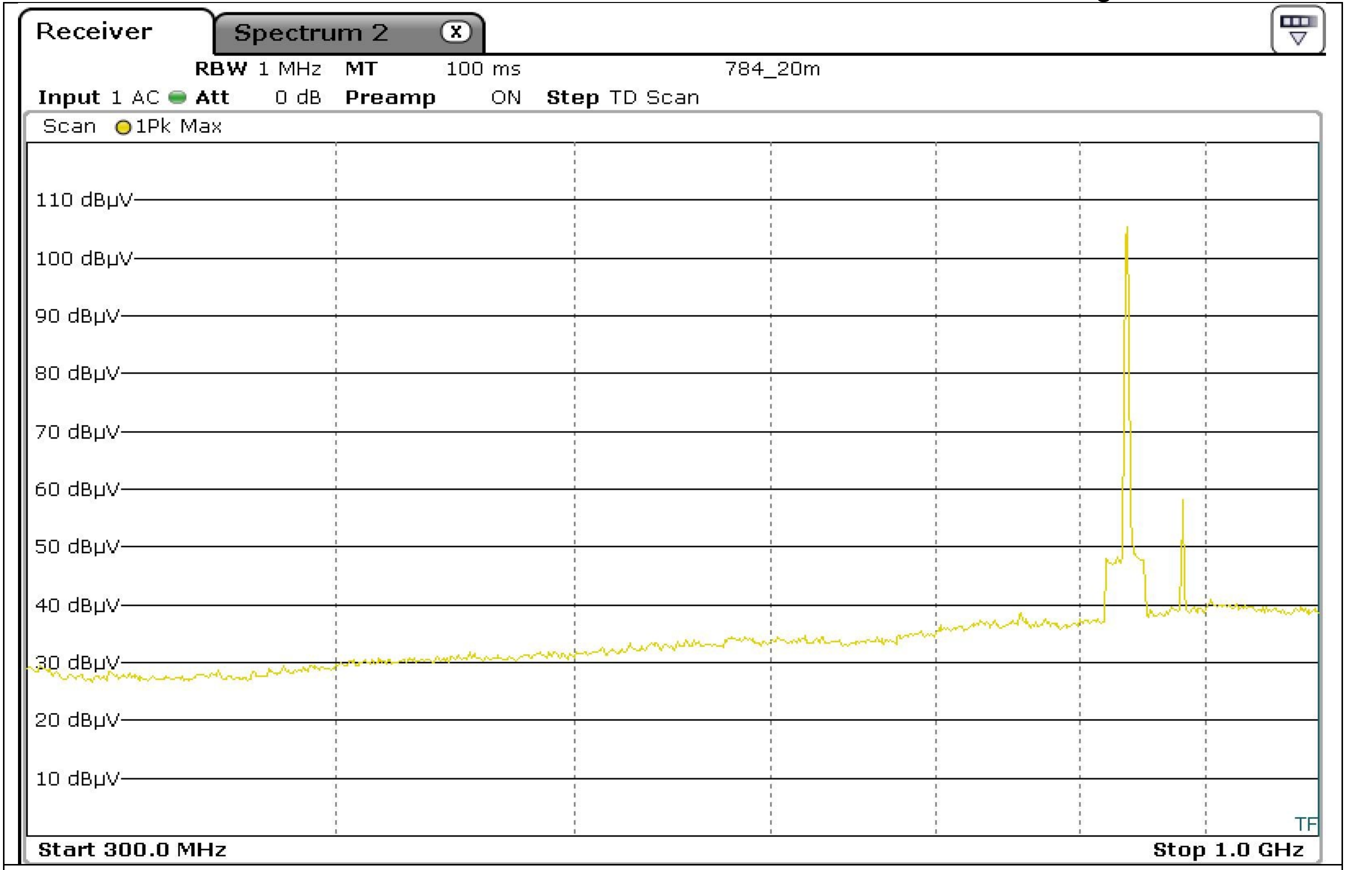


Fig B1: Radiated Emissions 30MHz - 300MHz Vertical 3metres

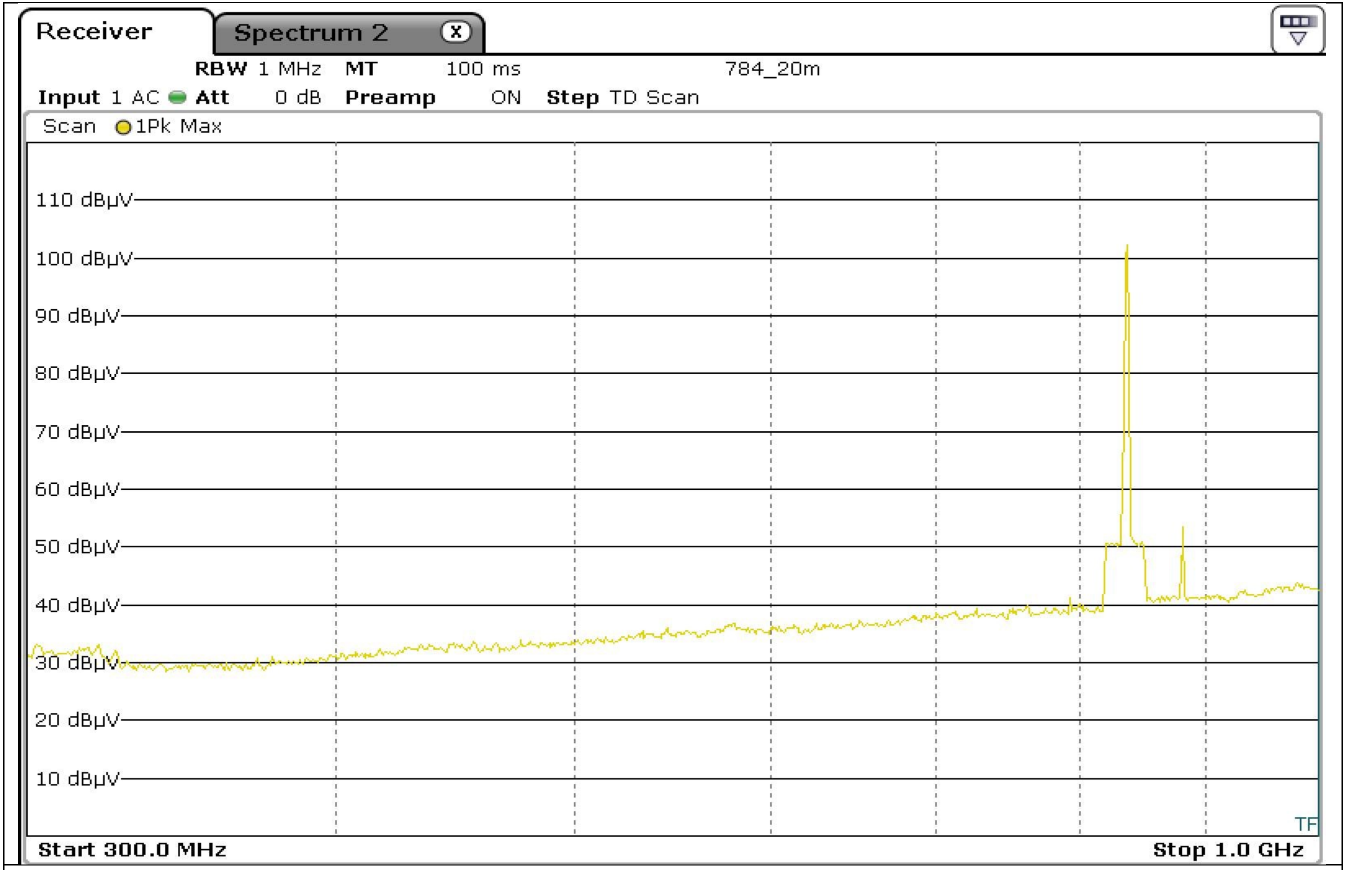


Fig B2: Radiated Emissions 30MHz - 300MHz Horizontal 3metres

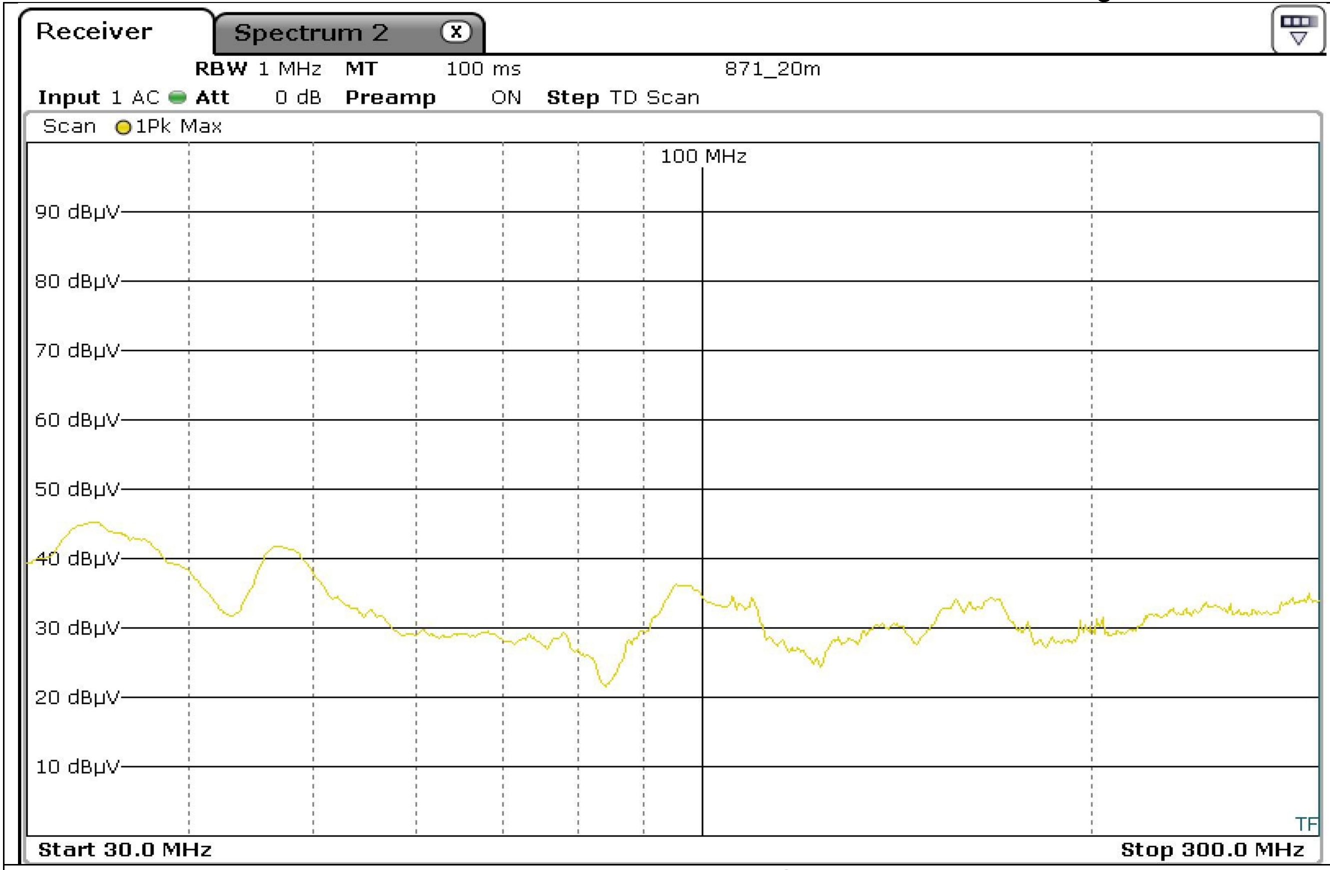


Fig B3: Radiated Emissions 300MHz - 1GHz Vertical 3metres

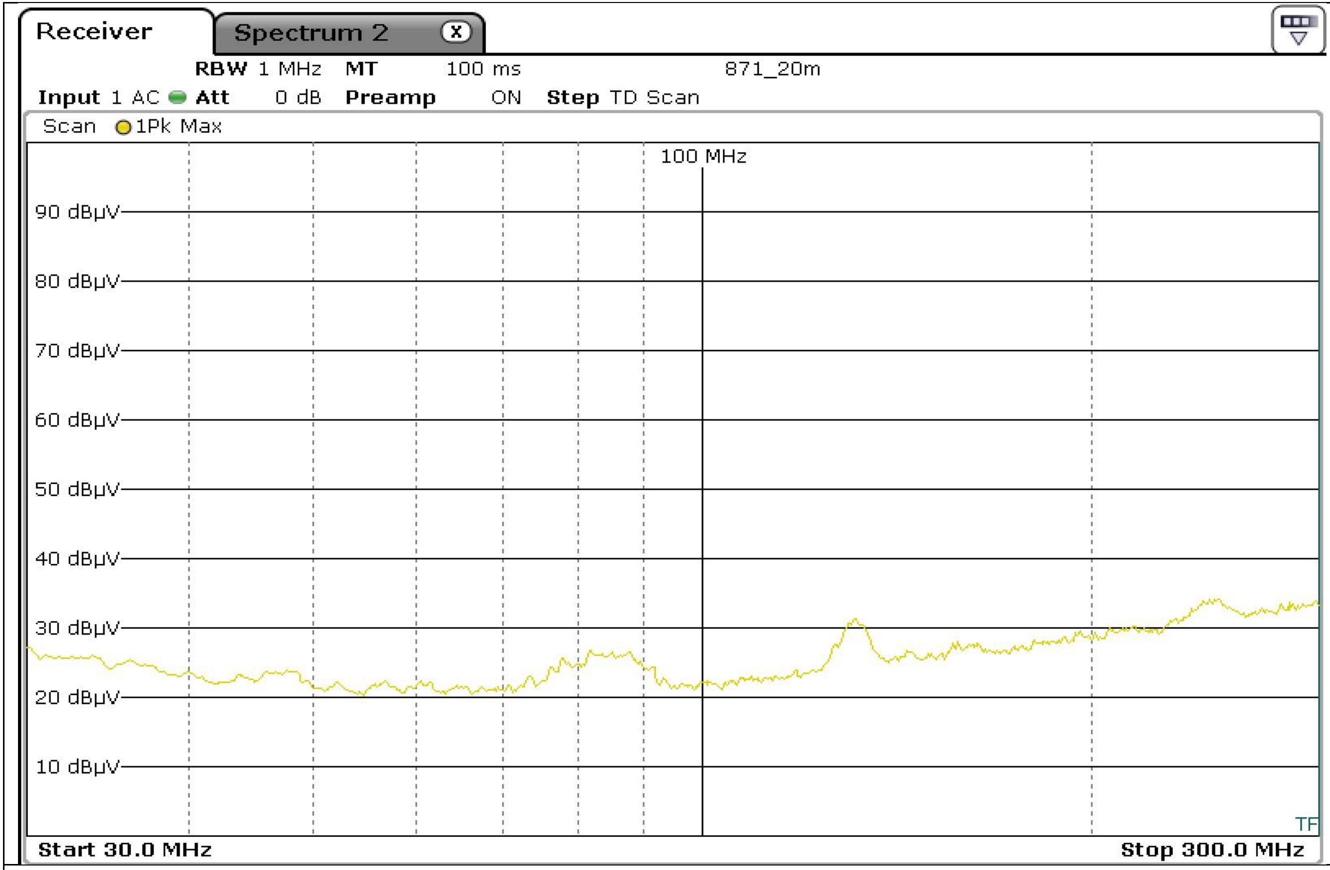


Fig B4: Radiated Emissions 300MHz - 1GHz Horizontal 3metres

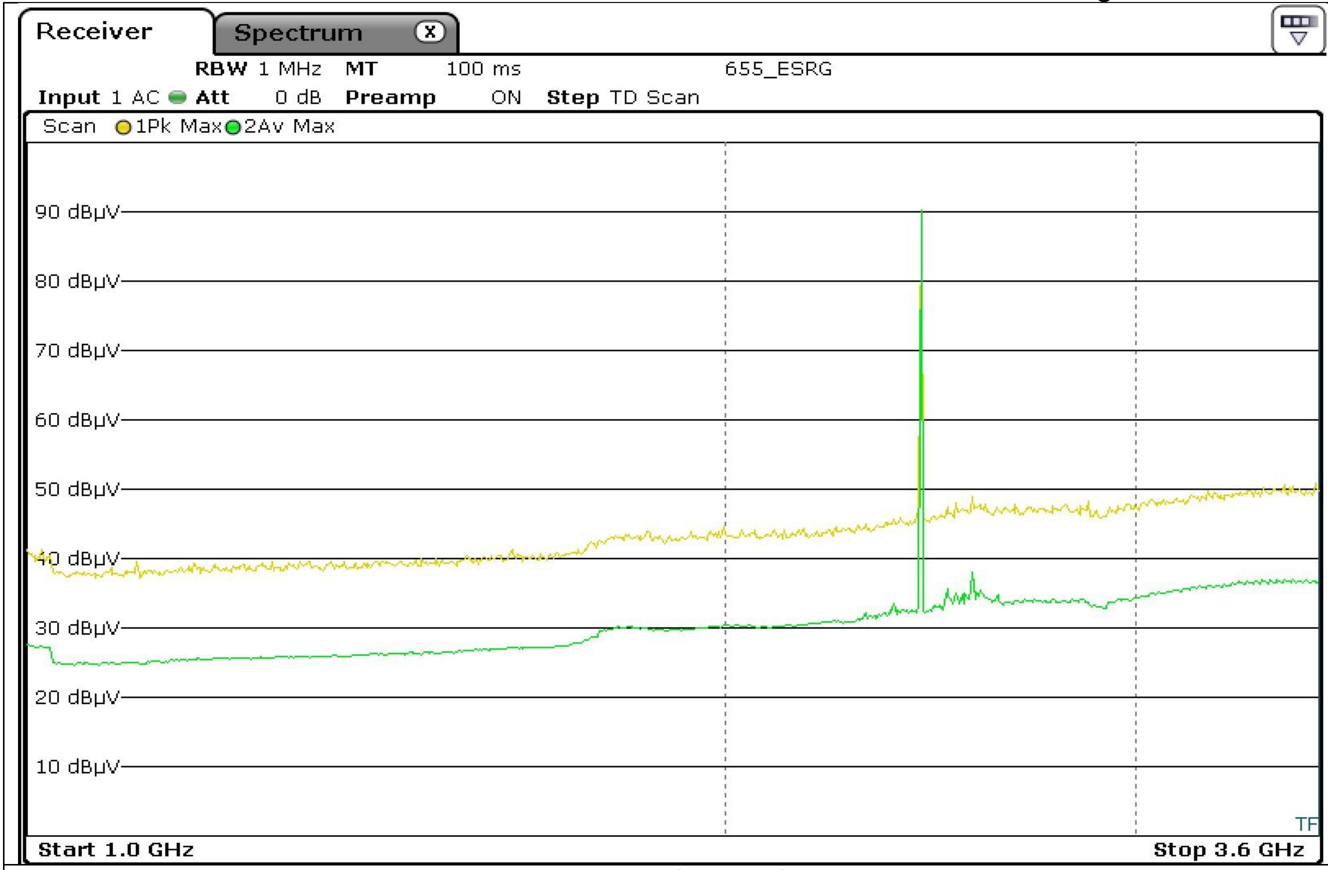


Fig B5: Radiated Emissions 1GHz - 3.6GHz Vertical 3metres

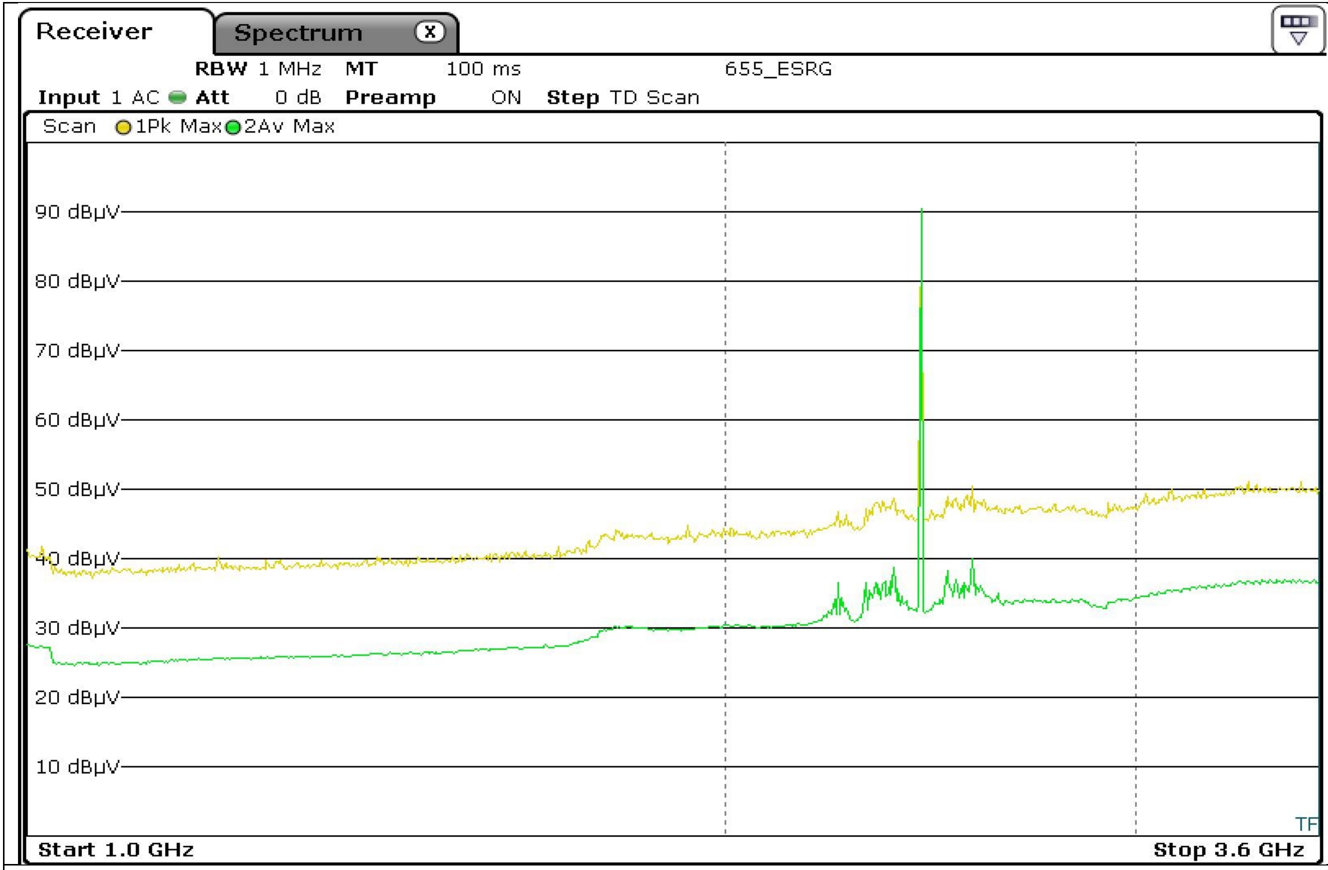
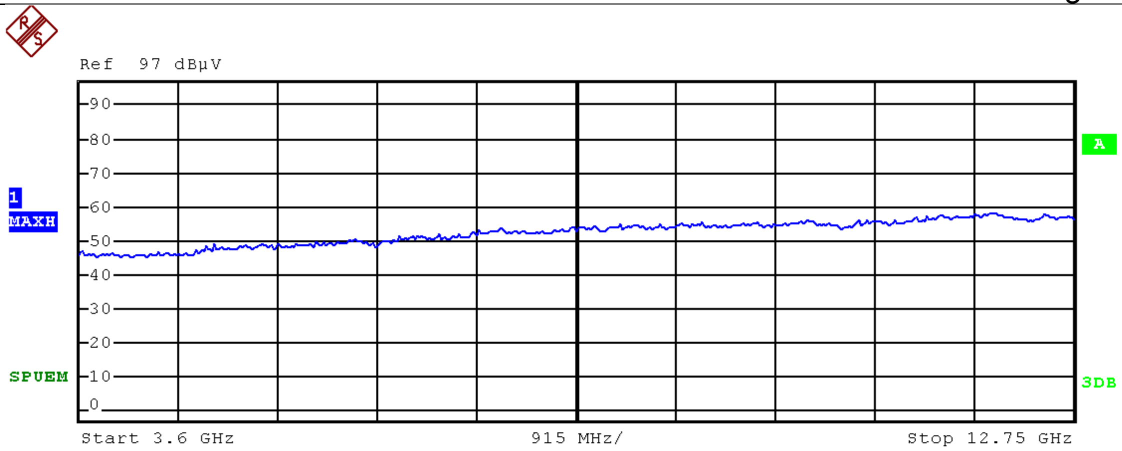
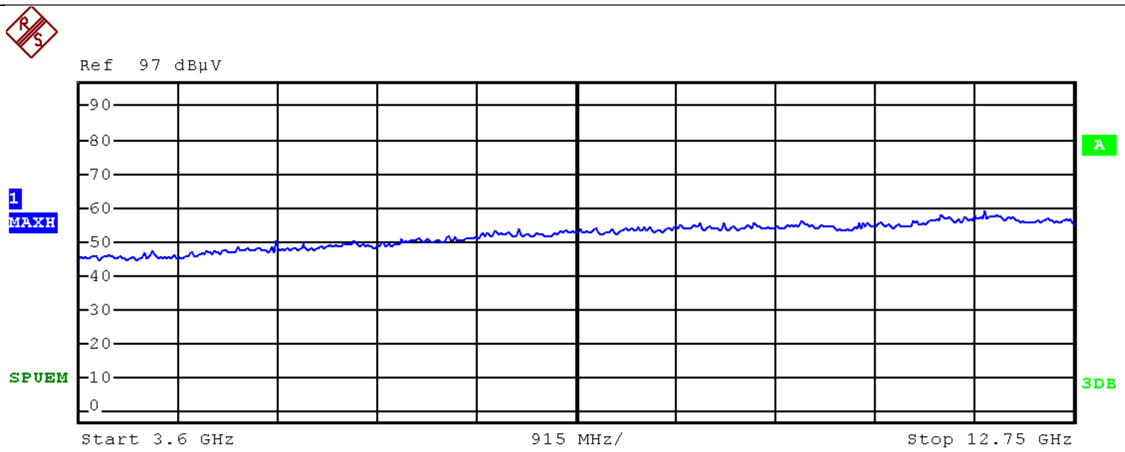


Fig B6: Radiated Emissions 1GHz - 3.6GHz Horizontal 3metres



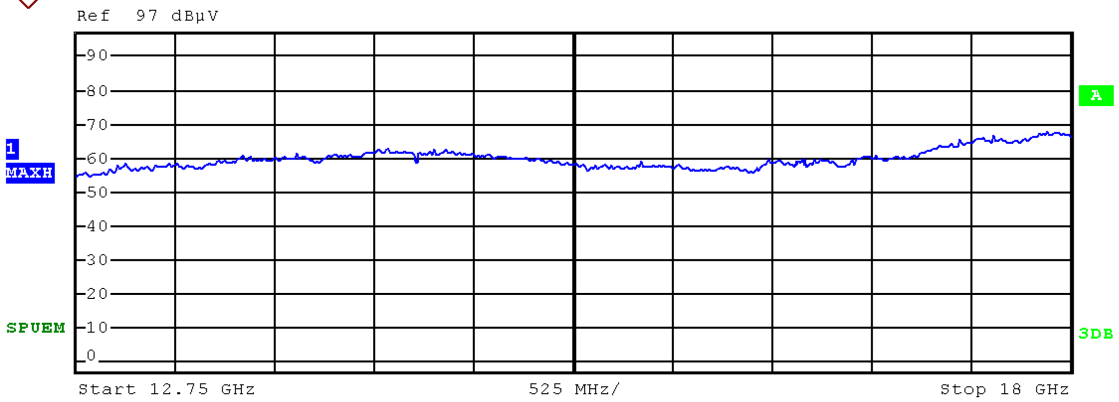
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
3.600 G	4.500 G	1.00 M	3.638025 G	-60.02	-200.00
4.500 G	5.400 G	1.00 M	5.284237 G	-57.74	-200.00
5.400 G	6.300 G	1.00 M	6.095363 G	-56.43	-200.00
6.300 G	7.200 G	1.00 M	6.920325 G	-54.81	-200.00
7.200 G	8.100 G	1.00 M	7.474050 G	-53.25	-200.00
8.100 G	9.000 G	1.00 M	8.935538 G	-51.85	-200.00
9.000 G	9.900 G	1.00 M	9.839363 G	-51.46	-200.00
9.900 G	10.800 G	1.00 M	10.783913 G	-50.59	-200.00
10.800 G	11.700 G	1.00 M	11.530800 G	-49.28	-200.00
11.700 G	12.750 G	1.00 M	12.004500 G	-48.83	-200.00

Fig B7: Radiated Emissions 3.6GHz - 12.75GHz Vertical 3metres



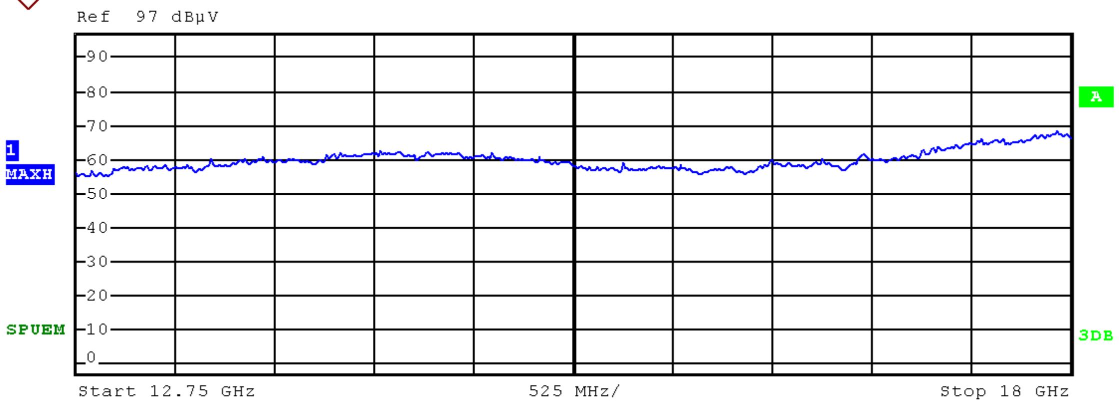
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
3.600 G	4.500 G	1.00 M	4.268700 G	-59.67	-200.00
4.500 G	5.400 G	1.00 M	5.383575 G	-58.35	-200.00
5.400 G	6.300 G	1.00 M	6.122250 G	-56.27	-200.00
6.300 G	7.200 G	1.00 M	6.988725 G	-55.35	-200.00
7.200 G	8.100 G	1.00 M	7.647188 G	-53.13	-200.00
8.100 G	9.000 G	1.00 M	8.844188 G	-52.34	-200.00
9.000 G	9.900 G	1.00 M	9.804037 G	-51.27	-200.00
9.900 G	10.800 G	1.00 M	10.245713 G	-50.85	-200.00
10.800 G	11.700 G	1.00 M	11.515950 G	-49.14	-200.00
11.700 G	12.750 G	1.00 M	11.929819 G	-48.01	-200.00

Fig B8: Radiated Emissions 3.6GHz - 12.75GHz Horizontal 3metres



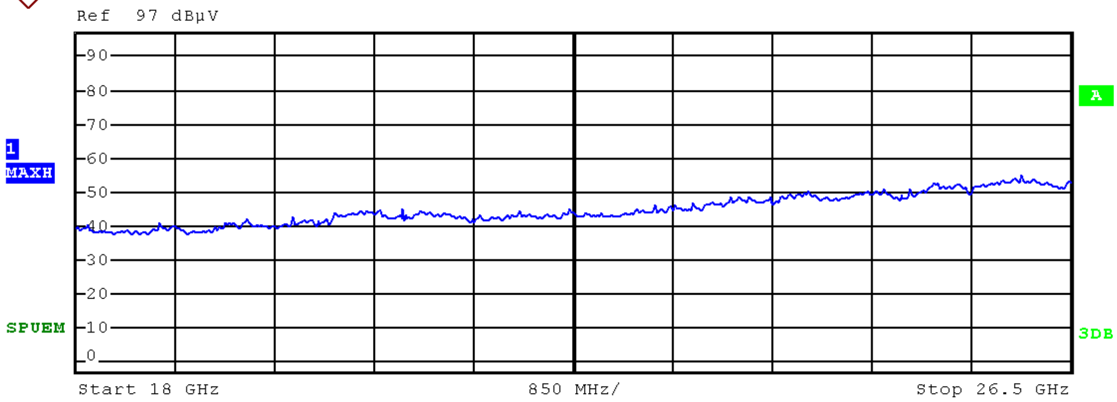
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
12.750 G	13.650 G	1.00 M	13.630988 G	-46.01	-200.00
13.650 G	14.550 G	1.00 M	14.394750 G	-43.93	-200.00
14.550 G	15.450 G	1.00 M	14.637300 G	-44.14	-200.00
15.450 G	16.350 G	1.00 M	15.733500 G	-47.88	-200.00
16.350 G	18.000 G	1.00 M	17.871300 G	-39.17	-200.00

Fig B9: Radiated Emissions 12.75GHz - 18GHz Vertical 3metres



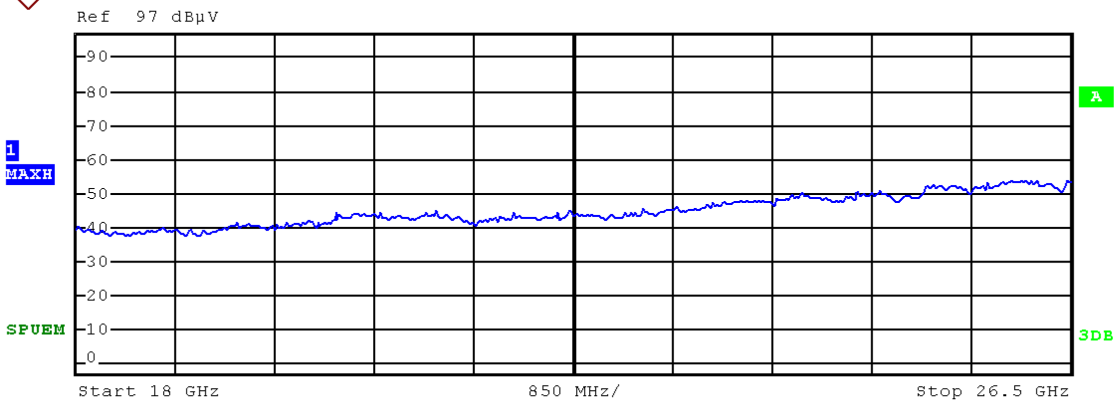
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
12.750 G	13.650 G	1.00 M	13.462463 G	-46.57	-200.00
13.650 G	14.550 G	1.00 M	14.355150 G	-44.24	-200.00
14.550 G	15.450 G	1.00 M	14.601300 G	-44.52	-200.00
15.450 G	16.350 G	1.00 M	15.641700 G	-47.63	-200.00
16.350 G	18.000 G	1.00 M	17.928225 G	-38.44	-200.00

Fig B10: Radiated Emissions 12.75GHz - 18GHz Horizontal 3metres



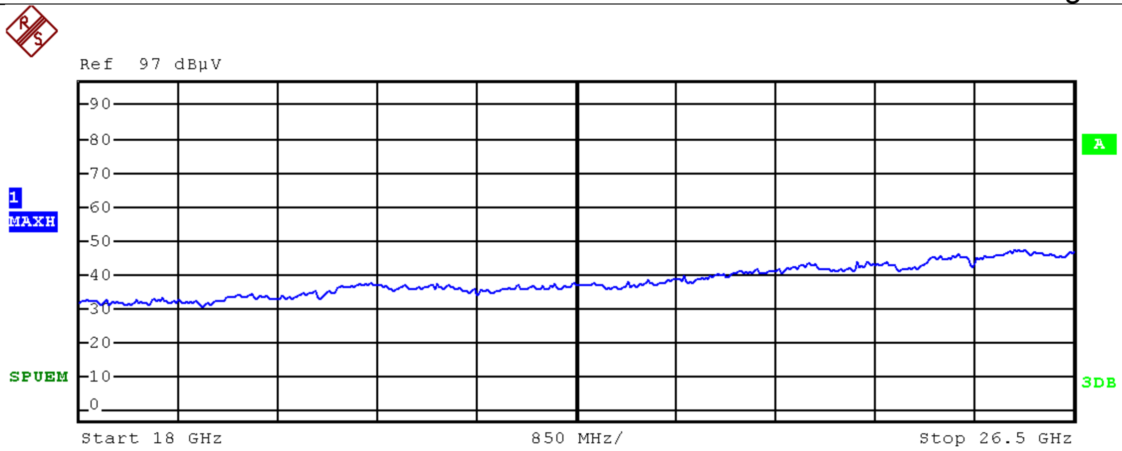
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.708475 G	-65.91	-200.00
18.850 G	19.700 G	1.00 M	19.460938 G	-64.89	-200.00
19.700 G	20.550 G	1.00 M	20.430681 G	-62.36	-200.00
20.550 G	21.400 G	1.00 M	20.788213 G	-61.94	-200.00
21.400 G	22.250 G	1.00 M	22.218231 G	-61.79	-200.00
22.250 G	23.100 G	1.00 M	22.949444 G	-60.44	-200.00
23.100 G	23.950 G	1.00 M	23.931725 G	-58.16	-200.00
23.950 G	25.650 G	1.00 M	25.363550 G	-54.10	-200.00
25.650 G	26.500 G	1.00 M	26.080313 G	-52.03	-200.00

Fig B11: Radiated Emissions 18GHz - 26.5GHz Vertical Pk 1metre



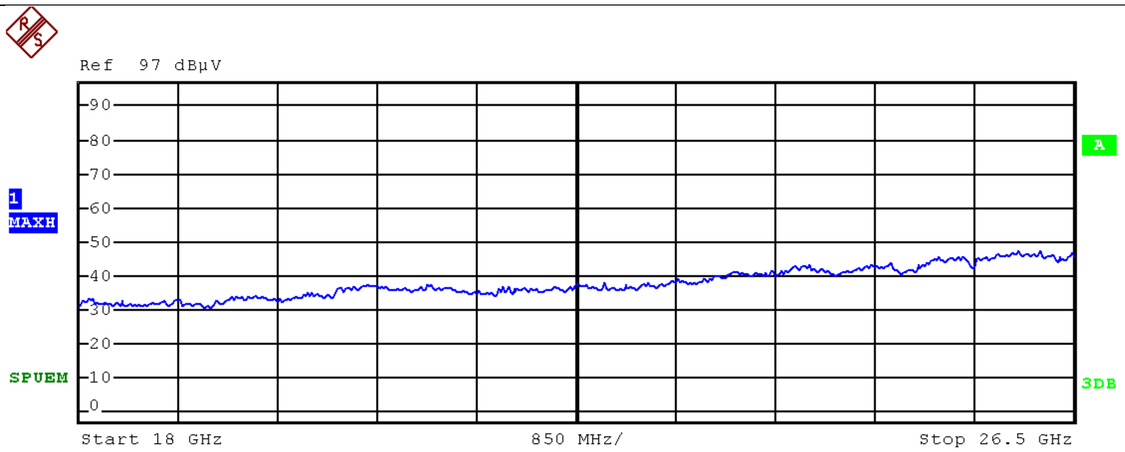
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.020187 G	-66.23	-200.00
18.850 G	19.700 G	1.00 M	19.376787 G	-65.28	-200.00
19.700 G	20.550 G	1.00 M	20.225725 G	-62.60	-200.00
20.550 G	21.400 G	1.00 M	21.083481 G	-61.82	-200.00
21.400 G	22.250 G	1.00 M	22.213663 G	-61.97	-200.00
22.250 G	23.100 G	1.00 M	22.838306 G	-61.46	-200.00
23.100 G	23.950 G	1.00 M	23.862450 G	-58.57	-200.00
23.950 G	25.650 G	1.00 M	25.322112 G	-54.05	-200.00
25.650 G	26.500 G	1.00 M	26.101669 G	-52.84	-200.00

Fig B12: Radiated Emissions 18GHz - 26.5GHz Horizontal Pk 1metre



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.711237 G	-73.49	-200.00
18.850 G	19.700 G	1.00 M	19.471881 G	-72.47	-200.00
19.700 G	20.550 G	1.00 M	20.506544 G	-69.51	-200.00
20.550 G	21.400 G	1.00 M	21.058937 G	-69.24	-200.00
21.400 G	22.250 G	1.00 M	22.242988 G	-69.12	-200.00
22.250 G	23.100 G	1.00 M	22.868056 G	-68.09	-200.00
23.100 G	23.950 G	1.00 M	23.777131 G	-65.48	-200.00
23.950 G	25.650 G	1.00 M	25.512300 G	-60.77	-200.00
25.650 G	26.500 G	1.00 M	26.073194 G	-59.32	-200.00

Fig B13: Radiated Emissions 18GHz - 26.5GHz Vertical Ave 1metre



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.082344 G	-73.37	-200.00
18.850 G	19.700 G	1.00 M	19.495787 G	-72.60	-200.00
19.700 G	20.550 G	1.00 M	20.464788 G	-69.21	-200.00
20.550 G	21.400 G	1.00 M	20.970644 G	-69.51	-200.00
21.400 G	22.250 G	1.00 M	21.678906 G	-69.81	-200.00
22.250 G	23.100 G	1.00 M	23.070356 G	-68.37	-200.00
23.100 G	23.950 G	1.00 M	23.909944 G	-65.20	-200.00
23.950 G	25.650 G	1.00 M	25.505500 G	-60.96	-200.00
25.650 G	26.500 G	1.00 M	26.026125 G	-59.47	-200.00

Fig B14: Radiated Emissions 18GHz - 26.5GHz Horizontal Ave 1metre

Appendix C: Scans for Spurious Emissions for LTE B12 and BLE

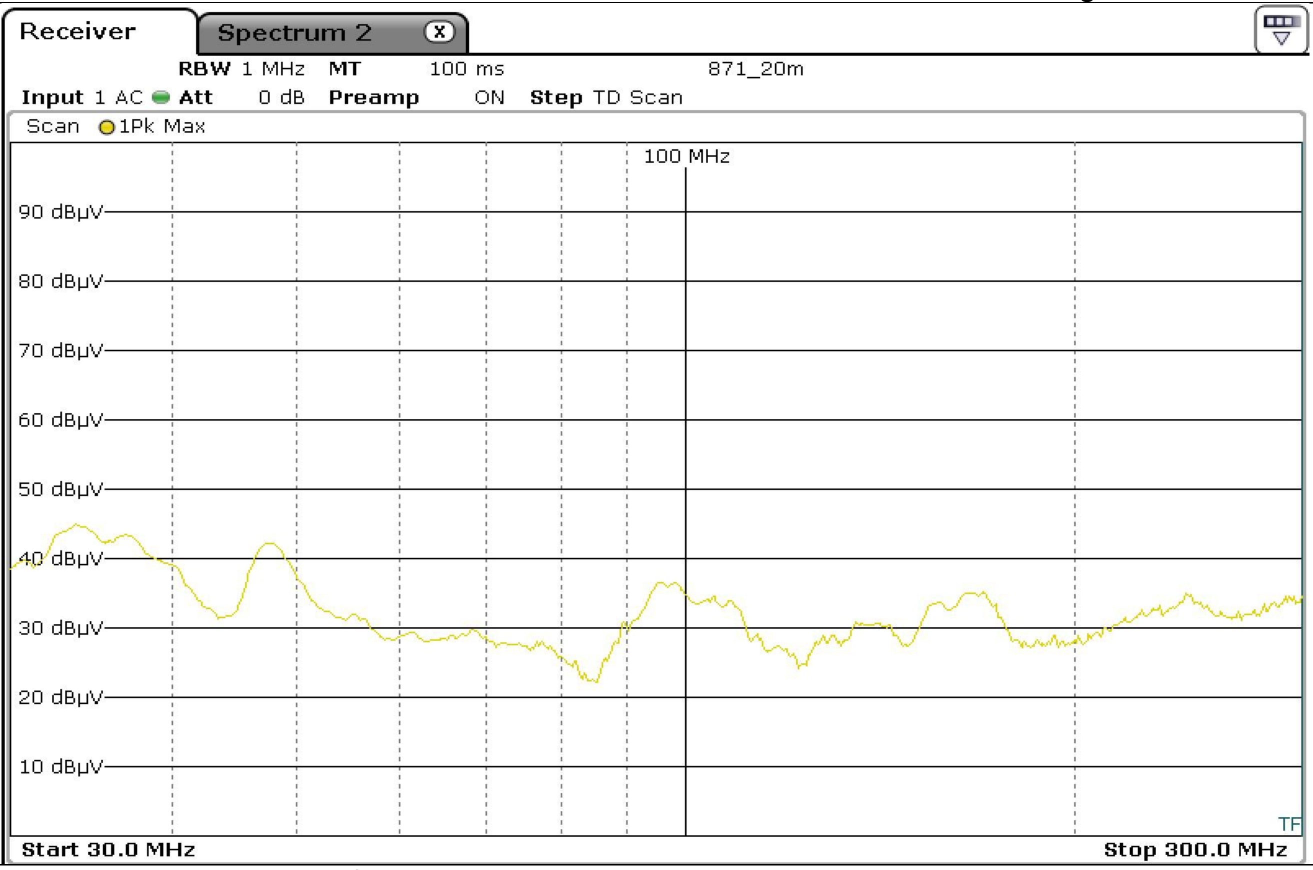


Fig C1: Radiated Emissions 30MHz - 300MHz Vertical 3metres

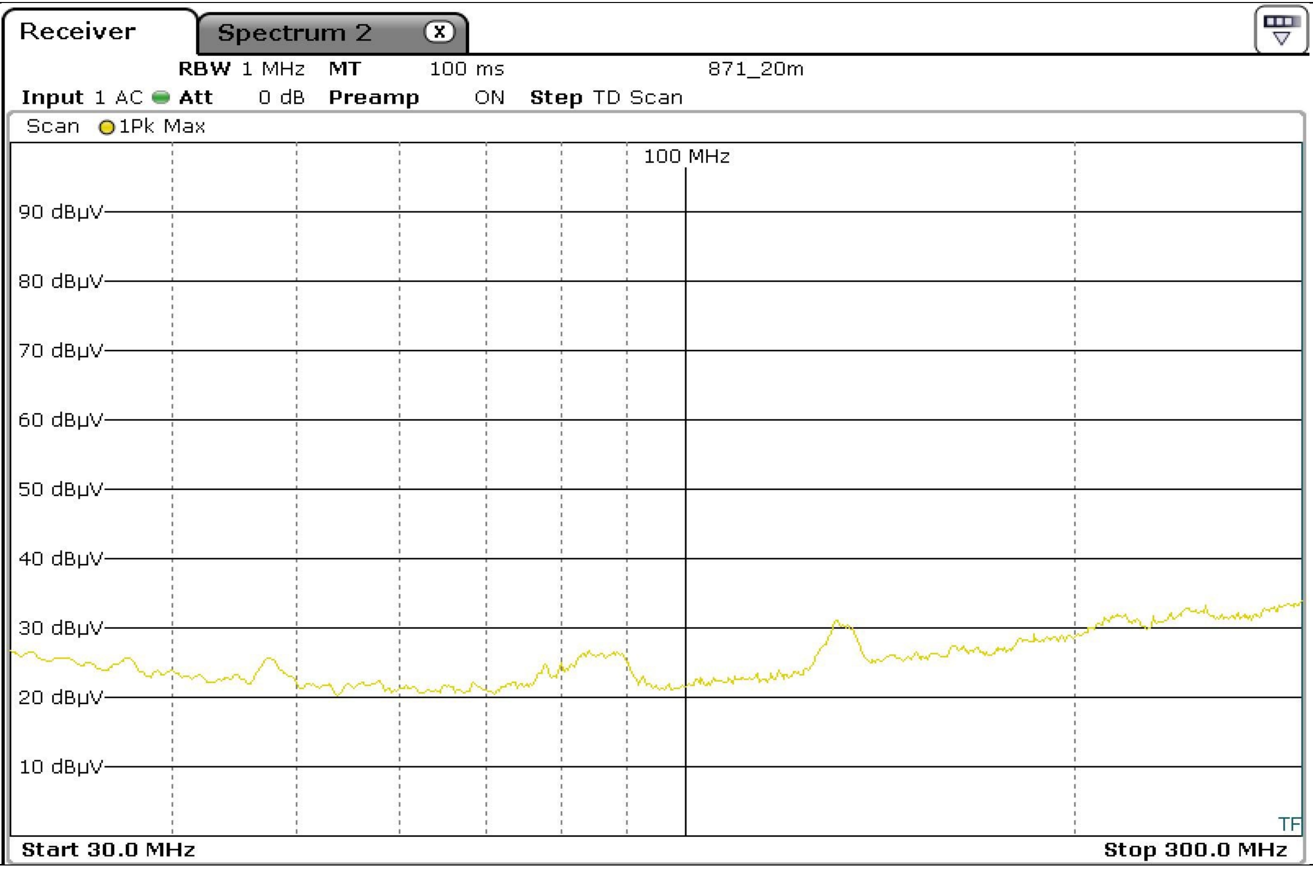


Fig C2: Radiated Emissions 30MHz - 300MHz Horizontal 3metres

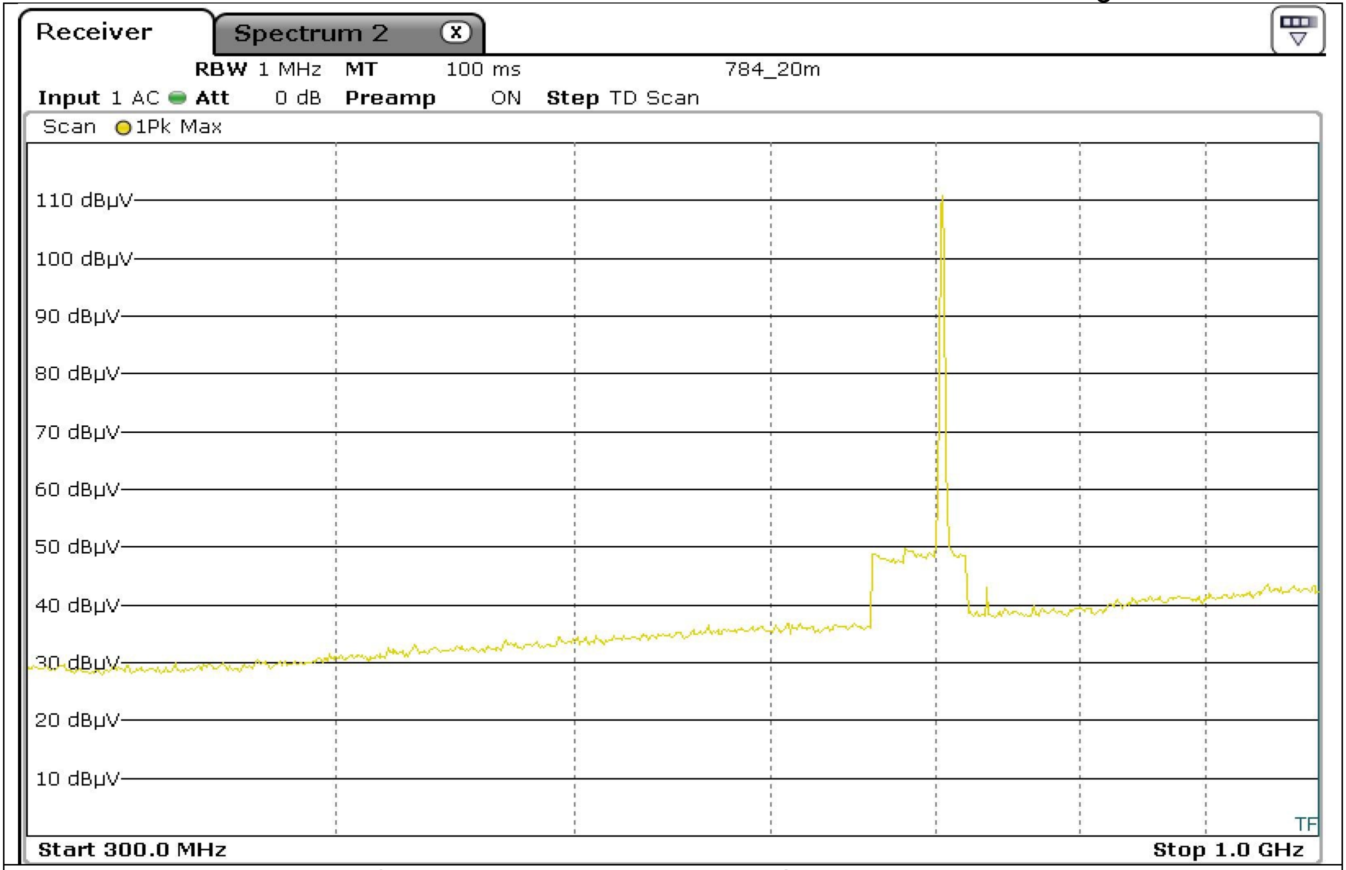


Fig C3: Radiated Emissions 300MHz - 1GHz Vertical 3metres

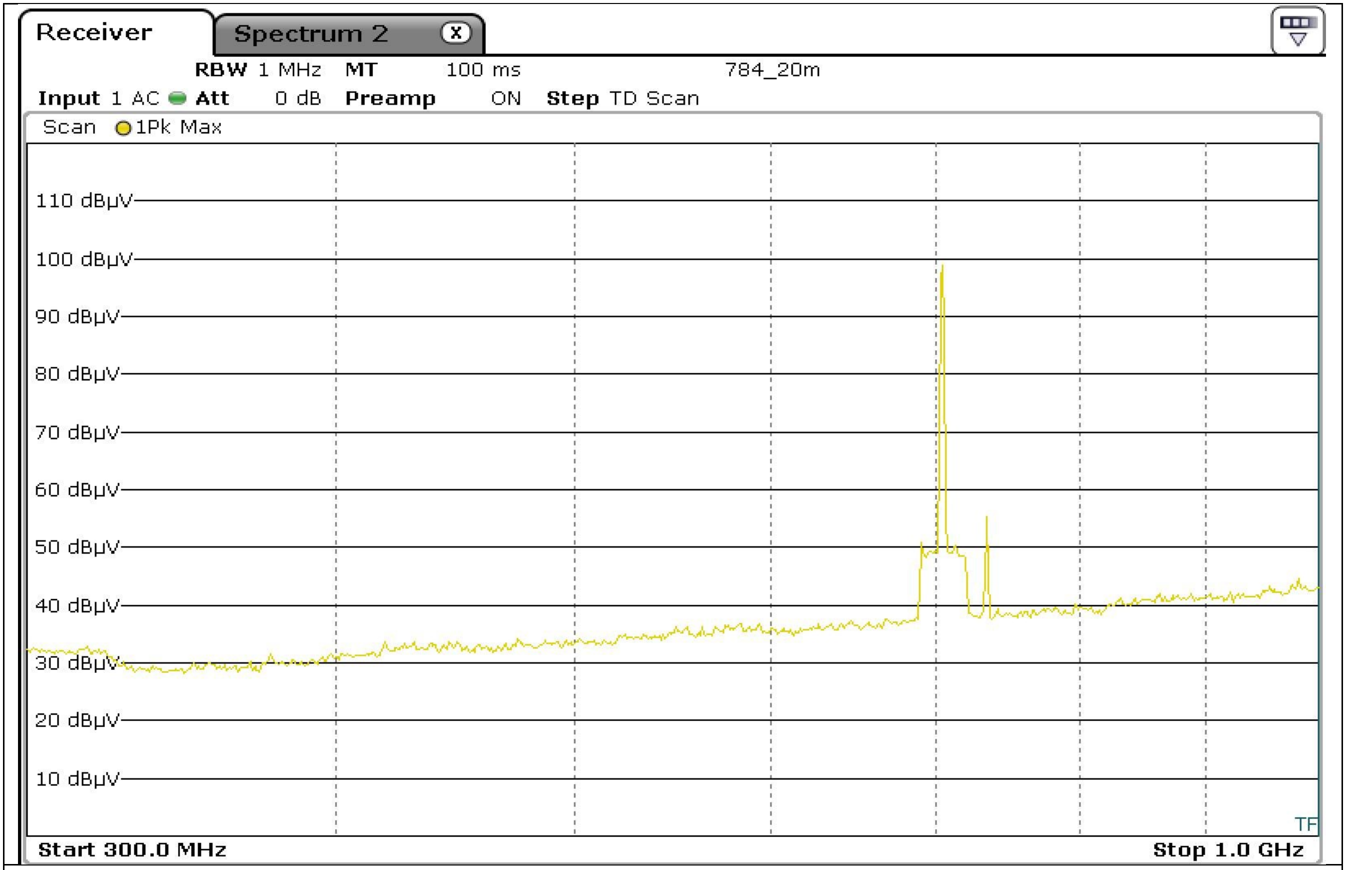


Fig C4: Radiated Emissions 300MHz - 1GHz Horizontal 3metres

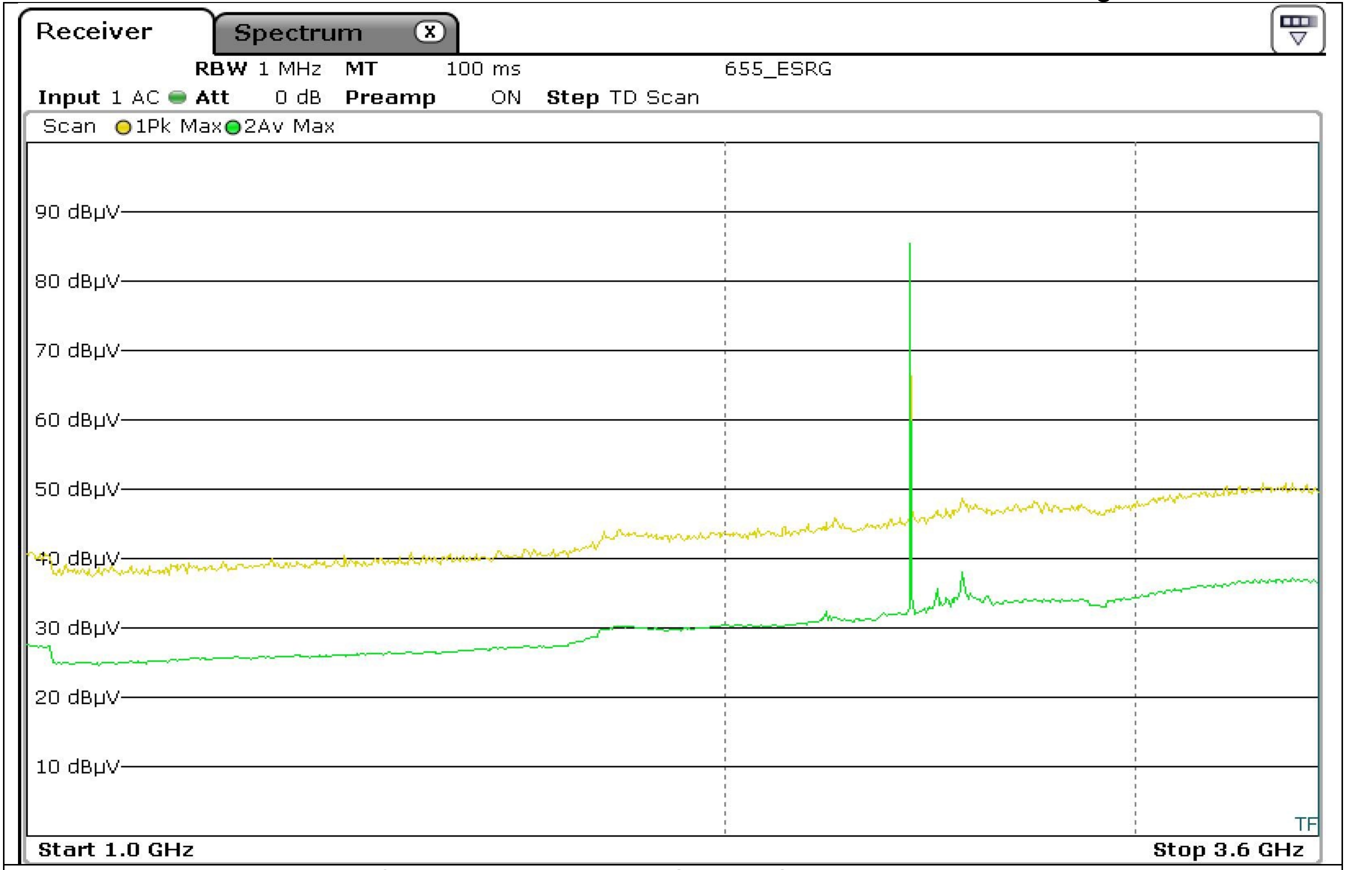


Fig C5: Radiated Emissions 1GHz - 3.6GHz Vertical 3metres

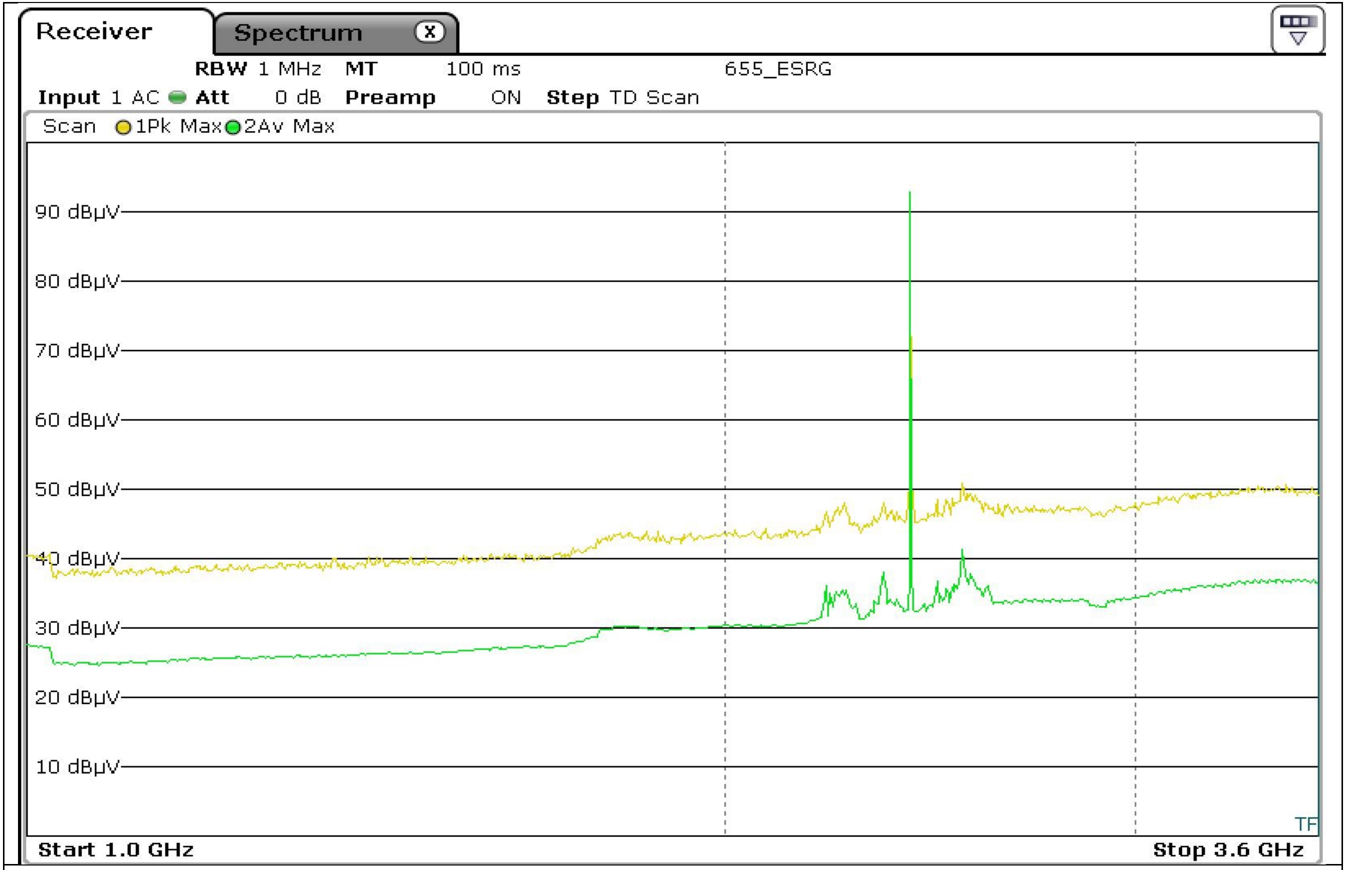
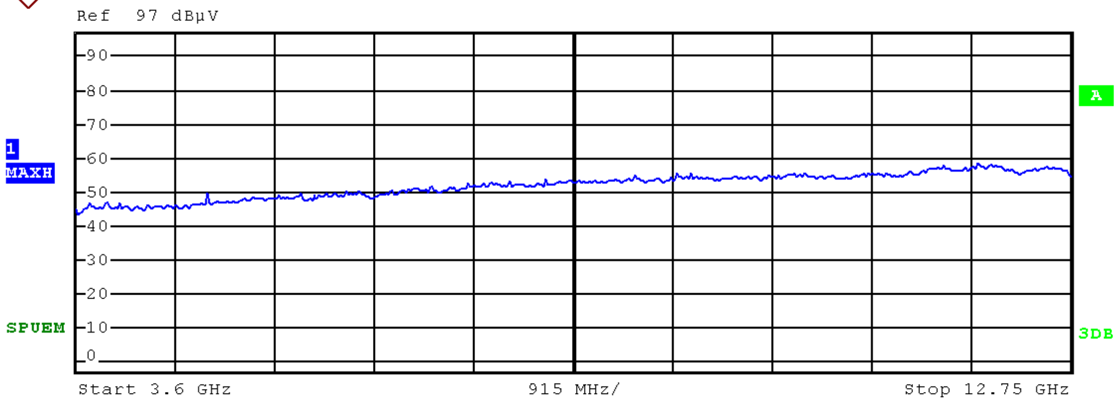
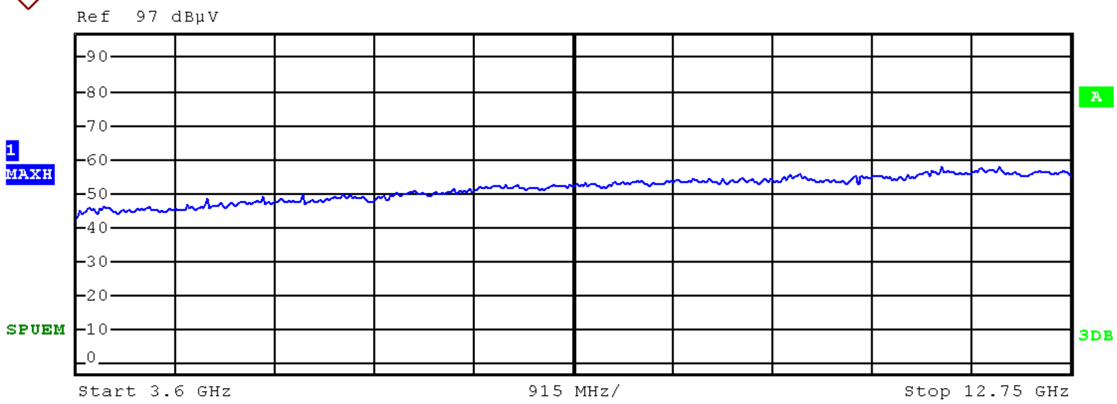


Fig C6: Radiated Emissions 1GHz - 3.6GHz Horizontal 3metres



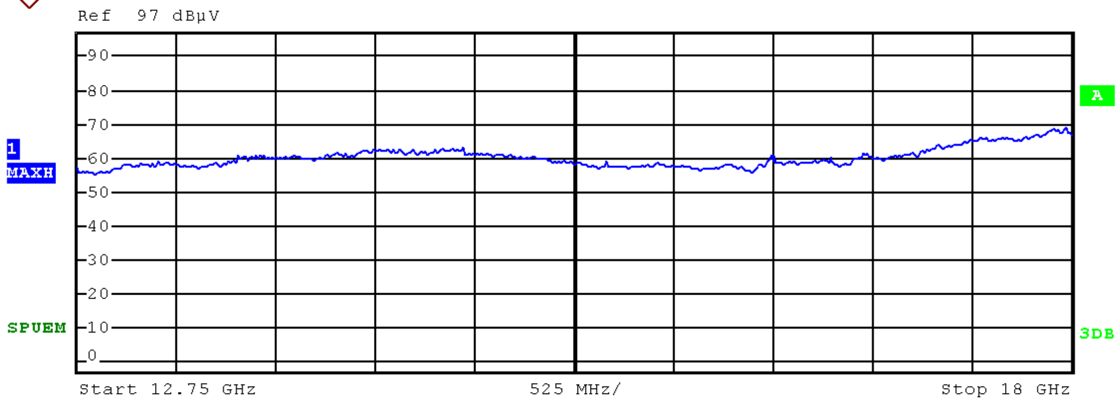
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
3.600 G	4.500 G	1.00 M	3.871237 G	-59.91	-200.00
4.500 G	5.400 G	1.00 M	4.804087 G	-57.03	-200.00
5.400 G	6.300 G	1.00 M	6.083550 G	-56.47	-200.00
6.300 G	7.200 G	1.00 M	7.040925 G	-55.19	-200.00
7.200 G	8.100 G	1.00 M	7.927425 G	-52.95	-200.00
8.100 G	9.000 G	1.00 M	8.734050 G	-51.65	-200.00
9.000 G	9.900 G	1.00 M	9.259200 G	-51.20	-200.00
9.900 G	10.800 G	1.00 M	10.215113 G	-51.25	-200.00
10.800 G	11.700 G	1.00 M	11.570063 G	-49.06	-200.00
11.700 G	12.750 G	1.00 M	11.882438 G	-48.26	-200.00

Fig C7: Radiated Emissions 3.6GHz - 12.75GHz Horizontal 3metres



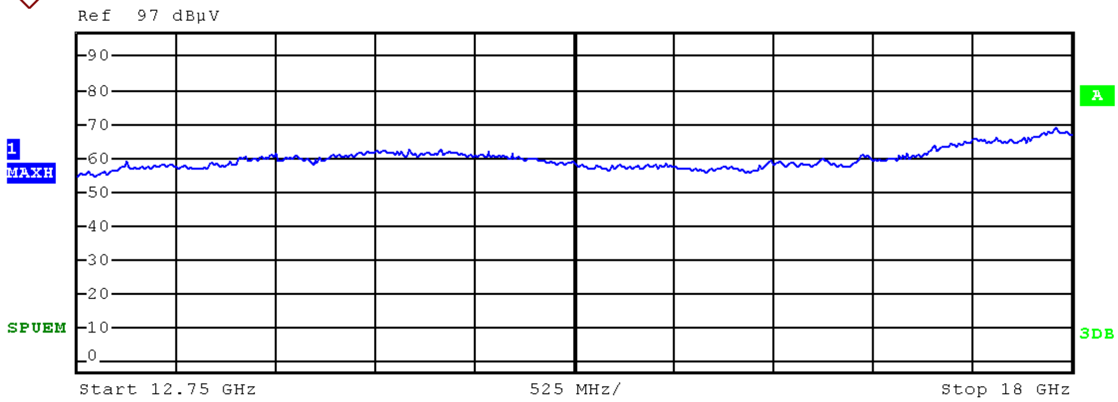
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
3.600 G	4.500 G	1.00 M	3.854250 G	-60.71	-200.00
4.500 G	5.400 G	1.00 M	5.320238 G	-57.53	-200.00
5.400 G	6.300 G	1.00 M	6.124837 G	-57.18	-200.00
6.300 G	7.200 G	1.00 M	7.082550 G	-55.04	-200.00
7.200 G	8.100 G	1.00 M	7.547850 G	-53.96	-200.00
8.100 G	9.000 G	1.00 M	8.762963 G	-52.93	-200.00
9.000 G	9.900 G	1.00 M	9.271575 G	-52.27	-200.00
9.900 G	10.800 G	1.00 M	10.248750 G	-50.95	-200.00
10.800 G	11.700 G	1.00 M	11.566575 G	-49.10	-200.00
11.700 G	12.750 G	1.00 M	12.089550 G	-48.88	-200.00

Fig C8: Radiated Emissions 3.6GHz - 12.75GHz Horizontal 3metres



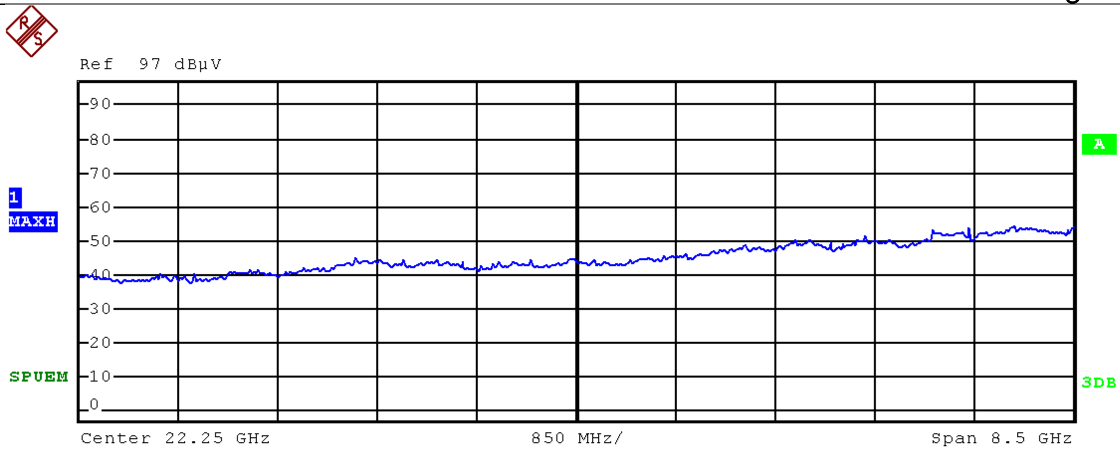
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
12.750 G	13.650 G	1.00 M	13.603650 G	-46.10	-200.00
13.650 G	14.550 G	1.00 M	14.347500 G	-44.09	-200.00
14.550 G	15.450 G	1.00 M	14.782650 G	-43.81	-200.00
15.450 G	16.350 G	1.00 M	15.544500 G	-47.68	-200.00
16.350 G	18.000 G	1.00 M	17.965350 G	-37.99	-200.00

Fig C9: Radiated Emissions 12.75GHz - 18GHz Vertical 3metres



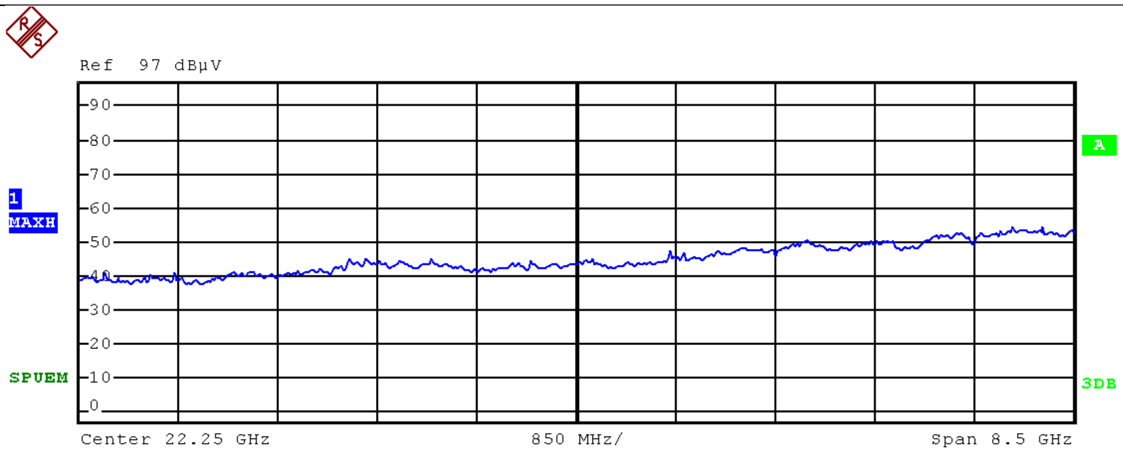
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
12.750 G	13.650 G	1.00 M	13.628963 G	-46.31	-200.00
13.650 G	14.550 G	1.00 M	14.503650 G	-44.37	-200.00
14.550 G	15.450 G	1.00 M	14.667450 G	-44.43	-200.00
15.450 G	16.350 G	1.00 M	15.861750 G	-48.19	-200.00
16.350 G	18.000 G	1.00 M	17.915850 G	-37.79	-200.00

Fig C10: Radiated Emissions 12.75GHz - 18GHz Horizontal 3metres



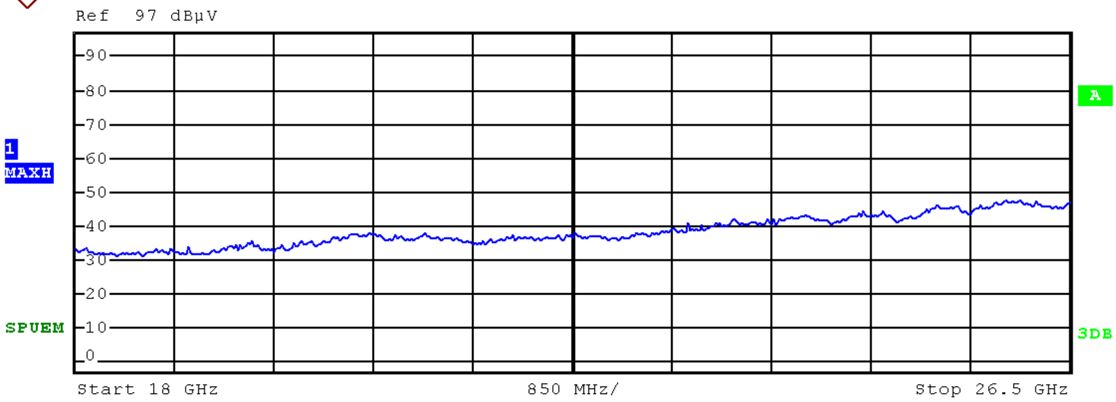
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.690731 G	-66.51	-200.00
18.850 G	19.700 G	1.00 M	19.454350 G	-65.40	-200.00
19.700 G	20.550 G	1.00 M	20.356731 G	-61.93	-200.00
20.550 G	21.400 G	1.00 M	21.065419 G	-62.33	-200.00
21.400 G	22.250 G	1.00 M	22.217275 G	-62.06	-200.00
22.250 G	23.100 G	1.00 M	23.071950 G	-61.27	-200.00
23.100 G	23.950 G	1.00 M	23.694788 G	-58.05	-200.00
23.950 G	25.650 G	1.00 M	25.595388 G	-53.06	-200.00
25.650 G	26.500 G	1.00 M	25.998075 G	-52.13	-200.00

Fig C11: Radiated Emissions 18GHz - 26.5GHz Vertical Pk 1metre



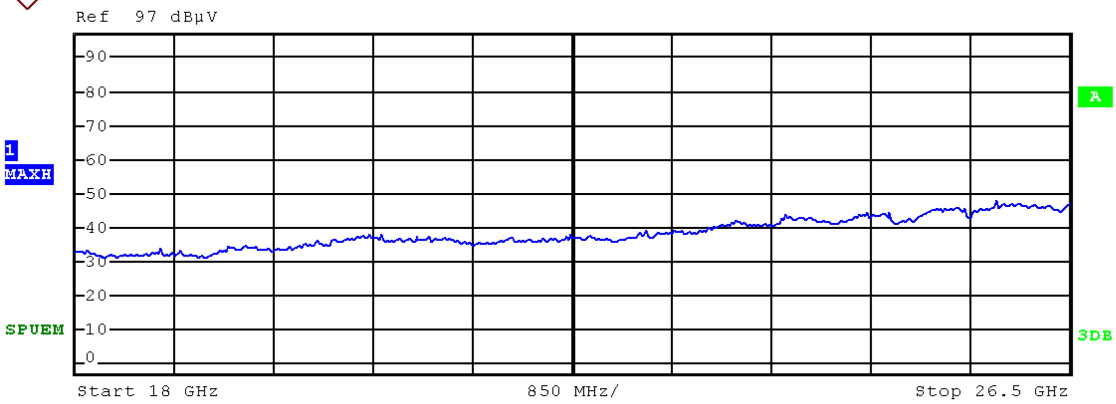
Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.221956 G	-65.89	-200.00
18.850 G	19.700 G	1.00 M	19.469650 G	-65.87	-200.00
19.700 G	20.550 G	1.00 M	20.307219 G	-62.03	-200.00
20.550 G	21.400 G	1.00 M	21.011763 G	-61.93	-200.00
21.400 G	22.250 G	1.00 M	21.863888 G	-62.51	-200.00
22.250 G	23.100 G	1.00 M	23.043900 G	-59.61	-200.00
23.100 G	23.950 G	1.00 M	23.665250 G	-58.77	-200.00
23.950 G	25.650 G	1.00 M	25.503587 G	-53.88	-200.00
25.650 G	26.500 G	1.00 M	25.978525 G	-52.67	-200.00

Fig C12: Radiated Emissions 18GHz - 26.5GHz Horizontal Pk 1metre



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.694663 G	-73.21	-200.00
18.850 G	19.700 G	1.00 M	19.512256 G	-71.18	-200.00
19.700 G	20.550 G	1.00 M	20.513769 G	-68.95	-200.00
20.550 G	21.400 G	1.00 M	20.987112 G	-69.01	-200.00
21.400 G	22.250 G	1.00 M	22.201338 G	-69.12	-200.00
22.250 G	23.100 G	1.00 M	23.097981 G	-68.24	-200.00
23.100 G	23.950 G	1.00 M	23.915469 G	-64.87	-200.00
23.950 G	25.650 G	1.00 M	25.365038 G	-60.35	-200.00
25.650 G	26.500 G	1.00 M	26.058638 G	-59.22	-200.00

Fig C13: Radiated Emissions 18GHz - 26.5GHz Vertical Ave 1metre



Start [Hz]	Stop [Hz]	RBW [Hz]	Freq [Hz]	PwrAbs [dBm]	ΔLimit [dB]
18.000 G	18.850 G	1.00 M	18.723881 G	-73.08	-200.00
18.850 G	19.700 G	1.00 M	19.311975 G	-72.15	-200.00
19.700 G	20.550 G	1.00 M	20.516425 G	-68.96	-200.00
20.550 G	21.400 G	1.00 M	20.614919 G	-68.99	-200.00
21.400 G	22.250 G	1.00 M	22.243306 G	-68.51	-200.00
22.250 G	23.100 G	1.00 M	22.879106 G	-67.76	-200.00
23.100 G	23.950 G	1.00 M	23.648675 G	-64.96	-200.00
23.950 G	25.650 G	1.00 M	25.532487 G	-61.10	-200.00
25.650 G	26.500 G	1.00 M	25.873763 G	-58.62	-200.00

Fig C14: Radiated Emissions 18GHz - 26.5GHz Horizontal Ave 1metre

Ref report “Alps 24E10894-2a Hati BLE and Cellular FCCIC Part 2 of 2” for Appendices D,E,F,G,H