

RF-TEST REPORT

- FCC Part 15.247, RSS-247, partly -

Type / Model Name	: <u>PRA 91 (02)</u>
Product Description	: Automatic Tripod
Applicant	: Hilti Corporation
Address	: Feldkircherstrasse 100
	9494 SCHAAN, LIECHTENSTEIN
	Hilti Corporation Feldkircherstrasse 100
	9494 SCHAAN, LIECHTENSTEIN

Test Result according to the standards listed in clause 1 test standards:	POSITIVE
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Test Report No. :	80183250-04 Rev 1	03. December 2024
	00100200 04 10021	Date of issue



CSA Group Bayern GmbH Straubinger Straße 100 · 94447 Plattling · GERMANY Tel.:+49(0)9931-98360 File No. 80183250-04 Rev_1, page 1 of 29



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ATTACHMENTS A and B as separate supplement



1 <u>TEST STANDARDS</u>

The tests were performed according to following standards:

FCC Rules and Regulations Part 15, Subpart Part 15, Subpart A, Section 15.31	t A - General (May 2024) Measurement standards
Part 15, Subpart A, Section 15.33	Frequency range of radiated measurements
Part 15, Subpart A, Section 15.35	Measurement detector functions and bandwidths
FCC Rules and Regulations Part 15, Subpart Part 15, Subpart C, Section 15.203	t C - Intentional Radiators (May 2024) Antenna requirement
Part 15, Subpart C, Section 15.204 modifications	External radio frequency power amplifiers and antenna
Part 15, Subpart C, Section 15.205	Restricted bands of operation
Part 15, Subpart C, Section 15.207	Conducted limits
Part 15, Subpart C, Section 15.209	Radiated emission limits, general requirements
Part 15, Subpart C, Section 15.247	Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz
ANSI C63.10: 2013	Testing Unlicensed Wireless Devices
ETSI TR 100 028 V1.3.1: 2001-03,	Electromagnetic Compatibility and Radio Spectrum Matters (ERM); Uncertainties in the Measurement of Mobile Radio Equipment Characteristics—Part 1 and Part 2
KDB 558074 D01 v05r02	Guidance for compliance measurements on DTS; FHSS and hybrid system devices operating under Section 15.247 of the FCC rules, April 2, 2019.



2 EQUIPMENT UNDER TEST

2.1 Information provided by the Client

Please note, we do not take any responsibility for information provided by the client or his representative which may have an influence on the validity of the test results.

2.2 Sampling

The customer is responsible for the choice of sample. Sample configuration, start-up and operation is carried out by the customer or according his/her instructions.

2.3 General remarks:

This report covers the emissions of the Hilti BLE Module "2392755" in combination with the host device PRA 91 (02).

2.4 Photo documentation of the EUT – Detailed photos see ATTACHMENT A

2.5 Equipment type

BLE device

2.6 Short description of the equipment under test (EUT)

The PRA 91 is an automatic tripod onto which a rotating laser can be fitted. The tripod can be moved upwards and downwards using a remote control unit. Using the tripod and the rotating laser fitted to it, a horizontal laser plane can be established which is directed onto a particular target height. Examples of applications using the rotating laser are the transfer of meter marks, horizontal alignment at a target height or the examination of horizontal heights. The combination of the automatic tripod, the rotating laser and the laser receiver enables a laser plane to be automatically aligned onto a precise point. In this operation, only the target height has to be indicated using the laser receiver and the automatic tripod moves the laser plane of the rotating laser exactly to the required height.

Number of tested samples:	1
Serial number:	Sample for testing
Firmware version:	1.1.0-264

2.7 Variants of the EUT

There are no variants.



2.8 Operation frequency and channel plan

The operating frequency is 2400 MHz to 2483.5 MHz.

Channel plan:

Channel No.	Frequency (MHZ)	Channel No.	Frequency (MHZ)
37	2402	18	2442
0	2404	19	2444
1	2406	20	2446
2	2408	21	2448
3	2410	22	2450
4	2412	23	2452
5	2414	24	2454
6	2416	25	2456
7	2418	26	2458
8	2420	27	2460
9	2422	28	2462
10	2424	29	2464
38	2426	30	2466
11	2428	31	2468
12	2430	32	2470
13	2432	33	2472
14	2434	34	2474
15	2436	35	2476
16	2438	36	2478
17	2440	39	2480

Note: the marked frequencies are determined for final testing.

2.9 Transmit operating modes

The EUT uses GFSK modulation and may provide following data rates:

- 125 kbps

2.10 Antenna

The following antenna shall be used with the EUT:

Number	Characteristic	Model number	Plug	Frequency range (GHz)	Gain (dBi)
1	Omni	PCB inverted F antenna	PCB	2.4 – 2.5	1.1

2.11 Power supply system utilised

Power supply voltage, V_{nom} : 7.2 V DC

(kbps = kilobits per second)

2.12 Peripheral devices and interface cables

The following peripheral devices and interface cables are connected during the measurements:

- Battery adapter incl. USB and DC cables Model : Made by applicant
- Notebook Model : HP EliteBook 840

2.13 Determination of worst-case conditions for final measurement

Preliminary tests are performed in all three orthogonal axes of the EUT to locate at which position and at what setting of the EUT produce the maximum of the emissions.

The tests are carried out in the following frequency band:

2400 MHz – 2483.5 MHz

For the final test the following channels and test modes are selected:

Wireless system	Available channel	Tested channels	Modulation	Modulation type	Data rate
802.15.1	0 - 39	37, 39	DSSS	GFSK	125 kbps

2.13.1 Test jig

No test jig is used.

2.13.2 Test software

The applicant provides a special software that allows enabling a continuous transmission modulated and receiving mode for the test samples.

3 TEST RESULT SUMMARY

FCC Rule Part	RSS Rule Part	Description	Result
15.207(a)	RSS-Gen, 8.8	AC power line conducted emissions	Not applicable
15.247(a)(2)	RSS-247, 5.2.(a)	-6 dB EBW	Not tested
15.247(b)(3)	RSS-247, 5.2(d)	Maximum peak conducted output power	Passed
15.247(b)(4)	-	Defacto limit	Not tested
15.247(d)	RSS-247, 5.5	Out-of-band emission, radiated	Passed
15.247(d)	RSS-Gen, 8.9	Emissions in restricted bands	Passed
15.247(e)	RSS-247, 5.2(b)	PSD	Not tested
15.35(c)	RSS-Gen, 6.10	Pulsed operation	Not tested
15.203	RSS-Gen, 6.6	Antenna requirement	Passed
-	RSS-Gen, 6.11	Transmitter frequency stability	Not tested
-	RSS-Gen, 6.6	99 % Bandwidth	Not tested

The mentioned new RSS Rule Parts in the above table are related to: RSS-Gen, Issue 5 + Amendment 1 + Amendment 2, March 2019 RSS-247, Issue 3, August 2023

3.1 Revision history of test report

Test report No	Rev.	Issue Date	Changes	
0		24 June 2024	Initial test report	
80183250-04	1	03 December 2024	clause 3: correction of references in summary table clause 4.5.3.2.4: correction of table height clause 5: removing test setup photos, see attachment B clause 5.3: clarification of measurement procedure	

The test report with the highest revision number replaces the previous test reports.



3.2 Final assessment

The equipment under test fulfills the requirements cited in clause 1 test standards.

Date of receipt of test sample : acc.

: acc. to storage records

Testing commenced on

: 27 May 2024

: 12 June 2024

Testing concluded on

Checked by:

Tested by:

Klaus Gegenfurtner Teamleader Radio Franz-Xaver Schrettenbrunner Radio Team



4 TEST ENVIRONMENT

4.1 Address of the test laboratory

CSA Group Bayern GmbH Ohmstrasse 1-4 94342 STRASSKIRCHEN GERMANY

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15 - 35 °C

Humidity: <u>30 - 60 %</u>

Atmospheric pressure: 86 - 106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor k = 2. The true value is located in the corresponding interval with a probability of 95 %. The measurement uncertainty was calculated for all measurements listed in this test report on basis of the ETSI Technical Report TR 100 028 Electromagnetic compatibility and Radio spectrum Matters (ERM); Uncertainties in the measurement of mobile radio equipment characteristics; Part 1 and Part 2. The results are documented in the quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Measurement Type	Range	Confidence Level	Calculated Uncertainty
AC power line conducted emissions	0.15 MHz to 30 MHz	95%	± 3.29 dB
EBW and OBW	2400 MHz to 3000 MHz	95%	± 2.5 x 10 ⁻⁷
Maximum peak conducted output power	2400 MHz to 3000 MHz	95%	± 0.62 dB
Power spectral density	2400 MHz to 3000 MHz	95%	± 0.62 dB
Conducted Spurious Emissions	9 kHz to 10000 MHz	95%	± 2.15 dB
Conducted Spurious Emissions	10000 MHz to 40000 MHz	95%	± 3.47 dB
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	± 3.53 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	± 3.71 dB
Radiated Spurious Emissions	1000 MHz to 30000 MHz	95%	± 2.34 dB
Field strength of the fundamental	100 kHz to 100 MHz	95%	± 3.53 dB



4.4 Conformity Decision Rule

The applied conformity decision rule is based on ILAC G8:09/2019 clause 4.2.1 Binary Statement for Simple Acceptance Rule (w = 0). Details can be found in the procedure CSA B V50 29.

4.5 Measurement protocol for FCC and ISED

4.5.1 General information

CSA Group Bayern GmbH is recognized as wireless testing laboratory under the CAB identifier:

FCC: DE 0011 ISED: DE0009

4.5.2 General Standard information

The test methods used comply with ANSI C63.10 - "Testing Unlicensed Wireless Devices".

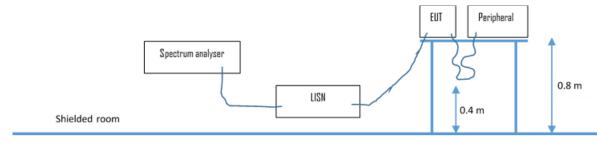
4.5.2.1 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions.

4.5.3 Details of test procedures

4.5.3.1 Conducted emission

Test setup according ANSI C63.10



Non-conducted support

The final level, expressed in $dB\mu V$, is arrived at by taking the reading directly from the Spectrum analyser. This level is compared to the limit.

To convert between $dB\mu V$ and μV , the following conversions apply:

 $dB\mu V = 20(\log \mu V)$ $\mu V = Inverse \log(dB\mu V/20)$

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection and a Line Impedance Stabilization Network (LISN) with 50 Ω / 50 μ H (CISPR 16) characteristics. The receiver is protected by means of an impedance matched pulse limiter connected directly to the RF input. Table top equipment is placed on a non-conducting table 80 centimetres above the floor and is positioned 40 centimetres from the vertical ground plane (wall) of the screen room. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emission is re-measured using a tuned receiver with quasipeak and average detection and recorded on the data sheets.

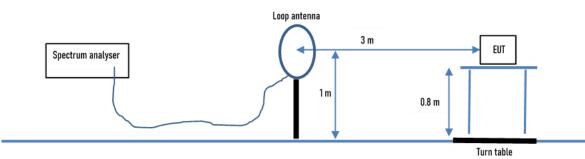
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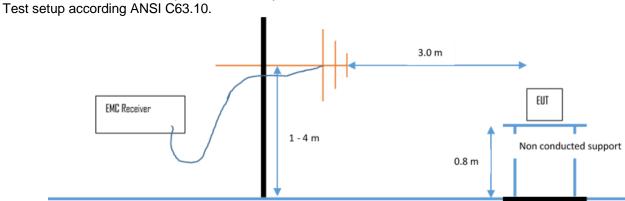
4.5.3.2 <u>Radiated emission</u> 4.5.3.2.1 OATS1 test site (9 kHz - 30 MHz):

Test setup according ANSI C63.10



Emissions from the EUT are measured in the frequency range of 9 MHz to 30 MHz using a tuned receiver and a calibrated loop antenna. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. The antenna is positioned 3, 10 or 30 metres horizontally from the EUT and is repeated vertically. To locate maximum emissions from the test sample the antenna is varied along the site axis and the EUT is rotated 360 degrees.

4.5.3.2.2 OATS1 test site (30 MHz - 1 GHz):



Spurious emissions from the EUT are measured in the frequency range of 30 MHz to 1000 MHz using a tuned receiver and appropriate broadband linearly polarised antennas. Measurements between 30 MHz and 1000 MHz are made with 120 kHz/6 dB bandwidth and quasi-peak detection. Table top equipment is placed on a 1.0 X 1.5 m non-conducting table 80 centimetres above the ground plane. Floor standing equipment is placed directly on the turntable/ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screened room located outside the test area. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 metres and the EUT is rotated 360 degrees. The final level in dB μ V/m is calculated by taking the reading from the EMI receiver (Level dB μ V) and adding the correction factors and cable loss factor (dB). The FCC limit is subtracted from this result in order to provide the limit margin listed in the measurement protocol.

The resolution bandwidth setting: 30 MHz – 1000 MHz: RBW: 120 kHz

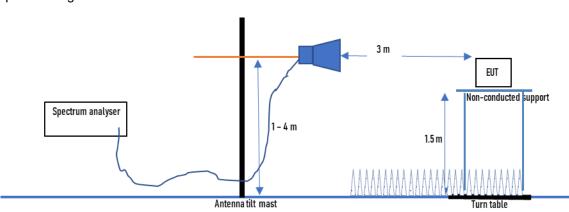
Example:

с.									
Frequency	Level	+	Factor	=	Level	-	Limit	=	Delta
(MHz)	(dBµV)		(dB)		(dBµV/m)		(dBµV/m)		(dB)
719.0	75.0	+	32.6	=	107.6	-	110.0	=	-2.4



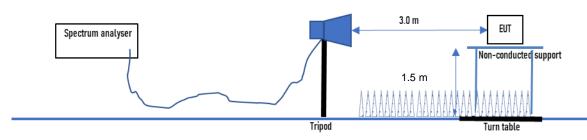
4.5.3.2.3 Anechoic chamber 1 (1000 MHz – 18000 MHz)

Test setup according ANSI C63.10.



Radiated emissions from the EUT are measured in the frequency range 1 GHz up to 18 GHz as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a non-conducting table, 1.5 metre above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12). Any controlling device is positioned such that it does not significantly influence the measurement results. Interconnecting cables that hang closer than 40 cm to the ground plane are folded back and forth in the centre, forming a bundle 30 cm to 40 cm long. Measurements are made in in three orientations of the EUT and the horizontal and vertical polarization planes of measurement antenna in a fully anechoic room. The measurement antenna is adjusted and the EUT orientated to permit the measurement of the maximum emission from the EUT. The conditions determined as worst-case will then be used for the final measurements.

4.5.3.2.4 Anechoic chamber 1 (18 GHz – 40 GHz)



Emissions from the EUT are measured in the frequency range 18 GHz up to 40 GHz as specified in 47 CFR Part 15, Subpart A, Section 15.33, using a spectrum analyser and appropriate linearly polarized antennas. Table top equipment is placed on a non-conducting table, 1.5 metre above the ground plane. The turntable is fully covered with the appropriate absorber (Type VHP-12). Any controlling device is positioned such that it does not significantly influence the measurement results. Interconnecting cables that hang closer than 40 cm to the ground plane are folded back and forth in the centre, forming a bundle 30 cm to 40 cm long. Measurements are made in in three orientations of the EUT and the horizontal and vertical polarization planes of measurement antenna in a fully anechoic room. The measurement antenna is adjusted and the EUT orientated to permit the measurement of the maximum emission from the EUT. The conditions determined as worst-case will then be used for the final measurements. Where appropriate, the test distance may be reduced in order to detect emissions under better uncertainty. The limit is adopted.



5 TEST CONDITIONS AND RESULTS

5.1 Maximum peak radiated output power

For test instruments and accessories used see section 6 Part CPR 3.

5.1.1 Description of the test location

Test location: Anechoic chamber 1

5.1.2 Photo documentation of the test set-up – Detailed photos see attachment B

5.1.3 Applicable standard

According to FCC Part 15, Section 15.247(b)(3): According to FCC Part 15, Section 15.247(b)(3): The maximum peak conducted output power of the intentional radiator shall not exceed the following: For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

5.1.4 Description of Measurement

The maximum peak radiated output power is measured using a spectrum analyser following the procedure set out in ANSI C63.10, item 11.9.2.2. The EUT is set in TX continuous mode while measuring. The radiated measurement was performed in terms of fieldstrength. Therefore, the formula set out in ANSI C63.10, item 9.5 (Equation 22) is changed into the following term:

 $\mathsf{E} = \mathsf{EIRP} - (20^* \log_{10}(3)) + 104.7$



5.1.5 Test result

			Test results	s radiated	
802.15.1, 12	25 kbps, TX	Fieldstrength E (dBµV/m)	EIRP (dBm)	EIRP Limit (dBm)	Margin (dB)
Lowest frequen	cy: CH37				
$T_{\sf nom}$	Vnom	106.3	11.1	36.0	-24.9
Highest frequer	ncy: CH39				
$T_{\sf nom}$	Vnom	105.6	10.4	36.0	-24.6

Peak Power Limit according to FCC Part 15, Section 15.247(b)(3):

Frequency	Peak Pov	ver Limit
(MHz)	(dBm)	(W)
902-928	36	4.0
2400-2483.5	36	4.0
5725-5850	36	4.0

The requirements are FULFILLED.

None.

Remarks:

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5.2 Radiated emissions in restricted bands

For test instruments and accessories used see section 6 Part SER 2, SER 3.

5.2.1 Description of the test location

Test location:OATS 1Test location:Anechoic chamber 1

3 m

Test distance:

5.2.2 Photo documentation of the test set-up – Detailed photos see attachment B

5.2.3 Applicable standard

According to FCC Part 15, Section 15.205(a): In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a).

5.2.4 Description of Measurement

The restricted bands are measured radiated. The span of the spectrum analyser is set wide enough to capture the restricted band and measure the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation. The restricted bands are measured falling emissions into it and the nearest restricted band are checked for emissions also the restricted band for the harmonics of the carrier.

Test receiver settings for SER2: RBW: 120 MHz, Detector: Quasi peak, Mes. Time: 1 s,

Spectrum analyser settings for SER3: RBW: 1 MHz, VBW: 3 MHz, Detector: Max. peak, Trace: Max. hold, Sweep: Auto

5.2.5 Test result

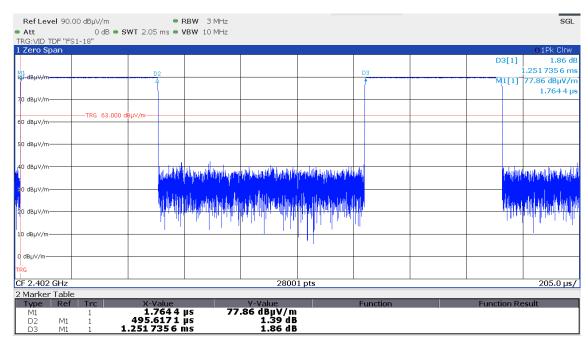
f < 1000 MHz

Frequency (MHz)	Reading Vert. (dBµV)	Reading Hor. (dBµV)	Correct. Vert. (dB)	Correct. Hor. (dB)	Level Vert. (dBµV/m)	Level Hor. (dBµV/m)	Limit (dBµV/m)	Dlimit (dB)
84.00	16.2	3.9	13.8	13.7	30.0	17.6	40.0	-10.0
119.89	1.1	2.2	17.3	16.8	18.4	19.0	43.5	-24.5
190.49	4.8	4.6	17.7	17.1	22.5	21.7	43.5	-21.0
368.20	-4.1	-2.5	22.3	22.7	18.2	20.2	46.0	-25.8
424.19	-0.6	-9.0	23.9	24.2	23.3	15.2	46.0	-22.7
710.00	-9.2	-9.1	30.0	30.5	20.8	21.4	46.0	-24.6



f > 1000 MHz

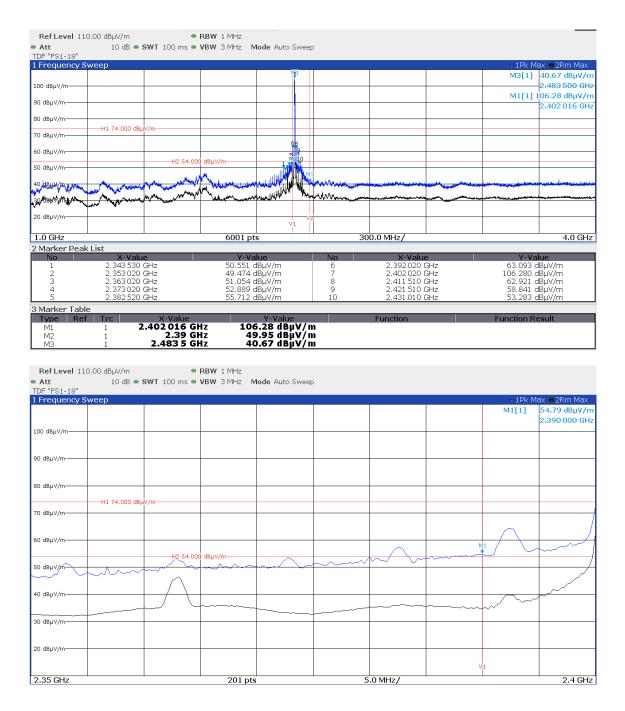
Duty Cycle of the EUT



According to procedures for duty cycle correction, the factor can be calculated as $\delta(dB) = 20 \log(\Delta)$. The duty cycle is equal for all used frequencies with $T_{ON} = 495.6 \mu s$ and $T_{OFF} = 756.1 \mu s$, therefore all peak values can be corrected with a factor $\delta(dB) = -8.0 \ dB$.



CH37 horizontal





I Frequency S	Sweep								●1Pk M	lax 😑 2Rm Max 🛛
									M1[1]	61.75 dBµV/m
0.40.41/										7.206 635 GHz
0 dBµV/m───									M2[2]	60.08 dBµV/m
a la 11/	H1 74.000 dBµ	//m								7.206 640 GH
0 dBµV/m		M1								
		M2								
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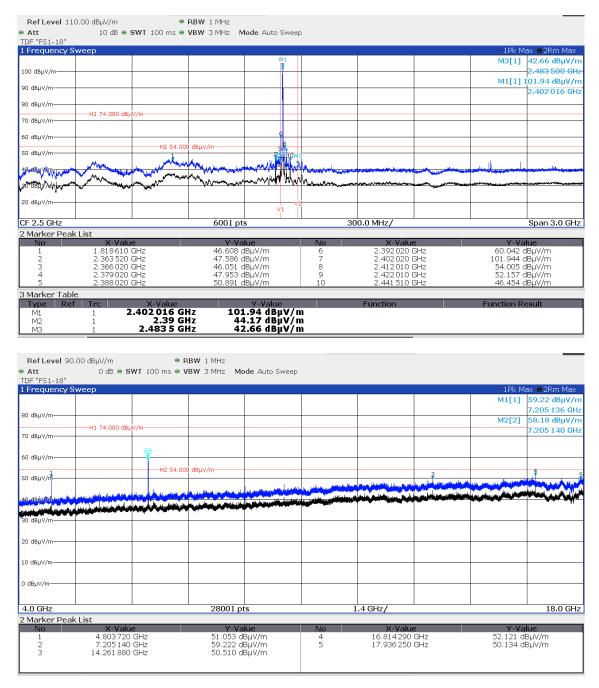
MP (#)	f (GHz)	Peak (dBµV/m)	DC corr. (dB)	AV (dBµV/m)	AV Limit (dBµV/m)	Margin (dB)
2	7.20664	61.7	-8.0	53.7	54.0	-0.3
4	16.81229	54.4	-8.0	46.4	54.0	-7.6

1 Frequency S	Sweep						o 1Pk M	ax 😑 2Rm Max
							M1[1]	39.71 dBµV/
30 dB⊔V/m								18.033748 GI
	H1 74.000 dBuV	//m						
70 dBµV/m───		<u></u>						
0 dBµV/m								
50 dBµV/m		H2 54.000) dBµV/m					
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40, dBuY/m						n an an an Indian an Article an Antonia An an ann an an Antonia an Antonia Antonia An an Antonia an Antonia Antonia Antonia Antonia	n on help, have see all the start of the sta	in set distanti della degrada polaritationa an esta distanti della degrada polaritationa an esta della distanti di constanti di
40, dBµY/m 50-dBµV/m 20 dBµV/m						a a se u leta a secola data initia data	en ander an en an de star en an Ander en an	in at the part of a second sec
40, dBµY/m 50-dBµV/m 20 dBµV/m						, an a shi a konstanti su kili An an		
10. dBµV/m 30 ⁻ dBµV/m 20 dBµV/m 10 dBµV/m						n an an tai an an an tai	n seini an an Albaran Maria a starting a st	
10. dBµV/m 30 ⁻ dBµV/m 20 dBµV/m 10 dBµV/m						en en se se en		
19. dBuV/m 10 ⁻ 6897v/h20-11- 20 dBµV/m 10 dBµV/m 0 dBµV/m						an an suit a suit a state in the sector back		
HB dByV/m 10 dByV/m 10 dByV/m 0 dByV/m 18.0 GHz								25.0 GH
11 10. dBµV/m 20. dBµV/m 10. dBµV/m 0. dBµV/m 18.0 GHz 2 Marker Реа								

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CH37 vertical



MP	f	Peak	DC corr.	AV	AV Limit	Margin
(#)	(GHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
2	7.20514	59.2	-8.0	51.2	54.0	



	Sweep							o 1Pk Ma	ax \varTheta 2Rm Max
									40.19 dBµV∕r
30 dBµV/m								2	1.728 484 GF
	H1 74.000 dBµV	/m							
′0 dBµV/m——									
i0 dBµV/m									
		H2 54.000) dBµV/m						
50 dBµV/m−−−−									
10 10 11/1					M1				
D.BODY/III	An align and a second second	and the second state of the				tent den sin ner herte verstere	and the state of the	and descent the other data	A La Banka and a la constant
so deptymente	and the state of t	والربر وعرودها أفاقأ أحمد ومحاجر واردو	والمحاسبة بدون ارجب والمتحقق	واسماد فالاحتفاد وسيسا بالمحافظ	. Law webstern and de strate hie	والمتعادية والمتعادية والمتعادية	والباسين وروينا بالاست	the second second second	and the second
50 dbp // in									
20 dBµV/m									
LO dBµ∀/m									
) dBµV/m									
			14001 p	ts	70	0.0 MHz/	I		25.0 GH
18.0 GHz									
18.0 GHz Marker Pea	k List								

CH39 horizontal

Ref Level 110).00 dBµV/m 🗧	RBW 1 MHz			
Att		VBW 3 MHz Mode Auto Swee	p		
TDF "FS1-18"			-		
1 Frequency Sv	weep				o 1Pk Max ●2Rm Max
		M	1		M3[1] 53.28 dBµV/m
100 dBµV/m					2,483 500 GHz
					M1[1] 103.10 dBµV/m
90 dBµV/m					2,480 003 GHz
80 dBµV/m					
70 dBµV/m					
60 dBµV/m					
	H3 54 0	00 dBµV/m	l.		
50 dBµV/m	12 54.0		9		
	Au alle	JA . 1974	N.		
40 dBµV/m	I'm mouse mouse the	and the second of the second o	Wy down	والمسيحية فالمعلية المتعادية المحالية المحالية والمحالية والمحالية والمتري	New ward a strain to the strain of the strai
39 ARHW (Pr)	A CARLES AND A CAR	Mader and and her and	Manna		
~ ` `					
20 dBµV/m		V1 V1	2		
CF 2.5 GHz		6001 pts		300.0 MHz/	Span 3.0 GHz
2 Marker Peak					
No	X-Value	Y-Value	No	X-Value	Y-Value
1	1.926 600 GHz 2.415 010 GHz	45.344 dBµV/m 47.627 dBµV/m	6	2.470 000 GHz 2.480 000 GHz	54.885 dBµV/m 103.099 dBµV/m
2 3	2.415010 GHz	48.086 dBµV/m	8	2.480 000 GHz	58.141 dBµV/m
4	2.440 510 GHz	48.479 dBµV/m	ğ	2.500 500 GHz	47.374 dBµV/m
5	2.460 510 GHz	52.254 dBµV/m	10	2.519 500 GHz	45.306 dBµV/m
3 Marker Table	2				
Type Ref		Y-Value		Function	Function Result
M1	1 2.480 003 G	Hz 103.10 dBµV/ı	n		
M2	1 2.39 G		n		
MЗ	1 2.483 5 G	nz 53.28 abµv/1	11		



Att)F "FS1-18"										
requency Sv	veep									ax ●2Rm Max
									M1[1]	56.75 dBµV/n 2.475 500 GH
) dBµV/m										2,475 500 66
///										
dBµV/m										
dBµV/m										
	—ні 74.000 dBµ	//m								
dBµV/m										
N										
dBµ <mark>y</mark> /m										
-~\\\			12 54.000	dBuV/m						
dBµ//m	Y	~	2	<u></u>	\vdash	<u> </u>				
/				~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		\sim		for	$h_{\Lambda\Lambda}$	A. A.
-∕ dBµV/m	\sim									~~~~
e		\sim	$\neg \neg$						/ `	l l
dD of L for			~	~	\bot , \frown		$ \Lambda $		Ļ/	N.
dBµV/m										
					+			1		
dBµV/m										
dBµV/m	V1									
2.5 GHz Ref Level 90.0	00 dBμV/m	VT 100 (201 pt BW 1 MHz 3W 3 MHz M	s ode Auto Sweep	5	.0 MHz/		5	Span 50.0 MHz
2.5 GHz Ref Level 90.0 Att F "FS1-18"	00 dBµV/m 0 dB ● S\	∀T 100 i		B W 1 MHz		5	.0 MHz/			
2.5 GHz Ref Level 90.0 Att F "FS1-18"	00 dBµV/m 0 dB ● S\	∀T 100 i		B W 1 MHz		5	.0 MHz/			ax ●2Rm Max
2.5 GHz Ref Level 90.0 Att F "FS1-18" irequency Sv	00 dBµV/m 0 dB ● S\	VT 100 r		B W 1 MHz		5	.0 MHz/		● 1Pk M M1[1]	ax ●2Rm Max 60.00 dBµV/n 7.440 127 GH
2.5 GHz Ref Level 90.0 Rtt = "FS1-18" requency Sv	00 dBµV/m 0 dB ● S\ veep			B W 1 MHz		5	.0 MHz/		⊙1Pk M	ах ● 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n
2.5 GHz Ref Level 90.0 tit = "FS1-18" requency Sv dBµV/m-	00 dBµV/m 0 dB ● S\			B W 1 MHz		5	.0 MHz/		● 1Pk M M1[1]	ах ● 2Rm Мах 60.00 dBµV/r 7.440 127 GH 59.40 dBµV/r
2.5 GHz Ref Level 90.0 Mtt = "FS1-18" requency Sw dBµv/m dBµv/m	00 dBµV/m 0 dB ● S\ veep			B W 1 MHz		5	.0 MHz/		● 1Pk M M1[1]	ах ● 2Rm Мах 60.00 dBµV/r 7.440 127 GH 59.40 dBµV/r
2.5 GHz Ref Level 90.0 Mtt = "FS1-18" requency Sw dBµv/m dBµv/m	00 dBµV/m 0 dB ● S\ veep	//m	ms e VI	BW 1 MHz BW 3 MHz M		5	.0 MHz/		● 1Pk M M1[1]	ах ● 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n
2.5 GHz Ref Level 90.0 Stat F "FS1-18" requery Sv dBµV/m dBµV/m dBµV/m	00 dBµV/m 0 dB ● S\ veep	//m		BW 1 MHz BW 3 MHz M		5	.0 MHz/	5	● 1Pk M M1[1]	ax 22Rm Max 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH
2.5 GHz tef Level 90.0 ttt = "FS1-18" requency Sw dBµV/m dBµV/m	00 dBµV/m 0 dB ● S\ veep	//m	ms e VI	BW 1 MHz BW 3 MHz M	ode Auto Sweep			المرجعة فأملس والمرجع فالفرسان	• 1Pk M M1[1] M2[2]	ах ● 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n
2.5 GHz	00 dBµV/m 0 dB ● St veep —H1 74.000 dBµ	//m	ms e VI	BW 1 MHz BW 3 MHz M					• 1Pk M M1[1] M2[2]	ах © 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH 7.440 130 GH
2.5 GHz tef Level 90.0 temperature tempe	00 dBµV/m 0 dB ⊕ St veep − H1 74.000 dBµ	//m	ms e VI	BW 1 MHz BW 3 MHz M	ode Auto Sweep			المرجعة فأملس والمرجع فالفرسان	• 1Pk M M1[1] M2[2]	ах © 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH 7.440 130 GH
2.5 GHz tef Level 90.0 temperature tempe	00 dBµV/m 0 dB ● St veep —H1 74.000 dBµ	//m	ms e VI	BW 1 MHz BW 3 MHz M	ode Auto Sweep			المرجعة فأملس والمرجع المقرسان	• 1Pk M M1[1] M2[2]	ах © 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH 7.440 130 GH
2.5 GHz	00 dBµV/m 0 dB ● St veep —H1 74.000 dBµ	//m	ms e VI	BW 1 MHz BW 3 MHz M	ode Auto Sweep			المرجعة فأملس والمرجع المقرسان	• 1Pk M M1[1] M2[2]	ах © 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH 7.440 130 GH
2.5 GHz	00 dBµV/m 0 dB ● St veep —H1 74.000 dBµ	//m	ms e VI	BW 1 MHz BW 3 MHz M	ode Auto Sweep			المرجعة فأملس والمرجع المقرسان	• 1Pk M M1[1] M2[2]	ах © 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH 7.440 130 GH
2.5 GHz	00 dBµV/m 0 dB ● St veep —H1 74.000 dBµ	//m	ms e VI	BW 1 MHz BW 3 MHz M	ode Auto Sweep			المرجعة فأملس والمرجع المقرسان	• 1Pk M M1[1] M2[2]	ах © 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH 7.440 130 GH
2.5 GHz	00 dBµV/m 0 dB ● St veep —H1 74.000 dBµ	//m	ms e VI	BW 1 MHz BW 3 MHz M	ode Auto Sweep			المرجعة فأملس والمرجع المقرسان	• 1Pk M M1[1] M2[2]	ах © 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH 7.440 130 GH
2.5 GHz	00 dBµV/m 0 dB ● St veep —H1 74.000 dBµ	//m	ms e VI	BW 1 MHz BW 3 MHz M	ode Auto Sweep			المرجعة فأملس والمرجع المقرسان	• 1Pk M M1[1] M2[2]	ах © 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH 7.440 130 GH
2.5 GHz	00 dBµV/m 0 dB ● St veep —H1 74.000 dBµ	//m	ms e VI	ВW 1 MHz 3W 3 MHz М	ode Auto Sweep			المرجعة فأملس والمرجع المقرسان	• 1Pk M M1[1] M2[2]	ax © 2Rm Max 60.00 dBµV/r 7.440 127 GH 59.40 dBµV/r 7.440 130 GH
2.5 GHz	0 dBµV/m 0 dB ● SV veep H1 74.000 d8µ	//m	ms e VI	BW 1 MHz BW 3 MHz M	ode Auto Sweep			المرجعة فأملس والمرجع المقرسان	• 1Pk M M1[1] M2[2]	ax © 2Rm Max 60.00 dBµV/r 7.440 127 GH 59.40 dBµV/r 7.440 130 GH
dвµv/m dBµv/m dBµv/m dBµv/m 0 GHz Marker Peak No)0 dBµV/m 0 dB • SV veep —н1 74.000 dbµ и и и и и и и и и и и и и и и и и и и	//m	ms e VI	BW 1 MHz 3W 3 MHz M dBµV/m 28001 p V-Vz	ode Auto Sweep		.4 GHz/		• 1Pk M M1[1] M2[2]	ах © 2Rm Мах 60.00 dBµV/n 7.440 127 GH 59.40 dBµV/n 7.440 130 GH 7.440 130 GH 7.440 130 GH 7.440 130 GH 18.0 GH2
2.5 GHz Act F "FS1-18" Trequency Sv dBµV/m	0 dBµV/m 0 dB ● SV veep H1 74.000 dBµ	//m	ms e VI	BW 1 MHz 3W 3 MHz M	ode Auto Sweep		.4 GHz/	e GHz	• 1Pk M M1[1] M2[2]	ax © 2Rm Max 60.00 dBpV/n 7.440 127 GH 59.40 dBpV/n 7.440 130 GH 2 7 7 8 7 7 18.0 GH 18.0 GH 18.0 GH 18.0 GH

MP	f	Peak	DC corr.	AV	AV Limit	Margin
(#)	(GHz)	(dBµV/m)	(dB)	(dBµV/m)	(dBµV/m)	(dB)
2	7.44013	60.0	-8.0	52.0	54.0	



	Sweep							o 1Pk Ma	ax 😑 2Rm Max
								M1[1]	40.18 dBµV/
30 dBµV/m								2	4.738 769 GI
	H1 74.000 dBµV	//m							
'0 dBµV/m									
0 dBµV/m									
50 dBµV/m		H2 54.000) dBµV/m						
									M1
40 dBμV/m—									1
	والمعصبينين أستيه فعاص فالمعاد								desidente e de la de
O ded With the	المتعاقبة والمتركبين والمحمد ومستلك	ويدروني باستطنته ويلز والدين	ويستعدين ويراد والمتعادية						
			the second se	الأقديدية فأشتهته ليأتناه مارسه	ويتغ أخا وورزك إرابت بجار خاصا والجر		والهمو القروب المتوجزة المراح أحرسهما والم	in the design of	a de la construction de la constru
				anala aliyini dan Mirani il	a a generated by a teleford of the state of the	i da international de la constante de la const La constante de la constante de	a Lawa Labaratan Ing Katalan Sana Ba	aline de la ministra de la composición de	and the local distance of the local distance
20 dBµV/m						fillet alpeid yelly year operation	e in men dahat pengahanakanak	and the state of t	and and the state of the state
20 dBµV/m					i de la de la constance de la constance de la deservición de la constance de la deservición de la constance de Interna de la constance de la co	Altheory and a second	a (Lenny of Anni (Service and User S)		a ta an
							s e Lever a la la strangest por transfer		
LO dBµV/m					ge operan med des mit den sedel des		s - Lower States (complexities of the second s		
							se lange i statistica provincia constrainada		
10 dBµV/m									
0 dBµV/m			14001 p	ts		0.0 MHz/			
LO dBµV/m								Y-Va	25.0 GF

CH39 vertical

Ref Level 110).00 dBuV/m	• RE	SW 1 MHz						
Att 🛛	10 dB 🖷 SWT	100 ms 👄 VE	SWI 3 MHz N	lode Auto Sweep)				
FDF "FS1-18"									
1 Frequency Sv	weep	I		r r r	1		1		ax e2Rm Max
				M	4			M3[1]	53.12 dBµV/r
100 dBµV/m									2.483 500 GH
								M1[1]	l00.93 dBµV∕r
90 dBµV/m									2.480 003 GH
30 dBµV/m									
70 dBµV/m───									
50 dBµV/m		— H2 54.000 d	De al L face	4					
50 dBµV/m			Bhr/w		10				
	2	water a street	.		N.				
40 HBUV/m		- All and a second seco	WWW PORT WIND	MAN MAN	Mary marked and the	new menous and a state of the second	and the second sec	بينادا الفاوير فيتعينا جاحمانيه أيبيده	and the second second second
an water have a second	Commenter La	and a starting of the start of	manna	mar way with	mr.			the second s	
should have when		~~~							
20 dBµV/m									
				V1]				
CF 2.5 GHz			6001 pt	S		300.0 MHz/			Span 3.0 GH
2 Marker Peak	List								
No	X-Value		Y-Va	lue	No	X-Valu	ie	Y-Va	lue
1	1.067 740 GHz		40.071 c		6	2.470 500		55.767 dBµV/m	
2 3	1.388190 GHz		43.966 c		7	2.480 000		100.930 c	
3 4	1.907100 GHz 2.412010 GHz		46.381 c 44.572 c		8	2.490000 2.499500		55.238 o 51.643 o	
5	2.463 510 GHz		48.303 c		10	2.518 500		47.799 0	
Marker Table									on he choice
Type Ref		X-Value		Y-Value		Function		Function R	esult
M1		0 003 GHz	100).93 dBuV/n	1	- unction		I GHEGOTI K	oourt
M2	1	2.39 GHz	38	5.75 dBµV/n 5.12 dBµV/n	n				
MЗ	i 2.	483 5 GHz	53	3.12 dBµV∕n	n				



Ref Level 90.	00 dBuV/m	P D	BW 1 MHz						_
Att			BWF3MHz Mo	de Auto Sween					
TDF "FS1-18"	0 00 - 51	1 100 mis — Vi		de Auto Smeep					
1 Frequency S	weep							01Pk M	ax 🛛 2Rm Max
								M1[1]	50.71 dBµV/i
									7.938 752 GF
80 dBµV/m−−−−								M2[2]	45.45 dBµV/i
	——H1 74.000 dBµV	//m							7.938 750 GF
70 dBµV/m───									
50 dBµV/m───									
			dBµV/m						
50 dBµV/m−		- 2		3					1 5
Ť					And the second				
40.dBhW/m	أحديقها أعرفه والمقاربة والمان			all a subscription of the second side	La sel dan dan sel i la se sel	مرجو والمتحر والمتحج والمرجو	الارت أجاجه والرجاد والجواد	No. of Concession, Name	
والطفو المتعاصية والمت	الخرجون فالمتحد والملوس والمدر	الالاينا البعد أعدانا المتعال	الماليا الخليبي المجارية						••• • •
30 dBµV/m									
00 app1/m									
20 dBµV/m									
20 aBhA/w									
10 dBµV/m−−−−−									
0 dBµV/m									
4.0 GHz			28001 pt	·e	1	.4 GHz/			18.0 GH
2 Marker Peak	Liet		20001 p	.3		110127			10.0 01
No No	X-Value		Y-Va	lue	No	X-Valu	<u>م</u>	Y-Va	lue
1	4.959 720 (47.197 d	3µV/m	4	16.581 800		50.286 d	
2 3	7.439130 (GHz	50.263 d	3µV/m	5	17.478770	GHz	49.669 d	BµV/m
3	9.921 040 (GHz	49.961 d	3µV/m	6	17.938750	GHz	50.711 d	BμV/m

	Sweep			-				●1Pk Ma	ax 😑 2Rm Ma>
								M1[1]	39.71 dBµV/
30 dBµV/m								2	3.463 360 G
	H1 74.000 dBµV	/m							
′0 dBµV/m									
50 dBµV/m									
		H2 54.000) dBµV/m						
50 dBµV/m───									
10 10 11/10							M1		
O GOLY/II	المحصاة الجريب الغرو بالقادح	بامرية مرجاة الأفسية سأرس	فتصحيفك فرريحان والأطباطي	المعاصفا ومعاجل للماؤه محاذ مستبياه	الماسمة وبالسعم فالانتخاط معمومها	والتقدير فأرب وحيروان وروط فاقتصبنا	فاستبأوكم ويتعتقنهم أطلامهم فالداول	يعتدهم والمراجع والمراجع والمراجع والتلا	ويستجوزوا أتحفظ ويتراع
				and the second se	Contraction of the second strength in second	International and the second se	and the second second strength and the second se	and the second se	and the second
AND DOWN MADE AND A	and and state of the same days show that	القيدية بيندم بالتشتيقين والقاهر المي	u lainetteta dan kaanta darataki		les deleted distriction			and a factor of the factor of the factor	
so abovin i du									and the second
									alaria di Sana di Sana Internet di Sana
20 dBµV/m									tere and an all a second
бо ^н авруунталары 20 dBµ∨/m 10 dBµ∨/m									
20 dBµV/m									
20 dBµV/m									
20 dBµV/m					y				25.0 GF
20 dBµV/m 10 dBµV/m) dBµV/m					y				



Frequency	Field strength of s	ourious emissions	Measurement distance
(MHz)	(µV/m)	dB(µV/m)	(metres)
0.009-0.490	2400/F (kHz)		300
0.490-1.705	24000/F (kHz)		30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Radiated limits according to FCC Part 15 Section 15.209(a) for spurious emissions which fall in restricted bands:

Restricted bands of operation:

The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
0.495 - 0.505	16.69475 – 16.69525	608 - 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 - 16.80475	960 - 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 - 8.5
4.17725 – 4.17775	37.5 - 38.25	1435 – 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 - 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 - 2300	14.47 – 14.5
8.291 - 8.294	149.9 – 150.05	2310 - 2390	15.35 – 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 - 8.38675	156.7 – 156.9	2690 - 2900	22.01 – 23.12
8.41425 - 8.41475	162.0125 – 167.17	3260 - 3267	23.6 - 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 - 12.52025	240 – 285	3345.8 – 3358	36.43 - 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	Above 38.6



RSS-Gen, Table 6 - Restricted Frequency Bands

MHz	MHz	MHz	GHz
0.090 - 0.110	12.57675 - 12.57725	399.9 - 410	7.250 - 7.750
0.495 - 0.505	13.36 - 13.41	608 - 614	8.025 - 8.500
2.1735 - 2.1905	16.42 - 16.423	960 - 1427	9.0 - 9.2
3.020 - 3.026	16.69475 - 16.69525	1435 - 1626.5	9.3 - 9.5
4.125 - 4.128	16.80425 - 16.80475	1645.5 - 1646.5	10.6 - 12.7
4.17725 - 4.17775	25.5 - 25.67	1660 - 1710	13.25 - 13.4
4.20725 - 4.20775	37.5 - 38.25	1718.8 - 1722.2	14.47 - 14.5
5.677 - 5.683	73 - 74.6	2200 - 2300	15.35 - 16.2
6.215 - 6.218	74.8 - 75.2	2310 - 2390	17.7 - 21.4
6.26775 - 6.26825	108 – 138	2483.5 - 2500	22.01 - 23.12
6.31175 - 6.31225	149.9 - 150.05	2655 - 2900	23.6 - 24.0
8.291 - 8.294	156.52475 - 156.52525	3260 - 3267	31.2 - 31.8
8.362 - 8.366	156.7 - 156.9	3332 - 3339	36.43 - 36.5
8.37625 - 8.38675	162.0125 - 167.17	3345.8 - 3358	Above 38.6
8.41425 - 8.41475	167.72 - 173.2	3500 - 4400	
12.29 - 12.293	240 – 285	4500 - 5150	
12.51975 - 12.52025	322 - 335.4	5350 - 5460	

The requirements are FULFILLED.

Remarks: The measurement was performed up to the 10th harmonic. Only the worst-case plots are listed.



5.3 Spurious emissions radiated

5.3.1 Description of the test location

Test location: NONE

Test distance:

5.3.2 Applicable standard

According to FCC Part 15, Section 15.247(d):

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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.

5.3.3 Description of Measurement

The restricted bands are measured radiated. The span of the spectrum analyser is set wide enough to capture the restricted band and measure the peak level of the emission operating on the channel closest to the band edge, as well as any modulation products which fall outside of the authorized band of operation. The restricted bands are measured falling emissions into it and the nearest restricted band are checked for emissions also the restricted band for the harmonics of the carrier.

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.10. If the emission level of the EUT in peak mode complies with the average limit is 20 dB lower, then testing will be stopped and peak values of the EUT will be reported, otherwise the emission will be measured in average mode again and reported.



5.3.4 Test result

Measurements are performed in following order:

1) Measurement of emissions according to General Limit specified in section 15.209(a):

Test receiver settings for SER1, SER2: 9kHz-150kHz RBW: 200 Hz Detector: Quasi peak* Meas. Time: 1 s, 150kHz-30MHz RBW: 9 kHz Detector: Quasi peak* Meas. Time: 1 s, 30MHz-1GHz RBW: 120 MHz Detector: Quasi peak Meas. Time: 1 s, *AV Detector in the ranges 9-90kHZ and 110-490kHz Spectrum analyser settings for SER3: 1GHz-26GHz RBW: 1 MHz Detector: Max. peak Trace: Max. hold Sweep: Auto 2) If emissions outside the Restricted Bands are above General Limit additional measurements of emissions according to Spurious Emissions Limit specified in section 15.247(d) are performed: Spectrum analyser settings: RBW: 100 kHz VBW: 300 kHz Trace: Max. hold Detector: Max. peak Sweep: Auto Result: All emissions are below general limit, see clause 5.2. The requirements are FULFILLED. **Remarks:** None.



5.4 Antenna application

5.4.1 Applicable standard

According to FCC Part 15C, Section 15.203:

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 that broken antennas can be replaced by the user, but the use of a standard antenna jack is prohibited.

The supplied antenna meets the requirements of part 15.203 and 15.204.

Remarks:



6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Last Verif.
CPR 3	FSW43 AMF-6D-01002000-22-10P	02-02/11-15-001 02-02/17-15-004	13/05/2025	13/05/2024		
	3117 BAM 4.5-P NCD 02-02/50-17-025	02-02/24-05-009 02-02/50-17-024	12/07/2024	12/07/2023		
	KK-SF106-2X11N-6,5M 18N-20 BAT-EMC 2023.0.8.0	02-02/50-18-016 02-02/50-21-009 02-02/68-13-001	17/10/2024	17/04/2024		
SER 2	ESCI02-02/03-05-004 ESCI02-02/03-05-005 ESR 7	05/10/2024 15/12/2024 02-02/03-13-001	05/10/2023 15/12/2023 14/03/2025	14/03/2024		
	ESCI02-02/03-15-001 UHALP 9108 A	03/07/2024 02-02/24-05-022	03/07/2023 23/05/2025	23/05/2024		
	BBA 9106 / VHA 9103 HCM N-3000-N ON100493	02-02/24-05-023 02-02/50-05-115 02-02/50-05-191 02-02/50-14-014	23/05/2025	23/05/2024		
	KK-SF406-2X11N-20.0M KK-EF393	02-02/50-16-021 02-02/50-16-025				
SER 3	FSW43 AMF-6D-01002000-22-10P LNA-40-18004000-33-5P	02-02/11-15-001 02-02/17-15-004 02-02/17-20-002	13/05/2025	13/05/2024		
	3117 BBHA 9170 WHK 3.0/18G-10EF BAM 4.5-P NCD 02-02/50-17-025	02-02/24-05-009 02-02/24-05-013 02-02/50-05-180 02-02/50-17-024	12/07/2024 21/03/2026	12/07/2023 21/03/2023	22/01/2025	22/01/2024
	KK-SF106-2X11N-6,5M KMS116-GL140SE-KMS116-1. BAT-EMC 2023.0.8.0	02-02/50-18-016 02-02/50-20-026 02-02/68-13-001				