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# **TEST REPORT**

ACCORDING TO: FCC 47CFR part 15 subpart C § 15.247 (DTS), RSS-247 issue 2, RSS-Gen issue 5

FOR:

Essence Smartcare Ltd. Emergency Pendant Model: ES902MPRS-WL FCC ID: 2ARFP-ES902MPRS IC: 24417-ES902MPRS

This report is in conformity with ISO/ IEC 17025. The "A2LA Accredited" symbol endorsement applies only to the tests and calibrations that are listed in the scope of Hermon Laboratories accreditation. The test results relate only to the items tested. This test report shall not be reproduced in any form except in full with the written approval of Hermon Laboratories Ltd.



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# **1** Applicant information

Client name:	Essence Smartcare Ltd.
Address:	12 Abba Eban avenue, Ackerstein Tower Bldg. D, P.O.Box 2073, Herzliya 4612001, Israel
Telephone:	+972 732 447 735
Fax:	+972 9772 9962
E-mail:	israelgo@essence-grp.com
Contact name:	Mr. Israel Gottesman

# 2 Equipment under test attributes

Product name:	Emergency Pendant
Product type:	Transceiver
Model(s):	ES902MPRS-WL
Serial number:	1623095800001533
Hardware version:	3.1
Software release:	1.3
Receipt date	23-Jun-23

# 3 Manufacturer information

Manufacturer name:	Essence Smartcare Ltd.
Address:	12 Abba Eban avenue, Ackerstein Tower Bldg. D, P.O.Box 2073, Herzliya 4612001, Israel
Telephone:	+972 732 447 735
Fax:	+972 9772 9962
E-Mail:	israelgo@essence-grp.com
Contact name:	Mr. Israel Gottesman

# 4 Test details

Project ID:	50382
Location:	Hermon Laboratories Ltd. P.O. Box 23, Binyamina 3055001, Israel
Test started:	23-Jul-23
Test completed:	17-Jan-24
Test specification(s):	FCC 47CFR part 15 subpart C § 15.247 (DTS);
	RSS-247 issue 2, RSS-Gen issue 5



#### Tests summary 5

Test	Status
Transmitter characteristics	
FCC section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth	Pass
FCC section 15.247(b)3/ RSS-247 section 5.4(d), Peak output power	Pass
FCC section 15.247(d/ RSS-247 section 5.5), Band edge emissions	Pass
FCC section 15.247(e) / RSS-247 section 5.2(b), Peak power density	Pass
FCC section 15.203 / RSS-Gen section 6.8, Antenna requirement	Pass
FCC section 15.207(a) / RSS-Gen section 8.8, Conducted emission	Not required

Testing was completed against all relevant requirements of the test standard. However, results obtained indicate that the product under test complies in full with the requirements tested. The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Tested by:	Mrs. M. Evsuk, certification specialist, EMC & Radio Mrs. E. Pitt, certification specialist, EMC & Radio	23-Jul-23 – 17-Jan-24	Eanf BH
Reviewed by:	Mrs. S. Peysahov Sheynin, certification specialist, EMC & Radio	22-Jan-24	1 million and a second
Approved by:	Mr. M. Nikishin, group leader, EMC & Radio	25-Jan-24	ff b



# 6 EUT description

Note: The following data in this clause is provided by the customer and represents his sole responsibility

## 6.1 General information

The EUT, Mobile Personal Emergency Response System (mPRS2) is a small emergency device that a person can put in his pocket while travelling outside home.

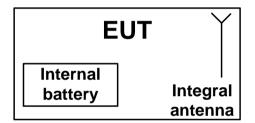
When emergency happened (feeling bad, fall detection) the LTE module will send a message to the monitoring center/family member with the person location (by using the Wi-Fi as receiver to locate positioning). The LTE module approved by FCC and IC, FCC ID: YXG-ES900BG77, IC:11061A-ES900BG77.

The system includes a pendant and a charging cradle.

The EUT in charging mode is receiving power wirelessly from a WPT source (charging cradle).

This test report represents test results for 2.4 GHz WiFi radio of the pendant.

## 6.2 Test configuration



# 6.3 Changes made in EUT

No changes were implemented in the EUT during the testing.



# 6.4 Transmitter characteristics

Type of equipment							
V Stand-alone (Equipment with or w	ithout its o	own control	provisior	ns)			
Combined equipment (Equipment	where the	e radio part	is fully in		ther type of	f equipment)	
Plug-in card (Equipment intended	for a varie	ety of host :	systems)				
Assigned frequency range	2400	-2483.5 MI	Ηz				
Operating frequencies	2412-	2462 MHz					
Maximum rated output power	Peak	output pow	ver @ CC	K 19.37 dBm			
		output pow	er @ BP	SK 21.40 dBm			
	Peak	output pow	/er @ 64-	QAM 20.34 dBm			
	v	No					
				continuous varia	ble		
Is transmitter output power variable?				stepped variable		78	dB
		Yes	minimum RF power				dBm
			maximum RF power			dBm	
			maximu				UDIII
Antenna connection							
unique coupling s	tandard c	onnector	v	Integral		th temporary F	
						V without temporary RF con	
Antenna/s technical characteristics							
	facturer			number		Gain	
Integral Essence		-		Printed Typical peak gain: -2 dBi			gain: -2 dBi
Transmitter aggregate data rate/s		1/	11/6/54	/ 6.5 / 65 Mbps			
Type of modulation		CC	< / BPSK	/ 64-QAM			
Modulating test signal (baseband)							
Transmitter power source							
V Battery Nominal rated v		4.3	7 VDC	Battery type	Lithium	Rechargeable	9
DC Nominal rated v				<b>F</b> ree much as a			
AC mains Nominal rated v	oitage			Frequency			

Test specification:	Section 15.247(a)2 / RSS-2	247 section 5.2(a), 6 dB and	99% bandwidth
Test procedure:	ANSI C63.10 section 11.8.1		
Test mode:	Compliance	Verdict:	PASS
Date(s):	23-Jul-23	verdict.	PASS
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC
Remarks:			

# 7 Transmitter tests according to 47CFR part 15 subpart C requirements

## 7.1 Minimum 6 dB and 99% bandwidth

#### 7.1.1 General

This test was performed to measure 6 dB bandwidth of the EUT carrier frequency. Specification test limits are given in Table 7.1.1.

#### Table 7.1.1 20 dB bandwidth limits

Assigned frequency, MHz	Modulation envelope reference points*, dBc	Minimum bandwidth, MHz
2400.0 - 2483.5	6.0	500.0

\* - Modulation envelope reference points provided in terms of attenuation below the peak of modulated carrier.

#### Table 7.1.2 The 99% bandwidth limits

Assigned frequency, MHz	Modulation envelope reference points	Limit, MHz
2400.0 – 2483.5	99%	NA

#### 7.1.2 Test procedure

- **7.1.2.1** The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.
- 7.1.2.2 The EUT was set to transmit modulated carrier.
- **7.1.2.3** The transmitter minimum 6 dB bandwidth was measured with spectrum analyzer as frequency delta between reference points on modulation envelope and provided in Table 7.1.3 and associated plot.

#### Figure 7.1.1 20 dB bandwidth test setup





Fest specification: Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth				
Test procedure:	ANSI C63.10 section 11.8.1			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	e(s): 23-Jul-23		PASS	
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC	
Remarks:				

#### Table 7.1.3 The 6 dB bandwidth test results

ASSIGNED FREQUENCY BA DETECTOR USED: RESOLUTION BANDWIDTH: VIDEO BANDWIDTH: CHANNEL BANDWIDTH: MODULATION/BITRATE:		2400.0 – 2483.5 M Peak 300 kHz 1000 kHz 20 MHz CCK /1 Mbps	ИНZ	
Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	9200	500.0	-9150	Pass
2437.0	10009	500.0	-9509	Pass
		500.0	-9145	Pass

MODULATION/BITRATE:		CCK /11 Mbps		_
Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	9394	500.0	-8894	Pass
2437.0	9365	500.0	-8865	Pass
2462.0	9402	500.0	-8902	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:		20 MHz BPSK /6 Mbps		
Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	16300	500.0	-15800	Pass
2437.0	16450	500.0	-15950	Pass
2462.0	16360	500.0	-15860	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:		20 MHz 64-QAM /54 Mbps	5	
Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	16490	500.0	-15990	Pass
2437.0	16060	500.0	-15560	Pass
2462.0	16610	500.0	-16110	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:		20 MHz BPSK /6.5 Mbps		
Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	17280	500.0	-16780	Pass
2437.0	17640	500.0	-17140	Pass
2462.0	17620	500.0	-17120	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:	20 MHz 64-QAM /65 Mbps				
Carrier frequency, MHz	6 dB bandwidth, kHz Limit, kHz Margin, kHz Verdict				
2412.0	17670	500.0	-17170	Pass	
2437.0	17730	500.0	-17230	Pass	
2462.0	17710	500.0	-17210	Pass	



Test specification: Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth						
Test procedure:	ANSI C63.10 section 11.8.1	ANSI C63.10 section 11.8.1				
Test mode:	Compliance	Verdict:	PASS			
Date(s):	23-Jul-23	verdict:	PA33			
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC			
Remarks:			<u>.</u>			

#### Table 7.1.4 The 6 dB bandwidth test results (continuation)

ASSIGNED FREQUENCY BAI DETECTOR USED: RESOLUTION BANDWIDTH: VIDEO BANDWIDTH: CHANNEL BANDWIDTH: MODULATION/BITRATE:	ECTOR USED:PeakSOLUTION BANDWIDTH:300 kHzEO BANDWIDTH:1000 kHzANNEL BANDWIDTH:40 MHz			
Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2422.0	27510	500.0	-27010	Pass
2442.0	32850	500.0	-32350	Pass
2452.0	32230	500.0	-31730	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:	40 MHz 64-QAM /65 Mbps			
Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2422.0	26390	500.0	-25890	Pass
2442.0	32180	500.0	-31680	Pass
2452.0	32240	500.0	-31740	Pass



Test specification: Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth					
Test procedure:	ANSI C63.10 section 11.8.1				
Test mode:	Compliance	Verdict:	PASS		
Date(s):	23-Jul-23	verdict:	PA33		
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC		
Remarks:					
Table 7.1.5 The 99% bandwidth test results					

ASSIGNED FREQUENCY BAND: DETECTOR USED: RESOLUTION BANDWIDTH: VIDEO BANDWIDTH: CHANNEL BANDWIDTH: MODULATION/BITRATE:		2400.0 – 2483.5 MHz Peak 300 kHz 1000 kHz 20 MHz CCK /1 Mbps		
Carrier frequency, MHz	99% bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	13049	500.0	-12549	Pass
2437.0	13113	500.0	-12613	Pass
2462.0	13041	500.0	-12541	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:		20 MHz CCK /11 Mbps		
Carrier frequency, MHz	99% bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	12922	500.0	-12422	Pass
2437.0	13028	500.0	-12528	Pass
2462.0	12950	500.0	-12450	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:		20 MHz BPSK /6 Mbps		
Carrier frequency, MHz	99% bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	17001	500.0	-16501	Pass
2437.0	17225	500.0	-16725	Pass
2462.0	17309	500.0	-16809	Pass

CHANNEL BANDWIDTH:		20 MHz		
MODULATION/BITRATE:		64-QAM /54 Mbps	6	
Carrier frequency, MHz	99% bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	16677	500.0	-16177	Pass
2437.0	16815	500.0	-16315	Pass
2462.0	16829	500.0	-16329	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:		20 MHz BPSK /6.5 Mbps		
Carrier frequency, MHz	99% bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	17876	500.0	-17376	Pass
2437.0	18134	500.0	-17634	Pass
2462.0	18039	500.0	-17539	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:		20 MHz 64-QAM /65 Mbps	5	
Carrier frequency, MHz	99% bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2412.0	17778	500.0	-17278	Pass
2437.0	17870	500.0	-17370	Pass
2462.0	17808	500.0	-17308	Pass



Test specification:	Section 15.247(a)2 / RSS-2	Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth			
Test procedure:	ANSI C63.10 section 11.8.1				
Test mode:	Compliance	Vordiot	DASS		
Date(s):	23-Jul-23	Verdict: PASS			
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC		
Remarks:					

#### Table 7.1.6 The 6 dB bandwidth test results (continuation)

ASSIGNED FREQUENCY BA DETECTOR USED: RESOLUTION BANDWIDTH: VIDEO BANDWIDTH: CHANNEL BANDWIDTH: MODULATION/BITRATE:	ND:	Peak 300 kHz 1000 kHz 40 MHz BPSK /6.5 Mbps		
Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2422.0	33783	500.0	-33283	Pass
2442.0	34810	500.0	-34310	Pass
2452.0	34647	500.0	-34147	Pass

CHANNEL BANDWIDTH: MODULATION/BITRATE:		40 MHz 64-QAM /65 Mbps	;	
Carrier frequency, MHz	6 dB bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
2422.0	34133	500.0	-33633	Pass
2442.0	34784	500.0	-34284	Pass
2452.0	34366	500.0	-33866	Pass

#### Reference numbers of test equipment used

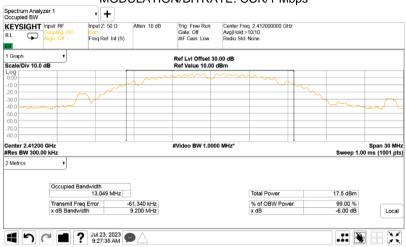
HL 3521   HL 4135   HL 5376   HL 5644   HL 7546	HL 3521	HL 4135	HL 5376	HL 5644	HL 7546				
---	---------	---------	---------	---------	---------	--	--	--	--

Full description is given in Appendix A.



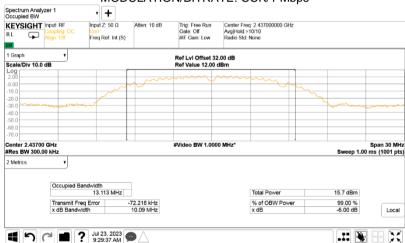
Test specification:	Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth			
Test procedure:	ANSI C63.10 section 11.8.1			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	23-Jul-23	verdict:	PASS	
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC	
Remarks:				

#### Plot 7.1.1 6 dB and 99% bandwidth test result at low frequency



#### MODULATION/BITRATE: CCK/1 Mbps

#### Plot 7.1.2 6 dB and 99% bandwidth test result at mid frequency

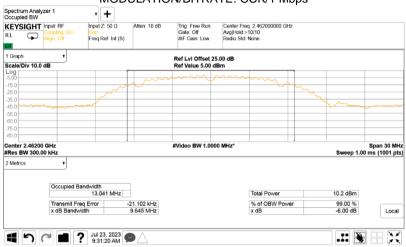


#### MODULATION/BITRATE: CCK/1 Mbps



Test specification:	Section 15.247(a)2 / RSS-2	Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth			
Test procedure:	ANSI C63.10 section 11.8.1				
Test mode:	Compliance	Verdict:	PASS		
Date(s):	23-Jul-23	verdict.	PASS		
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC		
Remarks:					

#### Plot 7.1.3 6 dB and 99% bandwidth test result at high frequency



#### MODULATION/BITRATE: CCK/1 Mbps

#### Plot 7.1.4 6 dB and 99% bandwidth test result at low frequency

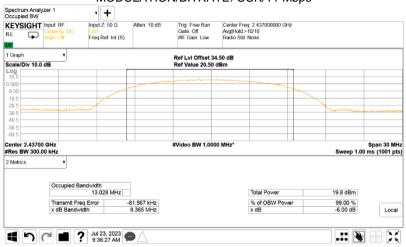


### MODULATION/BITRATE: CCK/11 Mbps



Test specification:	Section 15.247(a)2 / RSS-2	Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth			
Test procedure:	ANSI C63.10 section 11.8.1				
Test mode:	Compliance	Verdict:	PASS		
Date(s):	23-Jul-23	verdict.	PASS		
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC		
Remarks:					

#### Plot 7.1.5 6 dB and 99% bandwidth test result at mid frequency



#### MODULATION/BITRATE: CCK/11 Mbps





#### MODULATION/BITRATE: CCK/11 Mbps



Test specification:	Section 15.247(a)2 / RSS-2	Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth			
Test procedure:	ANSI C63.10 section 11.8.1				
Test mode:	Compliance	Verdict:	PASS		
Date(s):	23-Jul-23	verdict.	PASS		
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC		
Remarks:					

#### Plot 7.1.7 6 dB and 99% bandwidth test result at low frequency



#### MODULATION/BITRATE: BPSK/6 Mbps



			0.012	0/10	Center Freq Avg Hold:>1 Radio Std: N	Trig: Free Run Gate: Off #IF Gain: Low	Atten: 10 dB	Input Z: 50 Ω Corr Freq Ref: Int (S)	put: RF pupling: DC ign: Off		KEYS RL UM
						Ref Lvi Offset 46 Ref Value 12.50			<b>v</b> 3	h Div 10.0 d	
											2.50
	- marker	<u> </u>						-			-7.50
a) souther that	- martine								State of the second state of the	mallera	27.5
											37.5
											47.5
											-57.5
											-67.5 -77.5
Span 30 MI		1				#Video BW 1.000			U.5	2.43700	
	Sweep 1.00					#1060 PAA 1.000				2.43700 3W 300.00	
	20.9 dBm		r	Total Power	ſ			ndwidth 17.225 MHz	V Occupied Bar	cs	2 Metri
_	99.00 %		Power	% of OBW Po	[		41.944 kHz	Error 4	Transmit Fred		
Loca	-6.00 dB			x dB			16.45 MHz		x dB Bandwid		
	99.00 %			% of OBW Po	[		41.944 kHz 16.45 MHz	17.225 MHz Error 4	Transmit Fred	cs	2 Metri

#### MODULATION/BITRATE: BPSK/6 Mbps



Test specification:	Section 15.247(a)2 / RSS-2	47 section 5.2(a), 6 dB and	99% bandwidth
Test procedure:	ANSI C63.10 section 11.8.1		
Test mode:	Compliance	Verdict:	PASS
Date(s):	23-Jul-23	verdict:	PA33
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC
Remarks:			

#### Plot 7.1.9 6 dB and 99% bandwidth test result at high frequency

Spectrum Ana Occupied BW	lyzer 1	• +					
	Disput: RF Coupling: DC Align: Off	Input Z: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.462000000 G Avg Hold:>10/10 Radio Std: None	iHz	
1 Graph	v			Ref LvI Offset 36	.50 dB		
Scale/Div 10.	0 dB			Ref Value 12.50	dBm		
2.50							
7.50							
17.5							hanna
27.5	and the second						
37.5							
47.5							
-67.5							
-77.5							
Center 2.4620	0 GHz	1		#Video BW 1.000	0 MHz*		Span 30 MH
Res BW 300						Sweep 1.	.00 ms (1001 pt
2 Metrics	V Occupied Bi	na di sidila	٦				
	Occupied B	17.309 MHz	-		Total Power	17.4 dBm	
	Transmit Fre		255.16 kHz		% of OBW Por		
	x dB Bandw		16.36 MHz		x dB	-6.00 dB	Local
15		) Jul 23, 2023 🖌					

#### MODULATION/BITRATE: BPSK/6 Mbps



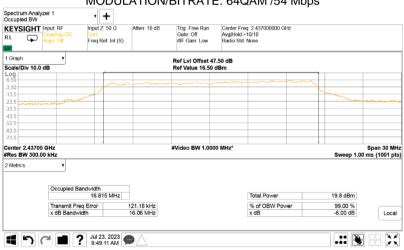
Test specification:	Section 15.247(a)2 / RSS-2	Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth					
Test procedure:	ANSI C63.10 section 11.8.1						
Test mode:	Compliance	Vordiot	DASS				
Date(s):	23-Jul-23	- Verdict: PASS					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC				
Remarks:							

#### Plot 7.1.10 6 dB and 99% bandwidth test result at low frequency

	GHT Input: RF Coupling: DC Align: Off	Input Z: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.412000000 GHz AvglHold.>10/10 Radio Std: None
	v 10.0 dB			Ref LvI Offset 42 Ref Value 18.50	
og 1.50 1.50					
1.5	a manual constraint and a second				
1.5 1.5 1.5					
	.41200 GHz / 300.00 kHz			#Video BW 1.000	00 MHz* Span 30 Sweep 1.00 ms (1001
Metrics	۲				· · ·
	Occupied B	andwidth 16.677 MHz			Total Power 21.0 dBm
	Transmit Fr	eq Error	-87.841 kHz 16.49 MHz		% of OBW Power 99.00 % x dB -6.00 dB Lot

#### MODULATION/BITRATE: 64QAM/54 Mbps

#### Plot 7.1.11 6 dB and 99% bandwidth test result at mid frequency



### MODULATION/BITRATE: 64QAM /54 Mbps



Test specification:	Section 15.247(a)2 / RSS-2	Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth						
Test procedure:	ANSI C63.10 section 11.8.1							
Test mode:	Compliance	- Verdict: PASS						
Date(s):	23-Jul-23	verdict:	PASS					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC					
Remarks:								

#### Plot 7.1.12 6 dB and 99% bandwidth test result at high frequency

	Input: RF Coupling: DC Align: Off	Input Z: 50 Ω Corr Freq Ref: Int (S	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Free Avg[Hold:>1 Radio Std: 1		z		
M 1 Graph Scale/Div 10.	T D dB			Ref LvI Offset 49 Ref Value 18.50					
.og 8.50									
1.50							m		
11.5	. mar								
21.5 31.5	and a start of the							-	and have been a service and the
1.5									
1.5									
31.5									
71.5									
enter 2.4620 Res BW 300		ļ		#Video BW 1.000	0 MHz*			Sweep 1.0	Span 30 M 0 ms (1001 p
! Metrics	•								
	Occupied B	andwidth 16.829 MHz				Total Power		20.7 dBm	
	Transmit Fre	ed Error	-68.904 kHz			% of OBW Powe	ar	99.00 %	
	x dB Bandw		16.61 MHz			x dB		-6.00 dB	Loca
	X dB Bandw								

#### MODULATION/BITRATE: 64QAM/54 Mbps

#### Plot 7.1.13 6 dB and 99% bandwidth test result at low frequency

Occupied BW	lyzer 1	• +						
KEYSIGHT	Input: RF Coupling: DC Align: Off	Input Z: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.412000000 Avg Hold:>10/10 Radio Std: None	GHz		
1 Graph Scale/Div 10.0	v 0 dB			Ref LvI Offset 43 Ref Value 12.50				
2.50		Jam						
-7.50	and the second second	~					Mary Mary Mary	
-27.5								and had a feature of the
-47.5								
-57.5								
-77.5								
Center 2.4120 #Res BW 300.				#Video BW 1.000	0 MHz*		Sweep 1.00	Span 30 MH ms (1001 pts
2 Metrics	۲							
			_				20.6 dBm	
	Occupied Ba	17.876 MHz			Total Power		20.6 dBm	
	Occupied Ba Transmit Fre x dB Bandw	eq Error	-234.79 kHz 17.28 MHz		Total Power % of OBW Po x dB	ower	99.00 %	Local

MODULLATION/BITRATE: BPSK/ 6.5 Mbps (OBW/ MAX - 20 MHz)



Test specification:	Section 15.247(a)2 / RSS-2	Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth						
Test procedure:	ANSI C63.10 section 11.8.1							
Test mode:	Compliance	Verdict: PASS						
Date(s):	23-Jul-23	verdict:	PA33					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC					
Remarks:								

#### Plot 7.1.14 6 dB and 99% bandwidth test result at mid frequency

Spectrum Analy Occupied BW	/zer 1	• +					
KEYSIGHT	Input: RF Coupling: DC Align: Off	Input Ζ: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.437000000 Avg[Hold:>10/10 Radio Std: None	3Hz	
1 Graph Scale/Div 10.0	dB.			Ref LvI Offset 41 Ref Value 10.50			
Log		1		Ner valde 10.50			
0.500							
-9.50		- Carlos - C				and a second sec	
-29.5	Charles and a start						
-29.5							
49.5							
59.5							
-69.5							
-79.5							
Center 2.43700 #Res BW 300.0		,		#Video BW 1.000	0 MHz*	Sweep 1.0	Span 30 MH 00 ms (1001 pts
2 Metrics	۲						
	Occupied B	andwidth 18.134 MHz			Total Power	20.9 dBm	
	Transmit Fre	a Error	144.36 kHz		% of OBW Po	wer 99.00 %	
	x dB Bandw		17.64 MHz		x dB	-6.00 dB	Local
		· · · · · ·			-	·	
		Jul 23, 2023					

MODULATION/BITRATE: BPSK / 6.5 Mbps (OBW MAX = 20 MHz)

#### Plot 7.1.15 6 dB and 99% bandwidth test result at high frequency

KEYSIGH RL F	Input: RF Coupling: DC Align: Off	Input Z: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.462000000 GHz Avg Hold:>10/10 Radio Std: None		
1 Graph Scale/Div 10	• 0 dB			Ref LvI Offset 46 Ref Value 15.50			
Log 5.50							
-4.50			and the second			manan and a second	
-14.5						- wayne	
-24.5	Server and a start					- Andrews	and a second a second a second a
-34.5							
-44.5							
-54.5							
-64.5							
-74.5							
Center 2.462 #Res BW 300				#Video BW 1.000	0 MHz*	Sweep 1.0	Span 30 MHz 0 ms (1001 pts)
2 Metrics	۲						
	Occupied B	andwidth 18.039 MHz			Total Power	21.1 dBm	
	Transmit Fr		-29.994 kHz		% of OBW Power	99.00 %	
	x dB Bandw		17.62 MHz		x dB	-6.00 dB	Local
	A db bullaw		17.02 10112		× 40	-0.00 00	Local

MODULATION/BITRATE: BPSK / 6.5 Mbps (OBW MAX = 20 MHz)



Test specification:	Section 15.247(a)2 / RSS-2	Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth						
Test procedure:	ANSI C63.10 section 11.8.1							
Test mode:	Compliance	Verdict: PASS						
Date(s):	23-Jul-23	verdict:	PA33					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC					
Remarks:								

#### Plot 7.1.16 6 dB and 99% bandwidth test result at low frequency

EYSIGHT	Input: RF Coupling: DC Align: Off	r + Input Ζ: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.422000000 GHz Avg Hold:>10/10 Radio Std: None		
Graph	v dB			Ref Lvl Offset 45 Ref Value 14.50			
15.5 15.5 15.5 15.5	h, dhaa a caar cafa						woliju
75.5 enter 2.42200 Res BW 1.000				#Video BW 3.000	0 MHz*	Sp Sweep 1.00 ms	an 60 M
Metrics	V Occupied B		]				
	Transmit Fr x dB Bandy		614.93 kHz 27.51 MHz		Total Power % of OBW Power x dB	21.2 dBm 99.00 % -6.00 dB	Loc

MODULATION/BITRATE: BPSK / 6.5 Mbps (OBW MAX = 40 MHz)

#### Plot 7.1.17 6 dB and 99% bandwidth test result at mid frequency

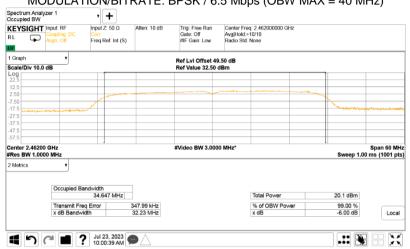
1 Graph Ref Lvi Offset 47.50 dB Scale/DV 10.0 dB Ref Value 16.50 dBm 1000000000000000000000000000000000000	KEYS RL		nput: RF Coupling: DC Align: Off	Input Z: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.442000000 GHz Avg Hold:>10/10 Radio Std: None		
6.50 3.50 1.35 3.5 3.5 3.5 3.5 3.5 3.5 3.5	1 Graph Scale/		т јВ						
135 335 335 335 345 355 355 355 3	Log 6.50								
225         Image: Construction of the second s									
435         435 <td></td> <td></td> <td>and the second second</td> <td>and the second</td> <td></td> <td></td> <td></td> <td>munan</td> <td>and an and a second D and</td>			and the second	and the second				munan	and an and a second D and
43.5 53.5	-23.5								
535									
Occupied Bandwidth 34.810 MHz         Total Power         20.1 dBm           Transmit Freq Error         -186.96 kHz         % of OBW Power         99.00 %									
Center 2.44200 GHz         #Video BW 3.0000 MHz*         Span 60 I           VRes BW 1.0000 MHz         Sweep 1.00 ms (1001         Sweep 1.00 ms (1001           2 Metrics         •         •         •           Occupied Bandwidth 34.810 MHz         Total Power         20.1 dBm           Transmit Freq Error         -186.96 kHz         % of OBW Power         99.00 %									
Sweep 1.00 MHz         Sweep 1.00 ms (1001)           2 Metrics         •           Occupied Bandwidth 34.810 MHz         Total Power         20.1 dBm           Transmit Freq Error         -186.96 kHz         % of OBW Power         99.00 %	73.5				-				
Occupied Bandwidth         Total Power         20.1 dBm           34.810 MHz         Transmit Freq Error         -186.96 kHz         % of OBW Power         99.00 %						#Video BW 3.000	0 MHz*	Sweep 1.0	Span 60 MHz 0 ms (1001 pts)
34.810 MHz         Total Power         20.1 dBm           Transmit Freq Error         -186.96 kHz         % of OBW Power         99.00 %	2 Metric	:s	۲						
Transmit Freq Error -186.96 kHz % of OBW Power 99.00 %			Occupied B		-		7.1.0	00 f /D	
X dB Bandwidth 32.85 MHz X dB -6.00 dB Loc									<u> </u>
			X dB Bandw	latn	32.85 MHZ		X dB	-6.00 dB	Local

MODULATION/BITRATE: BPSK / 6.5 Mbps (OBW MAX = 40 MHz)



Test specification:	est specification: Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth							
Test procedure:	ANSI C63.10 section 11.8.1							
Test mode:	Compliance	Verdict:	PASS					
Date(s):	23-Jul-23	verdict:	PA33					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC					
Remarks:								

#### Plot 7.1.18 6 dB and 99% bandwidth test result at high frequency



MODULATION/BITRATE: BPSK / 6.5 Mbps (OBW MAX = 40 MHz)



Test specification:	Test specification: Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth							
Test procedure:	ANSI C63.10 section 11.8.1							
Test mode:	Compliance	Verdict:	PASS					
Date(s):	23-Jul-23	verdict:	PA33					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC					
Remarks:								

#### Plot 7.1.19 6 dB and 99% bandwidth test result at low frequency

Occupied		• +			
	Coupling: DC Align: Off	Input Z: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.412000000 GHz Avg]Hold.>10/10 Radio Std: None
1 Graph Scale/Div	10.0 dB			Ref Lvi Offset 48 Ref Value 21.00	
Log	10.0 08	r		Kei value 21.00	
11.0					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
-9.00					
-19.0	and the second second		_		
-29.0					
-39.0					
-59.0					
-69.0					
	41200 GHz 300.00 kHz	,		#Video BW 1.000	00 MHz* Span 30 / Sweep 1.00 ms (1001
2 Metrics	•				
			_		
	Occupied B	17.778 MHz	-		Total Power 21.5 dBm
	Transmit Fr	ea Error	-26.563 kHz		% of OBW Power 99.00 %
	x dB Bandw		17.67 MHz		x dB -6.00 dB Loc
1		<b>7</b> Jul 23, 2023			
-		10:14:36 AM			

MODULATION/BITRATE: 64QAM/ 65 Mbps (OBW MAX = 20 MHz)

#### Plot 7.1.20 6 dB and 99% bandwidth test result at mid frequency

						1 1		,
Spectru Occupie	im Analy. ed BW	zer 1	• <b>+</b>					
KEYS	IGHT	Input: RF	Input Z: 50 Q	Atten: 10 dB	Trig: Free Run	Center Freq: 2.437000000 GHz		
RL		Coupling: DC	Corr		Gate: Off	Avg Hold:>10/10		
LM	÷	Align: Off	Freq Ref: Int (S)		#IF Gain: Low	Radio Std: None		
1 Graph	1	•			Ref Lvi Offset 4	8.00 dB		
	0iv 10.0	dB			Ref Value 14.00			
Log								
4.00						~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
-16.0								
-26.0	-	of the second						man
-36.0								
-46.0								
-56.0								
-66.0								
-76.0								
	2.43700 W 300.0				#Video BW 1.000	DO MHz*	Sweep 1.0	Span 30 MH 0 ms (1001 pts
2 Metric	s	۲						
		Occupied B						
			17.870 MHz			Total Power	19.4 dBm	
		Transmit Fre		140.75 kHz		% of OBW Power	99.00 %	
		x dB Bandw	/idth	17.73 MHz		x dB	-6.00 dB	Local
	6		Jul 23, 2023					
	-) (		10:15:16 AM					
	-)(		10:15:16 AM					

#### MODULATION/BITRATE: 64QAM / 65 Mbps (OBW MAX = 20 MHz)



Test specification:	Test specification: Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth							
Test procedure:	ANSI C63.10 section 11.8.1							
Test mode:	Compliance	Verdict:	PASS					
Date(s):	23-Jul-23	verdict:	PA33					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC					
Remarks:								

## Plot 7.1.21 6 dB and 99% bandwidth test result at high frequency

Spectrum Ana Occupied BW	lyzer 1	<b>'</b> +					
KEYSIGHT	Input: RF Coupling: DC Align: Off	Input Z: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.462000000 GHz Avg Hold:>10/10 Radio Std: None		
1 Graph Scale/Div 10.	v 0 dB			Ref LvI Offset 49 Ref Value 14.00			
4.00							
-6.00							
-26.0							and the Control of Con
46.0							
-56.0							
-76.0							
Center 2.4620 #Res BW 300				#Video BW 1.000	0 MHz*	Sweep 1.0	Span 30 MH 0 ms (1001 pt
2 Metrics	۲					· · · · ·	
	Occupied B	andwidth 17.808 MHz			Total Power	21.0 dBm	
	Transmit Fro x dB Bandw		87.493 kHz 17.71 MHz		% of OBW Power x dB	99.00 % -6.00 dB	Local
		) Jul 23, 2023 🖌					

MODULATION/BITRATE: 64QAM / 65 Mbps (OBW MAX = 20 MHz)



Test specification:	Test specification: Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth							
Test procedure:	ANSI C63.10 section 11.8.1							
Test mode:	Compliance	Verdict:	PASS					
Date(s):	23-Jul-23	verdict:	PA33					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC					
Remarks:								

#### Plot 7.1.22 6 dB and 99% bandwidth test result at low frequency

Spectrum Analy Occupied BW		<b>•</b> +							
KEYSIGHT	Input: RF Coupling: DC Align: Off	Input Ζ: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.4 Avg Hold:>10/10 Radio Std: None				
1 Graph Scale/Div 10.0	dB			Ref LvI Offset 46 Ref Value 19.50					
9.50		[							
0.50									
10.5	and and and and and and							And memory and	
30.5							_		halos and a sub-stop where
10.5 50.5									
60.5							_		
70.5									
Center 2.42200 Res BW 1.000				#Video BW 3.000	0 MHz*			Sweep 1.0	Span 60 Mi 0 ms (1001 pi
2 Metrics	•								
	Occupied B		]						
		34.133 MHz	]			al Power		19.9 dBm	
	Transmit Fre x dB Bandw		828.05 kHz 26.39 MHz		% o x dE	f OBW Power		99.00 % -6.00 dB	Loca
	A do Danaw		20.00 11112		Xu	*	1	5.50 QD	Local
		Lui 23, 2023 🖉							
<b>(</b> )		Jul 23, 2023 10:03:44 AM						- I 🔖	i 66 📈

MODULATION/BITRATE: 64QAM / 65 Mbps (OBW MAX = 40 MHz)

#### Plot 7.1.23 6 dB and 99% bandwidth test result at mid frequency

KEYS RL		nput: RF Coupling: DC Nign: Off	Input Z: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.442000000 Avg[Hold:>10/10 Radio Std: None	GHz		
	) Div 10.0 c	JB			Ref LvI Offset 52 Ref Value 18.50				
Log 8.50			1						
-1.50									
-11.5			1						
-21.5	employee	un des generation dat de						Thereased	
-31.5									
-41.5									
-51.5									
-61.5									
			ļ						
	2.44200 W 1.0000				#Video BW 3.000	0 MHz*		C	Span 60 MHz 0 ms (1001 pts)
2 Metric								Sweep 1.0	o ins (1001 pts)
2 Metric	.5	Occupied Ba	- 1 - 1 10	_					
		Occupied Ba	34.784 MHz			Total Power		20.5 dBm	
		Transmit Fre	a Error	-485.84 kHz		% of OBW P	ower	99.00 %	
		x dB Bandwie		32.18 MHz		x dB		-6.00 dB	Local

#### MODULATION/BITRATE: 64QAM / 65 Mbps (OBW MAX = 40 MHz)



Test specification:	Test specification: Section 15.247(a)2 / RSS-247 section 5.2(a), 6 dB and 99% bandwidth							
Test procedure:	ANSI C63.10 section 11.8.1							
Test mode:	Compliance	Verdict:	PASS					
Date(s):	23-Jul-23	verdict:	PA33					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC					
Remarks:								

## Plot 7.1.24 6 dB and 99% bandwidth test result at high frequency

Spectrum Ana Occupied BW	·	<b>'</b> +					
KEYSIGH RL		Input Z: 50 Ω Corr Freq Ref: Int (S)	Atten: 10 dB	Trig: Free Run Gate: Off #IF Gain: Low	Center Freq: 2.462000000 GHz Avg Hold:>10/10 Radio Std: None		
1 Graph Scale/Div 10.	• 0 dB			Ref Lvi Offset 48 Ref Value 14.50			
4.50							
-5.50							
15.5						- June	-
-25.5							
45.5							
-55.5							
-65.5							
· · · ·		1					
Center 2.4620 #Res BW 1.00				#Video BW 3.000	U MHZ^	Sweep 1.00	Span 60 MH ms (1001 pt
2 Metrics	•						
	Occupied B						
		34.366 MHz			Total Power	20.7 dBm	
	Transmit Fr		56.123 kHz		% of OBW Power	99.00 %	<u> </u>
	x dB Bandw	lidth	32.24 MHz		x dB	-6.00 dB	Local

MODULATION/BITRATE: 64QAM / 65 Mbps (OBW MAX = 40 MHz)



Test specification:								
Test procedure:	ANSI C63.10 section 11.9.2.2.4							
Test mode:	Compliance	Verdict:	PASS					
Date(s):	17-Jan-24	verdict:	PASS					
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC					
Remarks:								

# 7.2 Peak output power

#### 7.2.1 General

This test was performed to measure the maximum peak output power radiated by transmitter. Specification test limits are given in Table 7.2.1.

#### Table 7.2.1 Peak output power limits

Assigned frequency	Maximum antenna	Peak outpu	it power*	Equivalent field strength		
range, MHz	gain, dBi	W	dBm	limit @ 3m, dB(μV/m)**		
902.0 - 928.0						
2400.0 - 2483.5	6.0	1.0	30.0	131.2		
5725.0 - 5850.0						

\*- The limit is provided in terms of conducted RF power at the antenna connector. If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power limit shall be reduced below the stated value as follows:

by 1 dB for every 3 dB that the directional gain of antenna exceeds 6 dBi for fixed point-to-point transmitters operate in 2400-2483.5 MHz band;

without any corresponding reduction for fixed point-to-point transmitters operate in 5725-5850 MHz band; by the amount in dB that the directional gain of antenna exceeds 6 dBi for the rest of transmitters.

\*\*- Equivalent field strength limit was calculated from the peak output power as follows: E=sqrt(30×P×G)/r, where P is peak output power in Watts, r is antenna to EUT distance in meters and G is transmitter antenna gain in dBi.

#### 7.2.2 Test procedure

- 7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.
- 7.2.2.2 The EUT was adjusted to produce maximum available to end user RF output power.
- **7.2.2.3** The resolution bandwidth of spectrum analyzer was set wider than 6 dB bandwidth of the EUT and the field strength of the EUT carrier frequency was measured with antenna connected to spectrum analyzer/ EMI receiver. To find maximum radiation the turntable was rotated 360<sup>o</sup> and the measuring antenna height was swept in both vertical and horizontal polarizations.
- **7.2.2.4** The maximum field strength of the EUT carrier frequency was measured as provided in Table 7.2.2 and associated plots.
- **7.2.2.5** The maximum peak output power was calculated from the field strength of carrier as follows:

 $P = (E \times d)^2 / (30 \times G),$ 

where P is the peak output power in W, E is the field strength in V/m, d is the test distance and G is the transmitter numeric antenna gain over an isotropic radiator.

The above equation was converted in logarithmic units for 3 m test distance:

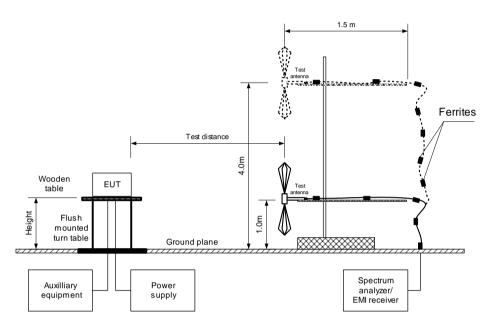
Peak output power in dBm = Field strength in dB( $\mu$ V/m) - Transmitter antenna gain in dBi – 95.2 dB

**7.2.2.6** The worst test results (the lowest margins) were recorded in Table 7.2.2.



Test specification:	Section 15.247(b)3/ RSS-24	7 section 5.4(d), Maximum	output power
Test procedure:	ANSI C63.10 section 11.9.2.2.4		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Jan-24	verdict:	PA35
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC
Remarks:			

Figure 7.2.1 Setup for carrier field strength measurements





Test specification:	Test specification: Section 15.247(b)3/ RSS-247 section 5.4(d), Maximum output power									
Test procedure:	ANSI C63.10 section 11.9.2.2.4	1								
Test mode:	Compliance	- Verdict:	PASS							
Date(s):	17-Jan-24	verdict:	PASS							
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC							
Remarks:										

#### Table 7.2.2 Peak output power test results

3 m

0.8 m

Peak

Peak

1MHz

3MHz

Maximum

2400.0 - 2483.5MHz

Semi anechoic chamber

Biconilog (30 MHz – 1000 MHz) Double ridged guide (above 1000 MHz)

ASSIGNED FREQUENCY: TEST DISTANCE: TEST SITE: EUT HEIGHT: DETECTOR USED: TEST ANTENNA TYPE:

TRANSMITTER OUTPUT POWER SETTINGS: DETECTOR USED: **RESOLUTION BANDWIDTH:** VIDEO BANDWIDTH: CHANNEL BANDWIDTH:

CHANNEL BANDWIDTH: MODULATION/BITRATE:				20 MHz CCK /1 Mbps						
	Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
	2412	108.71	Н	1.5	-40	-2	15.51	30	-14.49	Pass
	2437	111.28	Н	1.5	-40	-2	18.08	30	-11.92	Pass
	2462	112.56	Н	1.5	-40	-2	19.36	30	-10.64	Pass

•••••===	BANDWIDTH: ON/BITRATE:		20 MHz CCK /11 Mbps						
Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
2412	109.81	Н	1.5	-40	-2	16.61	30	-13.39	Pass
2437	111.28	Н	1.5	-40	-2	18.08	30	-11.92	Pass
2462	112.57	Н	1.5	-40	-2	19.37	30	-10.63	Pass

	• • • • • • • • = = =	BANDWIDTH:		20 MHz BPSK /6 Mbps						
_	MODULATIO	ON/BITRATE:								
	Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
	2412	112.95	Н	1.5	-135	-2	19.75	30	-10.25	Pass
	2437	114.01	Н	1.5	-135	-2	20.81	30	-9.19	Pass
L	2462	114.60	H	1.5	-135	-2	21.40	30	-8.6	Pass

#### CHANNEL BANDWIDTH: MODUL ATION/DITDATE.

MODULATIO	ON/BITRATE:			64QA	. <u>.</u> M /54 Mbps				
Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
2412	111.33	Н	1.5	-135	-2	18.13	30	-11.87	Pass
2437	112.00	Н	1.5	-135	-2	18.8	30	-11.2	Pass
2462	113.54	Н	1.5	-135	-2	20.34	30	-9.66	Pass

20 MHz

20 MHz

#### CHANNEL BANDWIDTH: MODULATION/BITRATE:

MODULATIO	ON/BITRATE:		BPSK /6.5 Mbps						
Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
2412	112.41	Н	1.5	-135	-2	19.21	30	-10.79	Pass
2437	111.78	Н	1.5	-135	-2	18.58	30	-11.42	Pass
2462	114.26	Н	1.5	-135	-2	21.06	30	-8.94	Pass



Test specification:	Test specification: Section 15.247(b)3/ RSS-247 section 5.4(d), Maximum output power									
Test procedure:	ANSI C63.10 section 11.9.2.2.4									
Test mode:	Compliance	Verdict:	PASS							
Date(s):	17-Jan-24	verdict:	PASS							
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC							
Remarks:										

#### Table 7.2.3 Peak output power test results (continuation)

3 m

0.8 m

Peak

Peak

1MHz

3MHz

20 MHz

40 MHz

Maximum

2400.0 - 2483.5MHz

Semi anechoic chamber

Biconilog (30 MHz - 1000 MHz)

Double ridged guide (above 1000 MHz)

ASSIGNED FREQUENCY: TEST DISTANCE: TEST SITE: EUT HEIGHT: DETECTOR USED: TEST ANTENNA TYPE:

TRANSMITTER OUTPUT POWER SETTINGS: DETECTOR USED: **RESOLUTION BANDWIDTH:** VIDEO BANDWIDTH:

CHANNEL BANDWIDTH:

MODULATIO	ON/BITRATE:		64QAM /65 Mbps						
Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
2412	111.67	Horizontal	1.5	-135	-2	18.47	30	-11.53	Pass
2437	112.78	Horizontal	1.5	-135	-2	18.94	30	-11.06	Pass
2462	113.41	Horizontal	1.5	-135	-2	20.21	30	-9.79	Pass

CHANNEL BANDWIDTH:

•••••===	ON/BITRATE:			BPSK	/6.5 Mbps				
Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**	Limit, dBm	Margin, dB***	Verdict
2422	113.12	Horizontal	1.5	-135	-2	19.89	30	-10.11	Pass
2442	113.89	Horizontal	1.5	-135	-2	20.66	30	-9.34	Pass
2462	113.25	Horizontal	1.5	-135	-2	20.02	30	-9.98	Pass

•••••===	BANDWIDTH: DN/BITRATE:			40 M⊦ 64QA	Hz M ∕65 Mbps	
Frequency, MHz	Field strength, dB(μV/m)	Antenna polarization	Antenna height, m	Azimuth, degrees*	EUT antenna gain, dBi	Peak output power, dBm**
2422	112.08	Horizontal	1.5	-135	-2	18.85

\*- EUT front panel refer to 0 degrees position of turntable.

Horizontal

Horizontal

\*\*- Peak output power was calculated from the field strength of carrier as follows:  $P = (E \times d)^2 / (30 \times G)$ ,

1.5

1.5

where P is the peak output power in W, E is the field strength in V/m, d is the test distance in meters and G is the transmitter numeric antenna gain over an isotropic radiator. The above equation was converted in logarithmic units for 3 m test distance: Peak output power in dBm = Field strength in dB( $\mu$ V/m) - Transmitter antenna gain in dBi – 95.2 dB \*\*\*- Margin = Peak output power - specification limit.

-135

-135

-2

-2

Note: Maximum peak output power was obtained at Unom (115%Unom, 85%Unom) input power voltage.

#### Reference numbers of test equipment used

112.55

113.29

2442

2462

HL 3903	HL 4933	HL 5624	HL 5902	HL 7585		

Full description is given in Appendix A.

Margin,

dB\*\*\*

-11.15

-10.68

-9.94

Verdict

Pass

Pass

Pass

Limit.

dBm

30

30

30

19.32

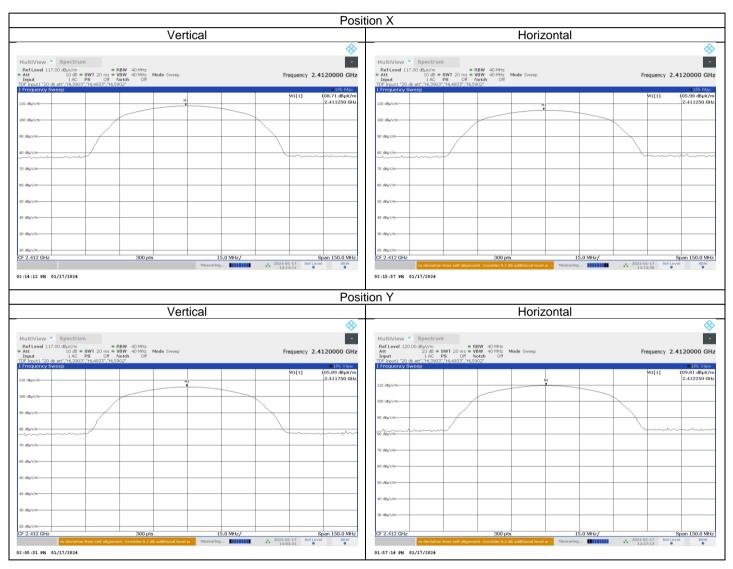
20.06



Test specification:	Section 15.247(b)3/ RSS-24	7 section 5.4(d), Maximum	output power
Test procedure:	ANSI C63.10 section 11.9.2.2.4		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Jan-24	verdict:	PA33
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC
Remarks:			

#### Plot 7.2.1 Field strength of carrier at low frequency

CHANNEL BANDWIDTH: 20 MHz MODULATION / BITRATE: CCK / 1 Mbps

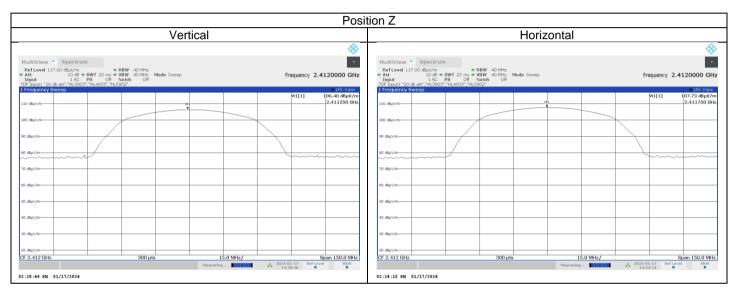




Test specification:	Section 15.247(b)3/ RSS-24	7 section 5.4(d), Maximum	output power
Test procedure:	ANSI C63.10 section 11.9.2.2.4		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Jan-24	verdict:	PA33
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC
Remarks:			

#### Plot 7.2.2 Field strength of carrier at low frequency

CHANNEL BANDWIDTH: 20 MHz MODULATION / BITRATE: CCK / 1 Mbps



#### Plot 7.2.3 Field strength of carrier at low frequency

#### CHANNEL BANDWIDTH: 20 MHz MODULATION / BITRATE: CCK / 11Mbps

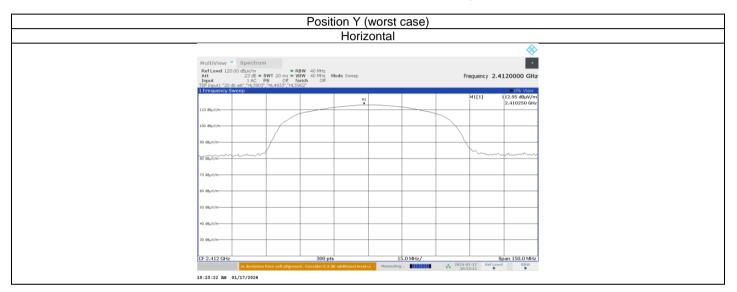
	Posit	ion Y (worst case)		
		Horizontal		
Defined 12	Spectrum     20.00 dBµV/m     23 dB = SWT 20 ms = VBW 40 MHz     23 dB = SWT 20 ms = VBW 40 MHz     N tAC PS Off Notch Off     0 db att; "HL3903";"HL4933","HL5902"     Sweep	tode Sweep	• Frequency 2.4120000 GHz • 1Pk Max	
110 dBµv/m		M1	M1[1] 109.81 dBµV/m 2.410750 GHz	
100 dBµ//m				
90 d6µv/m				
80 deyr¥/m				
70 dBµV/m				
50 dBµV/m				
40 d8µV/m				
30 dBµV/m				
CF 2.412 GHz	z 300 pts Tre deviation from self alignment. Consider 0.2 di		Span 150.0 MHz 2024-01-17 Ref Level R&W 13:35:51 • • • •	
01:35:51 PM	01/17/2024			



Test specification:	Section 15.247(b)3/ RSS-24	7 section 5.4(d), Maximum	output power
Test procedure:	ANSI C63.10 section 11.9.2.2.4		
Test mode:	Compliance	Verdict:	PASS
Date(s):	17-Jan-24	verdict:	PA33
Temperature: 25 °C	Relative Humidity: 45 %	Air Pressure: 1010 hPa	Power: 4.37 VDC
Remarks:			

#### Plot 7.2.4 Field strength of carrier at low frequency

CHANNEL BANDWIDTH: 20 MHz MODULATION / BITRATE: BPSK / 6 Mbps



#### CHANNEL BANDWIDTH: 20 MHz MODULATION / BITRATE: 64QAM / 54 Mbps

Position Y (worst case)									
				Horizo	ontal				
MultiView Ref Level 120.0 Att Input TDF Input 120 db		R     R     VT 20 ms      VT     Off N     HL4933","HL59	BW 40 MHz BW 40 MHz Jotch Off 902*	Mode Sweep			Fr	equency 2.4	• 120000 GHz
110 dBµV/m	/cep			MI				M1[1] 1	11.33 dBµV/m 2.412250 GHz
100 dBµV/m		_							
90 d8µV/m		/					$\rightarrow$		
80 dBµV/m									~~~~~
70 dBµV/m									
60 dBµV/m									
50 dBµV/m									
30 dBµV/m									
CF 2.412 GHz			300 pt			.0 MHz/	<ul> <li>2024-0</li> </ul>		an 150.0 MHz
01:23:39 PM 0		om self alignme	int. Consider 0.2	dB additional level u	Measuring		13:2	1-17 Ref Level 3:38	•