

Test specification:	Section 96.41(e), Emission mask			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	19-Jul-20 - 29-Nov-20	verdict:	PASS	
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VDC	
Remarks:	-			

Plot 7.4.22 Emission outside the fundamental test results in 3530 - 3575 GHz range at mid carrier frequency

MODULATION: CHANNEL SPACING: ANTENNA CHAIN: #1 Spectrum Spectrum 3 Ref Level -10.00 dbm Offset 40.00 db • RBW 1 MHz att 0 db SWT 2.1 ms VBW 10 MHz SGL court 100/100	20 A ⊗ Spectra Mode Sweep w Att	56QAM 0 MHz NTENNA CHAIN: #2 met 10.00 dbm 0ffset 40.00 db 9 KBW 1 MHz 0 db SWT 2.1 ms VBW 10 MHz Mode Sweep nt 100/100 GATEXT TO
1Rm AvgPwr	● 1Rm Avg	
-20 dBm-	M1[1] -34.79 dBm 3.5501610 GHz -20 dBm	M1[1] -35.04 dBm 3.5619450 GHz
		01 -28.000 dBm
-3U 08m M1	-30 dBm-	01
-50 dBm	ANA AND AND AND AND AND AND AND AND AND	an an an an an aile for the she that the of the former than the forth of the former and the forth of the former the
-60 dBm	-60 dBm	
-70 d8m	-70 dBm-	
-80 dBm	-80 dBm-	
-90 dBm	-90 dBm-	
-100 d8m	-100 dBm-	
Start 3.53 GHz 2001 pts	Stop 3.575 GHz Start 3.5	3 GHz 2001 pts Stop 3.575 GHz

ANTENNA CHAIN: #3	ANTENNA CHAIN: #4
Spectrum 2 X Spectrum 3 X	Spectrum Spectrum 2 (X) Spectrum 3 (X)
Ref Level -10.00 dBm Offset 40.00 dB RBW 1 MHz Att 0 dB SWT 2.1 ms VBW 10 MHz Mode Sweep	RefLevel -10.00 dBm Offset 40.00 dB RBW 1 MHz Att 0 dB SWT 2.1 ms VBW 10 MHz Mode Sweep
SGL Count 100/100 GAT:EXT TDF	SGL Count 100/100 GAT:EXT TDF
●1Rm AvgPwr	IRm AvgPwr
M1[1] -34.16 (3.5676120	
-20 dBm	-20 dBm-
-30 dBm D1 -28.000 dBm M1	-30 dBm D1 -28.000 dBm M1
-40 dBm	-00 dem
	-S0 dBm
-60 dBm	-60 dBm
-70 d8m	-70 dBm-
-80 dBm	-60 dBm-
00 ffm	
-90 d8m-	-90 d8m
-100 dBm-	-100 dBm
Start 3.53 GHz 2001 pts Stop 3.575 G	4z Start 3.53 GHz 2001 pts Stop 3.575 GHz



Test specification:	Section 96.41(e), Emission mask			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	19-Jul-20 - 29-Nov-20	verdict.	FA35	
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VDC	
Remarks:				

Plot 7.4.23 Emission outside the fundamental test results in 3575 - 3675 GHz range at mid carrier frequency

Ref Level 20.00 dBm Offset 40.00 dB	pectrum 2 3 RBW 100 Hz VBW 1 MHz Mode Sweep	E T	Spectrum Ref Level 20.00 d	Z INA CHAIN Spectrum 2 X Bm Offset 40.00 dB	Spectrum 3 🛛 🗴	ode Sweep	(TH) (V)
10 dbm 2222222			0 dBm				NA Second Control of C
CF 3.625 GHz	2001 pts	Span 100.0 MHz	CF 3.625 GHz		2001 pts		Span 100.0 MHz
Channel Power Channel Bandwidth	Offset Power	1	Channel Power Channel	Bandwidth	Offset	Power	
TX1 (Ref) 20.000 MHz	32.02 dB		TX1 (Ref)	20.000 MHz		31.93 dBm	
Tx Total	32.02 dBi		Tx Total			31.93 dBm	
Channel Bandwidth	Offset Lower	Upper	Channel	Bandwidth	Offset	Lower	Upper
Adj 1.000 MHz	10.500 MHz -57.15 d		Adj	1.000 MHz	10.500 MHz	-55.75 dB	-55.79 dB
Alt1 1.000 MHz	20.500 MHz -66.77 d		Alt1	1.000 MHz	20.500 MHz	-66.19 dB	-67.74 dB
Alt2 1.000 MHz	30.500 MHz -69.05 d	B -68.80 dB	Alt2	1.000 MHz	30.500 MHz	-68.97 dB	-69.37 dB

ANTENNA	A CHAIN: #	3			ANTE	INNA CHAIN	l: #4		
Spectrum	Spectrum 2 🛛 🕅	Spectrum 3	X	Ē	Spectrum	Spectrum 2 🛛 🕅	Spectrum 3 🛛 🗶)	
Ref Level 20.00	dBm Offset 40.00	dB 🖷 RBW 100 kHz			Ref Level 20.00	0 dBm Offset 40.00 dB	🛯 👄 RBW 100 kHz		
Att	5 dB 👄 SWT 🛛 500 r	ms 👄 VBW 1 MHz	Mode Sweep		Att	5 dB 👄 SWT 500 ms	👄 VBW 1 MHz 🛛 M	lode Sweep	
SGL GAT:EXT TDF					SGL GAT:EXT TDP	-			
1Rm Clrw					●1Rm Clrw]
10 dBm				AR2	10 dBm				
CF 3.625 GHz		2001 pts		Span 100.0 MHz	CF 3.625 GHz		2001 pts		Span 100.0 MHz
Channel Power					Channel Power				
Channel	Bandwidth	Offset	Power		Channel	Bandwidth	Offset	Power	
TX1 (Ref)	20.000 MHz		31.98 dBm		TX1 (Ref)	20.000 MHz		31.85 dBm	
Tx Total			31.98 dBm		Tx Total			31.85 dBm	
Channel	Bandwidth	Offset	Lower	Upper	Channel	Bandwidth	Offset	Lower	Upper
Adj	1.000 MHz	10.500 MHz	-57.28 dB	-56.41 dB	Adj	1.000 MHz	10.500 MHz	-57.14 dB	-56.15 dB
Alt1	1.000 MHz	20.500 MHz	-68.35 dB	-67.30 dB	Alt1	1.000 MHz	20.500 MHz	-68.47 dB	-67.41 dB
Alt2	1.000 MHz	30.500 MHz	-67.57 dB	-69.37 dB	Alt2	1.000 MHz	30.500 MHz	-70.17 dB	-68.99 dB



Test specification:	Section 96.41(e), Emission mask			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	19-Jul-20 - 29-Nov-20	verdict:	PASS	
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VDC	
Remarks:	-			

Plot 7.4.24 Emission outside the fundamental test results in 3675 - 3720 GHz range at mid carrier frequency

MODULATION: CHANNEL SPACING: ANTENNA CHAIN: #1 Spectrum 3 Spectrum 3 S Ref Level -10.00 dbm offset 40.00 db 8 W 1 1MHz Att 0.0 db SWT 2.1 ms VBW 10 MHz Mode Sweep SSL count 10/000	256QAM 20 MHz ANTENNA CHAIN: #2
IRm AvoPwr	GATEAT TOP GATEAT TOP GATEAT TOP
M1[1] -36.50 dBm 3.6766980 GHz	M1[1] -34.56 dBm
-20 dBm	-20 dBm
-30 dbm	-30 dbm M1
1984 Bather to to the to attend of a stand of the stand o	12334 and 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
-50 dBm	-50 dBm-
-60 dBm	-60 dBm-
-70 dBm	-70 dBm-
-60 dBm	-ED dBm
-90 dBm	-90 dBm-
-100 dBm	-100 dBm
Start 3.675 GHz 2001 pts Stop 3.72 GHz	Start 3.675 GHz 2001 pts Stop 3.72 GHz

ANTENNA CHAIN: #3			ANTENNA CHAIN: #4
	ectrum 3 🛛 🗶		Spectrum Spectrum 2 X Spectrum 3 X
Ref Level -10.00 dBm Offset 40.00 dB Att 0 dB SWT 2.1 ms	RBW 1 MHz VBW 10 MHz Mode Sweep		RefLevel -10.00 dBm Offset 40.00 dB RBW 1 MHz Att 0 dB SWT 2.1 ms VBW 10 MHz Mode Sweep
SGL Count 100/100 GAT:EXT TDF	· · · · · · · · · · · · · · · · · · ·		SGL Count 100/100 GAT:EXT TDF
1Rm AvgPwr			1Rm AvgPwr
	M1[1]	-34.47 dBm 3.6793740 GHz	M1[1] -34.81 dBm 3.6793520 GHz
-20 dBm			-20 dBm
-30 dBm - 28.000 dBm			-30 dBm
Kasaphiliki funasidi mittimooftatti kunaantuuni uu	WARAN PARTY IN CONTRACT A CONTRACT		a 25 28 19 19 19 19 19 19 19 19 19 19 19 19 19
-50 dBm	an and a state of the second	and the second state of the second	-50 d8m
-30 0811			-30 ubii
-60 dBm			-60 d8m-
-70 dBm			-70 dBm
-60 dBm			-80 dBm
-90 dBm			-90 dBm
-100 dBm			-100 dBm-
Start 3.675 GHz 2001 pts Stop 3.72 GHz			Start 3.675 GHz 2001 pts Stop 3.72 GHz



Test specification:	Section 96.41(e), Emission mask			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	19-Jul-20 - 29-Nov-20	verdict:	PASS	
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VDC	
Remarks:	-			

Plot 7.4.25 Emission outside the fundamental test results in 3530 - 3640 GHz range at high carrier frequency

MODULATION: CHANNEL SPACING: ANTENNA CHAIN: #1 Spectrum Spectrum 2 Spectrum 3 C Ref Level -10.00 dBm Offset 40.00 dB RBW 1 MHz Att 0 dB swyT 2.1 ms VBW 10 MHz Node Sweep Count 100/100 GATEXT TOF © IBm AvgWr	QPSK 20 MHz ANTENNA CHAIN: #2 Spectrum Spectrum 3 Ref Level - 10.00 dBm Offs events 10 dB SWT 2.1 ms VBW 10 MHz Node Sweep Count 100/100 GATLEXT TDF
M1[1] -31.48 dBm	Km AvgPwr M1[1] -28.62 dBm
-20 dBm	-20 dBm
-30 dBm 01 -28.000 dBm ML	-30 dBm D1 -28.000 dBm
-40 dBm	-40 dBm
- So dem -	SO d8m
-60 dBm-	-60 dBm
-70 dBm	-70 dBm-
-60 dBm-	-80 dBm-
-90 dBm	-90 dBm-
-100 dBm	-100 dBm-
Start 3.53 GHz 2001 pts Stop 3.64 GHz	Start 3.53 GHz 2001 pts Stop 3.64 GHz

ANTENNA CHAIN: #3	_	ANTENNA CHAIN: #4
Spectrum Spectrum 3 🗵 Spectrum 2 (₩	Spectrum 3 🕱 Spectrum 2 🗴
Ref Level -10.00 dBm Offset 40.00 dB RBW 1 MHz Att 0 dB SWT 2.1 ms VBW 10 MHz Count 100/100 GAT:EXT TDF		RefLevel 10.00 dBm Offset 40.00 dB RBW 1 MHz Att 0 dB SWT 2.1 mis VBW 10 MHz Mode Sweep Count 100/100 GATLEXT GATLEXT
IRm AvgPwr	M1[1] -33.25 dBm 3.6370590 GHz	IRm AvgPwr M1[1] -30.35 dBm 3.6334860 GHz
-20 dBm		-20 dBm
-30 dBm		-30 dBm
-50 dBm		-50 d8m
-60 dBm		-60 dBm
-70 dBm		-70 dBm
-60 dBm		-60 d8m
-90 dBm		-90 d8m-
-100 dBm		-100 dBm-
Start 3.53 GHz 2001 pts	Stop 3.64 GHz	Start 3.53 GHz 2001 pts Stop 3.64 GHz



Test specification:	Section 96.41(e), Emissior	n mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	19-Jul-20 - 29-Nov-20	verdict.	FA35
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.26 Emission outside the fundamental test results in 3640 - 3740 GHz range at high carrier frequency

	1	3 Mode Sweep		Spectrum Ref Level 20.00	Hz NNA CHAIN Spectrum 2 (X) dem Offset 40.00 de 5 de § SWT 500 ms		X Mode Sweep	(m) ⊽
10 dBm Alt2 Alt1 0 dBm Alt2 Alt1 -10 dBm				10 dBm 0 dBm -10 dBm -20 dBm -20 dBm -40 dBm -40 dBm -60 dBm -70 dBm		743 - 773 -		700
CF 3.69 GHz	2001 pts		Span 100.0 MHz	CF 3.69 GHz		2001 pts		Span 100.0 MHz
Channel Power				Channel Power				
Channel Bandwidth TX1 (Ref) 20.000 MHz	Offset	22.67 dBm		Channel TX1 (Ref)	Bandwidth 20.000 MHz	Offset	31.38 dBm	
Tx Total		32.67 dBm		Tx Total	20,000 MHZ		31.38 dBm	
Channel Bandwidth	Offset	Lower	Upper	Channel	Bandwidth	Offset	Lower	Upper
Adj 1.000 MHz	10.500 MHz	-55.63 dB	-55.12 dB	Adj	1.000 MHz	10.500 MHz	-54.82 dB	-55.90 dB
Alt1 1.000 MHz	20.500 MHz	-66.58 dB	-68.02 dB	Alt1	1.000 MHz	20.500 MHz	-64.04 dB	-63.98 dB
Alt2 1.000 MHz	30,500 MHz	-67.99 dB	-74.05 dB	Alt2	1.000 MHz	30,500 MHz	-64,45 dB	-72.65 dB

ANTENNA CHAIN: #3			ANTE	NA CHAIN	: #4		
Spectrum 3 X Spectrum 2 X		Ē	Spectrum	Spectrum 3 🛛 🙁	Spectrum 2 🛛)	₽
Ref Level 20.00 dBm Offset 40.00 dB RBW 100 kHz Att 5 dB SWT 500 ms VBW 1 MHz Mod SGL GAT:EXT TDF F SGL GAT:EXT TDF SGL GAT:EXT TDF SGL GAT:EXT TDF SGL GAT:EXT TDF	de Sweep		Ref Level 20.00 c Att 5 SGL GAT:EXT TDF		 RBW 100 kHz VBW 1 MHz M 	lode Sweep	
1Rm Clrw			1Rm Clrw]
10 dbm / 2			10 dBm 0 dBm -10 dBm -20 dBm -20 dBm -30 dBm -40 dBm -50 dBm -50 dBm -50 dBm -70 dBm				
CF 3.69 GHz 2001 pts		Span 100.0 MHz	CF 3.69 GHz		2001 pts		Span 100.0 MHz
Channel Power			Channel Power				
Channel Bandwidth Offset	Power		Channel	Bandwidth	Offset	Power	
TX1 (Ref) 20.000 MHz	32.46 dBm 32.46 dBm		TX1 (Ref) Tx Total	20.000 MHz		32.48 dBm 32.48 dBm	
Channel Bandwidth Offset	Lower	Upper	Channel	Bandwidth	Offset	Lower	Upper
Adj 1.000 MHz 10.500 MHz	-56.19 dB	-57.76 dB	Adj	1,000 MHz	10.500 MHz	-56.61 dB	-57.20 dB
Alt1 1.000 MHz 20.500 NHz	-63.32 dB	-67.95 dB	Alt1	1.000 MHz	20.500 MHz	-65.87 dB	-68.93 dB
Alt2 1.000 MHz 30,500 MHz							



Test specification:	Section 96.41(e), Emissior	n mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	19-Jul-20 - 29-Nov-20	verdict.	FA35
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.27 Emission outside the fundamental test results in 3530 - 3640 GHz range at high carrier frequency

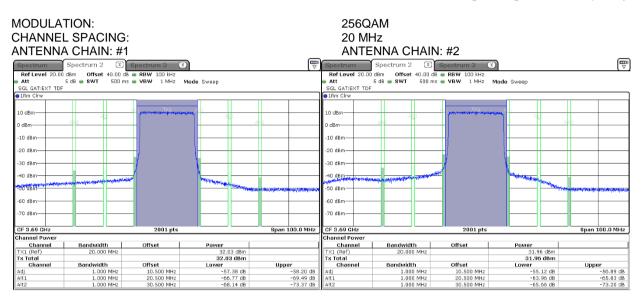
Ref Level -10.00 dBm Offset 40.00 dB RBW 1 MHz Att odb SVIT 2.1 ms VEW 10 MHz Node Sweep SGL Count 100/100 GAT EXT TOF GAT EXT TOF Sweep SGL Count 100/100 GAT EXT TOF	256QAM 20 MHz ANTENNA CHAIN: #2 ♥ Spectrum 2 ♥ Spectrum 3 ♥ ♥ 10 MHz * Att Level 10.00 dBm Offset 40.00 dB ● RBW 1 MHz * Att 0 dB \$ WT 2.1 ms VBW 10 MHz Mode Sweep Scil_Count 100/100 GAT:EXT TDF
●1Rm AvgPwr	●1Rm AvgPwr Bm
-20 dBm	3.6219970 GHz
-20 UBIT	-20 UBIN
-30 dBm 01 -28.000 dBm M	-30 dBm D1 -28.000 dBm M1
1	
-40 dBm	40 dBm
en e	
-60 dBm-	-60 dBm
-70 dBm	-70 dBm
-80 dBm	
-90 dBm-	-90 dBm-
-100 dBm	-100 dBm
Start 3.53 GHz 2001 pts Stop 3.64 G	Hz Start 3.53 GHz 2001 pts Stop 3.64 GHz

ANTENNA CHAIN: #3		ANTENNA CHAIN: #4
Spectrum 2 Spectrum 3	☑ 🐨	Spectrum Spectrum 2 🗶 Spectrum 3 🗶
Ref Level -10.00 dBm Offset 40.00 dB - RBW 1 M		Ref Level -10.00 dBm Offset 40.00 dB - RBW 1 MHz
■ Att 0 dB SWT 2.1 ms VBW 10 M SGL Count 100/100 GAT:EXT TDF	Hz Mode Sweep	Att 0 dB SWT 2.1 ms VBW 10 MHz Mode Sweep SGL Count 100/100 GAT:EXT TDF
IRm AvgPwr		Recount toyldd GALEAT TOP
	M1[1] -34.00 dBm 3.6319470 GHz	M1[1] -32.97 dBm 3.6319470 GHz
-20 dBm		-20 dBm-
-30 dBm D1 -28.000 dBm	191	-30 dBm D1 -28.000 dBm M1
-40 dBm	mumul alle and the state of the	-40 dBm
-50 dBm		-50 dBm
-60 dBm		-60 d8m
-70 dBm-		-70 dBm-
-80 dBm		-60 dBm-
-90 dBm		-90 d8m-
-100 dBm		-100 dBm
Start 3.53 GHz 2001	pts Stop 3.64 GHz	Start 3.53 GHz 2001 pts Stop 3.64 GHz



Test specification:	Section 96.41(e), Emissior	n mask	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	19-Jul-20 - 29-Nov-20	verdict.	FA35
Temperature: 24.2 °C	Relative Humidity: 49 %	Air Pressure: 1010 hPa	Power: 48 VDC
Remarks:			

Plot 7.4.28 Emission outside the fundamental test results in 3640 - 3740 GHz range at high carrier frequency



ANTENNA CHAIN: #3

ANTENNA CHAIN: #4

Spectrum	Spectrum 2 🛛	Spectrum 3	X		Spectrum	Spectrum 2 🛛	Spectrum 3	X	
Ref Level 20.00	dBm Offset 40.00	iB 👄 RBW 100 kHz			Ref Level 20.00	dBm Offset 40.00 d	8 👄 RBW 100 kHz		
Att	5 dB 👄 SWT 👘 500 m	ns 🖶 VBW 1 MHz	Mode Sweep		Att	5 dB 👄 SWT 500 m	s 👄 VBW 1 MHz	Mode Sweep	
SGL GAT:EXT TDF					SGL GAT:EXT TDF				
1Rm Clrw					1Rm Clrw				J
10 dBm					10 dBm				
CF 3.69 GHz		2001 pts		Span 100.0 MHz	CF 3.69 GHz		2001 pts		Span 100.0 MHz
Channel Power					Channel Power				
Channel	Bandwidth	Offset	Power		Channel	Bandwidth	Offset	Power	
TX1 (Ref)	20.000 MHz		31.98 dBn	1	TX1 (Ref)	20.000 MHz		31.71 dBm	
Tx Total			31.98 dBn	1	Tx Total			31.71 dBm	
Channel	Bandwidth	Offset	Lower	Upper	Channel	Bandwidth	Offset	Lower	Upper
Adj	1.000 MHz	10.500 MHz	-56.31 dB		Adj	1.000 MHz	10.500 MHz	-56.53 dB	-57.30 dB
Alt1	1.000 MHz	20.500 MHz	-68.92 dB	-70.17 dB	Alt1	1.000 MHz	20.500 MHz	-69.10 dB	-69.67 dB
Alt2	1.000 MHz	30.500 MHz	-69.02 dt	-73.62 dB	Alt2	1.000 MHz	30.500 MHz	-68.03 dB	-73.21 dB



Test specification:	Section 96.41(e)(2), Radia	ated spurious emissions	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	20-Apr-20	verdict.	FA33
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC
Remarks:			

7.5 Radiated spurious emission measurements

7.5.1 General

This test was performed to measure radiated spurious emissions from the EUT. Specification test limits are given in Table 7.5.1.

Table 7.5.1 Radiated spurious emission test limits
--

Frequency, MHz	EIRP of spurious, dBm	Equivalent field strength limit @ 3m, dB(μV/m)***
0.09 - below 3530.0	-40.0	55.2
3720.0 – 10th harmonic*	-40.0	55.2

*** - Equivalent field strength limit was calculated from maximum allowed ERP of spurious as follows: E=sqrt(30xPx1.64)/r, where P is ERP in Watts, 1.64 is numeric gain of ideal dipole and r is antenna to EUT distance in meters

7.5.2 Test procedure for spurious emission field strength measurements in 9 kHz to 30 MHz band

- 7.5.2.1 The EUT was set up as shown in Figure 7.5.1, energized and the performance check was conducted.
- **7.5.2.2** The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360⁰ and the measuring antenna was rotated around its vertical axis.
- 7.5.2.3 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.

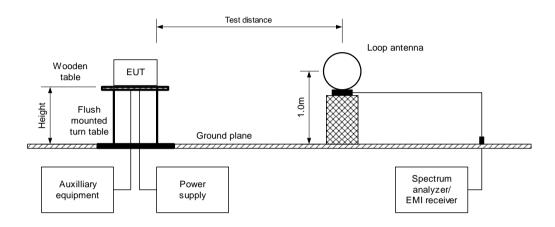
7.5.3 Test procedure for spurious emission field strength measurements above 30 MHz

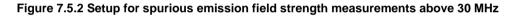
- **7.5.3.1** The EUT was set up as shown in Figure 7.5.2, energized and the performance check was conducted.
- **7.5.3.2** The specified frequency range was investigated with antenna connected to spectrum analyzer. To find maximum radiation the turntable was rotated 360^o and the measuring antenna height was swept from 1 to 4 m in both, vertical and horizontal, polarizations.
- 7.5.3.3 The worst test results (the lowest margins) were recorded in Table 7.5.2 and shown in the associated plots.

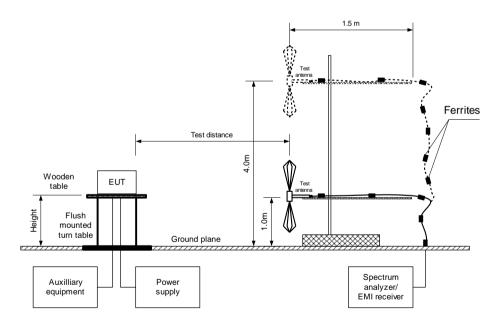


Test specification:	Section 96.41(e)(2), Radia	ated spurious emissions	
Test procedure:	Section 96.41(e)(3)		
Test mode:	Compliance	Verdict:	PASS
Date(s):	20-Apr-20	verdict.	FA33
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC
Remarks:	· · ·		

Figure 7.5.1 Setup for spurious emission field strength measurements in 9 kHz to 30 MHz band









MODULATION:

Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	20-Apr-20	verdict.	FA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:	•			

Table 7.5.2 Spurious emission field strength test results

ASSIGNED FREQUENCY RANGE: TEST DISTANCE: TEST SITE: INVESTIGATED FREQUENCY RANGE: DETECTOR USED: VIDEO BANDWIDTH: TEST ANTENNA TYPE: 3550 - 3700 MHz 3 m Semi anechoic chamber 0.009 – 1000 MHz Peak > Resolution bandwidth Active loop (9 kHz – 30 MHz) Biconilog (30 MHz – 1000 MHz) QPSK PRBS

MODULATING SIGNAL: TRANSMITTER OUTPUT POWER SETTINGS:

PRBS
Maximum

Frequency, MHz	Field strength, dB(μV/m)	Limit, dB(µV/m)	Margin, dB*	RBW, kHz	Antenna polarization	Antenna height, m	Turn-table position**, degrees
113.084	46.85	55.20	-8.35	100	V	1.02	-55.0
127.536	50.33	55.20	-4.87	100	V	1.04	12.0
140.511	32.49	55.20	-22.71	100	V	1.00	59.0
168.888	38.80	55.20	-16.40	100	Н	1.75	-171.0
325.013	32.91	55.20	-22.29	100	V	1.75	-166.0
374.982	46.85	55.20	-8.35	100	V	1.02	-55.0

*- Margin = Field strength of spurious – calculated field strength limit.

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



Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	20-Apr-20	verdict.	FA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:	-			

Table 7.5.3 Field strength of spurious emissions above 1 GHz within restricted bands

TEST DISTANCE: TEST SITE: INVESTIGATED FREQUENCY RANGE: DETECTOR USED: VIDEO BANDWIDTH: TEST ANTENNA TYPE: MODULATION: MODULATING SIGNAL:).009 – 100 Peak > Resolutio	noic chamber	ve 1000 MHz)				
Frequency,	Anten	na	Azimuth.	Peak field s	trength(VB	3W=3 MHz)	Average fie	Id strength(VBW=1	0 Hz)	
	Polarization	Height, m	degrees*	Measured, dB(μV/m)	Limit, dB(µV/m)	Margin, dB**	Measured, dB(μV/m)	Limit, dB(µV/m)	Margin, dB***	Verdict
Low carrier	frequency			-	-				-	-
14223.612	V	2.55	119	61.17	75.2	-14.03	52.00	55.20	-3.20	Pass
Mid carrier f	Mid carrier frequency									
No emissions were found. Pa							Pass			
High carrier	frequency									
	No emissions were found.							Pass		

Reference numbers of test equipment used

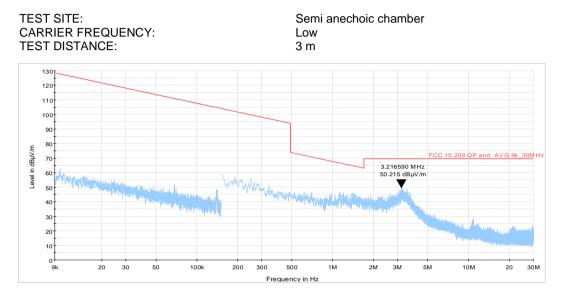
	•	•					
HL 0030	HL 0446	HL 0614	HL 0661	HL 3903	HL 4278	HL 4360	HL 4933
HL 4956	HL 5111	HL 5288					

Full description is given in Appendix A.

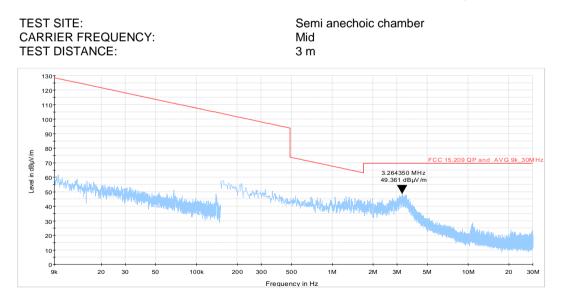


Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict: PASS		
Date(s):	20-Apr-20	verdict.	FA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:				





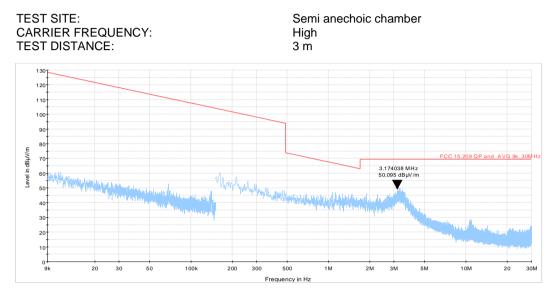
Plot 7.5.2 Radiated emission measurements in 9 kHz - 30 MHz range





Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict: PASS		
Date(s):	20-Apr-20	verdict.	FA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:			·	

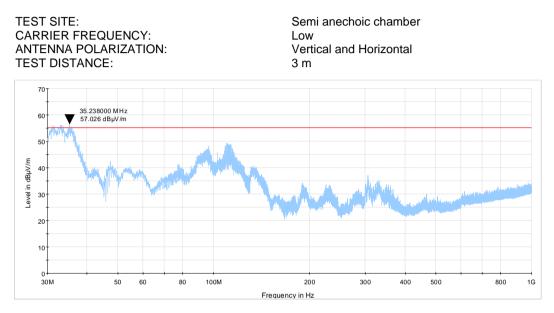




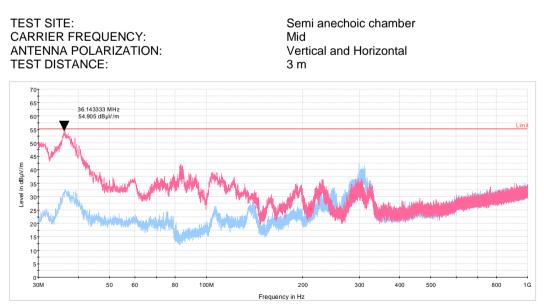


Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	20-Apr-20	veraici.	FA35	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:				



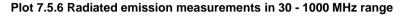


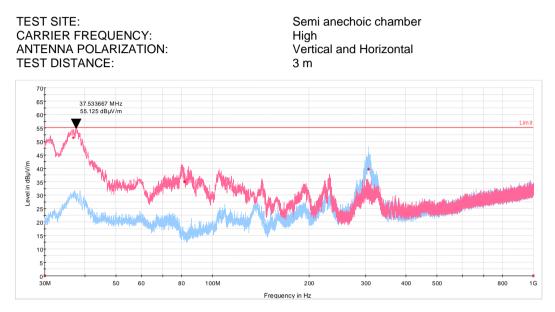






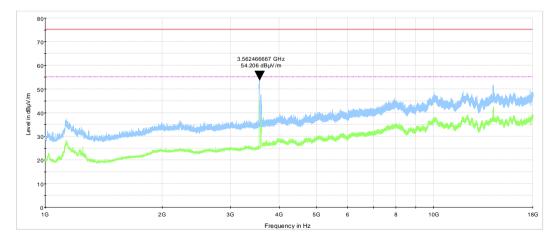
Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict: PASS		
Date(s):	20-Apr-20	verdict.	FA35	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:				





Plot 7.5.7 Radiated emission measurements in 1000 - 18000 MHz range

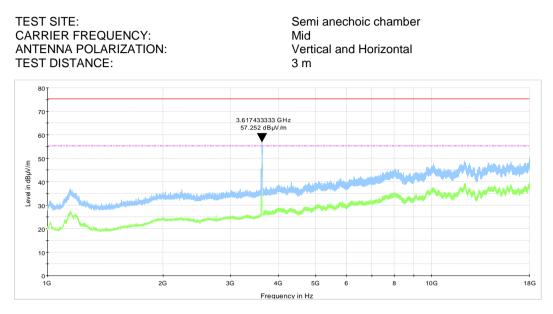
TEST SITE: CARRIER FREQUENCY: ANTENNA POLARIZATION: TEST DISTANCE: Semi anechoic chamber Low Vertical and Horizontal 3 m



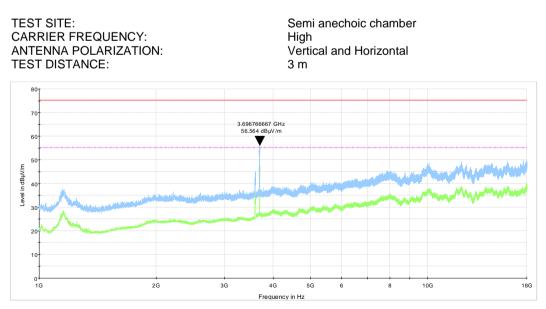


Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	20-Apr-20	veraici.	FA35	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:				





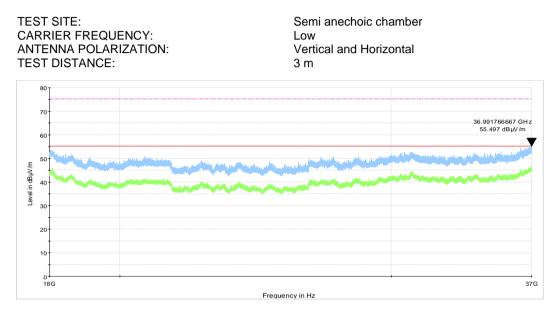




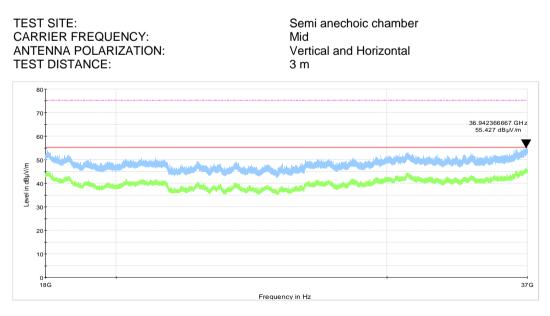


Test specification:	Section 96.41(e)(2), Radiated spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict: PASS		
Date(s):	20-Apr-20	verdict.	FA33	
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:				





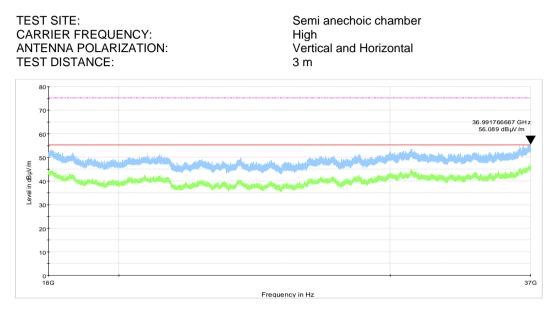






Test specification:	Section 96.41(e)(2), Radiated spurious emissions				
Test procedure:	Section 96.41(e)(3)				
Test mode:	Compliance	- Verdict: PASS			
Date(s):	20-Apr-20				
Temperature: 24 °C	Relative Humidity: 52 %	Air Pressure: 1011 hPa	Power: 48 VDC		
Remarks:					

Plot 7.5.12 Radiated emission measurements in 18000 - 37000 MHz range





Test specification:	Section 96.41(e)(3), Conducted spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	23-Apr-20 - 01-Dec-20	Verdict: PASS		
Temperature: 24.1 °C	Relative Humidity: 49 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:				

7.6 Spurious emissions at RF antenna connector test

7.6.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.6.1.

Frequency, MHz	Conducted power of spurious, dBm/MHz
0.009– below 3530.0	-40.0
3720.0 – 10th harmonic*	-40.0

7.6.2 Test procedure

- 7.6.2.1 The EUT was set up as shown in Figure 7.6.1, energized and its proper operation was checked.
- 7.6.2.2 The EUT was adjusted to produce maximum available for end user RF output power.
- 7.6.2.3 The spurious emission was measured with spectrum analyzer as provided in Table 7.6.2 and associated plots.

Figure 7.6.1 Spurious emission test setup





Test specification:	Section 96.41(e)(3), Conducted spurious emissions				
Test procedure:	Section 96.41(e)(3)				
Test mode:	Compliance	Verdict:	PASS		
Date(s):	23-Apr-20 - 01-Dec-20	verdict.	FA33		
Temperature: 24.1 °C	Relative Humidity: 49 %	Air Pressure: 1011 hPa	Power: 48 VDC		
Remarks:	-				

Table 7.6.2 Spurious emission test results

ASSIGNED FREQUENCY RANGE: INVESTIGATED FREQUENCY RANGE: DETECTOR USED: VIDEO BANDWIDTH: MODULATION: MODULATING SIGNAL: TRANSMITTER OUTPUT POWER SETTINGS: NUMBER ANTENNA PORTS:

3550 - 3700 MHz 0.009 – 37000 MHz Peak ≥ Resolution bandwidth 256QAM PRBS Maximum N = 2

Frequency, MHz	SA reading, dBm***	Attenuator, dB	Cable loss, dB	RBW, kHz	Total Spurious emission, dBm	Limit, dBm	Margin, dB*	Verdict
Channel spacing 1	I0 MHz							
Low carrier freque	ency 3555 MHz							
			No emissions	were found				Pass
Mid carrier frequer	ncy 3625 MHz							
	•		No emissions	were found				Pass
High carrier freque	ency 3695 MHz							
			No emissions	were found				Pass
Channel spacing 2	20 MHz							
Low carrier freque	ency 3560 MHz							
			No emissions	were found				Pass
Mid carrier frequer	ncy 3625 MHz							
	•		No emissions	were found				Pass
High carrier freque	ency 3690 MHz	2						-
	-		No emissions	were found				Pass
- Margin = Total s	purious emiss	sion - specificat	tion limit.					

*- Margin = 1 otal spurious emission - specification limit.

** - Total emission = Maximum emission per chain + 10*log(N)

** - SA Reading over 1 chain = Max SA reading (Chains #1&2 or chains #3&4)

Reference numbers of test equipment used

HL 4355	HL 3901	HL 3355	HL 5175	HL 1295	HL 5372	HL 5286	HL 4342
HL 5608	HL 5233						

Full description is given in Appendix A.



Test specification:	Section 96.41(e)(3), Conducted spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict:	PASS	
Date(s):	23-Apr-20 - 01-Dec-20	verdict.	FA33	
Temperature: 24.1 °C	Relative Humidity: 49 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:				

Plot 7.6.1 Spurious emission measurements in 9 - 150 kHz range at low carrier frequency

MODULATION: 256QAM CHANNEL SPACING: 10 MHz ANTENNA CHAIN: #1 ANTENNA CHAIN: #2 Spectrum Spectrum Spectrum Spectrum Mef Level -30.00 dbm Offset 10.00 db ANTENNA CHAIN: #1 Ref Level -30.00 dbm O db SWT 14.1 ms VBW 30 kHz Mode Sweep ToF				
●1Pk View	PPk View			
M1[1] -94.03 dBm 17.4700 kHz	M1[1] -94.88 dBm 17.7520 kHz			
-40 dBm	-40 dBm			
-50 dBm	-50 dBm			
-60 dBm	-60 dBm			
-70 dBm	-70 dBm			
-80 dBm	-60 dBm			
-90 dgm	-90 dB0			
	\tilde{X}			
"Joe Vision when when a second se	100 dem marine			
-108/Bm2 Manufall Manufal Manufall Manu	and a second a second with and a for the second sec			
-110 dBm	-110 dBm			
-120 dBm	-120 dBm			
Start 9.0 kHz 6001 pts Stop 150.0 kHz	Start 9.0 kHz 6001 pts Stop 150.0 kHz			
Start 9.0 kHz 6001 pts Stop 150.0 kHz	Start 9.0 kHz 6001 pts Stop 150.0 kHz			

ANTENNA CH	HAIN: #3							HAIN:	#4					
Att 0 dB TDF	Offset 10.00 dB ● RBV SWT 14.1 ms ● VBV	W 1 kHz W 30 kHz Mode S	weep			Att TDF		10.00 dB 👄 14.1 ms 👄			Sweep			Ţ Ţ
●1Pk View						●1Pk View								
		MI	.[1]		-96.32 dBm 7.4470 kHz					M	1[1]			-95.67 dBm 8.0340 kHz
-40 dBm D1 -43.000 dB	m					-40 dBm	01 -43.000 dBm							
-50 dBm				_		-50 dBm								
-60 dBm						-60 dBm								
-70 dBm						-70 dBm								
-80 dBm						-80 dBm								
-90 dBm						-90 d8m								
M www.habade	Anna marca	100 a Day 02 Avil	0.00.0		No As	TOPOBOO	www.	Anna	- marine and	noneh	6.0-0-0-00	A 4 00 000 A		
-110 dBm		e a Morian , Mikela	. arra a a marka a	with Any Prints	d A kun A. w	-110 dBm—					~~~~~~	. Mariand.	Marcul un	-
-120 dBm						-120 dBm—								
Start 9.0 kHz		6001 pts		Ston	150.0 kHz	Start 9.0 k	H7		6001				Ston	150.0 kHz



Test specification:	Section 96.41(e)(3), Conducted spurious emissions			
Test procedure:	Section 96.41(e)(3)			
Test mode:	Compliance	Verdict: PASS		
Date(s):	23-Apr-20 - 01-Dec-20	verdict.	FA35	
Temperature: 24.1 °C	Relative Humidity: 49 %	Air Pressure: 1011 hPa	Power: 48 VDC	
Remarks:				

Plot 7.6.2 Spurious emission measurements in 9 kHz - 150 kHz range at mid carrier frequency

MODULATION: CHANNEL SPACING: ANTENNA CHAIN: #1 Spectrum * Ref Level - 30.00 dBm Offset 10.00 dB • RBW 1 kHz Att 0. dB SWT 14.1 ms • VBW 30 kHz Mode Sweep	256QAM 10 MHz ANTENNA CHAIN: #2 Spectrum Ref Level -30.00 dBm Offset 10.00 dB @ RBW 1 kHz Att 0 dB SWT 14.1 ms @ VBW 30 kHz Mode Sweep Top
●1Pk View	PPk View
M1[1] -95.39 dBm 17,5640 kHz	M1[1] -94.58 dBm 18,2690 kHz
-40 dBm-	-40 dBm
01 -43.000 dBm	01 -43.000 dBm
-50 dBm	-50 dBm
-60 dBm	-60 dBm-
-70 dBm	-70 dBm
-80 dBm	-80 dBm
-90 dgm	-90 d8m
and a second	MAR (A)
ress and the second sec	"Balen mon man man man man man man
-110 dBm	-110 dBm
-120 dBm	-120 dBm
Start 9.0 kHz 6001 pts Stop 150.0 kHz	Start 9.0 kHz 6001 pts Stop 150.0 kHz
Listan 9.0 kHz buut pts stop 150.0 kHz	J start 9.0 kH2 5001 βts Stop 150.0 kH2

ANTENNA CHAIN: #3									ANTENNA CHAIN: #4											
Spectrum 🗸									-	Spectrum										
Ref Level Att	Ref Level -30.00 dBm Offset 10.00 dB RBW 1 kHz Att 0 dB SWT 14.1 ms VBW 30 kHz Mode Sweep									Ref Level -30.00 dBm Offset 10.00 dB RBW 1 kHz Att 0 dB SWT 14.1 ms VBW 30 kHz Mode Sweep										
TDF	0 00	3001	14.1 113	*BW 30 K	2 Mode	oweeh				TDF	0 01	3 3 7 1	14.1 103	1011 30 KH	na mode :	sweep				
1Pk View										●1Pk View				_						
					м	1[1]			-94.79 dBm 18.1520 kHz						M	1[1]			-94.26 dBm 18.6450 kHz	
-40 dBm	D1 -43.000	dBm								-40 dBm	D1 -43.000) dBm								
-50 dBm										-50 dBm										
-60 dBm										-60 dBm										
-70 dBm										-70 dBm										
-80 dBm										-80 dBm										
-90 dBm										-90 dB <mark>m1</mark>										
-200 dBmv	hand		-				_			-100 dBm	n Charles Ch	0.0.000	0.000			Λ				
-110 dBm-	Correction.	W man	~~~~~	www.	munn	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	m	mm	mm	-110 dBm—		-4 0 0		www.m	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	vonno	mont	www	mm	
-110 0800-										-110 0800-										
-120 dBm-										-120 dBm—										
Start 9.0 k				6001	nte			Pton	150.0 kHz	Start 9.0 l				6001	ntc			Eton	150.0 kHz	



Test specification: Section 96.41(e)(3), Conducted spurious emissions											
Test procedure:	Section 96.41(e)(3)										
Test mode:	Compliance	Verdict:	PASS								
Date(s):	23-Apr-20 - 01-Dec-20	FA35									
Temperature: 24.1 °C	Relative Humidity: 49 %	Air Pressure: 1011 hPa	Power: 48 VDC								
Remarks:											

Plot 7.6.3 Spurious emission measurements in 9 kHz - 150 kHz range at high carrier frequency

MODULATION: CHANNEL SPACING: ANTENNA CHAIN: #1 Spectrum Ref Level - 30.00 dBm Offset 10.00 dB @ RBW 1 kHz Att - 0 dB SWT 14.1 ms @ VBW 30 kHz Mode Sweep	256QAM 10 MHz ANTENNA CHAIN: #2 Spectrum Ref Level -30.00 dBm Offset 10.00 dB @ RBW 1 kHz Att 0 dB SWT 14.1 ms @ VBW 30 kHz Mode Sweep TOF
O 1Pk View	IPk View
M1[1] -94.25 dBm 17.7520 kHz	M1[1] -95.40 dBm 17.9400 kHz
-40 dBm	-40 dBm
01 43.000 dbm	01 43.000 dBm
-50 dBm	-50 dBm
-60 dBm	-60 dBm
-70 dBm	-70 dBm
-60 dBm	-80 dBm
-90 dbm	-90 d8m
π π μ μ μ μ μ μ μ μ μ μ μ μ μ μ μ μ μ μ	X
Bob demonstration of the second of the secon	Networken when the stand of the
1263 BBM man M	CLOB BERN WWW MANNAWAWAWAWAWAWAWAWAWAWAWAWAWAWAWAWAWAW
-110 dBm	-110 d8m
-120 dBm	-120 dBm
120 0011	120 0011
Start 9.0 kHz 6001 pts Stop 150.0 kHz	Start 9.0 kHz 6001 pts Stop 150.0 kHz

ANTE Spectrun		CHAIN	l: #3							AN Spectrum		NA CH	HAIN:	#4					
RefLevel -30.00 dBm Offset 10.00 dB ● RBW 1 HHz Att 0 dB SWT 14.1 ms ● VBW 30 kHz Mode Sweep TDF									spectrum RefLevel - 0.00 dbm Offset 10.00 db @ RBW 1 kHz Att 0 db SWT 14.1 ms @ VBW 30 kHz Mode Sweep TOF										
1Pk View										●1Pk View									
					м	1[1]			-95.50 dBm 17.7520 kHz						M	1[1]			-95.79 dBm 8.0580 kHz
-40 dBm	D1 -43.000	dBm				-				-40 dBm	D1 -43.000	dBm							
-50 dBm	10.000									-50 dBm									
-60 dBm										-60 dBm									
-70 dBm										-70 dBm									
-80 dBm										-80 dBm									
-90 d8m										-90 dBm									
Mag dam	mm	man	mum	Auro			A A		mm	ᢢᠣᠥ᠕ᠴ	mm	m	Mar and	nanalala				0	
-110 dBm—		~ • • •		* ***	*****	and the ar	man	mander	rman	-110 dBm—					1049 A.M.	ACAN IA O RUMA	rvvvv	1 March	www
-120 dBm—										-120 dBm—									
Start 9.0 k				6001	ntc			Stor	150.0 kHz	Start 9.0 k	U7			6001	ntc			Ston	150.0 kHz