

Port 3

Lowest Channel (3560 MHz)







Highest Channel (3690 MHz)



Port 4

Lowest Channel (3560 MHz)







Highest Channel (3690 MHz)





Section 2.1051 and 96.41 Subclause (e). 3.5 GHz Emissions and Interference Limits

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in § 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

Confirm that the device satisfies the emission limits specified in Section 96.41(e) for all declared channel sizes, at the lowest and highest edges of the band, and in the middle of the band. The RMS detector was used for the measurement at each frequency with 400 MHz span.

A narrower RBW is permitted in all cases to improve measurement accuracy, provided the measured power is integrated over the full reference bandwidth.

The limits for emission outside the fundamental are stated below.

- within 0-10 MHz above and below the assigned channel \leq -13 dBm/MHz
- greater than 10 MHz above and below the assigned channel \leq -25 dBm/MHz
- any emission below 3530 MHz and above 3720 MHz \leq -40 dBm/MHz

The following 10 log (1/duty cycle) was added in RF level offset to get the accurate measured power level in the average power measurement.

The duty cycle correction = $10 \log (1/0.74) = 1.31 (dB)$

The measured values from the two ports were summed by using the measure-and-sum technique in E) 1) of KDB 662911 D01 Multiple Transmitter Output v02r01 and based on two ports, port 1 and 3 (or port 2 and 4) transmitting at the same time in the 2X2 MIMO mode.

RESULTS

<u>2x2 MIMO</u>

10MHz BW

Port 1 and 3

Lowest 355	5 MHz	Middle 362	5 MHz	Highest 3695 MHz		
	Emission		Emission		Emission	
Spurious	Level	Spurious	Level	Spurious	Level	
frequency (MHz)	(dBm/MHz)	frequency (MHz) (dBm/MHz)		frequency (MHz)	(dBm/MHz)	
3455.78	-45.49	3440.62	-44.96	3502.54	-45.01	
3501.50	-44.73	3501.74	-44.36	3731.98	-44.75	
3732.68	-44.24	3502.34	-44.74			
		3501.74/3502.34	-41.54 (*)			
	Measurem	ent uncertainty (dB)		<	± 2.03	

*: Emission levels from two different ports were summed due to the frequency separation within 1 MHz



Port 2 and 4

Lowest 355	5 MHz	Middle 362	Highest 3695 MHz			
	Emission				Emission	
Spurious	Level	Spurious	Level	Spi	irious	Level
frequency (MHz)	(dBm/MHz)	frequency (MHz)	(dBm/MHz)	frequen	cy (MHz)	(dBm/MHz)
No Spur	ious	No Spur	No Spurious			ious
Measurement uncertainty (dB)						± 2.03

<u>20MHz BW</u>

Port 1 and 3

Lowest 356	0 MHz	Middle 362	5 MHz]	Highest 369	0 MHz
	Emission		Emission			Emission
Spurious	Level	Spurious	Level	Spi	irious	Level
frequency (MHz)	(dBm/MHz)	frequency (MHz)	cy (MHz) (dBm/MHz) frequency (M		cy (MHz)	(dBm/MHz)
3378.96	-44.21	3471.52	-44.92	350	01.94	-45.03
3440.34	-44.15	3502.00	-44.61	350	01.94	-44.26
3471.64	-43.54	3778.56	-45.76	3501.94	4/3501.94	-41.62(*)
3748.48	-45.65	3778.66	-45.13	37′	78.04	-44.65
		3778.56/3778.66	-42.42 (*)	37	78.86	-45.16
				3778.04	4/3778.86	-41.89 (*)
	Measurem	ent uncertainty (dB)			<:	± 2.03

*: Emission levels from two different ports were summed due to the frequency separation within 1 MHz

Port 2 and 4

Lowest 356	0 MHz	Middle 362	5 MHz	Highest 3690 MHz			
	Emission		Emission			Emission	
Spurious	Level	Spurious Level		Spurious		Level	
frequency (MHz)	(dBm/MHz)	frequency (MHz) (dBm/MHz)		frequen	icy (MHz)	(dBm/MHz)	
3440.34	-44.56	3440.22	3440.22 -41.96 35		01.94	-45.25	
3440.34	-42.58	3440.44	-44.87	37-	48.26	-45.37	
3440.34/3440.34	-40.45(*)	3440.22/3440.44	-40.17 (*)				
3748.48	-46.15						
	<:	± 2.03					

*: Emission levels from two different ports were summed due to the frequency separation within 1 MHz

Verdict: PASS

(See next plots)



2X2 MIMO mode

10MHz BW

<u>Port 1</u>

Lowest Channel (3555 MHz)

Offset 23.04 dB Ref Level 30.00 dBm Mode Auto Sweep Input 1 AC PS ⊃1Rm View PABS M1[1] -44.24 dBm Limit Check 20 dBrá200 3.7326820 GHz 10 dBm-0 dBm--10 dBm -20 dBm--30 dBm-M1 40 dBm -50 dBm-60 dBm-CF 3.555 GHz 10000 pts Span 400.0 MHz Spectrum Emission Mask Standard: None RBW 100.000 kHz Tx Power 21.63 dBm Tx Bandwidth 3.840 MHz RBW Power Rel Range Low Power Abs ∆Limit Range Up Frequency 3.52994 GHz 3.53998 GHz -25.000 MHz -15.000 MHz 1.000 MHz -65.60 dB -57.93 dB -3.97 dB -200.000 MHz -43.97 dBm -25.000 MHz 1.000 MHz -36.29 dBm -11.29 dB -15.000 MHz -6.000 MHz 1.000 MHz .54898 GHz -19.63 dBm -41.26 dB -6.63 dB -6.000 MHz -5.000 MHz 100.000 kHz 3.54998 GHz -52.86 dB -18.23 dB -31.23 dBm 5.000 MHz 6.000 MHz 100.000 kHz .56002 GHz -32.68 dBm -54.31 dB -19.68 dB 6.000 MHz 1.000 MHz 15.000 MHz 3.56102 GHz -20.38 dBm -42.01 dB -7.38 dB 15.000 MHz 165.000 MHz 1.000 MHz 3.57014 GHz -35.69 dBm -57.32 dB -10.69 dB 166.000 MHz 200.000 MHz 1.000 MHz 3.73231 GHz -44.15 dBm -65.78 dB -4.15 dB





Highest Channel (3695 MHz)



Port 2

Lowest Channel (3555 MHz)

Ref Level 30.0	0 dBm Offset 2	3.04 dB	Mode A	uto Sweep	Input 1 A	С		
PS								
O1Rm View								
Limit Check	k 🛛	PARS	3					
20 dBr6200								
20 0011200								
10 dBm		├						
				H				
0 dBm		+						
10 10 -								
-10 dBm								
-20 dBm								
-20 00111								
-30 dBm		+	-					
			1.7.					
-40 dBm		+ +	<u> </u>					
EQ does		+						
-50 dBm								
-60 dBm								
00 00								
CF 3.555 GHz		1	1000	0 pts			Spa	an 400.0 MHz
Snectrum Emiss	sion Mask		Standa	ard: None				
Tx Power	r 21.52 dBm	Tx B	andwidth	3.840 MH	Ηz		RBW 100	.000 kHz
Rangelow	Range Un	RBW	Freq	uency	Power Ab	s p	ower Rel	ALimit
-200.000 MHz	-25.000 MHz	1.000 MHz	3.5	2998 GHz	-43.87 d	Bm	-65.39 dB	-3.87 dB
-25.000 MHz	-15.000 MHz	1.000 MHz	3.5	3982 GHz	-36.46 d	Bm	-57.98 dB	-11.46 dB
-15.000 MHz	-6.000 MHz	1.000 MHz	3.5	54898 GHz	-19.20 d	Bm	-40.72 dB	-6.20 dB
-6.000 MHz	-5.000 MHz	100.000 kHz	3.5	54998 GHz	-30.87 d	Bm	-52.39 dB	-17.87 dB
5.000 MHz	6.000 MHz	100.000 kHz	3.5	56002 GHz	-32.48 d	Bm	-54.00 dB	-19.48 dB
6.000 MHz	15.000 MHz	1.000 MHz	3.5	6102 GHz	-20.24 d	Bm	-41.76 dB	-7.24 dB
15.000 MHz	165.000 MHz	1.000 MHz	3.5	57006 GHz	-35.89 d	Bm	-57. 41 dB	-10.89 dB
166.000 MHz	200.000 MHz	1.000 MHz	3.7	73231 GHz	-45.31 d	Bm	-66.83 dB	-5.31 dB



Ref Level 30.00	0 dBm Offset 2	3.04 dB	Mode Aut	o Sweep	Input 1 A	.C		
PS								
01Rm View								
Limit Check	(PABS	3					
20 dBr6200	·							
20 0011200								
10 dBm								
0 dBm								
-10 dBm				_				
20 dBm								
-20 dBm								
-30 dBm								
00 0.0			/ I	1				
-40 dBm				<u> </u>				
-50 dBm								
60 dBm								
-00 UBIII								
CF 3.625 GHz			10000 p	ts			Spa	n 400.0 MHz
Spectrum Emiss	sion Mask		Standard	: None)
Tx Power	21.57 dBm	Tx B	andwidth 3	3.840 MH	Ηz		RBW 100	.000 kHz
Range Low	Range Up	RBW	Freque	ncv I	Power Ab	s	Power Rel	∆Limit
-200.000 MHz	-95.000 MHz	1.000 MHz	3.501	98 GHz	-44.87 d	IBm	-66.45 dB	-4.87 dB
-95.000 MHz	-15.000 MHz	1.000 MHz	3.609	98 GHz	-36.26 d	Bm	-57.83 dB	-11.26 dB
-15.000 MHz	-6.000 MHz	1.000 MHz	3.618	98 GHz	-19.47 d	Bm	-41.04 dB	-6.47 dB
-6.000 MHz	-5.000 MHz	100.000 kHz	3.619	98 GHz	-30.77 d	Bm	-52.34 dB	-17.77 dB
5.000 MHz	6.000 MHz	100.000 kHz	3.630	02 GHz	-31.90 d	Bm	-53.48 dB	-18.90 dB
6.000 MHz	15.000 MHz	1.000 MHz	3.631	02 GHz	-20.02 d	Bm	-41.59 dB	-7.02 dB
15.000 MHz	95.000 MHz	1.000 MHz	3.640	22 GHz	-35.72 d	Bm	-57.30 dB	-10.72 dB
95.000 MHz	200.000 MHz	1.000 MHz	3.732	54 GHz	-45.24 d	Bm	-66.81 dB	-5.24 dB

Highest Channel (3695 MHz)

Ref Level 30.00	dBm Offset 2	3.09 dB	Mode Auto Sweep	Input 1 AC		
PS						
01Rm View						
Limit (beck		DARS				
20 dBr6200	`					
20 ubhi200						
10 dBm						
0 dBm						
10 d0m						
-10 dBm						
-20 dBm						
20 0.0						
-30 dBm		+				
			- / '!'\ I			
-40 dBm						
-50 dBm						
-60 dBm		+ +		+		
CF 3.695 GHz			10000 pts		Spa	n 400.0 MHz
Spectrum Emiss	ion Mask		Standard: None			
Tx Power	22.08 dBm	Tx Ba	andwidth 3.840 M	Hz	RBW 100	.000 kHz
Range Low	Range Up	RBW	Frequency	Power Abs	Power Rel	∆Limit
-200.000 MHz	-165.000 MHz	1.000 MHz	3.52950 GHz	-45.18 dBm	-67.26 dB	-5.18 dB
-165.000 MHz	-15.000 MHz	1.000 MHz	3.67990 GHz	-35.82 dBm	-57.89 dB	-10.82 dB
-15.000 MHz	-6.000 MHz	1.000 MHz	3.68898 GHz	-18.69 dBm	-40.77 dB	-5.69 dB
-6.000 MHz	-5.000 MHz	100.000 kHz	3.68998 GHz	-29.94 dBm	-52.02 dB	-16.94 dB
5.000 MHz	6.000 MHz	100.000 kHz	3.70002 GHz	-30.88 dBm	-52.95 dB	-17.88 dB
6.000 MHz	15.000 MHz	1.000 MHz	3.70102 GHz	-19.08 dBm	-41.16 dB	-6.08 dB
15.000 MHz	25.000 MHz	1.000 MHz	3.71006 GHz	-36.12 dBm	-58.19 dB	-11.12 dB
25.000 MHz	200.000 MHz	1.000 MHz	3.72042 GHz	-44.27 dBm	-66.35 dB	-4.27 dB



Port 3

Lowest Channel (3555 MHz)

Ref Level 30.00 dBm Offset 23.04 dB Mode Auto Sweep Input 1 AC PS 01Rm View Limit Check PASS M2[1] -44.73 dBm 3.5015030 GHz 20 dBrá 200 M1[1] -45.49 dBm 10 dBm-3.4557830 GHz 0 dBm--10 dBm--20 dBm--30 dBm-40 dBm M2 M1 ۷ v -50 dBm--60 dBm-CF 3.555 GHz 10000 pts Span 400.0 MHz Spectrum Emission Mask Standard: None RBW 100.000 kHz Tx Power 21.21 dBm Tx Bandwidth 3.840 MHz ∆Limit Range Low RBW Frequency Power Abs Power Rel Range Up -44.21 dBm -36.72 dBm -19.77 dBm -31.39 dBm -4.21 dB -11.72 dB -6.77 dB -25.000 MHz -15.000 MHz 1.000 MHz -200.000 MHz -25.000 MHz 3.50188 GHz 3.53990 GHz -65.42 dB -57.93 dB 1.000 MHz -15.000 MHz -6.000 MHz 1.000 MHz 3.54898 GHz -40.98 dB -6.000 MHz 100.000 kHz 3.54998 GHz -18.39 dB -5.000 MHz -52.60 dB 5.000 MHz 6.000 MHz 100.000 kHz 3.56002 GHz -19.82 dB -32.82 dBm -54.03 dB -41.90 dB -57.59 dB 6.000 MHz 15.000 MHz 1.000 MHz 3.56102 GHz -20.69 dBm -7.69 dB 15.000 MHz 165.000 MHz 1.000 MHz 3.57018 GHz -36.38 dBm -11.38 dB 166.000 MHz 200.000 MHz 1.000 MHz 3.72369 GHz -45.67 dBm -66.88 dB -5.67 dB

Ref Level 30.00	dBm Offset 2	3.04 dB	Mode A	uto Sweep	Input 1 A	С		
PS								
01Rm View								
Limit Check		PASS		N	12[1]			-44.96 dBm
20 dBr6200							3	.4406200 GHz
20 0011200				N 10	11[1]			-44.36 dBm
10 dBm							3	5017400 GHz
				-	1 1		1 ^Ŭ	
0 dBm		+			+ +			
10 dBm								
-10 dBm								
-20 dBm								
-30 dBm		+	<u> </u>	- <u>N</u>	++			
	N4.1		!					
-40°GBm								
-50 dBm			~					
50 abiii								
-60 dBm								_
CF 3.625 GHz	I	· · ·	10000) pts			Spa	an 400.0 MHz
Spectrum Emiss	ion Mask		Standa	rd: None				
Tx Power	21.55 dBm	Tx Ba	andwidth	3.840 M	Hz		RBW 100	.000 kHz
Range Low	Range Up	RBW	Freq	uency	Power Abs	5 F	Power Rel	∆Limit
-200.000 MHz	-95.000 MHz	1.000 MHz	3.5	0190 GHz	-43.70 d	Bm	-65.24 dB	-3.70 dB
-95.000 MHz	-15.000 MHz	1.000 MHz	3.6	0998 GHz	-36.66 d	Bm	-58.21 dB	-11.66 dB
-15.000 MHz	-6.000 MHz	1.000 MHz	3.6	1898 GHz	-19.65 d	Bm	-41.20 dB	-6.65 dB
-6.000 MHz	-5.000 MHz	100.000 kHz	3.6	1998 GHz	-31.13 d	Bm	-52.68 dB	-18.13 dB
5.000 MHz	6.000 MHz	100.000 kHz	3.6	3002 GHz	-32.13 d	Bm	-53.67 dB	-19.13 dB
6.000 MHz	15.000 MHz	1.000 MHz	3.6	3102 GHz	-20.17 d	Bm	-41.72 dB	-7.17 dB
15.000 MHz	95.000 MHz	1.000 MHz	3.6	4002 GHz	-36.23 d	Bm	-57.78 dB	-11.23 dB
95.000 MHz	200.000 MHz	1.000 MHz	3.7	2098 GHZ	-45.33 d	Bm	-66.88 dB	-5.33 dB



Highest Channel (3695 MHz)



Port 4

Lowest Channel (3555 MHz)

Ref Level 30.00	dBm Offset 2	3.04 dB	Mode /	Auto Sweep	Input 1 AC		
PS							
O1Rm View							
Limit Check		PASS					
20 dBr6200							
20 0011200							
10 dBm							
			- F	+	1 1		
0 dBm		+ +					
					1 1		
-10 dBm							
20 dBm							
-20 dBm							
-30 dBm			- 4	N			
			1/1				
-40 dBm							
-50 dBm							
60 dBm							
-00 abiii							
			1000				
CF 3.555 GHz			1000	0 pts		Sp.	an 400.0 MHz
Spectrum Emiss	ion Mask		Stand	ard: None			
Tx Power	21.44 dBm	Tx B	andwidth	1 3.840 Mł	Ηz	RBW 100).000 kHz
Range Low	Range Up	RBW	Freq	uency	Power Abs	Power Rel	∆Limit
-200.000 MHz	-25.000 MHz	1.000 MHz	3.5	52998 GHz	-43.81 dBn	n -65.25 dB	-3.81 dB
-25.000 MHz	-15.000 MHz	1.000 MHz	3.5	53998 GHz	-35.99 dBn	n -57.44 dB	-10.99 dB
-15.000 MHz	-6.000 MHz	1.000 MHz	3.5	54898 GHz	-19.10 dBn	n -40.55 dB	-6.10 dB
-6.000 MHz	-5.000 MHz	100.000 kHz	3.5	54998 GHz	-30.65 dBn	n -52.10 dB	-17.65 dB
5.000 MHz	6.000 MHz	100.000 kHz	3.5	56002 GHz	-31.78 dBn	n -53.22 dB	-18.78 dB
6.000 MHz	15.000 MHz	1.000 MHz	3.5	56102 GHz	-19.94 dBn	n -41.38 dB	-6.94 dB
15.000 MHz	165.000 MHz	1.000 MHz	3.	57014 GHz	-35.18 dBn	n -56.63 dB	-10.18 dB
166.000 MHz	200.000 MHz	1.000 MHz	3.	72262 GHz	-45.48 dBn	n -66.92 dB	-5.48 dB



Ref Level 30.00	dBm Offset 2	3.04 dB	Mode /	uto Sweep	Input 1 A	С		
PS					-			
O1Rm View								
Limit Check		PASS						
20 dBr6200								
20 00111200								
10 dBm								
				+-				
0 dBm		+		+	+ +			
-10 dBm								
00 40 -								
-20 abm								
-30 dBm				<u> </u>				
-40 dBm			_/_					
			~	· · · ·				
-50 dBm		+			+ +			
60 d0m								
-60 dBm								
CF 3.625 GHz			1000	0 pts			Spa	an 400.0 MHz
Spectrum Emiss	ion Mask		Stand	ard: None				
Tx Power	21.32 dBm	Tx B	andwidth	1 3.840 Mi	Hz		RBW 100).000 kHz
Range Low	Range Up	RBW	Freq	uency	Power Ab:	s	Power Rel	∆Limit
-200.000 MHz	-95.000 MHz	1.000 MHz	3.5	52746 GHz	-44.90 d	Bm	-66.21 dB	-4.90 dB
-95.000 MHz	-15.000 MHz	1.000 MHz	3.6	50990 GHz	-36.89 d	Bm	-58.20 dB	-11.89 dB
-15.000 MHz	-6.000 MHz	1.000 MHz	3.6	51898 GHz	-19.82 d	Bm	-41.14 dB	-6.82 dB
-6.000 MHz	-5.000 MHz	100.000 kHz	3.6	51998 GHz	-30.76 d	Bm	-52.08 dB	-17.76 dB
5.000 MHz	6.000 MHz	100.000 kHz	3.6	53002 GHz	-31.80 d	Bm	-53.12 dB	-18.80 dB
6.000 MHz	15.000 MHz	1.000 MHz	3.0	53102 GHz	-19.85 d	Bm	-41.17 dB	-6.85 dB
15.000 MHz	95.000 MHz	1.000 MHz	3.0	54010 GHz	-37.03 d	Bm	-58.35 dB	-12.03 dB
95.000 MHz	200.000 MHz	1.000 MHz	3.	72254 GHz	-45.22 d	Bm	-66.54 dB	-5.22 dB

Highest Channel (3695 MHz)





20MHz BW

Port 1

Lowest Channel (3560 MHz)



Ref Level 30.0	0 dBm Offset 2	23.06 dB	Mode Auto S	weep 1	nput 1 AC		
PS							
O1Rm View							
Limit Chec	k	PASS		M2[1	L]		-45.76 dBm
20 dBrs 200						3	.7785600 GHz
				M1[1	1		-44.61 dBm
10 dBm						3	5020000 GHz
		1		1	1	1	
0 dBm							
-10 dBm							
-10 0800							
-20 dBm							
						i	
-30 dBm		+					
			11				
-40 dBm							M2
-50 dBm							
-50 0011							
-60 dBm							
		1					
CF 3.625 GHz			10000 pts			Spa	an 400.0 MHz
Spectrum Emis	sion Mask		Standard: N	one			
Tx Powe	r 18.10 dBm	Tx Ba	andwidth 3.8	40 MHz		RBW 200	.000 kHz
Range Low	Range Up	RBW	Frequency	/ F	ower Abs	Power Rel	∆Limit
-200.000 MHz	-95.000 MHz	1.000 MHz	3.50210	GHz	-44.17 dBm	-62.27 dB	-4.17 dB
-95.000 MHz	-20.000 MHz	1.000 MHz	3.60494	GHz	-31.79 dBm	-49.89 dB	-6.79 dB
-20.000 MHz	-11.000 MHz	1.000 MHz	3.61366	GHz	-27.09 dBm	-45.19 dB	-14.09 dB
-11.000 MHz	-10.000 MHz	200.000 kHz	3.61498	GHz	-32.15 dBm	-50.25 dB	-19.15 dB
10.000 MHz	11.000 MHz	200.000 kHz	3.63502	GHz	-32.98 dBm	-51.08 dB	-19.98 dB
11.000 MHz	20.000 MHz	1.000 MHz	3.63606	GHz	-28.29 dBm	-46.40 dB	-15.29 dB
20.000 MHz	95.000 MHz	1.000 MHz	3.64502	GHz	-32.05 dBm	-50.15 dB	-7.05 dB
95.000 MHz	200.000 MHz	1.000 MHz	3.77818	GHz	-44.91 dBm	-63.01 dB	-4.91 dB



Highest Channel (3690 MHz)

Ref Level 30.00	dBm Offset 2	3.09 dB	Mode Au	uto Sweep	Input 1	AC		
PS								
O1Rm View								
Limit Check		PASS		N	12[1]			-45.03 dBm
20 dBm 200		+ +		<u> </u>			3	.5019400 GHz
				N	11[1]			-44.65 dBm
10 dBm							3	.7780400 GHz
0 dBm								
0 ubiii								
-10 dBm				_	-	<u> </u>		
						1		
-20 dBm								
						1		
-30 dBm						<u> </u>		
Add-In m			1			M1		
		1	<u> </u>	~		T		
-50 dBm								
						1		
-60 dBm						<u> </u>		
CF 3.69 GHz			10000	pts			Spa	an 400.0 MHz
Spectrum Emiss	ion Mask		Standa	rd: None				
Tx Power	17.60 dBm	Tx Ba	andwidth	3.840 M	Hz		RBW 200).000 kHz
Range Low	Range Up	RBW	Frequ	ency	Power A	os	Power Rel	∆Limit
-200.000 MHz	-160.000 MHz	1.000 MHz	3.50	0194 GHz	-45.03	dBm	-62.63 dB	-5.03 dB
-160.000 MHz	-20.000 MHz	1.000 MHz	3.66	5986 GHz	-33.71	dBm	-51.31 dB	-8.71 dB
-20.000 MHz	-11.000 MHz	1.000 MHz	3.67	7886 GHz	-28.91	dBm	-46.51 dB	-15.91 dB
-11.000 MHz	-10.000 MHz	200.000 kHz	3.67	7998 GHz	-33.99	dBm	-51.59 dB	-20.99 dB
10.000 MHz	11.000 MHz	200.000 kHz	3.70	0002 GHz	-34.65	dBm	-52.25 dB	-21.65 dB
11.000 MHz	20.000 MHz	1.000 MHz	3.70	0102 GHz	-30.25	dBm	-47.85 dB	-17.25 dB
20.000 MHz	30.000 MHz	1.000 MHz	3.71	1014 GHz	-35.25	dBm	-52.85 dB	-10.25 dB
30.000 MHz	200.000 MHz	1.000 MHz	3.72	2010 GHz	-41.24	dBm	-58.84 dB	-1.24 dB

Port 2

Lowest Channel (3560 MHz)





Ref Level 30.0	0 dBm Offset	23.06 dB	Mode A	uto Sweep	Input 1 A	C		
PS								
O1Rm View								
Limit Check	(PAB	S	M	12[1]			-45.14 dBm
20 dBm 200							3	.5017000 GHz
				N	11[1]			-44.87 dBm
10 dBm							3	4404400 GHz
					1 1		I	I
0 dBm								_
-10 dBm								
-10 0811								
-20 dBm		_						
-30 dBm								
(6140								
-40'abm	MI2		·		A			
-50 dBm								
-60 dBm		++			+			
CF 3.625 GHz			1000	0 pts			Spa	an 400.0 MHz
Spectrum Emiss	sion Mask		Standa	ard: None				
Tx Power	r 17.97 dBm	Tx B	andwidth	3.840 MI	Hz		RBW 200	1.000 kHz
Range Low	Range Up	RBW	Freq	uency	Power Ab	s	Power Rel	∆Limit
-200.000 MHz	-95.000 MHz	1.000 MHz	3.4	4070 GHz	-44.64 d	iBm 🛛	-62.62 dB	-4.64 dB
-95.000 MHz	-20.000 MHz	1.000 MHz	3.6	0486 GHz	-30.85 d	Bm	-48.83 dB	-5.85 dB
-20.000 MHz	-11.000 MHz	1.000 MHz	3.6	1398 GHz	-25.75 c	Bm	-43.72 dB	-12.75 dB
-11.000 MHz	-10.000 MHz	200.000 kHz	3.6	1498 GHz	-31.48 c	Bm	-49.45 dB	-18.48 dB
10.000 MHz	11.000 MHz	200.000 kHz	3.6	3502 GHz	-32.25 d	Bm	-50.22 dB	-19.25 dB
11.000 MHz	20.000 MHz	1.000 MHz	3.6	3622 GHz	-26.90 c	iBm	-44.87 dB	-13.90 dB
20.000 MHz	95.000 MHz	1.000 MHz	3.6	4518 GHz	-31.41 c	1Bm	-49.39 dB	-6.41 dB
95.000 MHz	200.000 MHz	1.000 MHz	3.7	2166 GHz	-45.14 0	18m	-63.11 dB	-5.14 dB

Highest Channel (3690 MHz)





Port 3

Lowest Channel (3560 MHz)

Offset 23.04 dB Ref Level 30.00 dBm Mode Auto Sweep Input 1 AC PS ⊃1Rm View PASS Limit Check M2[1] 43.54 dBm 20 dBm200 3.4716400 GHz M1[1] 44.15 dBm 10 dBm-3.4403400 GHz 0 dBm--10 dBm -20 dBm -30 dBm-M2 40 dBm -50 dBm -60 dBm-10000 pts Span 400.0 MHz CF 3.56 GHz Standard: None Spectrum Emission Mask Tx Power 17.31 dBm Tx Bandwidth 3.840 MHz RBW 200.000 kHz Range Low Range Up RBW Frequency Power Abs Power Rel ∆Limit 3.52978 GHz 3.53962 GHz 3.54874 GHz -58.26 dB -50.99 dB -200.000 MHz 30.000 MHz 1.000 MHz -40.96 dBm -0.96 dB -30.000 MHz -20.000 MHz 1.000 MHz -33.68 dBm -8.68 dB -20.000 MHz -11.000 MHz 1.000 MHz -28.18 dBm -45.48 dB -15.18 dB 3.54998 GHz 3.57002 GHz 200.000 kHz 200.000 kHz -11.000 MHz -10.000 MHz -33.38 dBm -50.69 dB -20.38 dB -21.96 dB 10.000 MHz 11.000 MHz -34.96 dBm -52.26 dB 3.57106 GHz 3.58022 GHz -30.12 dBm -34.51 dBm -47.43 dB -51.82 dB -17.12 dB -9.51 dB 11.000 MHz 20.000 MHz 1.000 MHz 20.000 MHz 160.000 MHz 1.000 MHz 160.000 MHz 200.000 MHz 1.000 MHz 3.72026 GHz -45.50 dBm -62.80 dB -5.50 dB

Ref Level 30.00	dBm Offset 2	3.06 dB	Mode A	uto Sweep	Input 1 A	С		
PS					-			
O1Rm View								
Limit Check		PASS		N	41[1]			-44.92 dBn
20 dBr6200							3	.4715200 GH
				N	42[1]			-45.13 dBn
10 dBm		+					3	7786600 GH
			-		1 1			
0 dBm								
10 dBm								
-10 0011								
-20 dBm								
						_		
-30 dBm		+ +						
10 db - M1			1.					
-40 dbm		hand have			han han			
-50 dBm								
60 IB								
-60 dBm								
CF 3.625 GHz			1000	0 pts			Spa	n 400.0 MHz
Boectrum Emissi	ion Mask		Standa	ard: None				
Tx Power	18.01 dBm	Tx Ba	andwidth	3.840 M	Hz		RBW 200	.000 kHz
Range Low	Range Up	RBW	Freq	uency	Power Ab	s	Power Rel	∆Limit
-200.000 MHz	-95.000 MHz	1.000 MHz	3.5	0198 GHz	-43.70 d	Bm	-61.70 dB	-3.70 dB
-95.000 MHz	-20.000 MHz	1.000 MHz	3.6	0478 GHz	-31.79 d	Bm	-49.80 dB	-6.79 dB
-20.000 MHz	-11.000 MHz	1.000 MHz	3.6	1386 GHz	-26.90 d	Bm	-44.90 dB	-13.90 dB
-11.000 MHz	-10.000 MHz	200.000 kHz	3.6	1498 GHz	-32.16 d	Bm	-50.17 dB	-19.16 dB
10.000 MHz	11.000 MHz	200.000 kHz	3.6	3502 GHz	-32.61 d	Bm	-50.62 dB	-19.61 dB
11.000 MHz	20.000 MHz	1.000 MHz	3.6	3602 GHz	-27.86 d	Bm	-45.86 dB	-14.86 dB
20.000 MHz	95.000 MHz	1.000 MHz	3.6	4502 GHz	-32.09 d	Bm	-50.10 dB	-7.09 dB
95.000 MHz	200.000 MHz	1.000 MHz	3.7	7866 GHz	-45.13 d	Bm	-63.13 dB	-5.13 dB



Highest Channel (3690 MHz)

Ref Level 30.00	dBm Offset 2	3.09 dB	Mode A	uto Swee	p Inp	ut 1 AC			
01Rm View									
Limit Check 20 dBrin 200		PASS	3		M1[1] -45.16 3.7788600				
10 dBm					M2[1]			3.5019400 GHz	
0 dBm									
-10 dBm									
-20 dBm									
-30 dBm			-4-						
-40 ² dBm				· \	_	M1			
-50 dBm									
-60 dBm					+				
CF 3.69 GHz			1000) pts			8	pan 400.0 MHz	
Spectrum Emiss	ion Mask		Standa	rd: None					
Tx Power	18.47 dBm	Tx B	andwidth	3.840 N	1Hz		RBW 20	00.000 kHz	
Range Low	Range Up	RBW	Freq	uency	Pow	er Abs	Power Rel	∆Limit	
-200.000 MHz	-160.000 MHz	1.000 MHz	3.5	0194 GHz	_4	14.26 dBm	-62.74 dE	-4.26 dB	
-160.000 MHz	-20.000 MHz	1.000 MHz	3.6	6982 GHz	-3	31.18 dBm	-49.66 dE	-6.18 dB	
-20.000 MHz	-11.000 MHz	1.000 MHz	3.6	7890 GHz	-2	26.08 dBm	-44.55 dB	-13.08 dB	
-11.000 MHz	-10.000 MHz	200.000 kHz	3.6	7998 GHz	-3	31.78 dBm	-50.25 dB	-18.78 dB	
10.000 MHz	11.000 MHz	200.000 kHz	3.7	0002 GHz	-3	32.49 dBm	-50.96 dB	-19.49 dB	
11.000 MHz	20.000 MHz	1.000 MHz	3.7	0118 GHz	-2	27.44 dBm	-45.91 dE	-14.44 dB	
20.000 MHz	30.000 MHz	1.000 MHz	3.7	1014 GHz	-3	32.88 dBm	-51.36 dB	-7.88 dB	
30.000 MHz	200.000 MHz	1.000 MHz	3.7	2010 GHz	-4	10.40 dBm	-58.87 dE	-0.40 dB	

Port 4

Lowest Channel (3560 MHz)





Ref Level 30.00	dBm Offset 2	3.06 dB	Mode A	uto Sweep	Input 1 A	С		
PS								
O 1Rm View								
Limit Check		PASS		N	11[1]			-41.96 dBm
20 dBm 200		<u> </u>					. 3	.4402200 GHz
10.10								
10 dBm								
0 dBm								
o abiii								
-10 dBm		+			+ +			
					1 1			
-20 dBm		+			+ +			
		<u> </u>						
-30 dBm								
M1 40-dBm			1.					
				1				
-50 dBm								
-60 dBm		+			+ +			
CF 3.625 GHz			1000	0 pts			Spa	an 400.0 MHz
Spectrum Emissi	ion Mask		Standa	rd: None				
Tx Power	17.59 dBm	Tx Ba	andwidth	3.840 MI	Hz		RBW 200).000 kHz
Range Low	Range Up	RBW	Freq	uency	Power Abs	5	Power Rel	∆Limit
-200.000 MHz	-95.000 MHz	1.000 MHz	3.4	4058 GHz	-40.75 d	Bm	-58.33 dB	-0.75 dB
-95.000 MHz	-20.000 MHz	1.000 MHz	3.6	0494 GHz	-32.97 d	Bm	-50.55 dB	-7.97 dB
-20.000 MHz	-11.000 MHz	1.000 MHz	3.6	1398 GHz	-27.91 d	Bm	-45.50 dB	-14.91 dB
-11.000 MHz	-10.000 MHz	200.000 kHz	3.6	1498 GHz	-33.37 d	Bm	-50.96 dB	-20.37 dB
10.000 MHz	11.000 MHz	200.000 kHz	3.6	3502 GHz	-34.13 d	Bm	-51.72 dB	-21.13 dB
11.000 MHz	20.000 MHz	1.000 MHz	3.6	3602 GHz	-28.91 d	Bm	-46.49 dB	-15.91 dB
20.000 MHz	95.000 MHz	1.000 MHz	3.6	4526 GHz	-33.90 d	Bm	-51.48 dB	-8.90 dB
95.000 MHz	200.000 MHz	1.000 MHz	3.7	2046 GHz	-45.04 d	Bm	-62.62 dB	-5.04 dB

Highest Channel (3690 MHz)

Ref Level 30.00	dBm Offset 2	3.09 dB	Mode	Auto Sv	/een	Innut 1 A	С			
PS	doni onsot z	.0.07 40	-louo -	-ato 01	cop	input 16				
01Rm View										
Limit Check		PASS								
20 dBr6200										
20 0011200										
10 dBm		+				<u> </u>				
0 d0m			Г							
U dBm										
-10 dBm										
-20 dBm				+ + +						
20 dBm										
-30 0011										
-40 dBm		+	/		Ý.					
······		+								
-50 dBm										
-60 dBm										
00 00										
CF 3.69 GHz			1000	00 pts					Spa	n 400.0 MHz
Spectrum Emissi	ion Mask		Stand	ard: No	ne					
Tx Power	18.75 dBm	Tx B	andwidtl	h 3.84	0 MF	łz		RB	W 200	.000 kHz
Range Low	Range Up	RBW	Free	quency		Power Ab	s	Powe	r Rel	∆Limit
-200.000 MHz	-160.000 MHz	1.000 MHz	3.	52498 G	iHz	-45.07 d	Bm	-63	.82 dB	-5.07 dB
-160.000 MHz	-20.000 MHz	1.000 MHz	3.	66966 G	Hz	-31.43 d	Bm	-50	.18 dB	-6.43 dB
-20.000 MHz	-11.000 MHz	1.000 MHz	3.	67898 G	Hz	-26.60 d	Bm	-45	.35 dB	-13.60 dB
-11.000 MHz	-10.000 MHz	200.000 kHz	З.	67998 G	Hz	-32.03 d	Bm	-50	.78 dB	-19.03 dB
10.000 MHz	11.000 MHz	200.000 kHz	3.	70002 G	Hz	-32.93 d	Bm	-51	.68 dB	-19.93 dB
11.000 MHz	20.000 MHz	1.000 MHz	3.	70106 G	Hz	-27.92 d	Bm	-46	.67 dB	-14.92 dB
20.000 MHz	30.000 MHz	1.000 MHz	З.	71014 0	Hz	-33.58 d	Bm	-52	.33 dB	-8.58 dB
30.000 MHz	200.000 MHz	1.000 MHz	З.	72022 0	Hz	-40.57 d	Bm	-59	.32 dB	-0.57 dB



Section 2.1051 and 96.41 Subclause (e). Spurious Emissions at Antenna Terminals

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in § 2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

The limits for emission outside the fundamental for any emission below 3530 MHz and above 3720 MHz are -40 dBm/MHz.

The following 10 log (1/duty cycle) was added in RF level offset to get the accurate measured power level in the average power measurement.

The duty cycle correction = $10 \log (1/0.74) = 1.31 (dB)$

The measured values from the two ports were summed by using the measure-and-sum technique in E) 1) of KDB 662911 D01 Multiple Transmitter Output v02r01 and based on two ports, port 1 and 3 (or port 2 and 4) transmitting at the same time in the 2X2 MIMO mode.

RESULTS

<u>2x2 MIMO</u>

10MHz BW

Port 1 and 3

Lowest 3	555 MHz	Middle 3	625 MHz	Highest 3695 MHz			
Spurious	Emission Level	Spurious	Emission Level	Spurio	ous	Emission Level	
frequency (MHz)	(dBm/MHz)	frequency (MHz)	(dBm/MHz)	frequency	(MHz)	(dBm/MHz)	
3194.88	-45.70	3195.04	-44.76	3200.	.30	-45.71	
3317.51	-44.89	3317.98	-43.98	3317.	.98	-43.40	
3317.67	-44.76	3333.54	-44.82	3332.92		-44.41	
3317.51/3317.67	-41.81 (*)	3732.55	-42.71	7389.68		-46.95	
3732.55	-43.38	7250.18	-47.45	7389.	.68	-43.77	
7109.68	-54.19	7251.18	-47.75	7389.68/7	389.68	-42.06 (*)	
7109.68	-54.75	7250.18/7251.18	-44.59 (*)				
7109.68/7109.68	-51.45 (*)						
Measurement uncertainty (dB) <± 2.03							

*: Emission levels from two different ports were summed due to the frequency separation within 1 MHz

Port 2 and 4

Lowest 3	555 MHz	Middle 3	625 MHz	Highest 3695 MHz		
Spurious	Emission Level	Spurious	Emission Level	Spurious	Emission Level	
frequency (MHz)	(dBm/MHz)	frequency (MHz)	(dBm/MHz)	frequency (MHz)	(dBm/MHz)	
3194.88	-45.88	3195.04	-45.99	3194.88	-45.39	
3256.20	-43.56	3256.20	-44.14	3317.51	-45.03	
3302.57	-44.32	3717.30	-44.79	7389.68	-46.04	
3317.51	-45.27	7250.18	-46.97	7390.68	-44.99	
7109.68	-53.41	7250.18	-46.63	7389.68/7390.68	-42.47	
7109.68	-53.84	7250.18/7250.18	-43.79(*)			
7109.68/7109.68	-50.61 (*)					
		<± 2.03				

*: Emission levels from two different ports were summed due to the frequency separation within 1 MHz



20MHz BW

Port 1 and 3

Lowest 3	3560 MHz	Middle 3	Middle 3625 MHz			690 MHz
Spurious	Emission Level	Spurious	Emission Level	Spuri	ious	Emission Level
frequency (MHz)	(dBm/MHz)	frequency (MHz)	(dBm/MHz)	frequency	(MHz)	(dBm/MHz)
3317.98	-43.43	3195.04	-44.76	3317	.67	-43.45
3317.82	-42.78	3317.82	-43.51	3317	.67	-42.72
3317.82/3317.98	-40.08(*)	3317.98	-43.98	3317.67/3317.82		-40.06 (*)
3502.17	-44.36	3317.82/3317.98	-40.73(*)	3778.79		-45.23
3778.46	-44.44	3840.40	-45.42	7380).18	-54.80
7116.50	-58.01	7251.18	-51.73	7380).68	-51.10
7120.50	-55.95	7251.18	-50.93	7380.18/	7380.68	-49.56 (*)
		7251.18/7251.18	-48.3 (*)			
		<± 2.03				

*: Emission levels from two different ports were summed due to the frequency separation within 1 MHz

Port 2 and 4

Lowest 3	560 MHz	Middle 3	625 MHz	Ι	Highest 3	690 MHz
Spurious	Emission Level	Spurious	Emission Level	Spurious		Emission Level
frequency (MHz)	(dBm/MHz)	frequency (MHz)	(dBm/MHz)	frequency	(MHz)	(dBm/MHz)
3317.98	-43.69	3317.82	-47.65	3195.2	20	-47.70
3440.31	-45.01	3379.45	-45.40	3440.4	45	-43.30
3440.92	-43.51	3440.90	-44.52	3440.76		-44.41
3440.31/3440.92	-41.19 (*)	3440.90	-44.74	3440.45/3440.76		-40.81 (*)
7116.50	-56.57	3440.90/3440.90	-41.62(*)	3563.2	24	-43.32
7125.18	-57.63	7250.68	-52.68	7380.1	18	-46.71
		7380.68	-48.11	7380.68		-49.39
				7380.18/7380.68		-44.84 (*)
Measurement uncertainty (dB)						<± 2.03

*: Emission levels from two different ports were summed due to the frequency separation within 1 MHz

Verdict: PASS

(See the next plots)



10MHz BW

Port 1 Lowest Channel (3555 MHz)

FREQUENCY RANGE 20 MHz-5 GHz



FREQUENCY RANGE 5-21 GHz





FREQUENCY RANGE 21-37 GHz



Middle Channel (3625 MHz)

FREQUENCY RANGE 20 MHz-5 GHz

