

		Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz==PS	o Port (2x2 MIN/ DBm/MHz==PSD	ur Port (4x4 MIMO) dBm/MHz==PSD
		39.752	0	39.8	42.8	45.8
Keysight Spectr	um Analyzer - Element Materials	Technology SP	NSEINT	ALIGN AUTO		07:35:25 AM Jul 02, 2022
	10 [30 x De]	PNO: Fast +++ IFGain:Low	Trig: Free Run #Atten: 30 dB	#Avg Typ Avg Hold:	e: RMS : 100/100	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A A A A A A
10 dB/div	Ref Offset 40.34 dB Ref 60.34 dBm				Mkr	1 738.083 MHz 39.752 dBm
			Ĭ			
40.2				♦ ¹		
20.2		ada da ana ana ana ana ana ana ana ana a				
20.2						
10.3						
0.340						
-9.66	/					λ
-19.7						
-29.7						
Contor 727						Spop 40.00 MHz
#Res BW 1.	0 MHz	#VBW	3.0 MHz*	4	#Sweep	601.0 ms (601 pts)
MSG				STATUS		
F	Port 2, LTE, Band 85, T	728 MHz - 746 MHz,	5 MHz Bandwid	th, 16-QAM Modu	ulation, High Ch. 7	43.5 MHz
		Initial Value	Duty Cycle	Single Port	o Port (2x2 MIN	ur Port (4x4 MIMO)
		20 705				























Center 737.000 MHz #Res BW 1.0 MHz

#VBW 3.0 MHz*

han

Span 15.00 MHz #Sweep 601.0 ms (601 pts)





STATUS

#VBW 3.0 MHz*





Center 737.00 MHz #Res BW 1.0 MHz

#VBW 3.0 MHz*

Span 25.00 MHz #Sweep 601.0 ms (601 pts)







EIRP Calculations

EIRP calculations are needed at each transmitter location to optimize base station operational performance while meeting regulatory requirements. Each cell site installation needs to consider the power measurements in the radio certification report as well as site specific regulatory requirements (such as antenna height, population density, etc.), site installation parameters (line loss between antenna and radio, antenna parameters, etc.) and base station operational parameters (MIMO operational setup, carrier power level, channel bandwidth, modulation type, etc.) to optimize performance. Transmitter output power may be reduced (from maximum) by base station setup parameters. Base station antennas are selected by the customer.

The base station antenna is selected by the customer and this EIRP calculation is based upon a sample worst case antenna. The EIRP calculation is based upon Commscope antenna assembly model "FF-65C-R1". The maximum Band 85 gain (15.9dBi) for this antenna was used for the EIRP calculation. This antenna assembly has a pair of ±45° cross-polarized radiators. The four antenna RF inputs on the antenna assembly are labeled as R1 +45°, R1 -45°, R2 +45° and R2 -45°. The four AHLOB transmitter outputs are connected to the antenna assembly RF inputs.

Equivalent Isotropically Radiated Power (EIRP) is calculated for four port MIMO (as specified in ANSI C63.26-2015 section 6.4 for a system of uncorrelated output signals) from the results of power measurements (highest measured PSD for each channel bandwidth type). The maximum antenna gain was used for this calculation. The cable loss between the antenna and transmitter is site dependent (will not be 0 dB) but for this worst case EIRP calculation 0 dB was used. Calculations of worst-case EIRP for four port MIMO are as follows:

Parameter	5 MHz Ch BW	10 MHz Ch BW	15 MHz Ch BW
Worst Case PSD/Antenna Port	39.8 dBm/MHz	39.9 dBm/MHz	38.3 dBm/MHz
Number of Ant Ports per Polarization	2	2	2
Total PSD per Polarization	42.8	42.9	41.3
Cable Loss (site dependent)	0 dB	0 dB	0 dB
Dir Gain = Maximum Antenna Gain (G _{Ant})	15.0 -00;	15.0.40;	15.0.40;
See Note 1	15.9 dBi	15.9 UBI	15.9 081
	58.7 dBm/MHz	58.8 dBm/MHz	57.2 dBm/MHz
EIRP per Polarization	or	or	or
	744.000.00.000		525.11.11.11.11.11
	741 Watts/IVIHz	759 Watts/MHz	525 Watts/MHz
Number of Polarizations	2	2	2
Number of Polarizations EIRP Total =	2 58.7 dBm/MHz	2 58.8 dBm/MHz	2 57.2 dBm/MHz
Number of Polarizations EIRP Total = R1 <u>+</u> 45°and R2 <u>+</u> 45°	2 58.7 dBm/MHz or	2 58.8 dBm/MHz or	2 57.2 dBm/MHz or

Note 1: The directional gain is equal to antenna gain since the transmit signals are completely uncorrelated. See ANSI C63.26 sections 6.4.5.2.3b) and 6.4.5.3.1b) for guidance. Note 2: The EIRP per antenna polarity is required to be below the regulatory limit as described in ANSI C63.26-2015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the two transmitter outputs to each antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).

EIRP Calculation Summary

The worst case AHLOB Band 85 four port MIMO EIRP levels using antenna assembly model "FF-65C-R1" are less than the FCC and ISED (65.16 dBm/MHz and 62.15 dBm/MHz) EIRP Regulatory Limits for all (5, 10, 15 & 20MHz) channel bandwidths.



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission power spectral density was measured using the channels and modes as called out on the following data sheets.

The method of ANSI C63.26-2015 section 5.2.4.5 was used to make this measurement.

The RF conducted emission testing was performed on one port. The AHLOB antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the "Output Power - All Ports" report section) and antenna port 2 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraphs 5.2.5.3, 5.7.2i, and 6.4.

The total PSD for all antenna ports (at the radio output) were determined per ANSI C63.26-2015 paragraph 6.4.3.2.4. The EIRP calculations are based upon ANSI C63.26-2015 paragraphs 6.4 for a four port MIMO base station.

FCC Requirements:

FCC 27.50(c) (3) Fixed and base stations transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section; FCC 27.50(c) (4) Fixed and base stations located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, and transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 2000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts/MHz ERP in accordance with Table 4 of this section;

Note: EIRP = ERP + 2.15dB 1000 watts = 60.00 dBm, EIRP = (60 dBm + 2.15dB) /MHz = 62.15dBm/MHz or 1640W/MHz 2000 watts = 63.01 dBm, EIRP = (63 dBm + 2.15dB) /MHz = 65.16dBm/MHz or 3280W/MHz

ISED Requirements RSS-130 Section 4.6/SRSP-518 section 5.1:

SRSP-518 section 5.1 Radiated power and antenna height limits for fixed and base stations

21. For fixed and base stations transmitting in accordance with section 4, the maximum permissible equivalent isotropically radiated power (e.i.r.p.) is 1640 watts and 1640 watts/MHz for a channel bandwidth less than or equal to 1 MHz and greater than 1 MHz, respectively. These e.i.r.p. limits apply for stations with an antenna height above average terrain (HAAT) up to 305 metres.

22. Fixed and base stations located in geographical areas at a distance greater than 26 km from large or medium population centres and transmitting in accordance with section 4, may increase their e.i.r.p. up to a maximum of 3280 watts/MHz (i.e. no more than 3280 watts e.i.r.p. in any 1 MHz band segment), with an antenna HAAT up to 305 metres.



								Tb!Tx 2022.05.02.0	XMit 2022.02.07.0
EUT:	AHLOB						Work Order:	NOKI0043	
Serial Number:	YK220900029						Date:	19-Aug-22	
Customer:	Nokia Solutions and Ne	tworks					Temperature:	20.7 °C	
Attendees:	Mitchell Hill, John Ratta	navong					Humidity:	55% RH	
Project:	None						Barometric Pres.:	1013 mbar	
Tested by:	Marty Martin		Pov	ver: 54 VDC			Job Site:	TX07	
TEST SPECIFICATI	IONS			Test Method					
FCC 27:2022				ANSI C63.26:2015					
RSS-130 Issue 2:20	019			ANSI C63.26:2015					
COMMENTS									
All measurement p	ath losses were account	ed for in the reference level offset i	ncluding anv atte	nuators, filters and DC	olocks. The follow	vina is the output	power measuremen	ts at the radio output por	ts. The output power was
measured for a sin	gle carrier over the carri	er channel bandwidth on port 2. The	e total output pow	ver for multiport (2x2, 4)	(4 MIMO) operatio	n was determined	I based upon ANSI 6	3.26 clauses 6.4.3.1 and 6	.4.3.2.4 (10 log Nout). The
total output power	for two port operation is	single port power + 3dB [i.e. 10log	(2)1 and the total	output power for a four	nort operation is	single port power	+ 6dB [ie 10log(4)]	The carriers were enable	ed at maximum power
total output porrol	ioi the poil operation is	eingle pert penter + eus [nei reieg	(=)] unu mo total (portoporationito	olingio port porto			a at maximum porrori
DEVIATIONS FROM	M TEST STANDARD								
Nono	TEOLOTANDARD								
None									
Configuration #	2	1	Mat	nat					
configuration #	<u> </u>	Signaturo	long	Marti					
		Signature	U		Initial Value	Duty Cycle	Cingle Dort	Two Bort (2x2 MIMO)	Four Port (Av4 MIMO)
						Eactor (dB)	dBm/MUz==DSD	dBm/carrior BW/	dBm/MHz==PSD
Dort 2 TE Bond 7	1 617 MUT 652 MUT				UDIT/MITZ	Tactor (ub)	ubili/wiliz==F3D	ubin/carrier bw	dBill/Miliz==F3D
FUILZ, LIE, Dallu 7	200 kHz Bondwidth								
	200 KHZ Bandwidth	ND I-T							
	Standalone	NB-IOT			40.000	0	40.0	45.0	40.2
		LOW CIT. 017.2 IVIHZ			42.309	0	42.3	40.3	0 B 3
					10.000	•	10.0	45.0	40.5
		Mid Ch. 634.5 MHz			42.882	0	42.9	45.9	48.9











EIRP Calculations

EIRP calculations are needed at each transmitter location to optimize base station operational performance while meeting regulatory requirements. Each cell site installation needs to consider the power measurements in the radio certification report as well as site specific regulatory requirements (such as antenna height, population density, etc.), site installation parameters (line loss between antenna and radio, antenna parameters, etc.) and base station operational parameters (MIMO operational setup, carrier power level, channel bandwidth, modulation type, etc.) to optimize performance. Transmitter output power may be reduced (from maximum) by base station setup parameters. Base station antennas are selected by the customer.

The base station antenna is selected by the customer and this EIRP calculation is based upon a sample worst case antenna. The EIRP calculation is based upon Commscope antenna assembly model "FF-65C-R1". The maximum Band 71 gain (15.7dBi) for this antenna was used for the EIRP calculation. This antenna assembly has a pair of ±45° cross-polarized radiators. The four antenna RF inputs on the antenna assembly are labeled as R1 +45°, R1 -45°, R2 +45° and R2 -45°. The four AHLOB transmitter outputs are connected to the antenna assembly RF inputs.

Equivalent Isotropically Radiated Power (EIRP) is calculated for four port MIMO (as specified in ANSI C63.26-2015 section 6.4 for uncorrelated output signals) from the results of power measurements (highest measured PSD for each channel bandwidth type). The maximum antenna gain was used for this calculation. The cable loss between the antenna and transmitter is site dependent (will not be 0 dB) but for this worst case EIRP calculation 0 dB was used. Calculations of worst-case EIRP for four port MIMO are as follows:

Parameter	NB IOT SA
Worst Case PSD/Antenna Port	42.9 dBm/MHz
Number of Ant Ports per Polarization	2
Total PSD per Polarization	45.9
Cable Loss (site dependent)	0 dB
Dir Gain = Maximum Antenna Gain (G _{Att})	15.7 dBi
See Note 1	
	61.6 dBm/MHz
EIRP per Polarization	or
	1445 Watts/MHz
Number of Polarizations	2
EIRP Total =	61.6 dBm/MHz
R1 <u>+</u> 45°and R2 <u>+</u> 45°	or
See Note 2	1445 Watts/MHz

Note 1: The directional gain is equal to antenna gain since the transmit signals are completely uncorrelated. See ANSI C63.26sections 6.4.5.2.3b) and 6.4.5.3.1b) for guidance. Note 2: The EIRP per antenna polarity is required to be below the regulatory limit as described in ANSI C63.262015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the two transmitter outputs to each antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).

EIRP Calculation Summary

The worst case AHLOB Band 71 four port MIMO EIRP levels using antenna assembly model "FF-65C-R1" are less than the FCC and ISED (65.16 dBm/MHz and 62.15 dBm/MHz) EIRP Regulatory Limits for the LTE NB IoT Stand Alone carrier.



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission power spectral density was measured using the channels and modes as called out on the following data sheets.

The method of ANSI C63.26-2015 section 5.2.4.5 was used to make this measurement.

The RF conducted emission testing was performed on one port. The AHLOB antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the "Output Power - All Ports" report section) and antenna port 2 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraphs 5.2.5.3, 5.7.2i, and 6.4.

The total PSD for all antenna ports (at the radio output) were determined per ANSI C63.26-2015 paragraph 6.4.3.2.4. The EIRP calculations are based upon ANSI C63.26-2015 paragraphs 6.4 for a four port MIMO base station.

FCC Requirements:

FCC 27.50(c) (3) Fixed and base stations transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section; FCC 27.50(c) (4) Fixed and base stations located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, and transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 2000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts/MHz ERP in accordance with Table 4 of this section;

Note: EIRP = ERP + 2.15dB

1000 watts = 60.00 dBm, EIRP = (60 dBm + 2.15dB) /MHz = 62.15dBm/MHz or 1640W/MHz 2000 watts = 63.01 dBm, EIRP = (63 dBm + 2.15dB) /MHz = 65.16dBm/MHz or 3280W/MHz

ISED Requirements RSS-130 Section 4.6/SRSP-518 section 5.1:

SRSP-518 section 5.1 Radiated power and antenna height limits for fixed and base stations

21. For fixed and base stations transmitting in accordance with section 4, the maximum permissible equivalent isotropically radiated power (e.i.r.p.) is 1640 watts and 1640 watts/MHz for a channel bandwidth less than or equal to 1 MHz and greater than 1 MHz, respectively. These e.i.r.p. limits apply for stations with an antenna height above average terrain (HAAT) up to 305 metres.

22. Fixed and base stations located in geographical areas at a distance greater than 26 km from large or medium population centres and transmitting in accordance with section 4, may increase their e.i.r.p. up to a maximum of 3280 watts/MHz (i.e. no more than 3280 watts e.i.r.p. in any 1 MHz band segment), with an antenna HAAT up to 305 metres.



EUT:	AHLOB						Work Order:	NOKI0043	
Serial Number: YK220900029							Date:	19-Aug-22	
Customer:	Nokia Solutions and Net	tworks					Temperature:	21.6 °C	
Attendees:	Mitchell Hill, John Ratta	navong					Humidity:	51.9% RH	
Project:	None						Barometric Pres.:	1016 mbar	
Tested by:	Marty Martin		Powe	er: 54 VDC			Job Site:	TX07	
TEST SPECIFICATI	IONS			Test Method					
FCC 27:2022				ANSI C63.26:2015					
RSS-130 Issue 2:20	019			ANSI C63.26:2015					
COMMENTS									
All measurement p	ath losses were account	ed for in the reference level offest inc	cluding any atten	uators, filters and DC b	locks. The PSD v	was measured while trai	nsmitting one carrier on P	ort 1. The total PSD for mu	ltiport (2x2,
4x4 MIMO) operatio	on was determinded base	ed upon ANSI 63.26 clause 6.4.3.2.4 (1	0 Log Nout). The	total PSD for two port	operation is sing	le port PSD +3dB [i.e. 1	0 Log(2)]. The total PSD f	or four port operation is sin	gle port PSD
+6dB [i.e. 10 Log(4)]. The carriers were ena	bled at maximum power.							
+6dB [i.e. 10 Log(4 DEVIATIONS FROM)]. The carriers were ena M TEST STANDARD	bled at maximum power.		•				· ·	
+6dB [i.e. 10 Log(4 DEVIATIONS FROM None)]. The carriers were ena M TEST STANDARD	bled at maximum power.		•				· ·	
+6dB [i.e. 10 Log(4 DEVIATIONS FROM None Configuration #)]. The carriers were ena M TEST STANDARD 2	bled at maximum power.	loty	Marta					
+6dB [i.e. 10 Log(4 DEVIATIONS FROM None Configuration #))]. The carriers were ena M TEST STANDARD	bled at maximum power.	lasty	Masta Value dBm/MHz	Duty Cycle	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO)	
+6dB [i.e. 10 Log(4 DEVIATIONS FROM None Configuration #	i)]. The carriers were ena if TEST STANDARD 2 5.728 MHz - 746 MHz	bled at maximum power.	letty	Masta Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	
+6dB [i.e. 10 Log(4 DEVIATIONS FROM None Configuration # Port 2, LTE, Band 8	I)). The carriers were ena M TEST STANDARD 2 5, 728 MHz - 746 MHz 200 kHz Randwidth	bled at maximum power.	lorty	Masta Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	
+6dB [i.e. 10 Log(4 DEVIATIONS FROM None Configuration # Port 2, LTE, Band 8	1)]. The carriers were ena MTEST STANDARD 2 5, 728 MHz - 746 MHz 200 kHz Bandwidth Standalone	NR-InT Modulation	lety	Musta Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD	
+6dB [i.e. 10 Log(4 DEVIATIONS FROM None Configuration # Port 2, LTE, Band 8	1) The carriers were ena M TEST STANDARD 2 5, 728 MHz - 746 MHz 200 kHz Bandwidth Standalone	NB-IoT Modulation	loty	Marta Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD 45.5	Four Port (4x4 MIMO) dBm/MHz == PSD 48.5	
+6dB (i.e. 10 Loq(4 DEVIATIONS FROM None Configuration # Port 2, LTE, Band 8	1)]. The carriers were ena MTEST STANDARD 2 5, 728 MHz - 746 MHz 200 kHz Bandwidth Standalone	NB-IoT Modulation Low Ch. 728.2 MHz	lorty	Ularta Value dBm/MHz 42.497 42.437	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD 42.5 42.4	Two Port (2x2 MIMO) dBm/MHz == PSD 45.5 45.4	Four Port (4x4 MIMO) dBm/MHz == PSD 48.5 48.4	
+6dB II.e. 10 Log14 DEVIATIONS FROM None Configuration # Port 2, LTE, Band 8	1). The carriers were ena M TEST STANDARD 2 5, 728 MHz - 746 MHz 200 kHz Bandwidth Standalone	NB-IoT Modulation Low Ch. 728.2 MHz Mid Ch. 737 MHz Hind Ch. 745 R MHz	loty	42.497 42.437 42.31	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD 42.5 42.4 42.2	Two Port (2x2 MIMO) dBm/MHz == PSD 45.5 45.4 45.2	Four Port (4x4 MIMO) dBm/MHz == PSD 48.5 48.4 48.2	











EIRP Calculations

EIRP calculations are needed at each transmitter location to optimize base station operational performance while meeting regulatory requirements. Each cell site installation needs to consider the power measurements in the radio certification report as well as site specific regulatory requirements (such as antenna height, population density, etc.), site installation parameters (line loss between antenna and radio, antenna parameters, etc.) and base station operational parameters (MIMO operational setup, carrier power level, channel bandwidth, modulation type, etc.) to optimize performance. Transmitter output power may be reduced (from maximum) by base station setup parameters. Base station antennas are selected by the customer.

The base station antenna is selected by the customer and this EIRP calculation is based upon a sample worst case antenna. The EIRP calculation is based upon CommScope antenna assembly model "FF-65C-R1". The maximum Band 85 gain (15.9dBi) for this antenna was used for the EIRP calculation. This antenna assembly has a pair of ±45° cross-polarized radiators. The four antenna RF inputs on the antenna assembly are labeled as R1 +45°, R1 -45°, R2 +45° and R2 -45°. The four AHLOB transmitter outputs are connected to the antenna assembly RF inputs.

Equivalent Isotropically Radiated Power (EIRP) is calculated for four port MIMO (as specified in ANSI C63.26-2015 section 6.4 for a system of uncorrelated output signals) from the results of power measurements (highest measured PSD for each channel bandwidth type). The maximum antenna gain was used for this calculation. The cable loss between the antenna and transmitter is site dependent (will not be 0 dB) but for this worst case EIRP calculation 0 dB was used. Calculations of worst-case EIRP for four port MIMO are as follows:

Parameter	NB IoT SA
Worst Case PSD/Antenna Port	42.5 dBm/MHz
Number of Ant Ports per Polarization	2
Total PSD per Polarization	45.5
Cable Loss (site dependent)	0 dB
Dir Gain = Maximum Antenna Gain (G _{Ant}) See Note 1	15.9 dBi
EIRP per Polarization	61.4 dBm/MHz or 1380 Watts/MHz
Number of Polarizations	2
EIRP Total =	61.4 dBm/MHz
R1 <u>+</u> 45°and R2 <u>+</u> 45°	or
See Note 2	1380 Watts/MHz

Note 1: The directional gain is equal to antenna gain since the transmit signals are completely uncorrelated. See ANSI C63.26 sections 6.4.5.2.3b) and 6.4.5.3.1b) for guidance.

Note 2: The EIRP per antenna polarity is required to be below the regulatory limit as described in ANSI C63.26-2015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the two transmitter outputs to each antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).

EIRP Calculation Summary

The worst case AHLOB Band 85 four port MIMO EIRP levels using antenna assembly model "FF-65C-R1" are less than the FCC and ISED (65.16 dBm/MHz and 62.15 dBm/MHz) EIRP Regulatory Limits for the LTE NB IoT Stand Alone carrier.



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission power spectral density was measured using the channels and modes as called out on the following data sheets.

The method of ANSI C63.26-2015 section 5.2.4.5 was used to make this measurement.

The RF conducted emission testing was performed on one port. The AHLOB antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the "Output Power - All Ports" report section) and antenna port 2 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraphs 5.2.5.3, 5.7.2i, and 6.4.

The total PSD for all antenna ports (at the radio output) were determined per ANSI C63.26-2015 paragraph 6.4.3.2.4. The EIRP calculations are based upon ANSI C63.26-2015 paragraphs 6.4 for a four port MIMO base station.

FCC Requirements:

FCC 27.50(c) (3) Fixed and base stations transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section; FCC 27.50(c) (4) Fixed and base stations located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, and transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 2000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts/MHz ERP in accordance with Table 4 of this section;

Note: EIRP = ERP + 2.15dB

1000 watts = 60.00 dBm, EIRP = (60 dBm + 2.15dB) /MHz = 62.15dBm/MHz or 1640W/MHz 2000 watts = 63.01 dBm, EIRP = (63 dBm + 2.15dB) /MHz = 65.16dBm/MHz or 3280W/MHz

ISED Requirements RSS-130 Section 4.6/SRSP-518 section 5.1:

SRSP-518 section 5.1 Radiated power and antenna height limits for fixed and base stations

21. For fixed and base stations transmitting in accordance with section 4, the maximum permissible equivalent isotropically radiated power (e.i.r.p.) is 1640 watts and 1640 watts/MHz for a channel bandwidth less than or equal to 1 MHz and greater than 1 MHz, respectively. These e.i.r.p. limits apply for stations with an antenna height above average terrain (HAAT) up to 305 metres.

22. Fixed and base stations located in geographical areas at a distance greater than 26 km from large or medium population centres and transmitting in accordance with section 4, may increase their e.i.r.p. up to a maximum of 3280 watts/MHz (i.e. no more than 3280 watts e.i.r.p. in any 1 MHz band segment), with an antenna HAAT up to 305 metres.



010111011

EUT:	AHLOB						Work Order:	NOKI0043	
Serial Number:	YK220900029						Date:	13-Jul-22	
Customer: Nokia Solutions and Networks							Temperature:	20.9 °C	
Attendees:	Mitchell Hill, John Ratta	navong					Humidity:	56.3% RH	
Project:	None						Barometric Pres.:	1018 mbar	
Tested by:	Marty Martin		Pow	er: 54 VDC			Job Site:	TX07	
TEST SPECIFICAT	TIONS			Test Method					
FCC 27:2022				ANSI C63.26:2015					
RSS-130 ssue 2:2	019			ANSI C63.26:2015					
COMMENTS									
All measurement of	oath losses were account	ed for in the reference level offest	including any atten	uators, filters and DC b	locks. The PSD	was measured while	transmitting one carrier	on Port 2. The total PSD for m	ultiport (2x2.
4x4 MIMO) operati	on was determinded base	ed upon ANSI 63.26 clause 6.4.3.2.	4 (10 Log Nout). The	e total PSD for two port	operation is sind	ale port PSD +3dB [i.	e. 10 Log(2)]. The total P	SD for four port operation is si	nale port PSD
+6dB fi.e. 10 Log(4	4)]. The carriers were ena	bled at maximum power.	- (Log		operation to entry	jie poirt ob toub [ii	0. 10 209(2)]. 110 101011		igio porti ob
DEVIATIONS FROM	M TEST STANDARD								
None									
									1
Configuration #	2		Mat	Mat					
		Signature	ruoray	Masta					
		Orginataro							
		olgridate		Initial value	Duty Cycle	Single Port	Two Port (2x2 MIMO)	Four Port (4x4 MIMO)	
		olginataro		Initial value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz==PSD	Two Port (2x2 MIMO) dBm/MHz==PSD	Four Port (4x4 MIMO) dBm/MHz==PSD	
Port 2. LTE. Band 7	71. 617 MHz - 652 MHz	Gignataro		Initial value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz==PSD	Two Port (2x2 MIMO) dBm/MHz==PSD	Four Port (4x4 MIMO) dBm/MHz==PSD	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth	Gyndaro		Initial value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz==PSD	Two Port (2x2 MIMO) dBm/MHz==PSD	Four Port (4x4 MIMO) dBm/MHz==PSD	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu	lation		Initial value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz==PSD	Two Port (2x2 MIMO) dBm/MHz==PSD	Four Port (4x4 MIMO) dBm/MHz==PSD	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu	ilation Low Ch. 622 MHz		Initial value dBm/MHz 39.057	Duty Cycle Factor (dB)	Single Port dBm/MHz==PSD 39.1	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu	lation Low Ch. 622 MHz Mid Ch. 634.5 MHz		Initial value dBm/MHz 39.057 39.049	Duty Cycle Factor (dB) 0 0	Single Port dBm/MHz==PSD 39.1 39	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu	Ilation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 647 MHz		Initial value dBm/MHz 39.057 39.049 39.134	Duty Cycle Factor (dB) 0 0	Single Port dBm/MHz==PSD 39.1 39 39.1	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42 42.1	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45.1	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth	lation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 647 MHz		Initial value dBm/MHz 39.057 39.049 39.134	Duty Cycle Factor (dB) 0 0	Single Port dBm/MHz==PSD 39.1 39 39.1	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42 42.1	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45 45.1	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth QPSK Modu	liation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 647 MHz	-	Initial value dBm/MHz 39.057 39.049 39.134	Duty Cycle Factor (dB) 0 0	Single Port dBm/MHz==PSD 39.1 39 39.1	Two Port (2x2 MIMO) dBm/MHz=PSD 42.1 42 42.1	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45. 45.1	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth QPSK Modu	lation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 647 MHz Jation Low Ch. 624.5 MHz		Initial value dBm/MHz 39.057 39.049 39.134 38.697	Duty Cycle Factor (dB) 0 0 0	Single Port dBm/MHz==PSD 39.1 39 39.1 38.7	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42 42.1 42.1 41.7	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45 45.1 45.1 44.7	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth QPSK Modu	Ilation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 647 MHz Ilation Low Ch. 624.5 MHz Mid Ch. 634.5 MHz		Initial value dBm/MHz 39.057 39.049 39.134 38.697 38.475	Duty Cycle Factor (dB) 0 0 0	Single Port dBm/MHz==PSD 39.1 39 39.1 39.1 38.7 38.5	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42.4 42.1 41.7 41.5	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45.1 45.1 45.1 44.7 44.5	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth QPSK Modu	Ilation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 647 MHz Ilation Low Ch. 624.5 MHz Mid Ch. 634.5 MHz Mid Ch. 644.5 MHz		Initial value dBm/MHz 39.057 39.049 39.134 38.697 38.475 38.502	Duty Cycle Factor (dB)	Single Port dBm/MHz==PSD 39.1 39.1 39.1 38.7 38.5 38.5	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42 42.1 41.7 41.5 41.5	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45.1 44.7 44.5 44.5	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth QPSK Modu 20 MHz Bandwidth	lation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 647 MHz Jation Low Ch. 624.5 MHz Mid Ch. 634.5 MHz High Ch. 644.5 MHz		Initial value dBm/MHz 39.057 39.049 39.134 38.697 38.697 38.475 38.502	Duty Cycle Factor (dB)	Single Port dBm/MHz==PSD 39.1 39 39.1 38.7 38.5 38.5	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42 42.1 41.7 41.5 41.5	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45 45.1 45.1 44.7 44.5 44.5 44.5	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth QPSK Modu 20 MHz Bandwidth QPSK Modu	llation Low Ch. 622 MHz Mid Ch. 634,5 MHz High Ch. 634,5 MHz Low Ch. 624,5 MHz Mid Ch. 634,5 MHz High Ch. 634,5 MHz High Ch. 644,5 MHz		Initial value dBm/MHz 39.057 39.049 39.134 38.697 38.475 38.502	Duty Cycle Factor (dB) 0 0 0 0 0 0 0 0 0	Single Port dBm/MHz==PSD 39.1 39.1 38.7 38.7 38.5 38.5	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42 42.1 41.7 41.5 41.5	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45.4 45.1 44.7 44.5 44.5	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth QPSK Modu 20 MHz Bandwidth QPSK Modu	Ilation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 634.5 MHz Ilation Low Ch. 624.5 MHz Mid Ch. 634.5 MHz High Ch. 644.5 MHz Ilation Low Ch. 627 MHz		Initial value dBm/MHz 39.057 39.049 39.134 38.697 38.475 38.502 37.568	Duty Cycle Factor (dB) 0 0 0 0 0 0 0 0 0 0 0	Single Port dBm/MHz==PSD 39.1 39.3 39.1 38.7 38.5 38.5 38.5 37.6	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42 42.1 41.7 41.5 41.5 41.5 40.6	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45 45.1 45.1 44.7 44.5 44.5 43.6	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth QPSK Modu 20 MHz Bandwidth QPSK Modu	Ilation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 647 MHz Jation Low Ch. 624.5 MHz High Ch. 644.5 MHz High Ch. 644.5 MHz Jation Low Ch. 627 MHz Mid Ch. 634.5 MHz		Initial value dBm/MHz 39.057 39.049 39.134 38.697 38.475 38.502 37.568 37.376	Duty Cycle Factor (dB) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Single Port dBm/MHz==PSD 39.1 39.3 38.7 38.5 38.5 38.5 38.5 37.6 37.4	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42.4 42.1 41.5 41.5 41.5 41.5 40.6 40.4	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45.4 45.1 44.5 44.5 44.5 44.5 43.6 43.4	
Port 2, LTE, Band 7	71, 617 MHz - 652 MHz 10 MHz Bandwidth QPSK Modu 15 MHz Bandwidth QPSK Modu 20 MHz Bandwidth QPSK Modu	Ilation Low Ch. 622 MHz Mid Ch. 634.5 MHz High Ch. 634.5 MHz Ilation Low Ch. 624.5 MHz Mid Ch. 634.5 MHz High Ch. 645.5 MHz Ilation Low Ch. 627 MHz Mid Ch. 634.5 MHz High Ch. 642 MHz		Initial value dBm/MHz 39.057 39.049 39.134 38.697 38.475 38.502 37.568 37.376 37.438	Duty Cycle Factor (dB) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Single Port dBm/MHz==PSD 39.1 39.39.1 38.7 38.5 38.5 37.6 37.4 37.4	Two Port (2x2 MIMO) dBm/MHz==PSD 42.1 42 42.1 41.7 41.5 41.5 41.5 40.6 40.6 40.4 40.4	Four Port (4x4 MIMO) dBm/MHz==PSD 45.1 45 45.1 44.7 44.5 44.5 44.5 43.6 43.6 43.4 43.4	

















Center 644.50 MHz #Res BW 1.0 MHz

#VBW 3.0 MHz*

Span 25.00 MHz #Sweep 601.0 ms (601 pts)







	Initial value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz==PSD	Two Port (2x2 MIMO) dBm/MHz==PSD	Four Port (4x4 MIMO) dBm/MHz==PSD	
	37.438	0	37.4	40.4	43.4	
🚾 Keysight Spectrum Analyzer - El	lement Materials Techr	iology				
(XI RL RF 50)	Ω DC	SI	ENSE:INT	ALIGN AUTO	06:30:37 AM Jul 06, 2022	
		PNO: Fast ↔→ IFGain:Low	Trig: Free Run #Atten: 30 dB	#Avg Type: RMS Avg Hold: 100/100	TYPE A WWWW DET A A A A A A	
Ref Offset 4	0.28 dB				Mkr1 633.08 MHz 37.438 dBm	
50.3						
	. 1					
40.3	_					
30.3	1					
	1					
20.3	1					
40.9	1					
10.3						
0.280						
	4				l	
-9.72						
	f					
-19.7						
-29.7						
Center 642.00 MHz #Res BW 1.0 MHz		#VBV	V 3.0 MHz*	#Sw	Span 35.00 MHz eep 601.0 ms (601 pts)	



EIRP Calculations

EIRP calculations are needed at each transmitter location to optimize base station operational performance while meeting regulatory requirements. Each cell site installation needs to consider the power measurements in the radio certification report as well as site specific regulatory requirements (such as antenna height, population density, etc.), site installation parameters (line loss between antenna and radio, antenna parameters, etc.) and base station operational parameters (MIMO operational setup, carrier power level, channel bandwidth, modulation type, etc.) to optimize performance. Transmitter output power may be reduced (from maximum) by base station setup parameters. Base station antennas are selected by the customer.

The base station antenna is selected by the customer and this EIRP calculation is based upon a sample worst case antenna. The EIRP calculation is based upon Commscope antenna assembly model "FF-65C-R1". The maximum Band 71 gain (15.7dBi) for this antenna was used for the EIRP calculation. This antenna assembly has a pair of \pm 45° cross-polarized radiators. The four antenna RF inputs on the antenna assembly are labeled as R1 +45°, R1 -45°, R2 +45° and R2 -45°. The four AHLOB transmitter outputs are connected to the antenna assembly RF inputs.

Equivalent Isotropically Radiated Power (EIRP) is calculated for four port MIMO (as specified in ANSI C63.26-2015 section 6.4 for uncorrelated output signals) from the results of power measurements (highest measured PSD for each channel bandwidth type). The maximum antenna gain was used for this calculation. The cable loss between the antenna and transmitter is site dependent (will not be 0 dB) but for this worst case EIRP calculation 0 dB was used. Calculations of worst-case EIRP for four port MIMO are as follows:

Parameter	10 MHz Ch BW	15 MHz Ch BW	20 MHz Ch BW
Worst Case PSD/Antenna Port	39.1 dBm/MHz	38.7 dBm/MHz	37.6 dBm/MHz
Number of Ant Ports per Polarization	2	2	2
Total PSD per Polarization	42.1	41.7	40.6
Cable Loss (site dependent)	0 dB	0 dB	0 dB
Dir Gain = Maximum Antenna Gain (G _{Arr})	15.7 dBj	15.7 dBj	15.7 dBj
See Note 1			
	57.8 dBm/MHz	57.4 dBm/MHz	56.3 dBm/MHz
EIRP per Polarization	or	or	or
	603 Watts/MHz	550 Watts/MHz	427 Watts/MHz
Number of Polarizations	2	2	2
EIRP Total =	57.8 dBm/MHz	57.4 dBm/MHz	56.3 dBm/MHz
R1 <u>+</u> 45°and R2 <u>+</u> 45°	or	or	or
See Note 2	603 Watts/MHz	550 Watts/MHz	427 Watts/MHz

Note 1: The directional gain is equal to antenna gain since the transmit signals are completely uncorrelated. See ANSI C63.26 sections 6.4.5.2.3b) and 6.4.5.3.1b) for guidance. Note 2: The EIRP per antenna polarity is required to be below the regulatory limit as described in ANSI C63.26 -2015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the two transmitter outputs to each antenna are 90 degree -phase shifted relative to each other (cross-polarized radiators).

EIRP Calculation Summary

The worst case AHLOB Band 71 four port MIMO EIRP levels using antenna assembly model "FF-65C-R1" are less than the FCC and ISED (65.16 dBm/MHz and 62.15 dBm/MHz) EIRP Regulatory Limits for all (10, 15 & 20MHz) channel bandwidths.



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The fundamental emission power spectral density was measured using the channels and modes as called out on the following data sheets.

The method of ANSI C63.26-2015 section 5.2.4.5 was used to make this measurement.

The RF conducted emission testing was performed on one port. The AHLOB antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in the "Output Power - All Ports" report section) and antenna port 2 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraphs 5.2.5.3, 5.7.2i, and 6.4.

The total PSD for all antenna ports (at the radio output) were determined per ANSI C63.26-2015 paragraph 6.4.3.2.4. The EIRP calculations are based upon ANSI C63.26-2015 paragraphs 6.4 for a four port MIMO base station.

FCC Requirements:

FCC 27.50(c) (3) Fixed and base stations transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 1000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts/MHz ERP in accordance with Table 3 of this section; FCC 27.50(c) (4) Fixed and base stations located in a county with population density of 100 or fewer persons per square mile, based upon the most recently available population statistics from the Bureau of the Census, and transmitting a signal with an emission bandwidth greater than 1 MHz must not exceed an ERP of 2000 watts/MHz and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 2000 watts/MHz ERP in accordance with Table 4 of this section;

Note: EIRP = ERP + 2.15dB

1000 watts = 60.00 dBm, EIRP = (60 dBm + 2.15dB) /MHz = 62.15dBm/MHz or 1640W/MHz 2000 watts = 63.01 dBm, EIRP = (63 dBm + 2.15dB) /MHz = 65.16dBm/MHz or 3280W/MHz

ISED Requirements RSS-130 Section 4.6/SRSP-518 section 5.1:

SRSP-518 section 5.1 Radiated power and antenna height limits for fixed and base stations

21. For fixed and base stations transmitting in accordance with section 4, the maximum permissible equivalent isotropically radiated power (e.i.r.p.) is 1640 watts and 1640 watts/MHz for a channel bandwidth less than or equal to 1 MHz and greater than 1 MHz, respectively. These e.i.r.p. limits apply for stations with an antenna height above average terrain (HAAT) up to 305 metres.

22. Fixed and base stations located in geographical areas at a distance greater than 26 km from large or medium population centres and transmitting in accordance with section 4, may increase their e.i.r.p. up to a maximum of 3280 watts/MHz (i.e. no more than 3280 watts e.i.r.p. in any 1 MHz band segment), with an antenna HAAT up to 305 metres.



CICILICII

							TULTX 2022.00.02.0 AMIL 2022.02.07.1
EUT: AHLOB						Work Order:	NOK10043
Serial Number: YK220900029						Date:	13-Jul-22
Customer: Nokia Solutions and Ne	tworks					Temperature:	21.3 °C
Attendees: Mitchell Hill, John Ratta	anavong					Humidity:	54.3% RH
Project: None						Barometric Pres.:	1018 mbar
Tested by: Marty Martin		Power:	54 VDC			Job Site:	TX07
TEST SPECIFICATIONS			Test Method				
FCC 27:2022			ANSI C63.26:2015				
RSS-130 Issue 2:2019			ANSI C63.26:2015				
COMMENTS			•				
All measurement path losses were account	ted for in the reference level offest inc	cluding any attenua	tors, filters and DC	blocks. The PSD	was measured whil	e transmitting one carr	ier on Port 2. The total PSD for multiport
(2x2, 4x4 MIMO) operation was determinde	d based upon ANSI 63.26 clause 6.4.3	3.2.4 (10 Log Nout).	The total PSD for tw	o port operation	is single port PSD	+3dB [i.e. 10 Log(2)]. T	he total PSD for four port operation is
single port PSD +6dB [i.e. 10 Log(4)]. The o	carriers were enabled at maximum po	wer.					
	F-						
DEVIATIONS FROM TEST STANDARD							
None							
Configuration # 2	Signature	lonty ?	Marti				
	• • • •		Initial Value dBm/MHz	Duty Cycle Factor (dB)	Single Port dBm/MHz == PSD	Two Port (2x2 MIMO) dBm/MHz == PSD	Four Port (4x4 MIMO) dBm/MHz == PSD
Port 2, LTE, Band 85, 728 MHz - 746 MHz							
10MHz Bandwidth							
NB IoT GB							
	Low Ch. 733 MHz		38.172	0	38.2	41.2	44.2
	Mid Ch. 737 MHz		39.132	0	39.1	42.1	44.1
	High Ch. 741 MHz		39.081	0	39.1	42.1	44.1
Port 2, LTE, Band 85, 728 MHz - 746 MHz 15MHz Bandwidth NB IoT GB							
	Low Ch. 735.5 MHz		38.322	0	38.3	41.3	44.3
	Mid Ch. 737 MHz		38.305	0	38.3	41.3	44.3
	High Ch. 738.5 MHz		38.442	0	38.4	41.4	44.4





Center 737.000 MHz #Res BW 1.0 MHz

STATUS

#VBW 3.0 MHz*

Span 15.00 MHz #Sweep 601.0 ms (601 pts)



	Port 2, LTE	, Band 85, 728 I	MHz - 746 MHz, 10MH	Hz Bandwidth, NB IoT GB	, High Ch. 741 MHz	
	Initial Value	Duty Cycle	Single Port	Two Port (2x2 MIMO)	Four Port (4x4 MIMO)	
	39.081		30 1	42 1	45 1	
Kevsight Spectrum Ar	nalvzer - Element Materials Techn	releav	33.1	1 42.1		
LXI RL RF	50 Ω DC	SI	ENSE:INT	ALIGN AUTO	08:18:48 AM Jul 06, 2022	
		PNO: Fast +++ IFGain:Low	Trig: Free Run #Atten: 30 dB	#Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A A A A A A	
Ref C 0 dB/div Ref	Dffset 40.34 dB 60.34 dBm				Mkr1 736.600 MHz 39.081 dBm	
50.3						
40.3	1					
30.3						
20.3						
10.3						
0.340						
-9.66						
-19.7						
-29.7						
Center 741.000	MHz	#\/B\		#6/	Span 15.00 MHz	
MSG	1112	#VDV		STATUS	eep-oononis (oor pis)	



Keysight Spectrum Analyzer - Element Materials Technology Collocation Collocation Collocation RL RF 50 Ω DC SENSE:INT ALIGN AUTO 09:12:09 AM Julo6, 2022 PNO: Fast → Trig: Free Run IFGain:Low #Avg Hold: 100/100 Trig: August Aug
Keysight Spectrum Analyzer - Element Materials Technology Set NSE:INT ALIGN AUTO 09:12:09 AM Julio 6, 202 RL RF 50 Ω DC SENSE:INT ALIGN AUTO 09:12:09 AM Julio 6, 202 PNO: Fast Trig: Free Run Avg Hold: 100/100 TRACE 12:34:5 G Ref Offset 40.34 dB Align Auto As A A Ref Offset 40.34 dB BMC Fast Ref Offset 40.34 dB 38.322 dBm
Ref Offset 40.34 dB Mkr1 742.08 MHz dB/div Ref 60.34 dBm 38.322 dBm
3
3
3
nter 735.50 MHz Span 25.00 MHz
Port 2, LTE, Band 85, 728 MHz - 746 MHz, 15MHz Bandwidth, NB IoT GB, Mid Ch. 737 MHz
Initial Value Duty Cycle Single Port Two Port (2x2 MIMO) Four Port (4x4 MIMO) dBm/MHz Factor (dB) dBm/MHz == PSD dBm/MHz == PSD dBm/MHz == PSD
38.305 0 38.3 41.3 44.3
Keysight Spectrum Analyzer - Element Materials Technology Image: Comparison of the spectrum Analyzer - Element Materials Technology R L RF 50 Ω DC SENSE:INT ALIGN AUTO 09:28:52 AM Jul 06, 2022
#Avg Type: RMS TRACE [] 2 3 4 5 6 PNO: Fast →→ Trig: Free Run Avg Hold: 100/100 TVPE A IFGain:Low #Atten: 30 dB DET A A A A A
Ref Offset 40.34 dB Mkr1 730.33 MHz
3
3
3

Center 737.00 MHz #Res BW 1.0 MHz

#VBW 3.0 MHz*

Span 25.00 MHz #Sweep 601.0 ms (601 pts)



		Port 2, L11 Initial Value	E, Band 85, 728 Duty Cycle Eactor (dB)	MHz - 746 MHz, 15MF Single Port dBm/MHz == PSD	Two Port (2x2 MIMO)	Four Port (4x4 MIMO)
		38.4	0	38.4	41.4	44.4
Keysight Spec	trum Analyzer RF 5	- Element Materials Tech 50 Ω DC	nology	ENSE:INT	ALIGN AUTO #Avg Type: RMS AvgiHold: 100/100	09:52:10 AM Jul 06, 2022 TRACE 1 2 3 4 5 6 TYPE 6
			IFGain:Low	#Atten: 30 dB		DET A A A A A A
10 dB/div	Ref Offset Ref 60.3	t 40.34 dB 34 dBm				Mkr1 731.83 MHz 38.442 dBm
				Ĭ		
50.3						
40.3		∮ 1				
30.3		/				
20.3						
10.3						
0.340						
-9.66		+				
-19.7		}				
-29.7						
Contor 720	EO BALL-					Onen 25 00 Milia
#Res BW 1	.50 MHz		#VBV	V 3.0 MHz*	#Swe	ep 601.0 ms (601 pts)
G					STATUS	



EIRP Calculations

EIRP calculations are needed at each transmitter location to optimize base station operational performance while meeting regulatory requirements. Each cell site installation needs to consider the power measurements in the radio certification report as well as site specific regulatory requirements (such as antenna height, population density, etc.), site installation parameters (line loss between antenna and radio, antenna parameters, etc.) and base station operational parameters (MIMO operational setup, carrier power level, channel bandwidth, modulation type, etc.) to optimize performance. Transmitter output power may be reduced (from maximum) by base station setup parameters. Base station antennas are selected by the customer.

The base station antenna is selected by the customer and this EIRP calculation is based upon a sample worst case antenna. The EIRP calculation is based upon Commscope antenna assembly model "FF-65C-R1". The maximum Band 85 gain (15.9dBi) for this antenna was used for the EIRP calculation. This antenna assembly has a pair of \pm 45° cross-polarized radiators. The four antenna RF inputs on the antenna assembly are labeled as R1 +45°, R1 -45°, R2 +45° and R2 -45°. The four AHLOB transmitter outputs are connected to the antenna assembly RF inputs.

Equivalent Isotropically Radiated Power (EIRP) is calculated for four port MIMO (as specified in ANSI C63.26-2015 section 6.4 for a system of uncorrelated output signals) from the results of power measurements (highest measured PSD for each channel bandwidth type). The maximum antenna gain was used for this calculation. The cable loss between the antenna and transmitter is site dependent (will not be 0 dB) but for this worst case EIRP calculation 0 dB was used. Calculations of worst-case EIRP for four port MIMO are as follows:

Parameter	10 MHz Ch BW	15 MHz Ch BW
Worst Case PSD/Antenna Port	39.1 dBm/MHz	38.4 dBm/MHz
Number of Ant Ports per Polarization	2	2
Total PSD per Polarization	42.1	41.4
Cable Loss (site dependent)	0 dB	0 dB
Dir Gain = Maximum Antenna Gain (G _{Ant})	15 9 dBi	15 9 dBi
See Note 1	10.0 000	10.0
	58.0 dBm/MHz	57.3 dBm/MHz
EIRP per Polarization	or	or
	631 Watts/MHz	537 Watts/MHz
Number of Polarizations	2	2
EIRP Total =	58.0 dBm/MHz	57.3 dBm/MHz
R1 <u>+</u> 45°and R2 <u>+</u> 45°	or	or
See Note 2	631 Watts/MHz	537 Watts/MHz

Note 1: The directional gain is equal to antenna gain since the transmit signals are completely uncorrelated. See ANSI C63.26 sections 6.4.5.2.3b) and 6.4.5.3.1b) for guidance.

Note 2: The EIRP per antenna polarity is required to be below the regulatory limit as described in ANSI C63.26-2015 section 6.4.6.3 b)2) and KDB 662911 D02v01 page 3 example (2) since the two transmitter outputs to each antenna are 90 degree-phase shifted relative to each other (cross-polarized radiators).

EIRP Calculation Summary

The worst case AHLOB Band 85 four port MIMO EIRP levels using antenna assembly model "FF-65C-R1" are less than the FCC and ISED (65.16 dBm/MHz and 62.15 dBm/MHz) EIRP Regulatory Limits for all (5, 10, 15 & 20MHz) channel bandwidths.



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in the available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

All limits were adjusted by a factor of [-10*log(4)] dB to account for the device operation as a 4 port MIMO transmitter, as per FCC KDB 622911.

Per section 27.53(g) and RSS 130 4.7, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm. The limit is adjusted to -19 dBm [-13 dBm -10 log (4)] per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

Per FCC 27.53(g) and RSS 130 4.7 requires a >100 kHz measurement bandwidth for emissions 100 kHz outside of the RRH operating frequency range. FCC 27.53(g) and RSS 130 4.7 requires a >30 kHz measurement bandwidth for emissions between 100 kHz outside of the RRH operating frequency range and band edge of the operating frequency range.

RF conducted emissions testing was performed only on one port. The testing was performed on the same version of hardware (AHLOB) as the original certification test. The AHLOB antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in this certification testing) and antenna port 2 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraph 5.7.2i.



				TbtTx 2022.05.02.0	XMit 2022.02.07.0
EUT:	AHLOB		Work Order:	NOKI0043	
Serial Number:	YK220900029		Date:	11-Jul-22	
Customer:	Nokia Solutions and Networks		Temperature:	21.5 °C	
Attendees:	Mitchell Hill, John Rattanavong		Humidity:	56.8% RH	
Project:	None		Barometric Pres.:	1015 mbar	
Tested by:	Marty Martin	Power: 54 VDC	Job Site:	TX07	
TEST SPECIFICAT	IONS	Test Method			
FCC 27:2022		ANSI C63.26:2015			
RSS-130 Issue 2:20)19	ANSI C63.26:2015			
COMMENTS					
All losses in the me	easurement path were accounted for: attenuators, cable	es, DC block and filter when in use. The carriers were enabled a	t maximum power.		
DEVIATIONS FROM	I TEST STANDARD				
None					
Configuration #	2 Signature	Marty Marti			
		Frequency Range	Max Value (dBm)	Limit < (dBm)	Result
Port 2, LTE, Band 7	1, 617 MHz - 652 MHz				
	5 MHz Bandwidth				
	256-QAM Modulation			10	2
	Low Ch. 619.5 MHz	1	-32.1	-19	Pass
	Low Ch. 619.5 MHz	2	-29.51	-19	Pass
	High Ch. 649.5 MHZ	1	-33.64	-19	Pass
	Hign Cn. 649.5 MHZ	۷	-30.87	-19	Pass
	10 MHZ Bandwidth				
	Low Ch 622 MHz	1	22.01	10	Page
	Low Ch. 622 MHz	1	-33.91	-19	Pass
	High Ch. 647 MHz	1	-20.74	-10	Pass
	High Ch. 647 MHz	2	-32.71	-19	Pass
	15 MHz Bandwidth	2	-20.71	-13	1 455
	OPSK Modulation				
	Low Ch. 624.5 MHz	1	-28.99	-19	Pass
	Low Ch. 624.5 MHz	2	-27.1	-19	Pass
	High Ch. 644.5 MHz	- 1	-27.46	-19	Pass
	High Ch. 644.5 MHz	2	-25.02	-19	Pass
	16-QAM Modulation				
	Low Ch. 624.5 MHz	1	-29.32	-19	Pass
	Low Ch. 624.5 MHz	2	-27.88	-19	Pass
	High Ch. 644.5 MHz	1	-27.52	-19	Pass
	High Ch. 644.5 MHz	2	-25.47	-19	Pass
	64-QAM Modulation				
	Low Ch. 624.5 MHz	1	-29.23	-19	Pass
	Low Ch. 624.5 MHz	2	-27.79	-19	Pass
	High Ch. 644.5 MHz	1	-27.73	-19	Pass
	High Ch. 644.5 MHz	2	-25.79	-19	Pass
	256-QAM Modulation		07.7	10	_
	Low Ch. 624.5 MHz	1	-28.8	-19	Pass
	Low Ch. 624.5 MHz	2	-27.67	-19	Pass
	High Ch. 644.5 MHz	1	-27.33	-19	Pass
	High Ch. 644.5 MHz	2	-25.6	-19	Pass
	256-QAM Modulation				
	Low Ch. 627 MHz	1	-32.71	-19	Pass
	Low Ch. 627 MHz	2	-29.04	-19	Pass
	High Ch. 642 MHz	1	-30.34	-19	Pass
	High Ch. 642 MHz	2	-26.68	-19	Pass



	Frequency		Max Value	Limit	Result
	1		-32.1	-19	Pass
I		I	<u> </u>		
🛄 Keysight Spectrum Analyzer	- Element Materials Technology				- 6 -
IXI RL RF	50 Ω DC	SENSE:INT	ALIGN AUTO		05:15:18 AM Jul 01, 2022
	PNO: Wid IFGain:Lo	de 🛶 Trig: Free Run ow #Atten: 14 dB	Avg Hold: 1	00/100	TYPE A WWWWW DET A NNNN
Ref Offset 10 dB/div Ref 40.2	t 40.28 dB 28 dBm			Mkr1	617.000 0 MHz -32.097 dBm
Log					
30.3					
20.3					
10.3					
0.280					
-9.72					لمسمين
0.12					
-19.7					DL1 -19.00 dBm
		4			
-29.7					
-39.7					
-49.7					
*43.7					
Start 616.9000 MHz	z			Si	top 617.1000 MHz
#Res BW 30 kHz		#VBW 100 kHz*		#Sweep 2	200.0 ms (200 pts)
MSG			STATUS		
Port 2 T	E Band 71 617 MHz - 65	2 MHz 5 MHz Bandwidt	256 OAM Modu	lation Low Ch 6	10 5 MHz
10112, 11	Frequency		Max Value	Limit	19.5 10112
	Range		(dBm)	< (dBm)	Result
	0		20.51	10	Deee

ceysignt spec	ctrum Analy	zer - Element	Materials Lec	nnology							
RL	RF	50 Ω D0			S	ENSE:INT		ALIGN AUTO		05:16:2	4 AM Jul 01, 20
				PNO: Fast IFGain:Low		Trig: Free #Atten: 14	Run dB	Avg Type: Avg Hold:	RMS 100/100	TI	TYPE A WWW DET A NNN
dB/div	Ref Off: Ref 40	set 40.28 ().28 dBn	dB N							Mkr1 61 -29	6.90 MI .510 dB
						,					
3											
											DL1 -19.0
											1
1											
			· · · ·								
rt 596.	90 MHz				()					Stop (616.90 M
es BW	TUU KH:	2			FARA	V 300 KHZ			#SV	veep 300.0 n	ns (601 p



Frequen	су		Max Value	Limit		
Range	1		(dBm)	< (dBm)	Result	
1			-33.64	-19	Pass	
	ls Technology				6	×
XX RL RF 50Ω DC	SI	ENSE:INT	ALIGN AUTO		05:04:00 AM Jul 01, 207	22
	PNO: Wide ↔→ IFGain:Low	Trig: Free Run #Atten: 14 dB	Avg Type: Avg Hold: 1	RMS 100/100	TRACE 1 2 3 4 TYPE A WWW DET A NNN	56 WW NN
Ref Offset 40.28 dB 10 dB/div Ref 40.28 dBm				Mkr1	652.000 0 MH -33.643 dB	iz m
Log		Y				
30.3						
20.3						
10.3						
0.280						
-9.72						
-19.7					DL1 -19.00 d	lBm
-29.7		1				
-39.7						
-49.7						
45.7						
Start 651.9000 MHz #Res BW 30 kHz	#VBV	V 100 kHz*		S #Sweep	top 652.1000 Mi 200.0 ms (200 p	lz ts)
MSG		enderhalen halen alle hale	STATUS			
	(market)					-

	Frequency		Max Value	Limit	
	Range		(dBm)	< (dBm)	Result
	2		-30.87	-19	Pass

Ref Offset 40.28 dB Stream Aug Type: RMS Trace D23 dB 0 dB/div Ref 40.28 dB Mkr1 652.10 Mir-30.869 dB 30.3 Image: Contract D23 dB Image: Contract D23 dB 10 dB/div Ref 40.28 dB Image: Contract D23 dB 20.3 Image: Contract D23 dB Image: Contract D23 dB 30.3 Image: Contract D23 dB Image: Contract D23 dB 20.3 Image: Contract D23 dB Image: Contract D23 dB 20.3 Image: Contract D23 dB Image: Contract D23 dB 20.3 Image: Contract D23 dB Image: Contract D23 dB 20.3 Image: Contract D23 dB Image: Contract D23 dB 20.3 Image: Contract D23 dB Image: Contract D23 dB 20.3 Image: Contract D23 dB Image: Contract D23 dB 20.3 Image: Contract D23 dB Image: Contract D23 dB 20.3 Image: Contract D23 dB Image: Contract D23 dB 20.4 Image: Contract D23 dB Image: Contract D23 dB 20.4 Image: Contract D23 dB Image: Contract D23 dB 20.4 Image: Contract D23 dB Image: Contract D23 dB 20.4 Image: Contract D23 dB Image: Contract D23 dB 20.4 Image: Contract D23 dB Image: Contract D23 dB 20.4 Image: C	Reysignt op	DECTRUM Analyze	F - Element Material	sTechnology	CENCEANT				05:05:0	
Ref Offset 40.28 dBm Mkr1 652.10 Mic-30.869 dB 30.3			30 S2 DC	PNO: Fast	Trig: Free F	Run	Avg Type: Avg Hold: 1	RMS 100/100	03,03,0. Tf	AM JUIUI, 2022 RACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N N
30.3	10 dB/div	Ref Offse Ref 40.	et 40.28 dB 28 dBm	i dunicou					Mkr1 65 -30.	2.10 MHz 869 dBm
20.3 20.3 10.3 	30.3					/				
223 10.3 9.72 19.7 29.7 29.7 29.7 29.7 29.7 29.7 29.7 29.7 20.7 2	20.2									
100 000 000 000 000 000 000 000 000 000	10.3									
19.72	1 280									
	.9 70									
	40.7									DL1 -19.00 dBm
	19.7									
20.7	20.7									
	-35.7									
	*49.7									
Start 652.10 MHz Stop 672.10 MI #Res BW 100 kHz #VBW 300 kHz* #Sweep 300.0 ms (601 p	Start 652 #Res BW	.10 MHz 100 kHz		#	VBW 300 kHz*			#Sw	Stop 6 eep 300.0 n	672.10 MHz ns (601 pts)



10112	Frequency		12 Danuwia	Max Value	lulation, cow on	. 022 10112	
	Range			(dBm)	< (dBm)	Result	
	1			-33.91	-19	Pass	
 I		I	I	-00.01	-15	1 433	
(access)							
Keysight Spectrum An	alyzer - Element Materials Techno	logy					
	50 W UC	SENSELINT		ALIGN AUTO Avg Type:	RMS	09:03:04 AM JULU1, 2022 TRACE 1 2 3 4 5 6	
		PNO: Wide Trig:	Free Run	Avg Hold: 1	100/100	TYPE A WWWWW	
		IFGain:Low #Atter	n: 14 dB			DET	
Ref O	offset 40.28 dB				Mkr1	617.000 0 MHz	
10 dB/div Ref	40.28 dBm					-33.911 dBm	
Log							
30.3							
20.3							
10.3							
0.280							
9.72							
-5.7.2							
10.7						DL1 -19.00 dBm	
-19.7							
-29.7							
-39.7							
-49.7							
Start 616.9000 I	MHz				S	top 617.1000 MHz	
#Res BW 30 kH	z	#VBW 100	kHz*		#Sweep	200.0 ms (200 pts)	
MSG				STATUS			
Port 2	2, LTE, Band 71, 617 N	/Hz - 652 MHz, 10 MH	Hz Bandwid	th, 256-QAM Mod	lulation, Low Ch	. 622 MHz	
	Frequency			Max Value	Limit		
	Banga			(dBm)	< (dPm)	Popult	

Port 2, L1	TE, Band 71, 617	MHz - 652 MHz,	10 MHz Bandwid	Ith, 256-QAM Mod	dulation, Low Ch.	622 MHz	
	Frequency			Max Value	Limit		
	Range			(dBm)	< (dBm)	Result	
	2			-29.74	-19	Pass	

XI RL	RF 50 Ω DC	57	SENSE:INT	ALIGN AUTO		09:04:01 AM Jul 01, 2022
		PNO: Fast	. Trig: Free Run #Atten: 14 dB	Avg Type: RM Avg Hold: 100	AS 0/100	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N
10 dB/div	Ref Offset 40.28 dB Ref 40.28 dBm				Mkr	1 616.90 MHz -29.741 dBm
			Ĭ			
30.3						
20.3						
10.3						
.280						
9.72						
19.7						DL1 -19.00 dBm
29.7						1
39.7						
10.7						
-49.7						
Start 596.9 #Res BW 1	0 MHz 00 kHz	#VB	W 300 kHz*		#Sweep 30	stop 616.90 MHz
180				STATUS		



	Frequency Range			Max Value (dBm)	Limit < (dBm)	Result
	1			-32.71	-19	Pass
Keysight Spectrur	m Analyzer - Element Materials Tech	inology	ENSEIINT	ALIGN AUTO		09:17:77 AM Jul 01 2022
	10 50 x De	PNO: Wide	Trig: Free Run #Atten: 14 dB	Avg Type: Avg Hold: 1	RMS 100/100	TRACE 1 2 3 4 5 6 TYPE A WWWW DET A N N N N N
10 dB/div R	ef Offset 40.28 dB ef 40.28 dBm				Mkr1	652.000 0 MHz -32.713 dBm
Log			Ť			
30.3						
20.3						
10.3						
10.5						
0.280						
-9.72						
-19.7						DL1 -19.00 dBm
-29.7						
29.7						
-49.7						
Start 651.90	00 MHz			1		top 652.1000 MHz
#Res BW 30	kHz	#VBV	V 100 kHz*		#Sweep	200.0 ms (200 pts)
MSG				STATUS		
Po	ort 2. LTE. Band 71 617	MHz - 652 MHz	. 10 MHz Bandwid	th. 256-QAM Moc	ulation, High Ch	1. 647 MHz
	Frequency			Max Value	Limit	
	Range	1	1	(dBm)	< (dBm)	Result
	1 2	1	1	_28.71	_10	Pass

Keysight Spec	trum Ana	alyzer - Elemen	t Materials Te	chnology							
RL	RF	50 Ω D	IC		SI	ENSE:INT		ALIGN AUTO		09:18	:44 AM Jul 01, 20
				PNO: Fast IFGain:Low	•••	Trig: Free R #Atten: 14 d	tun 1B	Avg Type: Avg Hold:	RMS 100/100		TYPE A WWW DET A NNN
	Ref Of	ffset 40.28	dB							Mkr1 6	52.10 MI
dB/div	Ref 4	0.28 dBi	n							-20	6.709 UB
2						Ť					
-											
_											
.3											
0											
2											
7	-		-		_						DE1 -19.0
1											
7											
7	- X										
		-	_								
7									<u> </u>		
art 652.′	0 MH	z								Stop	672.10 M
es BW 1	100 kH	z		#\	VBV	V 300 kHz*			#Sv	veep 300.0	ms (601 p
NAME OF STREET	Select Co	0.000.000.000.000	Section des		1111	subject to be for the subject to be	(energiane)	STATUS	法成本成本成本的	an an a that the state of the	weise die die die



Frequence	У	1	Max Value	Limit	Beault
Range				< (dBm)	Result
			-20.99	-19	Pass
🔤 Keysight Spectrum Analyzer - Element Materials	Technology				&
XIRL RF 50Ω DC	SENSE:I	T	ALIGN AUTO		05:36:49 AM Jul 01, 2022
	PNO: Wide +++ Trig IFGain:Low #At	j: Free Run ten: 14 dB	Avg Type: I Avg Hold: 1	00/100	TYPE A WWWW DET A NNNN
Ref Offset 40.28 dB 10 dB/div Ref 40.28 dBm				Mkr1	617.000 0 MH -28.992 dBn
		Ť			
20.2					
30.3					
20.3					
10.3					
0.280					
-9.72					
					DI 1 -19 00 dB
-19.7					
		↓ 1			
-29.7					
-39.7					
-49.7					
		k			4 647 4000 MIL
#Res BW 30 kHz	#VBW 10	0 kHz*		ہ Sweep#	200.0 ms (200 pts
MSG			STATUS		

	Frequency		Max Value	Limit	
	Range		(dBm)	< (dBm)	Result
	2		-27.1	-19	Pass

Keysight S	pectrum Analyzer - Element Materials T	echnology	and a start of the	ALL REAL PLACE		
KL	RF 50 Ω DC	PNO: Fast ↔ IFGain:Low	Trig: Free Run #Atten: 14 dB	ALIGN AUTO Avg Type: RI Avg Hold: 10	VIS D/100	US:37:45 AM JUI 01, 2022 TRACE 1 2 3 4 5 TYPE A WWWW DET A N N N N
0 dB/div	Ref Offset 40.28 dB Ref 40.28 dBm				Mkr	1 616.90 MH -27.099 dBn
			Ĭ			
0.0						
.0.5						
U.3						
280						
.72						DI 1 -19 00 dB
9.7						
9.7						~
9.7				~		
9.7						
tart 596 Res BW).90 MHz / 100 kHz	#VBI	N 300 kHz*		s #Sweep 30	top 616.90 MH
3G				STATUS	Concernence (Concernence)	



	Frequency			Max Value	Limit	
·	Range			(dBm)	< (dBm)	Result
	1			-27.46	-19	Pass
🛄 Keysight Spectrur	m Analyzer - Element Materials Technolo	ogy				
LXI RL I	RF 50 Ω DC	SENSE	INT	ALIGN AUTO	-	05:58:40 AM Jul 01, 2022
			rig: Free Run	Avg Hold:	100/100	TYPE A WWWWW
		IFGain:Low #	Atten: 14 dB	-		DETANNNN
R	of Offeet 40 28 dB				Mkr1	652.000 0 MHz
10 dB/div R	ef 40.28 dBm					-27.462 dBm
Log			The second secon			
30.3						
20.3						
10.3						
0.280						
-9.72						
-19,7						DL1 -19.00 dBm
			1			
-29.7						
-39.7						
49.7						
-49.7						
Start 651.900	00 MHz				S	top 652.1000 MHz
#Res BW 30	kHz	#VBW 1	00 kHz*		#Sweep	200.0 ms (200 pts)
MSG				STATUS		
P	ort 2 J.TE. Band 71, 617 N	/Hz - 652 MHz, 1	5 MHz Bandwi	dth QPSK Modula	ation, High Ch. 6	44 5 MHz
	Frequency	,		Max Value	Limit	
				(al Date)	((I D)	D It

Port 2, L	TE, Band 71, 617	MHz - 652 MHz,	15 MHz Bandwid	th, QPSK Modula	ation, High Ch. 64	44.5 MHz	
	Frequency			Max Value	Limit		
	Range			(dBm)	< (dBm)	Result	
	2			-25.02	-19	Pass	

Keysight Spectrum	n Analyzer - Element Materials Te	chnology					
LXI RL F	RF 50 Ω DC	PNO: Fast ↔→ IFGain:Low	Trig: Free Run #Atten: 14 dB	ALIGN AUTO Avg Type: I Avg Hold: 1	RMS 00/100	05:59:36 TF	AM Jul 01, 2022 ACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN
Re 10 dB/div Re	ef Offset 40.28 dB ef 40.28 dBm					Mkr1 65 -25.	2.10 MHz 021 dBm
30.3							
20.3							
10.3							
0.280							
-9.72							DL1 -19.00 dBm
-29.7							
-39.7							
-49.7							
Start 652.10 #Res BW 100	MHz) kHz	#VB\	N 300 kHz*		#Sw	Stop 6 veep 300.0 m	572.10 MHz is (601 pts)
MSG				STATUS			



	Frequency			Max Value	Limit	Bogult	
· · · · · · · · · · · · · · · · · · ·	Kange		r			Result	1
	1			-29.32	-19	Pass	—
Keysight Spectrum Analyzer	- Element Materials Technology						X
LXI RL RF	50 Ω DC	SENSE:IN	a 🖂	ALIGN AUTO		05:39:49 AM Jul 01, 20	122
	PN	.O:Wide ↔ Trig	: Free Run	Avg Type: Avg Hold:	RMS 100/100	TRACE 1 2 3 4 TYPE A WWW DET A N N N	56 4444 4 N N
	IFG	ain:Low #Atte	n: 14 db		Mkrt	617 000 0 MI	
Ref Offset 10 dB/div Ref 40.2	40.28 dB 28 dBm					-29.315 dB	m
Log							
30.3							
20.3							4
10.3							
0.280							
-9.72							
						DL1 -19.00 /	dBm
-19.7							
20.7							
-29.7							
-39 Z							
-49.7							
Stort 616 0000 MH						Stop 617 1000 M	
#Res BW 30 kHz		#VBW 100	kHz*		#Sweep	200.0 ms (200 p	iz (ts)
MSG				STATUS			
			An open to be a set of the set of				

Port 2, LT	E, Band 71, 617	MHz - 652 MHz,	15 MHz Bandwid	th, 16-QAM Modι	ulation, Low Ch. 6	624.5 MHz
	Frequency			Max Value	Limit	
	Range			(dBm)	< (dBm)	Result
	2			-27.88	-19	Pass

RL RF 50 Ω	DC		SENSE:INT	ALIGN AUTO		05:40:4	8 AM Jul 01, 2022
		PNO: Fast +++	Trig: Free Run #Atten: 14 dB	Avg Type: F Avg Hold: 10	2MS 00/100	Ti	RACE 12345 TYPE A WWWW DET A NNNN
Ref Offset 40.2 0 dB/div Ref 40.28 dE	8 dB 3m					Mkr1 61 -27	6.90 MH: .884 dBn
20.2			Ť				
20.3							
10.3							
280							
3.72							
9.7							DL1 -19.00 dB
9.7							
9.7							\mathcal{A}
97							
tart 596.90 MHz Res BW 100 kHz		#VB	W 300 kHz*		#Sw	Stop (eep 300.0 n	616.90 MH; ns (601 pts
SG				STATUS	91919191919 <u>191</u>		



Freque	ncy		Max Value	Limit	Pocult
			-27.52	-19	Pass
	1	II	21.02	10	1 400
Keysight Spectrum Analyzer - Element Mate	rials Technology	SENSE-INT	ALISN ALITO		06:01:36 AM Jul 01 2022
	PNO: Wide IFGain:Low	 Trig: Free Run #Atten: 14 dB 	Avg Type: Avg Hold: 1	RMS 100/100	TRACE 1 2 3 4 5 TYPE A WWWW DET A N N N N
Ref Offset 40.28 dB 10 dB/div Ref 40.28 dBm				Mkr1	652.000 0 MHz -27.518 dBm
		Ĭ			
30.3					
20.3					
20.0					
10.3					
0.280					
-9.72					
-19.7					DL1 -19.00 dBm
-29.7					
-39.7					
-49.7					
Start 651.9000 MHz #Res BW 30 kHz	#	VBW 100 kHz*		S #Sweep	top 652.1000 MHz 200.0 ms (200 pts
MSG			STATUS		

Port 2, LI	E, Band 71, 617	MHz - 652 MHz, 1	15 MHz Bandwid	h, 16-QAM Modu	lation, High Ch. 6	544.5 MHz
	Frequency			Max Value	Limit	
	Range			(dBm)	< (dBm)	Result
	2			-25.47	-19	Pass

Keysight Sp	ectrum Analyzer - Element Materi	als Technology					
LXX RL	RF 50 Ω DC	PNO: Fast ↔ IFGain:Low	Trig: Free Run #Atten: 14 dB	ALIGN AUTO Avg Type: Avg Hold:	RMS 100/100	06:02:46 TR T	AM Jul 01, 2022 ACE 1 2 3 4 5 6 TYPE A MANANA DET A NNNNN
10 dB/div	Ref Offset 40.28 dB Ref 40.28 dBm					Mkr1 652 -25.	2.10 MHz 471 dBm
30.3							
20.3							
10.3							
0.280							
-19.7 { 1 ===							DL1 -19.00 dBm
-29.7							
-39.7							
-49.7							
Start 652. #Res BW	10 MHz 100 kHz	#VE	W 300 kHz*		#Swe	Stop 6 ep 300.0 m	72.10 MHz s (601 pts)
MSG				STATUS		the state of the s	



Frequency Range	1	Max Value (dBm)	Limit < (dBm)	Result
1		-29.23	-19	Pass
		• • • •		
Keysight Spectrum Analyzer - Element Materials 1	echnology			
XX RL RF 50Ω DC	SENSE:INT	ALIGN AUTO		05:42:38 AM Jul 01, 2022
	PNO: Wide Trig: Free Run IFGain:Low #Atten: 14 dB	Avg Type: Avg Hold:	RMS 100/100	TRACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN
Ref Offset 40.28 dB 10 dB/div Ref 40.28 dBm			Mkr1	617.000 0 MHz -29.229 dBm
	The second se			
30.3				
20.3				
10.3				
0.280				
-9.72				
				DI 1 -19.00 dBm
-19.7				
	1			
-29.7				
-39.7				
-49.7				
Start 616.9000 MHz #Res BW 30 kHz	#VBW 100 kHz*		S #Sweep	top 617.1000 MHz 200.0 ms (200 pts)
MSG		STATUS		
		2		

Port 2, LT	E, Band 71, 617	MHz - 652 MHz,	15 MHz Bandwid	th, 64-QAM Modu	lation, Low Ch. 6	624.5 MHz
	Frequency			Max Value	Limit	
	Range			(dBm)	< (dBm)	Result
	2			-27.79	-19	Pass

Keysight Sp	ectrum Analyzer - Element Materials T	echnology	TREEANT		05:42:50 AM Jul 01, 2022
	NF 30.32 UC	PNO: Fast	Trig: Free Run #Atten: 14 dB	Avg Type: RM Avg Hold: 100	S TRACE 2 3 4 5 6 100 TYPE A WWWW DET A NNNN
10 dB/div	Ref Offset 40.28 dB Ref 40.28 dBm				Mkr1 616.90 MHz -27.794 dBm
30.3					
20.3					
10.3					
0.280					
-9.72					
-19.7					DL1 -19.00 dBm
-29.7					
-39.7			~~~~		
-49.7					
Start 596 #Res BW	.90 MHz 100 kHz	#VBI	W 300 kHz*		Stop 616.90 MHz #Sweep 300.0 ms (601 pts)
MSG				STATUS	



	Port 2, L1	E, Band 71, 617 W	/Hz - 652 MHz,	15 MHz Bandwidi	h, 64-QAM Moau	ation, High Ch. 6	44.5 MHz	
		Frequency			Max value		Desett	
		Range		1	(dBm)	< (dBm)	Result	
		1			-27.73	-19	Pass	
K	Keysight Spectrum Analyzer	- Element Materials Techno	ology					×
LXI I	RL RF	50 Ω DC	SE	ENSE:INT	ALIGN AUTO		06:06:17 AM Jul 01, 20	22
			PNO: Wide	Trig: Free Run	Avg Type: 1 Avg/Hold: 1	CM S 00/100	TYPE A WWW	5 6 ₩₩
			IFGain:Low	#Atten: 14 dB			DETANNN	NN
	Def offer					Mkr1	652.000 0 MI	z
10 0	dB/div Ref 40.2	28 dBm					-27.727 dB	m
209				Y				
20								
30.	3							
20.3	3							
10.2	3							
0.280	0							
-9.7	2							
10								:Bm
- 13.7				1				
-29.1								
-39.7	7							
-49.7	7							
24				k				
Sta #D	NT 651.9000 MHz	z	#\/B\A	4 100 kHz*		#Sween 2	00 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
	es Dw Jo Khz		#VEX			#Sweep 2	100.0 ms (200 p	(5)
MSG					STATUS			
	Dart 0 1 7	5 David 74 047 N				tion Llink Ob C		
	Port 2, LT	E, Band /1, 61/ W	1Hz - 652 MHz,	15 MHz Bandwidi	h, 64-QAM Modul	ation, High Ch. 6	44.5 MHz	
		Frequency			Max Value	Limit		
	·	Range		1	(dBm)	< (dBm)	Result	
		2			-25.79	-19	Pass	

RL	RF 50 Ω DC		SENSE:INT	ALIGN AUTO	06:07:30 AM Jul 01, 20
	_	PNO: Fast ↔ IFGain:Low	Trig: Free Run #Atten: 14 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 1 2 3 4 TYPE A WWW DET A N N
dB/div	Ref Offset 40.28 dB Ref 40.28 dBm				Mkr1 652.10 M -25.794 dE
			Ĭ		
3					
3					
1					
2					
₁ ===					DL1 -19.0
					<u> </u>
rt 652.1	0 MHz		A		Stop 672.10 N
es BW 1	00 kHz	#VB	W 300 kHz*	#S	weep 300.0 ms (601 p

Report No. NOKI0043.0 Rev.1 EAR-Controlled Data



Frequency		Max Value	Limit	Desult
Range		(abm)	< (aBm)	Result
		-20.0	-19	Pass
🔤 Keysight Spectrum Analyzer - Element Materials Teo	:hnology			
XX RL RF 50Ω DC	SENSE:INT	ALIGN AUTO		06:33:04 AM Jul 01, 2022
	PNO: Wide ++ Trig: Free Run IFGain:Low #Atten: 14 dB	Avg Hold: 1	00/100	TYPE A WWWWW DET A NNNN
Ref Offset 40.28 dB 10 dB/div Ref 40.28 dBm			Mkr1	617.000 0 MHz -28.795 dBm
Log	The second secon			
30.3				
20.3				
10.3				
0.280				
0.70				
-9.72				
10.7				DL1 -19.00 dBm
-19.7	1			
20.7		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		
-29.7				
20.7				
-38.7				
49.7				
-49.7				
Start 616.9000 MHz #Res BW 30 kHz	#VBW 100 kHz*		S #Sweep 2	top 617.1000 MHz 200.0 ms (200 pts)
MSG		STATUS		

Port 2, LTE, Band 71, 617 MHZ - 652 MHZ, 15 MHZ Bandwidth, 256-QAM Modulation, Low Cn. 624.5 MHZ											
	Frequency			Max Value	Max Value Limit						
	Range			(dBm)	< (dBm)	Result					
	2			-27.67	_10	Pass					

Keysight Spectrum Analyzer - Element Materials Te	chnology			
μ α RL RF 50 Ω DC	PNO: Fast ↔→→ IFGain:Low	Trig: Free Run #Atten: 14 dB	ALIGN AUTO Avg Type: RMS Avg Hold: 100/10	06:34:03 AM Jul 01, 2022 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN
Ref Offset 40.28 dB 10 dB/div Ref 40.28 dBm				Mkr1 616.90 MHz -27.665 dBm
30.3				
20.3				
10.3				
0.280				
-9.72				DI 1 -19 00 dBm
-19.7				1
-39.7				
-49.7				
Start 596.90 MHz				Stop 616. <u>90 MHz</u>
#Res BW 100 kHz	#VB\	N 300 kHz*	1	#Sweep 300.0 ms (601 pts)



Frequen	су (Max Value	Limit	
Range			(dBm)	< (dBm)	Result
1			-27.33	-19	Pass
Keysight Spectrum Analyzer - Element Material	Technology				
KAL RF 50Ω DC		SENSE:INT	ALIGN AUTO		06:09:32 AM Jul 01, 2022
	PNO: Wide ↔ IFGain:Low	 Trig: Free Run #Atten: 14 dB 	Avg Hold: 1	00/100	TYPE A WWWWW DET A NNNN
Ref Offset 40.28 dB 10 dB/div Ref 40.28 dBm				Mkr1	652.000 0 MHz -27.333 dBm
Log		The second secon			
30.3					
20.3					
10.3					
0.280					
-9.72					
					DL1 -19.00 dBm
-19.7		1			
-29.7					
-39.7					
(0.7)					
-49.7					
Start 651.9000 MHz #Res BW 30 kHz	#V	BW 100 kHz*		s #Sweep	top 652.1000 MHz 200.0 ms (200 pts)
MSG			STATUS		

Port 2, LTE, Band 71, 617 MHz - 652 MHz, 15 MHz Bandwidth, 256-QAM Modulation, High Ch. 644.5 MHz								
Frequency Max Value Limit								
	Range			(dBm)	< (dBm)	Result		
	2			-25.6	-19	Pass		

Keysight Sp	ectrum Analyze	er - Element Materials	Technology					
LXI RL	RF	50 Ω DC	PNO: Fast ↔→→	Trig: Free Run #Atten: 14 dB	ALIGN AUTO Avg Type: Avg Hold: 1	RMS 00/100	06:10:3 TI	0 AM Jul 01, 2022 RACE 1 2 3 4 5 6 TYPE A WWWWW DET A NNNNN
10 dB/div	Ref Offs Ref 40.	et 40.28 dB .28 dBm					Mkr1 65 -25	2.10 MHz .595 dBm
30.3								
20.3								
10.3								
0.280								
-9.72								
-19.7								DL1 -19.00 dBm
-29.7								
-49.7	^							
04							01	70 40 MUL
start 652 #Res BW	100 kHz		#VB	W 300 kHz*		#Sv	veep 300.0 n	o72.10 MHz ns (601 pts)
MSG					STATUS			



vse:INT Trig: Free Run #Atten: 14 dB	(dBm) -32.71 ALIGN AUTO Avg Type: I	< (dBm) -19	Result Pass
vse:INT Trig: Free Run #Atten: 14 dB	-32.71	-19	Pass
VSE:INT Trig: Free Run #Atten: 14 dB	ALIGN AUTO		
NSE:INT Trig: Free Run #Atten: 14 dB	ALIGN AUTO		
NSE:INT Trig: Free Run #Atten: 14 dB	ALIGN AUTO		
Trig: Free Run #Atten: 14 dB	Avg lype:		10:22:04 AM Jul 01, 2022
#Atten: 14 dB	Avg Hold: 1	RMS 100/100	TYPE A WWWW
And the second se			DET ANNNN
		Mkr1	617.000 0 MHz
			-32.714 dBm
			DL1 -19.00 dBm
			647 4000 MUL
100 kHz*		s #Sween	top 617.1000 WHZ 200.0 ms (200 pts)
100 112	CTATUS.	weiweige -	20010 mis (200 pre)
	STATUS		
	050 0 4 4 4 4		007 MU
	1 100 kHz* 20 MHz Bandwidti	100 kHz* 20 MHz Bandwidth, 256-QAM Mor Max Value (120 kHz)	Mkr1 Mkr1

	Frequency	Max Value	Limit						
	Range			(dBm)	< (dBm)	Result			
	2			-29.04	-19	Pass			

Keysight Spectrum Analyzer - Element	Materials Technology	care and		
KL RF 30.52 DO		SENSE:INT	Avg Type: RMS	TRACE 1 2 3 4 5 6
	PNO: Fast +++ IFGain:Low	Trig: Free Run #Atten: 14 dB	Avg Hold: 100/100	TYPE A WWWWW DET A N N N N
Ref Offset 40.28 d	dB			Mkr1 616.90 MHz -29.037 dBm
Log		Y		
30.3				
20.3				
10.3				
0.280				
-9.72				
-19.7				DL1 -19.00 dBm
				1
-29.7				
.39.7				
30.1				
-49.7				
Start 596.90 MHz		M 200 kH-*		Stop 616.90 MHz
#Res BW TOU KHZ	#VB\	AV 300 KHZ*	7	-Sweep Juolo ms (601 pts)



Frequency	,		Max Value	Limit	Beault
	Т		-30.34	-10	Pass
			-30.34	-19	FdSS
🔤 Keysight Spectrum Analyzer - Element Materials T	echnology				d _
KI RF 50 Ω DC	SEN	SE:INT	ALIGN AUTO		10:40:59 AM Jul 01, 2022
	PNO: Wide ↔→ IFGain:Low	Trig: Free Run #Atten: 14 dB	Avg Hold: 1	00/100	TYPE A WWWWW DET A NNNN
Ref Offset 40.28 dB 10 dB/div Ref 40.28 dBm				Mkr1	652.000 0 MHz -30.340 dBm
Log		Ĭ			
20.2					
30.3					
20.2					
20.3					
10.3					
10.0					
0.280					
0.200					
-9.72					
-19.7					DL1 -19.00 dBm
		1			
-29.7					
-39.7					
-49.7					
Start 651.9000 MHz #Res BW 30 kHz	#VBW	100 kHz*		S #Sweep	top 652.1000 MHz 200.0 ms (200 pts)
MSG			STATUS		

Port 2, LTE, Band 71, 617 MHz - 652 MHz, 20 MHz Bandwidth, 256-QAM Modulation, High Ch. 642 MHz										
	Frequency			Max Value Limit						
	Range			(dBm)	< (dBm)	Result				
	2			-26.68	-19	Pass				

Keysight Sp	ectrum Analyzer - Element Materials T	echnology				
CXX RL	RF 50 Ω DC	PNO: Fast +++	Trig: Free Run #Atten: 14 dB	ALIGN AUTO Avg Type: RMS Avg Hold: 100/10	10;44:36 TF	AM JUI 01, 2022 ACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNNN
10 dB/div	Ref Offset 40.28 dB Ref 40.28 dBm				Mkr1 65 -26.	2.10 MHz 684 dBm
30.3						
20.3						
10.3						
0.280						
-9.72						
-19.7						DL1 -19.00 dBm
-29.7						
-39.7						
-49.7						
Start 652	10 MHz				Stop f	72.10 MHz
#Res BW	100 kHz	#VB	W 300 kHz*		#Sweep 300.0 m	ns (601 pts)
MSG				STATUS		



Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Cal. Due
Block - DC	Fairview Microwave	SD3239	ANE	2022-03-02	2023-03-02
Generator - Signal	Agilent	N5173B	TIW	2020-07-17	2023-07-17
Analyzer - Spectrum Analyzer	Keysight	N9010A	AFQ	2022-01-17	2023-01-17

TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The spurious RF conducted emissions at the edges of the authorized bands were measured with the EUT set to low and high transmit frequencies in the available band. The channels closest to the band edges were selected. The EUT was transmitting at the data rate(s) listed in the datasheet.

The spectrum was scanned below the lower band edge and above the higher band edge.

All limits were adjusted by a factor of [-10*log(4)] dB to account for the device operation as a 4 port MIMO transmitter, as per FCC KDB 622911.

Per section 27.53(g) and RSS 130 4.7, the power of any emission outside of the authorized operating frequency range cannot exceed -13 dBm. The limit is adjusted to -19 dBm [-13 dBm -10 log (4)] per FCC KDB 662911D01 v02r01 because the BTS may operate as a 4 port MIMO transmitter.

Per FCC 27.53(g) and RSS 130 4.7 requires a >100 kHz measurement bandwidth for emissions 100 kHz outside of the RRH operating frequency range. FCC 27.53(g) and RSS 130 4.7 requires a >30 kHz measurement bandwidth for emissions between 100 kHz outside of the RRH operating frequency range and band edge of the operating frequency range.

RF conducted emissions testing was performed only on one port. The testing was performed on the same version of hardware (AHLOB) as the original certification test. The AHLOB antenna ports are essentially electrically identical (the RF power variation between antenna ports is small as shown in this certification testing) and antenna port 2 was selected to perform the testing under this effort as allowed by ANSI C63.26-2015 paragraph 5.7.2i.



						TbtTx 2022.05.02.0	XMit 2022.02.07.0
EUT:	AHLOB				Work Order:	NOKI0043	
Serial Number:	YK220900029				Date:	12-Jul-22	
Customer:	Nokia Solutions and Net	tworks			Temperature:	21.4 °C	
Attendees:	Mitchell Hill, John Ratta	inavong			Humidity:	54% RH	
Project:	None				Barometric Pres.:	1015 mbar	
Tested by:	Marty Martin		Pow	ver: 54 VDC	Job Site:	TX07	
TEST SPECIFICATI	IONS			Test Method			
FCC 27:2022				ANSI C63.26:2015			
RSS-130 Issue 2:20	19			ANSI C63.26:2015			
COMMENTS							
All losses in the me	easurement path were ac	counted for: attenuators, ca	bles, DC block and filter v	vhen in use. The carriers were er	nabled at maximum power.		
DEVIATIONS FROM	TESTSTANDARD						
None							
Configuration #	2	Signature	Monty	Marta			
				Frequency Range	Max Value (dBm)	Limit < (dBm)	Result
Port 2, LTE, Band 85	5, 728 MHz - 746 MHz						
	5 MHz Bandwidth						
	256-QAM M	lodulation					
		Low Ch. 730.5 MHz		1	-32.81	-19	Pass
		Low Ch. 730.5 MHz		2	-30.36	-19	Pass
		High Ch. 743.5 MHz		1	-32.83	-19	Pass
		High Ch. 743.5 MHz		2	-29.76	-19	Pass
	10 MHz Bandwidth 256-QAM M	lodulation					
		Low Ch. 733 MHz		1	-33.78	-19	Pass
		Low Ch. 733 MHz		2	-30	-19	Pass
		High Ch. 741 MHz		1	-34.21	-19	Pass
		High Ch. 741 MHz		2	-31.45	-19	Pass
	15 MHz Bandwidth						
	QPSK Modu	ulation					
		Low Ch. 735.5 MHz		1	-27.5	-19	Pass
		Low Ch. 735.5 MHz		2	-26.49	-19	Pass
		High Ch. 738.5 MHz		1	-28.5	-19	Pass
		High Ch. 738.5 MHz		2	-27.82	-19	Pass
	16-QAM Mo	odulation			00.00	10	-
		Low Ch. 735.5 MHz		1	-28.33	-19	Pass
		Low Ch. 735.5 MHz		2	-26.62	-19	Pass
		High Ch. 738.5 MHz		1	-29.19	-19	Pass
	64 OANA NA	High Ch. 738.5 MHZ		2	-28.88	-19	Pass
	64-QAM MO	dulation		4	20.25	10	Deee
		Low Ch. 735.5 MHZ		1	-20.35	-19	Pass
		LUW CH. 730.5 MILE		2	-20.44	-19	Pass
		High Ch. 738.5 MHZ		1	-29.07	-19	Pass
	256 04444			۷	-20.14	- 19	Fass
	200-QAIM M	Low Ch. 735.5 MHz		1	27.06	-10	Page
		Low Ch. 735.5 MHz		1	-27.00	-10	F daa Daee
				ے ۱	-20.29	-13	Fass Doco
		High Ch. 738.5 MHz		2	-20.99	-10	F d b b Dace
		1 light 011. 7 00.0 Will 12		2	-20.19	-10	1 000



Frequenc	у	Max Value	Limit	
Range		(dBm)	< (dBm)	Result
1		-32.81	-19	Pass
Keysight Spectrum Analyzer - Element Materials	Technology			
X/ RL RF 50 Ω DC	SENSE:INT	ALIGN AUTO		08:18:14 AM Jul 02, 2022
	PNO: Wide ↔ Trig: Free Run IFGain:Low #Atten: 14 dB	Avg Type: Avg Hold:	RMS 100/100	TRACE 1 2 3 4 5 TYPE A WWWW DET A N N N N
Ref Offset 40.34 dB			Mkr1	728.000 0 MH
10 dB/div Ref 40.34 dBm				-32.011 UDI
	T T			
30.3				
20.3				
20.0				
10.3				
10.3				
0.340				
				_
-9.66				
				DL1 -19.00 dB
-19.7		سر		
	1			
-29.7				
-39.7				
-49.7				
Start 727.9000 MHz #Res BM 30 kHz	#\/B\// 100 kHz*		#Sween	top 728.1000 MH
			"ewcep	20050 ms (200 pts
ASG		STATUS		

	Frequency				Max Value	Limit	00.0 11112
		Range			(dBm)	< (dBm)	Result
Ì		2			-30.36	-19	Pass

eysight Spectrum Analyzer - Element Ma	aterials Technology	CENCERNE		
KL KF 50.32 DC	PNO: Fast ↔ IFGain:Low	Trig: Free Run #Atten: 14 dB	Avg Type: RMS Avg Hold: 100/100	TRACE 2 3 4 TYPE A WWY DET A N N
Ref Offset 40.34 dE IB/div Ref 40.34 dBm	3			Mkr1 727.90 M -30.356 dE
		ľ		
				DL1 -19.0
t 707.90 MHz s BW 100 kHz	#VB	W 300 kHz*		Stop 727.90 N #Sweep 300.0 ms (601
			STATUS	



Frequenc	у	Max Value (dBm)	Limit < (dBm)	Result
1		-32.83	-19	Pass
		02.00	10	1 400
Keysight Spectrum Analyzer - Element Materials	Technology			
	PNO: Wide Trig: Free Run IFGain:Low #Atten: 14 dB	ALIGN AUTO Avg Type: Avg Hold: 1	RMS 100/100	08:45:10 AM Jul 02, 2022 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNN
Ref Offset 40.34 dB 10 dB/div Ref 40.34 dBm			Mkr1	746.000 0 MHz -32.830 dBm
Log				
30.3				
20.2				
20.3				
10.3				
0.340				
-9.66				
-19.7				DL1 -19.00 dBm
	1			
-29.7				
-39.7				
-49.7				
Start 745.9000 MHz #Res BW 30 kHz	#VBW 100 kHz*		S #Sweep	top 746.1000 MHz 200.0 ms (200 pts)
MSG		STATUS		

	Frequency			Max Value	Limit		
		Range			(dBm)	< (dBm)	Result
ĺ		2			-29.76	-19	Pass

Ke	ysight Spe	ectrum Ana	alyzer - Element N	Materials Technolo	gy						
LXI R	L	RF	50 Ω DC			SENSE:INT	AL	IGN AUTO	DMC	08:46:20	AM Jul 02, 2022
				I	PNO: Fast ↔ Gain:Low	. Trig: Free #Atten: 14	Run dB	Avg Hold: 1	00/100		
		Ref O	ffset 40.34 d	в					М	kr1 746.1	00 0 MHz
10 di Log	B/div	Ref 4	10.34 dBm					-		-29.	757 dBm
							Ĩ				
30.3											
20.3											
10.2											
10.5											
0.340											
-9.66											
10.7											DL1 -19.00 dBm
-19.7	1										
-29.7	<u></u>										
	Mark 1										
-39.7		- And									
40.7					~~~~		······				
-43.7											
		10.54	-							.	
star #Re	τ746. s BW	100 kl	lz Hz		#VB	W 300 kHz	*		#Swe	ep 300.0 m	00.20 MHz 1s (601 pts)
MSG	N. 4	William State						STATUS			



Frequen	су		Max Value	Limit	
Range		1 1	(dBm)	< (dBm)	Result
1			-33.78	-19	Pass
🔤 Keysight Spectrum Analyzer - Element Materia	ls Technology				- 6 -
XIRL RF 50Ω DC	Si	ENSE:INT	ALIGN AUTO	DME	09:35:07 AM Jul 02, 2022
	PNO: Wide ↔→ IFGain:Low	Trig: Free Run #Atten: 14 dB	Avg Hold: 1	100/100	TYPE A WWWW DET A NNNN
Ref Offset 40.34 dB 10 dB/div Ref 40.34 dBm				Mkr1	728.000 0 MHz -33.780 dBm
Log					
30.3					
20.3					
10.3					
0.340					
-9.66					
-19.7					DL1 -19.00 dBm
					~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
-29.7					
-39.7					
-49.7					
Start 727.9000 MHz		<b>^</b>		s	top 728.1000 MHz
#Res BW 30 kHz	#VBV	/ 100 kHz*		#Sweep	200.0 ms (200 pts
MSG			STATUS		

Frequency			Max Value	Limit	
	Range		(dBm)	< (dBm)	Result
	2		-30	-19	Pass

🛄 Keysight Sp	pectrum Analyzer - Element Materia	Is Technology				
LXI RL	RF   50 Ω DC	PNO: Fast ↔ IFGain:Low	Trig: Free Run #Atten: 14 dB	ALIGN AUTO Avg Type: RM Avg Hold: 100/	09:3 S 100	6:11 AM Jul 02, 2022 TRACE 1 2 3 4 5 6 TYPE A WWWW DET A NNNN
10 dB/div	Ref Offset 40.34 dB Ref 40.34 dBm				Mkr1 7 -2	727.90 MHz 9.997 dBm
30.3						
20.3						
10.3						
0.340						
-9.66						DL1 -19.00 dBm
-29.7						1
-39.7						
-49.7				····		
Start 707 #Res BW	.90 MHz 100 kHz	#VE	300 kHz*		Sto #Sweep 300.0	p 727.90 MHz ) ms (601 <u>pts)</u>
MSG				STATUS		



Image: https://www.natycer-Bienent Materials Technology	Frequency Range		Max Value (dBm)	Limit < (dBm)	Result
Keysight Spectrum Analyzer - Element Materials Technology         Align AITO         09:50:11 M 10:02.20           RL         RF         50 Q         DC         SENSE:INT         Align AITO         09:50:51 M 10:02.20         Trace         23 Minute         Trace         24 Minute         10 dB/div         Avg Type: RMS         Trace         24 Minute         10 dB/div         10 dB/div         Trace         24 Minute         10 dB/div         10 dB/div	1		-34.21	-19	Pass
Keysight Spectrum Analyzer - Element Materials Technology         OP:00:000000000000000000000000000000000					
RL         RF         50 Q         DC         SENSE:INT         ALIGN AUTO         00:50:51 AN JIO2, 20           PN0: Wide	Keysight Spectrum Analyzer - Element Materials Tecl	hnology			
PNO: Wide         Trig: Free Run #Atten: 14 dB         Avg Hold: 100/100         Out # attent Def Attent: 14 dB           10 dB/div         Ref Offset 40.34 dB         Mkr1 746.000 0 MH -34.209 dB           30.3	RL RF 50Ω DC	SENSE:INT	ALIGN AUTO	DMS	09:50:51 AM Jul 02, 2022
Ref Offset 40.34 dB         Mkr1 746.000 0 Mi-34.209 dB           30.3		PNO: Wide ↔ Trig: Free Run IFGain:Low #Atten: 14 dB	Avg Hold: 1	100/100	TYPE A WWWWW DET A NNNN
10.3	Ref Offset 40.34 dB 0 dB/div Ref 40.34 dBm			Mkr1	746.000 0 MHz -34.209 dBm
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					
203	30.3				
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					
10.3	20.3				
103					
0.340 -9.66 -19.7 -29.7 -39.7 -49.7	10.3				
0.340					
.9.66	.340				
-9.66					
-19.7 -29.7 -39.7 -49.7	9.66				
-19.7 -29.7 -49.7 -49.7					
-29.7	19.7				DL1 -19.00 dBm
-29.7     1     -     -       -39.7     -     -     -       49.7     -     -     -					
-39.7	29.7				
-39.7					
-49.7	39.7				
-49.7					
	49.7				
Start 745.9000 MHz Stop 746.1000 M #Res BW 30 kHz #VBW 100 kHz* #Sweep 200.0 ms (200 p	tart 745.9000 MHz Res BW 30 kHz	#VBW 100 kHz*		s #Sweep	top 746.1000 MHz 200.0 ms (200 pts
MSG	SG		STATUS		

Frequency		Max Value	Limit		
	Range		(dBm)	< (dBm)	Result
	2		-31.45	-19	Pass

Keysight S	pectrum Analyzer - Element Materia	Is Technology				
LXI RL	RF 50 Ω DC		SENSE:INT	ALIGN AUTO Avg Type: RMS	09:51:5 TI	3 AM Jul 02, 2022
		PNO: Fast ++- IFGain:Low	Trig: Free Run #Atten: 14 dB	Avg Hold: 100/100	)	TYPE A WWWWW DET A N N N N N
10 dB/div	Ref Offset 40.34 dB Ref 40.34 dBm				Mkr1 746.1 -31	00 0 MHz .449 dBm
			Ť			
30.3						
20.3						
10.3						
0.340						
-9.66						
						Di 4 40.00 /D
-19.7						DL1 -19.00 dBm
-29.7						
and the second						
-39.7						
19.7			······			
Start 74f	3 10 MHz				Ston	766 20 MHz
#Res BW	/ 100 kHz	#VB	W 300 kHz*		#Sweep 300.0 n	ns (601 pts)
MSG				STATUS		



	Frequency			Max Value	Limit	
	Range			(dBm)	< (dBm)	Result
	1			-27.5	-19	Pass
🔤 Keysight Spectrum Analyz	er - Element Materials Tech	nology				
LXI RL RF	50 Ω DC		SENSE:INT	ALIGN AUTO	<b>D</b> W2	05:31:03 AM Jul 02, 2022
		PNO: Wide ↔ IFGain:Low	. Trig: Free Run #Atten: 14 dB	Avg Hold: 1	RWS 100/100	TYPE A WWWWW DET A NNNN
Ref Offs	et 40.34 dB				Mkr1	728.000 0 MHz -27 502 dBm
	.J4 UBIII		<b>V</b>		1	
30.3						
20.3						
10.3						
0.340						
-9.66						
10.7						DL1 -19.00 dBm
			1			
-29.7						
-39.7						
-49.7						
Start 727.9000 MH #Res BW 30 kHz	lz	#VE	W 100 kHz*		s #Sweep	top 728.1000 MHz 200.0 ms (200 pts)
MSG				STATUS		

	Fort 2, LTE, Danu 65, 726 MHZ - 740 MHZ, 15 MHZ Danuwidth, QFSK Modulation, Low Ch. 755.5 MHZ										
	Frequency				Max Value	Limit					
		Range			(dBm)	< (dBm)	Result				
		2			-26.49	-19	Pass				

Keysight S	pectrum Analyzer - Element Materials	Technology	in the second				
KL	RF   50 Ω DC	PNO: Fast ↔→ IFGain:Low	Trig: Free Run #Atten: 14 dB	ALIGN AUTO Avg Type: F Avg Hold: 10	8MS 00/100	05:33:59 TF	AM JUI 02, 2022 ACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
0 dB/div	Ref Offset 40.34 dB Ref 40.34 dBm					Mkr1 72 -26.	7.90 MH: 489 dBn
30.3							
20.3							
0.3							
340							
.66							
э.7							DL1 -19.00 dE
э.7							
9.7							
9.7							
tart 707 Res BW	7.90 MHz V 100 kHz	#VB\	W 300 kHz*		#Swe	Stop 7 ep 300.0 m	27.90 MH ns (601 pts
3			ela Malako de Malako de La Sa	STATUS	ALLAND COURSE		CALCON COMPLETE



Freque	ency		Max Value (dBm)	Limit < (dBm)	Result
			-28.5	-19	Pass
	1				
Keysight Spectrum Analyzer - Element Mat	erials Technology	CENCEMME			
		. Trig: Free Run	Avg Type: Avg Hold:	RMS	TRACE 1 2 3 4 5 ( TYPE A WWWW
	IFGain:Low	#Atten: 14 dB			DETANNN
Ref Offset 40.34 dB 10 dB/div Ref 40.34 dBm				Mkr1	746.000 0 MHz -28.499 dBm
Log		The second secon			
30.3					
20.3					
10.3					
0.340					
-9.66					
10.7					DL1 -19.00 dBm
-13.7		1			
-29.7			<u>~</u>		~
-39.7					
-49.7					
Start 745.9000 MHz #Res BW 30 kHz	#VI	3W 100 kHz*		S #Sweep	top 746.1000 MHz 200.0 ms (200 <u>pts</u>
MSG			STATUS		

	Frequency	Max Value	Limit	
	Range	(dBm)	< (dBm)	Result
	2	-27.82	-19	Pass

Keysight Sp	ectrum Analyzer - Element Materi	als Technology				
(XV) RL	RF   50 Ω DC	PNO: Fast ↔ IFGain:Low	SENSE:INT Trig: Free Run #Atten: 14 dB	ALIGN AUTO Avg Type: RMS Avg Hold: 100/10	06:46:2 T DO	9 AM Jul 02, 2022 RACE 1 2 3 4 5 6 TYPE A WWWWW DET A N N N N
10 dB/div	Ref Offset 40.34 dB Ref 40.34 dBm				Mkr1 746.1 -27	00 0 MHz .816 dBm
30.3						
20.3						
10.3						
0.340						
-9.66						
-19.7						DL1 -19.00 dBm
-29.7						
-39.7						
-49.7						
Start 746 #Res BW	.10 MHz 100 kHz	#VB	W 300 kHz*		Stop #Sweep 300.0 r	766.20 MHz ns (601 pts)
MSG				STATUS		



	Frequency Range			Max Value (dBm)	Limit < (dBm)	Result
	1			-28.33	-19	Pass
Keysight Spectrum Analyzer - El	ement Materials Technolo	ogy				
K RL RF 50 S	2 DC	-	ENSE:INT	ALIGN AUTO		05:43:02 AM Jul 02, 2022
	1	PNO: Wide ↔→ FGain:Low	Trig: Free Run #Atten: 14 dB	Avg Type: Avg Hold: 1	RMS 100/100	TRACE 1 2 3 4 5 TYPE A WWWW DET A N N N N
Ref Offset 40 10 dB/div Ref 40.34	0.34 dB dBm				Mkr1	728.000 0 MH -28.334 dBr
Log			Ť			
30.3						
20.3						
10.3						
0.340						
-9.66						
-19.7						DL1 -19.00 dB
			<b>↓</b> 1			
-29.7						
-39.7						
-49.7						
Start 727.9000 MHz						top 728.1000 MH
#Res BW 30 kHz		#VB\	N 100 KHz*	15 S	#Sweep	200.0 ms (200 pts
MSG				STATUS		

Frequency			Max Value	Limit	
	Range		(dBm)	< (dBm)	Result
	2		-26.62	-19	Pass

Keysight Spectrum Ar	nalyzer - Element Mat	erials Technology							
RL RF	50 Ω DC		SE	ENSE:INT		ALIGN AUTO		05:44:44	AM Jul 02, 2022
		PNO: Fast IFGain:Low	<b></b>	Trig: Free #Atten: 14	Run dB	Avg Type: Avg Hold: 1	RMS 100/100	TF	ACE 1 2 3 4 5 TYPE A WWWW DET A NNNN
Ref C 0 dB/div <b>Ref</b>	0ffset 40.34 dB 40.34 dBm							Mkr1 72 -26.	7.90 MH 616 dBn
~3									
30.3									
20.3									
0.3									
340									
.66									
9.7									DL1 -19.00 dB
37									
5.7									and the second s
9.7									
9.7			<u> </u>						
tart 707.90 MI Res BW 10 <u>0 k</u>	Hz		#VBM	/ 300 kHz	*		#Swe	Stop 7 ep 300.0 m	'27.90 MH is (601 <u>pt</u> :
G					Antonio Status	STATUS			



Frequency Range	1	Max Value (dBm)	Limit < (dBm)	Result
1		-29.19	-19	Pass
	echnology			
LXI RL RF 50Ω DC	SENSE:INT	ALIGN AUTO		06:40:49 AM Jul 02, 2022
	PNO: Wide ↔ Trig: Fre IFGain:Low #Atten: 1	Avg Type: e Run Avg Hold: 4 dB	RMS 100/100	TYPE A WWWWW DET A NNNN
Ref Offset 40.34 dB 10 dB/div Ref 40.34 dBm			Mkr1	746.000 0 MHz -29.189 dBm
20.2				
30.3				
20.3				
20.0				
10.3				
10.0				
0.340				
-9.66				
-19.7				DL1 -19.00 dBm
		1		
-29.7				
-39.7				
-49.7				
Start 745.9000 MHz #Res BW 30 kHz	#VBW 100 kH	z*	Si #Sweep 2	top 746.1000 MHz 200.0 ms (200 pts)
MSG		STATUS		

	Port 2, LTE, Band 85, 728 MHz - 746 MHz, 15 MHz Bandwidth, 16-QAM Modulation, High Ch. 738.5 MHz									
		Frequency			Max Value	Limit				
Range				(dBm)	< (dBm)	Result				
		2			-28.88	-19	Pass			

Keysight S	pectrum Analy	zer - Element Materials	Technology				
LXI RL	RF	50 Ω DC		SENSE:INT	ALIGN AUTO	06:41:	54 AM Jul 02, 2022
			PNO: Fast ↔ IFGain:Low	<ul> <li>Trig: Free Run #Atten: 14 dB</li> </ul>	Avg Type: RM Avg Hold: 100/	IS 100	TYPE A WWWWW DET A NNNNN
10 dB/div	Ref Off Ref 40	set 40.34 dB 0.34 dBm				Mkr1 746. -28	100 0 MHz 3.876 dBm
				Ĭ			
30.3							
20.3							
10.3							
0 340							
0.010							
-9.66							
-19.7							DL1 -19.00 dBm
-29.7							
-39.7							
10.7							
-49.7							
Start 746 #Res Bia	6.10 MHz		#\/	BM 300 kHz*		Stop #Sween 300.0	766.20 MHz
MSG			# 0	status			ma (cor pts)