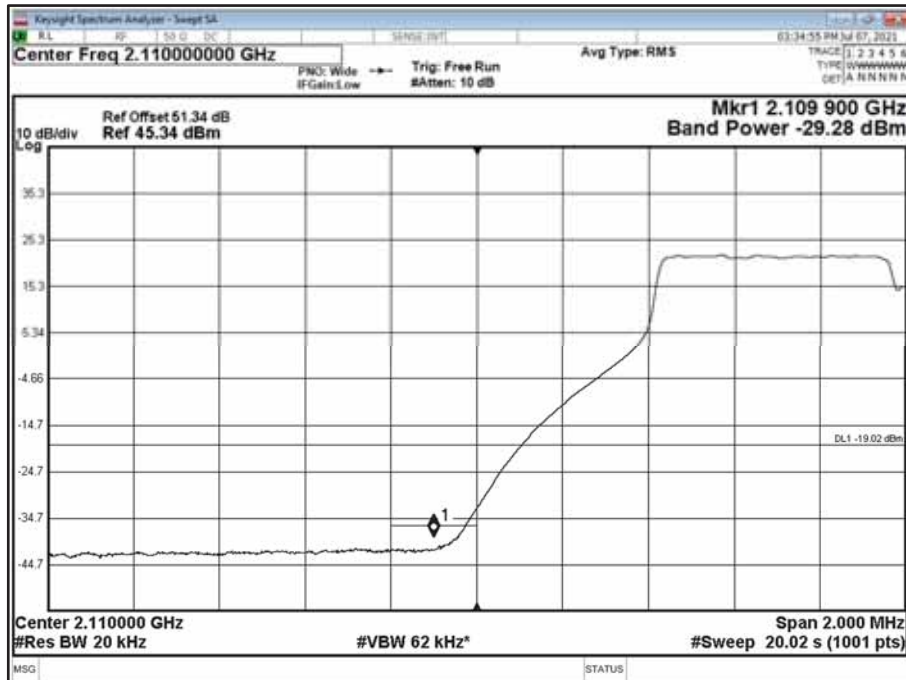
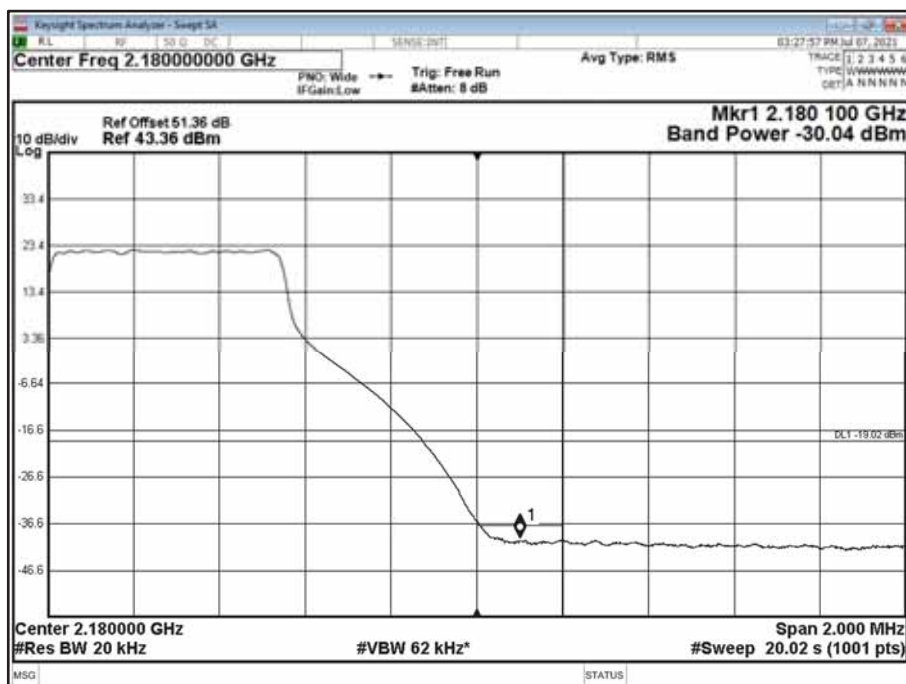




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position B



Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position T



Limit	-19 dBm
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2.4 TRANSMITTER SPURIOUS EMISSIONS

2.4.1 Specification Reference

FCC CFR 47 Part 27, Clause 27.53
Industry Canada RSS-139, Clause 6.6
FCC CFR 47 Part 2, Clause 2.1051

2.4.2 Date of Test and Modification State

07 July 2021 - Modification State 0

2.4.3 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.4.4 Environmental Conditions

Ambient Temperature	22.4°C
Relative Humidity	44.5%

2.4.5 Test Method

All measurements were made in accordance with FCC KDB 971168 D01, Clause 6.1.

Each antenna port has been declared as being equivalent, therefore measurements were made on one antenna port only. To account for this, the limit was tightened by $10 * \log(N)$, where N is equal to the number of MIMO antenna ports.

For 4 ports, the limit was calculated as being $-13 \text{ dBm} - 10 * \log(4) = -19 \text{ dBm}$.

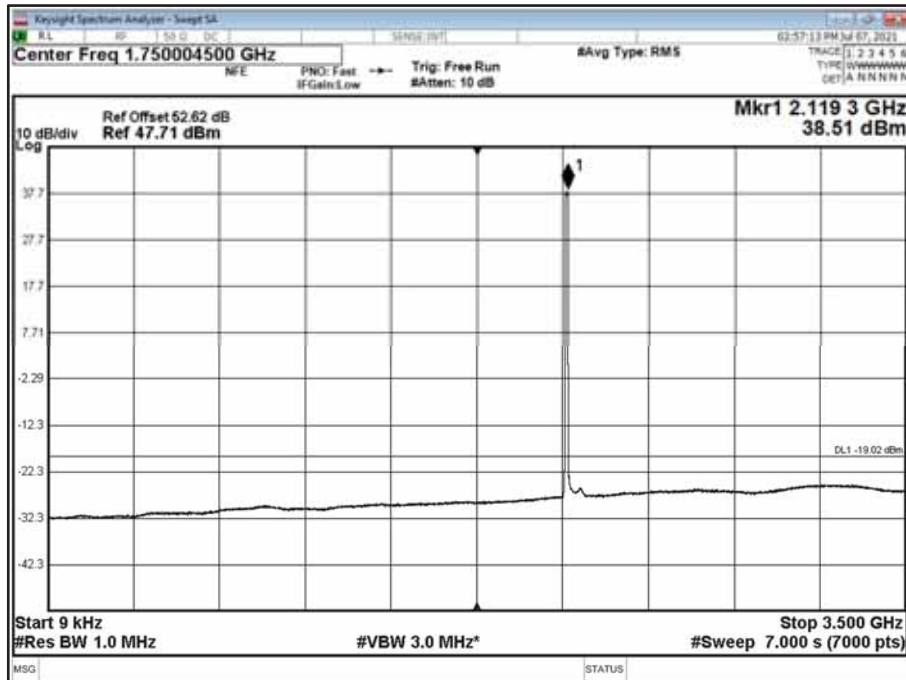
2.4.6 Test Results

Configuration 1

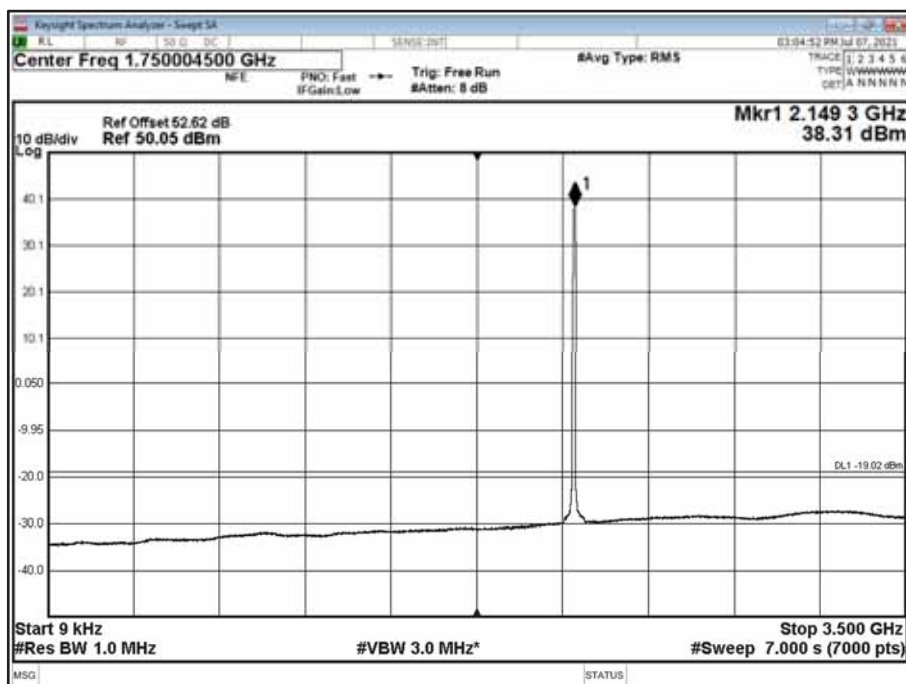
Maximum Output Power 46.00 dBm



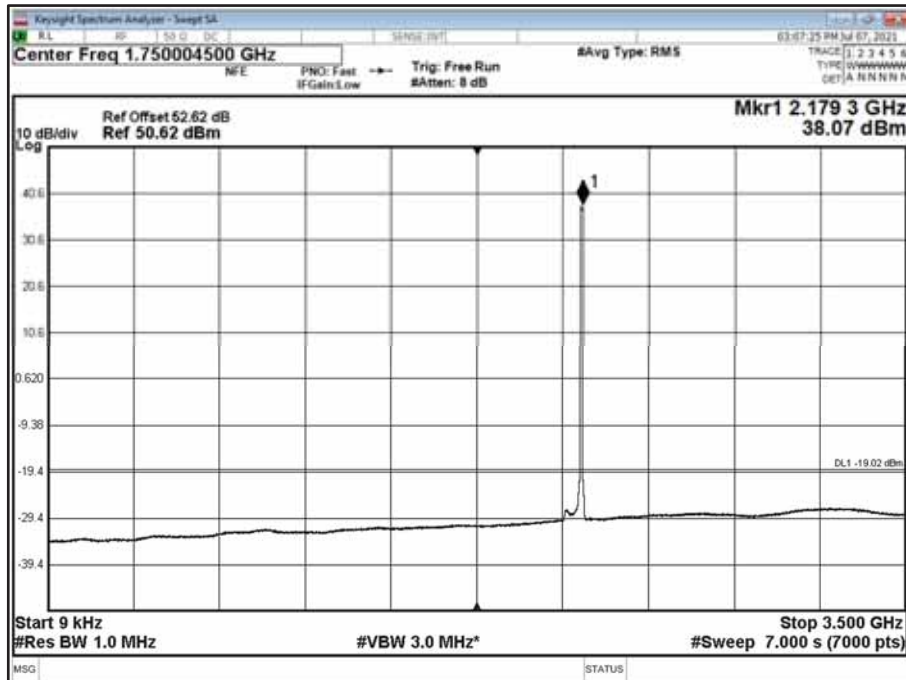
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position B - Band 1 - Range 0.009 to 3500 MHz



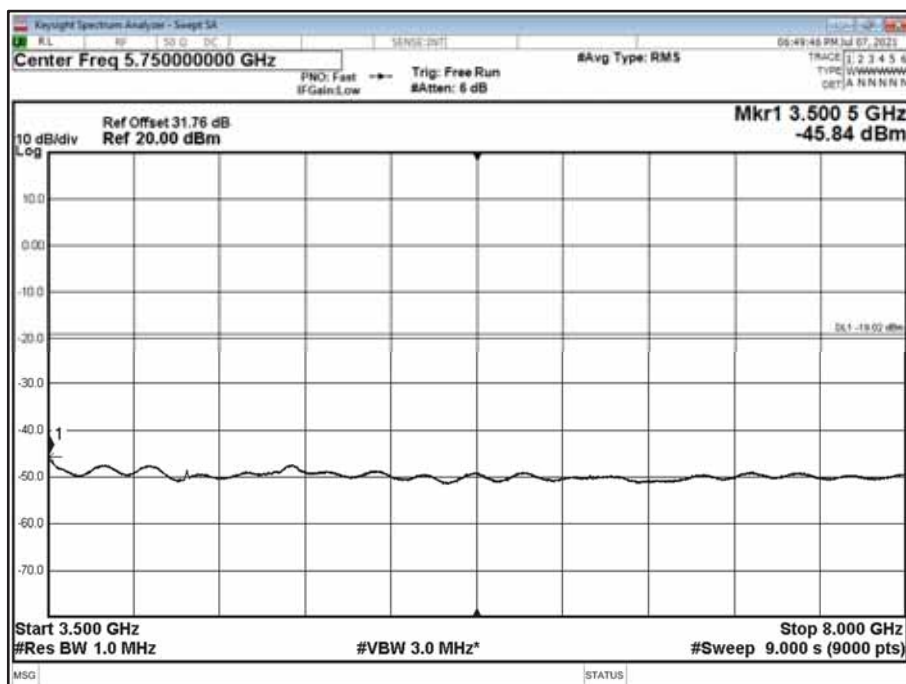
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position M - Band 1 - Range 0.009 to 3500 MHz



Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position T - Band 1 - Range 0.009 to 3500 MHz

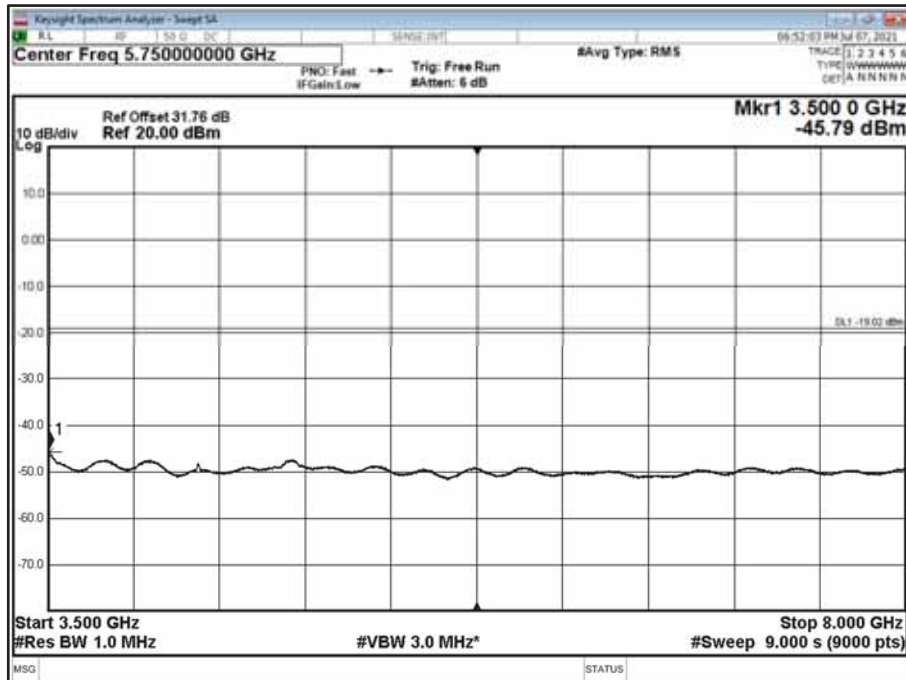


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position B - Band 2 - Range 3500 to 8000 MHz

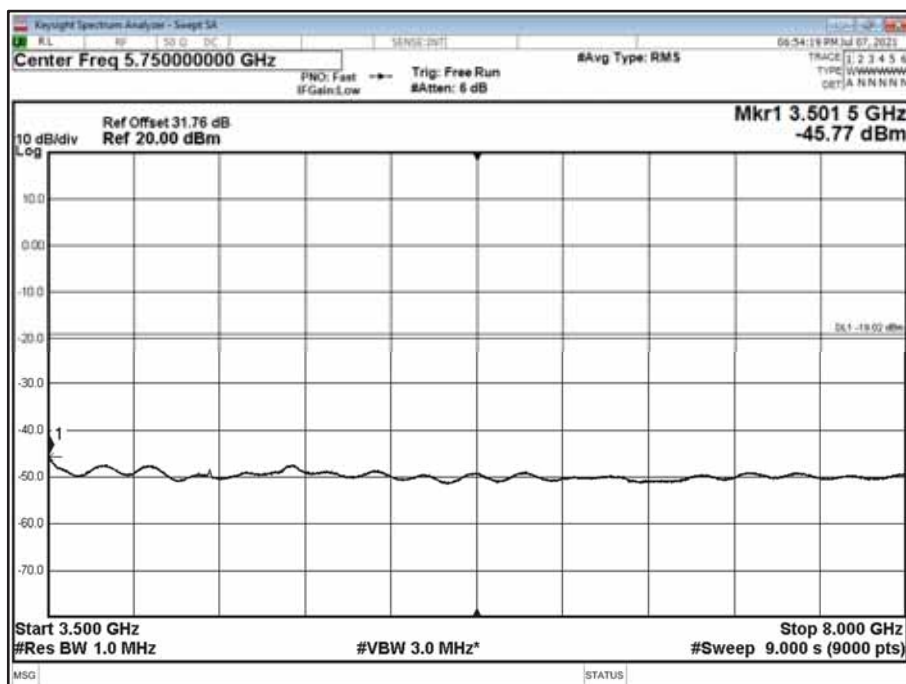




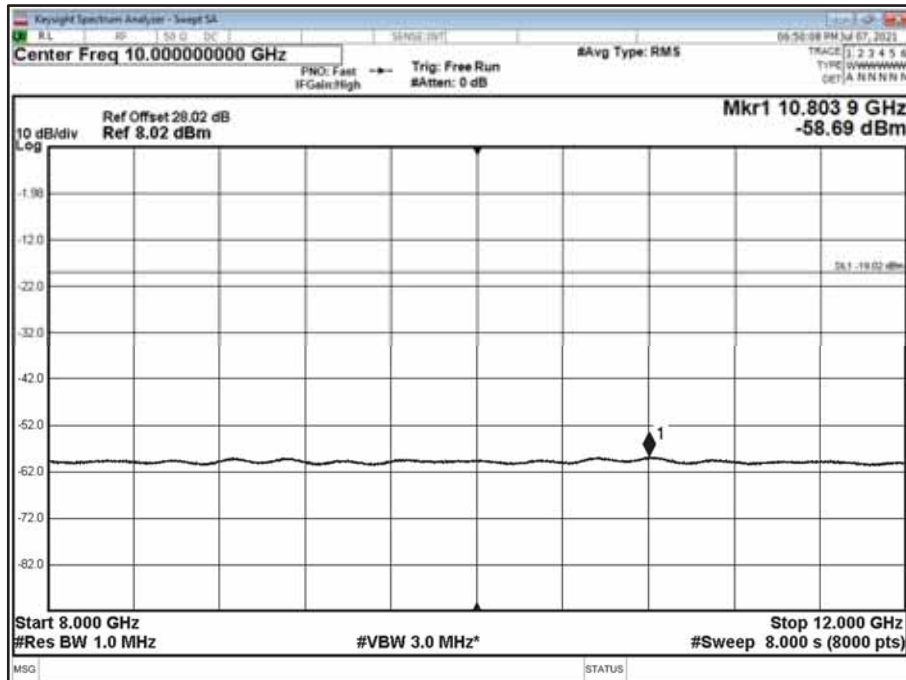
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position M - Band 2 - Range 3500 to 8000 MHz



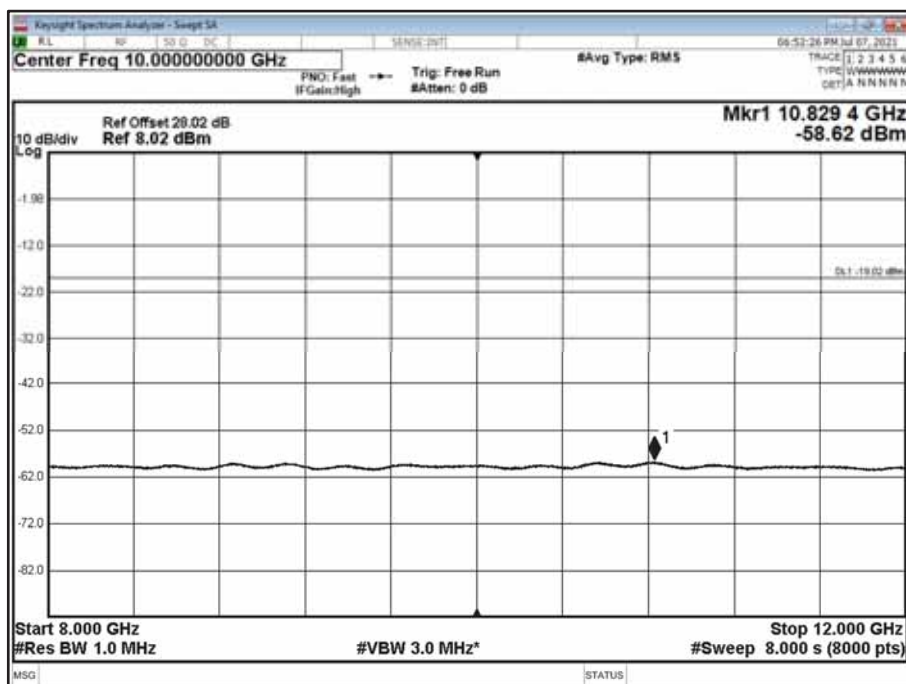
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position T - Band 2 - Range 3500 to 8000 MHz



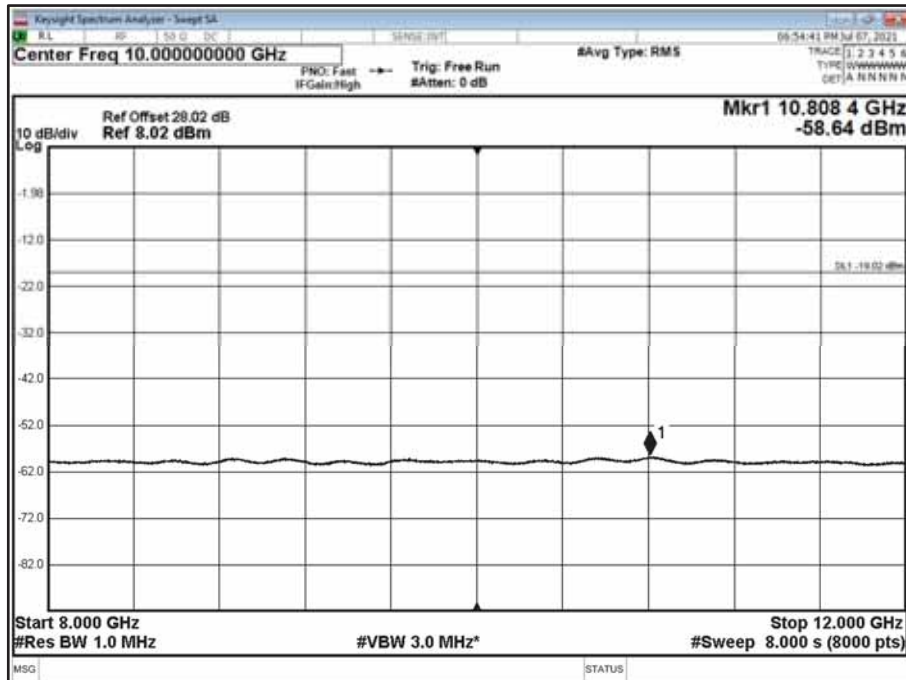
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position B - Band 3 - Range 8000 to 12000 MHz



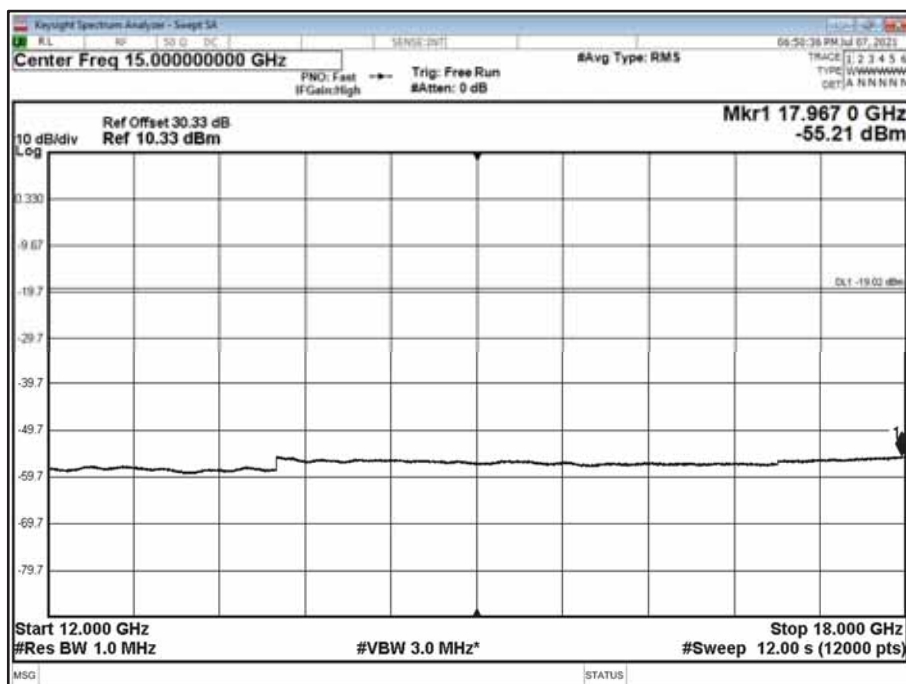
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position M - Band 3 - Range 8000 to 12000 MHz



Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position T - Band 3 - Range 8000 to 12000 MHz

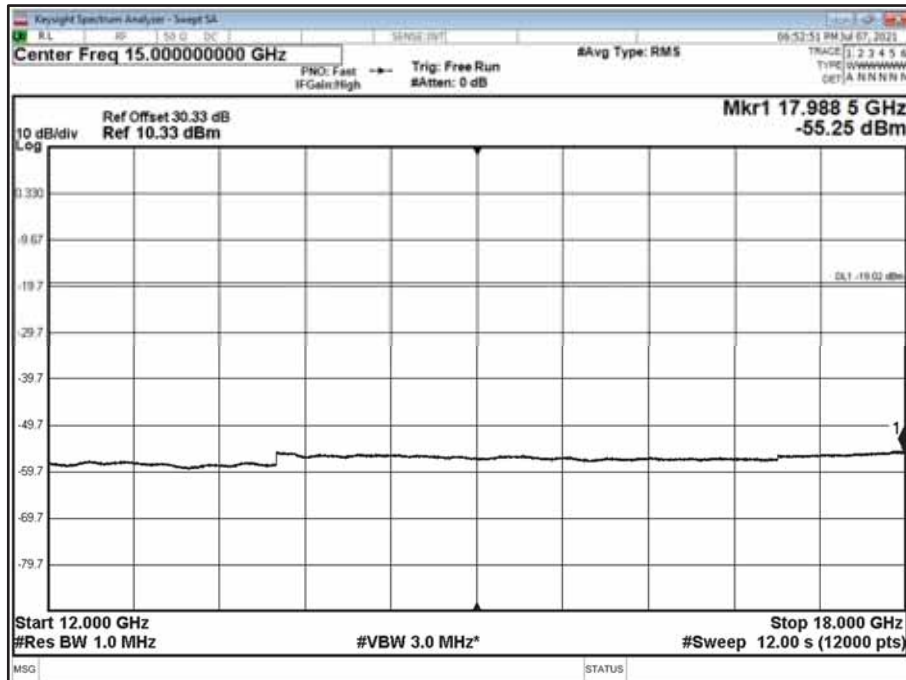


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position B - Band 4 - Range 12000 to 18000 MHz

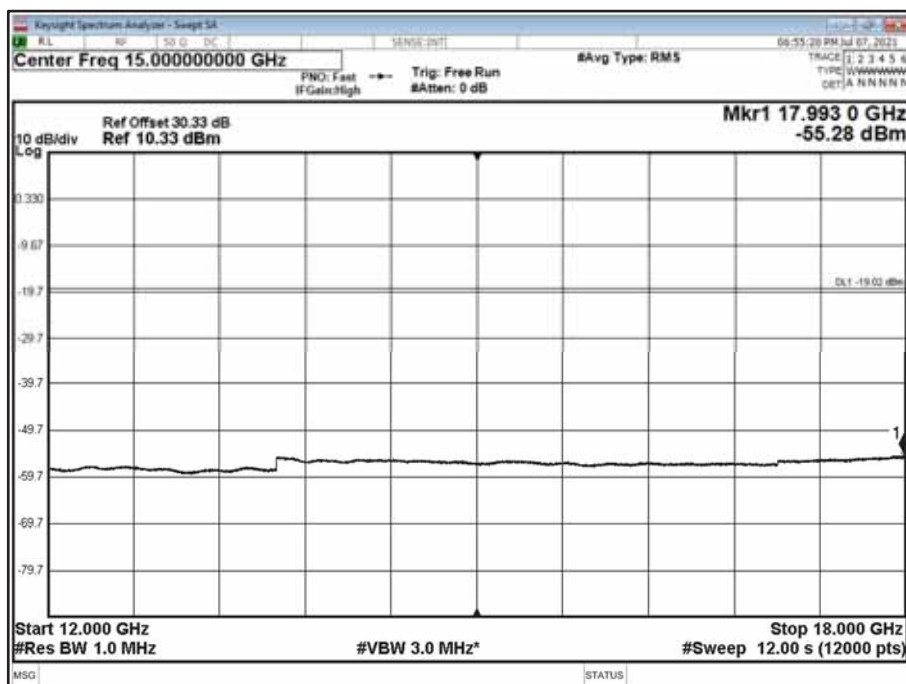




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position M - Band 4 - Range 12000 to 18000 MHz

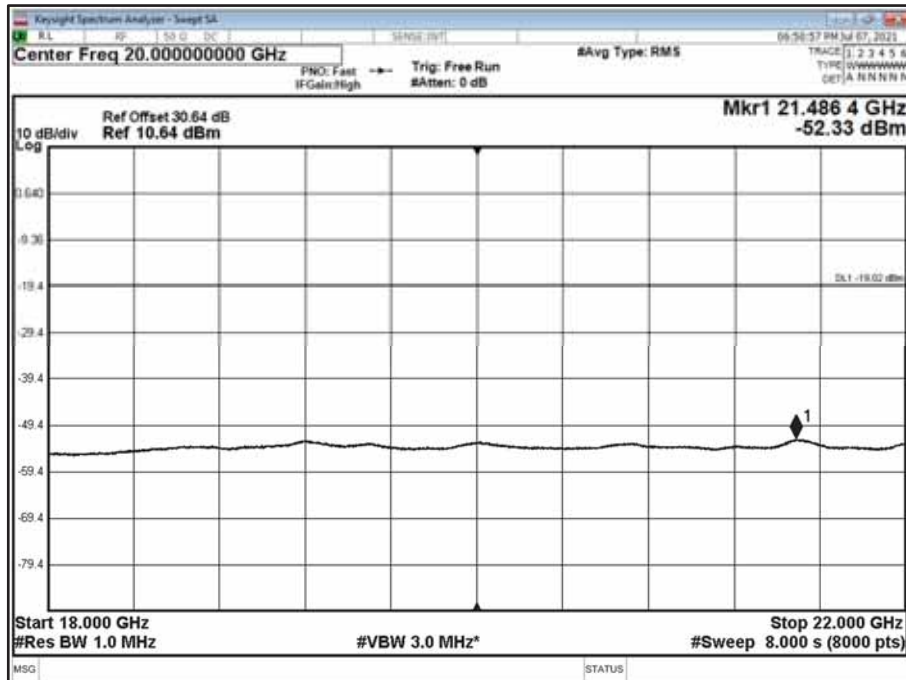


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position T - Band 4 - Range 12000 to 18000 MHz

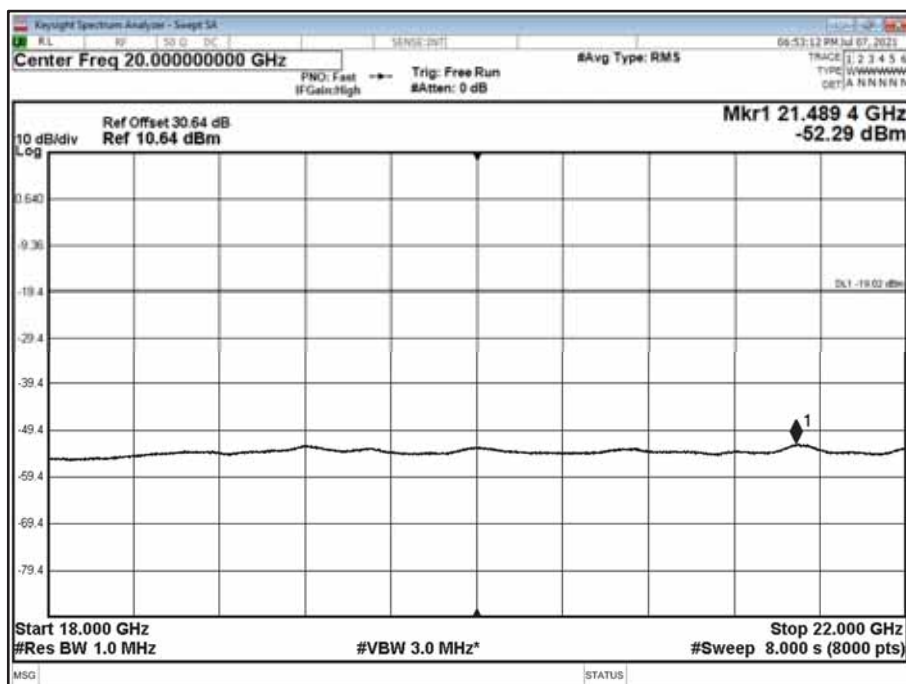




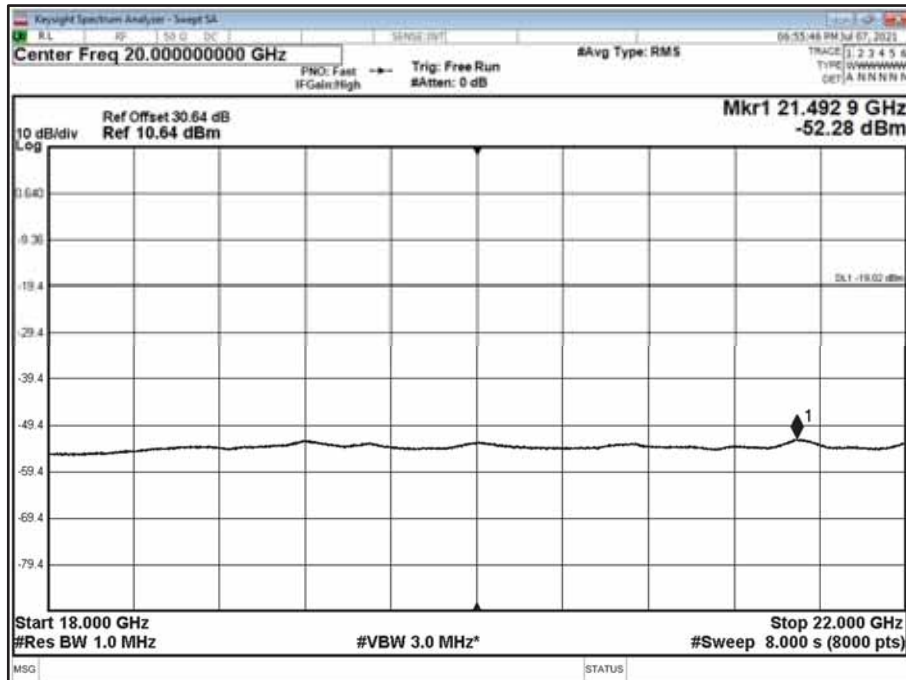
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position B - Band 5 - Range 18000 to 22000 MHz



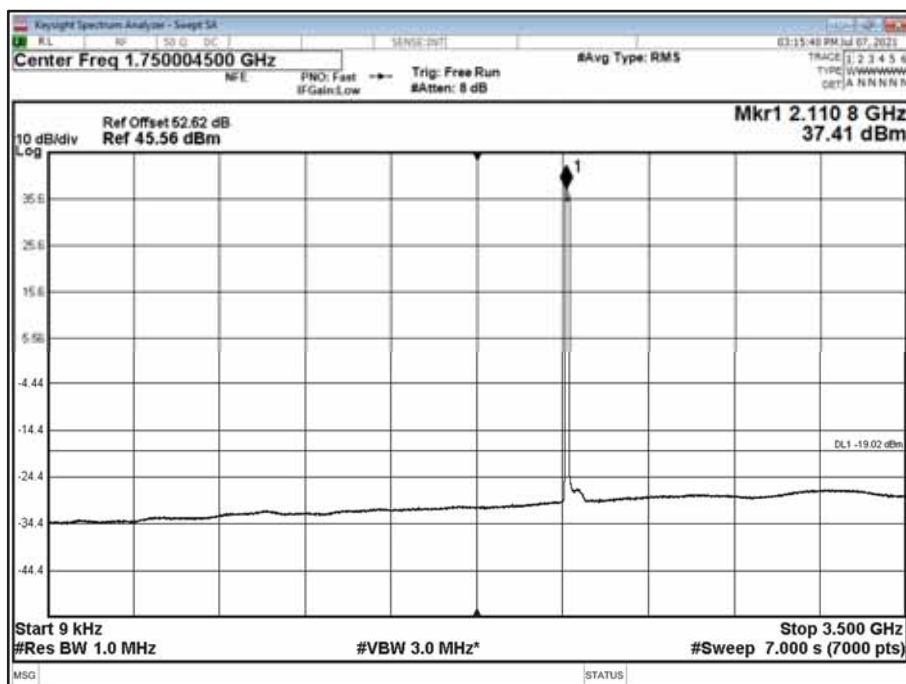
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position M - Band 5 - Range 18000 to 22000 MHz



Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 10.0 MHz - Channel Position T - Band 5 - Range 18000 to 22000 MHz

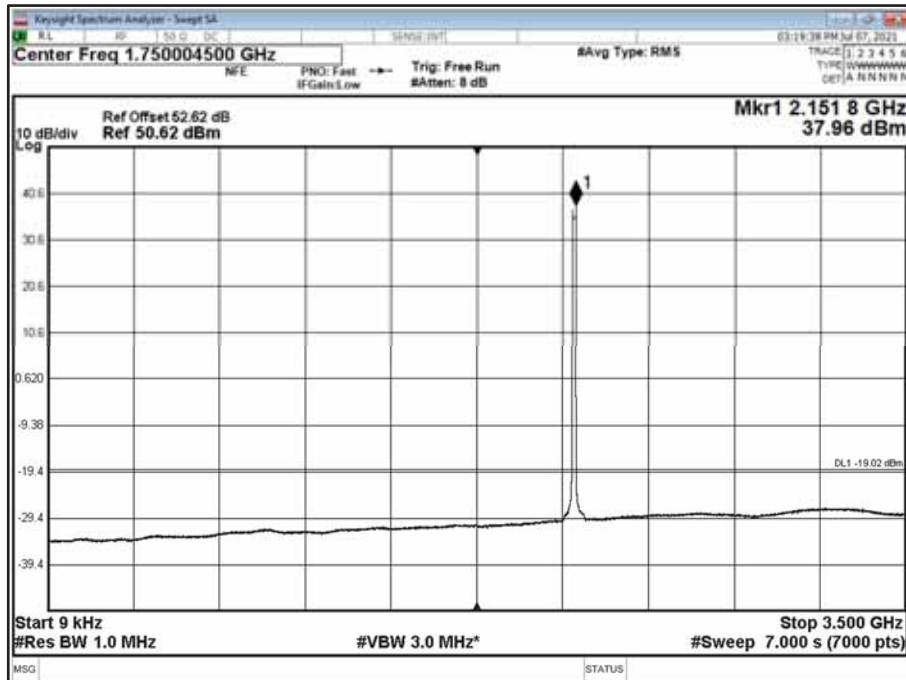


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position B - Band 1 - Range 0.009 to 3500 MHz

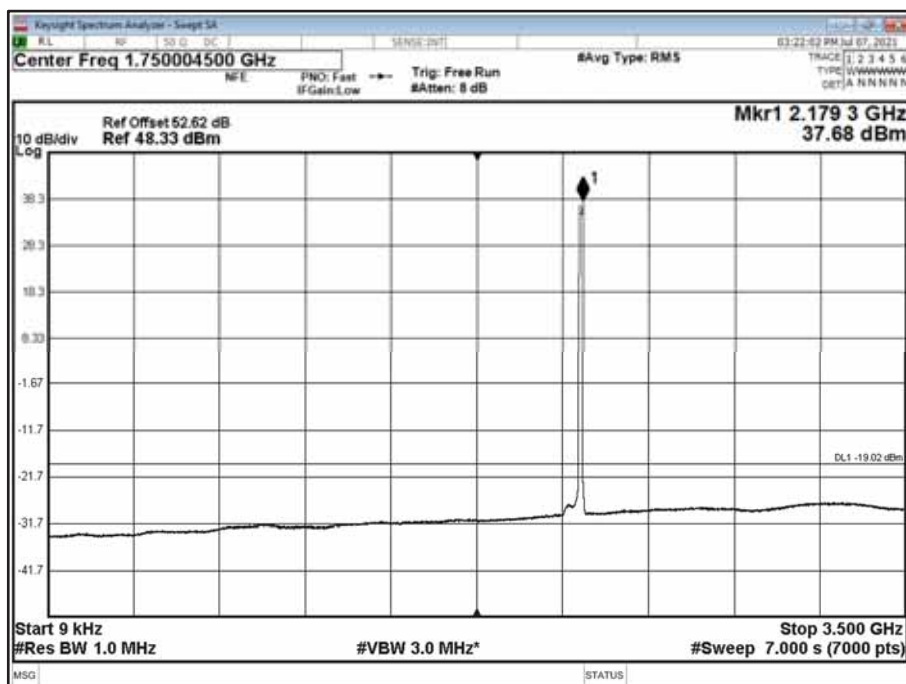




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position M - Band 1 - Range 0.009 to 3500 MHz

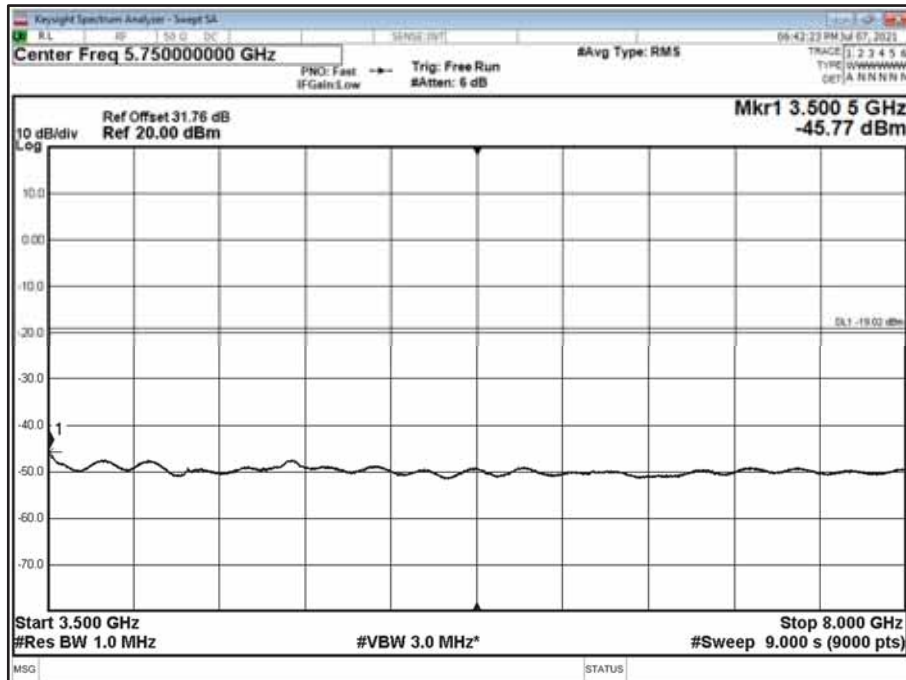


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position T - Band 1 - Range 0.009 to 3500 MHz

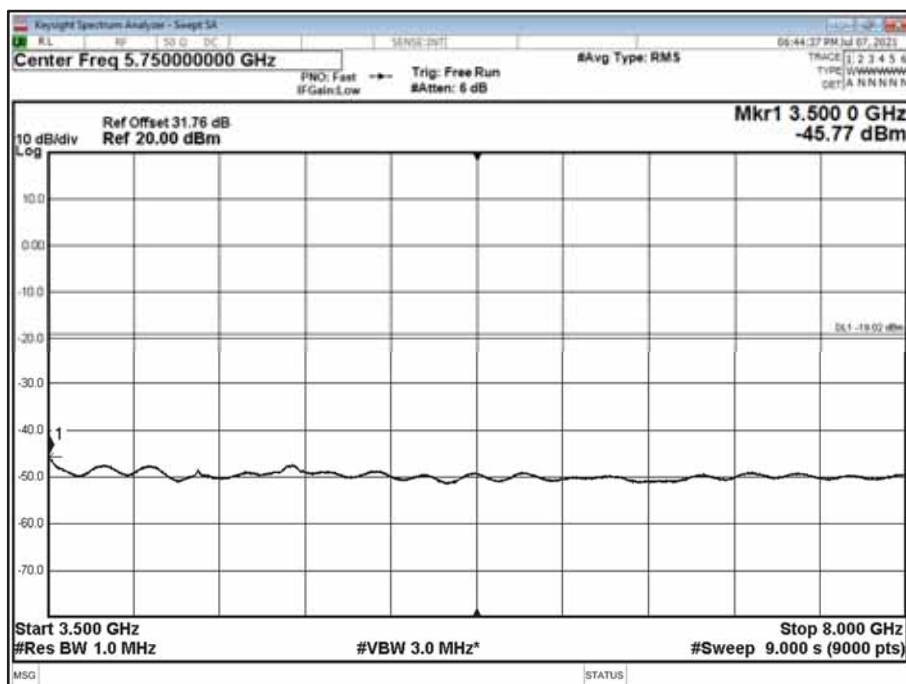




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position B - Band 2 - Range 3500 to 8000 MHz

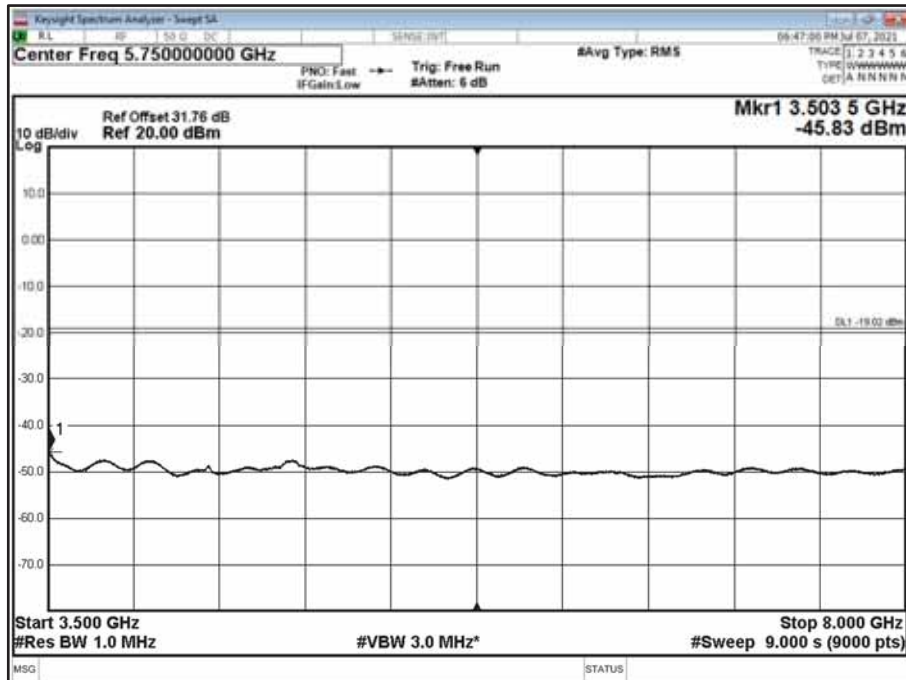


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position M - Band 2 - Range 3500 to 8000 MHz

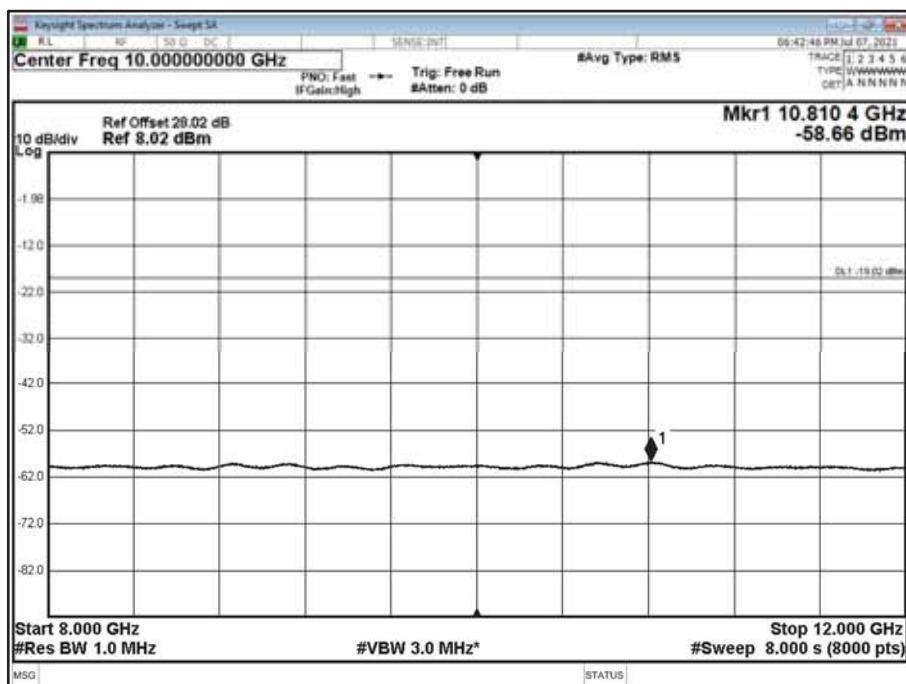




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position T - Band 2 - Range 3500 to 8000 MHz

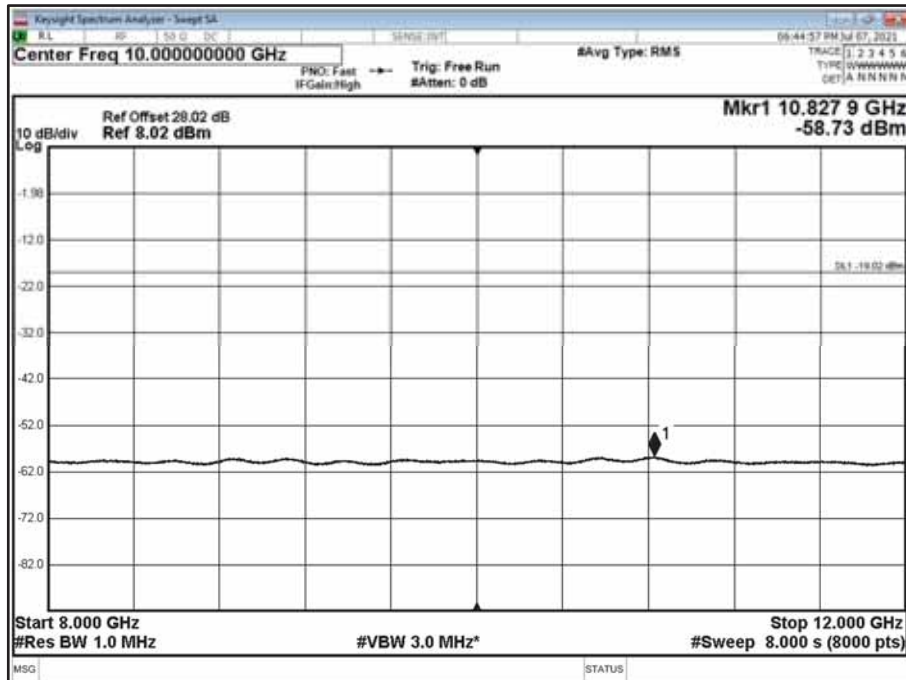


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position B - Band 3 - Range 8000 to 12000 MHz

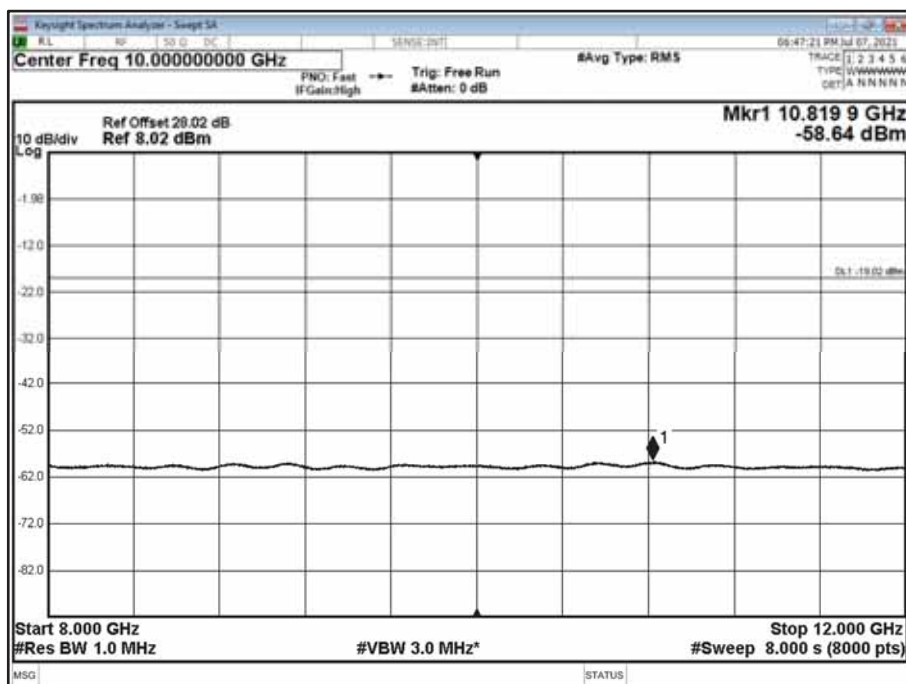




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position M - Band 3 - Range 8000 to 12000 MHz

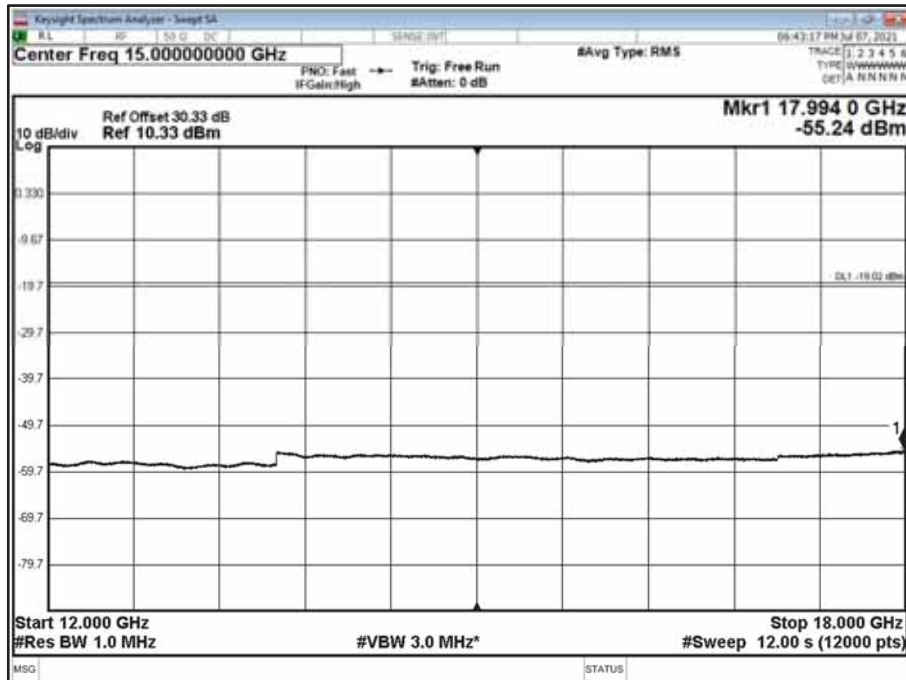


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position T - Band 3 - Range 8000 to 12000 MHz

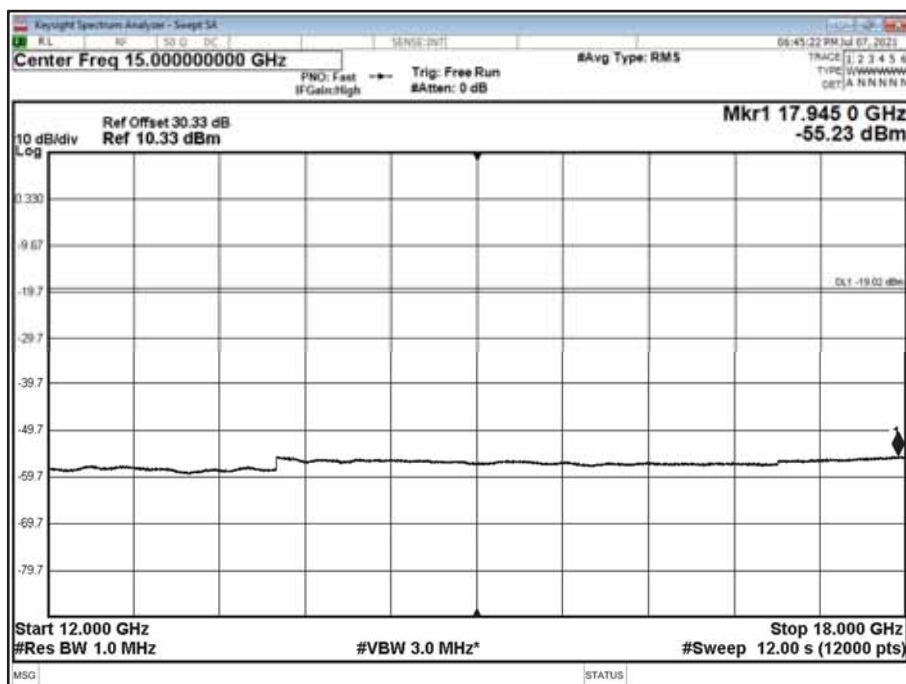




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position B - Band 4 - Range 12000 to 18000 MHz

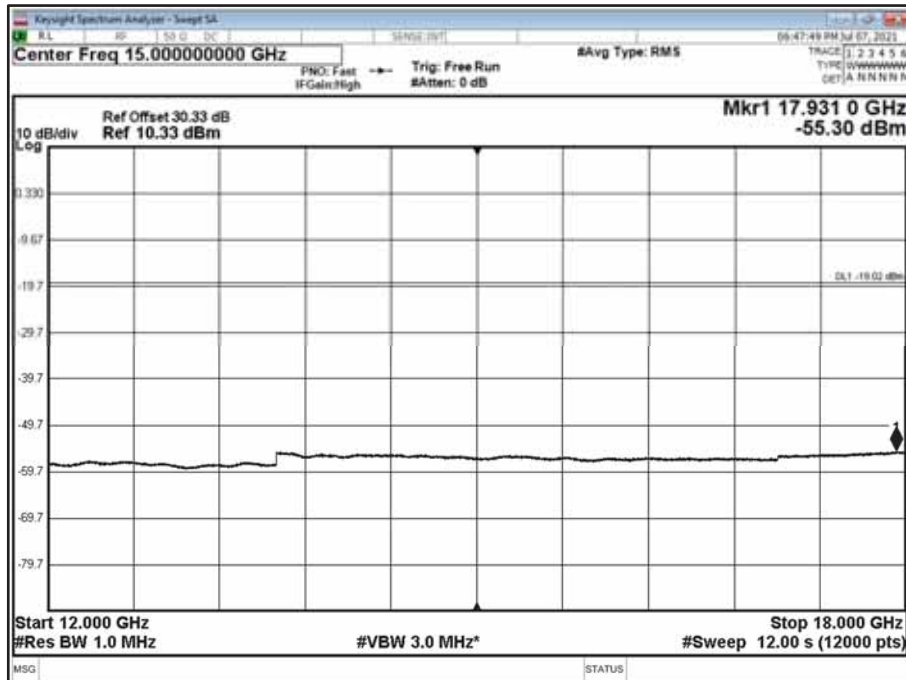


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position M - Band 4 - Range 12000 to 18000 MHz

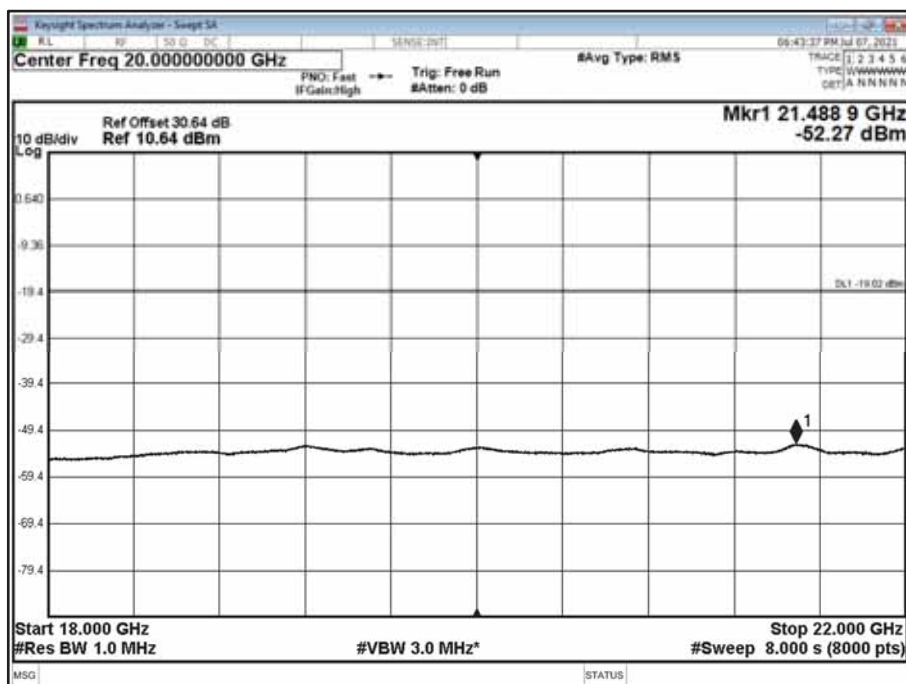




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position T - Band 4 - Range 12000 to 18000 MHz

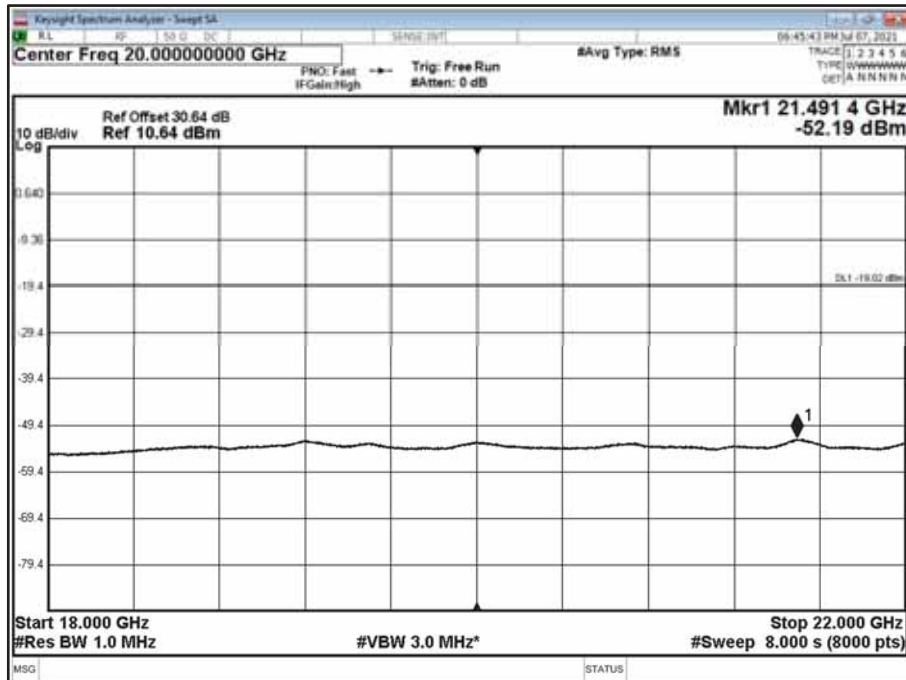


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position B - Band 5 - Range 18000 to 22000 MHz

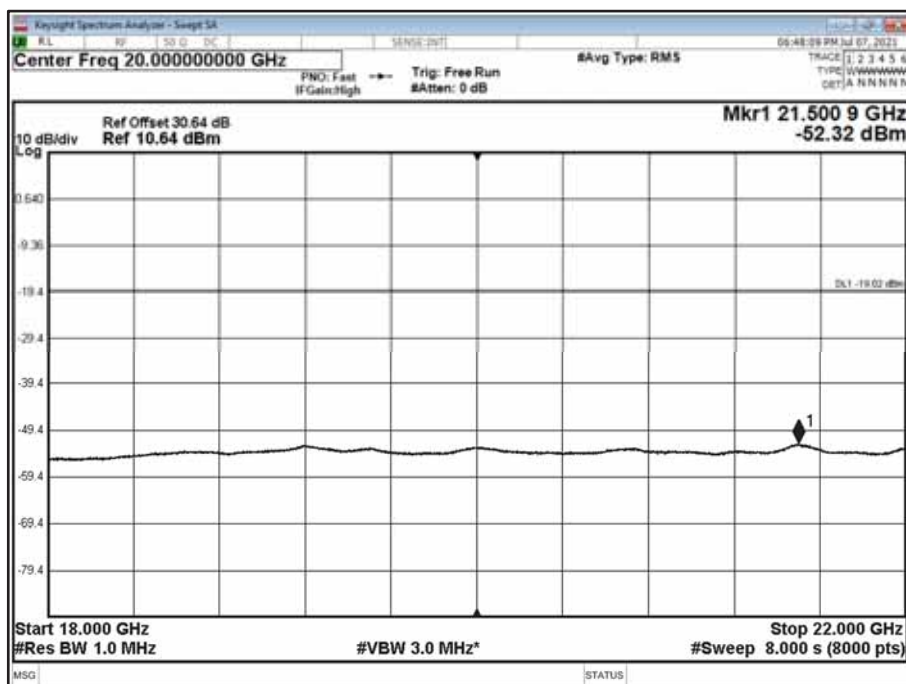




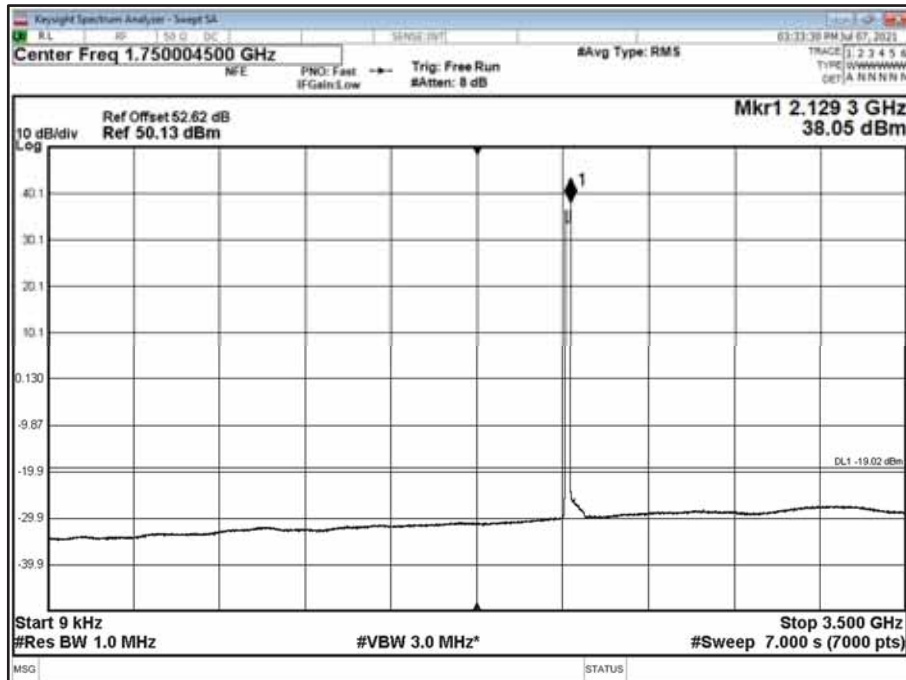
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position M - Band 5 - Range 18000 to 22000 MHz



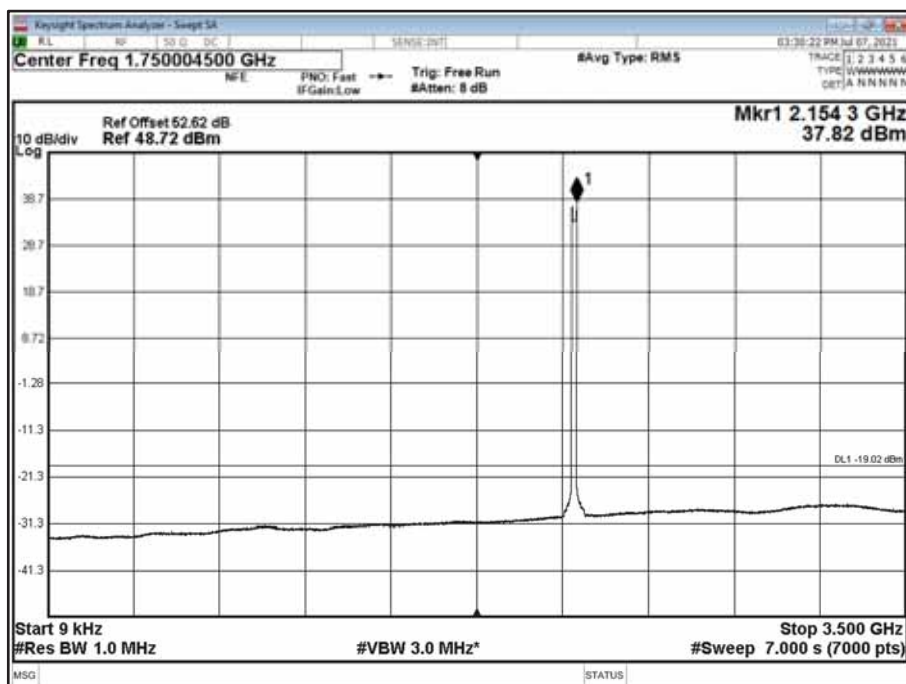
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 15.0 MHz - Channel Position T - Band 5 - Range 18000 to 22000 MHz



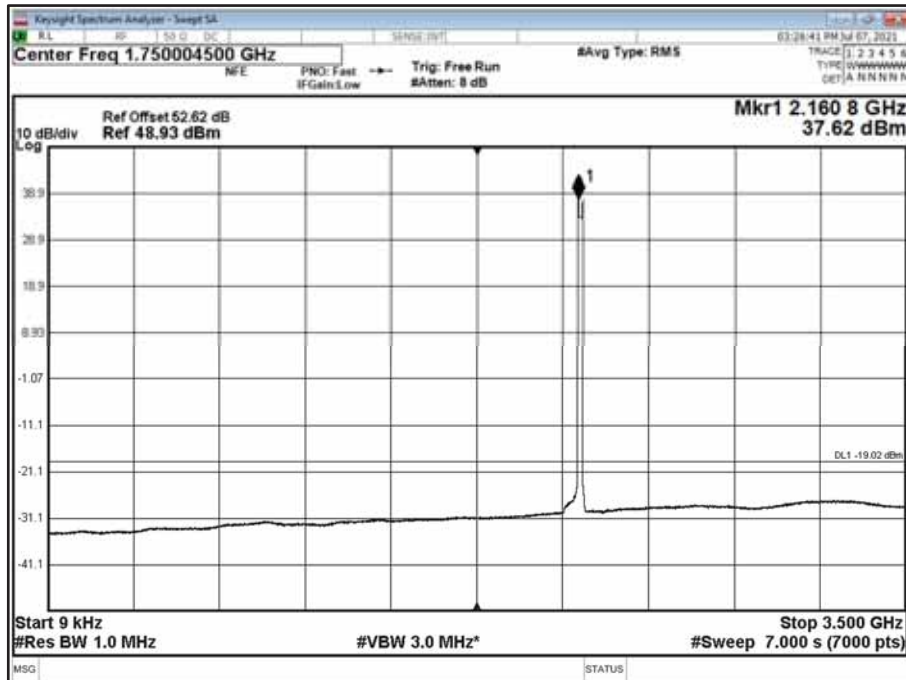
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position B - Band 1 - Range 0.009 to 3500 MHz



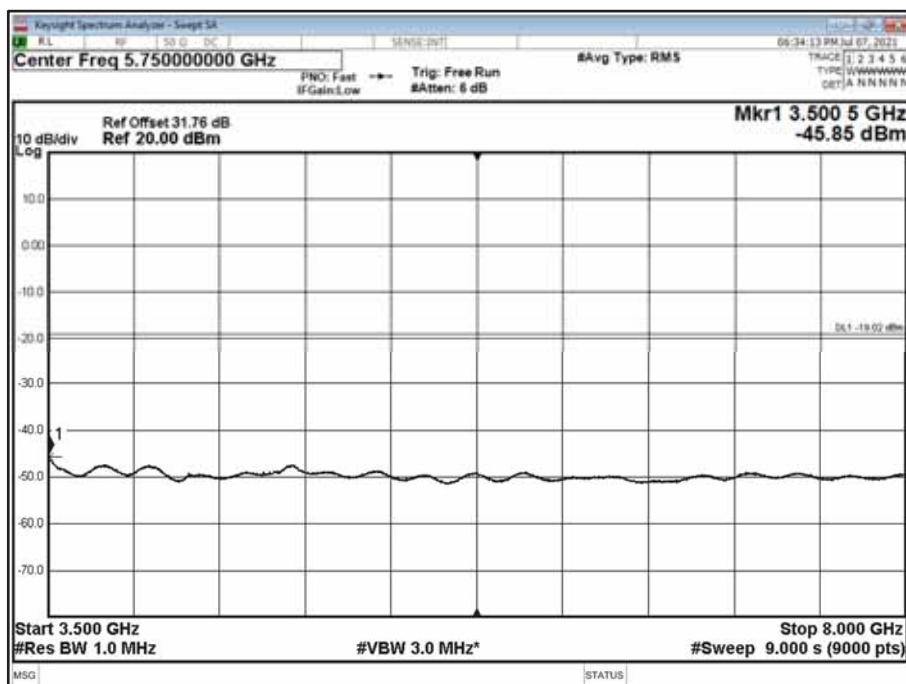
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position M - Band 1 - Range 0.009 to 3500 MHz



Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position T - Band 1 - Range 0.009 to 3500 MHz

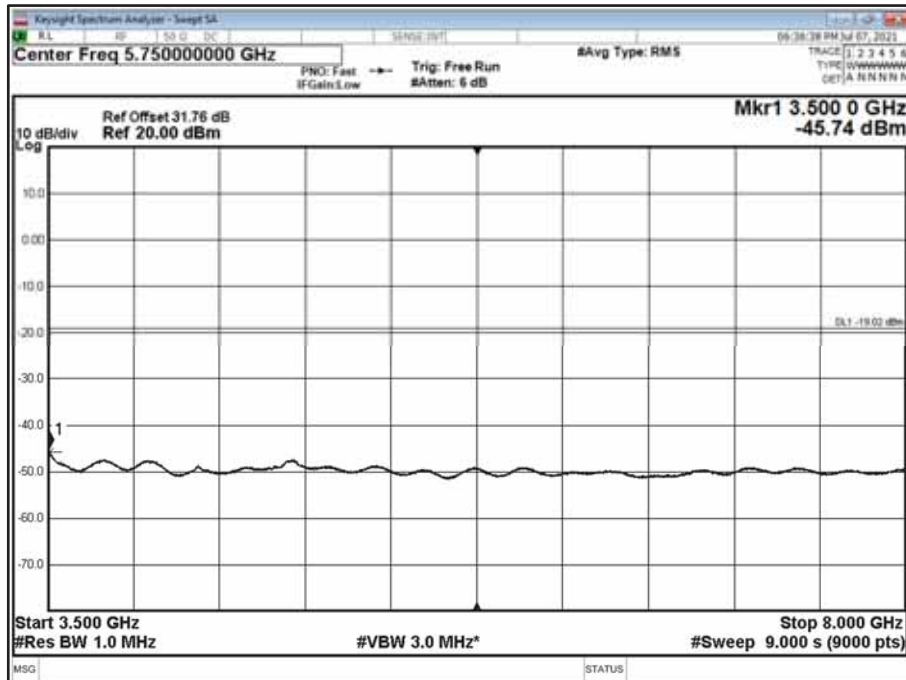


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position B - Band 2 - Range 3500 to 8000 MHz

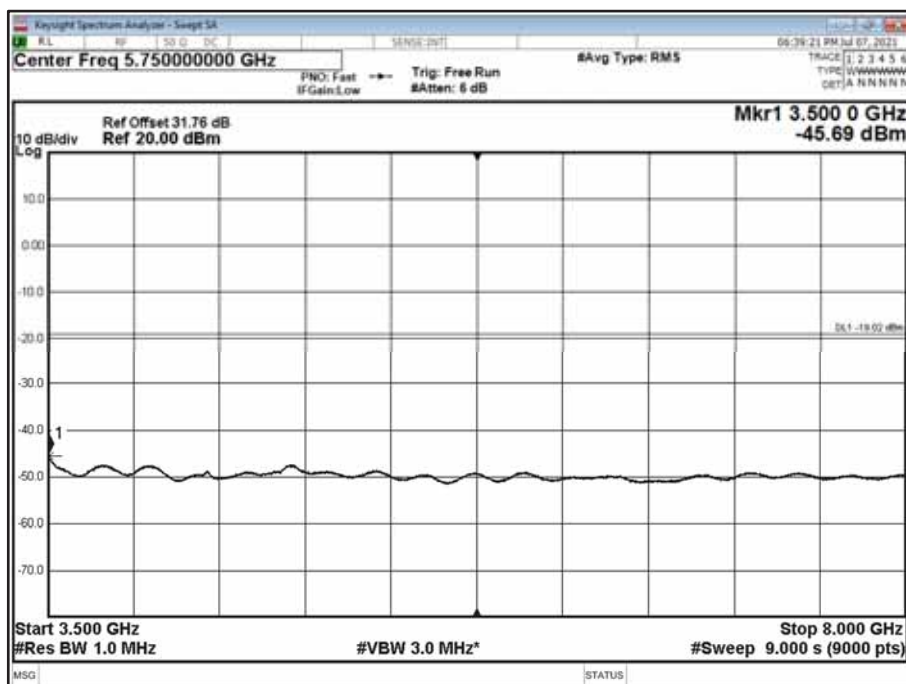




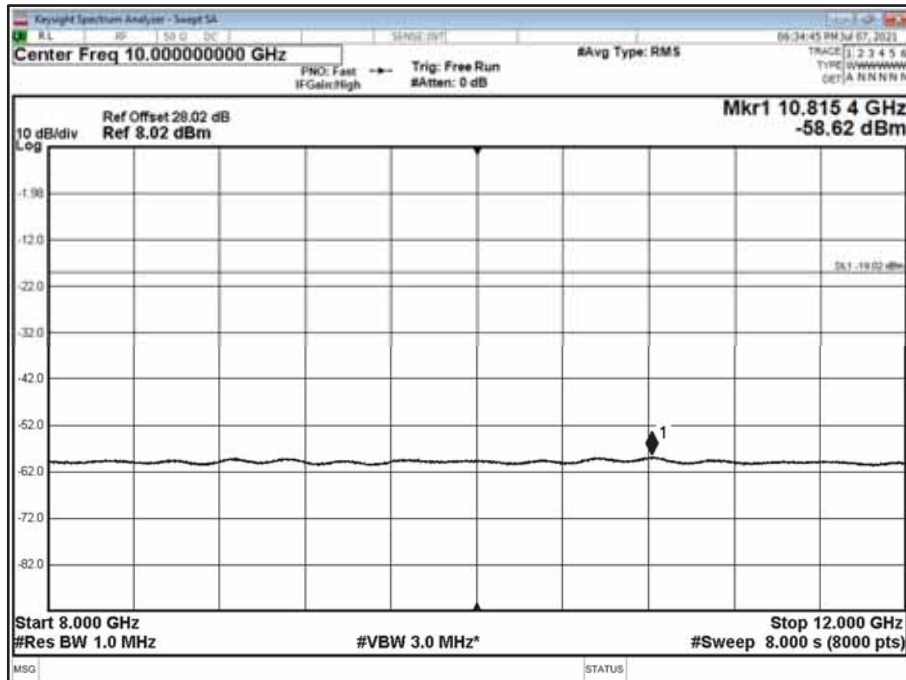
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position M - Band 2 - Range 3500 to 8000 MHz



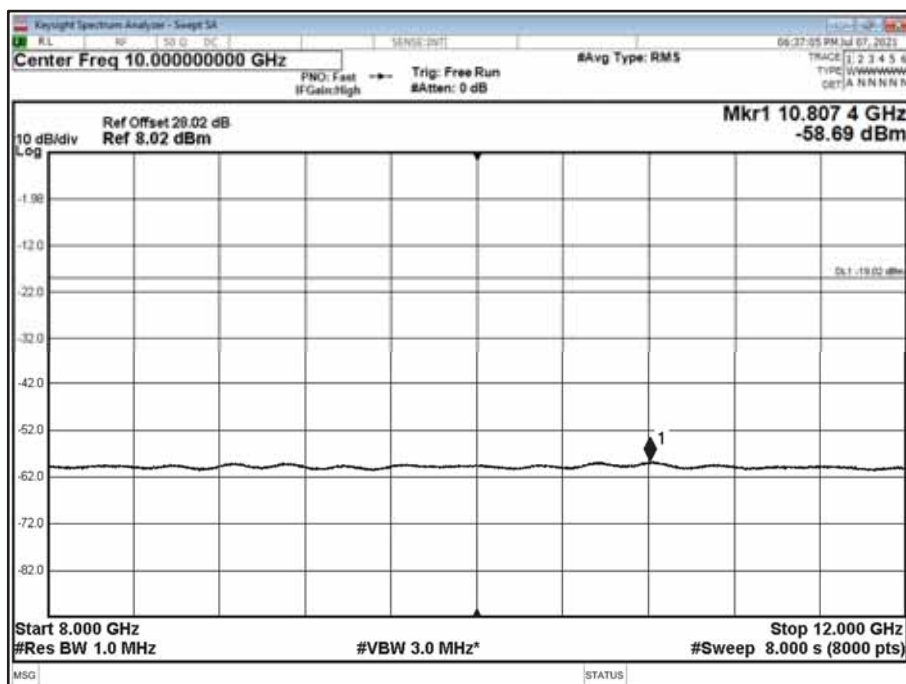
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position T - Band 2 - Range 3500 to 8000 MHz



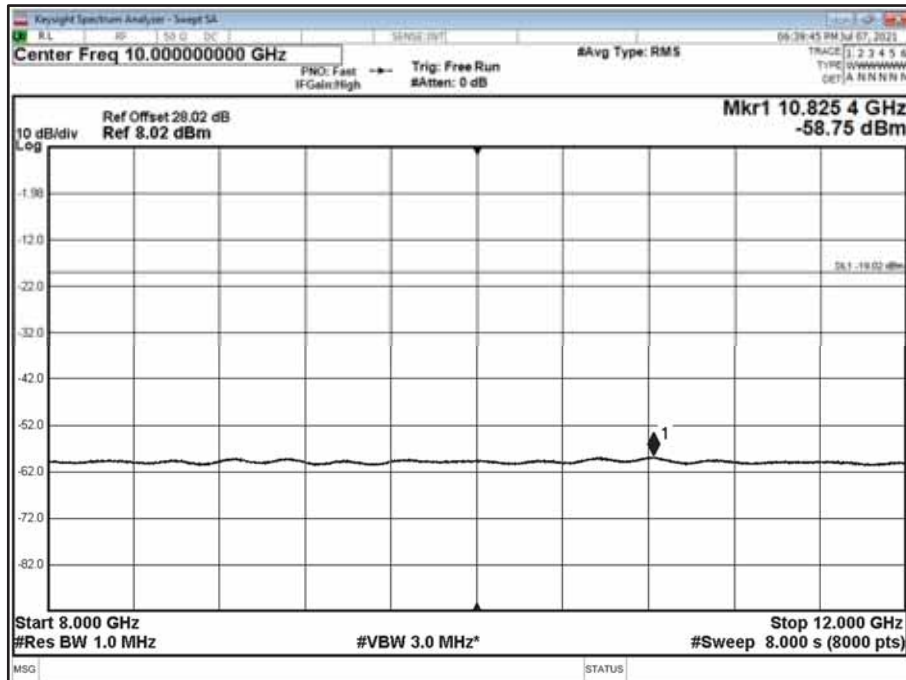
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position B - Band 3 - Range 8000 to 12000 MHz



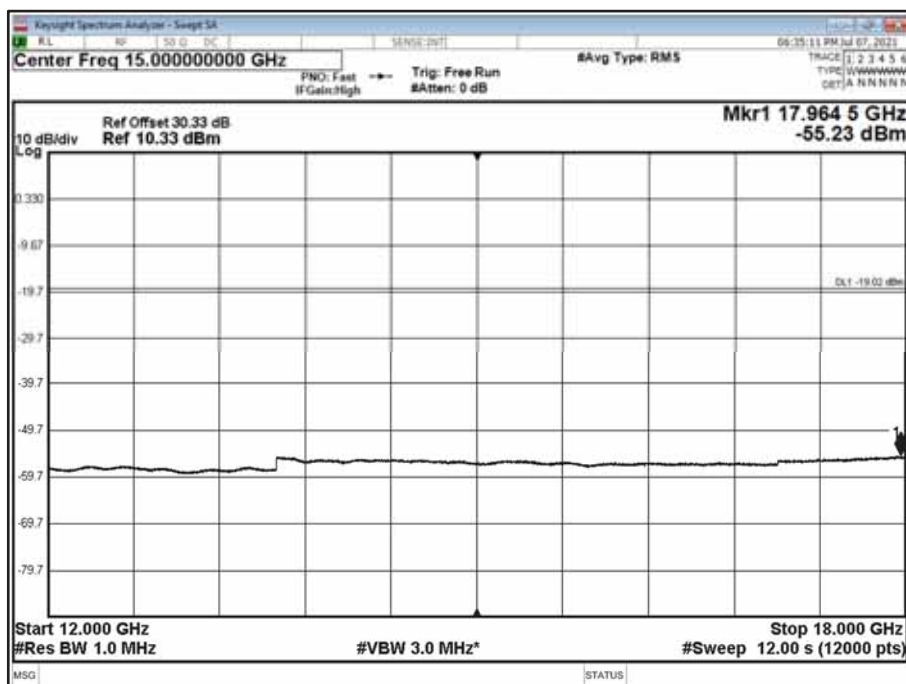
Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position M - Band 3 - Range 8000 to 12000 MHz



Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position T - Band 3 - Range 8000 to 12000 MHz

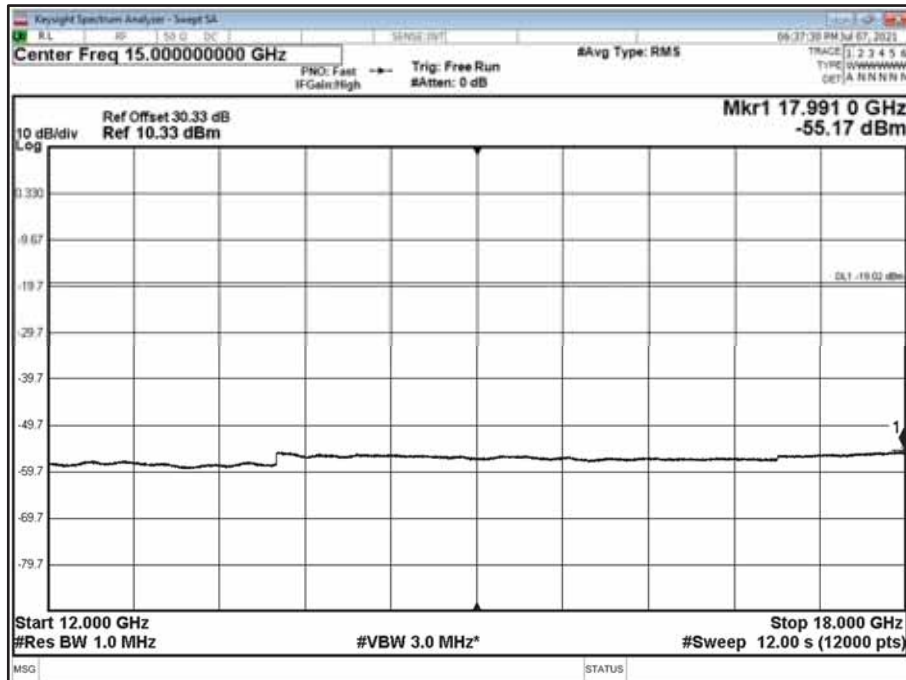


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position B - Band 4 - Range 12000 to 18000 MHz

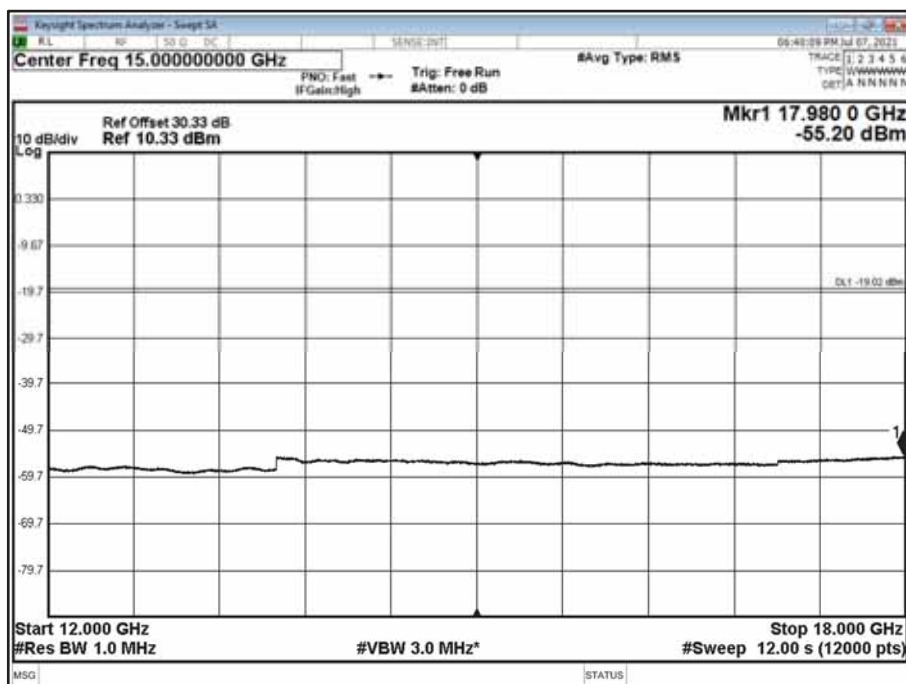




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position M - Band 4 - Range 12000 to 18000 MHz

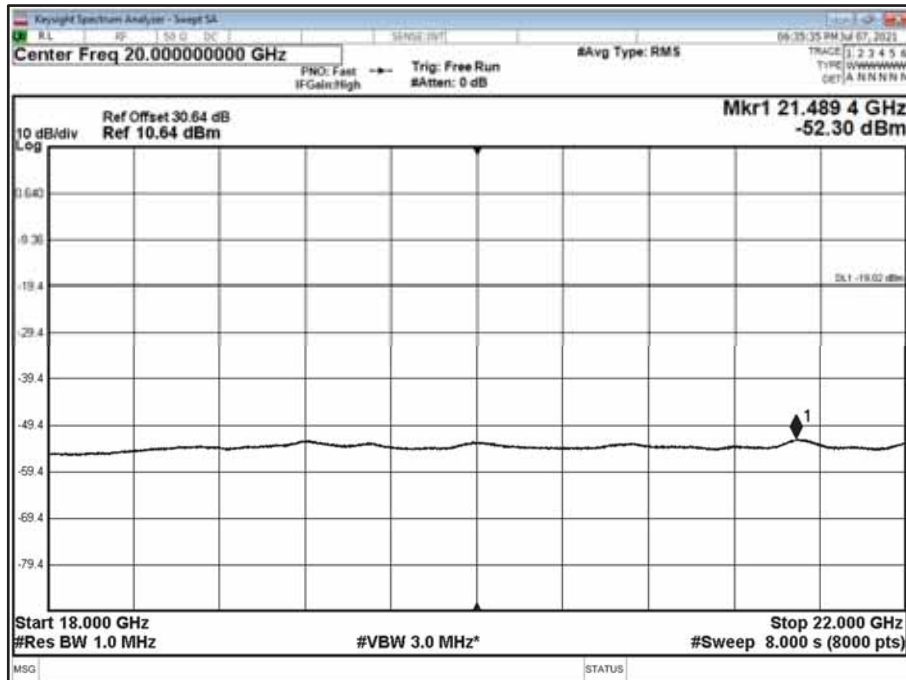


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position T - Band 4 - Range 12000 to 18000 MHz

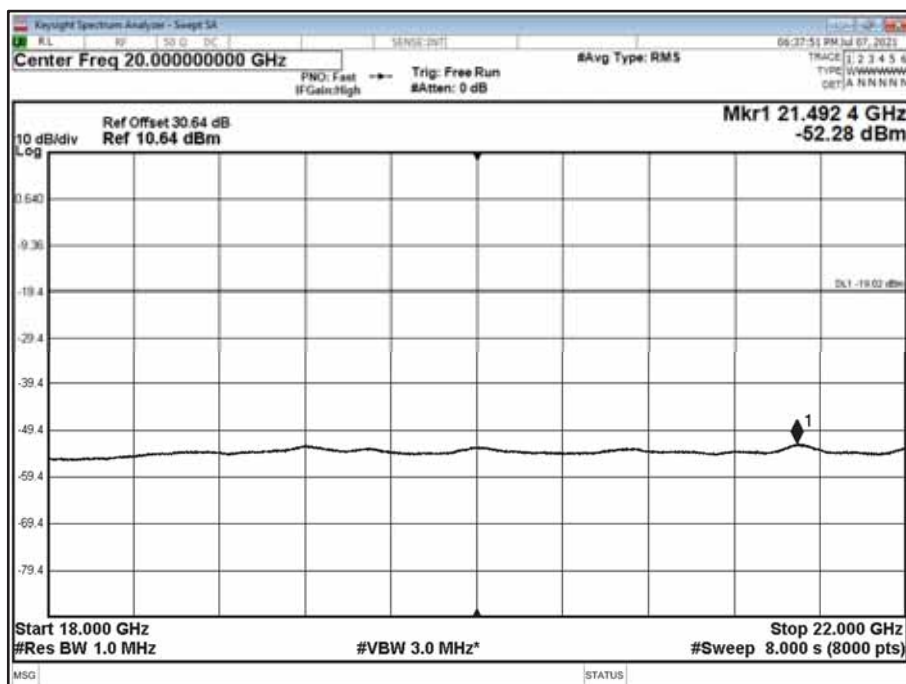




Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position B - Band 5 - Range 18000 to 22000 MHz

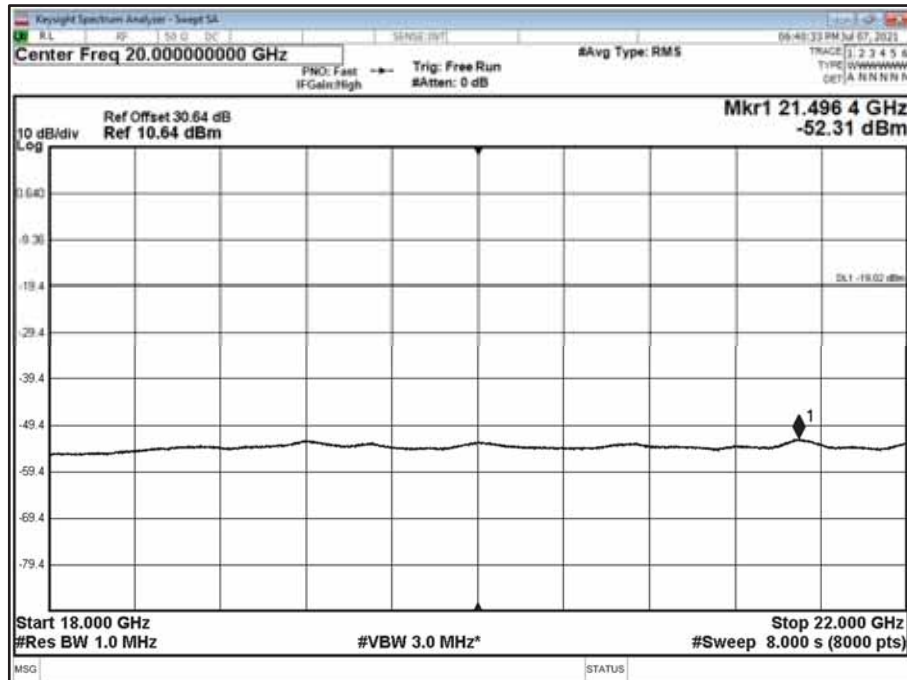


Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position M - Band 5 - Range 18000 to 22000 MHz





Antenna A - NR in NR/ESS Setup (NB-IoT) Modulation QPSK - NR in NR/ESS Setup (NB-IoT)
Carrier Bandwidth 20.0 MHz - Channel Position T - Band 5 - Range 18000 to 22000 MHz



Limit 4.7.1

Limit	The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ db.
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Limit 4.7.2

Limits	The power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least: $76 + 10 \log_{10} p$ (watts), dB, for base and fixed equipment The e.i.r.p. in the band 1559-1610 MHz shall not exceed -70 dBW/MHz for wideband signal and -80 dBW for discrete emission with bandwidth less than 700 Hz
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SECTION 3

TEST EQUIPMENT USED



3.1 TEST EQUIPMENT USED

List of absolute measuring and other principal items of test equipment.

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Carrier Power					
PXA Signal Analyzer	Keysight	N9030A	BAMS-1001562403	12	14-Jan-2022
Network Analyzer (10MHz to 40 GHz)	Agilent Technologies	N5230A	BAMS-1000635869	12	07-Apr-2022
Ecal Module	Agilent	N4690-60006	BAMS-1000235612	12	30-Jun-2021
Network Analyzer (10MHz to 20GHz)	Agilent Technologies	N5230A	S/N: MY45000737	12	13-Apr-2022
Hygrometer	Rotronic	A1	TE2760	12	12-Jun-2022
Power Supply	Delta Elektronika	SM 52-30	BAMS-1000077230	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QM935	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QC181	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	004	-	O/P Mon
Attenuator 10 dB	Wainwright	56-10	T3515	-	O/P Mon
High Pass Filter	Wainwright Instruments	WHNX3.8/26.5 G	D-82346	-	O/P Mon
CCDF - PAR					
PXA Signal Analyzer	Keysight	N9030A	BAMS-1001562403	12	14-Jan-2022
Network Analyzer (10MHz to 40 GHz)	Agilent Technologies	N5230A	BAMS-1000635869	12	07-Apr-2022
Ecal Module	Agilent	N4690-60006	BAMS-1000235612	12	30-Jun-2021
Network Analyzer (10MHz to 20GHz)	Agilent Technologies	N5230A	S/N: MY45000737	12	13-Apr-2022
Hygrometer	Rotronic	A1	TE2760	12	12-Jun-2022
Power Supply	Delta Elektronika	SM 52-30	BAMS-1000077230	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QM935	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QC181	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	004	-	O/P Mon
Attenuator 10 dB	Wainwright	56-10	T3515	-	O/P Mon
High Pass Filter	Wainwright Instruments	WHNX3.8/26.5 G	D-82346	-	O/P Mon
PSD - Av					
PXA Signal Analyzer	Keysight	N9030A	BAMS-1001562403	12	14-Jan-2022
Network Analyzer (10MHz to 40 GHz)	Agilent Technologies	N5230A	BAMS-1000635869	12	07-Apr-2022
Ecal Module	Agilent	N4690-60006	BAMS-1000235612	12	30-Jun-2021
Network Analyzer (10MHz to 20GHz)	Agilent Technologies	N5230A	S/N: MY45000737	12	13-Apr-2022
Hygrometer	Rotronic	A1	TE2760	12	12-Jun-2022
Power Supply	Delta Elektronika	SM 52-30	BAMS-1000077230	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QM935	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QC181	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	004	-	O/P Mon



Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
Attenuator 10 dB	Wainwright	56-10	T3515	-	O/P Mon
High Pass Filter	Wainwright Instruments	WHNX3.8/26.5 G	D-82346	-	O/P Mon
OBW / 99% resp 26dB BW - Pk					
PXA Signal Analyzer	Keysight	N9030A	BAMS-1001562403	12	14-Jan-2022
Network Analyzer (10MHz to 40 GHz)	Agilent Technologies	N5230A	BAMS-1000635869	12	07-Apr-2022
Ecal Module	Agilent	N4690-60006	BAMS-1000235612	12	30-Jun-2021
Network Analyzer (10MHz to 20GHz)	Agilent Technologies	N5230A	S/N: MY45000737	12	13-Apr-2022
Hygrometer	Rotronic	A1	TE2760	12	12-Jun-2022
Power Supply	Delta Elektronika	SM 52-30	BAMS-1000077230	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QM935	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QC181	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	004	-	O/P Mon
Attenuator 10 dB	Wainwright	56-10	T3515	-	O/P Mon
High Pass Filter	Wainwright Instruments	WHNX3.8/26.5 G	D-82346	-	O/P Mon
Band Edge					
PXA Signal Analyzer	Keysight	N9030A	BAMS-1001562403	12	14-Jan-2022
Network Analyzer (10MHz to 40 GHz)	Agilent Technologies	N5230A	BAMS-1000635869	12	07-Apr-2022
Ecal Module	Agilent	N4690-60006	BAMS-1000235612	12	30-Jun-2021
Network Analyzer (10MHz to 20GHz)	Agilent Technologies	N5230A	S/N: MY45000737	12	13-Apr-2022
Hygrometer	Rotronic	A1	TE2760	12	12-Jun-2022
Power Supply	Delta Elektronika	SM 52-30	BAMS-1000077230	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QM935	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QC181	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	004	-	O/P Mon
Attenuator 10 dB	Wainwright	56-10	T3515	-	O/P Mon
High Pass Filter	Wainwright Instruments	WHNX3.8/26.5 G	D-82346	-	O/P Mon
Spurious Emissions					
PXA Signal Analyzer	Keysight	N9030A	BAMS-1001562403	12	14-Jan-2022
Network Analyzer (10MHz to 40 GHz)	Agilent Technologies	N5230A	BAMS-1000635869	12	07-Apr-2022
Ecal Module	Agilent	N4690-60006	BAMS-1000235612	12	30-Jun-2021
Network Analyzer (10MHz to 20GHz)	Agilent Technologies	N5230A	S/N: MY45000737	12	13-Apr-2022
Hygrometer	Rotronic	A1	TE2760	12	12-Jun-2022
Power Supply	Delta Elektronika	SM 52-30	BAMS-1000077230	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QM935	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	QC181	-	O/P Mon
Attenuator 20 dB	Aeroflex / Weinschel	6834-20-11	004	-	O/P Mon
Attenuator 10 dB	Wainwright	56-10	T3515	-	O/P Mon
High Pass Filter	Wainwright Instruments	WHNX3.8/26.5 G	D-82346	-	O/P Mon

N/A – Not Applicable

O/P Mon – Output Monitored with Calibrated Equipment

List of measurement software versions used for testing.

Instrument	Manufacturer	Type No.	TE No.	Software Version
PXA Signal Analyser	Keysight	N9030A	BAMS1001562403	A.19.05
HP-VEE Software	TUV SUD	HP_VEE	N/A	V3.27



3.2 MEASUREMENT UNCERTAINTY

For a 95% confidence level, the measurement uncertainties for defined systems are:-

Test Discipline	Frequency / Parameter		MU
Conducted Maximum Peak Output Power	30 MHz to 20 GHz Amplitude		± 0.89 dB
Conducted Emissions	30 MHz to 20 GHz Amplitude		± 1.81 dB
Occupied Bandwidth	Up to 20 MHz Bandwidth	10 MHz Bandwidth	± 67172 Hz
		15MHz Bandwidth	± 353784 Hz
		20 MHz Bandwidth	± 145903 Hz
Band Edge	30 MHz to 20 GHz Amplitude		± 0.89 dB

Measurement Uncertainty Decision Rule

Determination of conformity with the specification limits is based on the decision rule according to IEC Guide 115: 2007, clause 4.4.3 and 4.5.1.



SECTION 4

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



This report relates only to the actual item/items tested.

Our Swedac Accreditation does not cover opinions and interpretations and any expressed are outside the scope of our Swedac Accreditation.

Results of tests not covered by our Swedac Accreditation Schedule are marked NSA (Not Swedac Accredited).

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ANNEX A

MODULE LIST



Configuration 1			
Product	Product No	R-State	Serial No
CT10	LPC102487/1	R1C	T01F307250
Radio 4415 B66A	KRC 161 644/3	R1B/A	D16X595592
Software Version:	CXP9013268/12	Revision:	R82CM