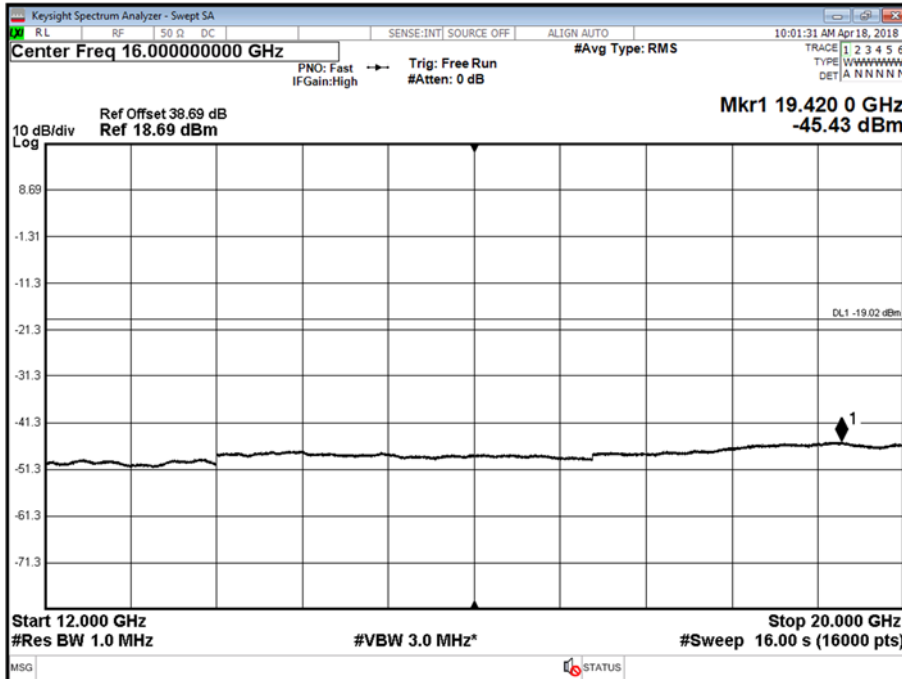


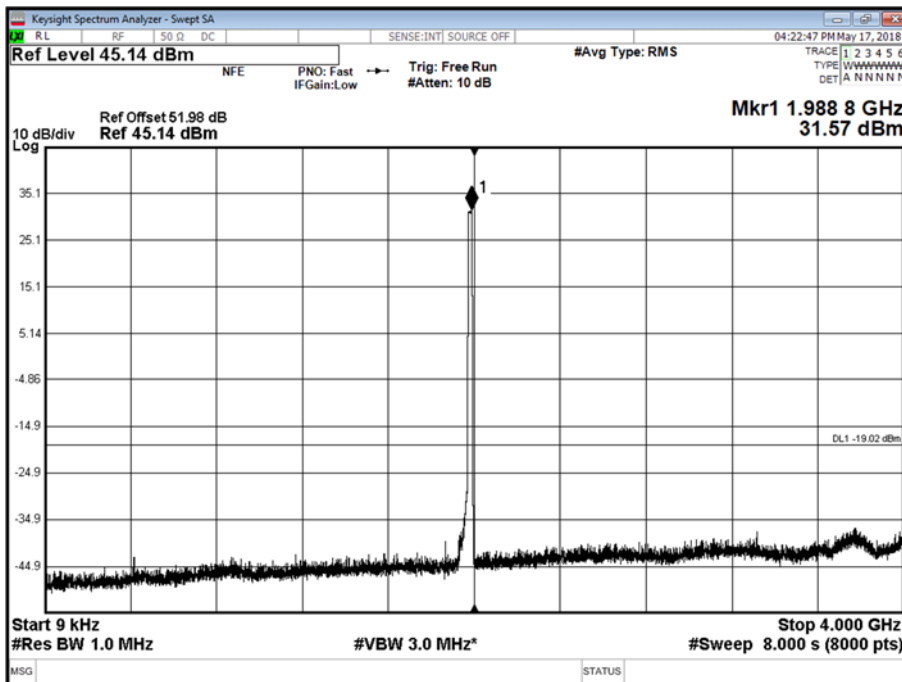


Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



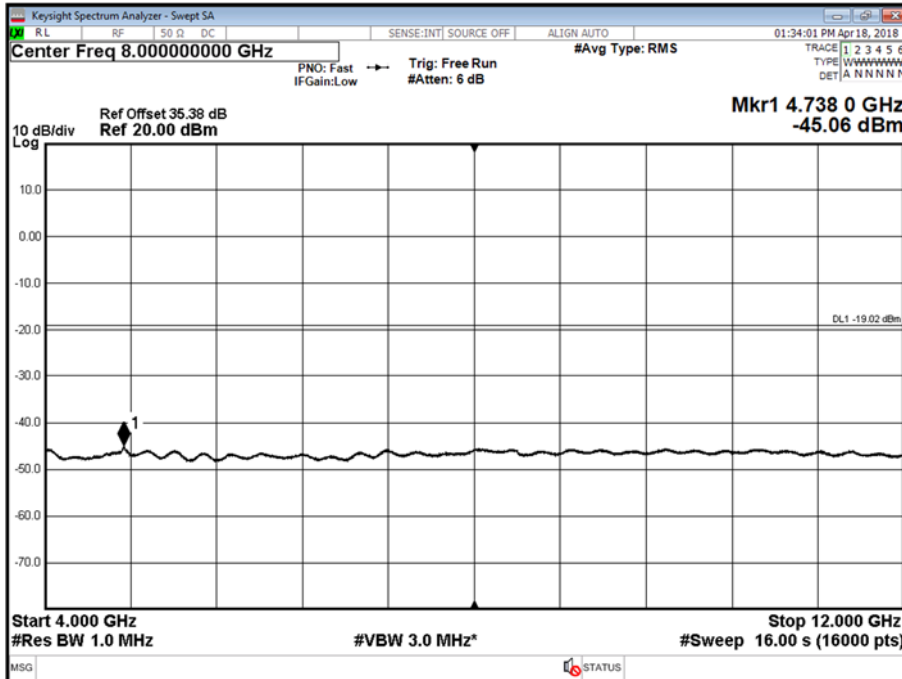
Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



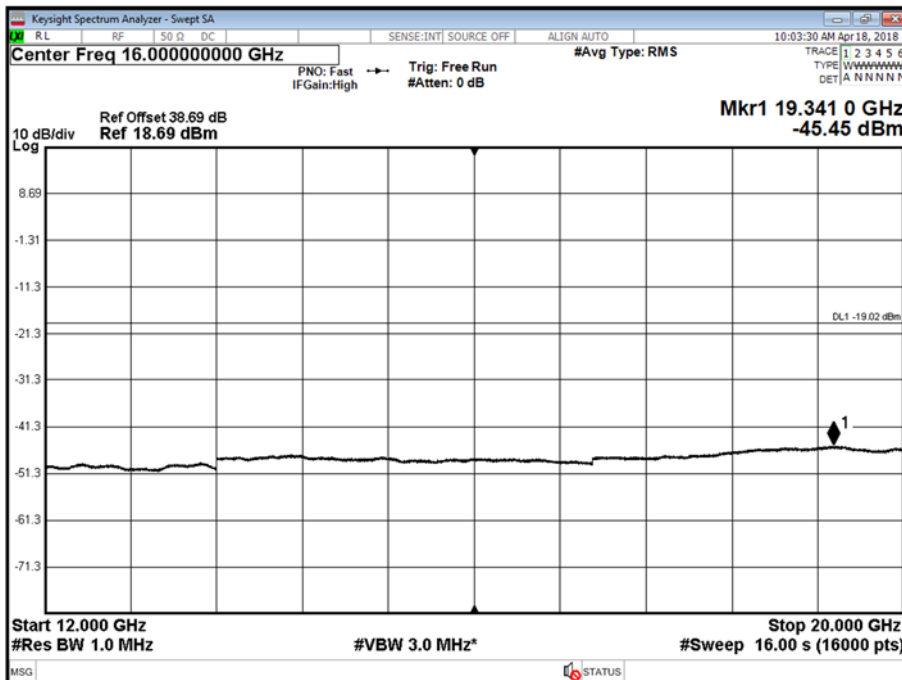


Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz



Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



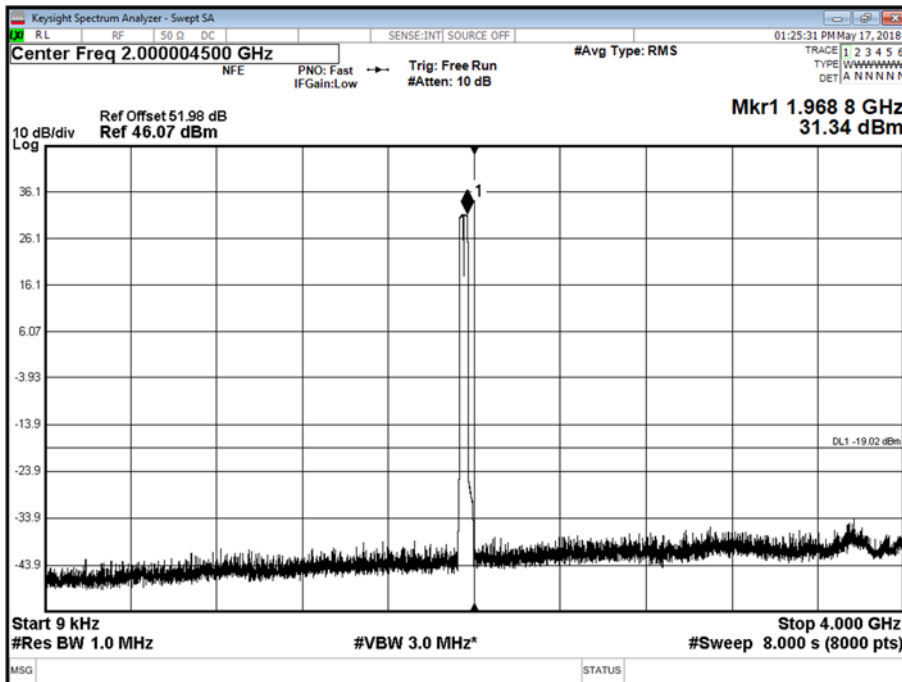


Product Service

Configuration B

Maximum Output Power 46 dBm

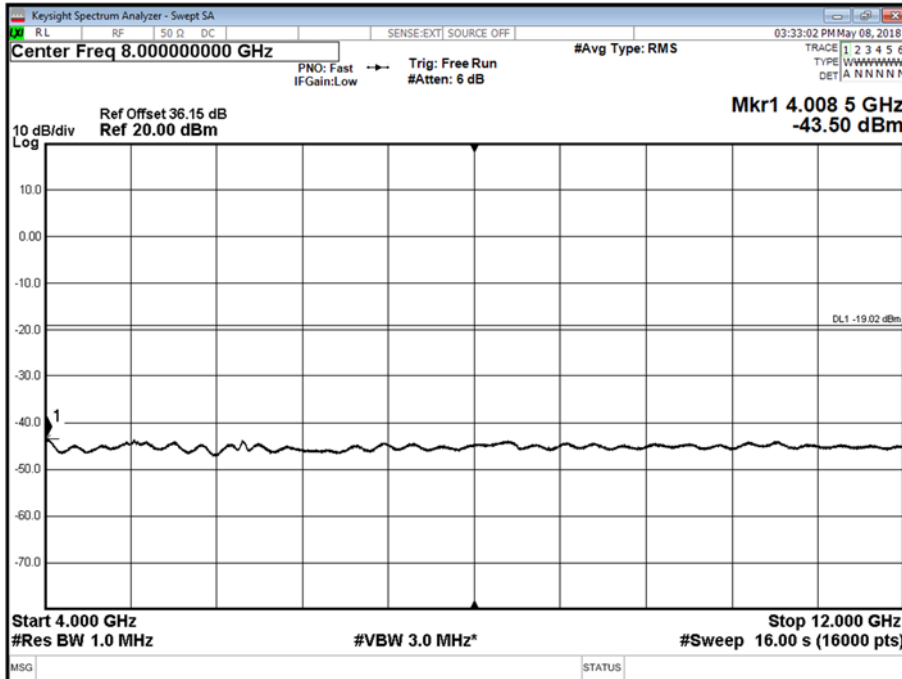
Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



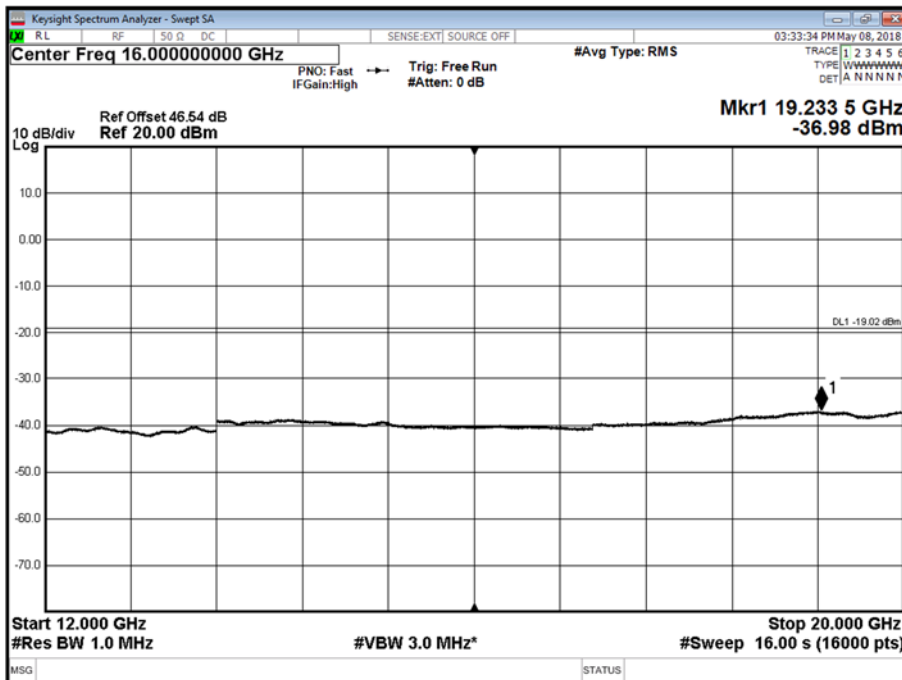


Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 2 - Range 4000 to 12000 MHz



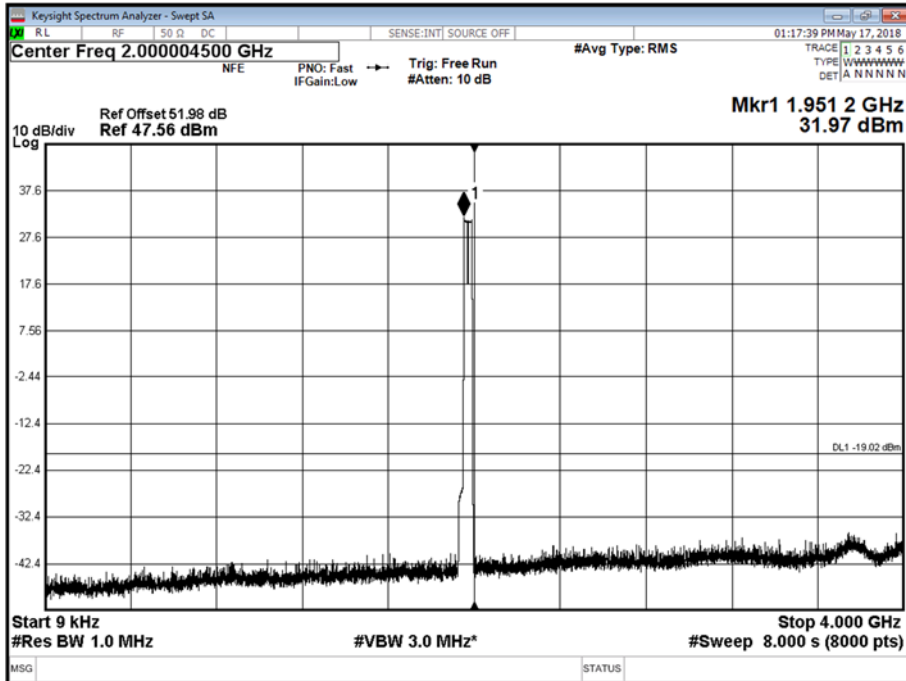
Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



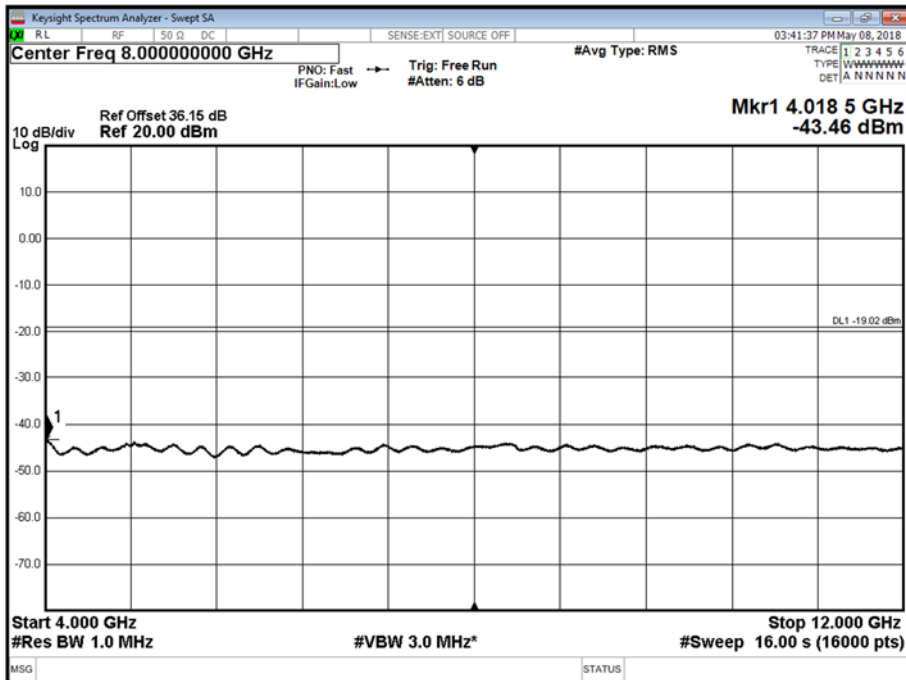


Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



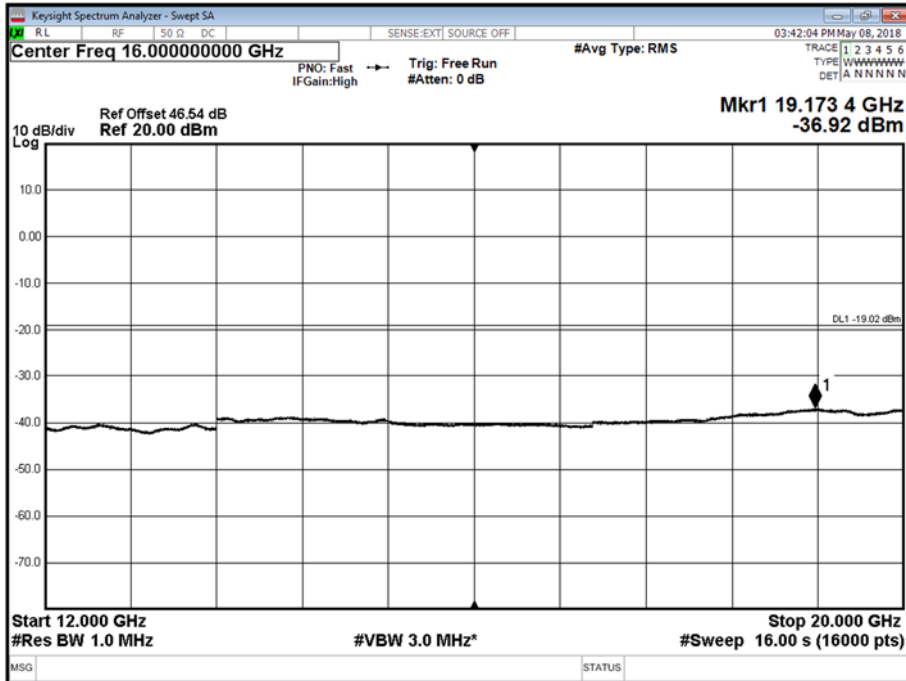
Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz





Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



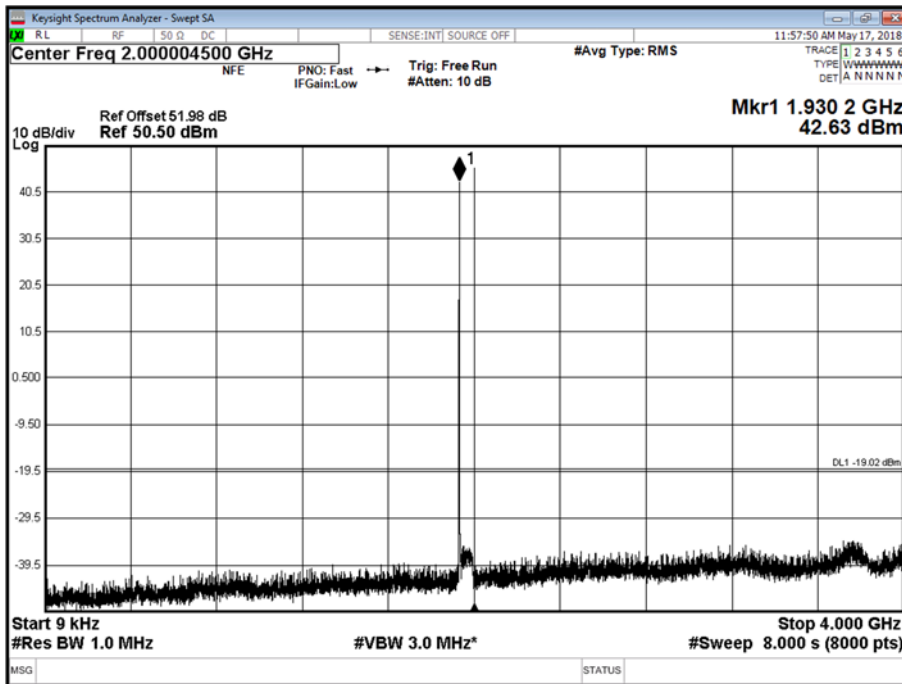


Product Service

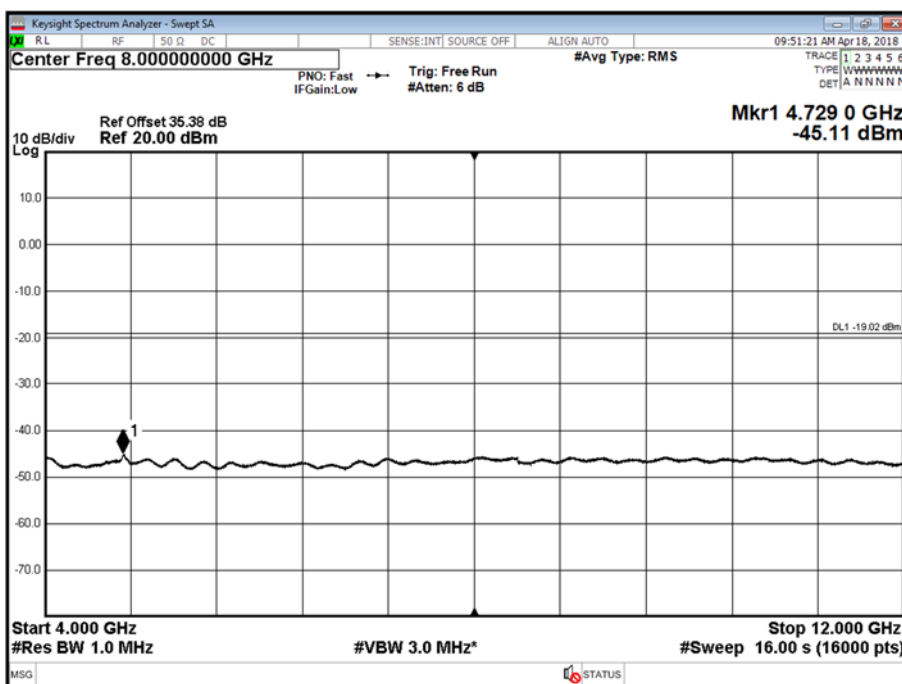
Configuration C

Maximum Output Power 43 dBm

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position B - Band 1 - Range 0.009 to 4000 MHz



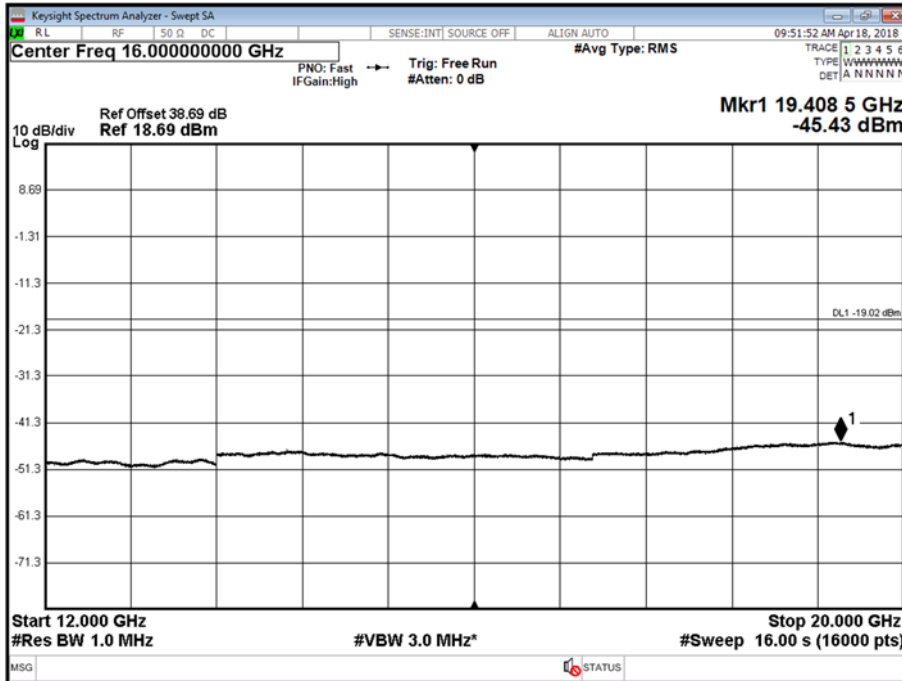
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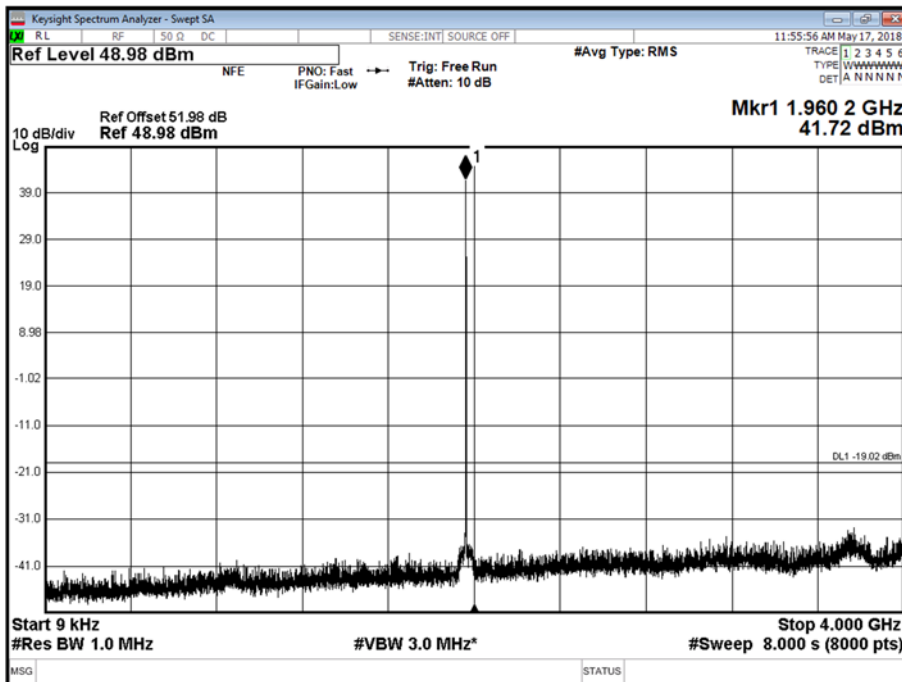


Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position B - Band 3 - Range 12000 to 20000 MHz



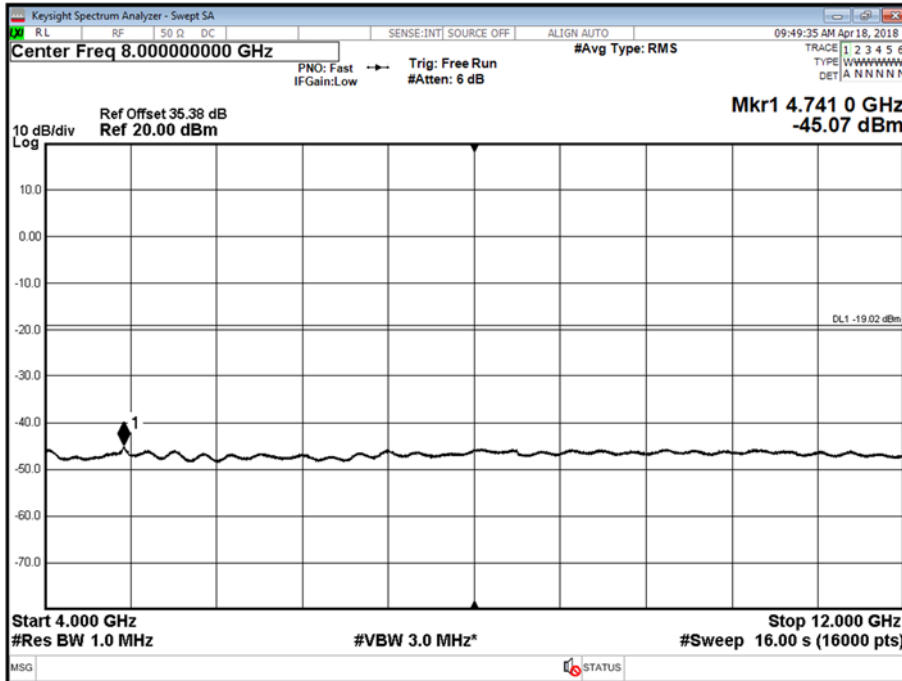
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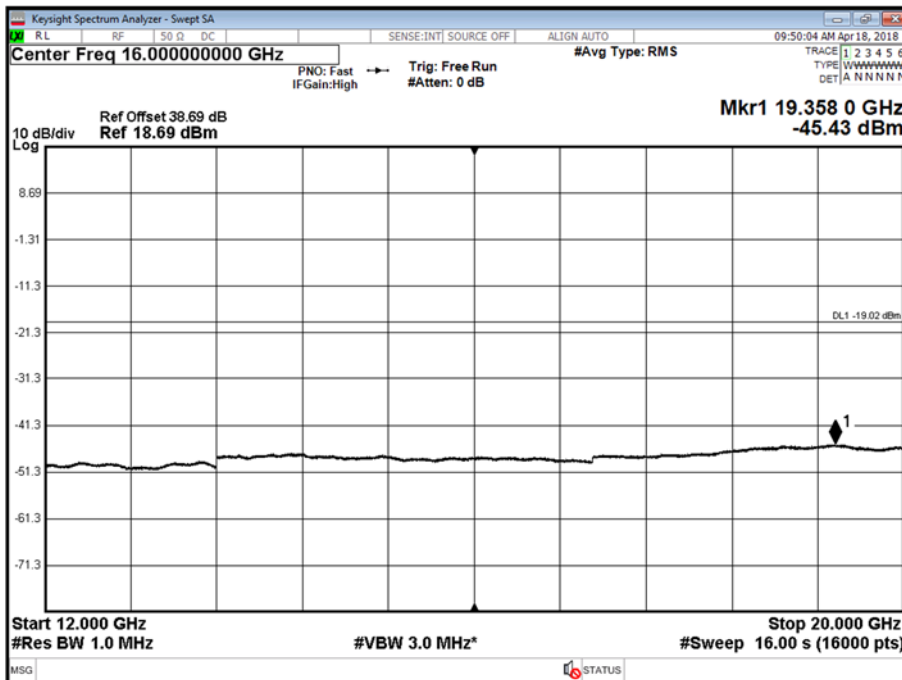


Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position M - Band 2 - Range 4000 to 12000 MHz



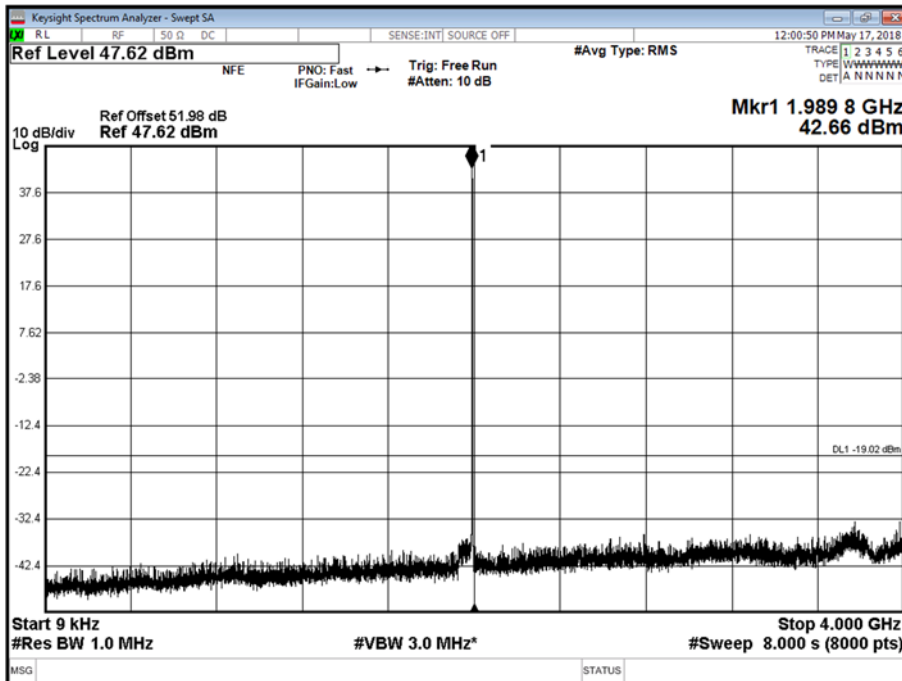
Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position M - Band 3 - Range 12000 to 20000 MHz



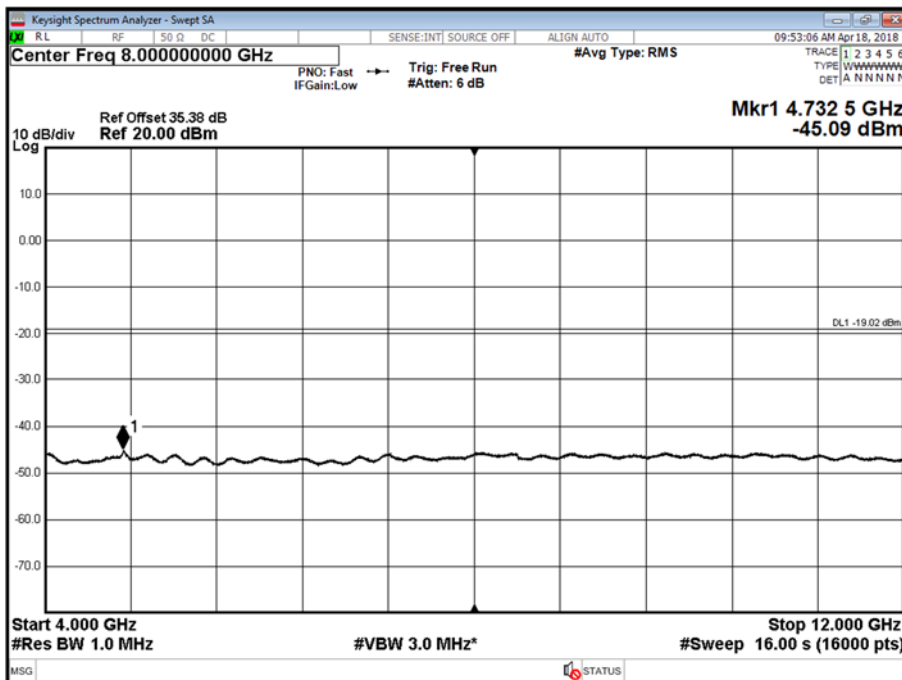


Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position T - Band 1 - Range 0.009 to 4000 MHz



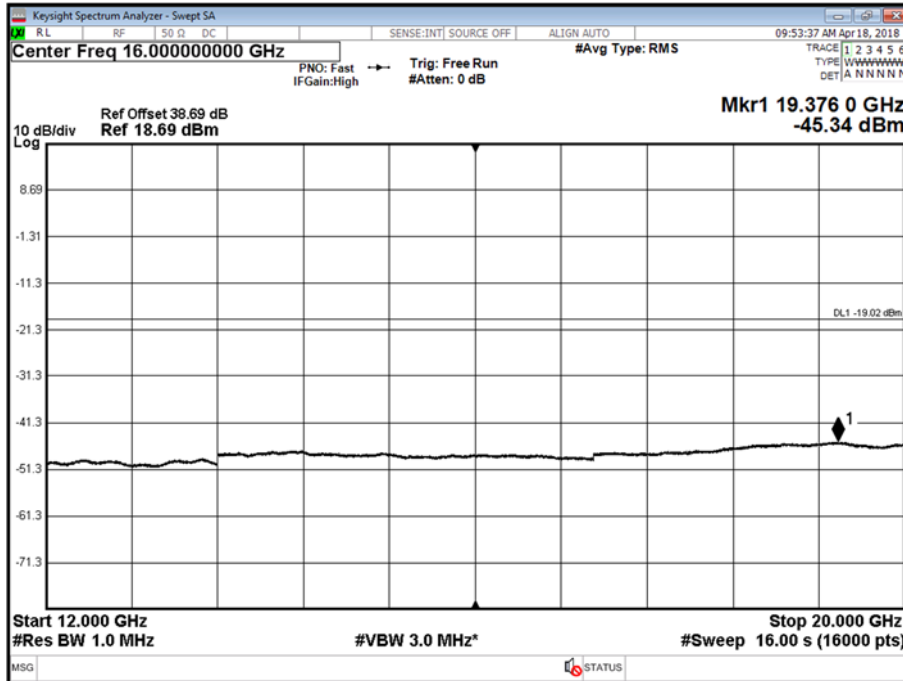
Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position T - Band 2 - Range 4000 to 12000 MHz





Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position T - Band 3 - Range 12000 to 20000 MHz



Limit	$-13 \text{ dBm} - 10 * \text{Log}(4) = -19 \text{ dBm}$
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Product Service

2.5 RADIATED EMISSIONS

2.5.1 Specification Reference

FCC CFR 47 Part 2, Clause 2.1053
FCC CFR 47 Part 24, Clause 24.238
Industry Canada RSS-133, Clause 6.5

2.5.2 Date of Test and Modification State

24 April 2018 - Modification State 0

2.5.3 Test Equipment Used

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

2.5.4 Environmental Conditions

Ambient Temperature 22°C
Relative Humidity 41%

2.5.5 Test Method

The test was applied in accordance with test method requirements of ANSI/TIA-603-D-2010.

A preliminary profile of the Spurious Radiated Emissions was obtained by operating the EUT on a remotely controlled turntable within the chamber. Measurements of emissions from the EUT were obtained with the Measurement Antenna in both Horizontal and Vertical Polarisations.

The Applicant declared that the highest internally generated frequency would be up to 2000MHz and so the upper limit for measurement was calculated at 10 times this, which is 20GHz.

Emissions identified within the range 30MHz – 20GHz were then formally measured using a Peak detector as the worst case.

In the frequency Range 30MHz – 1GHz, the measurement was performed with a resolution bandwidth of 100kHz.

In the frequency Range 1GHz – 20GHz, the measurement was performed with a resolution bandwidth of 1MHz.

The measurements were performed at a 3m distance unless otherwise stated.

The limits for Spurious Emissions have been calculated, as shown below using the following formula:

Field Strength of Carrier - $(43 + 10\text{Log}(P))$ dB

Where:

Field Strength is measured in dB μ V/m

P is measured Transmitter Power in Watts



Product Service

Determination of Spurious Emission Limit

As per 24.238(1)) the spurious emission must be attenuated by $43 + 10\log(P_o)$ dB this gives:

$$43 + 10\log(40) = 59.02\text{dB}$$

The declared carrier is 40W which when converted to dBm equals:

$$P_{(\text{dBm})} = 10 \cdot \log_{10}(1000 \cdot 40\text{W}) = 46.02\text{dBm}$$

Therefore the limit at 3m measurement distance is:

$$46.02 - 59.02 = -13 \text{ dBm}$$

$$95.2 - 13 \text{ dBm} = 82.2 \text{ dB}\mu\text{V/m}$$

This limit has been used to determine Pass or Fail for the harmonics measured and detailed in the following results.

2.5.6 Test Results

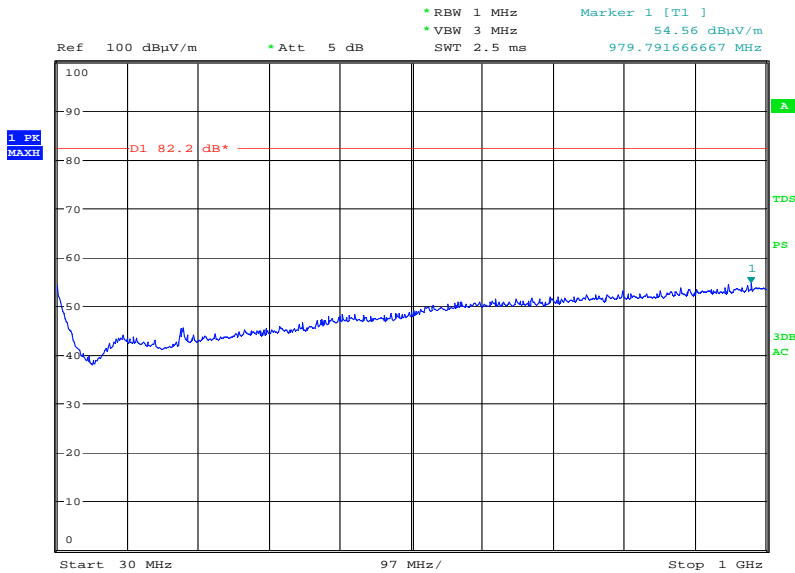
Configuration A

Maximum Output Power 46 dBm



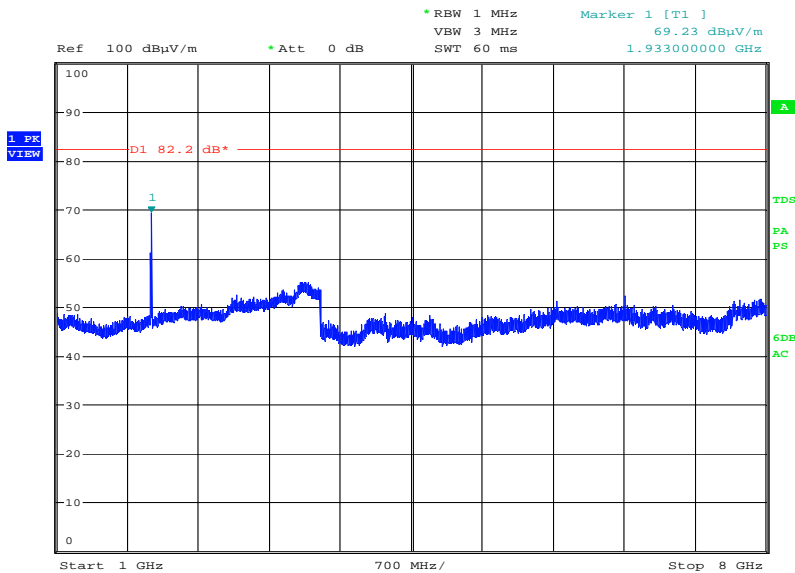
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:10.0 MHz / N:180 kHz - Channel Position B - Band 1 - Range 30 to 1000 MHz



Date: 5.JAN.2003 23:31:09

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:10.0 MHz / N:180 kHz - Channel Position B - Band 2 - Range 1000 to 8000 MHz

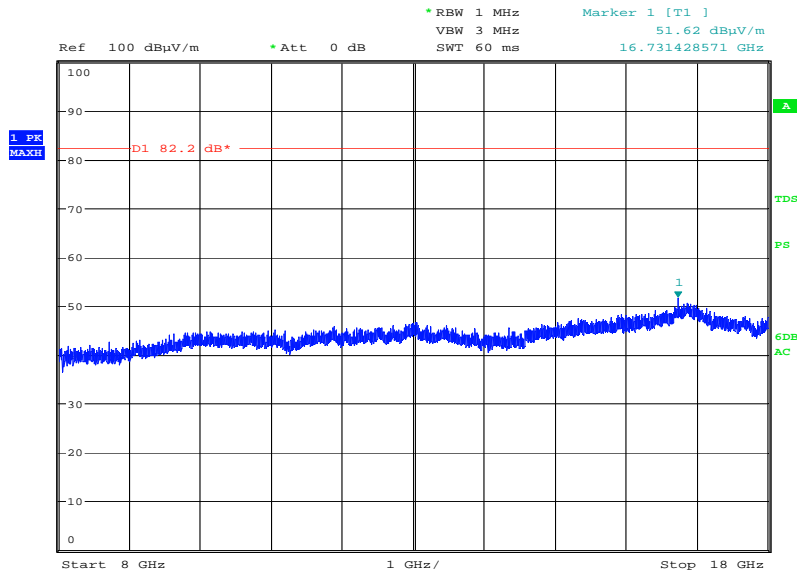


Date: 5.JAN.2003 17:06:38



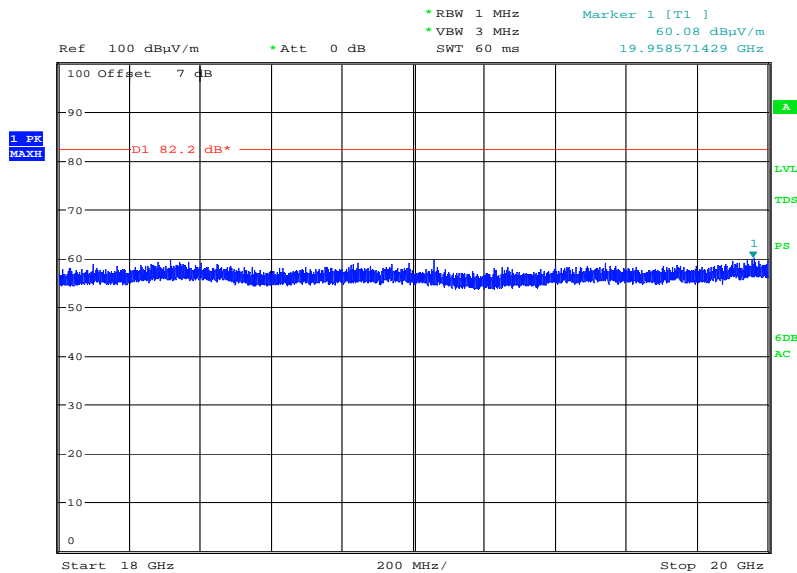
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:10.0 MHz / N:180 kHz - Channel Position B - Band 3 - Range 8000 to 18000 MHz



Date: 5.JAN.2003 20:26:06

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:10.0 MHz / N:180 kHz - Channel Position B - Band 4 - Range 18000 to 20000 MHz

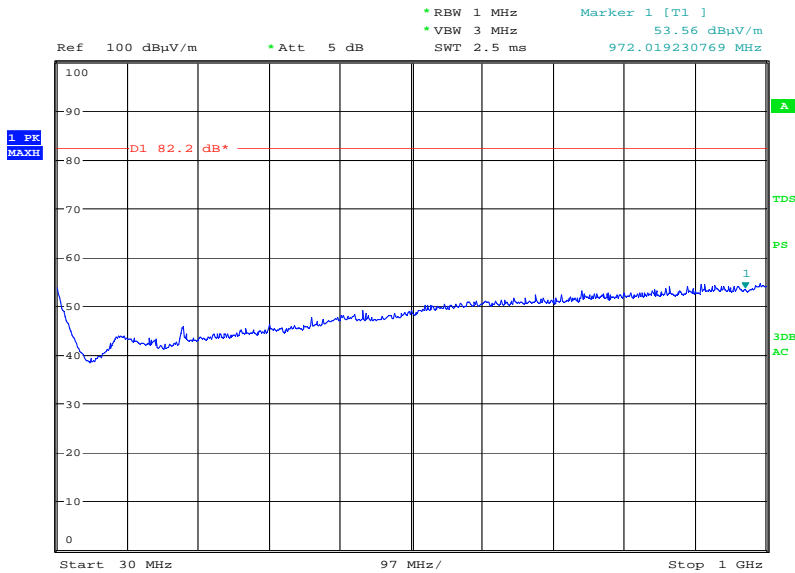


Date: 5.JAN.2003 22:28:59



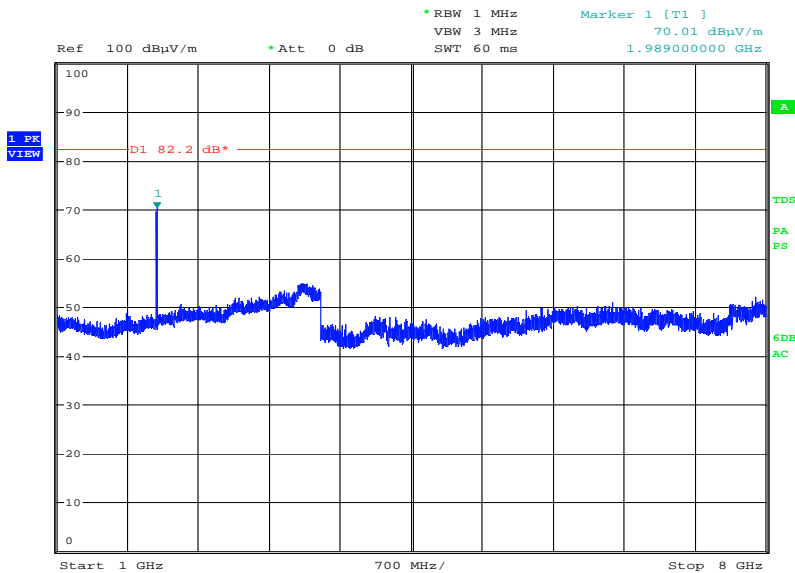
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:10.0 MHz / N:180 kHz - Channel Position T - Band 1 - Range 30 to 1000 MHz



Date: 5.JAN.2003 23:28:49

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:10.0 MHz / N:180 kHz - Channel Position T - Band 2 - Range 1000 to 8000 MHz

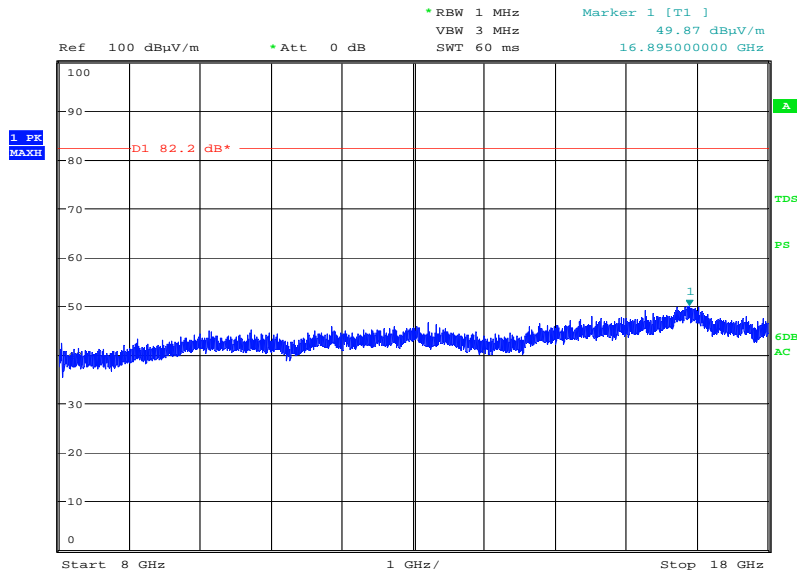


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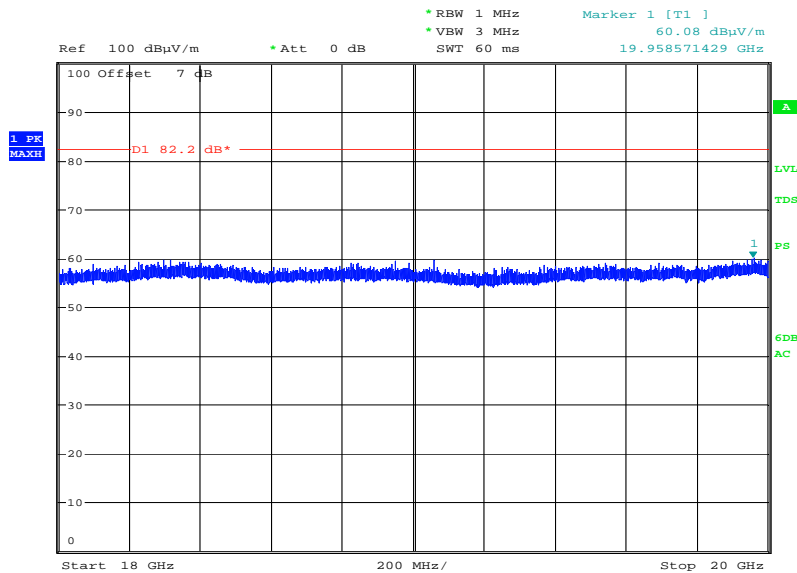
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:10.0 MHz / N:180 kHz - Channel Position T - Band 3 - Range 8000 to 18000 MHz



Date: 5.JAN.2003 20:57:42

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:10.0 MHz / N:180 kHz - Channel Position T - Band 4 - Range 18000 to 20000 MHz

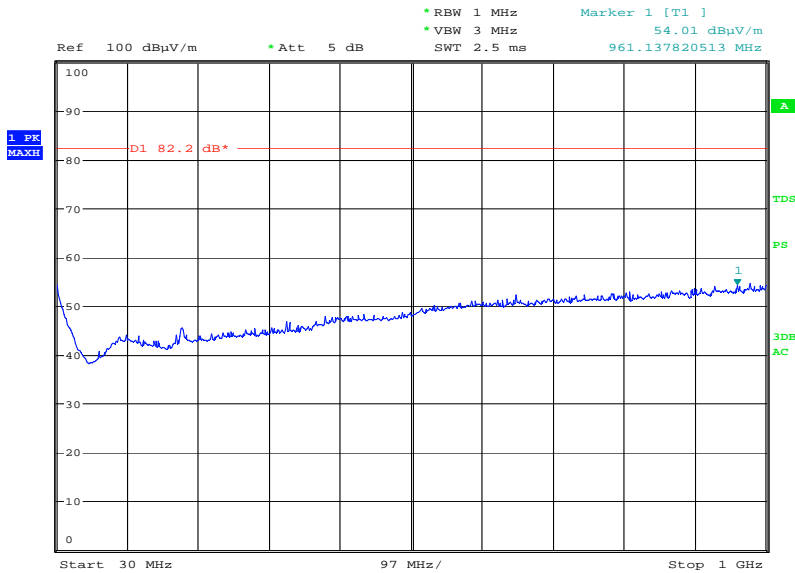


Date: 5.JAN.2003 22:31:57



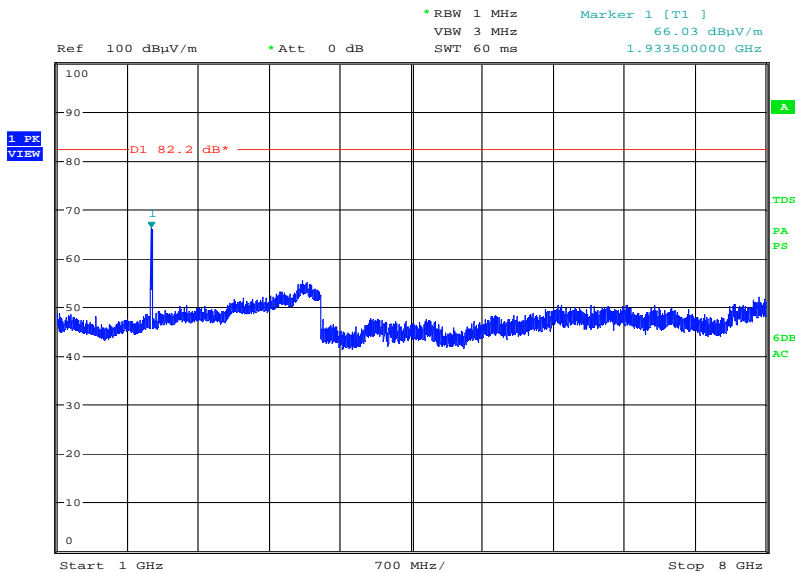
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:15.0 MHz / N:180 kHz - Channel Position B - Band 1 - Range 30 to 1000 MHz



Date: 5.JAN.2003 23:25:01

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:15.0 MHz / N:180 kHz - Channel Position B - Band 2 - Range 1000 to 8000 MHz

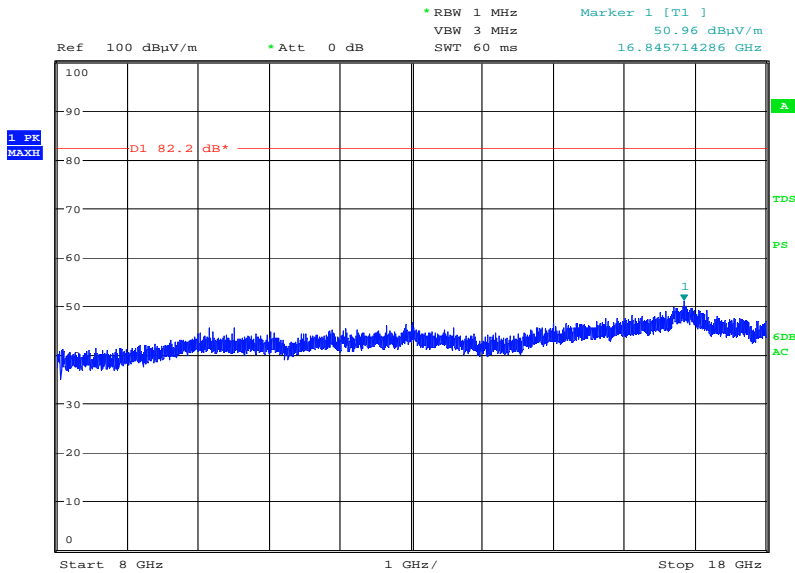


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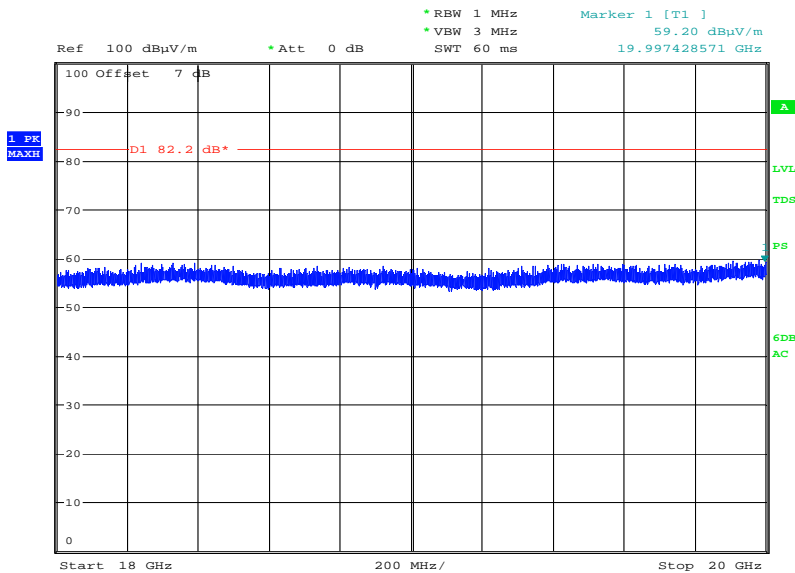
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:15.0 MHz / N:180 kHz - Channel Position B - Band 3 - Range 8000 to 18000 MHz



Date: 5.JAN.2003 20:43:22

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:15.0 MHz / N:180 kHz - Channel Position B - Band 4 - Range 18000 to 20000 MHz

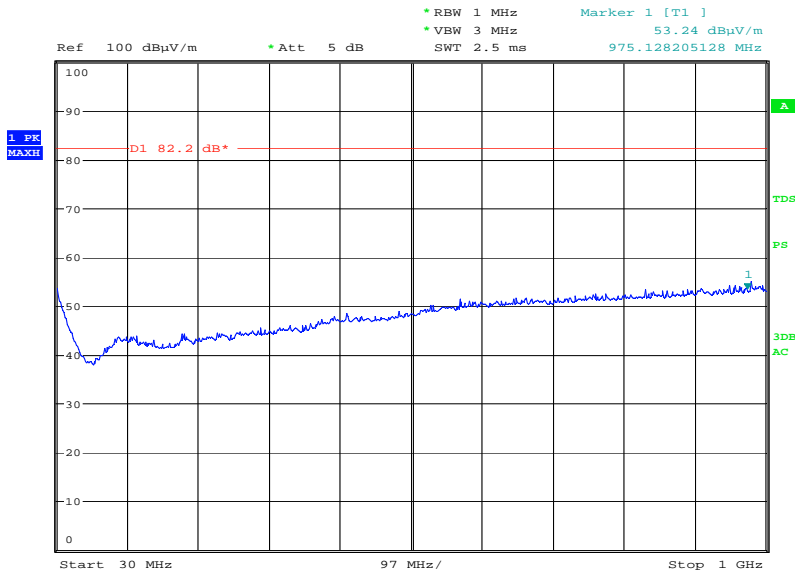


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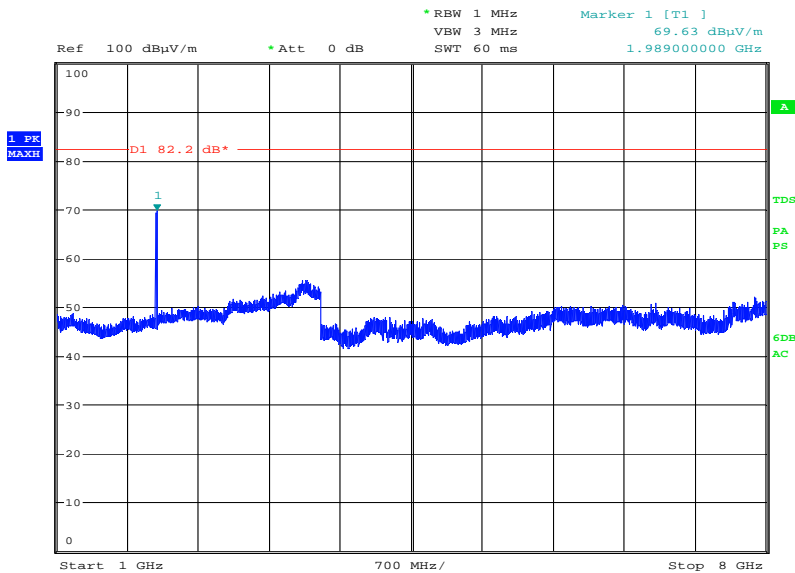
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:15.0 MHz / N:180 kHz - Channel Position T - Band 1 - Range 30 to 1000 MHz



Date: 5.JAN.2003 23:15:19

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:15.0 MHz / N:180 kHz - Channel Position T - Band 2 - Range 1000 to 8000 MHz

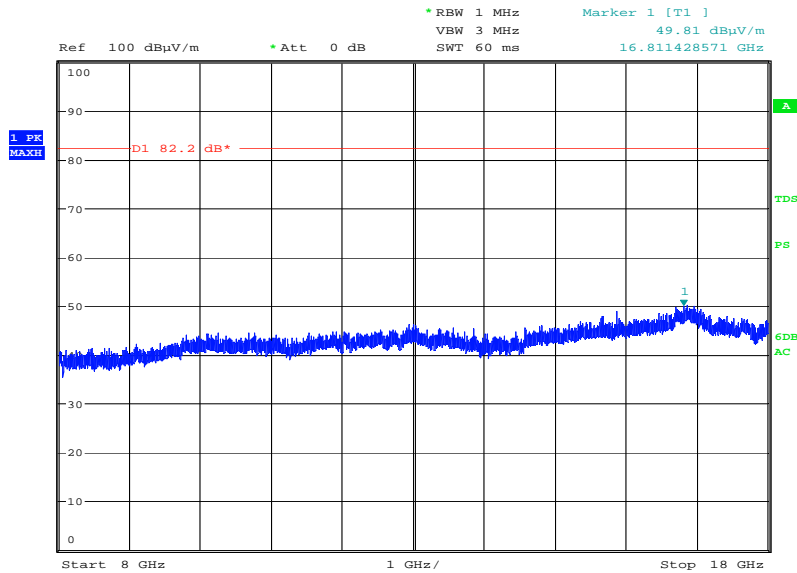


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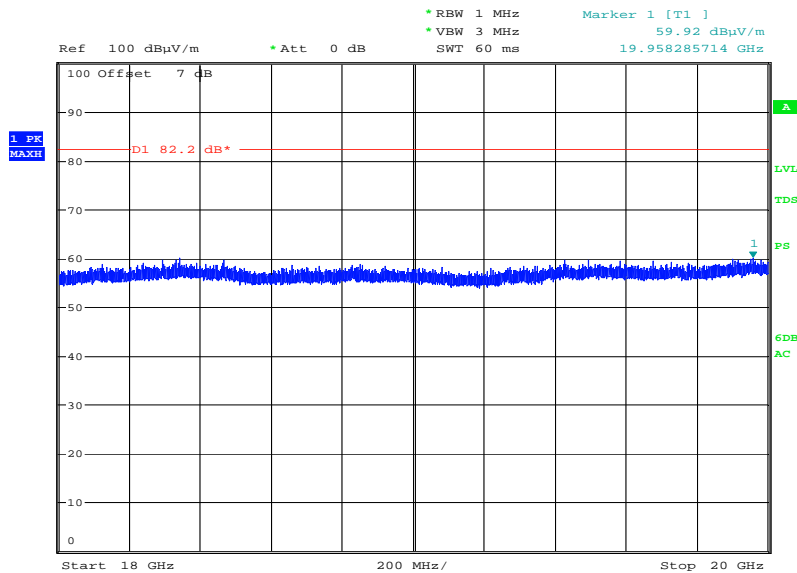
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:15.0 MHz / N:180 kHz - Channel Position T - Band 3 - Range 8000 to 18000 MHz



Date: 5.JAN.2003 20:53:46

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:15.0 MHz / N:180 kHz - Channel Position T - Band 4 - Range 18000 to 20000 MHz

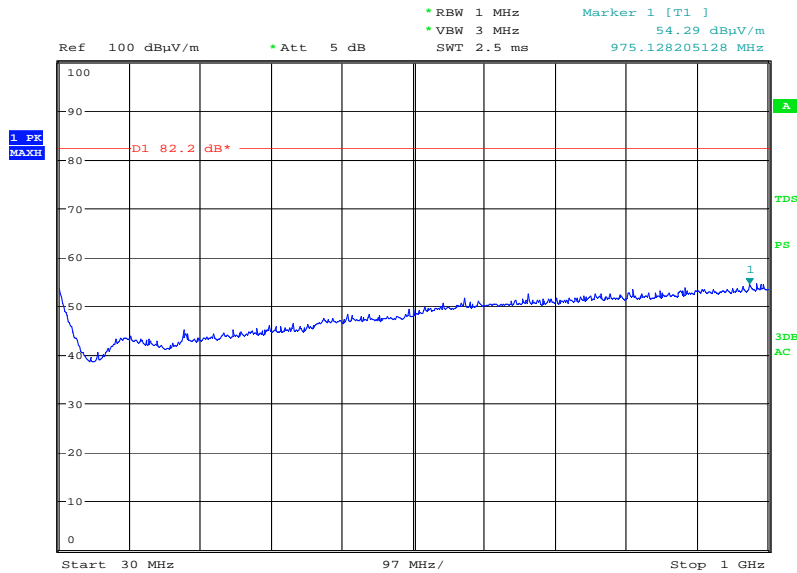


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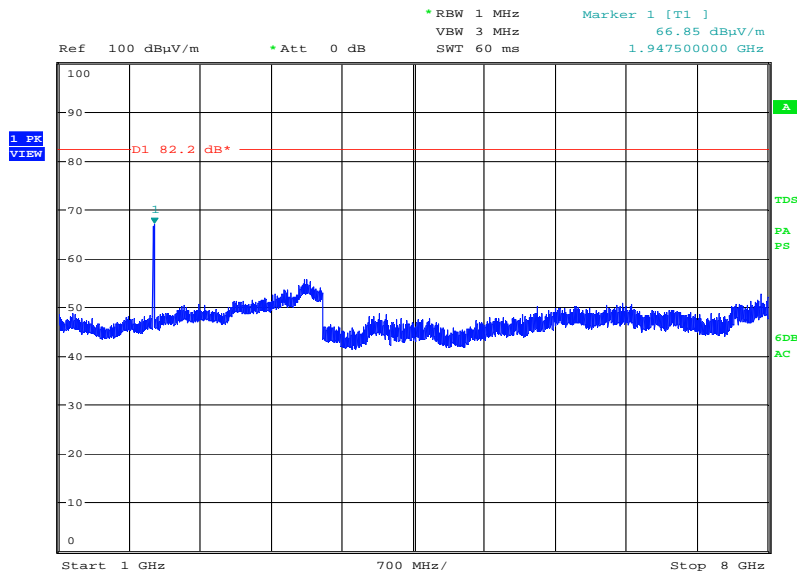
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 1 - Range 30 to 1000 MHz



Date: 5.JAN.2003 23:11:21

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 2 - Range 1000 to 8000 MHz

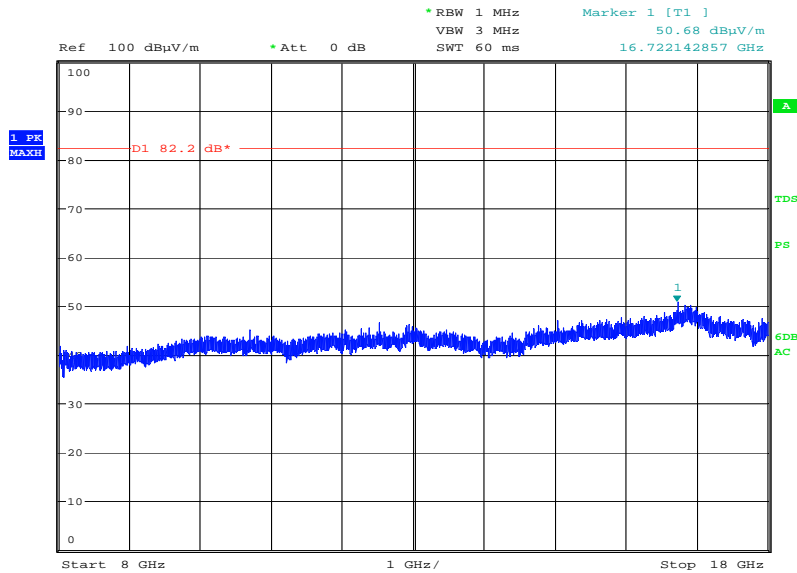


Date: 5.JAN.2003 17:27:42



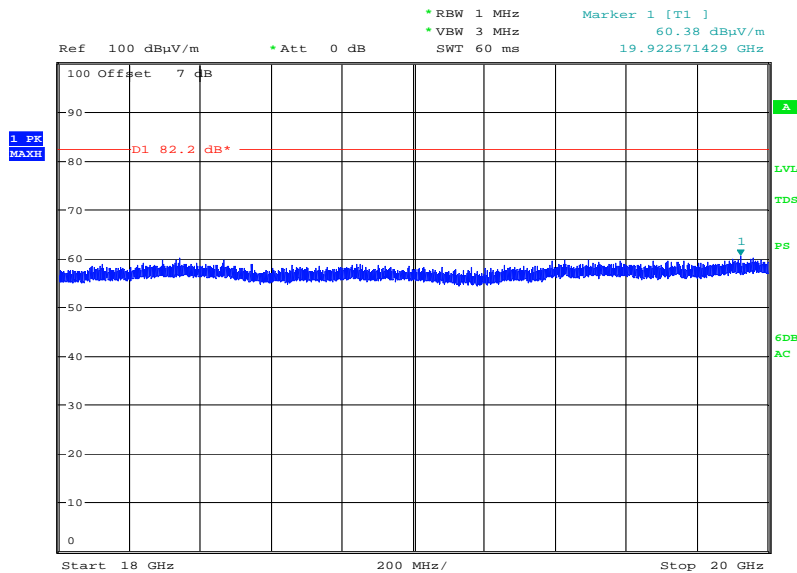
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 3 - Range 8000 to 18000 MHz



Date: 5.JAN.2003 20:46:32

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 4 - Range 18000 to 20000 MHz

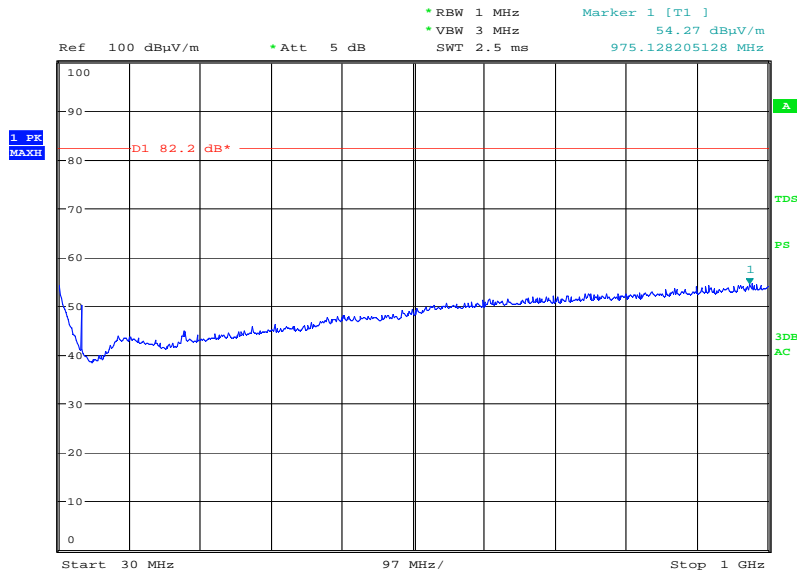


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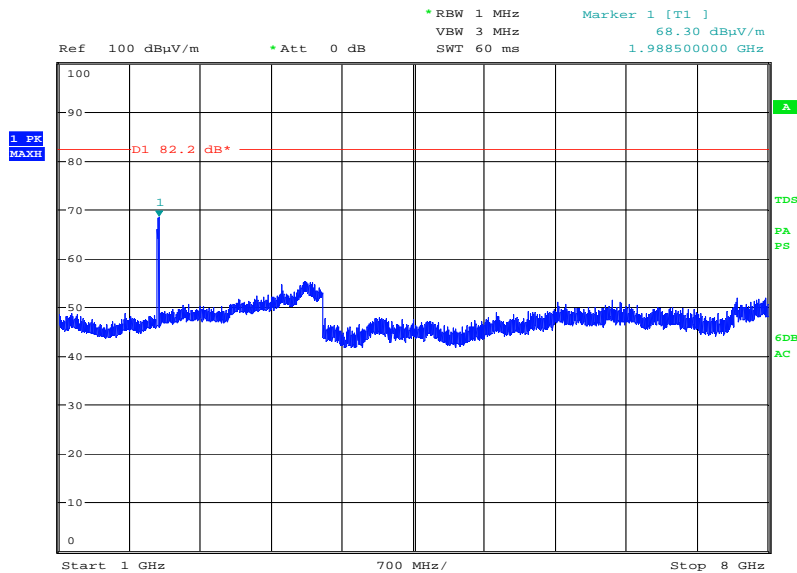
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 1 - Range 30 to 1000 MHz



Date: 5.JAN.2003 23:08:22

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 2 - Range 1000 to 8000 MHz

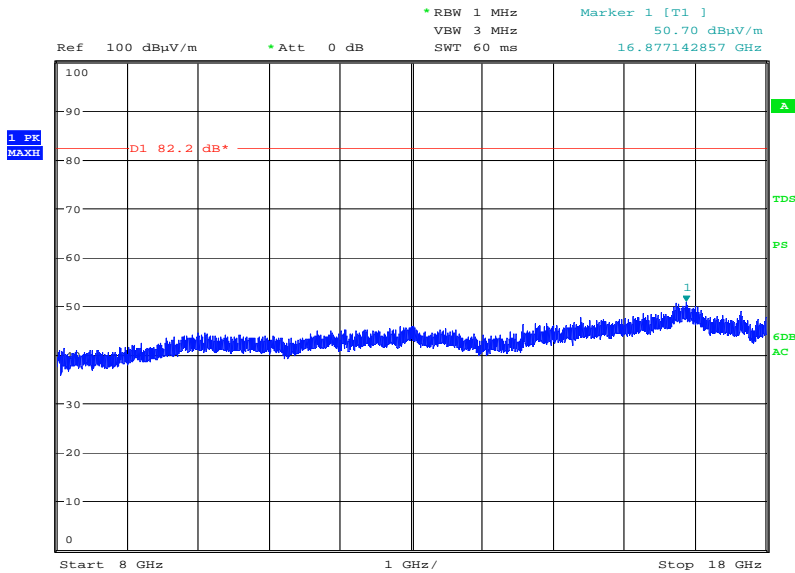


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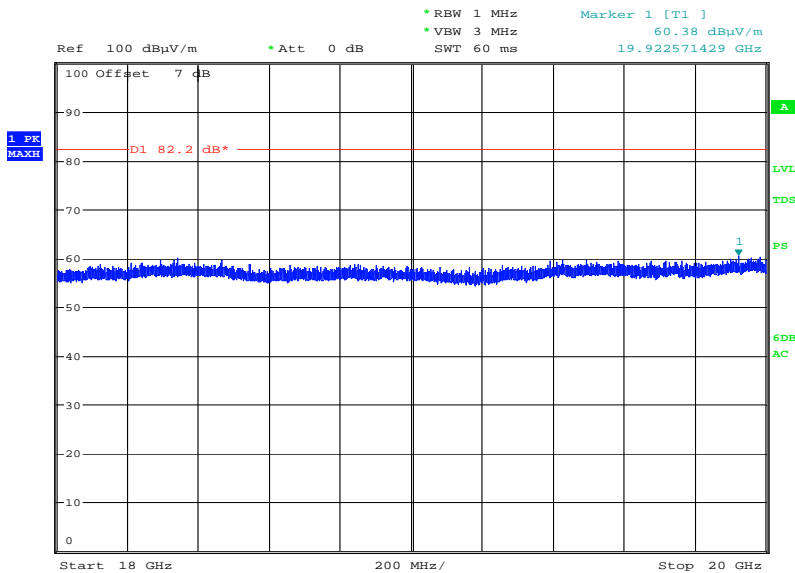
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 3 - Range 8000 to 18000 MHz



Date: 5.JAN.2003 20:50:03

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 4 - Range 18000 to 20000 MHz

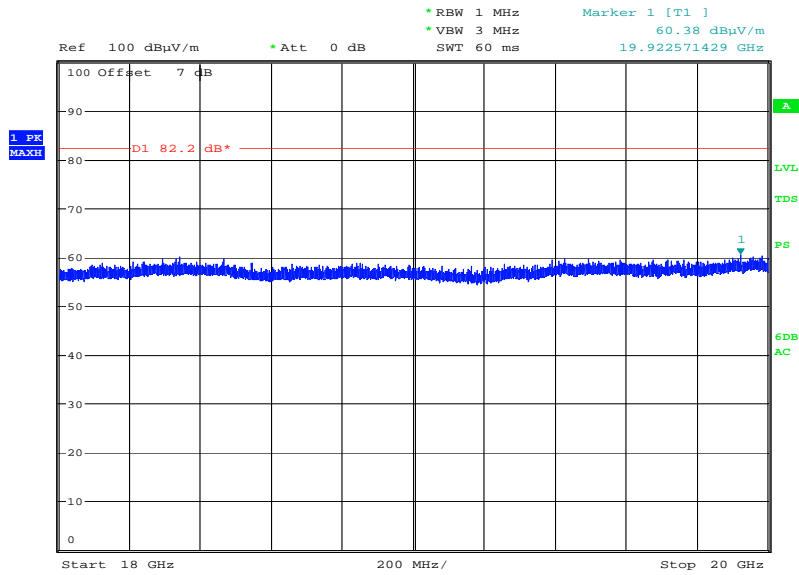


Date: 5.JAN.2003 22:44:57



Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 5 - Range 18000 to 20000 MHz



Date: 5.JAN.2003 22:44:57

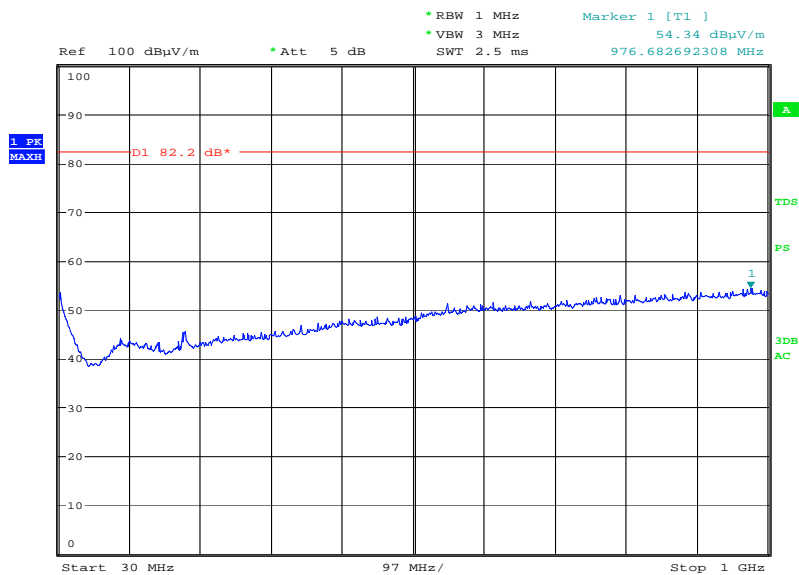


Product Service

Configuration B

Maximum Output Power 46 dBm

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 1 - Range 30 to 1000 MHz

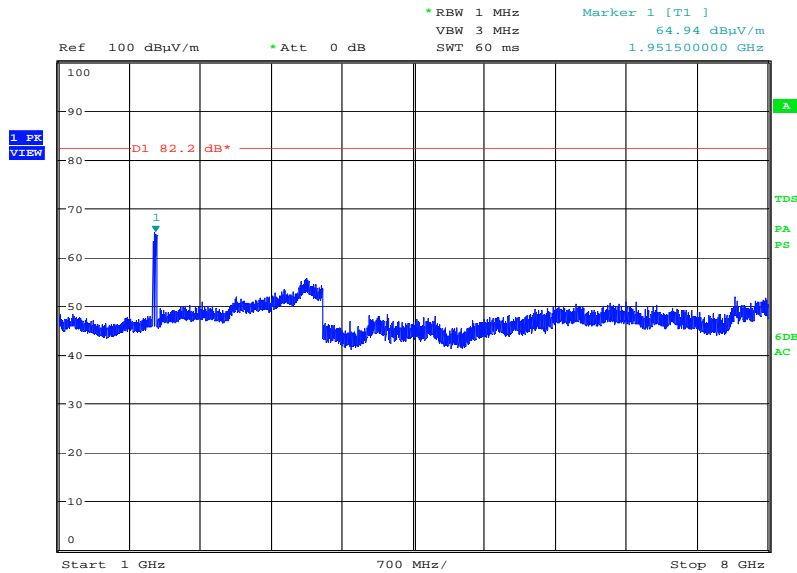


Date: 5.JAN.2003 23:37:13



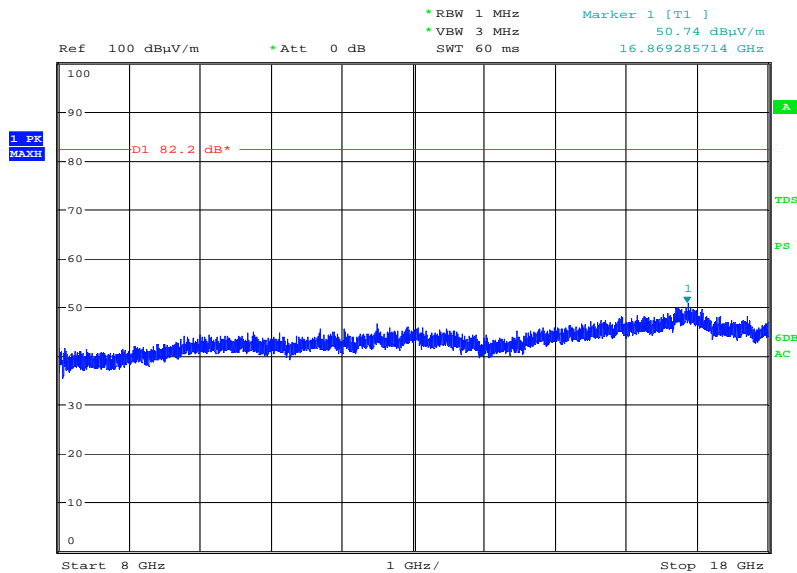
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 2 - Range 1000 to 8000 MHz



Date: 5.JAN.2003 17:55:23

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 3 - Range 8000 to 18000 MHz

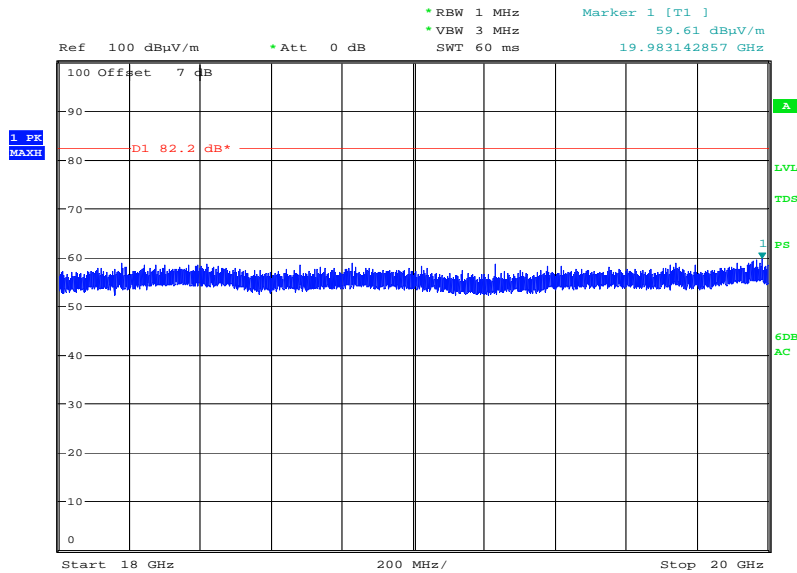


Date: 5.JAN.2003 21:28:58



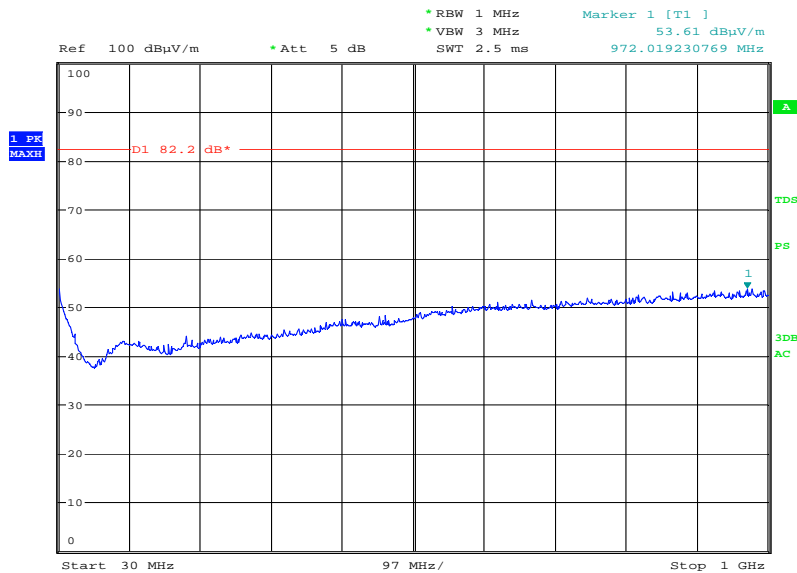
Product Service

**Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position B - Band 4 - Range 18000 to 20000 MHz**



Date: 5.JAN.2003 22:22:12

**Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 1 - Range 30 to 1000 MHz**

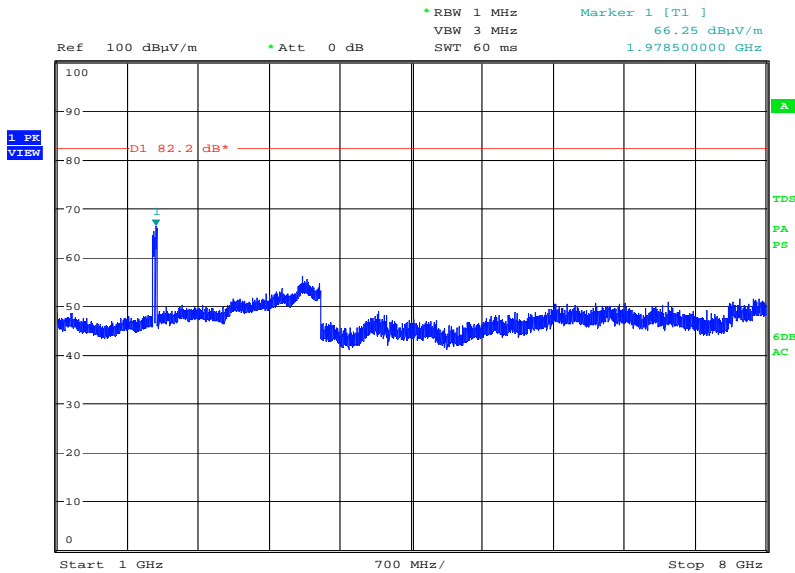


Date: 5.JAN.2003 23:47:07



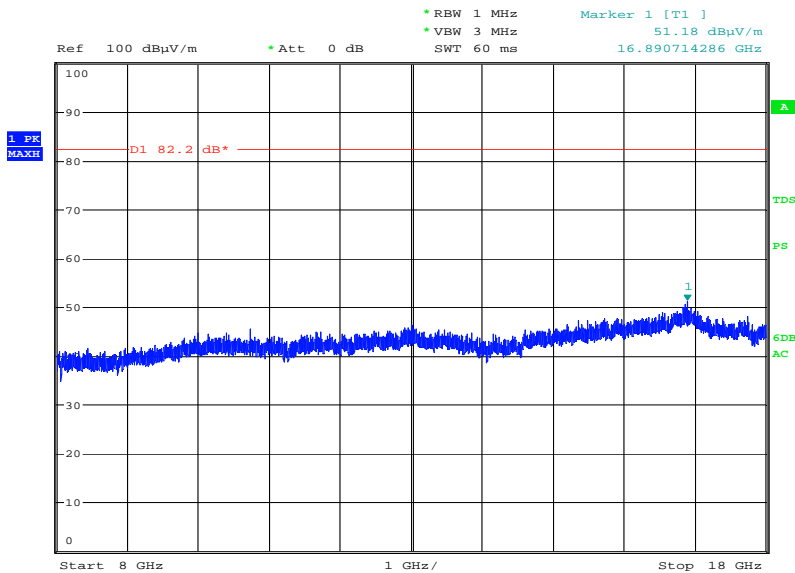
Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 2 - Range 1000 to 8000 MHz



Date: 5.JAN.2003 17:41:30

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier
Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 3 - Range 8000 to 18000 MHz

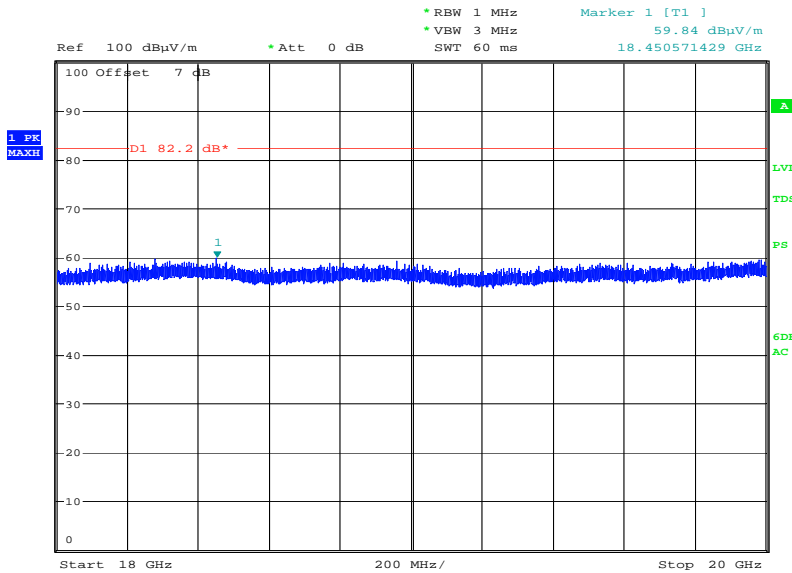


Date: 5.JAN.2003 21:27:04



Product Service

Antenna A - LTE / NB-IoT GB Modulation L:64QAM / N:QPSK - LTE / NB-IoT GB Carrier Bandwidth L:20.0 MHz / N:180 kHz - Channel Position T - Band 4 - Range 18000 to 20000 MHz

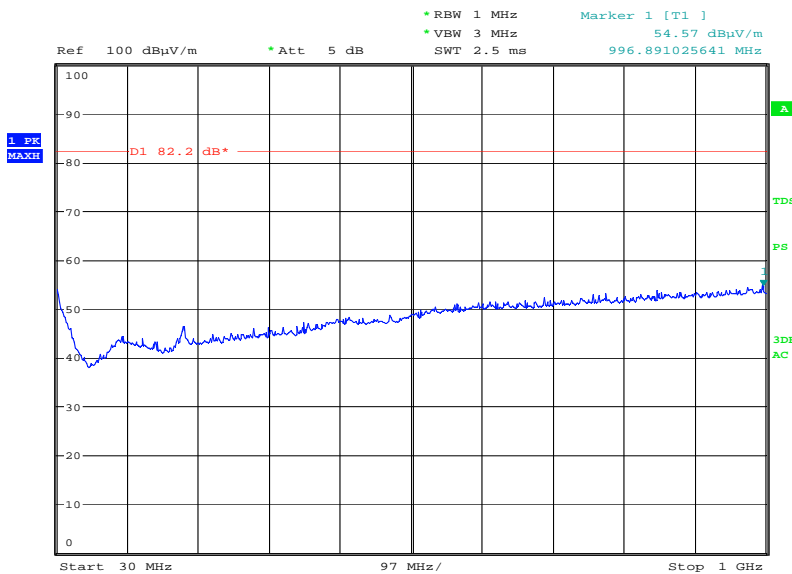


Date: 5.JAN.2003 22:17:51

Configuration C

Maximum Output Power 43 dBm

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position B - Band 1 - Range 30 to 1000 MHz

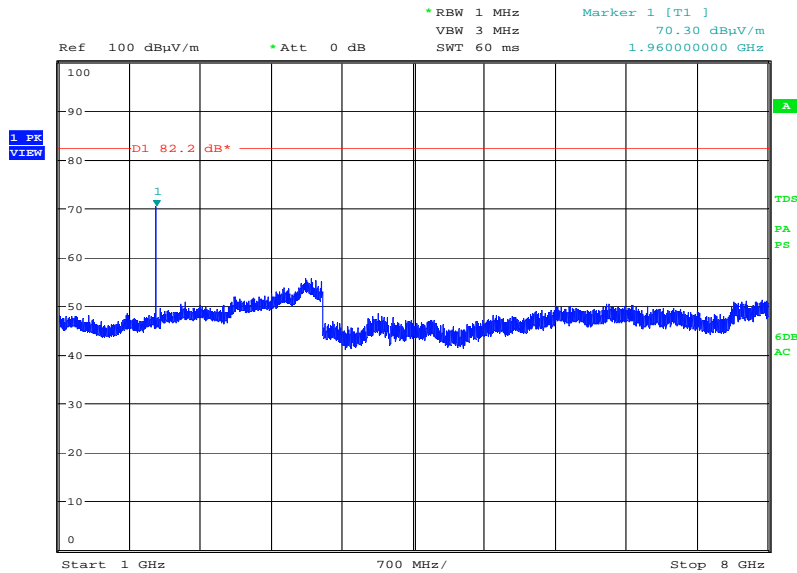


Date: 5.JAN.2003 23:57:38



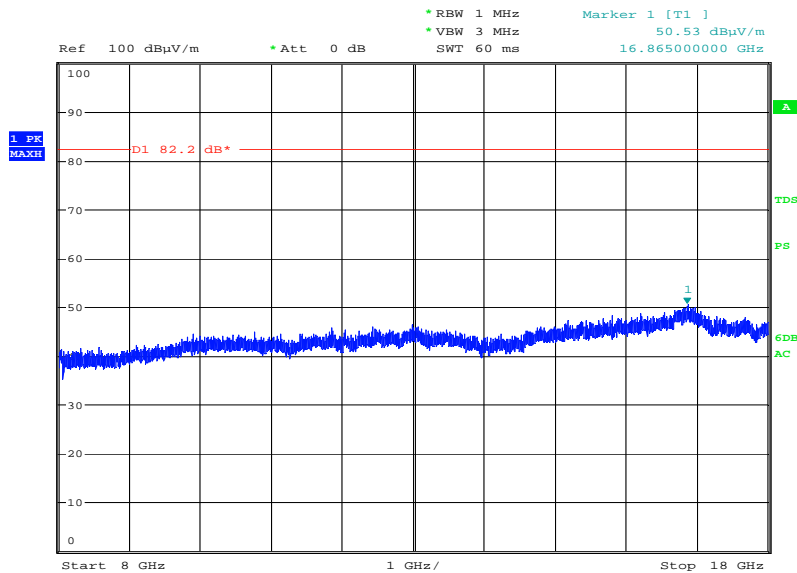
Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position B - Band 2 - Range 1000 to 8000 MHz



Date: 5.JAN.2003 18:24:13

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position B - Band 3 - Range 8000 to 18000 MHz

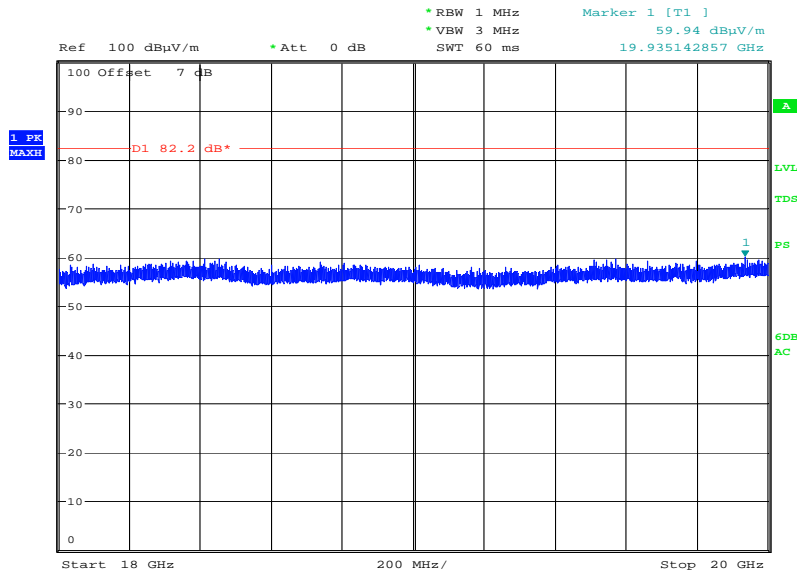


Date: 5.JAN.2003 21:44:20



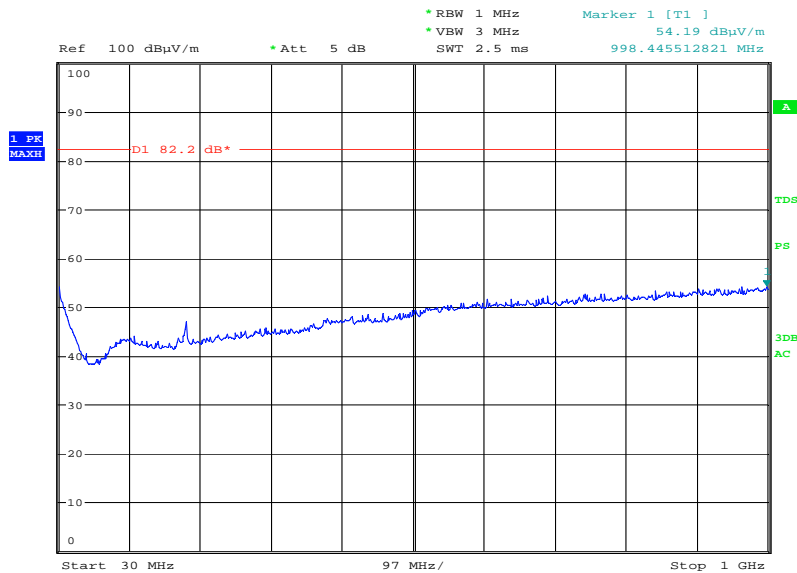
Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position B - Band 4 - Range 18000 to 20000 MHz



Date: 5.JAN.2003 22:14:38

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position M - Band 1 - Range 30 to 1000 MHz

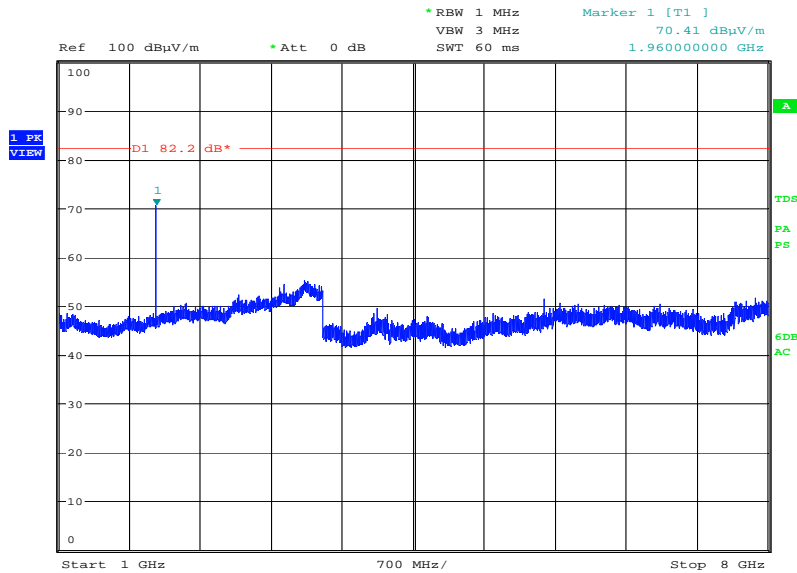


Date: 5.JAN.2003 23:55:10



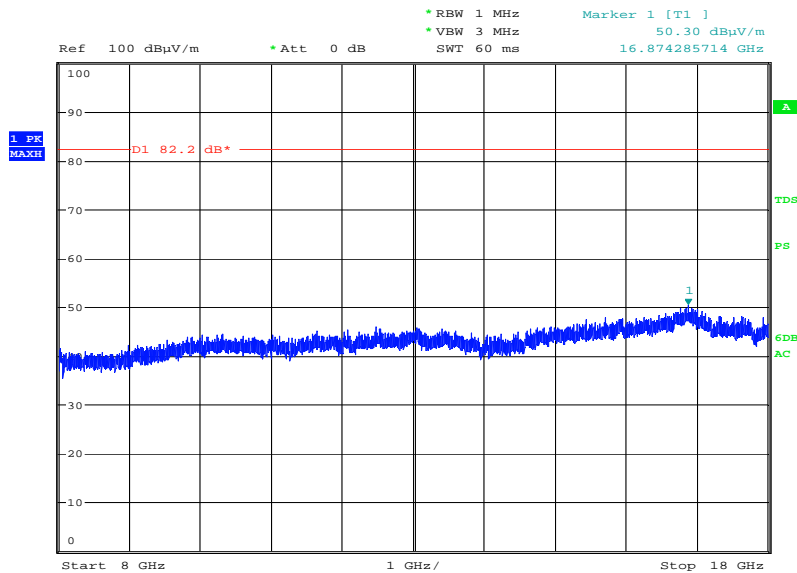
Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position M - Band 2 - Range 1000 to 8000 MHz



Date: 5.JAN.2003 18:17:00

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position M - Band 3 - Range 8000 to 18000 MHz

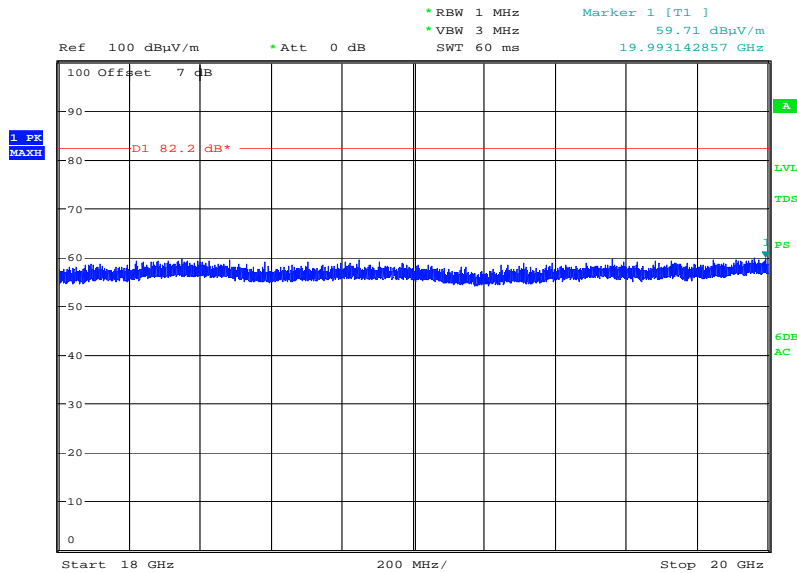


Date: 5.JAN.2003 21:48:09



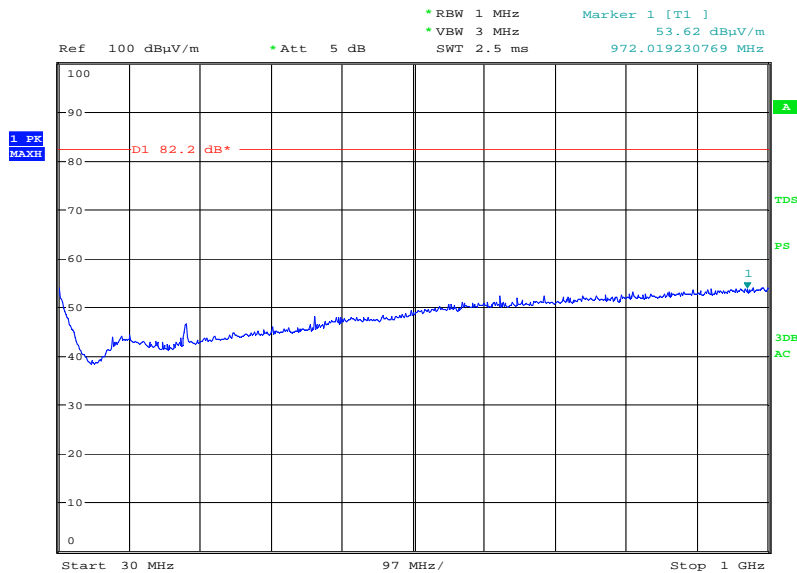
Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position M - Band 4 - Range 18000 to 20000 MHz



Date: 5.JAN.2003 22:11:52

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position T - Band 1 - Range 30 to 1000 MHz

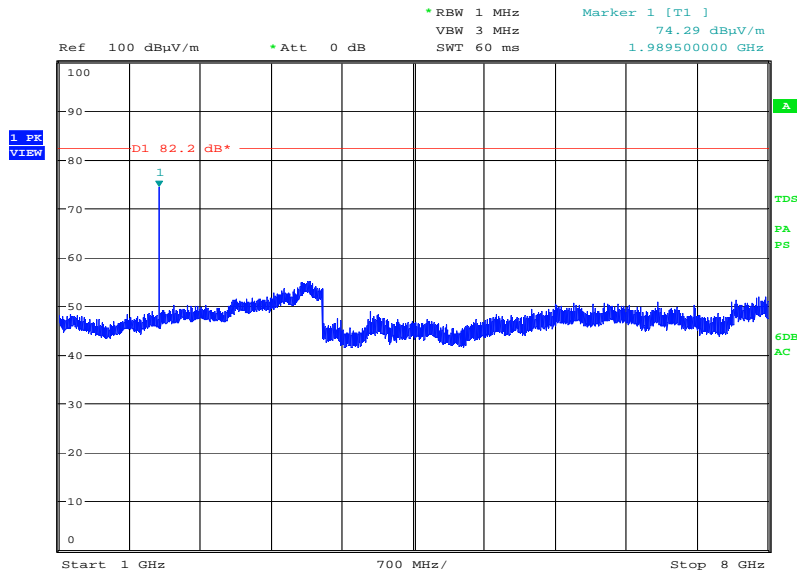


Date: 5.JAN.2003 23:52:47



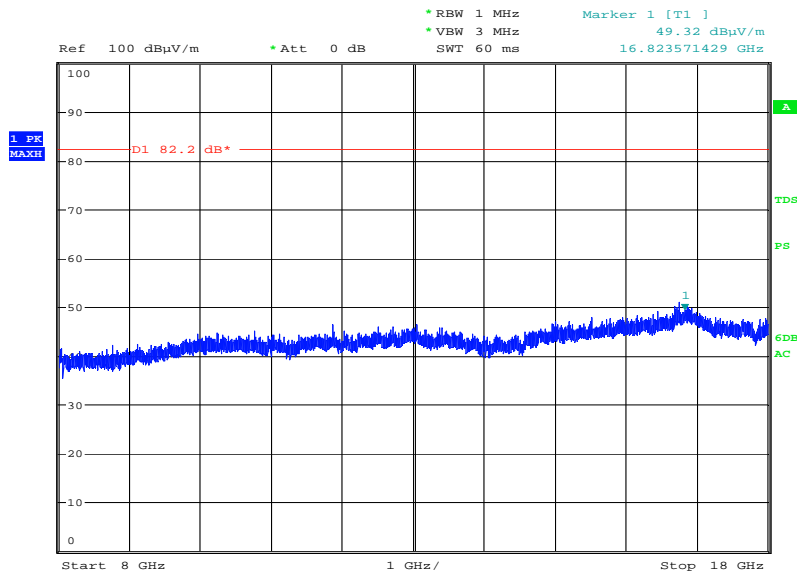
Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position T - Band 2 - Range 1000 to 8000 MHz



Date: 5.JAN.2003 18:26:30

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position T - Band 3 - Range 8000 to 18000 MHz

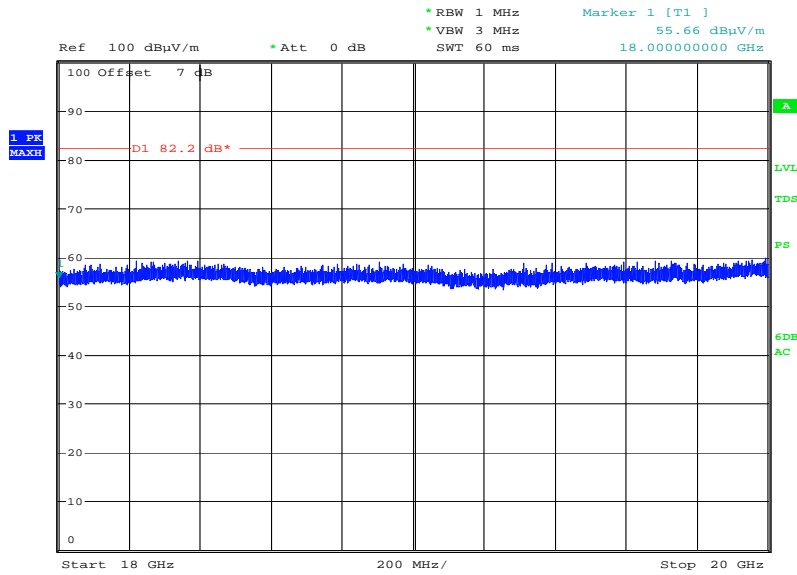


Date: 5.JAN.2003 21:50:38



Product Service

Antenna A - NB-IoT SA Modulation N:QPSK - NB-IoT SA Carrier Bandwidth N:180 kHz - Channel Position T - Band 4 - Range 18000 to 20000 MHz



Date: 5.JAN.2003 22:09:39

Limit	-13dBm / 82.2 dBuV/m
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The EUT does not exceed -13dBm / 82.2 dBuV/m at the measured frequencies.



Product Service

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
Maximum Peak Output Power and Peak to Average Ratio - Conducted					
Spectrum Analyser	Keysight	PXA	MY49430624	12	30-Jun-2018
Spectrum Analyser	Keysight	PXA	MY54410231	12	30-Nov-2018
Network Analyser	Rohde&Schwarz	ZVA40	TE3548	12	02-Oct-2018
Calibration unit	Rohde&Schwarz	ZV-Z54	TE4368	12	19-Sep-2018
Attenuator	Weinschel	47-10-34	BU0642	-	O/P Mon
Attenuator	Weinschel	48-10-43	CH9195	-	O/P Mon
Attenuator	Weinschel	48-30-43	CH9182	-	O/P Mon
RF Load	Weinschel	WA49-40-33	A1565	-	O/P Mon
Power Supply	Delta	BML 901 250/1	BW96903167	-	O/P Mon
Hygromer	RS	TE3220	0427452	12	30-Aug-2018
Digital Volt Meter	White gold	79 III	TE00190	12	24-Nov-2018
Occupied Bandwidth					
Maximum Peak Output Power and Peak to Average Ratio - Conducted					
Spectrum Analyser	Keysight	PXA	MY49430624	12	30-Jun-2018
Spectrum Analyser	Keysight	PXA	MY54410231	12	30-Nov-2018
Network Analyser	Rohde&Schwarz	ZVA40	TE3548	12	02-Oct-2018
Calibration unit	Rohde&Schwarz	ZV-Z54	TE4368	12	19-Sep-2018
Attenuator	Weinschel	47-10-34	BU0642	-	O/P Mon
Attenuator	Weinschel	48-10-43	CH9195	-	O/P Mon
Attenuator	Weinschel	48-30-43	CH9182	-	O/P Mon
RF Load	Weinschel	WA49-40-33	A1565	-	O/P Mon
Power Supply	Delta	BML 901 250/1	BW96903167	-	O/P Mon
Hygromer	RS	TE3220	0427452	12	30-Aug-2018
Digital Volt Meter	White gold	79 III	TE00190	12	24-Nov-2018
Band Edge					
Spectrum Analyser	Keysight	PXA	MY49430624	12	30-Jun-2018
Spectrum Analyser	Keysight	PXA	MY54410231	12	30-Nov-2018
Network Analyser	Rohde&Schwarz	ZVA40	TE3548	12	02-Oct-2018
Calibration unit	Rohde&Schwarz	ZV-Z54	TE4368	12	19-Sep-2018
Attenuator	Weinschel	47-10-34	BU0642	-	O/P Mon
Attenuator	Weinschel	48-10-43	CH9195	-	O/P Mon
Attenuator	Weinschel	48-30-43	CH9182	-	O/P Mon



Product Service

Instrument	Manufacturer	Type No.	TE No.	Calibration Period (months)	Calibration Due
RF Load	Weinschel	WA49-40-33	A1565	-	O/P Mon
Power Supply	Delta	BML 901 250/1	BW96903167	-	O/P Mon
Hygromer	RS	TE3220	0427452	12	30-Aug-2018
Digital Volt Meter	White gold	79 III	TE00190	12	24-Nov-2018
Transmitter Spurious Emissions					
Spectrum Analyser	Keysight	PXA	MY49430624	12	30-Jun-2018
Spectrum Analyser	Keysight	PXA	MY54410231	12	30-Nov-2018
Network Analyser	Rohde&Schwarz	ZVA40	TE3548	12	02-Oct-2018
Calibration unit	Rohde&Schwarz	ZV-Z54	TE4368	12	19-Sep-2018
High Pass filter	K&L	11SH10-3000/X18000-0/0	4412	-	O/P Mon
Attenuator	Weinschel	47-10-34	BU0642	-	O/P Mon
Attenuator	Weinschel	48-10-43	CH9195	-	O/P Mon
Attenuator	Weinschel	48-30-43	CH9182	-	O/P Mon
RF Load	Weinschel	WA49-40-33	A1565	-	O/P Mon
Power Supply	Delta	BML 901 250/1	BW96903167	-	O/P Mon
Waveguide	F.M.I	18-25 GHz	N/A	-	O/P Mon
Hygromer	RS	TE3220	0427452	12	30-Aug-2018
Digital Volt Meter	White gold	79 III	TE00190	12	24-Nov-2018
Radiated Emissions					
Antenna (Bilog)	Schaffner	CBL6143	2904	24	08-Aug-2019
Antenna 18-40GHz (Double Ridge Guide)	Q-Par Angus Ltd	QSH 180K	1511	24	07-Dec-2018
Pre-Amplifier	Phase One	PS04-0086	1533	12	12-Jan-2019
18GHz - 40GHz Pre-Amplifier	Phase One	PS04-0087	1534	12	02-Feb-2019
Screened Room (5)	Rainford	Rainford	1545	36	09-Jun-2018
Turntable Controller	Inn-Co GmbH	CO 1000	1606	-	TU
EMI Test Receiver	Rohde & Schwarz	ESU40	3506	12	22-Nov-2018
Tilt Antenna Mast	matur GmbH	TAM 4.0-P	3916	-	TU
Mast Controller	matur GmbH	NCD	3917	-	TU
1GHz to 8GHz Low Noise Amplifier	Wright Technologies	APS04-0085	4365	12	18-Oct-2018
Double Ridged Waveguide Horn Antenna	ETS-Lindgren	3117	4722	12	01-Mar-2019
Double Ridge Broadband Horn Antenna	Schwarzbeck	BBHA 9120 B	4848	12	12-Feb-2019

N/A – Not Applicable

O/P Mon – Output Monitored with Calibrated Equipment

TU – Traceability Unscheduled



Product Service

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	± 0.1 dB
Conducted Emissions	30 MHz to 20 GHz Amplitude	± 2.3 dB
Frequency Stability	30 MHz to 2 GHz	± 5.0 Hz
Occupied Bandwidth	Up to 20 MHz Bandwidth	± 1.1 Hz
Band Edge	30 MHz to 20 GHz Amplitude	± 2.3 dB
Radiated Emissions, Bilog Antenna, AOATS	30MHz to 1GHz Amplitude	5.1dB*
Radiated Emissions, Horn Antenna, AOATS	1GHz to 40GHz Amplitude	6.3dB*
Worst case error for both Time and Frequency measurement 12 parts in 10 ⁶		



Product Service

SECTION 5

ACCREDITATION, DISCLAIMERS AND COPYRIGHT



Product Service

4.1 ACCREDITATION, DISCLAIMERS AND COPYRIGHT



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

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

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

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Product Service

ANNEX A

MODULE LIST



Product Service

Configurations A-C			
Product	Product No	R-State	Serial No
CT10	LPC102487/1	R1C	TO1F410050
RRUS32 B2	KRC 161 414/1	R1D	CF84457717
Software Version:	CXP9013268%12_FCCTST1.xlf		