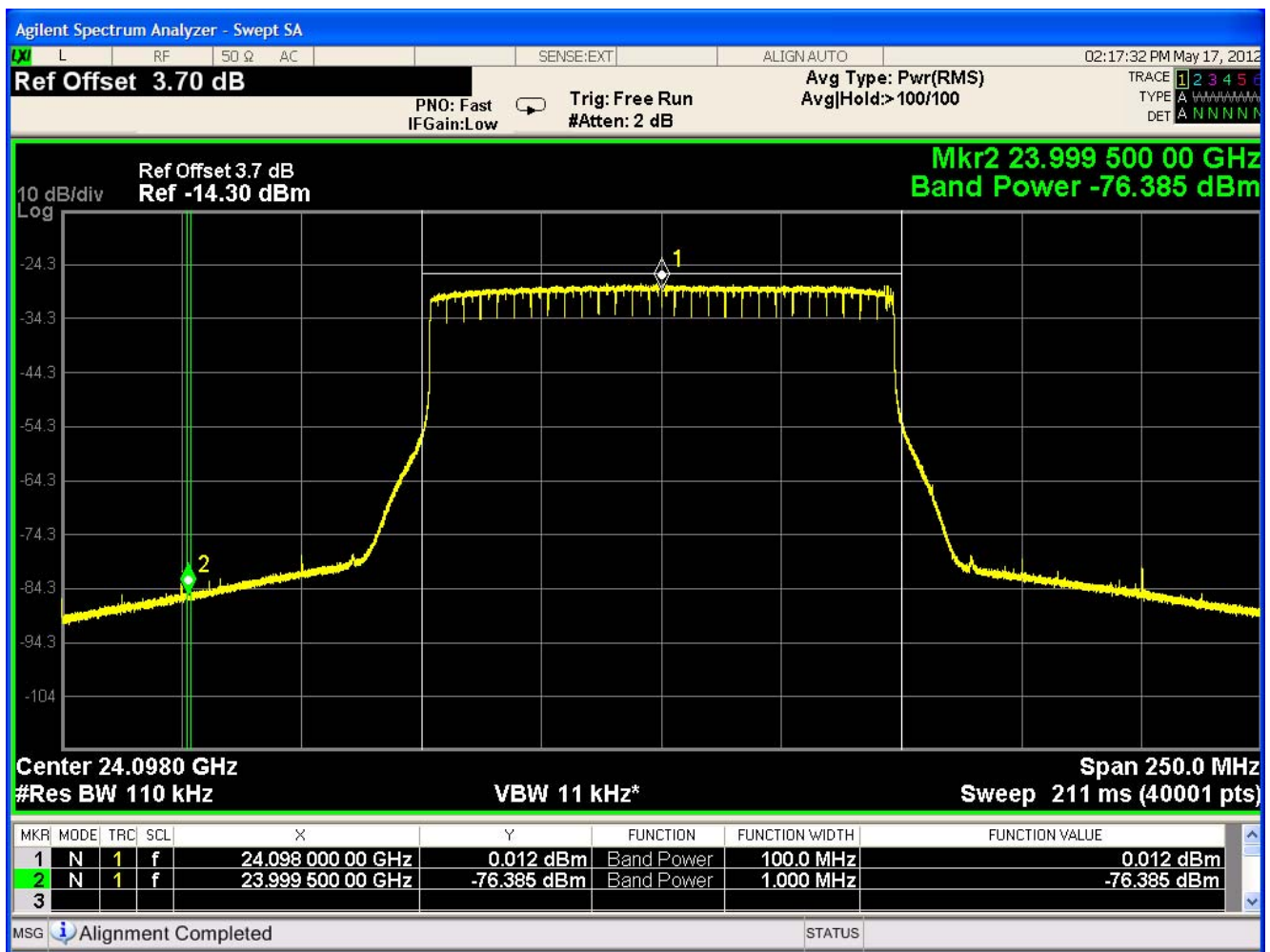


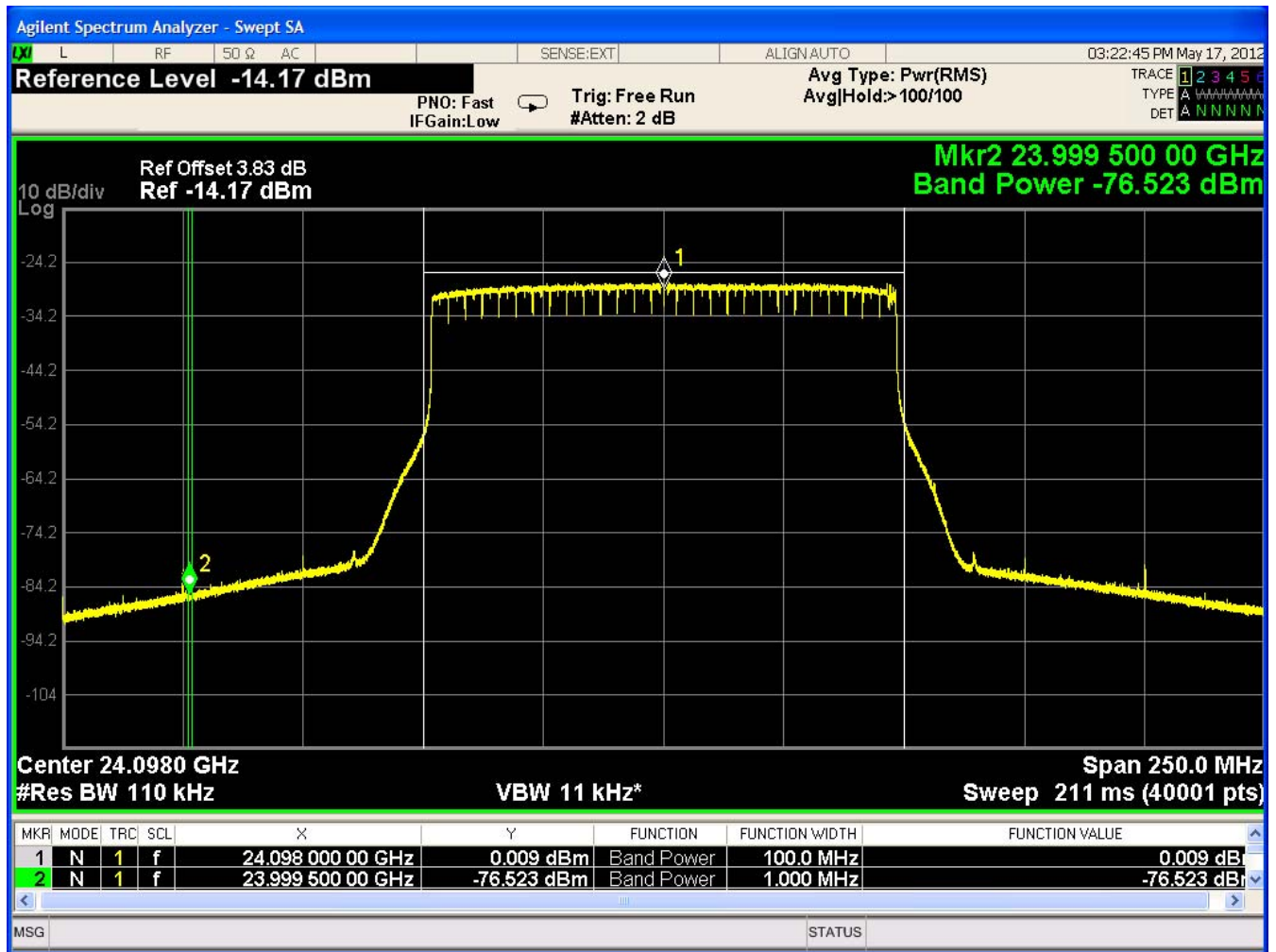
The AirFiber radio is a highly efficient 880 carrier OFDM radio utilizing low inter-carrier spacing (110 kHz) and higher order 256QAM modulation with two transmitters and two receivers in a MIMO configuration. The output stages have been designed for ultra-low distortion for both the fidelity of the 256QAM modulation, and to meet the spectral emissions at the band edges. These design choices lead to a highly spectrally efficient system with a very sharp roll off at the band edges. Due to the sharp roll off, the spectral measurements are done on an Agilent PXA spectrum analyzer with band power measurements enabled to demonstrate compliance. The main carrier power is set to nominal output to meet 2500mV/m at 3m (as demonstrated in the radiated tests). The measured fundamental power is normalized to 0dB(m) so the band edge rejection can be observed directly. All measurements use average power (RMS) detectors. Out-of-band measurement bandwidths are 1 MHz.

On the lowest frequency (shown below), both transmitter outputs are shown to meet the general radiation emission limits of part 15.209 limit of 500uV/m at 3m (which is 74dB below the fundamental output of 2500mV/m) in the first 1MHz below 24.0GHz.

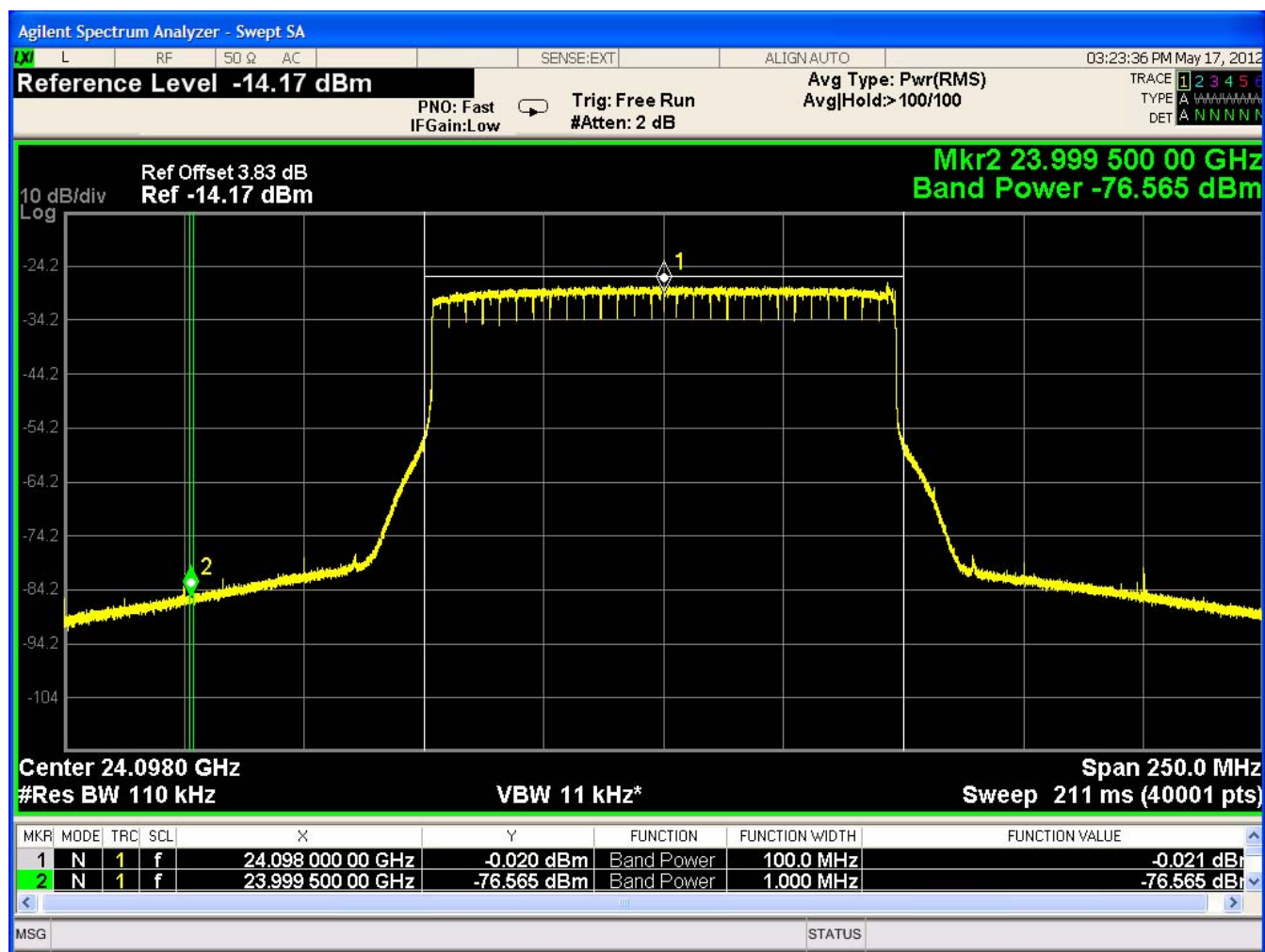
TX0 – QPSK Modulation



TX1 – QPSK Modulation

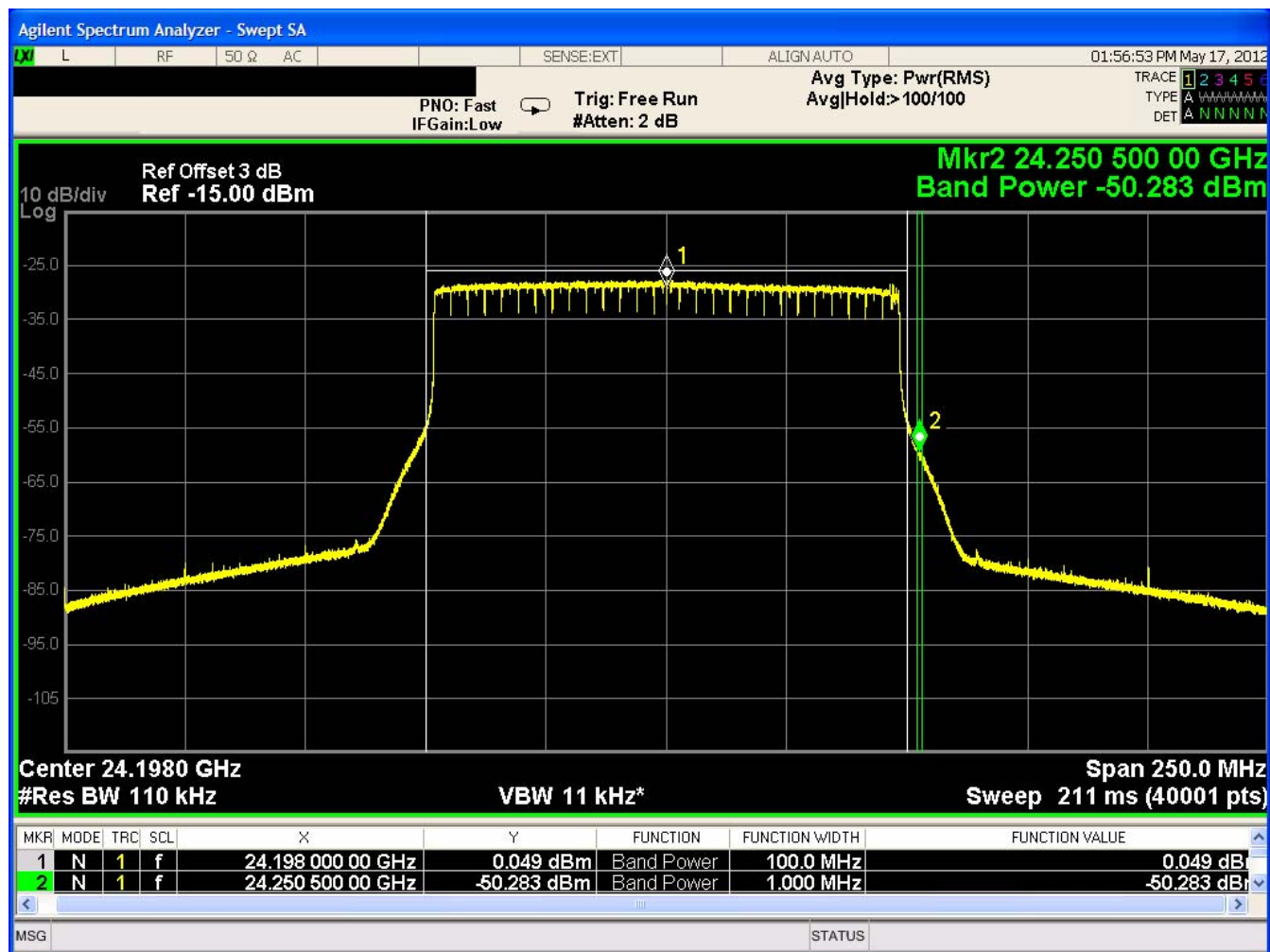


TX1 – 256QAM Modulation

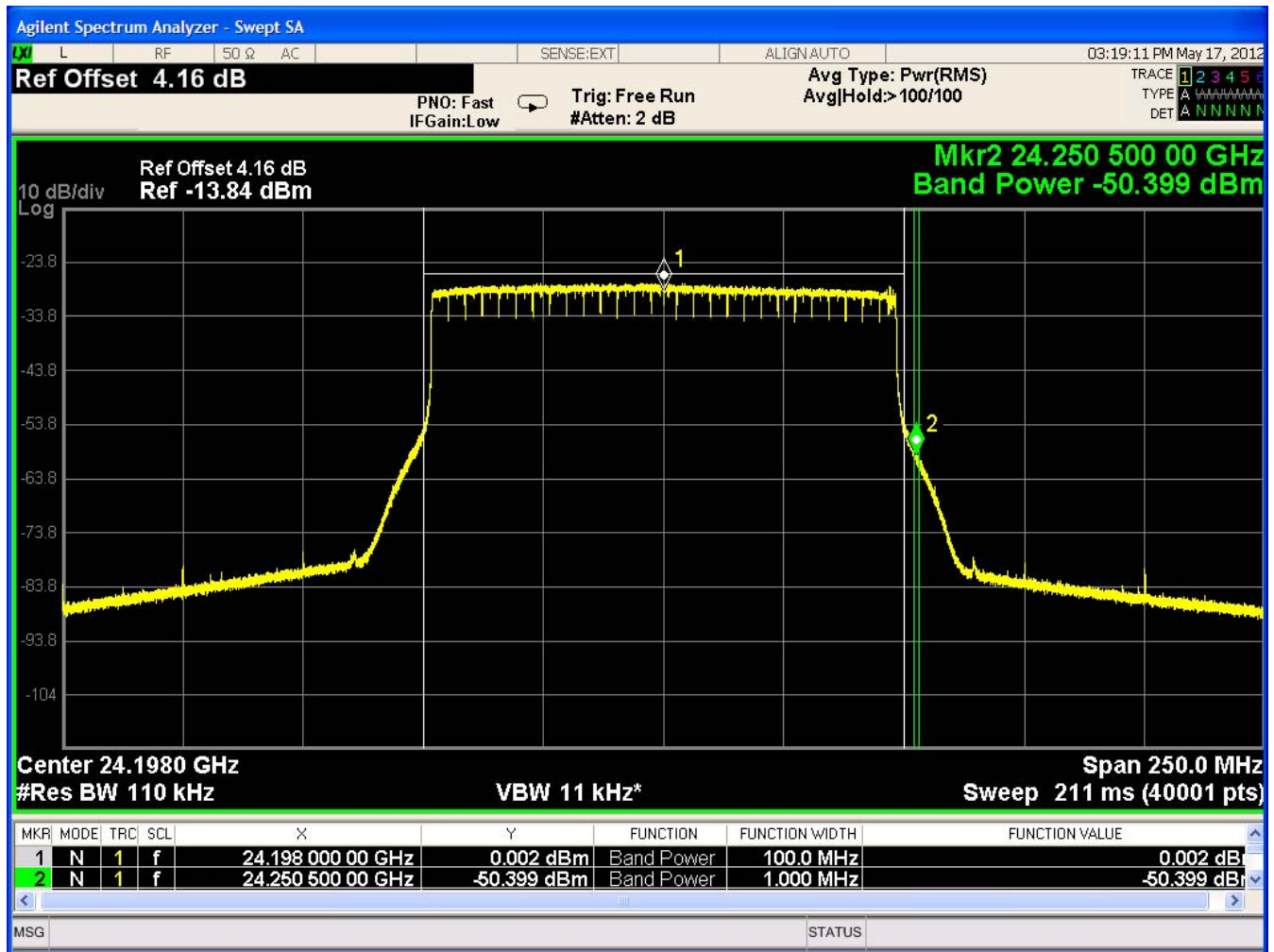


On the upper frequency both transmitters meet the specification of part 15.249(d) where out-of-band emissions are 50dB below the fundamental power in the first 1 MHz above 24.25GHz.

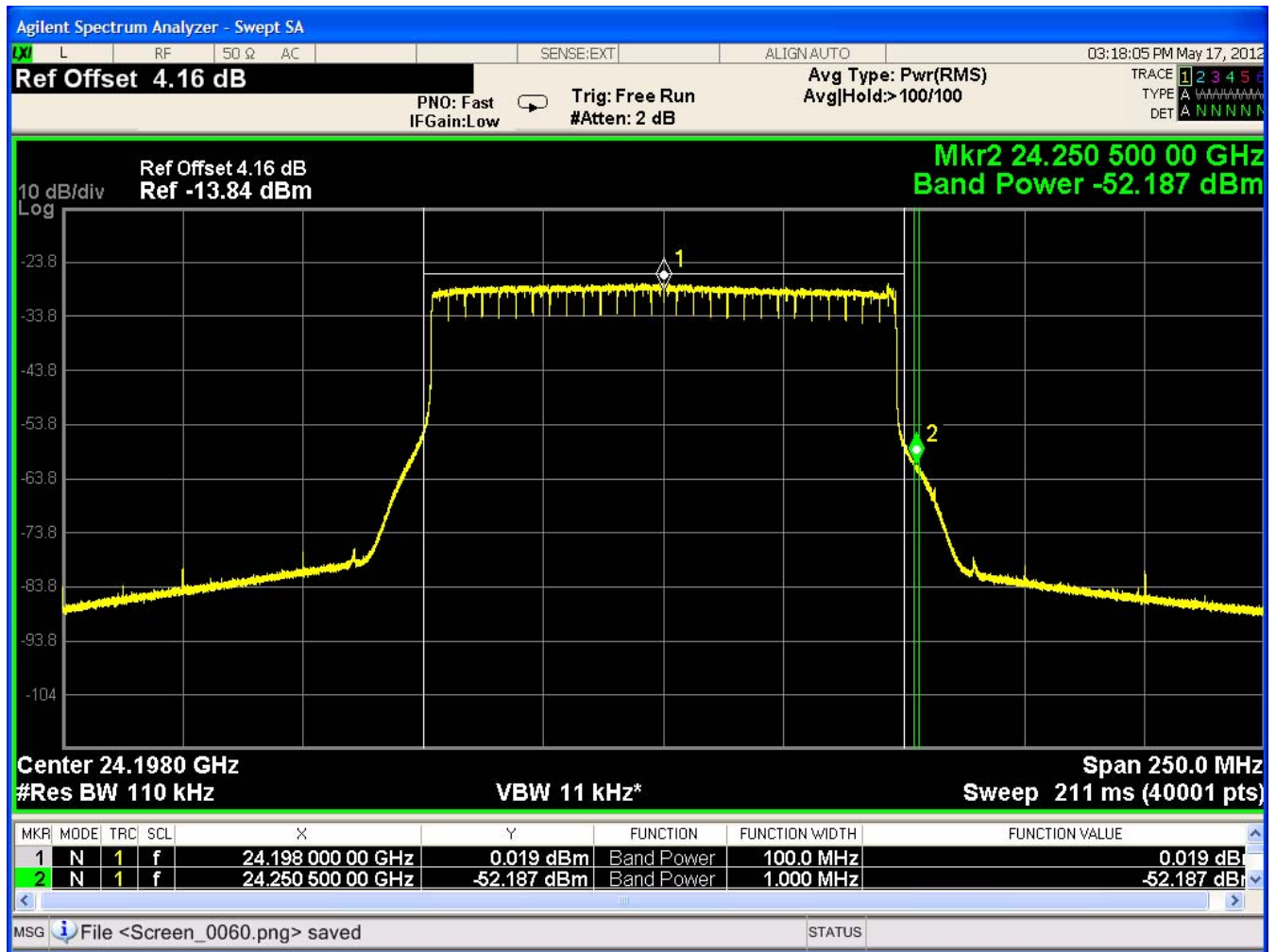
TX0 – QPSK Modulation



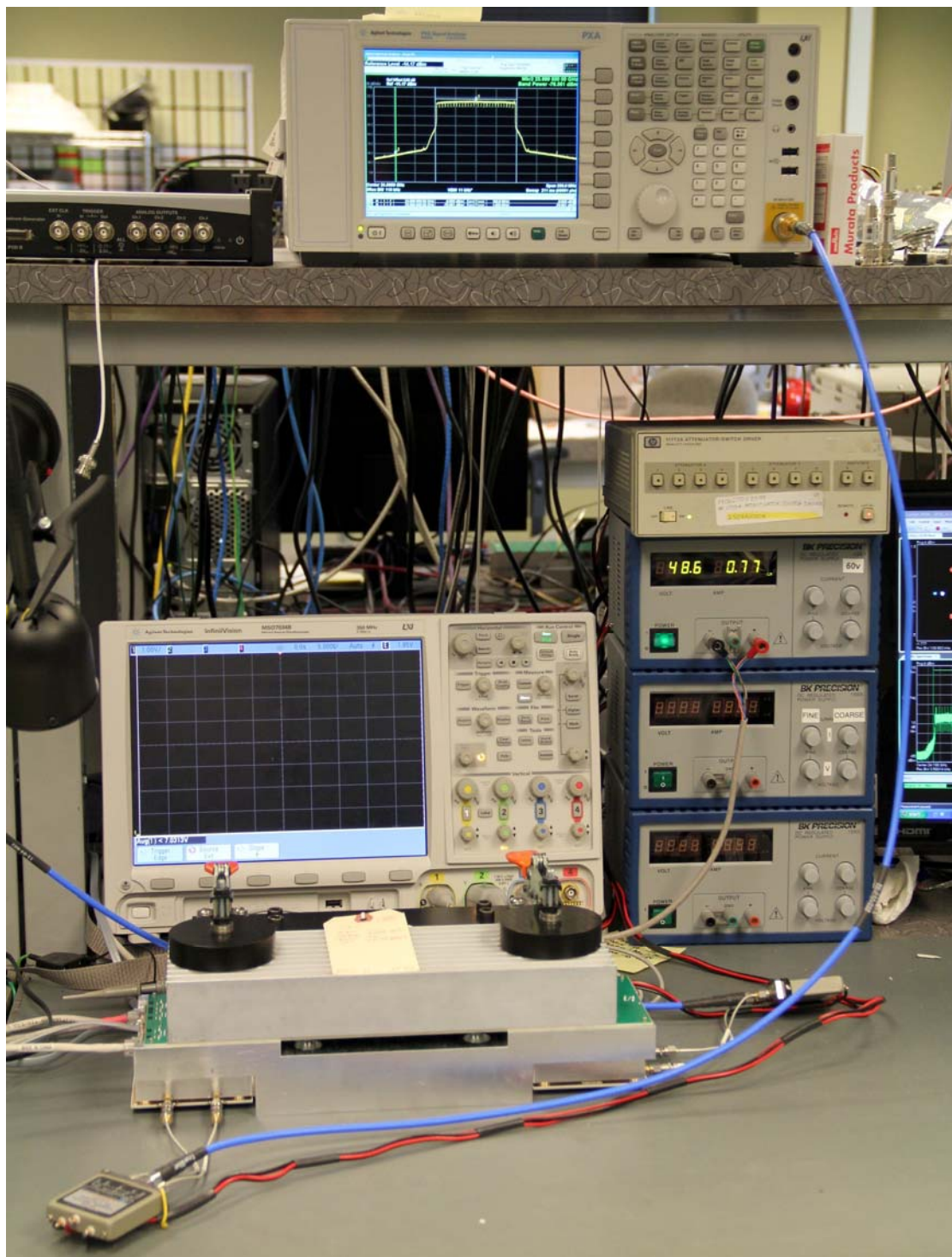
TX1 – QPSK Modulation



TX1 – 256QAM Modulation



The test station configuration is shown below. The radio board uses a PCB etched OMT to launch into the fixture waveguide where a second PCB OMT picks up and conducts the signal to the measuring analyzer. A 3dB attenuator pad, RF switch (0.7dB loss) and 1m coaxial cable (2.1dB loss) is in line between the test fixture connector and the measuring analyzer.





Agilent Technologies

Agilent Technologies (Malaysia) Sdn.Bhd.
(012767-W)
Bayan Lepas Free Industrial Zone
11900 Penang, Malaysia



5962-0476

Certificate Of Calibration

Certificate No: 2231834-2557113-1

Manufacturer: Agilent Technologies

Model No: N9030A

Options Installed With Specifications: 526 B1X EP1 FSA LFE LNP MPB NFE NUL PFR

Description: Spectrum Analyzer

Serial No: MY49432012

Date of Calibration: 29-NOV-2011

Temperature: (24 ± 4) °C

Procedure: LINE CAL - EPSG1030142

Humidity: (20 to 70)% RH

This certifies that the above product was calibrated in compliance with a quality system registered to ISO 9001:2008, using applicable Agilent Technologies' procedures.

As Received: Factory tested. No incoming data available.

As Shipped Conditions: At the completion of the calibration, measured values were IN SPECIFICATION at the points tested.

These calibration procedures and test points are those recommended in a procedure developed by Agilent.

Remarks or special requirements:

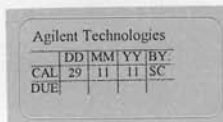
Traceability Information: Traceability is to the International System of Units (SI), consensus standards or ratio type measurements through national standards realized and maintained by the NIST U.S., NRC Canada, NMIJ Japan, KRISS Korea, Euramet members (NPL, PTB, etc.), NML-SIRIM in Malaysia or other National Measurement Institutes signatories to the CIPM MRA. Supporting documentation relative to traceability is available for review by appointment. This report shall not be reproduced, except in full, without prior written approval of the calibration facility.

Calibration Equipment Used:

Date used: Date equipment used in this calibration.

Model Number	Model Description	Trace Number	Date Used	Cal Due Date
E8267D	PSG DIGITAL SIGNAL GENERATOR	PA9156	29-NOV-2011	31-MAR-2012
E4433B	Signal Generator	P9197	29-NOV-2011	06-SEP-2012
E8257D	PSG ANALOG SIGNAL GENERATOR	PA9623	29-NOV-2011	10-DEC-2011
ET_51482	Reference Oscillator	PA9638	29-NOV-2011	26-FEB-2012
8481D	Power Sensor	P9855	29-NOV-2011	10-JAN-2012
ET_51482	Reference Oscillator	PA9483	29-NOV-2011	24-FEB-2012
8485A	Power Sensor	PA9068	29-NOV-2011	08-JUL-2012
83650B	Series Sweep Signal Generator	24957	29-NOV-2011	25-JUN-2012
8481D	Power Sensor	P9728	29-NOV-2011	12-JUL-2012
ET_51482	Reference Oscillator	84551	29-NOV-2011	12-AUG-2012
E4419B	EPM Series Power Meter	24831	29-NOV-2011	10-AUG-2012
E4419B	EPM Series Power Meter	24832	29-NOV-2011	10-AUG-2012

Print Date: 01-DEC-2011



Tay Eng Su
Quality Manager



Agilent Technologies

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11900 Penang, Malaysia



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Certificate No: 2231834-2557113-1

Calibration Equipment Used:

Date used: Date equipment used in this calibration.

<u>Model Number</u>	<u>Model Description</u>	<u>Trace Number</u>	<u>Date Used</u>	<u>Cal Due Date</u>
8485A	Power Sensor	P9361	29-NOV-2011	25-AUG-2012
8753ES	Network Analyzer	P9963	26-NOV-2011	03-JAN-2012
8481D	Power Sensor	P9054	26-NOV-2011	29-FEB-2012
34401A	Digital Multimeter	PA9371	26-NOV-2011	21-APR-2012
E4419B	EPM Series Power Meter	24542	26-NOV-2011	23-FEB-2012
E4405B	Spectrum Analyzer	PA9645	26-NOV-2011	26-MAR-2012
8485A	Power Sensor	84279	26-NOV-2011	14-OCT-2012
E4419B	EPM Series Power Meter	24844	28-NOV-2011	30-DEC-2011
E4419B	EPM Series Power Meter	24841	28-NOV-2011	30-DEC-2011
11903B	2.4mm Female to N-Female Adapter	P9545	28-NOV-2011	17-JAN-2012
8482A	Power Sensor	P9074	28-NOV-2011	18-JAN-2012
E4438C	Signal Generator	PA9452	28-NOV-2011	02-MAY-2012
8648D	Signal Generator	P9203	28-NOV-2011	29-JUN-2012
ET_51482	Reference Oscillator	84318	28-NOV-2011	23-JUL-2012
ET_51482	Reference Oscillator	84362	28-NOV-2011	02-AUG-2012
34401A	Digital Multimeter	PA9243	28-NOV-2011	24-JUN-2012
ET_51482	Reference Oscillator	83868	28-NOV-2011	12-AUG-2012
8481D	Power Sensor	14503	28-NOV-2011	23-SEP-2012
11903B	2.4mm Female to N-Female Adapter	P9296	28-NOV-2011	24-SEP-2012
E4419B	EPM Series Power Meter	P9680	28-NOV-2011	11-SEP-2012
8494H	Step Attenuator	PA9087	28-NOV-2011	24-MAY-2012
8496H	Step Attenuator	PA9088	28-NOV-2011	25-MAY-2012
E4419B	EPM Series Power Meter	P9712	28-NOV-2011	12-JUN-2012
8485A	Power Sensor	PA9500	28-NOV-2011	28-APR-2012
E4438C	Signal Generator	PA9433	28-NOV-2011	03-APR-2012
ET_51482	Reference Oscillator	PA9692	28-NOV-2011	03-JUL-2012
E4438C	Signal Generator	P9598	28-NOV-2011	01-AUG-2012
8485A	Power Sensor	P9071	28-NOV-2011	16-SEP-2012
E4419B	EPM Series Power Meter	P9641	28-NOV-2011	24-JUL-2012
ET_51482	Reference Oscillator	PA9489	28-NOV-2011	02-APR-2012
8487A	Power Sensor	P9377	28-NOV-2011	25-APR-2012
ET_51482	Reference Oscillator	83883	28-NOV-2011	15-DEC-2011
8487A	Power Sensor	P9373	28-NOV-2011	20-AUG-2012
83650B	Series Sweep Signal Generator	P9089	28-NOV-2011	11-JAN-2012
34401A	Digital Multimeter	24984	27-NOV-2011	19-NOV-2012
ET_51482	Reference Oscillator	PA9351	27-NOV-2011	23-FEB-2012
8648D	Signal Generator	P9347	27-NOV-2011	11-JAN-2012
8482A	Power Sensor	P9119	27-NOV-2011	08-JUL-2012
8496G	Step Attenuator	PA9118	27-NOV-2011	13-MAY-2012
ET_51482	Reference Oscillator	P9645	27-NOV-2011	02-AUG-2012
8494G	Step Attenuator	P9328	27-NOV-2011	26-AUG-2012
8496G	Step Attenuator	P9329	27-NOV-2011	27-AUG-2012
ET_51482	Reference Oscillator	PA9297	27-NOV-2011	25-JUL-2012
E4433B	Signal Generator	P9253	27-NOV-2011	05-SEP-2012
E4419B	EPM Series Power Meter	P9996	27-NOV-2011	16-OCT-2012
EPM-442A	POWER METER	P9885	27-NOV-2011	16-OCT-2012
500-18701	LOW PHASE NOISE SYNTHSIZER	PA9457	28-NOV-2011	01-AUG-2012
8665B	Synthesized Signal Generator	25000	28-NOV-2011	10-JAN-2012
ET_51482	Reference Oscillator	P9432	28-NOV-2011	02-APR-2012



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Calibration Equipment Used:

Date used: Date equipment used in this calibration.

<u>Model Number</u>	<u>Model Description</u>	<u>Trace Number</u>	<u>Date Used</u>	<u>Cal Due Date</u>
53132A	Universal Counter	24815	28-NOV-2011	30-JUN-2012
8663A	Synthesized Signal Generator	P9394	28-NOV-2011	10-FEB-2012
33220A	Function/Arbitrary Waveform Generator	PA9323	28-NOV-2011	21-SEP-2012
E8257D	PSG ANALOG SIGNAL GENERATOR	PA9632	28-NOV-2011	08-JAN-2012
E4419B	EPM Series Power Meter	P9964	28-NOV-2011	14-JUN-2012
ET_51482	Reference Oscillator	PA9036	28-NOV-2011	01-APR-2012
ET_51482	Reference Oscillator	P9976	28-NOV-2011	25-FEB-2012
E4413A	Power Sensor	PA9542	28-NOV-2011	29-JUL-2012
E4413A	Power Sensor	PA9588	28-NOV-2011	19-AUG-2012
53132A	Universal Counter	PA9469	29-NOV-2011	05-DEC-2011
8110A	150MHz Pulse Generator	P9205	29-NOV-2011	24-FEB-2012
54831B	4Gs/s, 600MHz 4CH DSO	P9136	29-NOV-2011	06-APR-2012
ET_51482	Reference Oscillator	84605	29-NOV-2011	20-JAN-2012
E4419B	EPM Series Power Meter	P9722	29-NOV-2011	07-JUL-2012
8481D	Power Sensor	PA9505	29-NOV-2011	26-MAY-2012
83650B	Series Sweep Signal Generator	25064	29-NOV-2011	17-JUL-2012
8481D	Power Sensor	22772	29-NOV-2011	04-APR-2012
33220A	Function/Arbitrary Waveform Generator	PA9388	29-NOV-2011	20-SEP-2012
E4438C	Signal Generator	PA9014	27-NOV-2011	15-MAR-2012
8485A	Power Sensor	84225	27-NOV-2011	12-APR-2012
E4419B	EPM Series Power Meter	PA9295	27-NOV-2011	16-APR-2012
ET_51482	Reference Oscillator	PA9043	27-NOV-2011	20-MAY-2012
8485A	Power Sensor	P9534	27-NOV-2011	24-MAY-2012
E4438C	Signal Generator	P9669	27-NOV-2011	22-SEP-2012
ET_51482	Reference Oscillator	P9243	28-NOV-2011	15-JAN-2012
ET_51482	Reference Oscillator	PA9048	28-NOV-2011	17-JUN-2012
E4413A	Power Sensor	PA9513	28-NOV-2011	14-JAN-2012
E4413A	Power Sensor	PA9514	28-NOV-2011	14-JAN-2012
E4419B	EPM Series Power Meter	P9625	28-NOV-2011	30-JUN-2012
E8257D	PSG ANALOG SIGNAL GENERATOR	PA9230	28-NOV-2011	04-NOV-2012